![ABB logo]

AC500 product family

—

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2 Regulations

Planning and installation of the electrical system

The planning and installation of the electrical system must be carried out in compliance with the applicable regulations and standards. Hazards due to malfunctions must be prevented by taking appropriate measures.

The suitability of the products for the respective application is proven by declarations of conformity and certificates.

The PLC Automation catalog contains an
overview of the available declarations of conformity and certificates.

Qualified personnel

Both the AC500 control system and other components in the vicinity are operated with dangerous touch voltages. Touching live components can lead to serious health implications or even death.

To avoid such risks and the occurrence of property damage, persons involved in the installation, commissioning and maintenance must have relevant knowledge about:

- Automation technology
- Handling of hazardous voltages
- Application of relevant standards and regulations, accident prevention regulations and regulations on special environmental conditions (e.g., hazardous areas due to explosive substances, heavy soiling or corrosive influences).

3 Safety instructions

Relevant standards and regulations, accident prevention regulations and regulations on special environmental conditions must be observed (e.g., hazardous areas due to explosive substances, heavy soiling or corrosive influences).

The devices must be handled and operated within the specified technical data and system data.

The devices contain no serviceable parts and must not be opened.

Removable covers must be closed during operation unless otherwise specified.

Any liability for the consequences of incorrect use or unauthorized repairs is rejected.

Qualified personnel

Both the AC500 control system and other components in the vicinity are operated with dangerous touch voltages. Touching live components can lead to serious health implications or even death.

To avoid such risks and the occurrence of property damage, persons involved in the installation, commissioning and maintenance must have relevant knowledge about:

● Automation technology
● Handling of hazardous voltages
● Application of relevant standards and regulations, accident prevention regulations and regulations on special environmental conditions (e.g., hazardous areas due to explosive substances, heavy soiling or corrosive influences).

Functional safety

The *AC500-S safety user manual* must be read and understood before using the safety configuration and programming tools of Automation Builder/PS501 Control Builder Plus. Only qualified personnel are permitted to work with AC500-S safety PLCs.

General information

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variants and requirements associated with any particular installation, ABB cannot assume responsibility or liability for actual use based on the examples and diagrams.

The PLC was developed according to the relevant standards. Any module-specific measures are described in the individual descriptions of the modules.

PLC-specific safety notices

> *The product family AC500 control system is designed according to the EN 61131-2 and IEC 61131-2 standards. Any data that differs from IEC 61131-2, is due to the higher requirements of Maritime Services. Other differences are described in the technical data description of the devices.*

> **!**
>
> **NOTICE!**
>
> **Avoidance of electrostatic charging**
>
> PLC devices and equipment are sensitive to electrostatic discharge, which can cause internal damage and affect normal operation. Observe the following rules when handling the system:
>
> – Touch a grounded object to discharge potential static.
> – Wear an approved grounding wrist strap.
> – Do not touch connectors or pins on component boards.
> – Do not touch circuit components inside the equipment.
> – If available, use a static-safe workstation.
> – When not in use, store the equipment in appropriate static-safe packaging.

> **!**
>
> **NOTICE!**
> **Use of suitable enclosure**
> The devices must be mounted in a control cabinet that ensures compliance with the specified environmental conditions.

> **i**
>
> *Cleaning instructions*
> *Do not use cleaning agent for cleaning the device.*
> *Use a damp cloth instead.*

Connection plans and a user program must be created so that no dangerous situations can occur during normal operation or failure.

The application must be tested to ensure that no dangerous situations can occur during operation.

> **i**
>
> *Do not operate devices outside of the specified, technical data!*
> *Trouble-free functioning cannot be ensured outside of the specified data.*

> **!**
>
> **NOTICE!**
> **PLC damage due to missing grounding**
> – Make sure to ground the devices.
> – The grounding (switch cabinet grounding) is supplied both by the mains connection (or 24 V supply voltage) and via the DIN rail. The DIN rail must be connected to ground before power is supplied to the device. The grounding may be removed only if it is certain that no more power is being supplied to the control system.
> – In case of screw mounting, use metal screws for grounding.

> ⚠
>
> **CAUTION!**
> **Do not obstruct the ventilation for cooling!**
> The ventilation slots on the upper and lower sides of the devices must not be covered.

> ⚠
>
> **CAUTION!**
> **Run signal and power wiring separately!**
> Signal and supply lines (power cables) must be laid out so that no malfunctions due to capacitive and inductive interference can occur (EMC).

> ⚠
>
> **WARNING!**
> **Warning sign on the module!**
> This indicates that dangerous voltages may be present or that surfaces may have dangerous temperatures.

WARNING!

Splaying of strands can cause hazards!

Avoid splayed strands when wiring terminals with stranded conductors.

– Ferrules can be used to prevent splaying.

WARNING!

Removal/Insertion under power

Removal or insertion under power is permissible only if all conditions for hot swapping are fullfilled.

 "Conditions for hot swap" on page 33

The devices are not designed for removal or insertion under power when the conditions for hot swap do not apply. Because of unforeseeable consequences, it is not allowed to plug in or unplug devices with the power being ON.

Make sure that all voltage sources (supply and process voltage) are switched off before you

– connect or disconnect any signal or terminal block
– remove, mount or replace a module.

Disconnecting any powered devices while they are energized in a hazardous location could result in an electric arc, which could create an ignition source resulting in fire or explosion.

Prior to proceeding, make sure that power is been disconnected and that the area has been thoroughly checked to ensure that flammable materials are not present.

The devices must not be opened when in operation. The same applies to the network interfaces.

Conditions for hot swap

Hot swap

System requirements for hot swapping of I/O modules:

– *Types of terminal units that support hot swapping of I/O modules have the appendix TU5xx-H.*
– *I/O modules as of index F0.*

The following I/O bus masters support hot swapping of attached I/O modules:

– *Communication interface modules CI5xx as of index F0.*
– *Processor modules PM56xx-2ETH with firmware version as of V3.2.0.*

NOTICE!

Risk of damage to I/O modules!

Hot swapping is only allowed for I/O modules.

Processor modules and communication interface modules must not be removed or inserted during operation.

> *Conditions for hot swapping*
> – *Digital outputs are not under load.*
> – *Input/output voltages above safety extra low voltage/ protective extra low voltages (SELV/PELV) are switched off.*
> – *Modules are completely plugged on the terminal unit with both snap fit engaged before switching on loads or input/output voltage.*

Information on batteries

CAUTION!

Use only ABB approved lithium battery modules!

At the end of the battery's lifetime, always replace it only with a genuine battery module.

CAUTION!

Risk of explosion!

Do not open, re-charge or disassemble lithium batteries. Attempting to charge lithium batteries will lead to overheating and can cause explosions.

Protect them from heat and fire and store them in a dry place.

Never short-circuit or operate lithium batteries with the polarities reversed. The batteries are likely to overheat and explode. Avoid unintentional short circuiting do not store batteries in metal containers and do not place them on metallic surfaces. Escaping lithium is a health hazard.

> *Environment considerations*
> *Recycle exhausted batteries. Dispose of batteries in an environmentally conscious manner in accordance with regulations issued by the local authorities.*

4 AC522(-XC)

- AC522
- AC522-XC

⚠ **CAUTION!**

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

- – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
- – Only by qualified personnel.

Hot swap

⚠ **WARNING!**

Risk of explosion or fire in hazardous environments during hot swapping!

Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

> ⚠️ **WARNING!**
>
> **Electric shock due to negligent behavior during hot swapping!**
>
> To avoid electric shock
>
> - make sure the following conditions apply:
>   - Digital outputs are not under load.
>   - Input/output voltages above safety extra low voltage/ protective extra low voltage (SELV/PELV) are switched off.
>   - Modules are fully interlocked with the terminal unit with both snap-fits engaged before switching on loads or input/output voltage.
> - Never touch exposed contacts (dangerous voltages).
> - Stay away from electrical contacts to avoid arc discharge.
> - Do not operate a mechanical installation improperly.

> ❗ **NOTICE!**
>
> **Risk of damage to I/O modules!**
>
> Hot swapping is only allowed for I/O modules.
>
> Processor modules and communication interface modules must not be removed or inserted during operation.

H = **H**ot swap

> ℹ️ *Hot swap*
>
> *System requirements for hot swapping of I/O modules:*
>
> - *Types of terminal units that support hot swapping of I/O modules have the appendix TU5xx-**H**.*
> - *I/O modules as of index F0.*
>
> *The following I/O bus masters support hot swapping of attached I/O modules:*
>
> - *Communication interface modules CI5xx as of index F0.*
> - *Processor modules PM56xx-2ETH with firmware version as of V3.2.0.*

> ℹ️ *Hot swap is not supported by AC500-eCo V3 CPU!*

> The index of the module is in the right corner of the label.

NOTICE!
Risk of damage to I/O modules!
Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

NOTICE!
Risk of damage to I/O modules!
Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.

For min. required device index see table below.

Device	Min. required device index for I/O module as of FW Version 3.0.14
AC522(-XC)	F0
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DA502 (-XC)	F0
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

4.1 Assembly

4.2 Disassembly
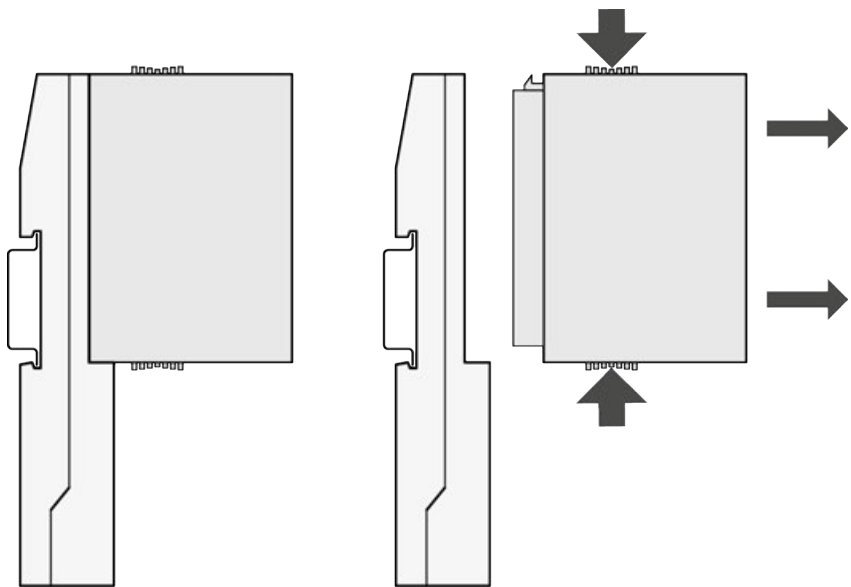
4.3 Dimensions
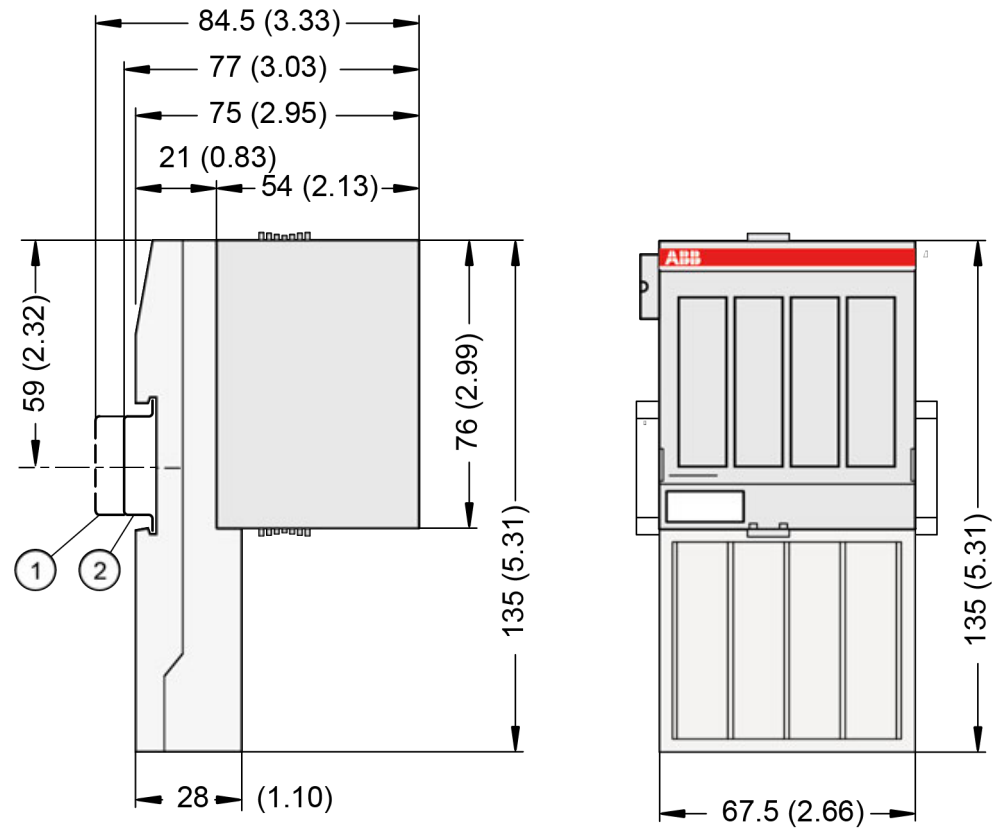
1   Din rail 15 mm
2   Din rail 7.5 mm

> ⓘ   *The dimensions are in mm and in brackets in inch.*

4.4 Connections
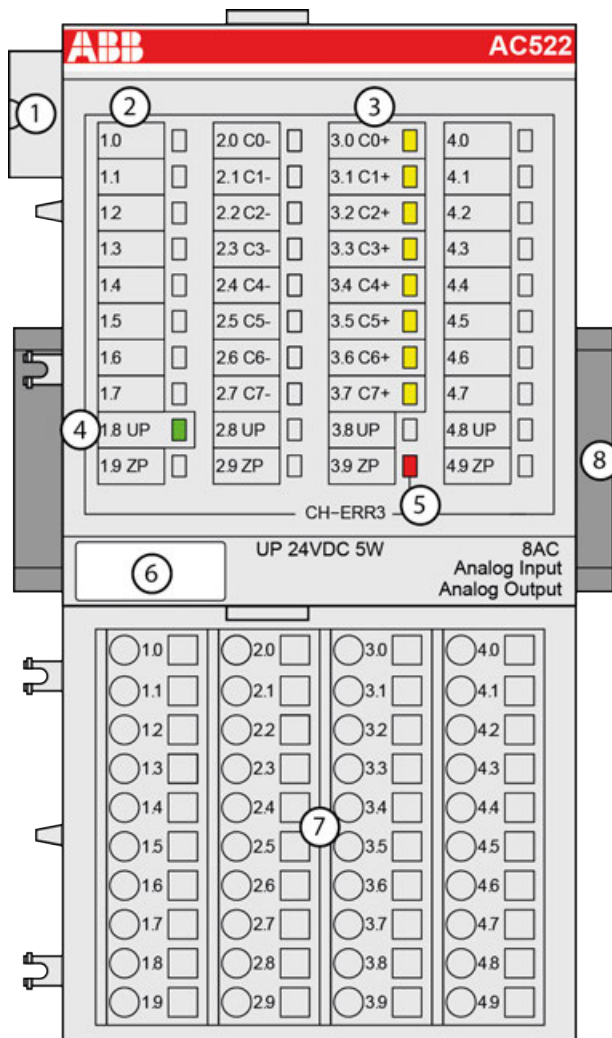
1   I/O bus
2   Allocation between terminal number and signal name
3   8 yellow LEDs to display the signal states at the analog inputs/outputs (C0 ... C7)
4   1 green LED to display the state of the process supply voltage UP
5   1 red LED to display errors
6   Label
7   Terminal unit
8   DIN rail
❊   Sign for XC version

> *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

4.4.1 Process supply voltage
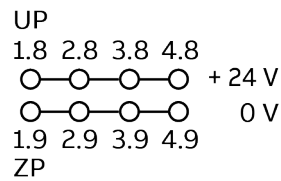
```
                UP
                1.8  2.8  3.8  4.8
                O——O——O——O  + 24 V
                O——O——O——O    0 V
                1.9  2.9  3.9  4.9
                ZP
```

> ⚠️ **CAUTION!**
>
> The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

4.4.2 Inputs/Outputs

```
C0+  3.0                C4+  3.4
C0−  2.0                C4−  2.4

C1+  3.1                C5+  3.5
C1−  2.1                C5−  2.5

C2+  3.2                C6+  3.6
C2−  2.2                C6−  2.6

C3+  3.3                C7+  3.7
C3−  2.3                C7−  2.7
```
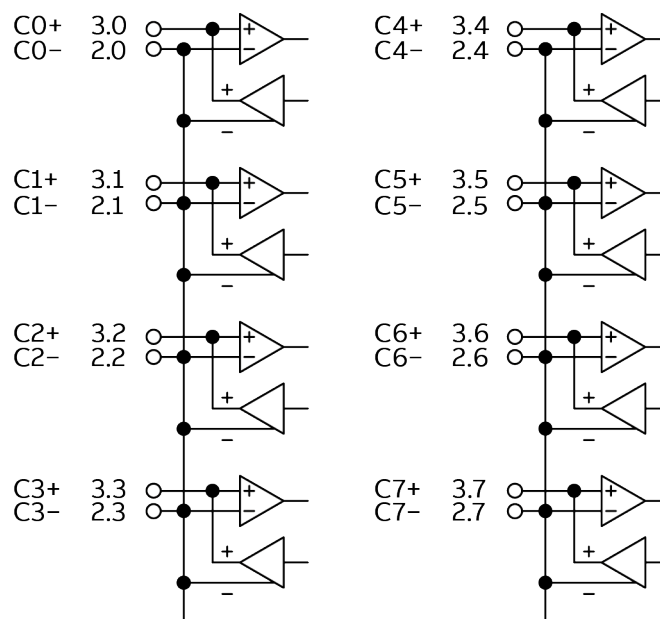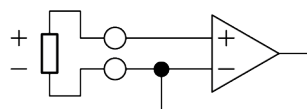
Examples

C0 ... C7
0 V ... +10 V
± 10 V
0 mA ... +20 mA
+4 mA ... +20 mA
Pt100 / Pt1000
Ni1000

Fig. 1: Example of connection input
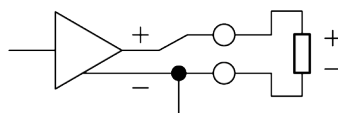
C0 ... C3	C4 ... C7
± 10 V	± 10 V
0 mA ... +20 mA	–
+4 mA ... +20 mA	–

Fig. 2: Example of connection output

4.5 Cleaning

> **Cleaning instructions**
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

4.6 Certification

MSIP-REI-Abb-AC500

| en | | Devices with KCC sign on product sticker and packaging |
| ko | | 제품 스티커 및 포장에 **KCC** 표시가 된 기기 |

| en | Note
These devices correspond to: | KN61000-6-2 "Immunity for industrial environments",
KN61000-6-4 "Emission standard for industrial environments" |
| ko | 참고
이러한 기기는 | KN61000-6-2 "산업 환경에 대한 내성",
KN61000-6-4 "산업 환경 누출 기준"에 적합함 |

4.7 Recycling

> **Disposal and recycling information**
>
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

5 AI523(-XC)

- AI523
- AI523-XC

⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

Hot swap

⚠	**WARNING!**
	Risk of explosion or fire in hazardous environments during hot swapping!
	Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

> ⚠️ **WARNING!**
>
> **Electric shock due to negligent behavior during hot swapping!**
>
> To avoid electric shock
>
> – make sure the following conditions apply:
>   – Digital outputs are not under load.
>   – Input/output voltages above safety extra low voltage/
>   protective extra low voltage (SELV/PELV) are switched off.
>   – Modules are fully interlocked with the terminal unit with both snap-fits
>   engaged before switching on loads or input/output voltage.
> – Never touch exposed contacts (dangerous voltages).
> – Stay away from electrical contacts to avoid arc discharge.
> – Do not operate a mechanical installation improperly.

> ❗ **NOTICE!**
>
> **Risk of damage to I/O modules!**
>
> Hot swapping is only allowed for I/O modules.
>
> Processor modules and communication interface modules must not be removed
> or inserted during operation.

H = **H**ot swap

> ℹ️ *Hot swap*
>
> *System requirements for hot swapping of I/O modules:*
>
> – *Types of terminal units that support hot swapping of I/O modules have the
>   appendix TU5xx-**H**.*
> – *I/O modules as of index F0.*
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> *The following I/O bus masters support hot swapping of attached I/O modules:*
>
> – *Communication interface modules CI5xx as of index F0.*
> – *Processor modules PM56xx-2ETH with firmware version as of V3.2.0.*

> ℹ️ *Hot swap is not supported by AC500-eCo V3 CPU!*

> ⓘ *The index of the module is in the right corner of the label.*

> **!** **NOTICE!**
> **Risk of damage to I/O modules!**
> Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

> **!** **NOTICE!**
> **Risk of damage to I/O modules!**
> Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.
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Device	Min. required device index for I/O module as of FW Version 3.0.14
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AI531	D4
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AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DA502 (-XC)	F0
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

5.1 Assembly

5.2 Disassembly
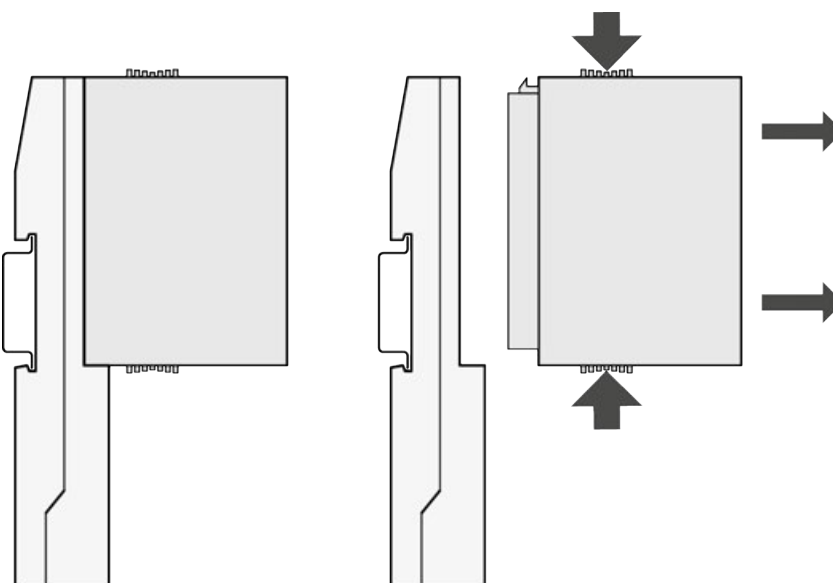
5.3 Dimensions
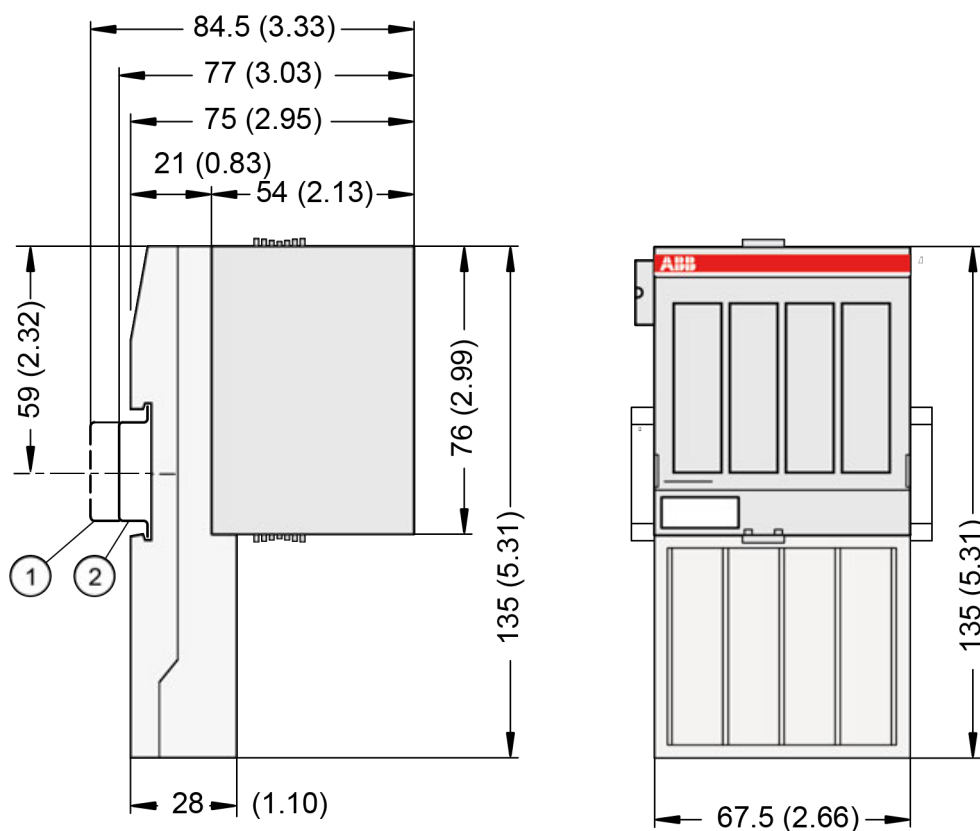
1   Din rail 15 mm
2   Din rail 7.5 mm

The dimensions are in mm and in brackets in inch.

5.4 Connections
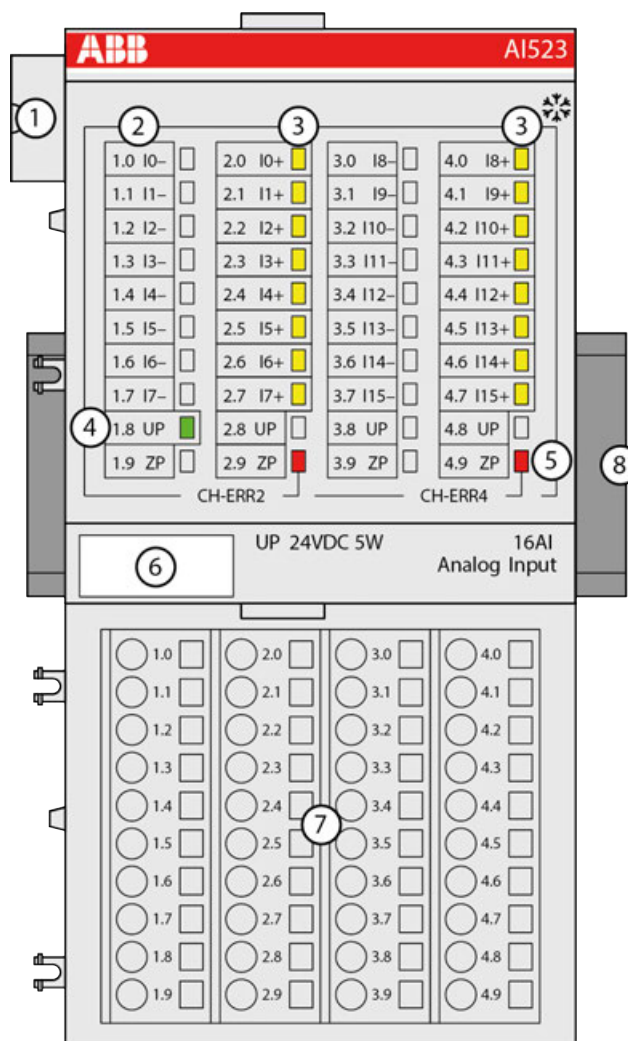
1   I/O bus
2   Allocation between terminal number and signal name
3   16 yellow LEDs to display the signal states at the analog inputs (I0 ... I15)
4   1 green LED to display the state of the process supply voltage UP
5   2 red LEDs to display errors
6   Label
7   Terminal unit
8   DIN rail
❄   Sign for XC version

> *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

5.4.1 Process supply voltage

UP
1.8 2.8 3.8 4.8
○──○──○──○ + 24 V
○──○──○──○   0 V
1.9 2.9 3.9 4.9
ZP

> ⚠ **CAUTION!**
>
> The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

5.4.2 Inputs

I0+	2.0	I8+	4.0
I0−	1.0	I8−	3.0
I1+	2.1	I9+	4.1
I1−	1.1	I9−	3.1
I2+	2.2	I10+	4.2
I2−	1.2	I10−	3.2
I3+	2.3	I11+	4.3
I3−	1.3	I11−	3.3
I4+	2.4	I12+	4.4
I4−	1.4	I12−	3.4
I5+	2.5	I13+	4.5
I5−	1.5	I13−	3.5
I6+	2.6	I14+	4.6
I6−	1.6	I14−	3.6
I7+	2.7	I15+	4.7
I7−	1.7	I15−	3.7
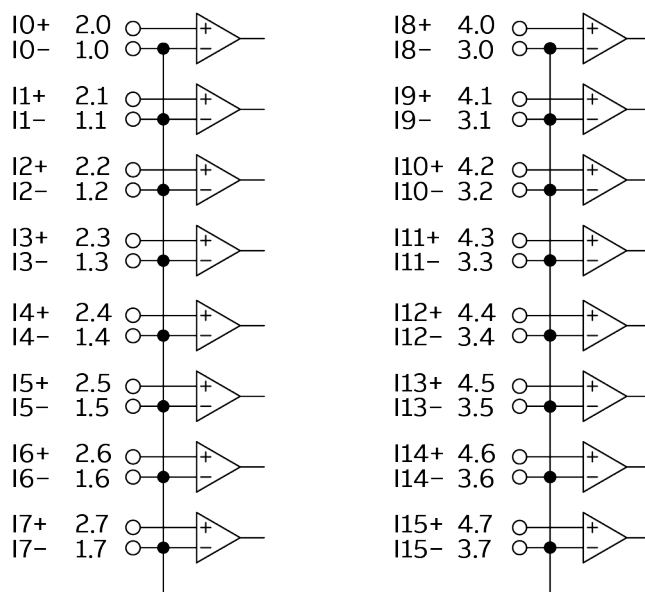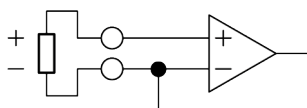
Example

I0 ... I15
0 V ... +10 V
± 10 V
0 mA ... +20 mA
+4 mA ... +20 mA
Pt100 / Pt1000
Ni1000

Fig. 3: Example of connection input

5.5 Cleaning

> ⓘ ***Cleaning instructions***
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

5.6 Certification

KC MSIP-REI-Abb-AC500	en	Devices with KCC sign on product sticker and packaging	
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기	
en	**Note** These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"	
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함	

5.7 Recycling

> ⓘ ***Disposal and recycling information***
>
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

6 AI531(-XC)

- AI531
- AI531-XC

⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

Hot swap

⚠	**WARNING!**
	Risk of explosion or fire in hazardous environments during hot swapping!
	Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

> **WARNING!**
>
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> To avoid electric shock
>
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> – Never touch exposed contacts (dangerous voltages).
> – Stay away from electrical contacts to avoid arc discharge.
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> **NOTICE!**
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> **Risk of damage to I/O modules!**
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> Hot swapping is only allowed for I/O modules.
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H = **H**ot swap

> *Hot swap*
>
> *System requirements for hot swapping of I/O modules:*
>
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>
> *The following I/O bus masters support hot swapping of attached I/O modules:*
>
> – *Communication interface modules CI5xx as of index F0.*
> – *Processor modules PM56xx-2ETH with firmware version as of V3.2.0.*

> *Hot swap is not supported by AC500-eCo V3 CPU!*

> ⓘ *The index of the module is in the right corner of the label.*

> **!** **NOTICE!**
> **Risk of damage to I/O modules!**
> Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

> **!** **NOTICE!**
> **Risk of damage to I/O modules!**
> Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.
>
> For min. required device index see table below.

Device	Min. required device index for I/O module as of FW Version 3.0.14
AC522(-XC)	F0
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DA502 (-XC)	F0
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

6.1 Assembly

6.2 Disassembly
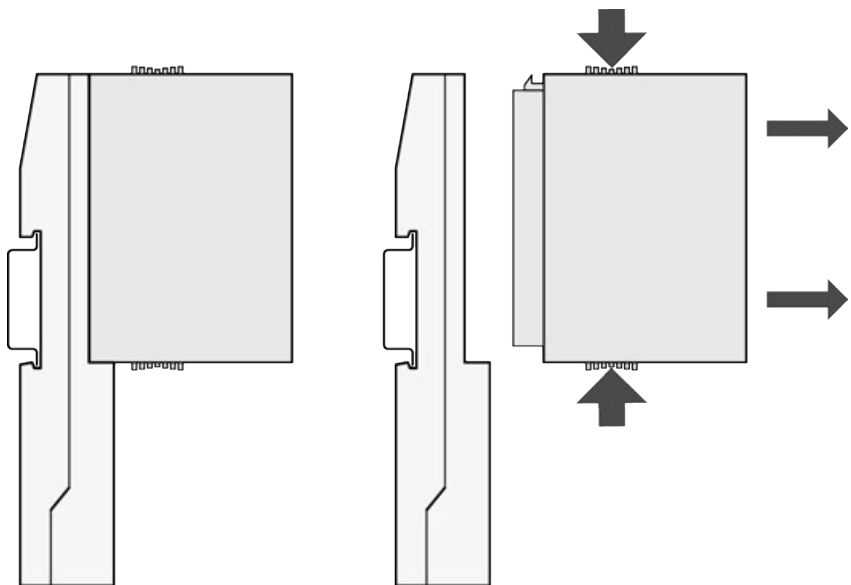
6.3 Dimensions

84.5 (3.33)

77 (3.03)

75 (2.95)

21 (0.83)

54 (2.13)

59 (2.32)

76 (2.99)

135 (5.31)

① ②

28 (1.10)

135 (5.31)

67.5 (2.66)
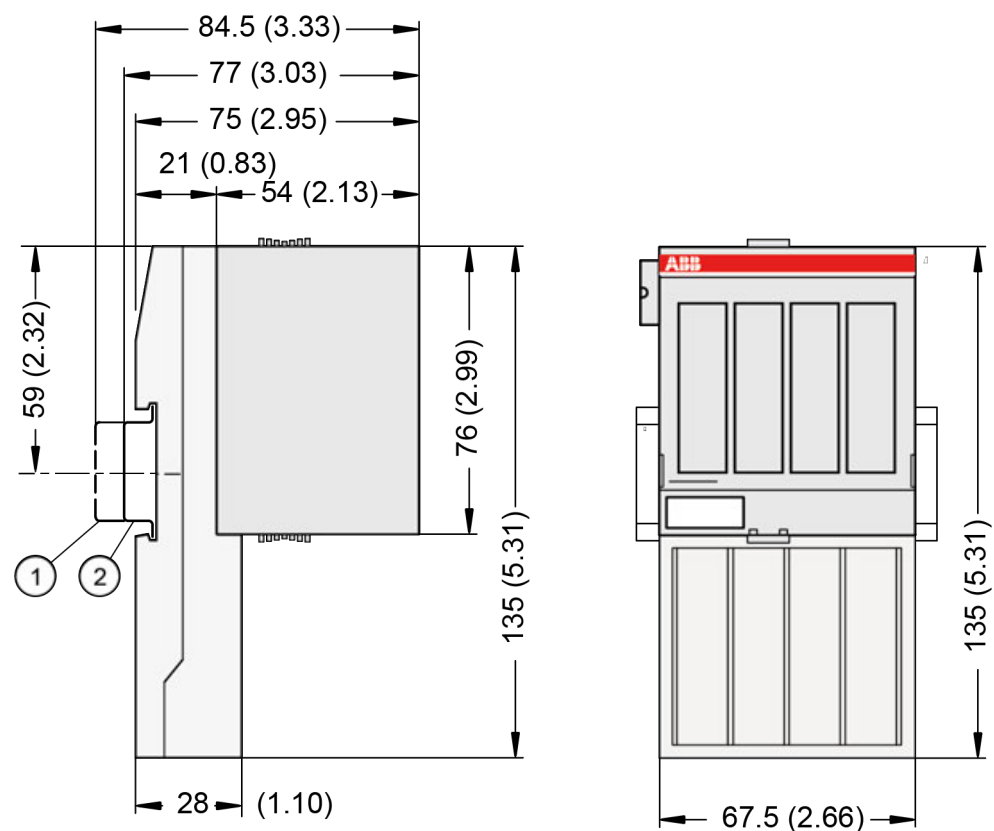
1 Din rail 15 mm
2 Din rail 7.5 mm

ⓘ *The dimensions are in mm and in brackets in inch.*

6.4 Connections
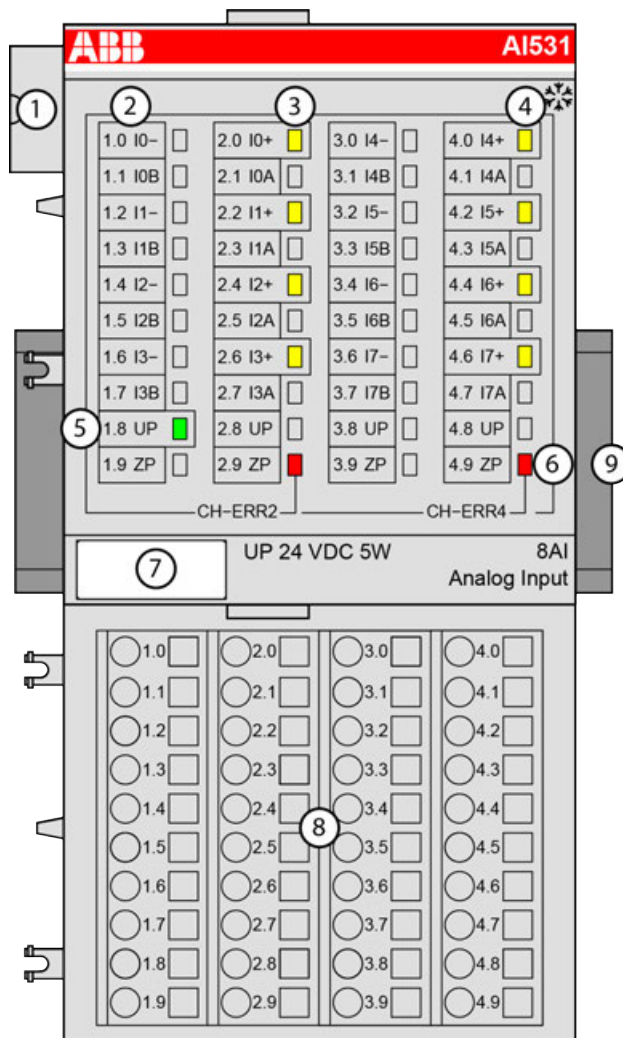
1   I/O bus
2   Allocation between terminal number and signal names
3   4 yellow LEDs to display the states at the inputs I0 ... I3
4   4 yellow LEDs to display the states at the inputs I4 ... I7
5   1 green LED to display the process supply voltage UP
6   2 red LEDs to display errors (CH-ERR2 and CH-ERR4)
7   Label
8   Terminal unit
9   DIN rail
✳ Sign for XC version

> *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

6.4.1 Process supply voltage
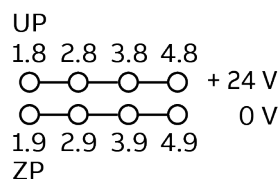
UP
1.8 2.8 3.8 4.8
O—O—O—O + 24 V
O—O—O—O   0 V
1.9 2.9 3.9 4.9
ZP

⚠	**CAUTION!** The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

6.4.2 Inputs

I0A	2.1		I4A	4.1
I0+	2.0		I4+	4.0
I0−	1.0		I4−	3.0
I0B	1.1		I4B	3.1

I1A	2.3		I5A	4.3
I1+	2.2		I5+	4.2
I1−	1.2		I5−	3.2
I1B	1.3		I5B	3.3

I2A	2.5		I6A	4.5
I2+	2.4		I6+	4.4
I2−	1.4		I6−	3.4
I2B	1.5		I6B	3.5

I3A	2.7		I7A	4.7
I3+	2.6		I7+	4.6
I3−	1.6		I7−	3.6
I3B	1.7		I7B	3.7

AGND   AGND

PTC ϑ   ϑ PTC

1.8   2.8   3.8   4.8
UP O   O   O   O
ZP O   O   O   O
1.9   2.9   3.9   4.9
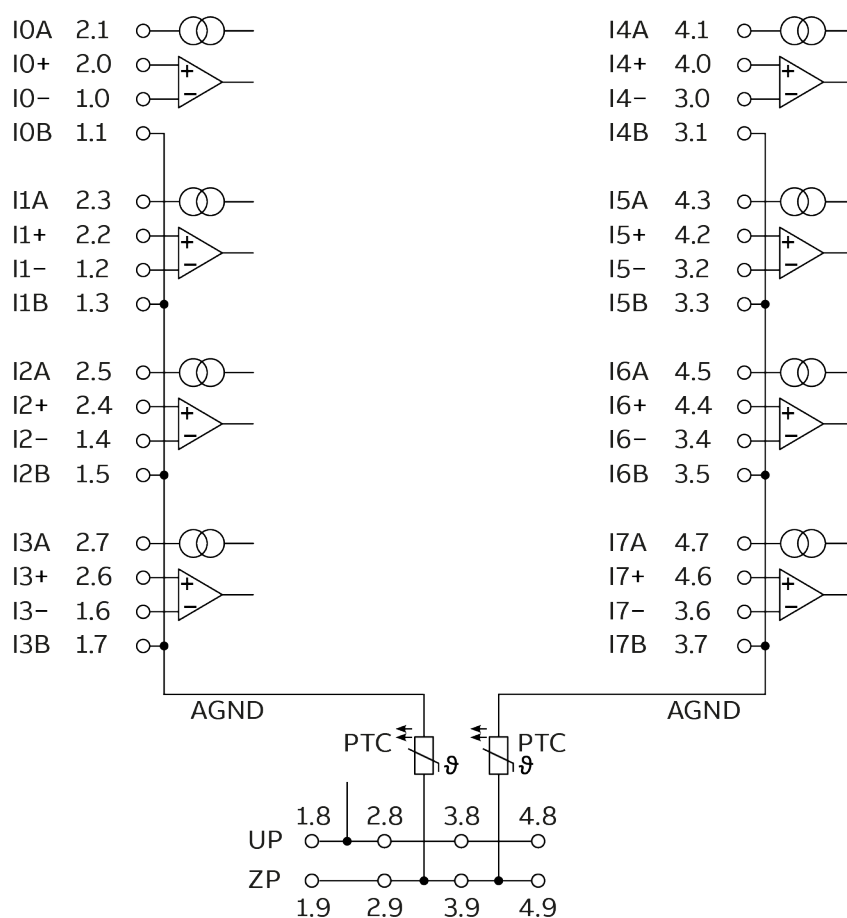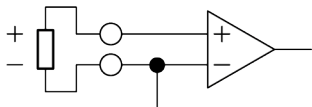
Example

I0 ... I7
-50 mV... +50 mV
-500 mV ... +500 mV
-1 V ... +1 V
-5 V ... +5 V
-10 V... +10 V
0 V ... +5 V
0 V ... +10 V
0 mA ... +20 mA
+4 mA ... +20 mA
0 Ω ... 50 kΩ
Pt100 / Pt1000
Ni1000
Cu50
Thermo J, K, T, N, S
Digital Input

Fig. 4: Example of connection input

6.5 Cleaning

> ***Cleaning instructions***
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

6.6 Certification

	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

MSIP-REI-Abb-AC500

en	Note These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

6.7 Recycling

> **Disposal and recycling information**
>
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

7 AI561

- AI561
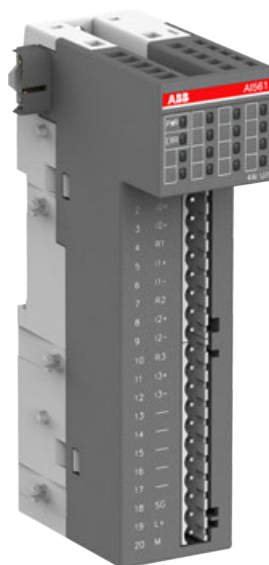
⚠	**CAUTION!** **Risk of injury and damaging the product!** Improper installation and maintenance may result in injury and can damage the product! – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1. – Read product documentation carefully before wiring. Improper wiring or wrong terminal block from other devices can damage the product! – Only by qualified personnel.
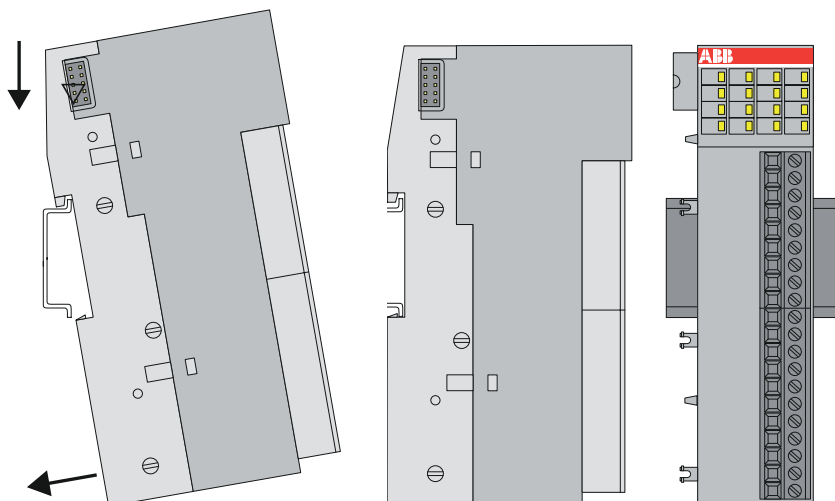
⚠	**CAUTION!** Do not use this module together with the DC505-FBP/CI590-CS31-HA module.
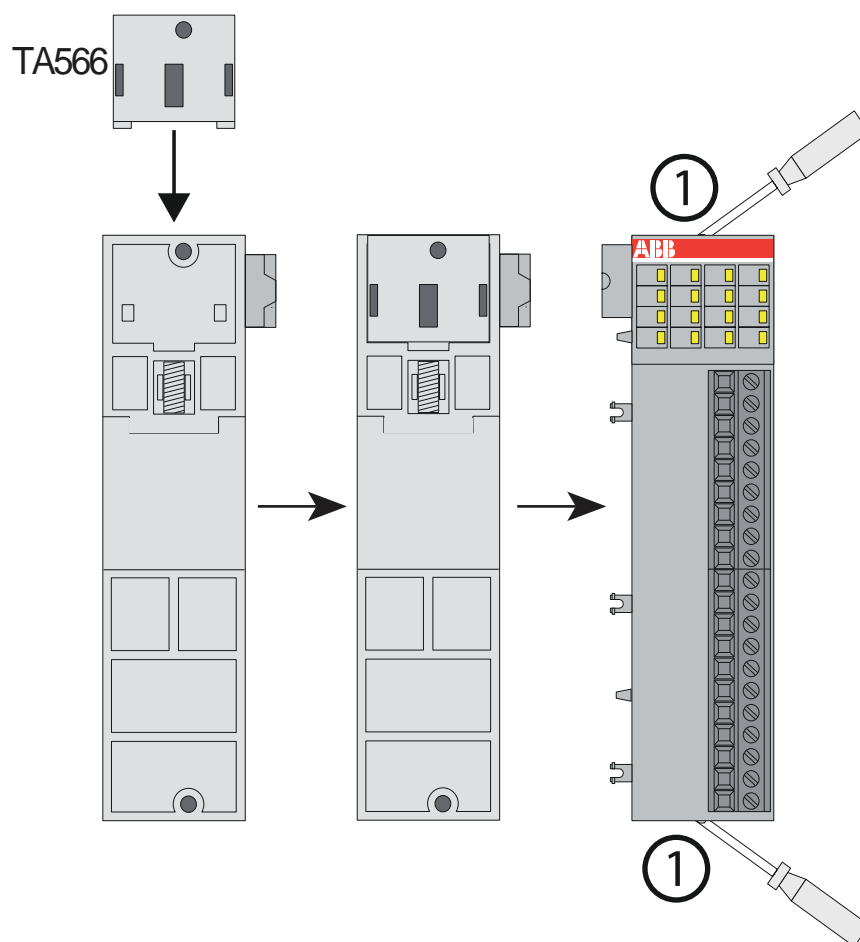
7.1 Assembly

7.2 Disassembly
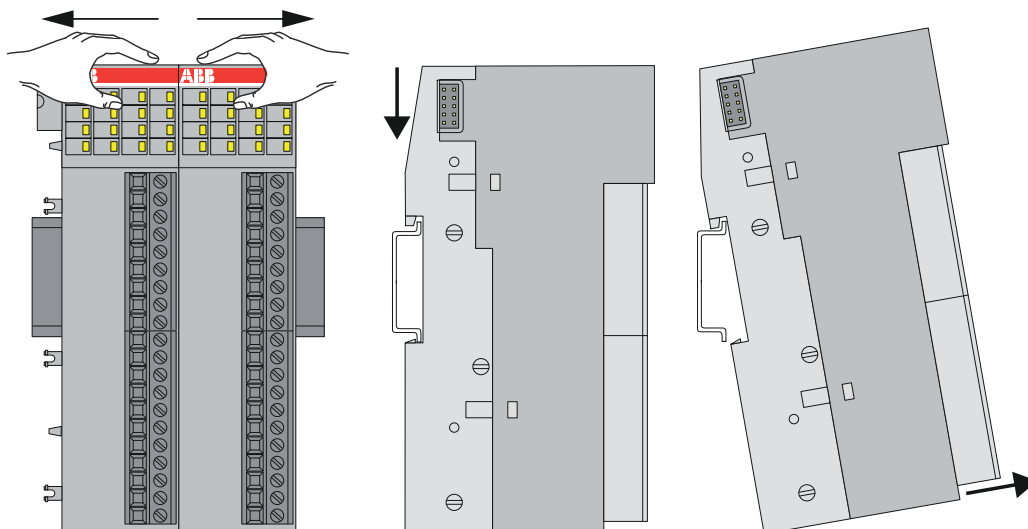
7.3 Assembly with screws
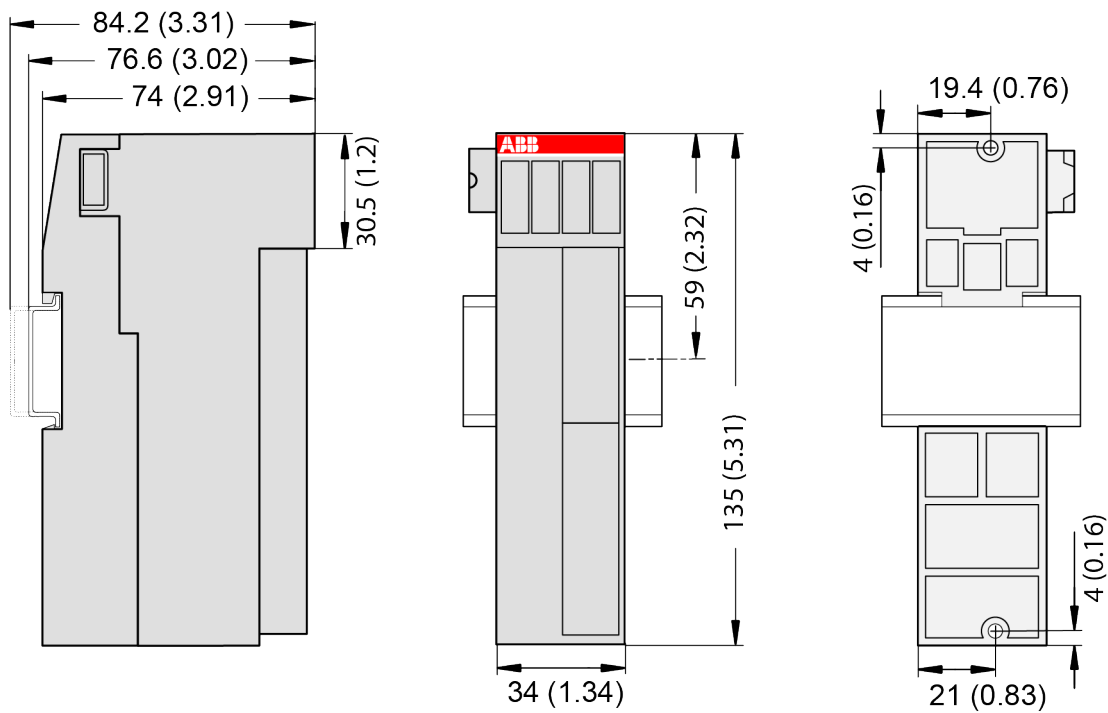
TA566

1   Fasten the module with two screws (max. diameter 4 mm)

! **NOTICE!**
The insertion of the accessories TA566 for wall mounting is essential.

7.4 Dimensions

The dimensions are in mm and in brackets in inch.

7.5 Connections

1   I/O bus
2   1 green LED to display power supply, 1 red LED to display error
3   Terminal number
4   Allocation of signal name
5   Terminal block for input signals (9-pin)
6   Terminal block for input signals (11-pin)
7   2 holes for wall-mounting with screws
8   DIN rail

> All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.

5	TA563-9	9-pin, screw, cable from front
	TA564-9	9-pin, screw, cable from side
	TA565-9	9-pin, spring, cable from front
6	TA563-11	11-pin, screw, cable from front

	TA564-11	11-pin, screw, cable from side
	TA565-11	11-pin, spring, cable from front

7.5.1 Inputs/Outputs
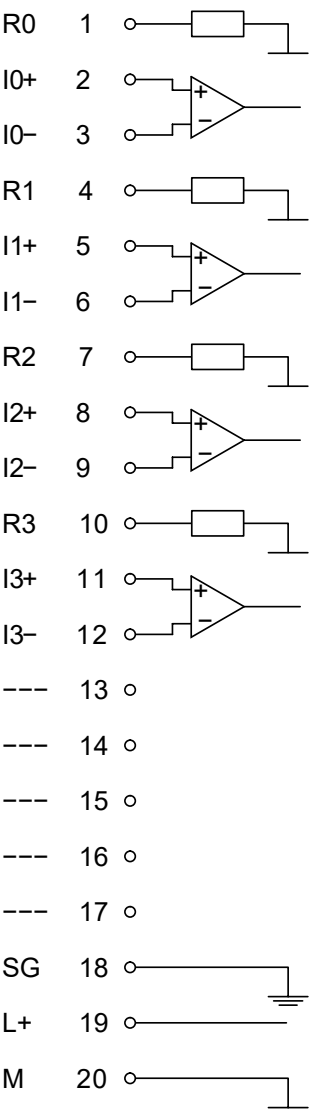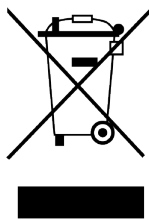
R0	1	
I0+	2	
I0−	3	
R1	4	
I1+	5	
I1−	6	
R2	7	
I2+	8	
I2−	9	
R3	10	
I3+	11	
I3−	12	
---	13	
---	14	
---	15	
---	16	
---	17	
SG	18	
L+	19	
M	20	

7.6 Cleaning

> ***Cleaning instructions***
> *Do not use cleaning agent for cleaning the device.*
> *Use a damp cloth instead.*

7.7 Certification

MSIP-REI-Abb-AC500-eCo	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	Note These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 누출 기준"에 적합함

7.8 Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

8 AI562

● AI562
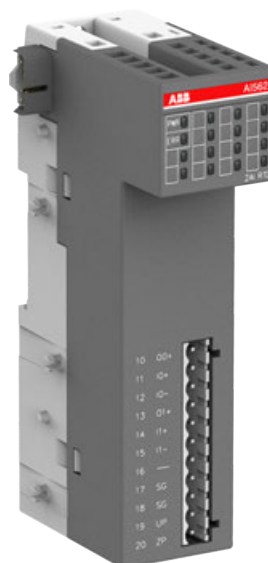
⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Read product documentation carefully before wiring. Improper wiring or wrong terminal block from other devices can damage the product!
	– Only by qualified personnel.
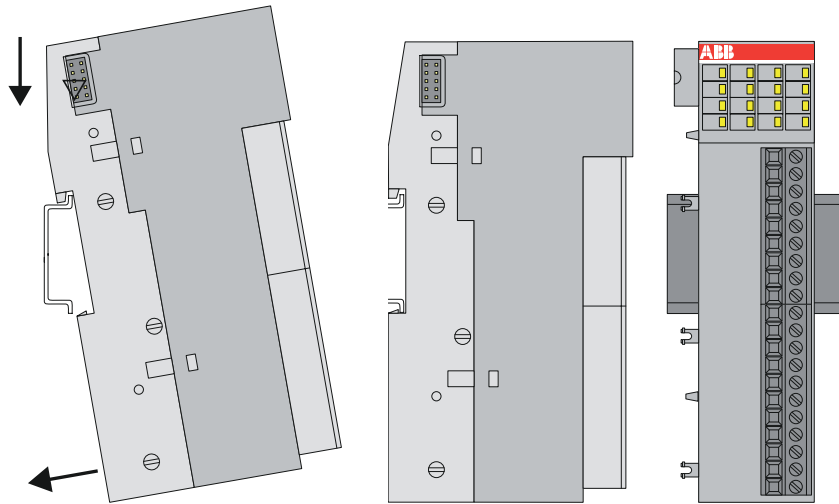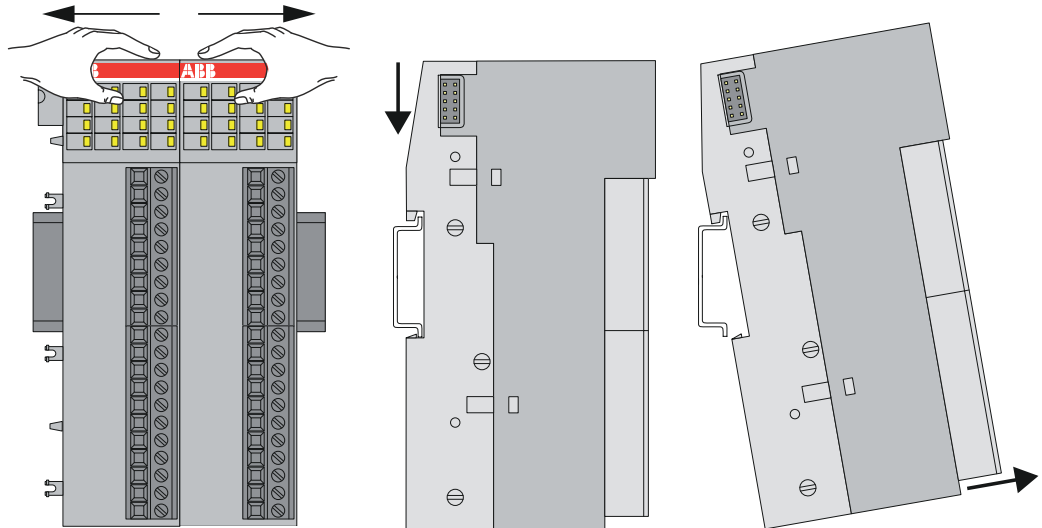
⚠	**CAUTION!**
	Do not use this module together with the DC505-FBP/CI590-CS31-HA module.

8.1 Assembly
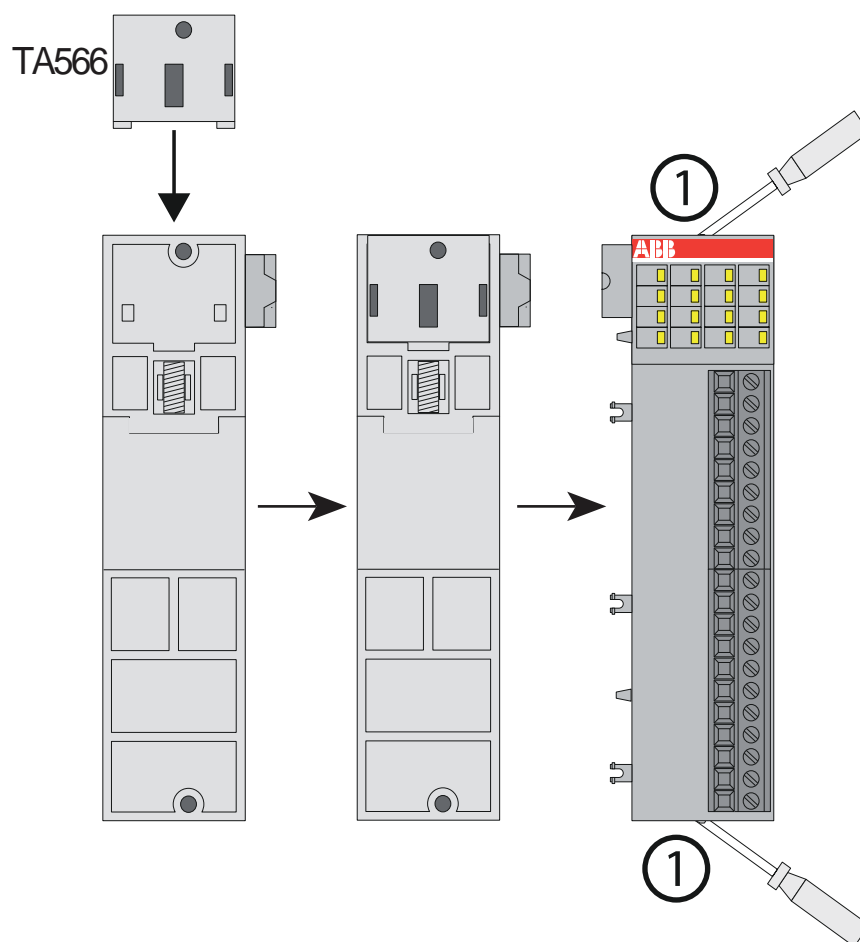
8.2 Disassembly

8.3 Assembly with screws
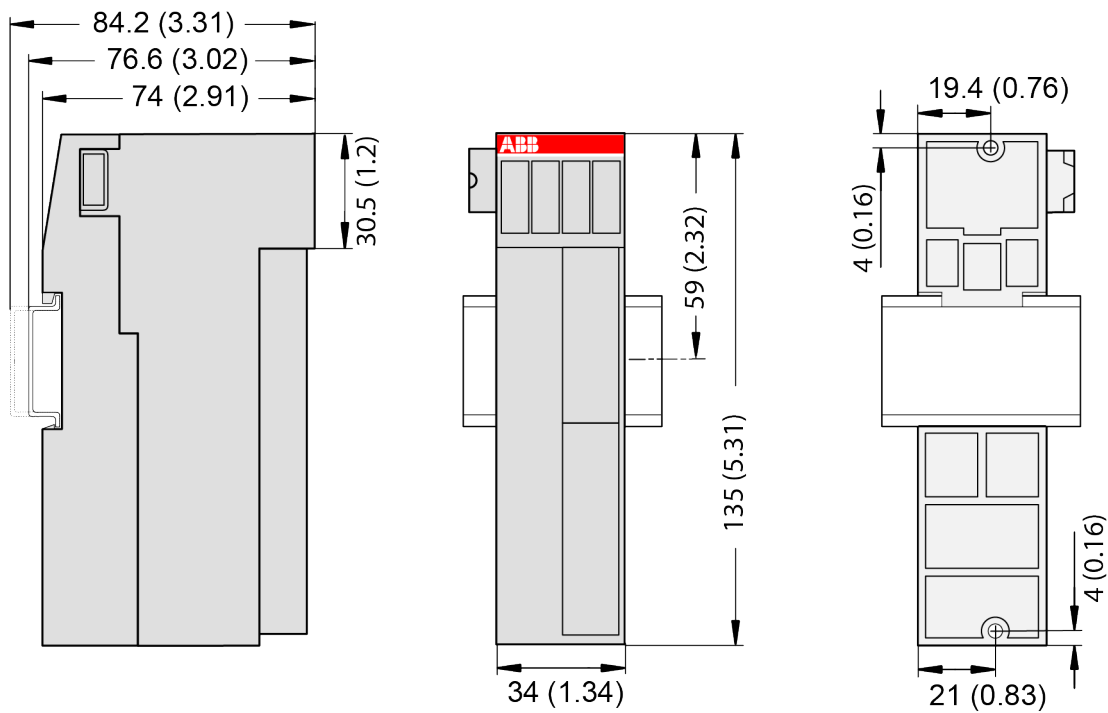
TA566

1   Fasten the module with two screws (max. diameter 4 mm)

! NOTICE!

The insertion of the accessories TA566 for wall mounting is essential.

8.4 Dimensions

84.2 (3.31)
76.6 (3.02)
74 (2.91)
30.5 (1.2)

ABB

59 (2.32)

135 (5.31)

34 (1.34)

19.4 (0.76)
4 (0.16)
4 (0.16)
21 (0.83)

> *The dimensions are in mm and in brackets in inch.*

8.5 Connections
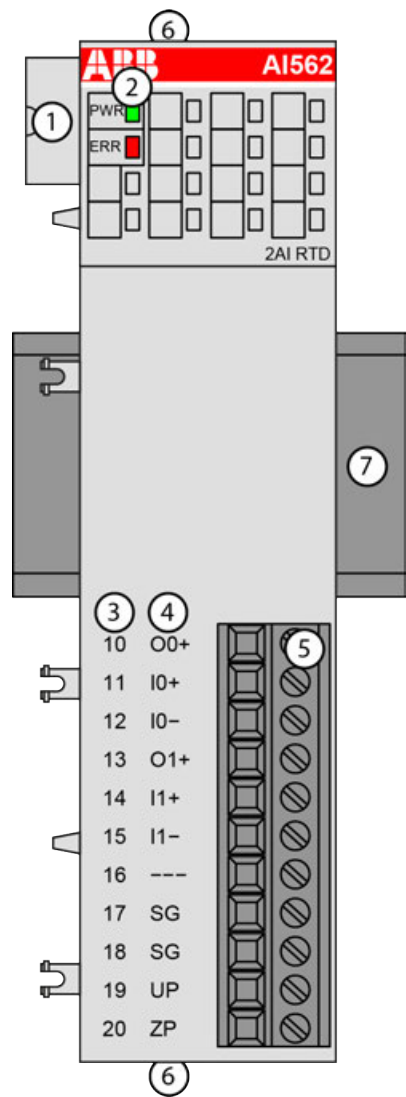
1   I/O bus
2   1 green LED to display power supply, 1 red LED to display error
3   Terminal number
4   Allocation of signal name
5   Terminal block for input signals (11-pin)
6   2 holes for wall-mounting with screws
7   DIN rail

> ℹ️ *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

5	TA563-11	11-pin, screw, cable from front
	TA564-11	11-pin, screw, cable from side
	TA565-11	11-pin, spring, cable from front

8.5.1 Inputs/Outputs
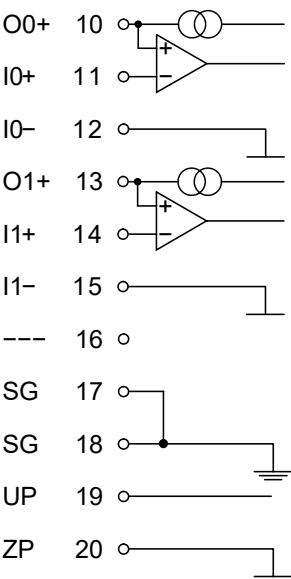
```
O0+   10  o──●──⊙⊙──────────────
I0+   11  o───▷──────────────
          │+
I0−   12  o──────────────┐
                         │
O1+   13  o──●──⊙⊙──────────────
I1+   14  o───▷──────────────
          │+
I1−   15  o──────────────┐
                         │
−−−   16  o
SG    17  o──┐
SG    18  o──●──────────┐
                       ═╧═
UP    19  o
ZP    20  o─────────────┘
```

8.6 Cleaning

> ⓘ **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

8.7 Certification

KC

MSIP-REI-Abb-AC500-eCo

| en | | Devices with KCC sign on product sticker and packaging |
| ko | | 제품 스티커 및 포장에 **KCC** 표시가 된 기기 |

| en | **Note** These devices correspond to: | KN61000-6-2 "Immunity for industrial environments", KN61000-6-4 "Emission standard for industrial environments" |
| ko | 참고 이러한 기기는 | KN61000-6-2 "산업 환경에 대한 내성", KN61000-6-4 "산업 환경 누출 기준"에 적합함 |

8.8 Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

9 AI563

- AI563
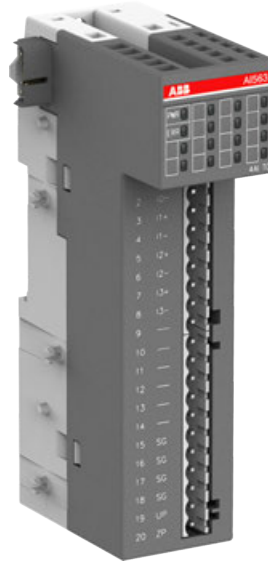
⚠️ **CAUTION!**

Risk of injury and damaging the product!
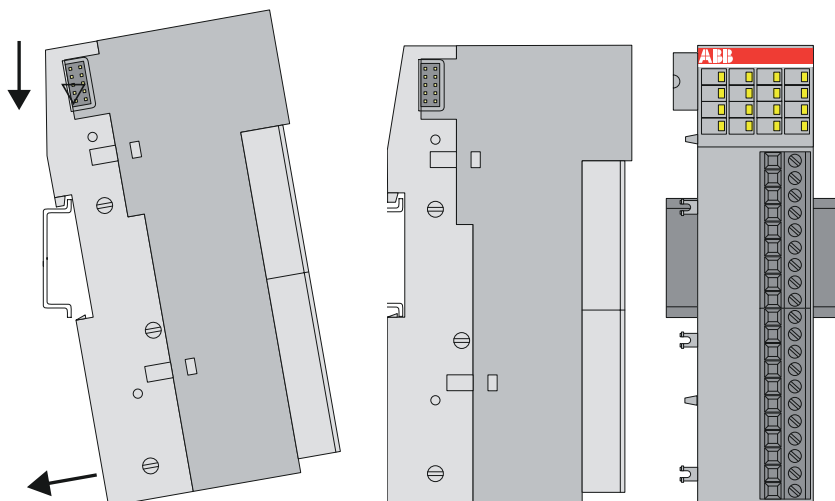
Improper installation and maintenance may result in injury and can damage the product!

– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
– Read product documentation carefully before wiring. Improper wiring or wrong terminal block from other devices can damage the product!
– Only by qualified personnel.

⚠️ **CAUTION!**

Do not use this module together with the DC505-FBP/CI590-CS31-HA module.
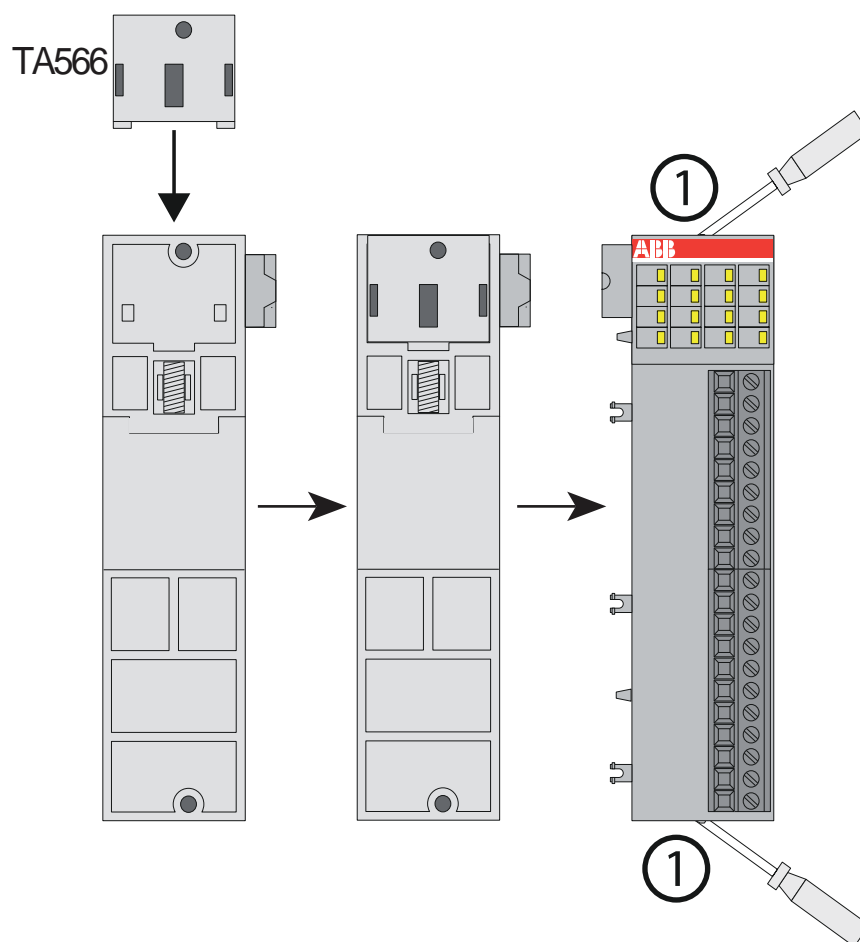
9.1 Assembly

9.2 Disassembly
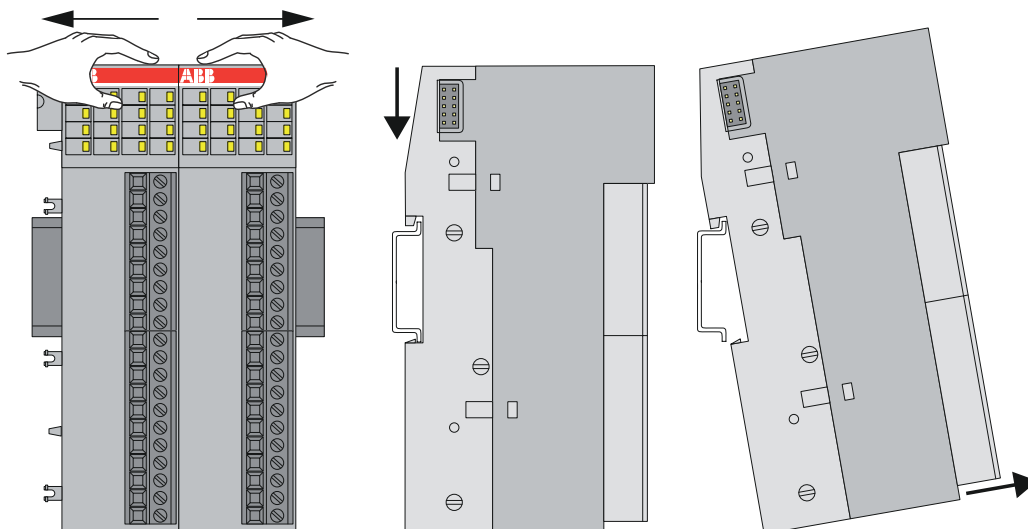
9.3 Assembly with screws

1   Fasten the module with two screws (max. diameter 4 mm)
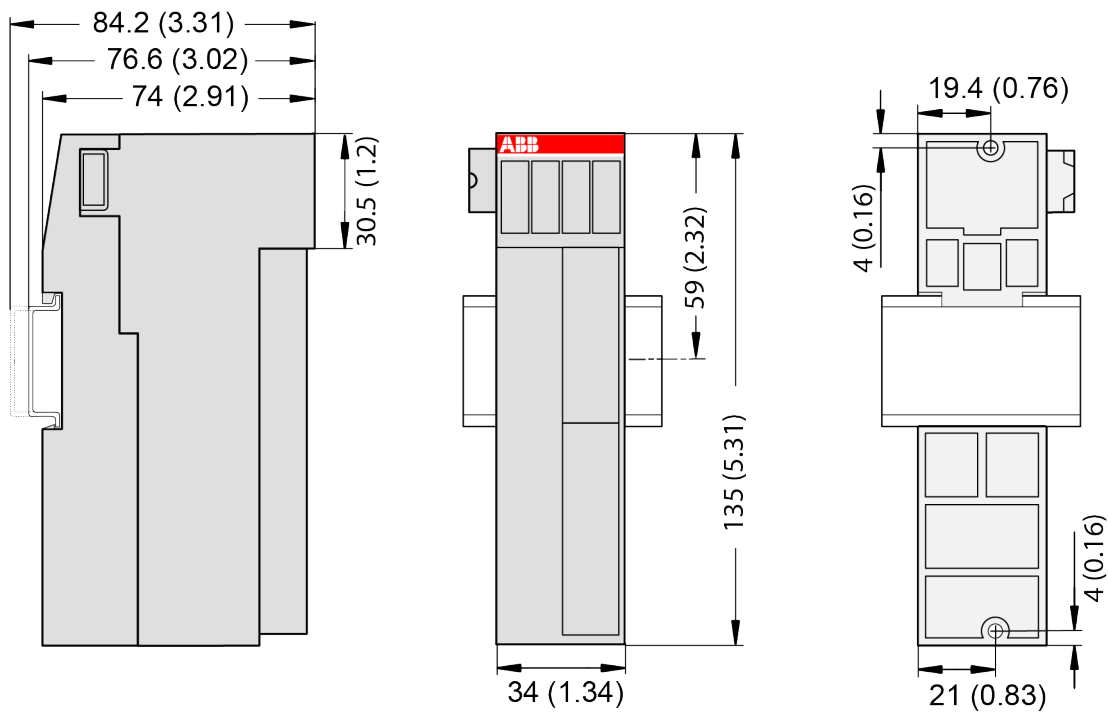
> **NOTICE!**
> The insertion of the accessories TA566 for wall mounting is essential.

9.4 Dimensions

84.2 (3.31)
76.6 (3.02)
74 (2.91)
30.5 (1.2)
59 (2.32)
135 (5.31)
34 (1.34)
19.4 (0.76)
4 (0.16)
4 (0.16)
21 (0.83)

The dimensions are in mm and in brackets in inch.

9.5 Connections

1   I/O bus
2   1 green LED to display power supply, 1 red LED to display error
3   Terminal number
4   Allocation of signal name
5   Terminal block for input signals (9-pin)
6   Terminal block for input signals (11-pin)
7   2 holes for wall-mounting with screws
8   DIN rail

> *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

5	TA563-9	9-pin, screw, cable from front
	TA564-9	9-pin, screw, cable from side
	TA565-9	9-pin, spring, cable from front
6	TA563-11	11-pin, screw, cable from front

	TA564-11	11-pin, screw, cable from side
	TA565-11	11-pin, spring, cable from front

9.5.1 Inputs/Outputs
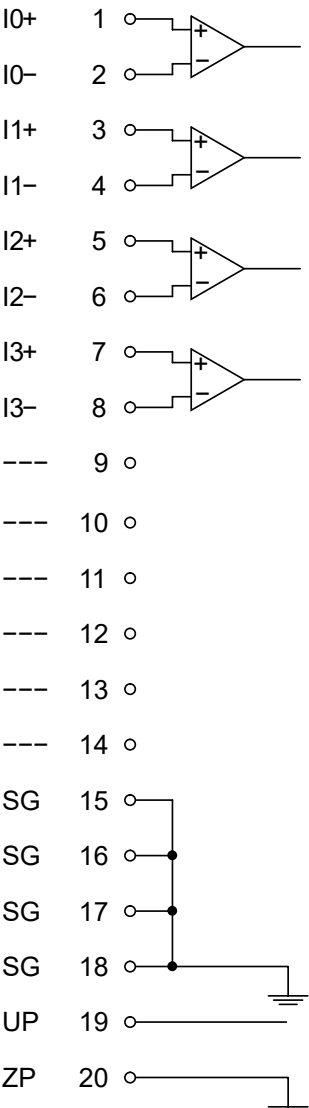
I0+	1	
I0−	2	
I1+	3	
I1−	4	
I2+	5	
I2−	6	
I3+	7	
I3−	8	
---	9	
---	10	
---	11	
---	12	
---	13	
---	14	
SG	15	
SG	16	
SG	17	
SG	18	
UP	19	
ZP	20	

9.6 Cleaning

> **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

9.7 Certification

	en	Devices with KCC sign on product sticker and packaging
MSIP-REI-Abb-AC500-eCo	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	Note These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

9.8 Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

10 AI581-S(-XC)

- AI581-S
- AI581-S-XC
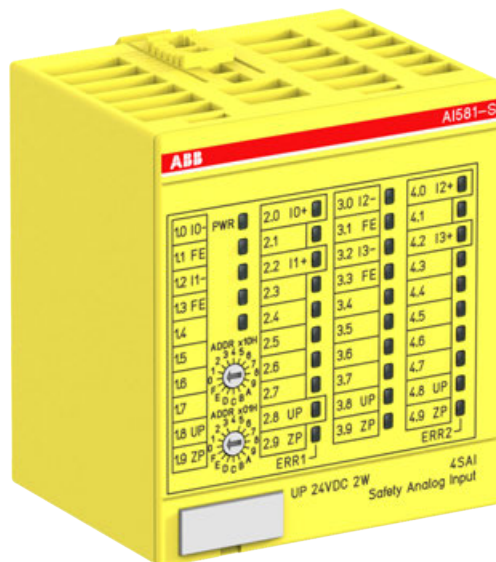
⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

10.1   Assembly

1.   Put the module on the terminal unit

⇨   Module clicks in.

2.   Then press the module with a force of at least 100 N into the terminal unit to achieve proper electrical contact.

10.2   Disassembly
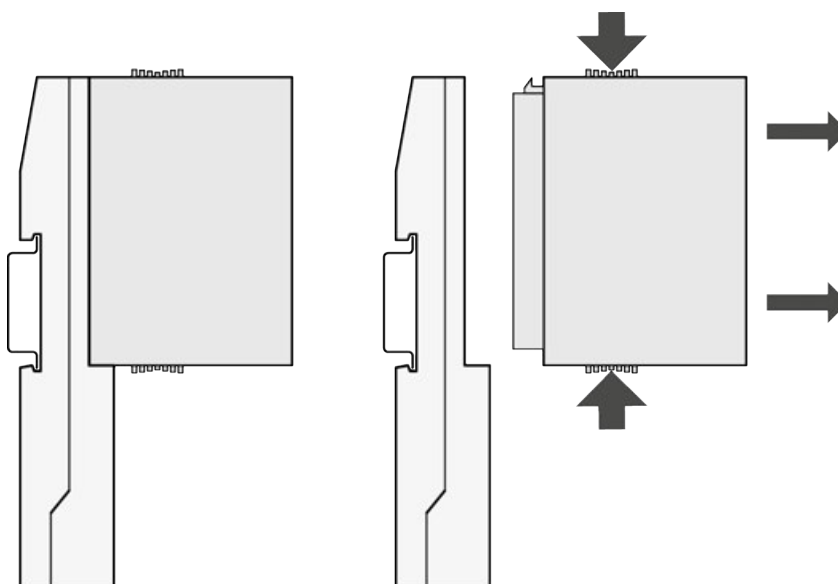
10.3   Dimensions

84.5 (3.33)
77 (3.03)
75 (2.95)
21 (0.83)
54 (2.13)

59 (2.32)

76 (2.99)

135 (5.31)

① ②

28 (1.10)

135 (5.31)

67.5 (2.66)
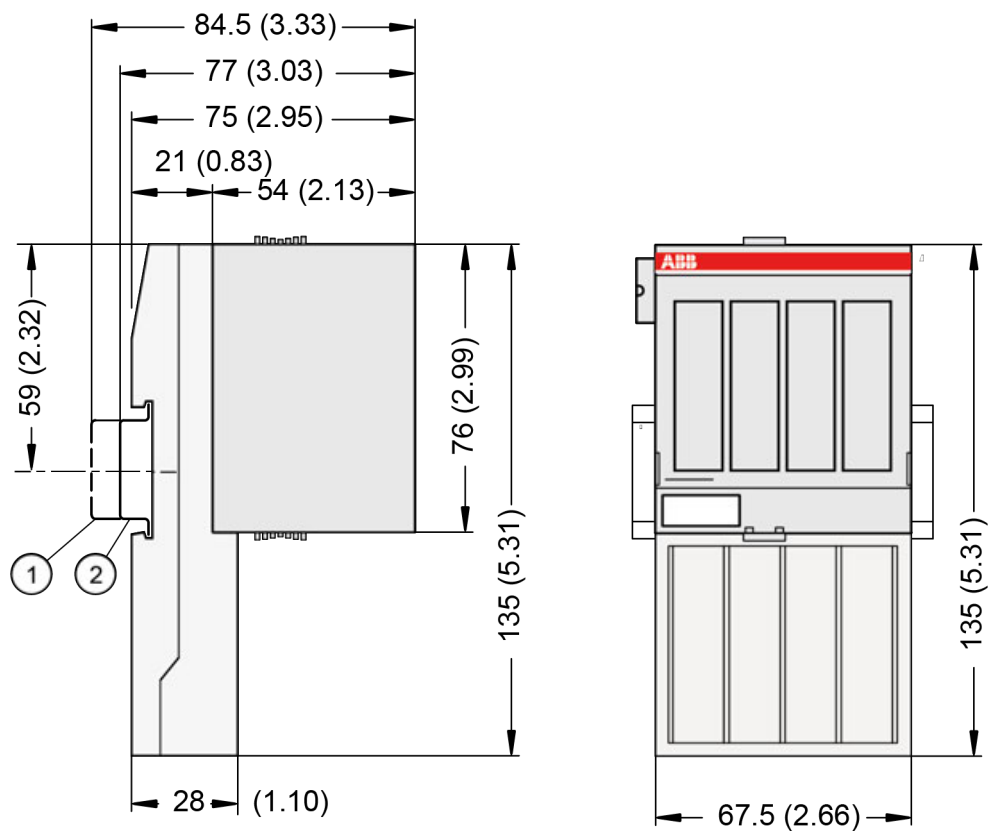
1   Din rail 15 mm
2   Din rail 7.5 mm

The dimensions are in mm and in brackets in inch.
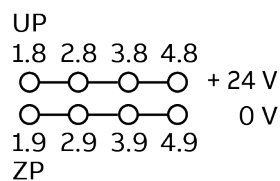
10.4   Connections
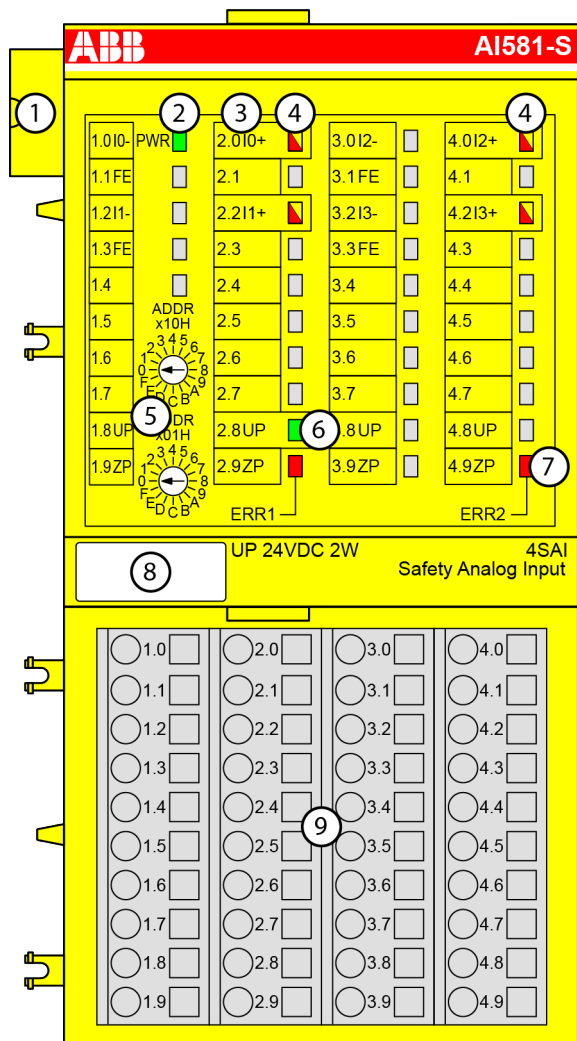
1   I/O bus
2   System LED
3   Allocation of terminal number and signal name
4   4 yellow/red LEDs to display the signal states of the analog inputs
5   2 rotary switches for setting the PROFIsafe address
6   1 green LED to display the state of the process supply voltage UP
7   2 red LEDs to display errors
8   Label
9   Terminal unit TU582-S(-XC)
❄   Sign for XC version

10.4.1 Process supply voltage

```
          UP
          1.8  2.8  3.8  4.8
          O—O—O—O   + 24 V
          O—O—O—O     0 V
          1.9  2.9  3.9  4.9
          ZP
```

> ⚠️ **CAUTION!**
> The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

10.4.2 Inputs

Example

I0 ... I3
0 mA ... +20 mA
+4 mA ... +20 mA
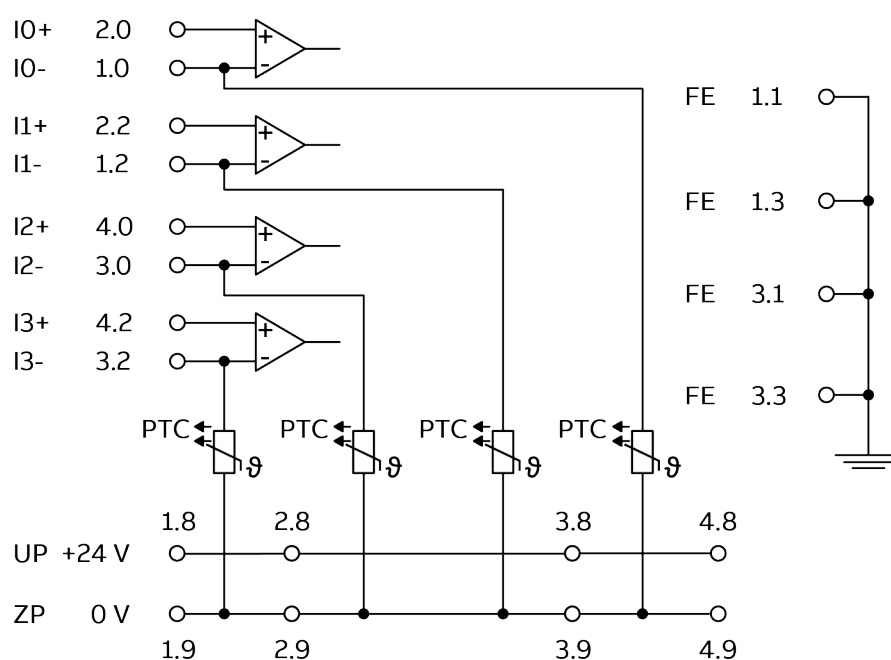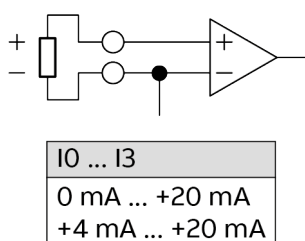
Fig. 5: Example of connection input

> ℹ️ **AC500-S safety user manual**
> For a detailed description of the connection of the module, please refer to the "AC500-S safety user manual".

10.5   Cleaning

> ⓘ **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

10.6   Certification

KC MSIP-REI-Abb-AC500	en ko	Devices with KCC sign on product sticker and packaging 제품 스티커 및 포장에 **KCC** 표시가 된 기기
en **Note** These devices correspond to: ko 참고 이러한 기기는		**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments" **KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

10.7   Recycling

> ⓘ **Disposal and recycling information**
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

11 AO523(-XC)

- AO523
- AO523-XC

⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

Hot swap

⚠	**WARNING!**
	Risk of explosion or fire in hazardous environments during hot swapping!
	Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

> **WARNING!**
> **Electric shock due to negligent behavior during hot swapping!**
> To avoid electric shock
>
> – make sure the following conditions apply:
>   – Digital outputs are not under load.
>   – Input/output voltages above safety extra low voltage/ protective extra low voltage (SELV/PELV) are switched off.
>   – Modules are fully interlocked with the terminal unit with both snap-fits engaged before switching on loads or input/output voltage.
> – Never touch exposed contacts (dangerous voltages).
> – Stay away from electrical contacts to avoid arc discharge.
> – Do not operate a mechanical installation improperly.

> **NOTICE!**
> **Risk of damage to I/O modules!**
> Hot swapping is only allowed for I/O modules.
>
> Processor modules and communication interface modules must not be removed or inserted during operation.

H = **H**ot swap

> *Hot swap*
> *System requirements for hot swapping of I/O modules:*
>
> – *Types of terminal units that support hot swapping of I/O modules have the appendix TU5xx-**H**.*
> – *I/O modules as of index F0.*
>
> *The following I/O bus masters support hot swapping of attached I/O modules:*
>
> – *Communication interface modules CI5xx as of index F0.*
> – *Processor modules PM56xx-2ETH with firmware version as of V3.2.0.*

> *Hot swap is not supported by AC500-eCo V3 CPU!*

> ℹ️ *The index of the module is in the right corner of the label.*

> **❗ NOTICE!**
> **Risk of damage to I/O modules!**
> Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

> **❗ NOTICE!**
> **Risk of damage to I/O modules!**
> Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.
>
> For min. required device index see table below.

Device	Min. required device index for I/O module as of FW Version 3.0.14
AC522(-XC)	F0
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DA502 (-XC)	F0
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

11.1   Assembly
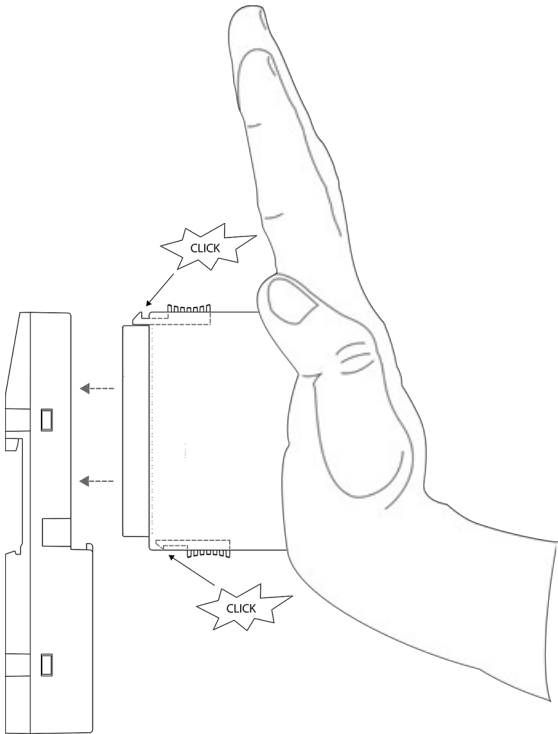
11.2   Disassembly
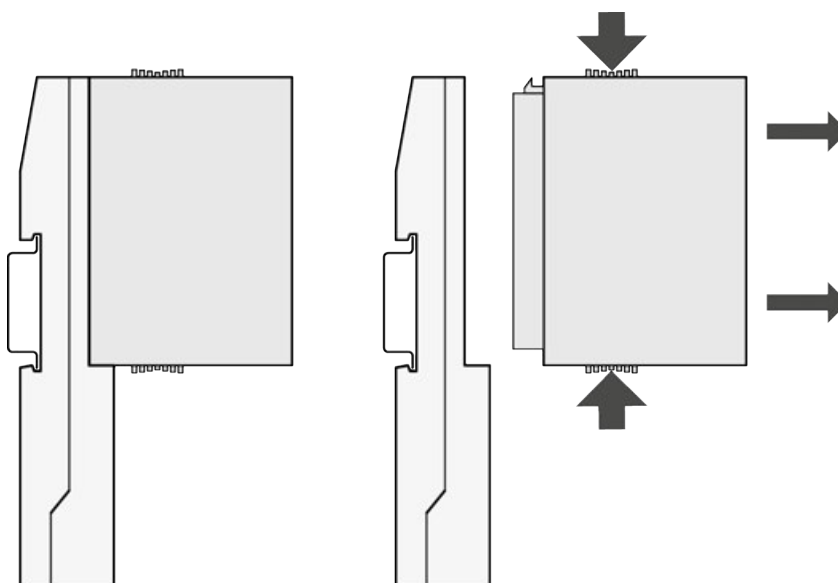
11.3   Dimensions

84.5 (3.33)
77 (3.03)
75 (2.95)
21 (0.83)
54 (2.13)
59 (2.32)
76 (2.99)
135 (5.31)
28 (1.10)

135 (5.31)
67.5 (2.66)

1   Din rail 15 mm
2   Din rail 7.5 mm

ⓘ   *The dimensions are in mm and in brackets in inch.*

11.4 Connections
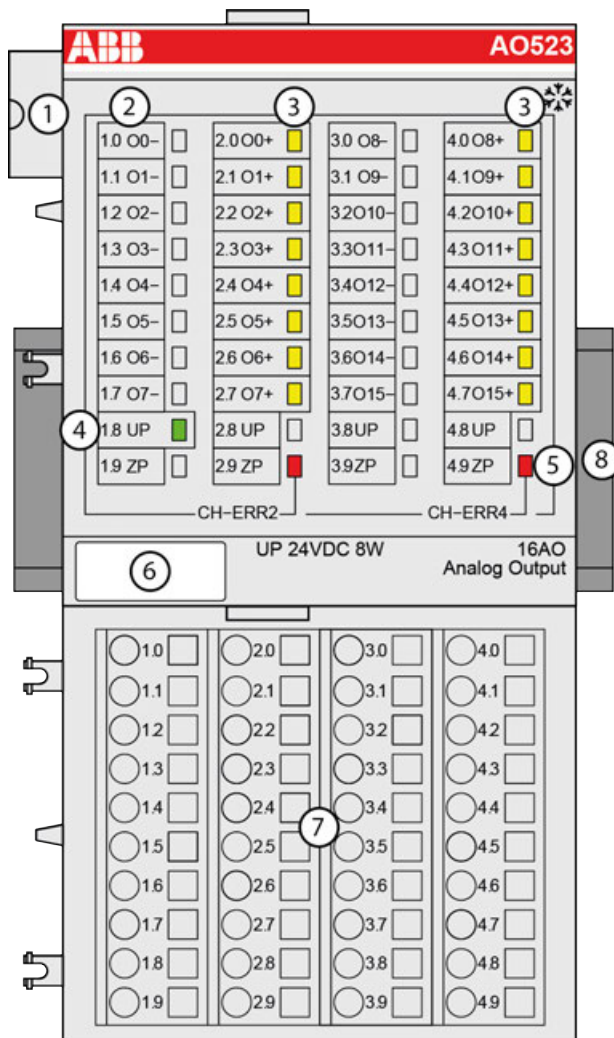
1   I/O bus
2   Allocation between terminal number and signal name
3   16 yellow LEDs to display the signal states at the analog outputs (O0 ... O15)
4   1 green LED to display the state of the process supply voltage UP
5   2 red LEDs to display errors
6   Label
7   Terminal unit
8   DIN rail
❄   Sign for XC version

> ⓘ *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

11.4.1 Process supply voltage

```
UP
1.8  2.8  3.8  4.8
 O───O───O───O   + 24 V
 O───O───O───O     0 V
1.9  2.9  3.9  4.9
ZP
```

> ⚠️ **CAUTION!**
> The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

11.4.2 Outputs

```
 +  2.0  O0+          +  4.0  O8+
 −  1.0  O0−          −  3.0  O8−

 +  2.1  O1+          +  4.1  O9+
 −  1.1  O1−          −  3.1  O9−

 +  2.2  O2+          +  4.2  O10+
 −  1.2  O2−          −  3.2  O10−

 +  2.3  O3+          +  4.3  O11+
 −  1.3  O3−          −  3.3  O11−


 +  2.4  O4+          +  4.4  O12+
 −  1.4  O4−          −  3.4  O12−

 +  2.5  O5+          +  4.5  O13+
 −  1.5  O5−          −  3.5  O13−

 +  2.6  O6+          +  4.6  O14+
 −  1.6  O6−          −  3.6  O14−

 +  2.7  O7+          +  4.7  O15+
 −  1.7  O7−          −  3.7  O15−
```
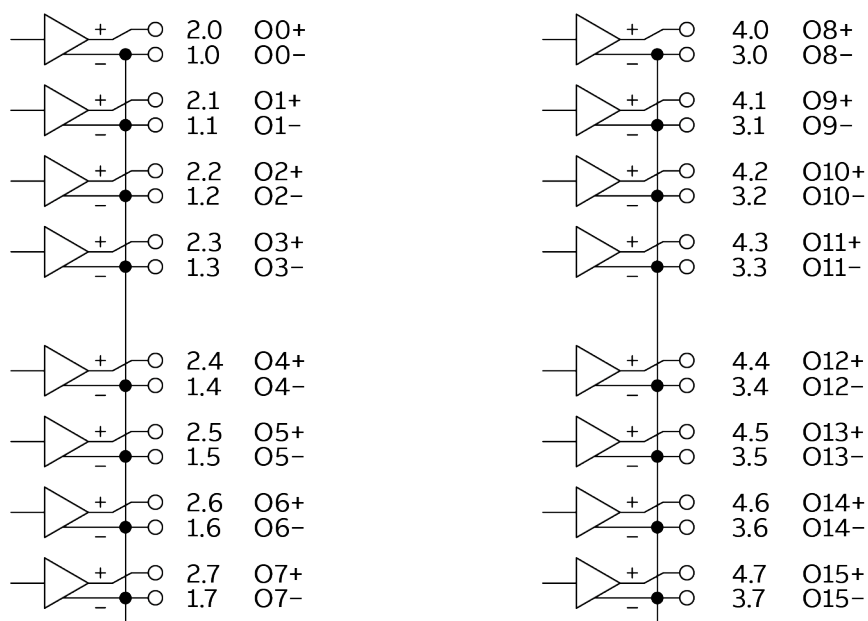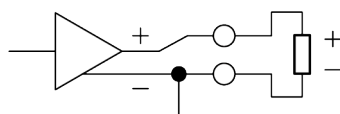
Example

O0 ... O3	O4 ... O7
O8 ... O11	O12 ... O15
± 10 V	± 10 V
0 mA ... +20 mA	–
+4 mA ... +20 mA	–

Fig. 6: Example of connection output

11.5   Cleaning

> **Cleaning instructions**
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

11.6   Certification

KC

MSIP-REI-Abb-AC500

en   Devices with KCC sign on product sticker and packaging

ko   제품 스티커 및 포장에 **KCC** 표시가 된 기기

en   **Note**
These devices correspond to:

ko   참고
이러한 기기는

KN61000-6-2 "Immunity for industrial environments",
KN61000-6-4 "Emission standard for industrial environments"

KN61000-6-2 "산업 환경에 대한 내성",
KN61000-6-4 "산업 환경 누출 기준"에 적합함

11.7   Recycling

> **Disposal and recycling information**
>
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

12 AO561

- AO561

⚠	**CAUTION!** **Risk of injury and damaging the product!** Improper installation and maintenance may result in injury and can damage the product! – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1. – Read product documentation carefully before wiring. Improper wiring or wrong terminal block from other devices can damage the product! – Only by qualified personnel.
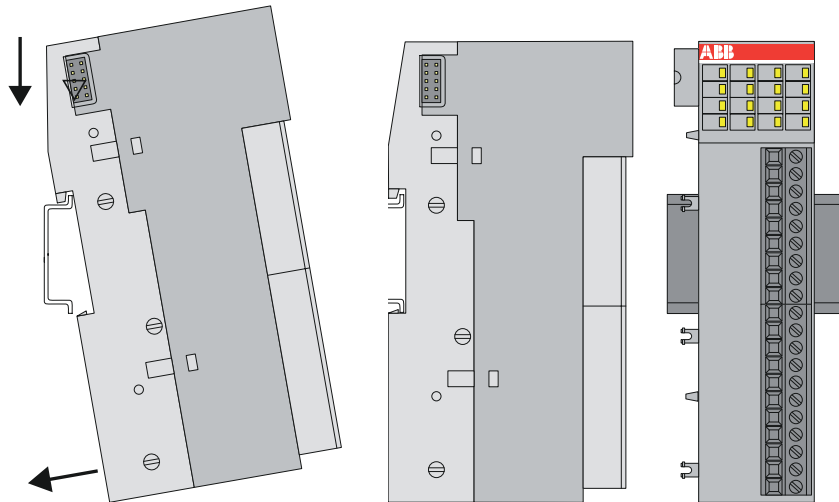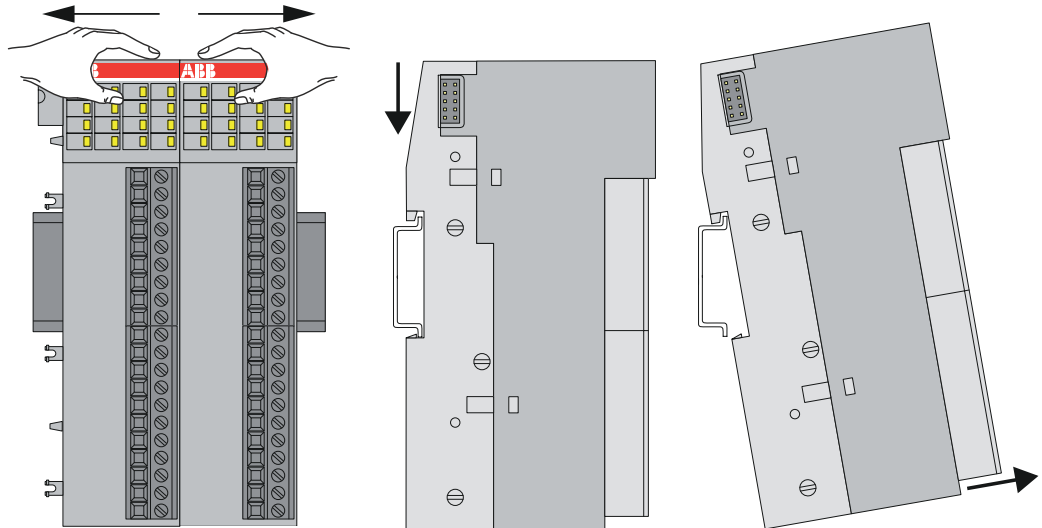
⚠	**CAUTION!** Do not use this module together with the DC505-FBP/CI590-CS31-HA module.
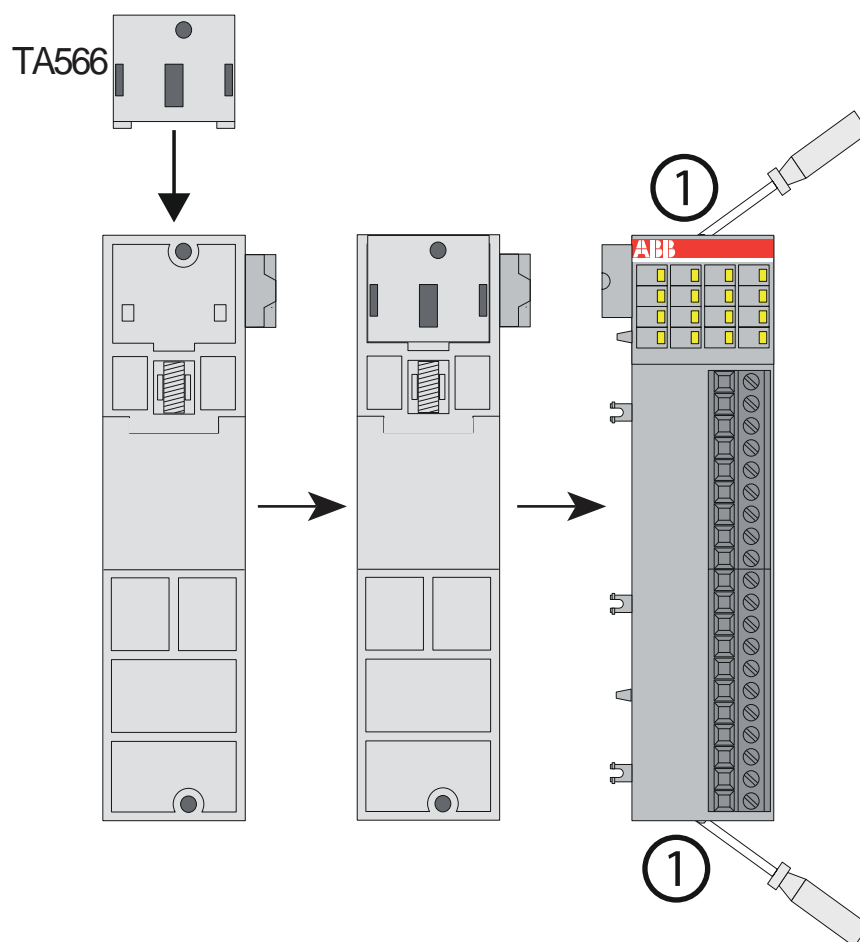
12.1   Assembly

12.2   Disassembly

12.3   Assembly with screws

TA566

1   Fasten the module with two screws (max. diameter 4 mm)

> **NOTICE!**
> The insertion of the accessories TA566 for wall mounting is essential.

12.4   Dimensions

84.2 (3.31)

76.6 (3.02)

74 (2.91)

30.5 (1.2)

ABB

59 (2.32)

135 (5.31)

34 (1.34)

19.4 (0.76)

4 (0.16)

4 (0.16)

21 (0.83)
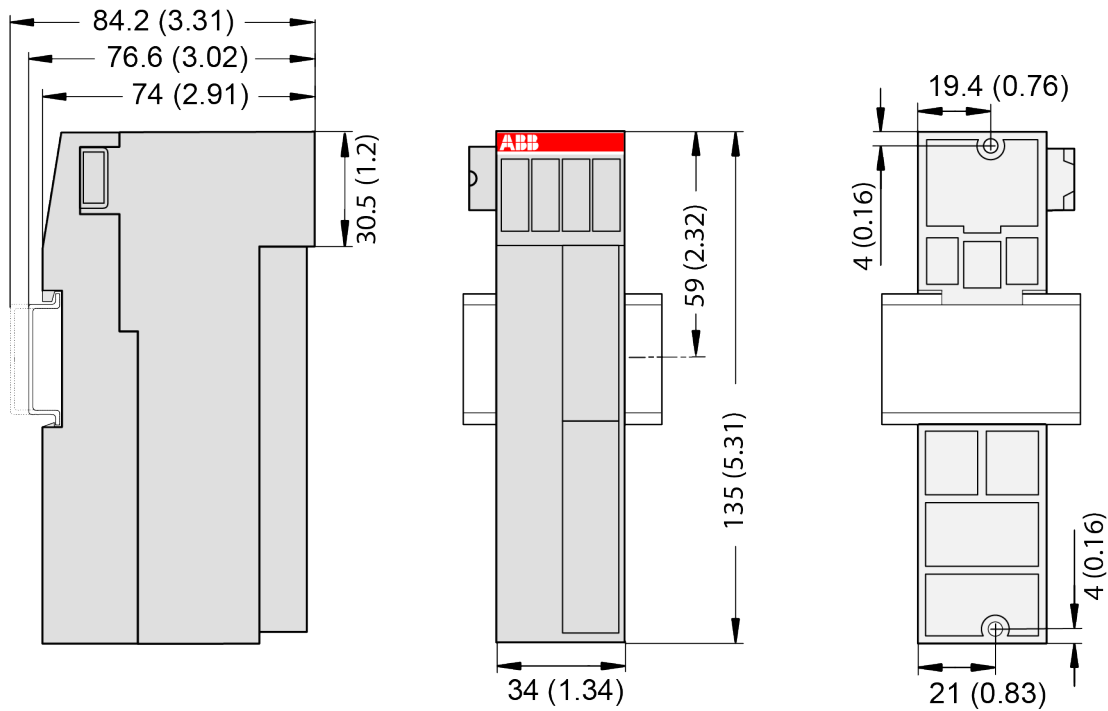
The dimensions are in mm and in brackets in inch.

12.5   Connections
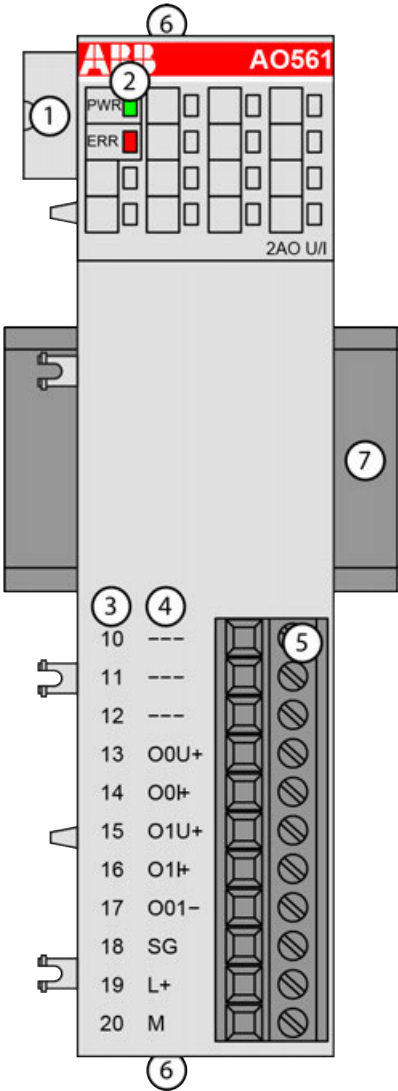
1   I/O bus
2   1 green LED to display power supply, 1 red LED to display error
3   Terminal number
4   Allocation of signal name
5   Terminal block for output signals (11-pin)
6   2 holes for wall-mounting with screws
7   DIN rail

ℹ️   *All I/O channels (digital and analog) are protected against reverse polarity,*
reverse supply and temporary overvoltage up to 30 VDC.

5	TA563-11	11-pin, screw, cable from front
	TA564-11	11-pin, screw, cable from side
	TA565-11	11-pin, spring, cable from front

12.5.1 Inputs/Outputs
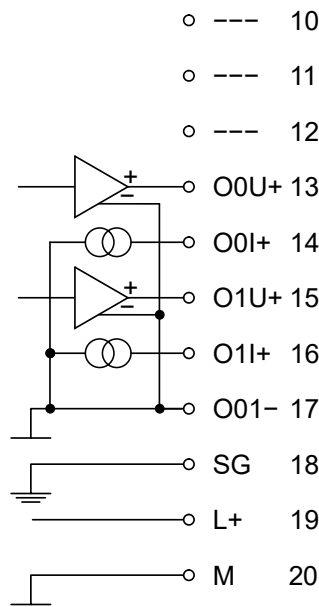
12.6 Cleaning

> **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

12.7 Certification

	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

MSIP-REI-Abb-AC500-eCo

en	**Note** These devices correspond to:	KN61000-6-2 "Immunity for industrial environments", KN61000-6-4 "Emission standard for industrial environments"
ko	참고 이러한 기기는	KN61000-6-2 "산업 환경에 대한 내성", KN61000-6-4 "산업 환경 누출 기준"에 적합함

12.8   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

13 AX521(-XC)

- AX521
- AX521-XC

	CAUTION!
⚠	**Risk of injury and damaging the product!** Improper installation and maintenance may result in injury and can damage the product! – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1. – Only by qualified personnel.

Hot swap

	WARNING!
⚠	**Risk of explosion or fire in hazardous environments during hot swapping!** Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

> **WARNING!**
>
> **Electric shock due to negligent behavior during hot swapping!**
>
> To avoid electric shock
>
> – make sure the following conditions apply:
>   – Digital outputs are not under load.
>   – Input/output voltages above safety extra low voltage/ protective extra low voltage (SELV/PELV) are switched off.
>   – Modules are fully interlocked with the terminal unit with both snap-fits engaged before switching on loads or input/output voltage.
> – Never touch exposed contacts (dangerous voltages).
> – Stay away from electrical contacts to avoid arc discharge.
> – Do not operate a mechanical installation improperly.

> **NOTICE!**
>
> **Risk of damage to I/O modules!**
>
> Hot swapping is only allowed for I/O modules.
>
> Processor modules and communication interface modules must not be removed or inserted during operation.

H = **H**ot swap

> *Hot swap*
>
> *System requirements for hot swapping of I/O modules:*
>
> – *Types of terminal units that support hot swapping of I/O modules have the appendix TU5xx-**H**.*
> – *I/O modules as of index F0.*
>
> *The following I/O bus masters support hot swapping of attached I/O modules:*
>
> – *Communication interface modules CI5xx as of index F0.*
> – *Processor modules PM56xx-2ETH with firmware version as of V3.2.0.*

> *Hot swap is not supported by AC500-eCo V3 CPU!*

> ⓘ *The index of the module is in the right corner of the label.*

> **❗ NOTICE!**
> **Risk of damage to I/O modules!**
> Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

> **❗ NOTICE!**
> **Risk of damage to I/O modules!**
> Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.
>
> For min. required device index see table below.

Device	Min. required device index for I/O module as of FW Version 3.0.14
AC522(-XC)	F0
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DA502 (-XC)	F0
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

13.1   Assembly

13.2   Disassembly
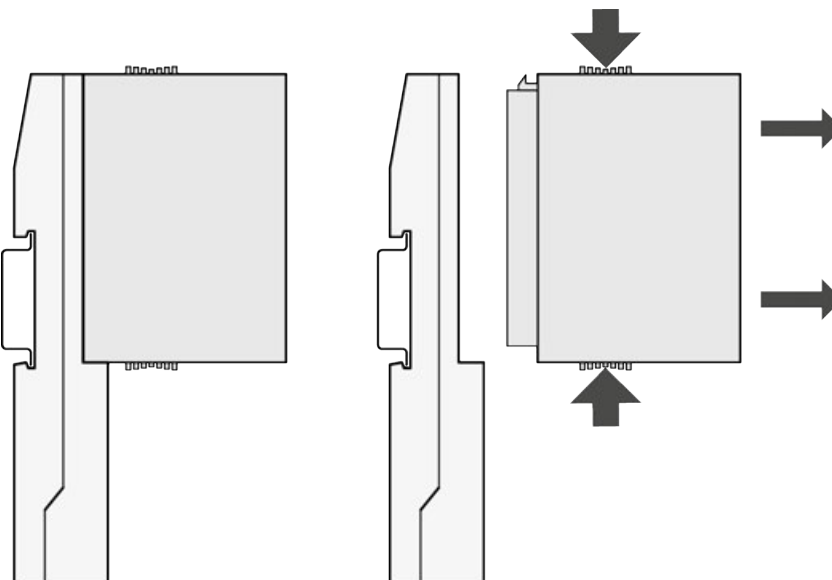
13.3   Dimensions

1   Din rail 15 mm
2   Din rail 7.5 mm

> The dimensions are in mm and in brackets in inch.

13.4   Connections
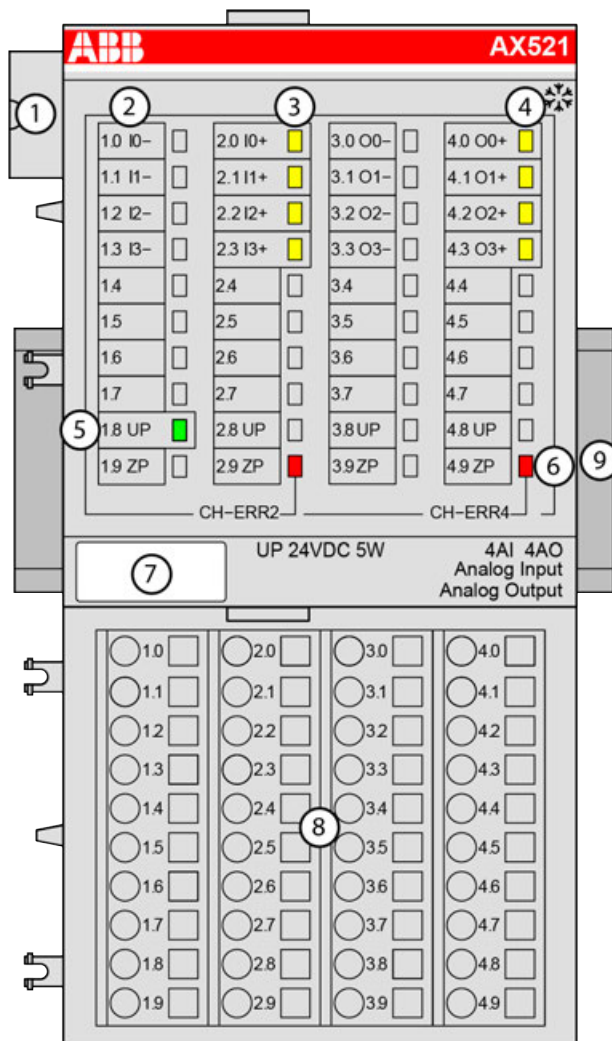
1   I/O bus
2   Allocation between terminal number and signal name
3   4 yellow LEDs to display the signal states at the analog inputs (I0 ... I3)
4   4 yellow LEDs to display the signal states at the analog outputs (O0 ... O3)
5   1 green LED to display the state of the process supply voltage UP
6   2 red LEDs to display errors
7   Label
8   Terminal unit
9   DIN rail
❄   Sign for XC version

> *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

13.4.1 Process supply voltage
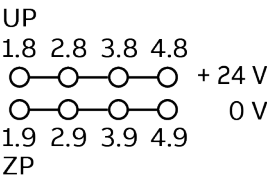
```
UP
1.8  2.8  3.8  4.8
O——O——O——O   + 24 V
O——O——O——O     0 V
1.9  2.9  3.9  4.9
ZP
```

> ⚠️ **CAUTION!**
>
> The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

13.4.2 Inputs

```
I0+   2.0  o
I0−   2.0  o

I1+   2.1  o
I1−   2.1  o

I2+   2.2  o
I2−   2.2  o

I3+   2.3  o
I3−   2.3  o
```
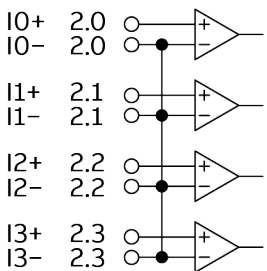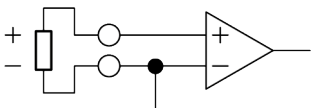
Example

I0 ... I3
0 V ... +10 V
± 10 V
0 mA ... +20 mA
+4 mA ... +20 mA
Pt100 / Pt1000
Ni1000

Fig. 7: Example of connection input

13.4.3 Outputs

```
+   o  4.0   O0+
−   o  3.0   O0−

+   o  4.1   O1+
−   o  3.1   O1−

+   o  4.2   O2+
−   o  3.2   O2−

+   o  4.3   O3+
−   o  3.3   O3−
```
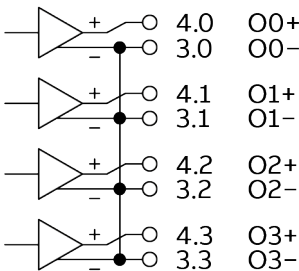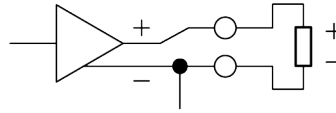
Example

O0 ... O3
± 10 V
0 mA ... +20 mA
+4 mA ... +20 mA

Fig. 8: Example of connection output

13.5   Cleaning

> ⓘ **Cleaning instructions**
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

13.6   Certification

en	Devices with KCC sign on product sticker and packaging
ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

MSIP-REI-Abb-AC500

en	**Note** These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

13.7   Recycling

> ⓘ **Disposal and recycling information**
>
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

14 AX522(-XC)

- AX522
- AX522-XC

	CAUTION!
⚠	**Risk of injury and damaging the product!** Improper installation and maintenance may result in injury and can damage the product! – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1. – Only by qualified personnel.

Hot swap

	WARNING!
⚠	**Risk of explosion or fire in hazardous environments during hot swapping!** Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

⚠️ **WARNING!**

Electric shock due to negligent behavior during hot swapping!

To avoid electric shock

- make sure the following conditions apply:
  - Digital outputs are not under load.
  - Input/output voltages above safety extra low voltage/
    protective extra low voltage (SELV/PELV) are switched off.
  - Modules are fully interlocked with the terminal unit with both snap-fits
    engaged before switching on loads or input/output voltage.
- Never touch exposed contacts (dangerous voltages).
- Stay away from electrical contacts to avoid arc discharge.
- Do not operate a mechanical installation improperly.

! **NOTICE!**

Risk of damage to I/O modules!

Hot swapping is only allowed for I/O modules.

Processor modules and communication interface modules must not be removed
or inserted during operation.

H = **H**ot swap

Hot swap

System requirements for hot swapping of I/O modules:

- *Types of terminal units that support hot swapping of I/O modules have the
  appendix TU5xx-**H**.*
- *I/O modules as of index F0.*

The following I/O bus masters support hot swapping of attached I/O modules:

- *Communication interface modules CI5xx as of index F0.*
- *Processor modules PM56xx-2ETH with firmware version as of V3.2.0.*

Hot swap is not supported by AC500-eCo V3 CPU!

> ⓘ *The index of the module is in the right corner of the label.*

> ❗ **NOTICE!**
> **Risk of damage to I/O modules!**
> Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

> ❗ **NOTICE!**
> **Risk of damage to I/O modules!**
> Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.
>
> For min. required device index see table below.

Device	Min. required device index for I/O module as of FW Version 3.0.14
AC522(-XC)	F0
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DA502 (-XC)	F0
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

14.1   Assembly

14.2   Disassembly

14.3   Dimensions

1   Din rail 15 mm
2   Din rail 7.5 mm

ⓘ   *The dimensions are in mm and in brackets in inch.*

14.4   Connections
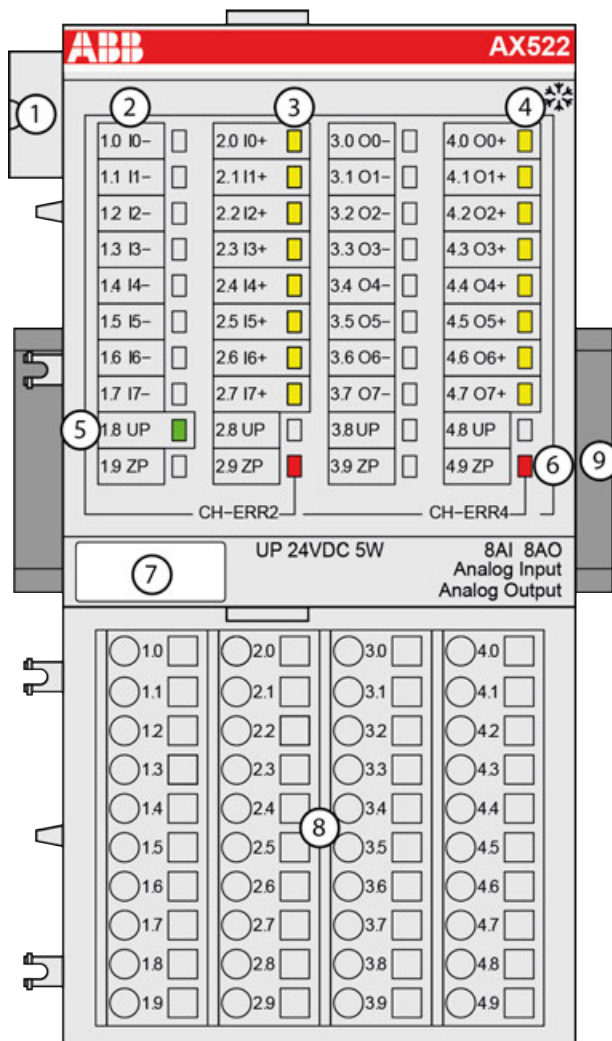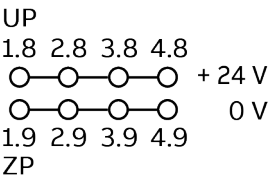
1   I/O bus
2   Allocation between terminal number and signal name
3   8 yellow LEDs to display the signal states at the analog inputs (I0 ... I7)
4   8 yellow LEDs to display the signal states at the analog outputs (O0 ... O7)
5   1 green LED to display the state of the process supply voltage UP
6   2 red LEDs to display errors
7   Label
8   Terminal unit
9   DIN rail
✳   Sign for XC version

> *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

14.4.1 Process supply voltage

```
                        UP
                        1.8  2.8  3.8  4.8
                        O—O—O—O   + 24 V
                        O—O—O—O     0 V
                        1.9  2.9  3.9  4.9
                        ZP
```

> ⚠ **CAUTION!**
>
> The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

14.4.2 Inputs

```
I0+  2.0                      I4+  2.4
I0−  2.0                      I4−  2.4

I1+  2.1                      I5+  2.5
I1−  2.1                      I5−  2.5

I2+  2.2                      I6+  2.6
I2−  2.2                      I6−  2.6

I3+  2.3                      I7+  2.7
I3−  2.3                      I7−  2.7
```

Example

I0 ... I7
0 V ... +10 V
± 10 V
0 mA ... +20 mA
+4 mA ... +20 mA
Pt100 / Pt1000
Ni1000

Fig. 9: Example of connection input

14.4.3 Outputs

```
+  4.0  O0+ ⎤                    +  4.4  O4+ ⎤
−  3.0  O0− ⎥                    −  3.4  O4− ⎥

+  4.1  O1+ ⎥  ± 10 V           +  4.5  O5+ ⎥
−  3.1  O1− ⎥  0/4 ... 20 mA    −  3.5  O5− ⎥  ± 10 V

+  4.2  O2+ ⎥                    +  4.6  O6+ ⎥
−  3.2  O2− ⎥                    −  3.6  O6− ⎥

+  4.3  O3+ ⎦                    +  4.7  O7+ ⎦
−  3.3  O3−                      −  3.7  O7−
```
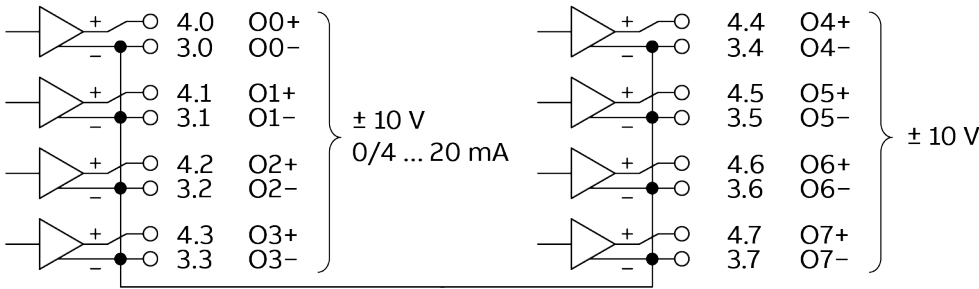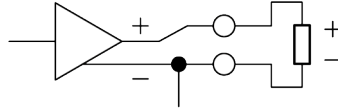
Example

O0 ... O3	O4 ... O7
± 10 V	± 10 V
0 mA ... +20 mA	–
+4 mA ... +20 mA	–

Fig. 10: Example of connection output

14.5   Cleaning

> **Cleaning instructions**
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

14.6   Certification

MSIP-REI-Abb-AC500

en	Devices with KCC sign on product sticker and packaging	
ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기	

en	Note These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

14.7   Recycling

> **Disposal and recycling information**
>
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

15 AX561

- AX561
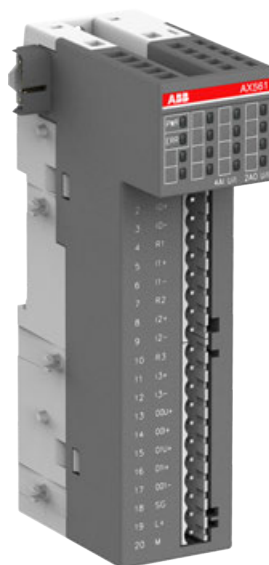
⚠	**CAUTION!** **Risk of injury and damaging the product!** Improper installation and maintenance may result in injury and can damage the product! – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1. – Read product documentation carefully before wiring. Improper wiring or wrong terminal block from other devices can damage the product! – Only by qualified personnel.

⚠	**CAUTION!** Do not use this module together with the DC505-FBP/CI590-CS31-HA module.

15.1 Assembly
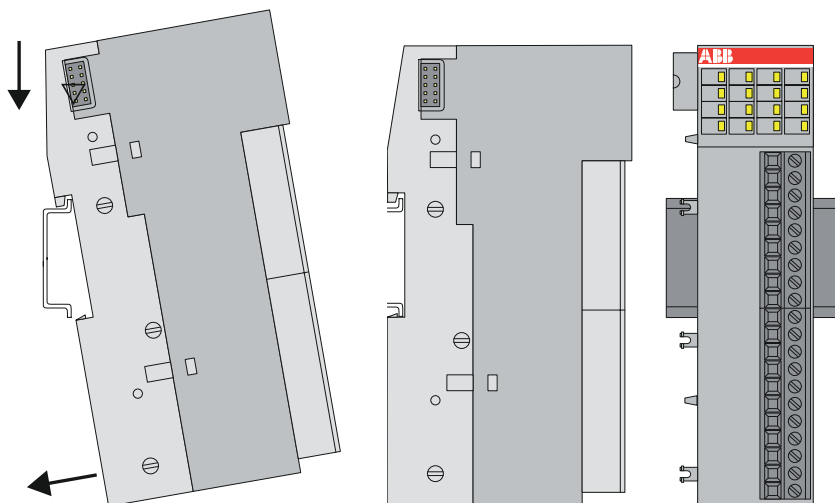
15.2 Disassembly
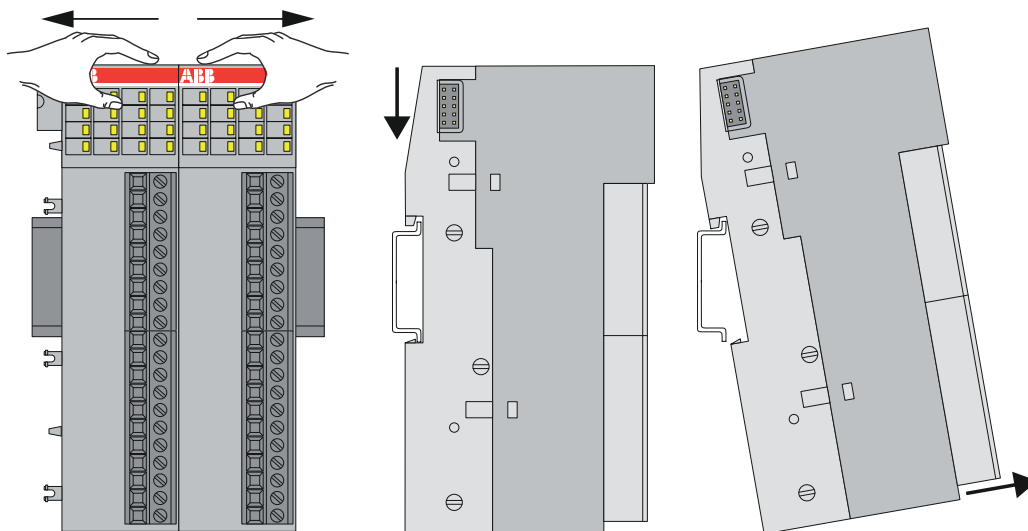
15.3   Assembly with screws
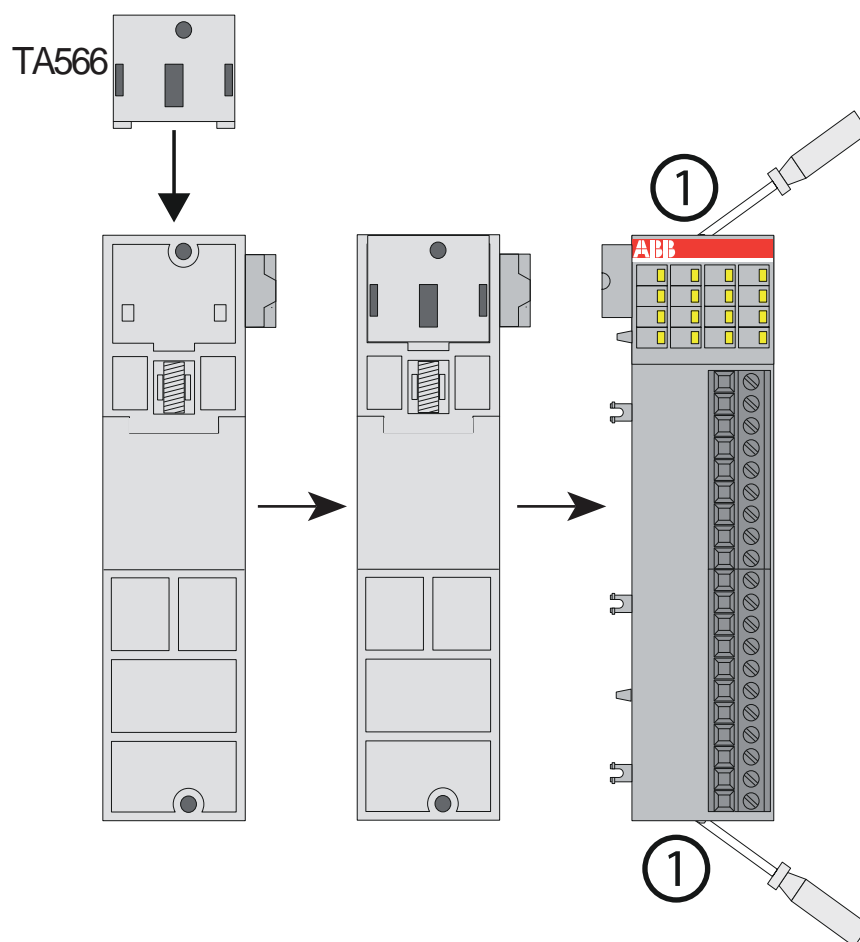
1   Fasten the module with two screws (max. diameter 4 mm)

> **NOTICE!**
> The insertion of the accessories TA566 for wall mounting is essential.

15.4   Dimensions

84.2 (3.31)
76.6 (3.02)
74 (2.91)
30.5 (1.2)

59 (2.32)
135 (5.31)
34 (1.34)

19.4 (0.76)
4 (0.16)
4 (0.16)
21 (0.83)

ABB
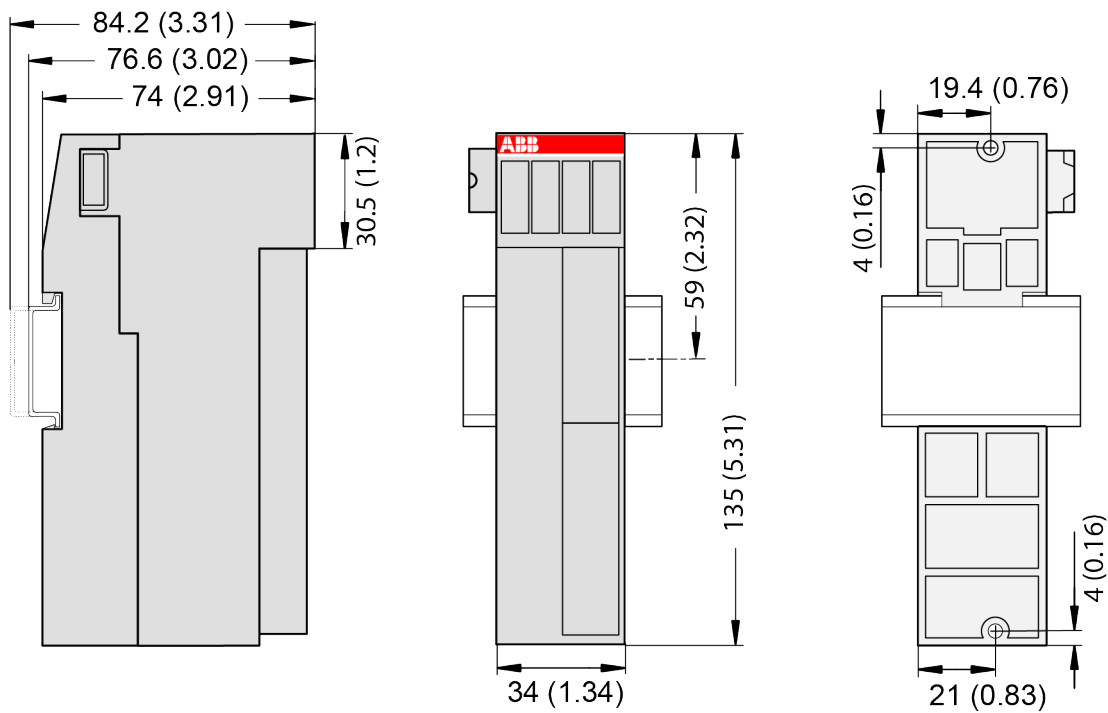
The dimensions are in mm and in brackets in inch.

15.5   Connections

1   I/O bus
2   1 green LED to display power supply, 1 red LED to display error
3   Terminal number
4   Allocation of signal name
5   Terminal block for input signals (9-pin)
6   Terminal block for output signals (11-pin)
7   2 holes for wall-mounting with screws
8   DIN rail

All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.

5	TA563-9	9-pin, screw, cable from front
	TA564-9	9-pin, screw, cable from side
	TA565-9	9-pin, spring, cable from front
6	TA563-11	11-pin, screw, cable from front

	TA564-11	11-pin, screw, cable from side
	TA565-11	11-pin, spring, cable from front

15.5.1 Inputs/Outputs

R0	1	
I0+	2	
I0−	3	
R1	4	
I1+	5	
I1−	6	
R2	7	
I2+	8	
I2−	9	
R3	10	
I3+	11	
I3−	12	
		O0U+ 13
		O0I+ 14
		O1U+ 15
		O1I+ 16
		O01− 17
		SG 18
		L+ 19
		M 20

15.6 Cleaning

> **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

15.7   Certification

KC MSIP-REI-Abb-AC500-eCo	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	**Note** These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

15.8   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

16 CD522(-XC)

- CD522
- CD522-XC

⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

16.1   Assembly

16.2   Disassembly

16.3   Dimensions
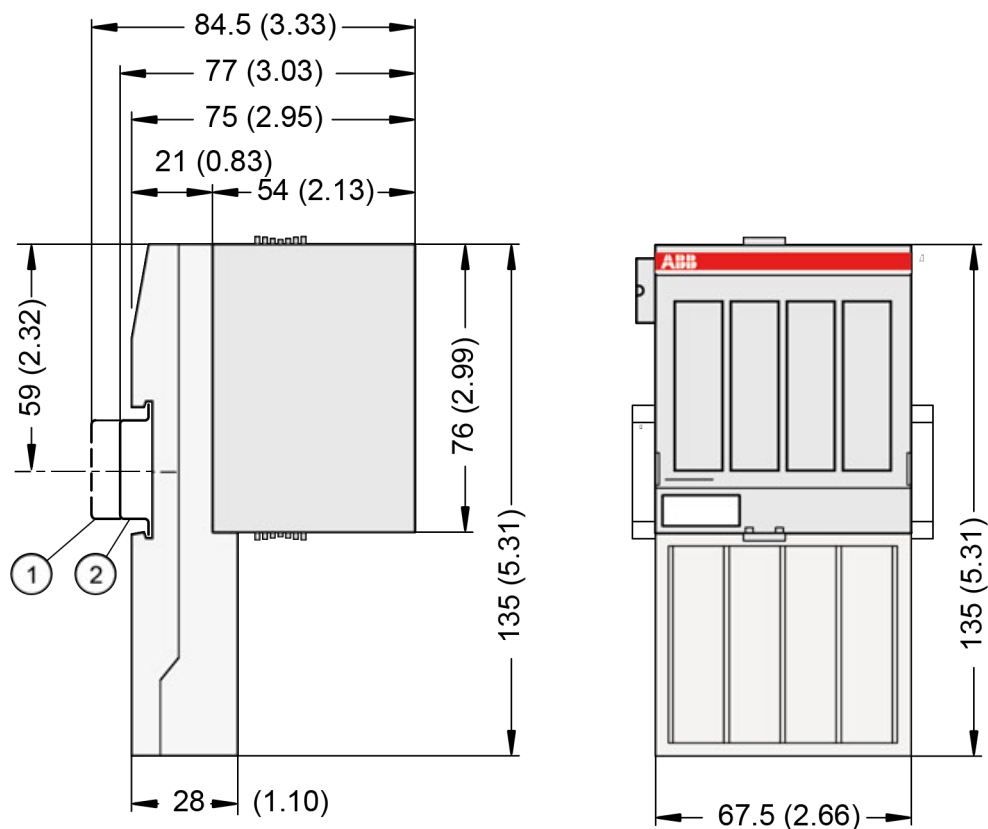
1   Din rail 15 mm
2   Din rail 7.5 mm

ⓘ   *The dimensions are in mm and in brackets in inch.*

16.4   Connections
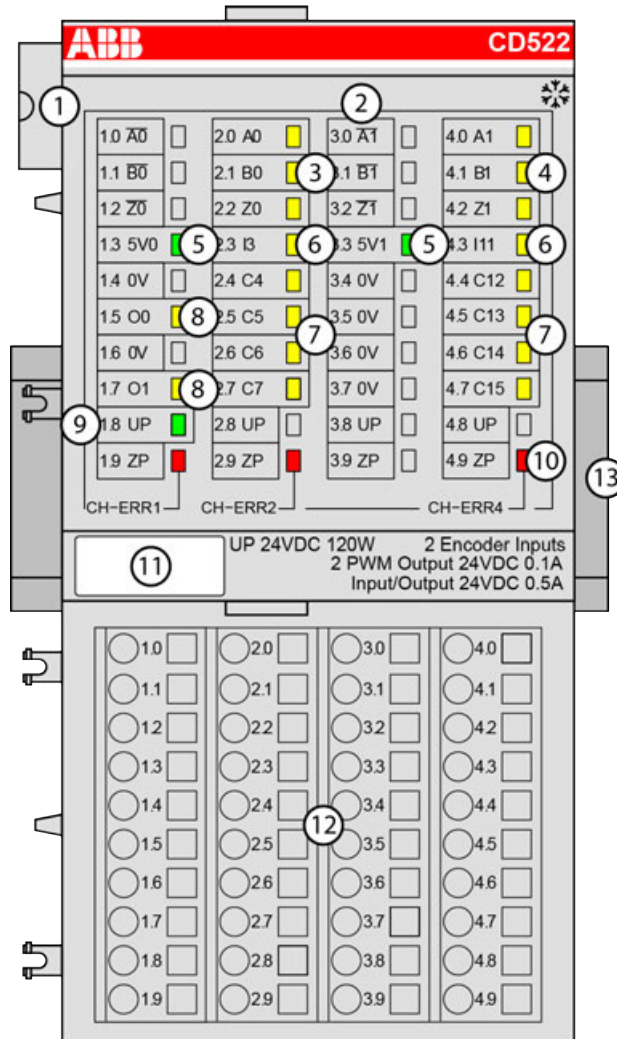
1   I/O bus
2   Allocation of terminal No. and signal name
3   3 yellow LEDs to display the signal states of the encoder 0 input
4   3 yellow LEDs to display the signal states of the encoder 1 input
5   2 green LEDs to display the 5-V-power-supply states
6   2 yellow LEDs to display the signal state of the digital input I3 and I11
7   8 yellow LEDs to display the input/output signal states
8   2 yellow LEDs to display the signal states of the PWM/pulse outputs
9   1 green LED to display the process voltage UP
10   3 red LEDs to display errors
11   Label
12   Terminal unit
13   DIN rail
❄   Sign for XC version

All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.

16.4.1 Process supply voltage
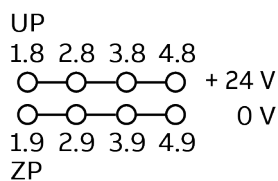
UP
1.8 2.8 3.8 4.8
○——○——○——○ + 24 V
○——○——○——○   0 V
1.9 2.9 3.9 4.9
ZP

> ⚠️ **CAUTION!**
>
> The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

5V0

○— 1.3 + 5 V
○— 1.4   0 V
2A
○— 1.6
○——○——○——○
1.9 2.9 3.9 4.9 0 V
ZP

5V1

○— 3.3 + 5 V
○— 3.4   0 V
○— 3.5
2A
○— 3.6
○— 3.7
○——○——○——○
1.9 2.9 3.9 4.9 0 V
ZP

16.4.2 Inputs

2.0 A0 ○   4.0 A1 ○
2.1 B0 ○   4.1 B1 ○
2.2 Z0 ○   4.2 Z1 ○
2.3 I3 ○   4.3 I11 ○

ZP ○

Example

UP   Ix
              ZP
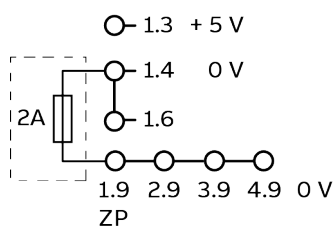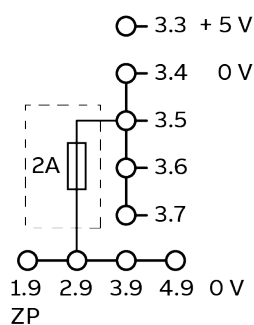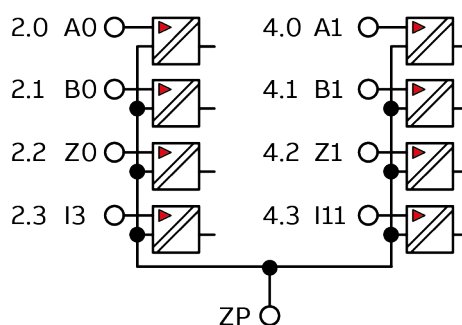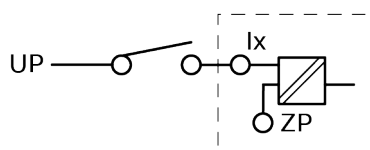
1 Example of connection input Ix

16.4.3 Inputs/Outputs
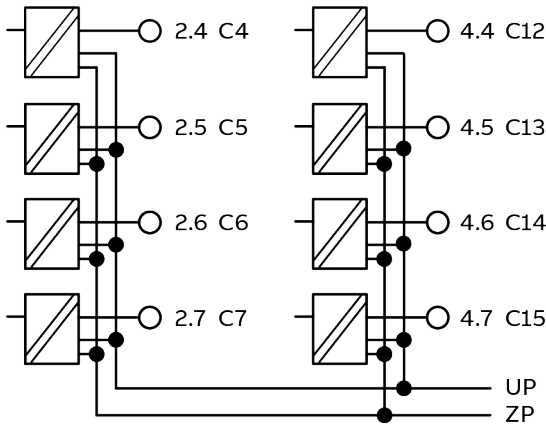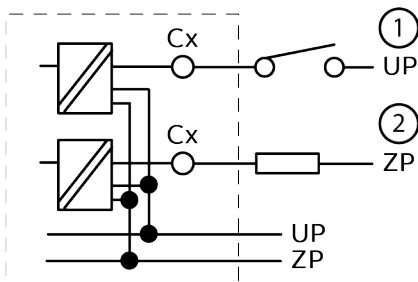
Example

1   Example of connection as an input
2   Example of connection as an output

16.4.4 Outputs

Push-pull outputs
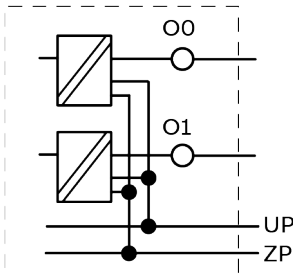
Example
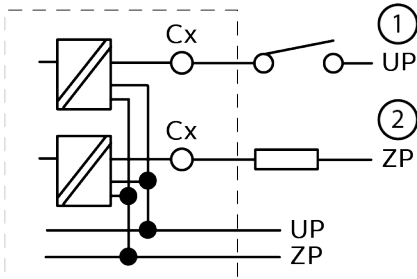
1   Example of connection as output with UP reference
2   Example of connection as output with ZP reference

> ⓘ *Examples of connection encoder/sensors, see description CD522.*

16.5   Cleaning

> ⓘ ***Cleaning instructions***
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

16.6   Certification

| | en | Devices with KCC sign on product sticker and packaging |
| | ko | 제품 스티커 및 포장에 **KCC** 표시가 된 기기 |

MSIP-REI-Abb-AC500

en	Note	
	These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments",
		KN61000-6-4 "Emission standard for industrial environments"
ko	참고	
	이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성",
		KN61000-6-4 "산업 환경 누출 기준"에 적합함

16.7   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

17 CI501-PNIO(-XC)

- CI501-PNIO
- CI501-PNIO-XC

⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

Hot swap

⚠	**WARNING!**
	Risk of explosion or fire in hazardous environments during hot swapping!
	Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

WARNING!

Electric shock due to negligent behavior during hot swapping!

To avoid electric shock

- make sure the following conditions apply:
    - Digital outputs are not under load.
    - Input/output voltages above safety extra low voltage/
      protective extra low voltage (SELV/PELV) are switched off.
    - Modules are fully interlocked with the terminal unit with both snap-fits
      engaged before switching on loads or input/output voltage.
- Never touch exposed contacts (dangerous voltages).
- Stay away from electrical contacts to avoid arc discharge.
- Do not operate a mechanical installation improperly.

NOTICE!

Risk of damage to I/O modules!

Hot swapping is only allowed for I/O modules.

Processor modules and communication interface modules must not be removed
or inserted during operation.

H = **H**ot swap

Hot swap

System requirements for hot swapping of I/O modules:

- *Types of terminal units that support hot swapping of I/O modules have the
  appendix TU5xx-**H**.*
- *I/O modules as of index F0.*

The following I/O bus masters support hot swapping of attached I/O modules:

- *Communication interface modules CI5xx as of index F0.*
- *Processor modules PM56xx-2ETH with firmware version as of V3.2.0.*

Hot swap is not supported by AC500-eCo V3 CPU!

> ⓘ *The index of the module is in the right corner of the label.*

> ❗ **NOTICE!**
> **Risk of damage to I/O modules!**
> Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

> ❗ **NOTICE!**
> **Risk of damage to I/O modules!**
> Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.
>
> For min. required device index see table below.

Device	Min. required device index for I/O module as of FW Version 3.0.14
AC522(-XC)	F0
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DA502 (-XC)	F0
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

17.1 Assembly
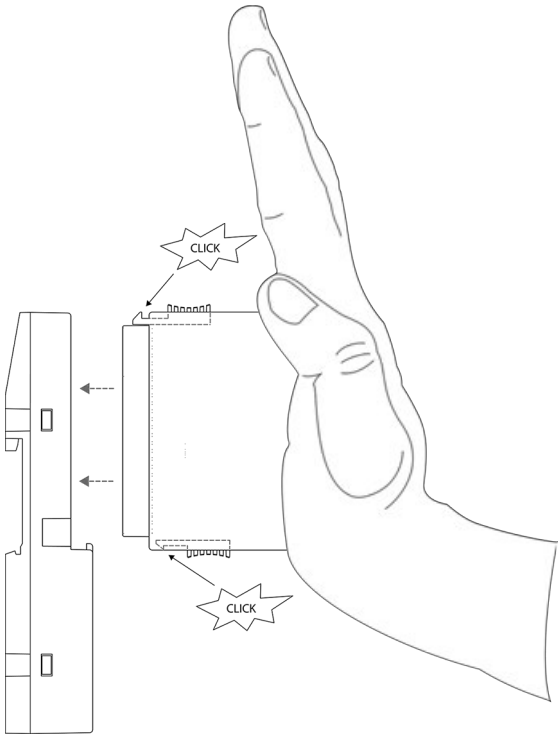
17.2 Disassembly
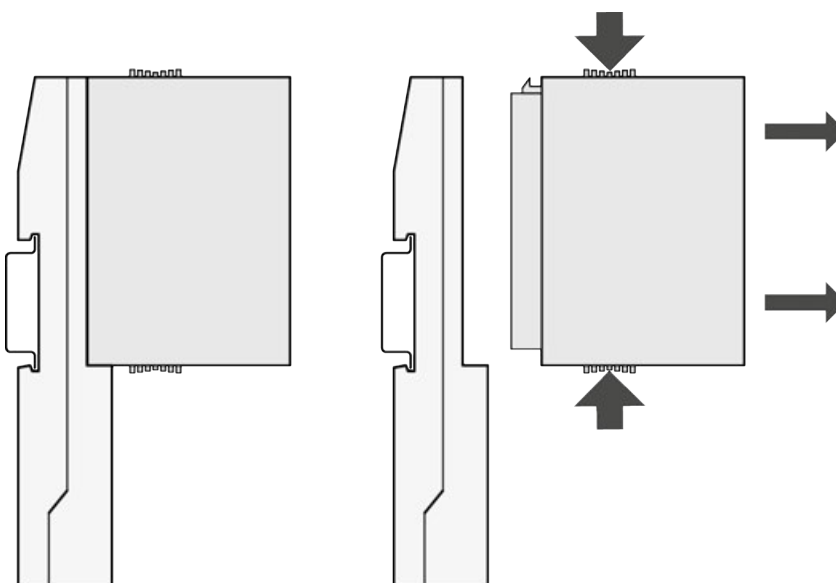
17.3 Dimensions

1 Din rail 15 mm
2 Din rail 7.5 mm

The dimensions are in mm and in brackets in inch.

17.4   Connections

1   I/O bus
2   Allocation between terminal number and signal name
3   6 yellow LEDs to display the signal states of the analog inputs/outputs (AI0 ... AI3, AO0 ... AO1)
4   8 yellow LEDs to display the signal states of the digital inputs (DI0 ... DI7)
5   8 yellow LEDs to display the signal states of the digital outputs (DO0 ... DO7)
6   2 green LEDs to display the process supply voltage UP and UP3
7   3 red LEDs to display errors (CH-ERR1, CH-ERR2, CH-ERR3)
8   5 system LEDs: PWR/RUN, STA1 ETH, STA2 ETH, S-ERR, I/O-Bus
9   Label
10   2 rotary switches for setting the I/O device identifier
11   Ethernet interfaces (ETH1, ETH2) on the terminal unit
12   Terminal unit
13   DIN rail
❄   Sign for XC version

> ⓘ *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

17.4.1   Process supply voltage

> ⚠ **CAUTION!**
> The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

17.4.2   Inputs/Outputs

Example analog input
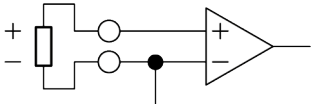
AI0 ... AI3
0 V ... +10 V
± 10 V
0 mA ... +20 mA
+4 mA ... +20 mA
Pt100 / Pt1000
Ni1000

Fig. 11: Example of connection input AIx

Example analog output
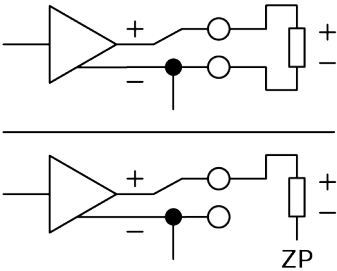
AO0 ... AO1
± 10 V
0 mA ... +20 mA
+4 mA ... +20 mA

Fig. 12: Example of connection output AOx

Example digital input
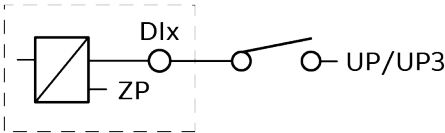
Fig. 13: Example of connection input DIx

Example digital output
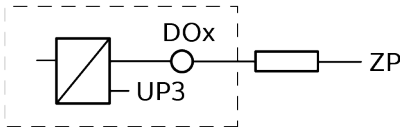
Fig. 14: Example of connection output DOx

17.5 Cleaning

Cleaning instructions

Do not use cleaning agent for cleaning the device.

Use a damp cloth instead.

17.6   Certification

	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

MSIP-REI-Abb-AC500

en	**Note** These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

17.7   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

18 CI502-PNIO(-XC)

- CI502-PNIO
- CI502-PNIO-XC

⚠️ **CAUTION!**

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

- Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
- Only by qualified personnel.

❗ **NOTICE!**

The section "Hot Swap" is only valid for CI502-PNIO(-XC) and CI522-MODTCP(-XC).

Hot swap

⚠️ **WARNING!**

Risk of explosion or fire in hazardous environments during hot swapping!

Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

> ⚠️ **WARNING!**
>
> **Electric shock due to negligent behavior during hot swapping!**
>
> To avoid electric shock
>
> – make sure the following conditions apply:
>   – Digital outputs are not under load.
>   – Input/output voltages above safety extra low voltage/ protective extra low voltage (SELV/PELV) are switched off.
>   – Modules are fully interlocked with the terminal unit with both snap-fits engaged before switching on loads or input/output voltage.
> – Never touch exposed contacts (dangerous voltages).
> – Stay away from electrical contacts to avoid arc discharge.
> – Do not operate a mechanical installation improperly.

> ❗ **NOTICE!**
>
> **Risk of damage to I/O modules!**
>
> Hot swapping is only allowed for I/O modules.
>
> Processor modules and communication interface modules must not be removed or inserted during operation.

H = **H**ot swap

> ℹ️ *Hot swap*
>
> *System requirements for hot swapping of I/O modules:*
>
> – *Types of terminal units that support hot swapping of I/O modules have the appendix TU5xx-**H**.*
> – *I/O modules as of index F0.*
>
> *The following I/O bus masters support hot swapping of attached I/O modules:*
>
> – *Communication interface modules CI5xx as of index F0.*
> – *Processor modules PM56xx-2ETH with firmware version as of V3.2.0.*

> ℹ️ *Hot swap is not supported by AC500-eCo V3 CPU!*

> ⓘ *The index of the module is in the right corner of the label.*

> ❗ **NOTICE!**
> **Risk of damage to I/O modules!**
> Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

> ❗ **NOTICE!**
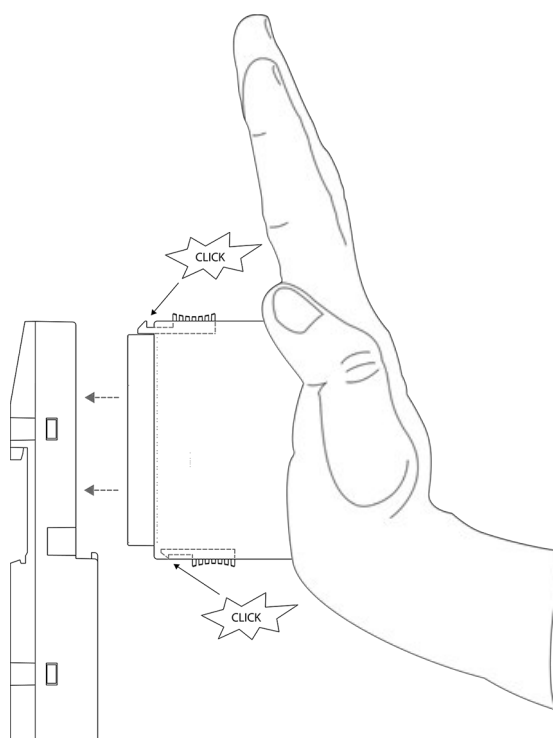> **Risk of damage to I/O modules!**
> Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.
>
> For min. required device index see table below.

Device	Min. required device index for I/O module as of FW Version 3.0.14
AC522(-XC)	F0
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DA502 (-XC)	F0
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

18.1   Assembly

18.2   Disassembly

18.3   Dimensions
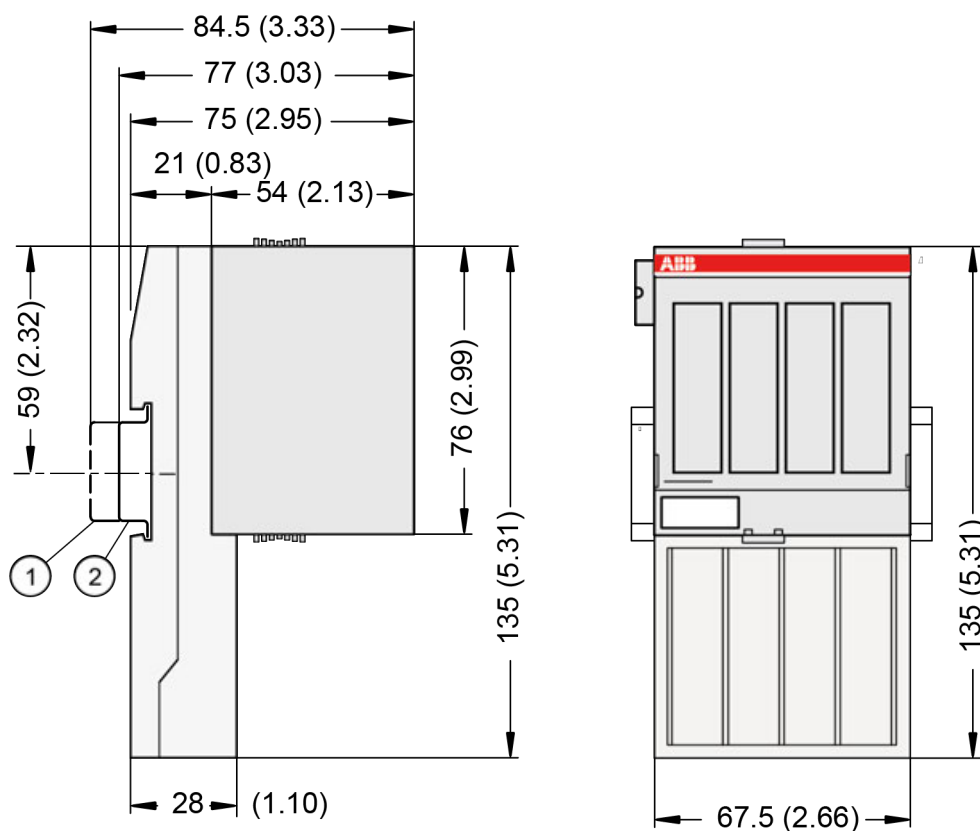
1   Din rail 15 mm
2   Din rail 7.5 mm

ⓘ   *The dimensions are in mm and in brackets in inch.*

18.4   Connections

1   I/O bus
2   Allocation between terminal number and signal name
3   8 yellow LEDs to display the signal states of the digital configurable inputs/outputs
     (DC0 ... DC7)
4   8 yellow LEDs to display the signal states of the digital inputs (DI8 ... DI15)
5   8 yellow LEDs to display the signal states of the digital outputs (DO8 ... DO15)
6   2 green LEDs to display the process supply voltage UP and UP3
7   3 red LEDs to display errors (CH-ERR1, CH-ERR2, CH-ERR3)
8   5 system LEDs: PWR/RUN, STA1 ETH, STA2 ETH, S-ERR, I/O-Bus
9   Label
10 2 rotary switches for setting the I/O device identifier
11 Ethernet interfaces (ETH1, ETH2) on the terminal unit
12 Terminal unit
13 DIN rail
❄ Sign for XC version

> *All I/O channels (digital and analog) are protected against reverse polarity,
> reverse supply and temporary overvoltage up to 30 VDC.*

18.4.1 Process supply voltage
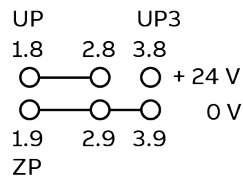
```
            UP        UP3
            1.8   2.8  3.8
             O────O    O    + 24 V
             O────O────O    0 V
            1.9   2.9  3.9
            ZP
```

⚠️ **CAUTION!**

The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

18.4.2 Inputs/Outputs
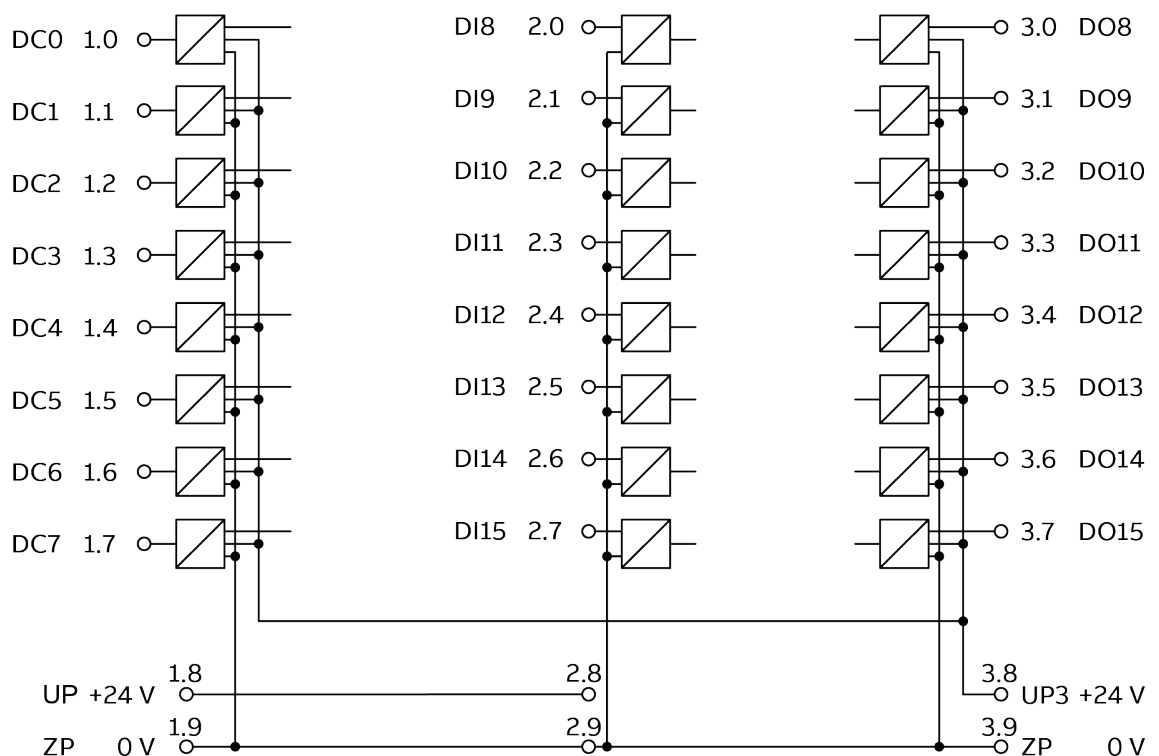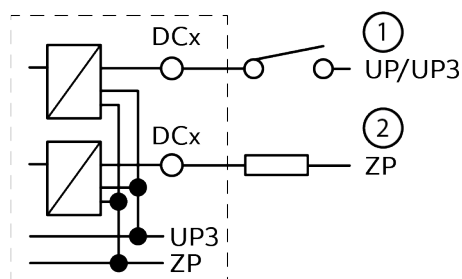
Example input or output

1 Example of connection as an input
2 Example of connection as an output

Example digital input
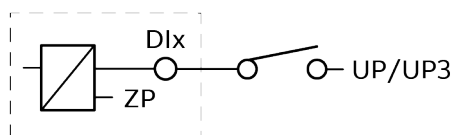
Fig. 15: Example of connection input DIx

Example digital output
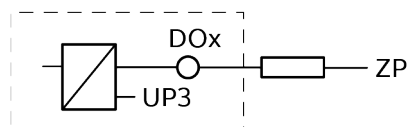
Fig. 16: Example of connection output DOx

18.5 Cleaning

> ⓘ **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
> *Use a damp cloth instead.*

18.6 Certification

en	Devices with KCC sign on product sticker and packaging
ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

MSIP-REI-Abb-AC500

en	Note These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

18.7 Recycling

> ⓘ **Disposal and recycling information**
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

19   CI504-PNIO(-XC)

- CI504-PNIO
- CI504-PNIO-XC
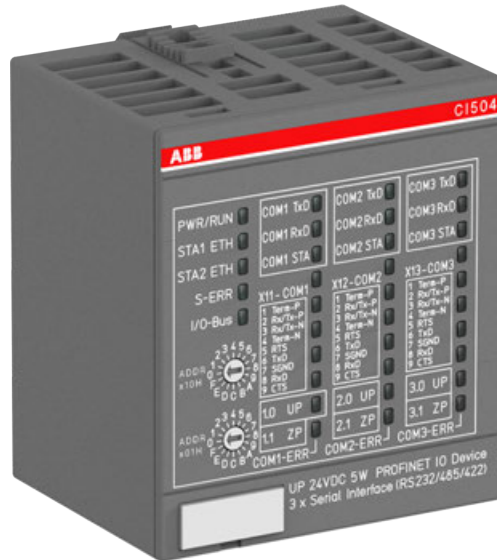
⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

19.1   Assembly
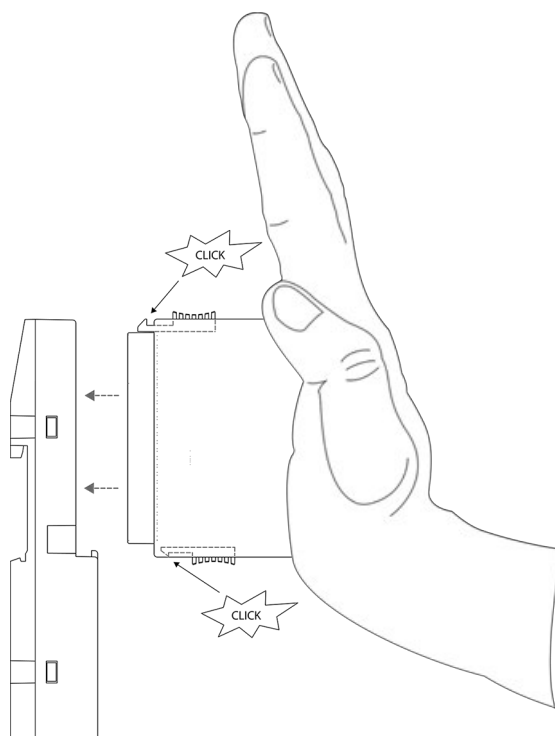
19.2   Disassembly
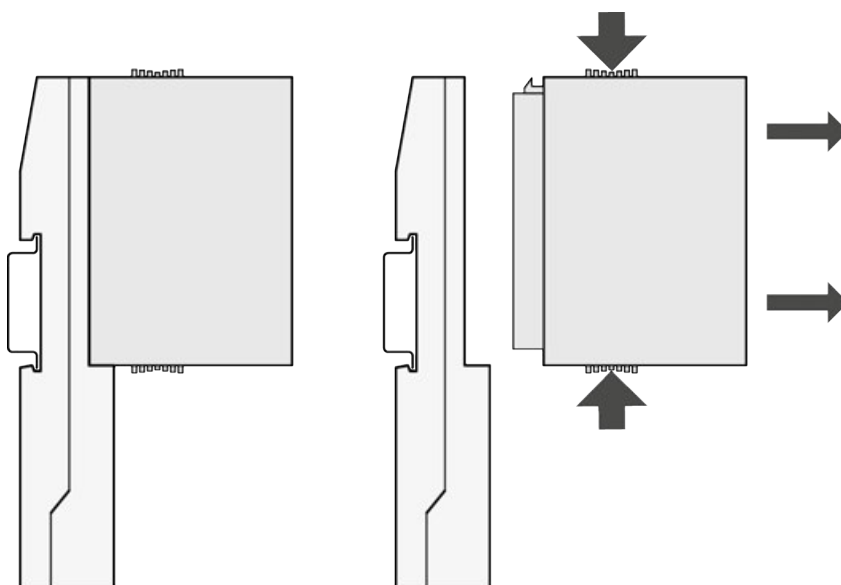
19.3   Dimensions
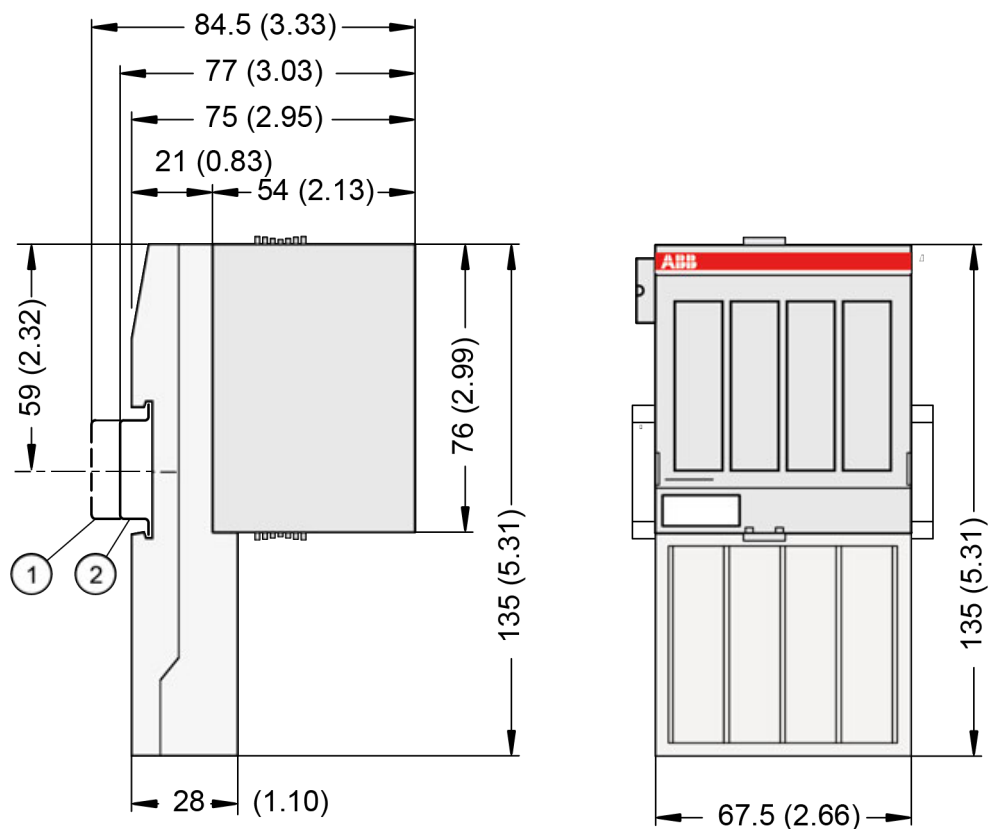
1   Din rail 15 mm
2   Din rail 7.5 mm

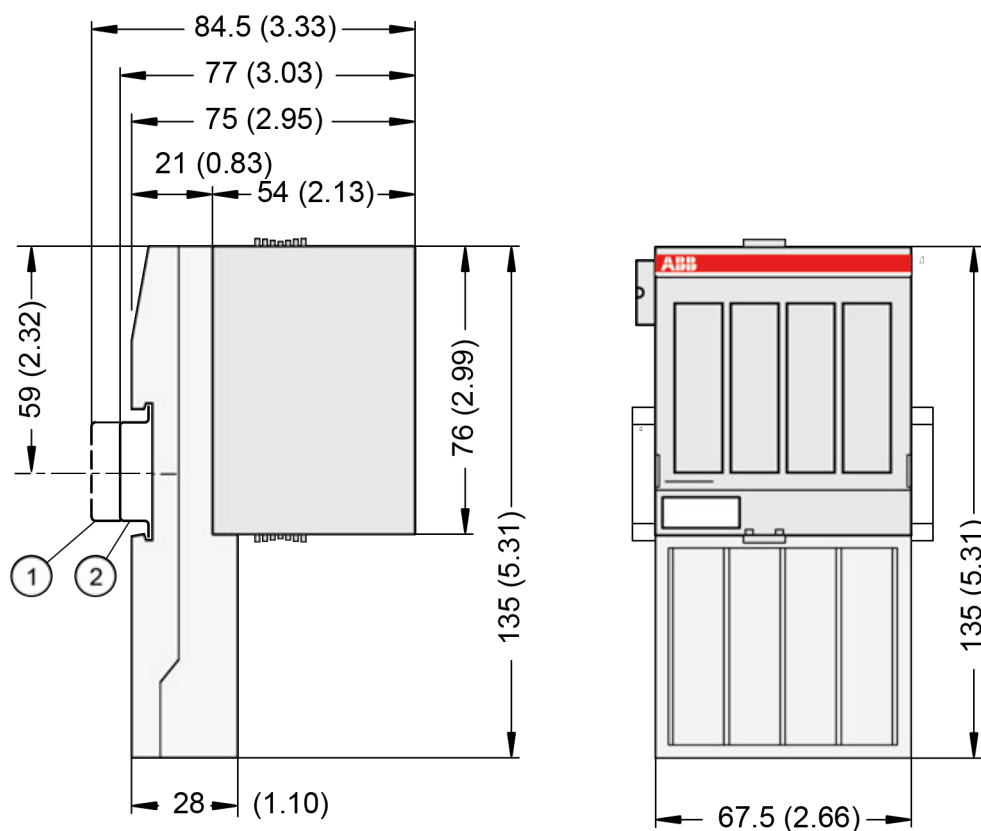> ℹ   *The dimensions are in mm and in brackets in inch.*

19.4 Connections
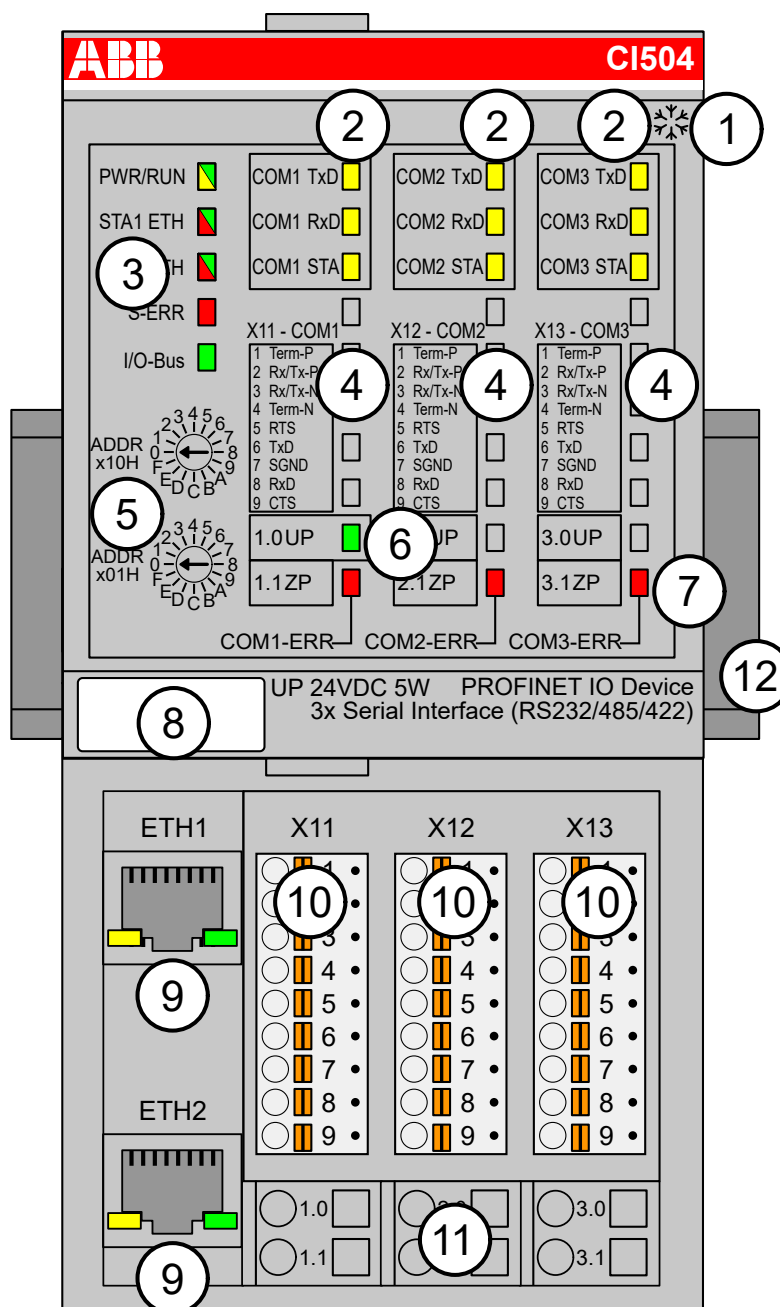
1   I/O bus
2   3 x 3 yellow LEDs to display the signal states of the serial interfaces COM1, COM2 and COM3
3   5 system LEDs: PWR/RUN, STA1 ETH, STA2 ETH, S-ERR, I/O-Bus
4   Allocation between terminal number and signal name of the serial interfaces
5   2 rotary switches for setting the I/O device identifier
6   1 green LED to display the process voltage UP
7   3 red LEDs to display errors (COM1-ERR, COM2-ERR, COM3-ERR) of the serial interfaces
8   Label
9   Ethernet Interfaces (ETH1, ETH2) on the terminal unit
10 3 removable connectors to connect the interfaces
11 6 spring terminals for power supply voltage (UP)
12 DIN rail
❄ Sign for XC version

> ⓘ *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

19.4.1   Process supply voltage

```
            UP
            1.0    2.0    3.0
            O------O------O    + 24 V
            O------O------O      0 V
            1.1    2.1    3.1
            ZP
```
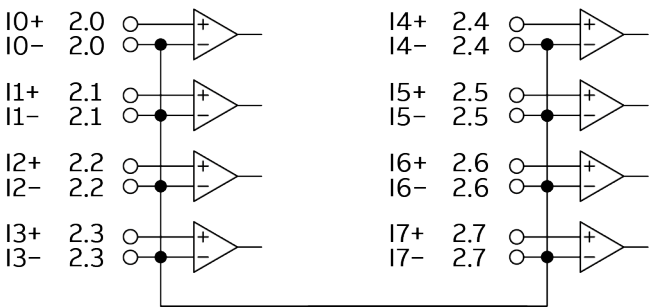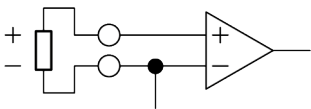
> ⚠️ **CAUTION!**
> The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

19.4.2   Ethernet network interfaces

Pin assignment
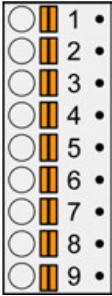
Interface	Pin	Signal	Description
Ethernet RJ45	1	TxD+	Transmit data +
	2	TxD-	Transmit data -
	3	RxD+	Receive data +
	4	NC	Not connected
	5	NC	Not connected
	6	RxD-	Receive data -
	7	NC	Not connected
	8	NC	Not connected
	Shield	Cable shield	Functional earth

> ⓘ *In corrosive environment, please protect unused connectors using the TA535 accessory.*
>
> *Not supplied with this device.*

19.4.3   Serial interfaces COM1/COM2/COM3

Pin assignment (RS-485 / RS-232)

	Pin	Signal	Interface	Description
	1	Terminator P	RS-485	Terminator P
	2	RxD/TxD-P	RS-485	Receive/Transmit, positive
	3	RxD/TxD-N	RS-485	Receive/Transmit, negative
	4	Terminator N	RS-485	Terminator N
	5	RTS	RS-232	Request to send (output)
	6	TxD	RS-232	Transmit data (output)
	7	SGND	Signal Ground	Signal Ground
	8	RxD	RS-232	Receive data (input)
	9	CTS	RS-232	Clear to send (input)

Terminal block removed — Terminal block inserted

> **! NOTICE!**
> **Unused connector!**
> Make sure that the terminal block is always connected to the terminal base or communication module, even if you do not use the interface.

Pin assignment (RS-422)

	PIN	Signal	Interface	Description
	1	Terminator P/ RxD+	RS-422	Terminator P/ Receive, positive
	2	TxD+	RS-422	Transmit, positive
	3	TxD-	RS-422	Transmit, negative
	4	Terminator N/ RxD-	RS-422	Terminator N/ Receive, negative
	5			
	6			
	7	SGND	RS-422	Signal Ground
	8			
	9			

Terminal block removed — Terminal block inserted

> **! NOTICE!**
> **Resistors are connected inside the module**
> The line-terminating resistors are connected inside the module. Additional resistors are not necessary

19.5   Cleaning

> *Cleaning instructions*
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

19.6   Certification

MSIP-REI-Abb-AC500	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	**Note** These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

19.7   Recycling

> *Disposal and recycling information*
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

20 CI506-PNIO(-XC)

- CI506-PNIO
- CI506-PNIO-XC
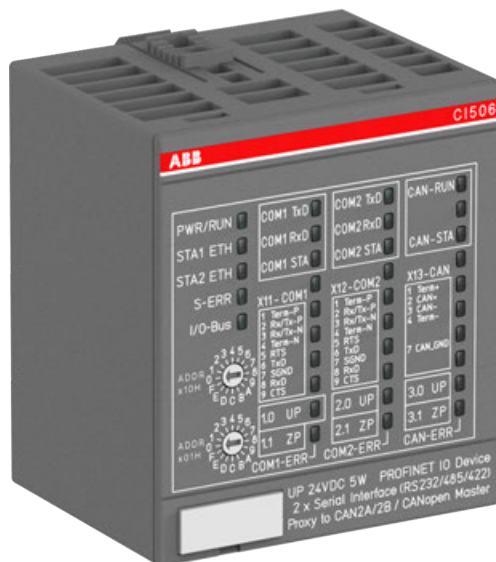
| ⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

20.1 Assembly

20.2 Disassembly

20.3 Dimensions

84.5 (3.33)

77 (3.03)

75 (2.95)

21 (0.83)

54 (2.13)

59 (2.32)

76 (2.99)

135 (5.31)

① ②

28 (1.10)

135 (5.31)

67.5 (2.66)

1   Din rail 15 mm
2   Din rail 7.5 mm

ⓘ   *The dimensions are in mm and in brackets in inch.*

20.4 Connections
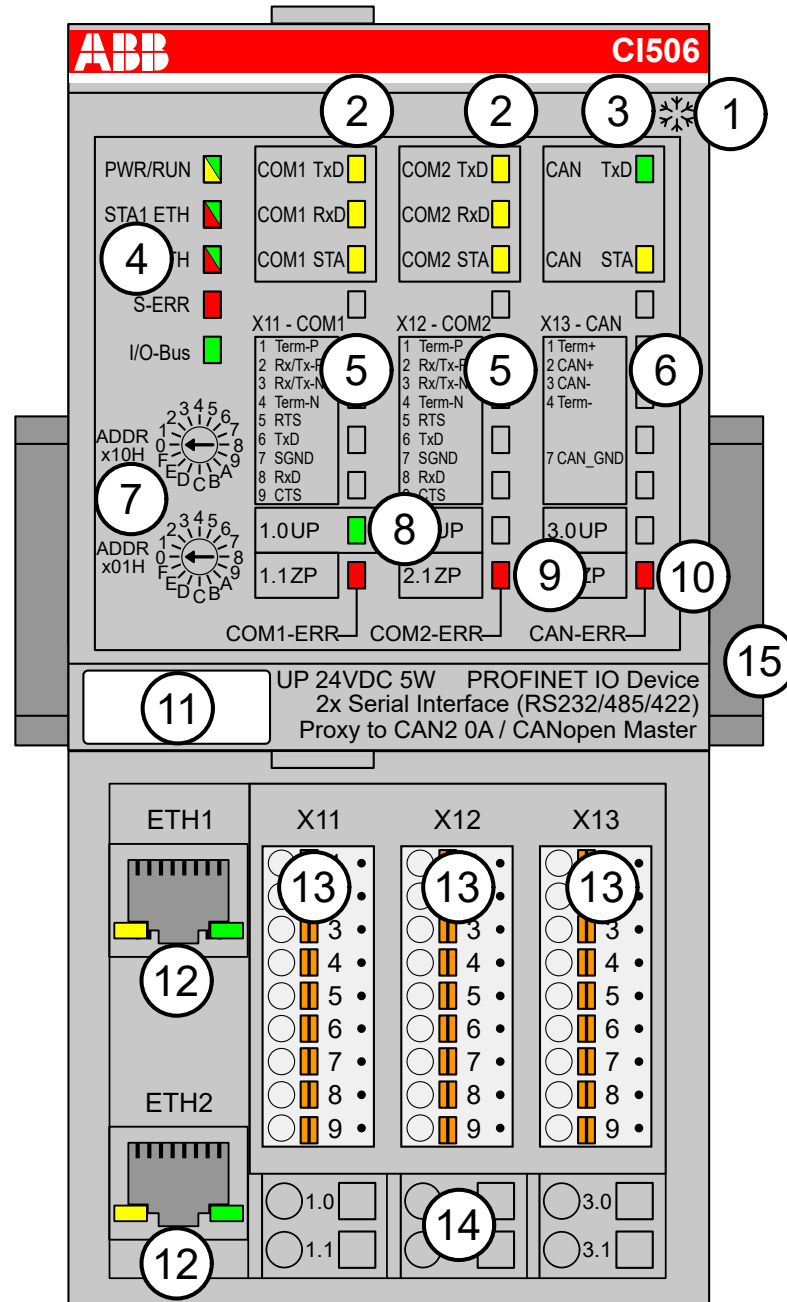
1 I/O bus
2 2 x 3 yellow LEDs to display the signal states of the serial interfaces COM1 and COM2
3 1 green and 1 yellow LEDs to display the signal states of the CANopen interface
4 5 system LEDs: PWR/RUN, STA1 ETH, STA2 ETH, S-ERR, I/O-Bus
5 Allocation between terminal number and signal name of the serial interfaces
6 Allocation between terminal number and signal name of the CANopen interface
7 2 rotary switches for setting the I/O device identifier
8 1 green LED to display the process voltage UP
9 2 red LEDs to display errors (COM1-ERR, COM2-ERR) of the serial interfaces
10 1 red LED to display errors (CAN-ERR) of the CANopen interface
11 Label
12 Ethernet Interfaces (ETH1, ETH2) on the terminal unit
13 3 removable connectors to connect the subordinated interfaces
14 6 spring terminals for power supply voltage (UP)
15 DIN rail
❄ Sign for XC version

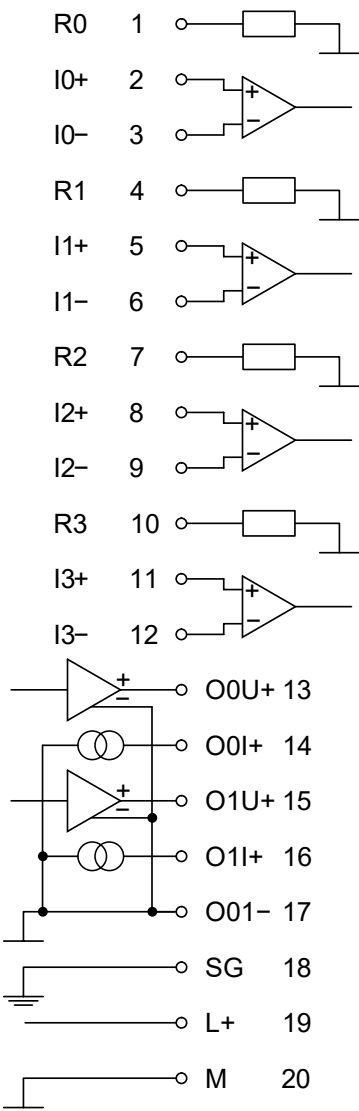> ⓘ *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

20.4.1 Process supply voltage
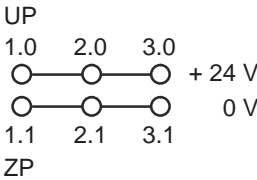
```
           UP
        1.0   2.0   3.0
        ○─────○─────○   + 24 V
        ○─────○─────○     0 V
        1.1   2.1   3.1
           ZP
```
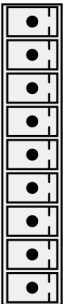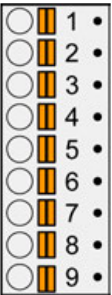
> ⚠ **CAUTION!**
>
> The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

20.4.2 Serial interface COM1/COM2

Pin assignment (RS-485 / RS-232)

		Pin	Signal	Interface	Description
		1	Terminator P	RS-485	Terminator P
		2	RxD/TxD-P	RS-485	Receive/Transmit, positive
		3	RxD/TxD-N	RS-485	Receive/Transmit, negative
		4	Terminator N	RS-485	Terminator N
		5	RTS	RS-232	Request to send (output)
		6	TxD	RS-232	Transmit data (output)
Terminal block removed	Terminal block inserted	7	SGND	Signal Ground	Signal Ground
		8	RxD	RS-232	Receive data (input)
		9	CTS	RS-232	Clear to send (input)

> ❗ **NOTICE!**
>
> **Unused connector!**
>
> Make sure that the terminal block is always connected to the terminal base or communication module, even if you do not use the interface.

Pin assignment (RS-422)

		PIN	Signal	Interface	Description
COM1 (Terminal block removed)	COM1 (Terminal block inserted)	1	Terminator P/RxD+	RS-422	Terminator P/Receive, positive
		2	TxD+	RS-422	Transmit, positive
		3	TxD-	RS-422	Transmit, negative
		4	Terminator N/RxD-	RS-422	Terminator N/Receive, negative
		5			
		6			
		7	SGND	RS-422	Signal Ground
		8			
		9			

> **! NOTICE!**
> **Resistors are connected inside the module**
> The line-terminating resistors are connected inside the module. Additional resistors are not necessary

20.4.3   CANopen interface

Pin assignment

		PIN	Signal	Description
COM1 (Terminal block removed)	COM1 (Terminal block inserted)	1	Term +	Terminator, positive
		2	CAN +	CAN, positive
		3	CAN -	CAN, negative
		4	Term -	Terminator, negative
		5		
		6		
		7	CAN GND	CAN Ground
		8		
		9		

> **! NOTICE!**
> **Unused connector!**
> Make sure that the terminal block is always connected to the terminal base or communication module, even if you do not use the interface.

20.5   Cleaning

> **i** *Cleaning instructions*
> *Do not use cleaning agent for cleaning the device.*
> *Use a damp cloth instead.*

20.6   Certification

| | en | Devices with KCC sign on product sticker and packaging |
| KC | ko | 제품 스티커 및 포장에 **KCC** 표시가 된 기기 |

MSIP-REI-Abb-AC500

en	**Note**	
	These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments",
		KN61000-6-4 "Emission standard for industrial environments"
ko	참고	
	이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성",
		KN61000-6-4 "산업 환경 누출 기준"에 적합함

20.7   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

21 CI511-ETHCAT

- CI511-ETHCAT

⚠️ **CAUTION!**

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.

– Only by qualified personnel.

❗ **NOTICE!**

The section "Hot Swap" is only valid for CI501-PNIO(-XC) and CI521-MODTCP(-XC).

Hot swap

⚠️ **WARNING!**

Risk of explosion or fire in hazardous environments during hot swapping!

Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

> ⚠️ **WARNING!**
>
> **Electric shock due to negligent behavior during hot swapping!**
>
> To avoid electric shock
>
> – make sure the following conditions apply:
>   – Digital outputs are not under load.
>   – Input/output voltages above safety extra low voltage/ protective extra low voltage (SELV/PELV) are switched off.
>   – Modules are fully interlocked with the terminal unit with both snap-fits engaged before switching on loads or input/output voltage.
> – Never touch exposed contacts (dangerous voltages).
> – Stay away from electrical contacts to avoid arc discharge.
> – Do not operate a mechanical installation improperly.

> ❗ **NOTICE!**
>
> **Risk of damage to I/O modules!**
>
> Hot swapping is only allowed for I/O modules.
>
> Processor modules and communication interface modules must not be removed or inserted during operation.

H = **H**ot swap

> ℹ️ *Hot swap*
>
> *System requirements for hot swapping of I/O modules:*
>
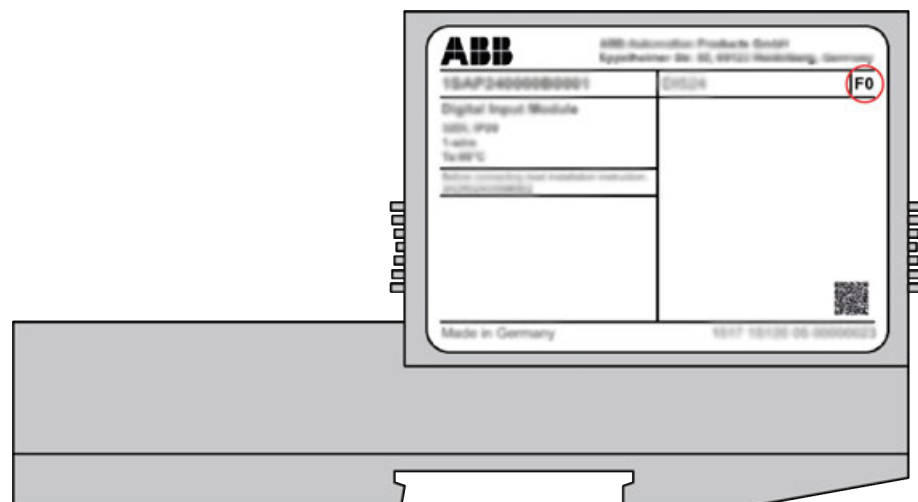> – *Types of terminal units that support hot swapping of I/O modules have the appendix TU5xx-**H**.*
> – *I/O modules as of index F0.*
>
> *The following I/O bus masters support hot swapping of attached I/O modules:*
>
> – *Communication interface modules CI5xx as of index F0.*
> – *Processor modules PM56xx-2ETH with firmware version as of V3.2.0.*

> ℹ️ *Hot swap is not supported by AC500-eCo V3 CPU!*

> ⓘ *The index of the module is in the right corner of the label.*

⚠ NOTICE!
Risk of damage to I/O modules!
Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

⚠ NOTICE!
Risk of damage to I/O modules!
Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.

For min. required device index see table below.

Device	Min. required device index for I/O module as of FW Version 3.0.14
AC522(-XC)	F0
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DA502 (-XC)	F0
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

21.1   Assembly

21.2   Disassembly

21.3   Dimensions
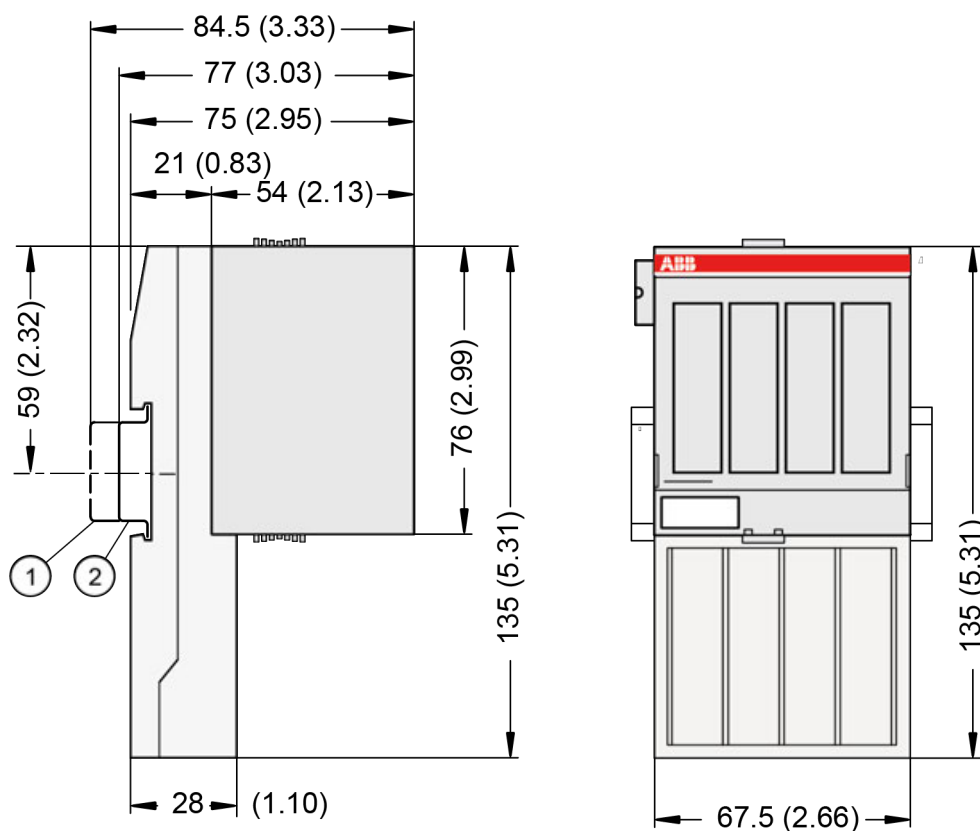
1   Din rail 15 mm
2   Din rail 7.5 mm

> ⓘ   *The dimensions are in mm and in brackets in inch.*

21.4   Connections
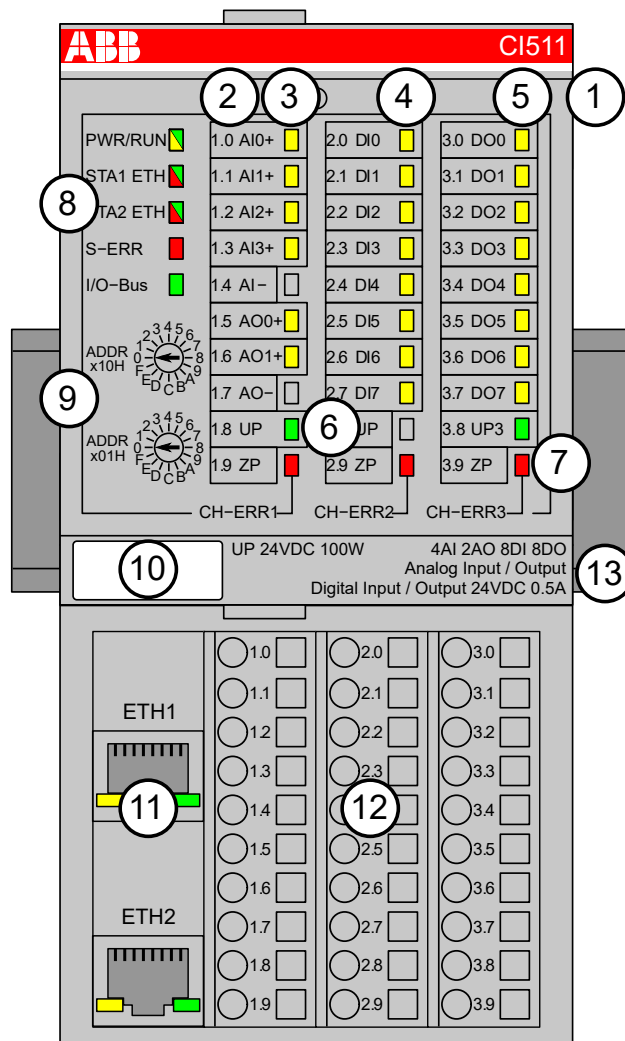
1   I/O bus
2   Allocation between terminal number and signal name
3   6 yellow LEDs to display the signal states of the analog inputs/outputs (AI0 ... AI3, AO0 ... AO1)
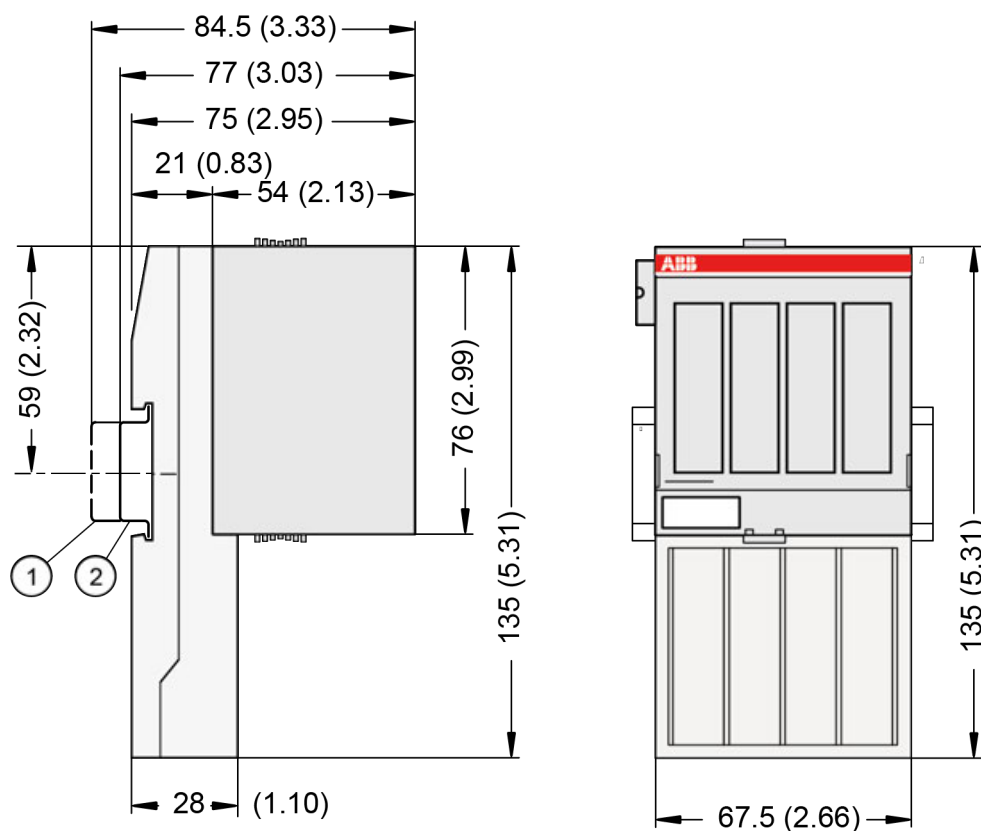4   8 yellow LEDs to display the signal states of the digital inputs (DI0 ... DI7)
5   8 yellow LEDs to display the signal states of the digital outputs (DO0 ... DO7)
6   2 green LEDs to display the supply voltage UP and UP3
7   3 red LEDs to display errors (CH-ERR1, CH-ERR2, CH-ERR3)
8   5 system LEDs: PWR/RUN, NET, DC, S-ERR, I/O-Bus
9   2 rotary switches (reserved for future extensions)
10 Label
11 Ethernet interfaces (ETH1, ETH2) on the terminal unit
12 Terminal unit
13 DIN rail

ⓘ   *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

21.4.1 Process supply voltage
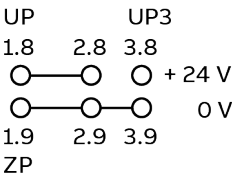
UP UP3
1.8 2.8 3.8
○──○ ○ + 24 V
○──○──○ 0 V
1.9 2.9 3.9
ZP

⚠ **CAUTION!**

The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

21.4.2 Inputs/Outputs
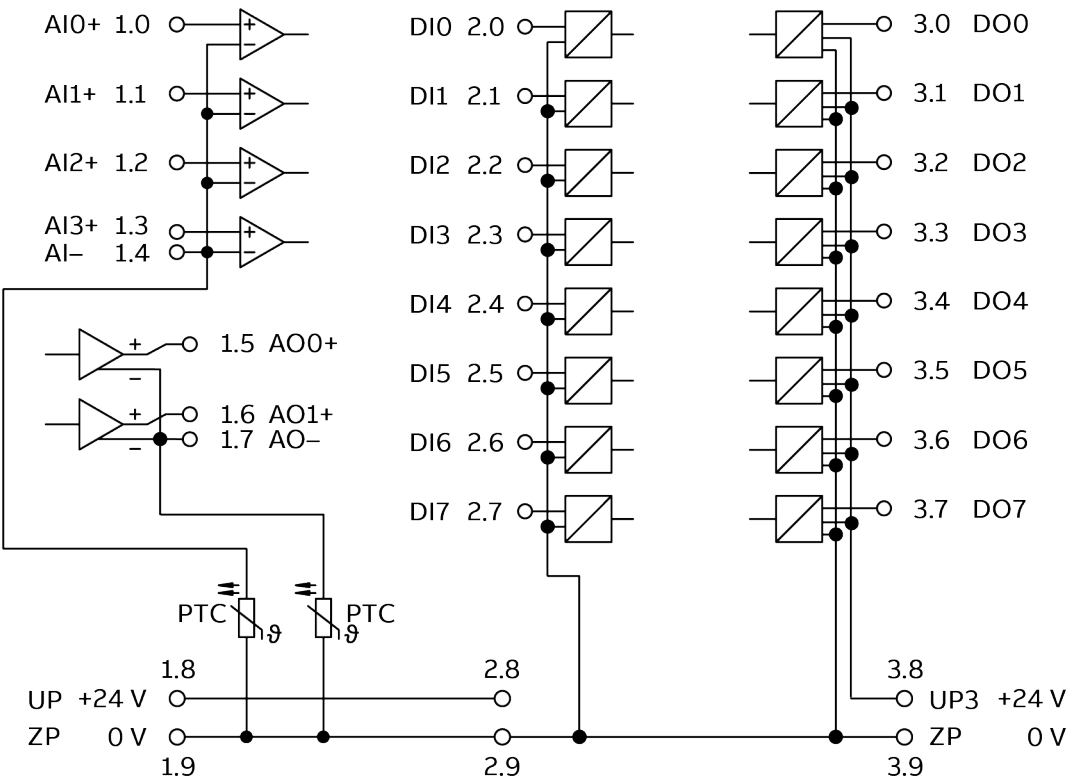
Example analog input
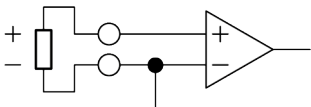
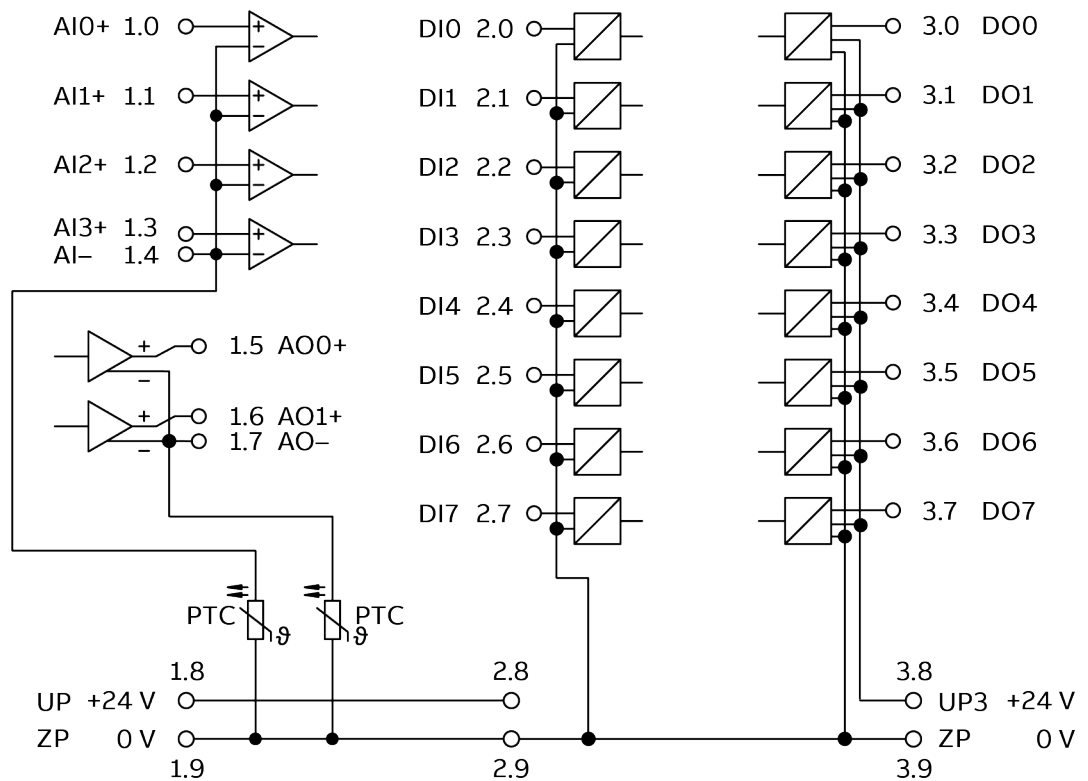| AI0 ... AI3 |
|---|
| 0 V ... +10 V |
| ± 10 V |
| 0 mA ... +20 mA |
| +4 mA ... +20 mA |
| Pt100 / Pt1000 |
| Ni1000 |

Fig. 17: Example of connection input AIx

Example analog output

AO0 ... AO1
± 10 V
0 mA ... +20 mA
+4 mA ... +20 mA
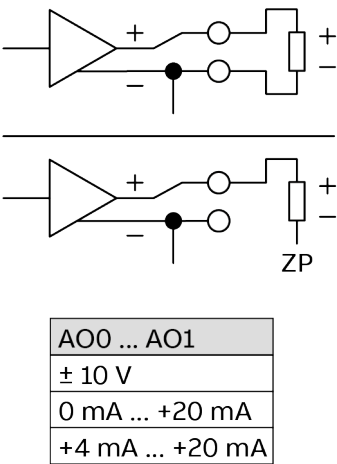
Fig. 18: Example of connection output AOx

Example digital input
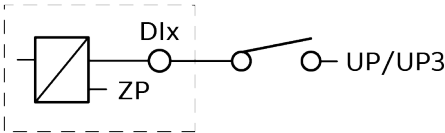
Fig. 19: Example of connection input DIx

Example digital output
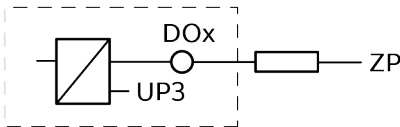
Fig. 20: Example of connection output DOx

21.5   Cleaning

> **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
> *Use a damp cloth instead.*

21.6   Certification

	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

MSIP-REI-Abb-AC500

en	**Note** These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

21.7   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

— 22 CI512-ETHCAT

- CI512-ETHCAT

⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

Hot swap

⚠	**WARNING!**
	Risk of explosion or fire in hazardous environments during hot swapping!
	Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

⚠	**WARNING!**
	Electric shock due to negligent behavior during hot swapping!
	To avoid electric shock
	– make sure the following conditions apply:
	– Digital outputs are not under load.
	– Input/output voltages above safety extra low voltage/ protective extra low voltage (SELV/PELV) are switched off.
	– Modules are fully interlocked with the terminal unit with both snap-fits engaged before switching on loads or input/output voltage.
	– Never touch exposed contacts (dangerous voltages).
	– Stay away from electrical contacts to avoid arc discharge.
	– Do not operate a mechanical installation improperly.

> **!** **NOTICE!**
> **Risk of damage to I/O modules!**
> Hot swapping is only allowed for I/O modules.
>
> Processor modules and communication interface modules must not be removed or inserted during operation.

H = **H**ot swap

> **ⓘ** *Hot swap*
> *System requirements for hot swapping of I/O modules:*
> – *Types of terminal units that support hot swapping of I/O modules have the appendix TU5xx-**H**.*
> – *I/O modules as of index F0.*
>
> *The following I/O bus masters support hot swapping of attached I/O modules:*
> – *Communication interface modules CI5xx as of index F0.*
> – *Processor modules PM56xx-2ETH with firmware version as of V3.2.0.*

> **ⓘ** *Hot swap is not supported by AC500-eCo V3 CPU!*

> **ⓘ** *The index of the module is in the right corner of the label.*

> **!** **NOTICE!**
> **Risk of damage to I/O modules!**
> Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

> **NOTICE!**
> **Risk of damage to I/O modules!**
> Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.
>
> For min. required device index see table below.

Device	Min. required device index for I/O module as of FW Version 3.0.14
AC522(-XC)	F0
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DA502 (-XC)	F0
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3
DO572	B2
DO573	A1
DX522 (-XC)	D2

Device	Min. required device index for I/O module as of FW Version 3.0.14
DX531	D2
DX561	B2
DX571	B3
FM562	A1

22.1   Assembly
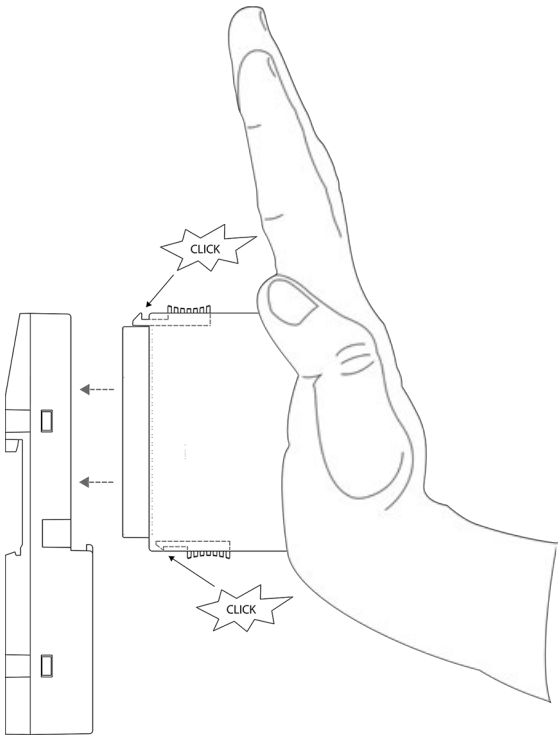
22.2   Disassembly

22.3   Dimensions

1   Din rail 15 mm
2   Din rail 7.5 mm
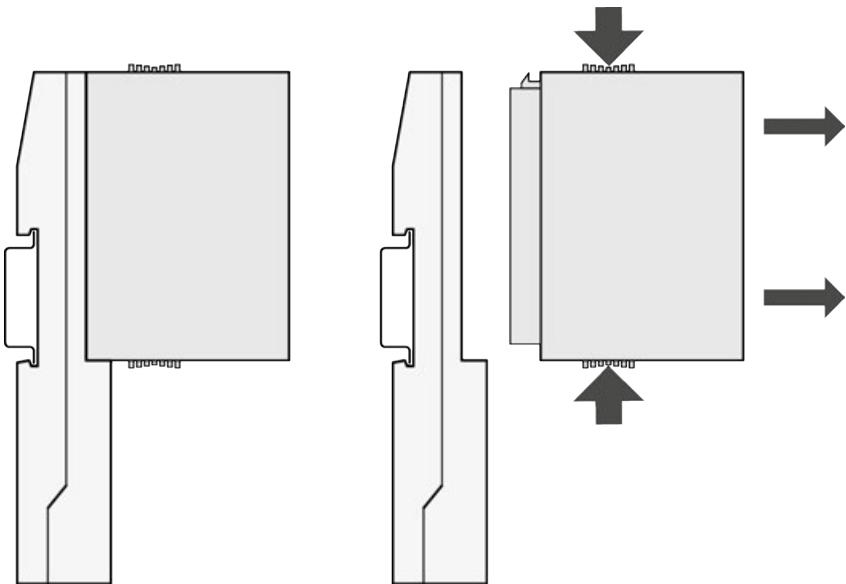
> ℹ   *The dimensions are in mm and in brackets in inch.*

22.4   Connections

1   I/O bus
2   Allocation between terminal number and signal name
3   8 yellow LEDs to display the signal states of the digital configurable inputs/outputs (DC0 ... DC7)
4   8 yellow LEDs to display the signal states of the digital inputs (DI0 ... DI7)
5   8 yellow LEDs to display the signal states of the digital outputs (DO0 ... DO7)
6   2 green LEDs to display the supply voltage UP and UP3
7   3 red LEDs to display errors (CH-ERR1, CH-ERR2, CH-ERR3)
8   5 System LEDs: PWR/RUN, NET, DC, S-ERR, I/O-Bus
9   2 rotary switches (reserved for future extensions)
10   Label
11   Ethernet interfaces (ETH1, ETH2) on the terminal unit
12   Terminal unit
13   DIN rail

> ℹ️ *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

22.4.1 Process supply voltage
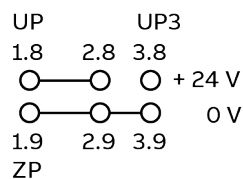
```
          UP        UP3
        1.8   2.8  3.8
         O────O    O   + 24 V
         O────O────O   0 V
        1.9   2.9  3.9
        ZP
```

> **CAUTION!**
>
> The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

22.4.2 Inputs/Outputs
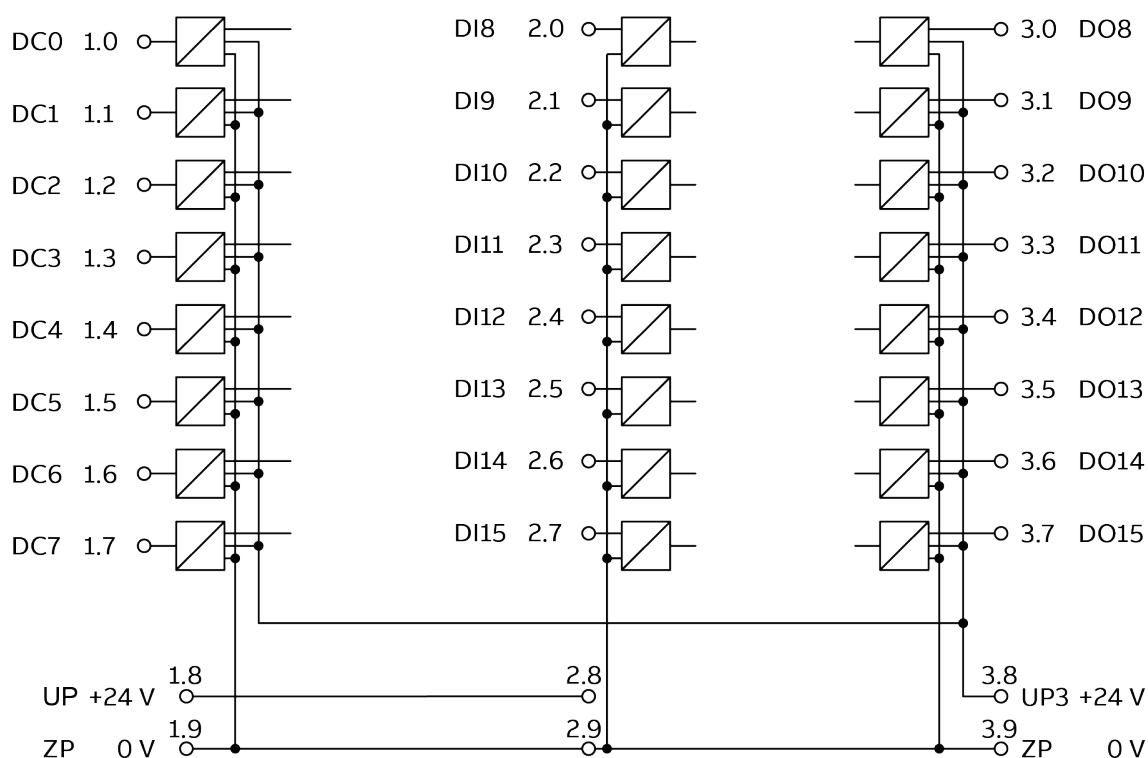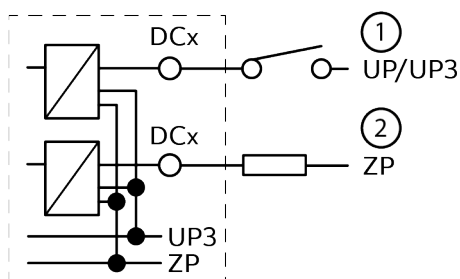
DC0	1.0		DI8	2.0			3.0	DO8
DC1	1.1		DI9	2.1			3.1	DO9
DC2	1.2		DI10	2.2			3.2	DO10
DC3	1.3		DI11	2.3			3.3	DO11
DC4	1.4		DI12	2.4			3.4	DO12
DC5	1.5		DI13	2.5			3.5	DO13
DC6	1.6		DI14	2.6			3.6	DO14
DC7	1.7		DI15	2.7			3.7	DO15

```
UP +24 V  1.8          2.8          3.8  UP3 +24 V
ZP  0 V   1.9          2.9          3.9  ZP    0 V
```

Example input or output

```
          DCx        ①
                     ○── UP/UP3
          DCx        ②
                  ▭── ZP
          UP3
          ZP
```

1 Example of connection as an input
2 Example of connection as an output

Example digital input
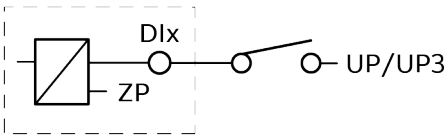
Fig. 21: Example of connection input DIx

Example digital output
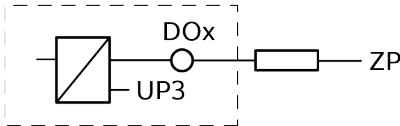
Fig. 22: Example of connection output DOx

22.5   Cleaning

> *Cleaning instructions*
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

22.6   Certification

22.7   Recycling

> *Disposal and recycling information*
>
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

23 CI521-MODTCP(-XC)

- CI521-MODTCP
- CI521-MODTCP-XC

⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

Hot swap

⚠	**WARNING!**
	Risk of explosion or fire in hazardous environments during hot swapping!
	Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

⚠️ **WARNING!**

Electric shock due to negligent behavior during hot swapping!

To avoid electric shock

- make sure the following conditions apply:
  - Digital outputs are not under load.
  - Input/output voltages above safety extra low voltage/ protective extra low voltage (SELV/PELV) are switched off.
  - Modules are fully interlocked with the terminal unit with both snap-fits engaged before switching on loads or input/output voltage.
- Never touch exposed contacts (dangerous voltages).
- Stay away from electrical contacts to avoid arc discharge.
- Do not operate a mechanical installation improperly.

❗ **NOTICE!**

Risk of damage to I/O modules!

Hot swapping is only allowed for I/O modules.

Processor modules and communication interface modules must not be removed or inserted during operation.

H = **H**ot swap

ℹ️ *Hot swap*

System requirements for hot swapping of I/O modules:

- *Types of terminal units that support hot swapping of I/O modules have the appendix TU5xx-**H**.*
- *I/O modules as of index F0.*

The following I/O bus masters support hot swapping of attached I/O modules:

- *Communication interface modules CI5xx as of index F0.*
- *Processor modules PM56xx-2ETH with firmware version as of V3.2.0.*

ℹ️ *Hot swap is not supported by AC500-eCo V3 CPU!*

> ℹ️ *The index of the module is in the right corner of the label.*

> ❗ **NOTICE!**
> **Risk of damage to I/O modules!**
> Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

> ❗ **NOTICE!**
> **Risk of damage to I/O modules!**
> Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.
>
> For min. required device index see table below.

Device	Min. required device index for I/O module as of FW Version 3.0.14
AC522(-XC)	F0
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DA502 (-XC)	F0
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

23.1   Assembly
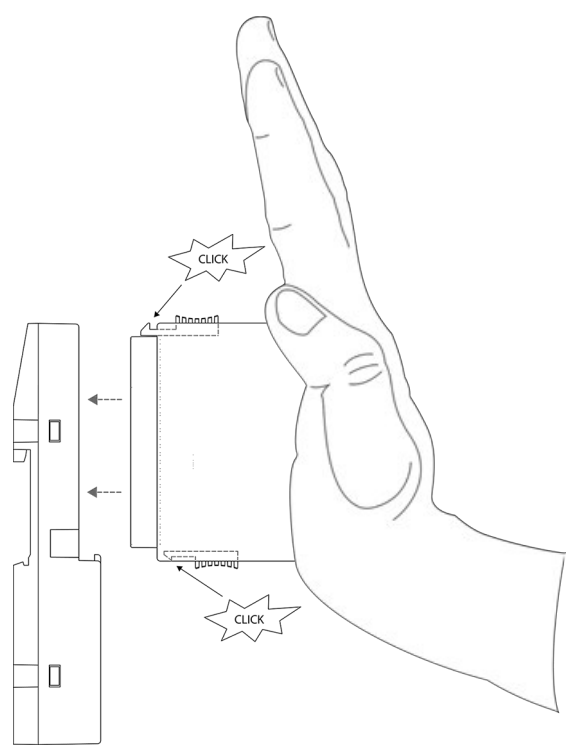
23.2 Disassembly
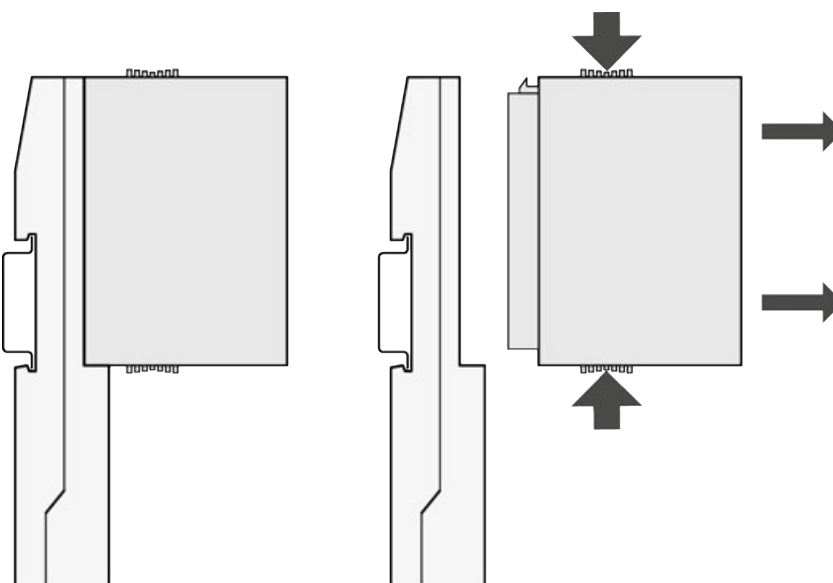
23.3 Dimensions
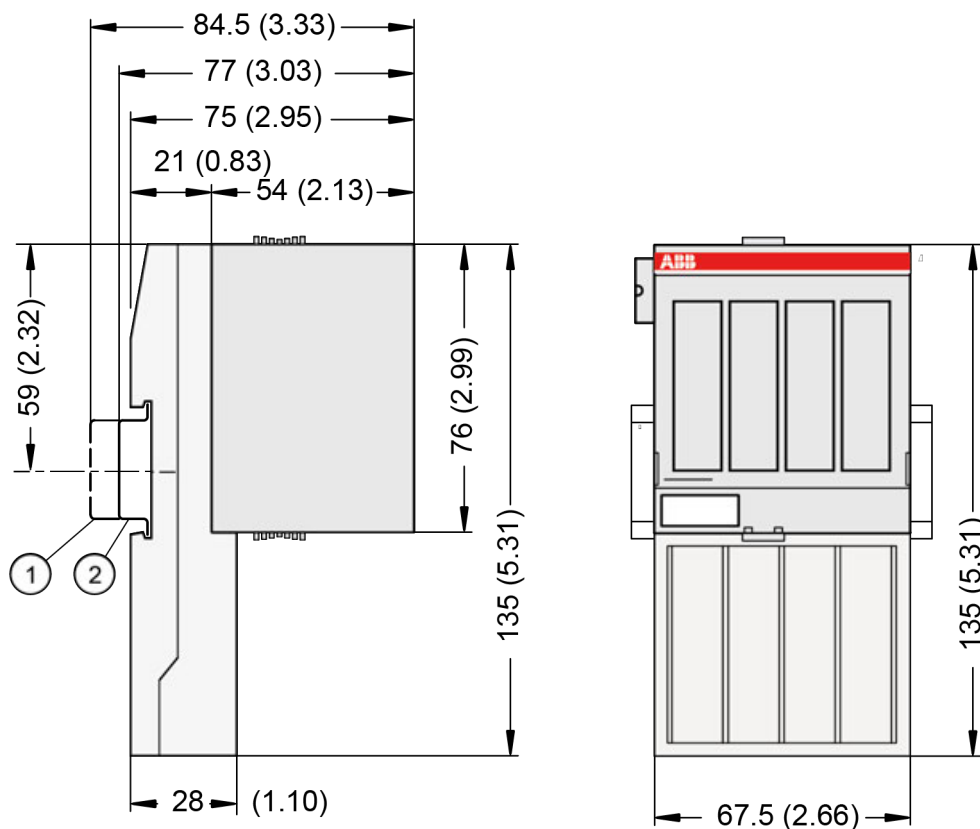
1   Din rail 15 mm
2   Din rail 7.5 mm

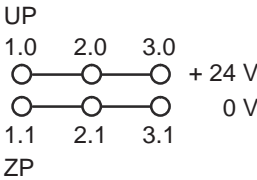
ⓘ   *The dimensions are in mm and in brackets in inch.*

23.4   Connections

1   I/O bus
2   Allocation between terminal number and signal name
3   6 yellow LEDs to display the signal states of the analog inputs/outputs (AI0 ... AI3, AO0 ... AO1)
4   8 yellow LEDs to display the signal states of the digital inputs (DI0 ... DI7)
5   8 yellow LEDs to display the signal states of the digital outputs (DO0 ... DO7)
6   2 green LEDs to display the process supply voltage UP and UP3
7   3 red LEDs to display errors (CH-ERR1, CH-ERR2, CH-ERR3)
8   5 system LEDs: PWR/RUN, STA1 ETH, STA2 ETH, S-ERR, I/O-Bus
9   Label
10 2 rotary switches for setting the IP address
11 Ethernet interfaces (ETH1, ETH2) on the terminal unit
12 Terminal unit
13 DIN rail
❄ Sign for XC version

> ℹ️ *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

23.4.1   Process supply voltage

> ⚠️ **CAUTION!**
>
> The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

23.4.2   Inputs/Outputs
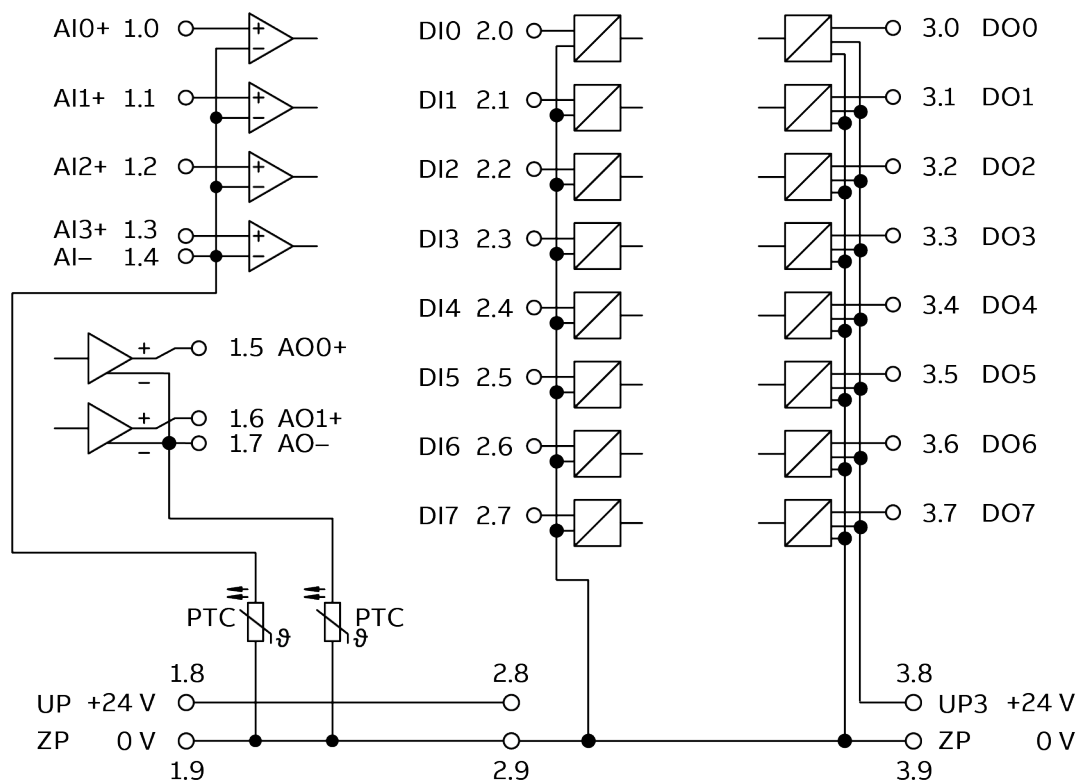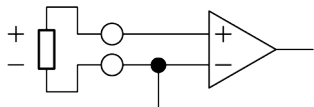
Example analog input

Fig. 23: Example of connection input AIx

Example analog output
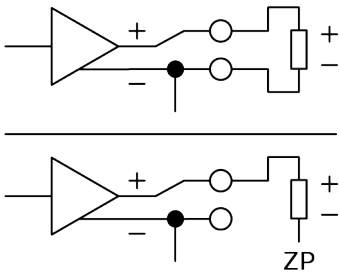
Fig. 24: Example of connection output AOx

Example digital input
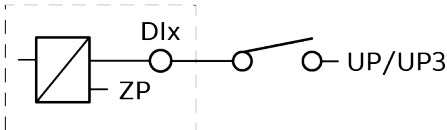
Fig. 25: Example of connection input DIx

Example digital output
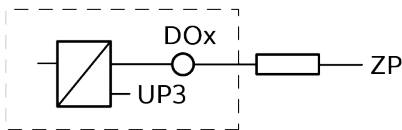
Fig. 26: Example of connection output DOx

23.5 Cleaning

> **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

23.6 Certification

KC MSIP-REI-Abb-AC500	**en** Devices with KCC sign on product sticker and packaging **ko** 제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	**Note** These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

23.7 Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

24 CI522-MODTCP(-XC)

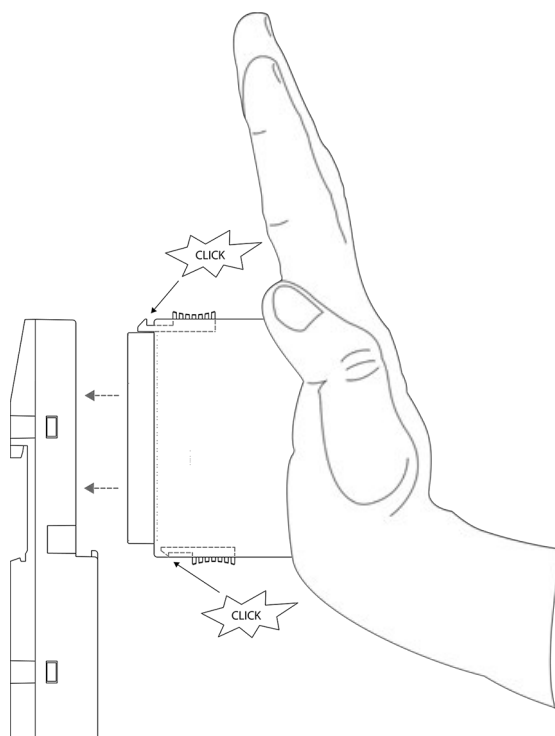- CI522-MODTCP
- CI522-MODTCP-XC

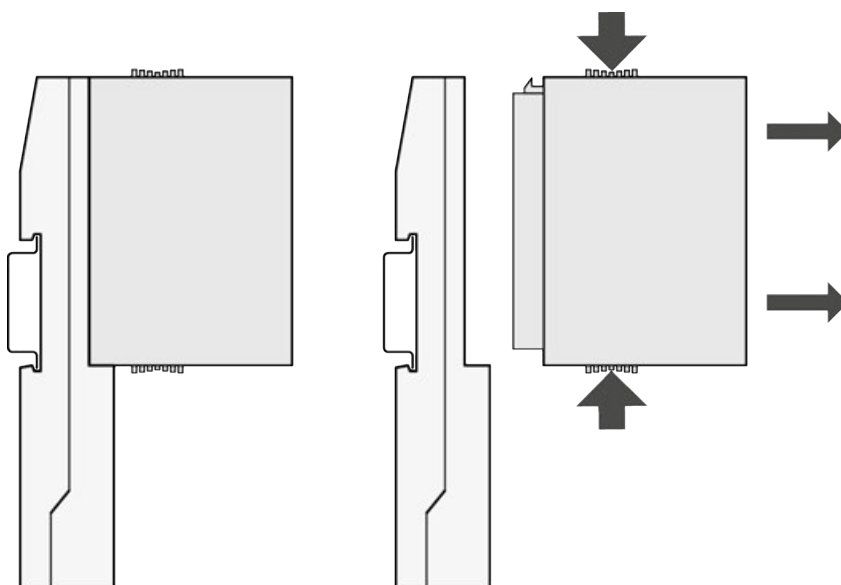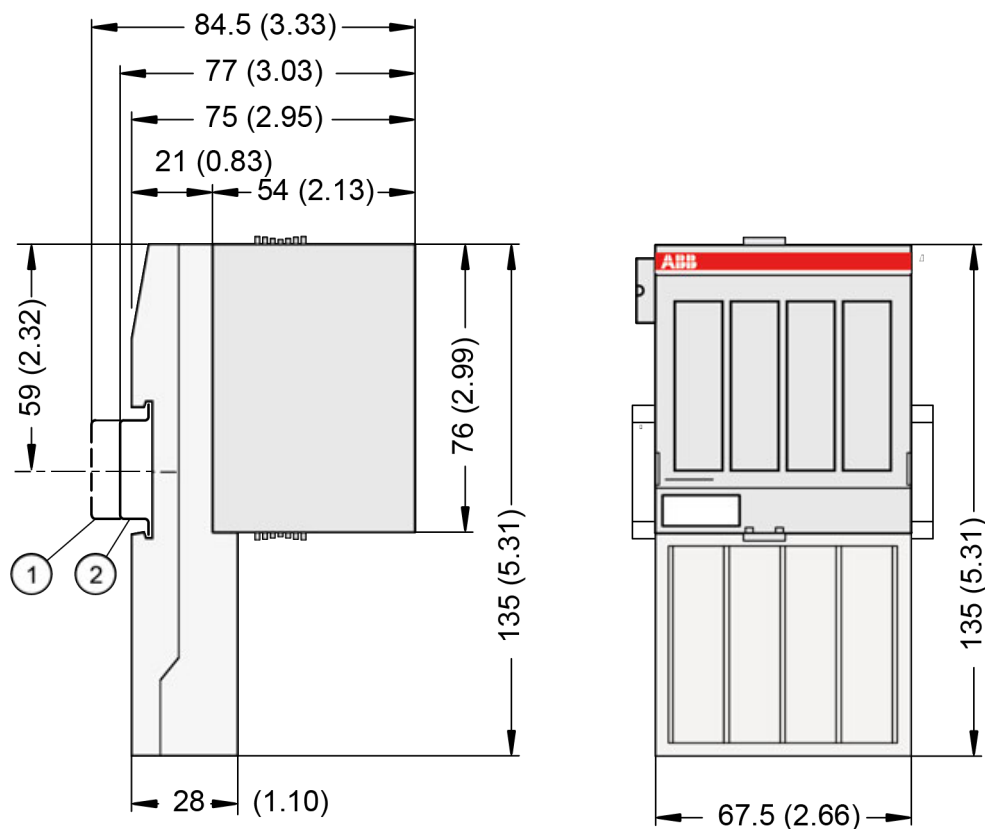| ⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

❗	**NOTICE!**
	The section "Hot Swap" is only valid for CI502-PNIO(-XC) and CI522-MODTCP(-XC).

Hot swap

⚠	**WARNING!**
	Risk of explosion or fire in hazardous environments during hot swapping!
	Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

⚠️ **WARNING!**

Electric shock due to negligent behavior during hot swapping!

To avoid electric shock

- make sure the following conditions apply:
  - Digital outputs are not under load.
  - Input/output voltages above safety extra low voltage/ protective extra low voltage (SELV/PELV) are switched off.
  - Modules are fully interlocked with the terminal unit with both snap-fits engaged before switching on loads or input/output voltage.
- Never touch exposed contacts (dangerous voltages).
- Stay away from electrical contacts to avoid arc discharge.
- Do not operate a mechanical installation improperly.

❗ **NOTICE!**

Risk of damage to I/O modules!

Hot swapping is only allowed for I/O modules.

Processor modules and communication interface modules must not be removed or inserted during operation.

H = **H**ot swap

ℹ️ *Hot swap*

System requirements for hot swapping of I/O modules:

- *Types of terminal units that support hot swapping of I/O modules have the appendix TU5xx-**H**.*
- *I/O modules as of index F0.*

The following I/O bus masters support hot swapping of attached I/O modules:

- *Communication interface modules CI5xx as of index F0.*
- *Processor modules PM56xx-2ETH with firmware version as of V3.2.0.*

ℹ️ *Hot swap is not supported by AC500-eCo V3 CPU!*

> ⓘ *The index of the module is in the right corner of the label.*

> ❗ **NOTICE!**
> **Risk of damage to I/O modules!**
> Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

> ❗ **NOTICE!**
> **Risk of damage to I/O modules!**
> Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.
>
> For min. required device index see table below.

Device	Min. required device index for I/O module as of FW Version 3.0.14
AC522(-XC)	F0
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DA502 (-XC)	F0
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

24.1   Assembly

24.2   Disassembly

24.3   Dimensions

1   Din rail 15 mm
2   Din rail 7.5 mm

> *The dimensions are in mm and in brackets in inch.*

24.4   Connections

1   I/O bus
2   Allocation between terminal number and signal name
3   8 yellow LEDs to display the signal states of the digital configurable inputs/outputs (DC0 ... DC7)
4   8 yellow LEDs to display the signal states of the digital inputs (DI8 ... DI15)
5   8 yellow LEDs to display the signal states of the digital outputs (DO8 ... DO15)
6   2 green LEDs to display the process supply voltage UP and UP3
7   3 red LEDs to display errors (CH-ERR1, CH-ERR2, CH-ERR3)
8   5 system LEDs: PWR/RUN, STA1 ETH, STA2 ETH, S-ERR, I/O-Bus
9   Label
10 2 rotary switches for setting the IP address
11 Ethernet interfaces (ETH1, ETH2) on the terminal unit
12 Terminal unit
13 DIN rail
✳   Sign for XC version

> ℹ️ *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

24.4.1   Process supply voltage
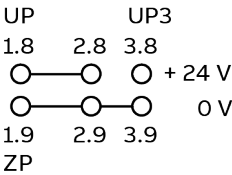
```
        UP      UP3
       1.8   2.8  3.8
        ○─────○   ○   + 24 V
        ○─────○───○   0 V
       1.9   2.9  3.9
        ZP
```

> ⚠️ **CAUTION!**
>
> The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

24.4.2   Inputs/Outputs
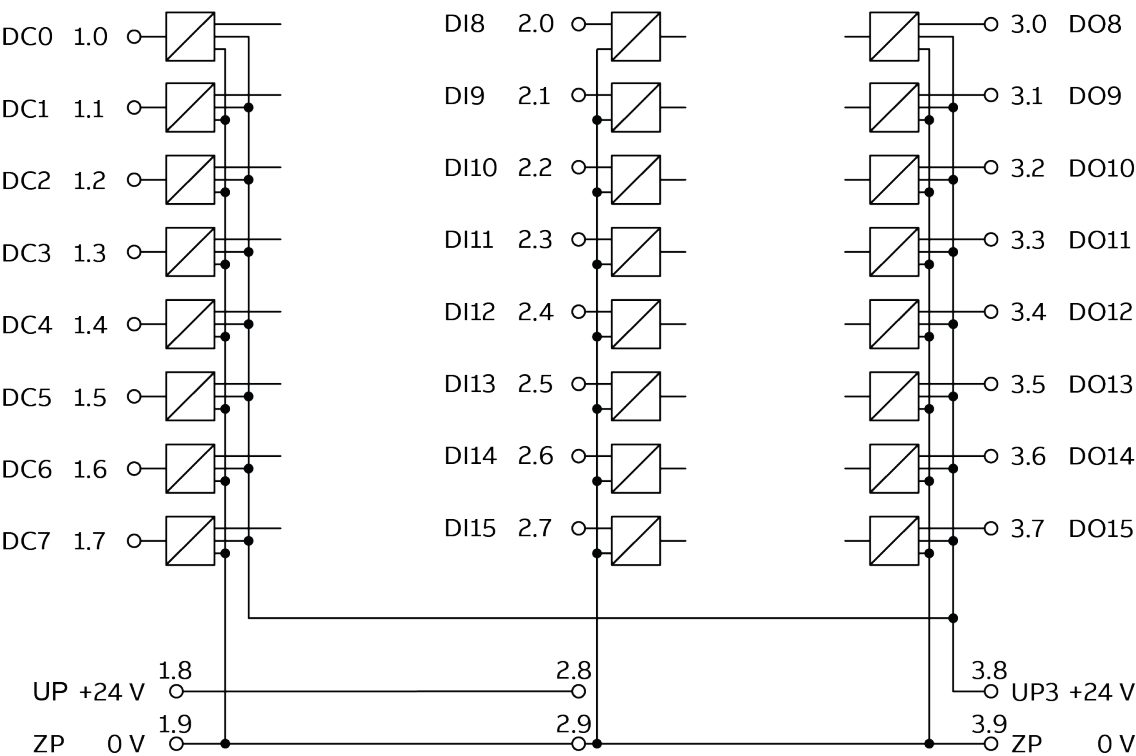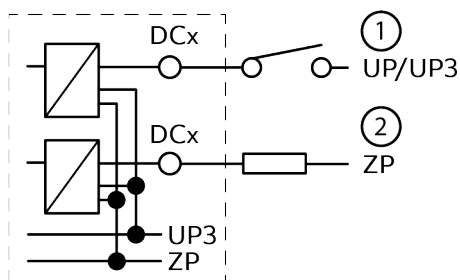
**Example input
or output**

DCx — 1 — UP/UP3

DCx — 2 — ZP

UP3

ZP

1   Example of connection as an input
2   Example of connection as an output

**Example digital
input**

DIx — UP/UP3

ZP
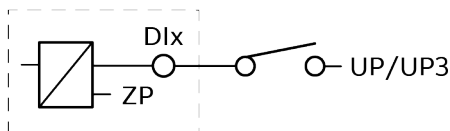
Fig. 27: Example of connection input DIx

**Example digital
output**

DOx — ZP

UP3
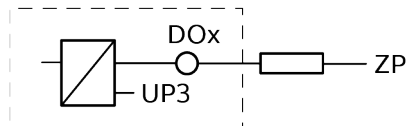
Fig. 28: Example of connection output DOx

24.5   Cleaning

> **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

24.6   Certification

MSIP-REI-Abb-AC500

en		Devices with KCC sign on product sticker and packaging
ko		제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	Note These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

24.7   Recycling

> ### *Disposal and recycling information*
>
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

25 CI541-DP(-XC)

- CI541-DP
- CI541-DP-XC

	CAUTION!
⚠️	**Risk of injury and damaging the product!** Improper installation and maintenance may result in injury and can damage the product! – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1. – Only by qualified personnel.

Hot swap

	WARNING!
⚠️	**Risk of explosion or fire in hazardous environments during hot swapping!** Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

> ⚠️ **WARNING!**
>
> **Electric shock due to negligent behavior during hot swapping!**
>
> To avoid electric shock
>
> – make sure the following conditions apply:
>   – Digital outputs are not under load.
>   – Input/output voltages above safety extra low voltage/
>   protective extra low voltage (SELV/PELV) are switched off.
>   – Modules are fully interlocked with the terminal unit with both snap-fits
>   engaged before switching on loads or input/output voltage.
> – Never touch exposed contacts (dangerous voltages).
> – Stay away from electrical contacts to avoid arc discharge.
> – Do not operate a mechanical installation improperly.

> ❗ **NOTICE!**
>
> **Risk of damage to I/O modules!**
>
> Hot swapping is only allowed for I/O modules.
>
> Processor modules and communication interface modules must not be removed
> or inserted during operation.

H = **H**ot swap

> ℹ️ *Hot swap*
>
> *System requirements for hot swapping of I/O modules:*
>
> – *Types of terminal units that support hot swapping of I/O modules have the
>   appendix TU5xx-**H**.*
> – *I/O modules as of index F0.*
>
> *The following I/O bus masters support hot swapping of attached I/O modules:*
>
> – *Communication interface modules CI5xx as of index F0.*
> – *Processor modules PM56xx-2ETH with firmware version as of V3.2.0.*

> ℹ️ *Hot swap is not supported by AC500-eCo V3 CPU!*

> ⓘ *The index of the module is in the right corner of the label.*

> **❗ NOTICE!**
> **Risk of damage to I/O modules!**
> Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.
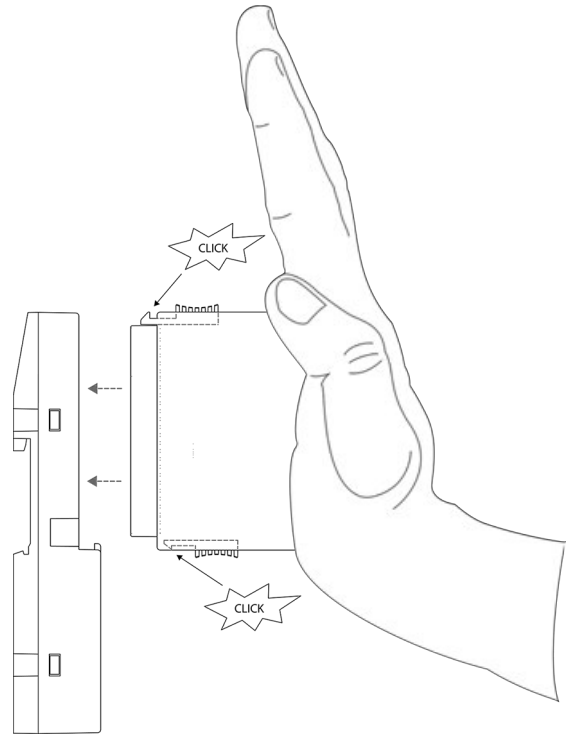
> **❗ NOTICE!**
> **Risk of damage to I/O modules!**
> Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.
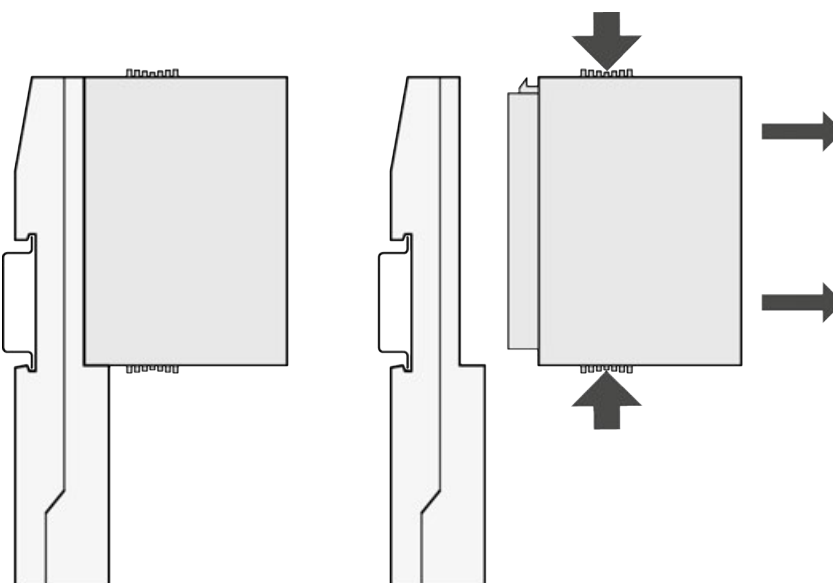>
> For min. required device index see table below.

Device	Min. required device index for I/O module as of FW Version 3.0.14
AC522(-XC)	F0
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DA502 (-XC)	F0
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

25.1   Assembly

25.2   Disassembly
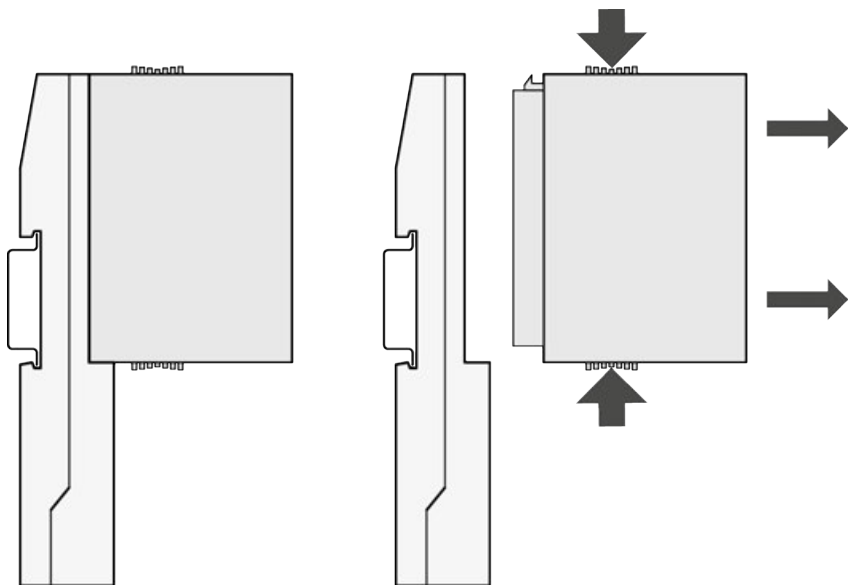
25.3   Dimensions

84.5 (3.33)

77 (3.03)

75 (2.95)

21 (0.83)

54 (2.13)

59 (2.32)

76 (2.99)

135 (5.31)

① ②

28   (1.10)

135 (5.31)

67.5 (2.66)

1   Din rail 15 mm
2   Din rail 7.5 mm

The dimensions are in mm and in brackets in inch.

25.4 Connections

1   I/O bus
2   Allocation between terminal number and signal name
3   6 yellow LEDs to display the signal states of the analog inputs/outputs (AI0 ... AI3, AO0 ... AO1)
4   8 yellow LEDs to display the signal states of the digital inputs (DI0 ... DI7)
5   8 yellow LEDs to display the signal states of the digital outputs (DO0 ... DO7)
6   2 green LEDs to display the process supply voltage UP and UP3
7   3 red LEDs to display errors (CH-ERR1, CH-ERR2, CH-ERR3)
8   5 system LEDs: PWR/RUN, STA1 DP, STA2 DP, S-ERR, I/O-Bus
9   Label
10 2 rotary switches for setting the PROFIBUS ID
11 9-pin D-SUB connector to connect the PROFIBUS DP signals
12 Terminal unit
13 DIN rail
❄ Sign for XC version

> *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

25.4.1   Process supply voltage
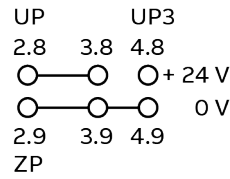
```
UP        UP3
2.8   3.8   4.8
 O────O    O  + 24 V
 O────O────O    0 V
2.9   3.9   4.9
ZP
```

> ⚠️ **CAUTION!**
>
> The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

25.4.2   Inputs/Outputs
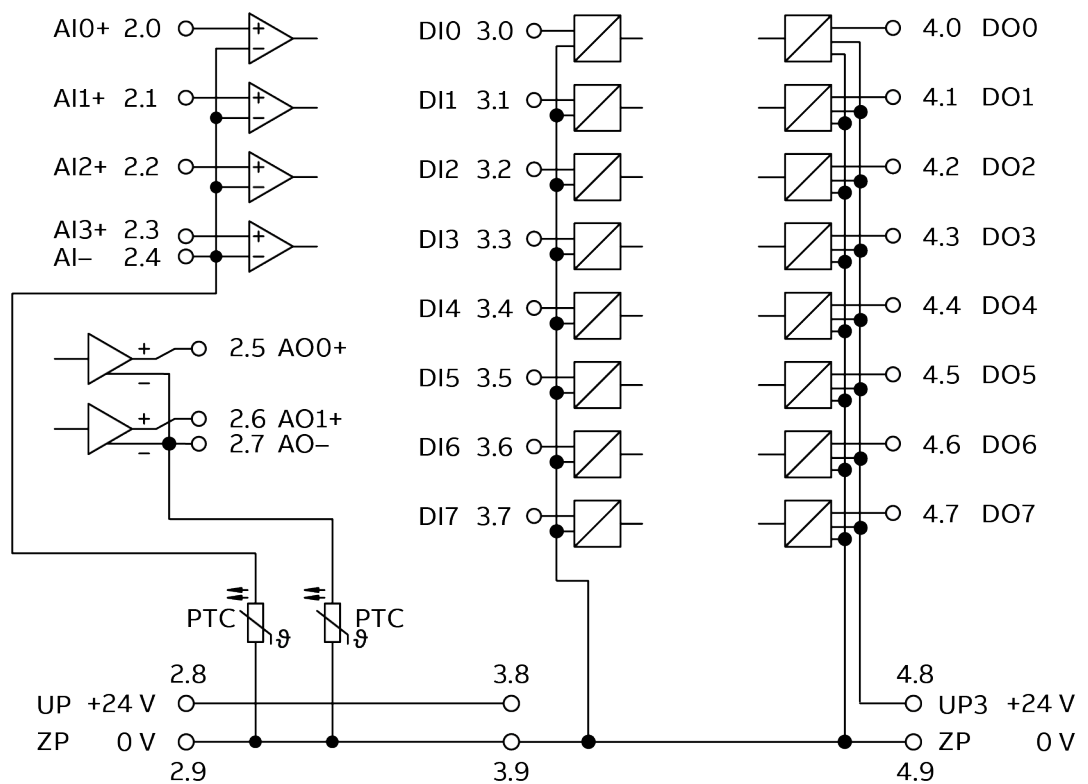
Example analog input
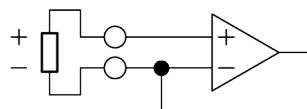
AI0 ... AI3
0 V ... +10 V
± 10 V
0 mA ... +20 mA
+4 mA ... +20 mA
Pt100 / Pt1000
Ni1000

Fig. 29: Example of connection input AIx

**Example analog
output**

AO0 ... AO1
± 10 V
0 mA ... +20 mA
+4 mA ... +20 mA
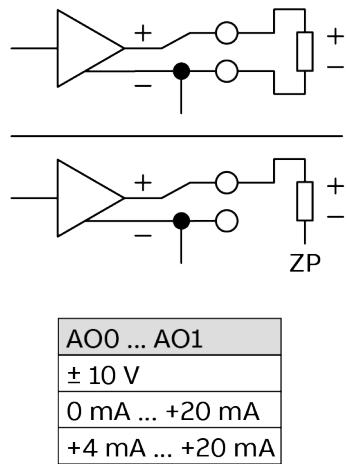
Fig. 30: Example of connection output AOx

**Example digital
input**
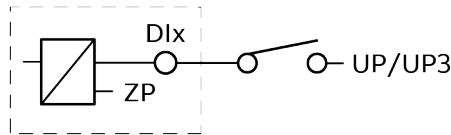
Fig. 31: Example of connection input DIx

**Example digital
output**
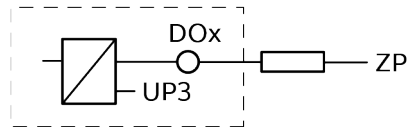
Fig. 32: Example of connection output DOx

25.5   Cleaning

> ***Cleaning instructions***
> *Do not use cleaning agent for cleaning the device.*
> *Use a damp cloth instead.*

25.6   Certification

	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

MSIP-REI-Abb-AC500

| en | **Note**
These devices correspond to: | **KN61000-6-2** "Immunity for industrial environments",
KN61000-6-4 "Emission standard for industrial environments" |
| --- | --- | --- |
| ko | 참고
이러한 기기는 | **KN61000-6-2** "산업 환경에 대한 내성",
KN61000-6-4 "산업 환경 누출 기준"에 적합함 |

25.7   Recycling

> ***Disposal and recycling information***
>
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

26 CI542-DP(-XC)

- CI542-DP
- CI542-DP-XC

⚠️ **CAUTION!**

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
– Only by qualified personnel.

Hot swap

⚠️ **WARNING!**

Risk of explosion or fire in hazardous environments during hot swapping!

Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

> **WARNING!**
>
> **Electric shock due to negligent behavior during hot swapping!**
>
> To avoid electric shock
>
> – make sure the following conditions apply:
>   – Digital outputs are not under load.
>   – Input/output voltages above safety extra low voltage/
>   protective extra low voltage (SELV/PELV) are switched off.
>   – Modules are fully interlocked with the terminal unit with both snap-fits
>   engaged before switching on loads or input/output voltage.
> – Never touch exposed contacts (dangerous voltages).
> – Stay away from electrical contacts to avoid arc discharge.
> – Do not operate a mechanical installation improperly.

> **NOTICE!**
>
> **Risk of damage to I/O modules!**
>
> Hot swapping is only allowed for I/O modules.
>
> Processor modules and communication interface modules must not be removed
> or inserted during operation.

H = **H**ot swap

> *Hot swap*
>
> *System requirements for hot swapping of I/O modules:*
>
> – *Types of terminal units that support hot swapping of I/O modules have the
>   appendix TU5xx-**H**.*
> – *I/O modules as of index F0.*
>
> *The following I/O bus masters support hot swapping of attached I/O modules:*
>
> – *Communication interface modules CI5xx as of index F0.*
> – *Processor modules PM56xx-2ETH with firmware version as of V3.2.0.*

> *Hot swap is not supported by AC500-eCo V3 CPU!*

> *The index of the module is in the right corner of the label.*

NOTICE!
Risk of damage to I/O modules!
Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

NOTICE!
**Risk of damage to I/O modules!**
Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.

For min. required device index see table below.

Device	Min. required device index for I/O module as of FW Version 3.0.14
AC522(-XC)	F0
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DA502 (-XC)	F0
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

26.1   Assembly
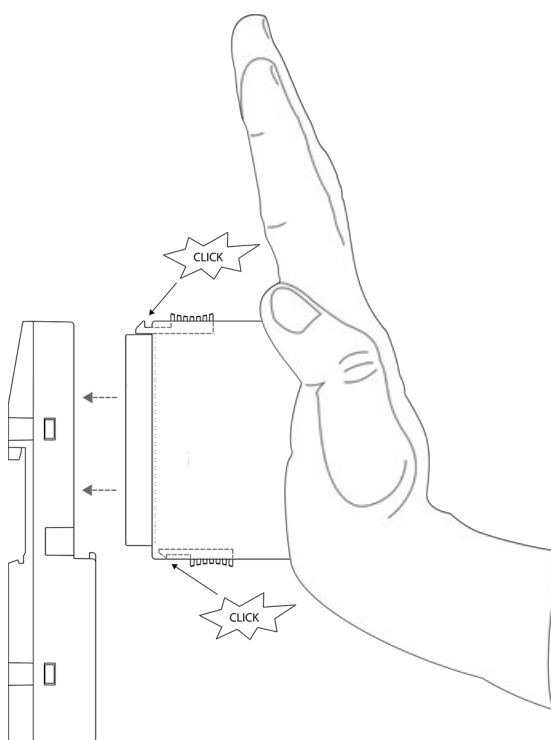
26.2   Disassembly
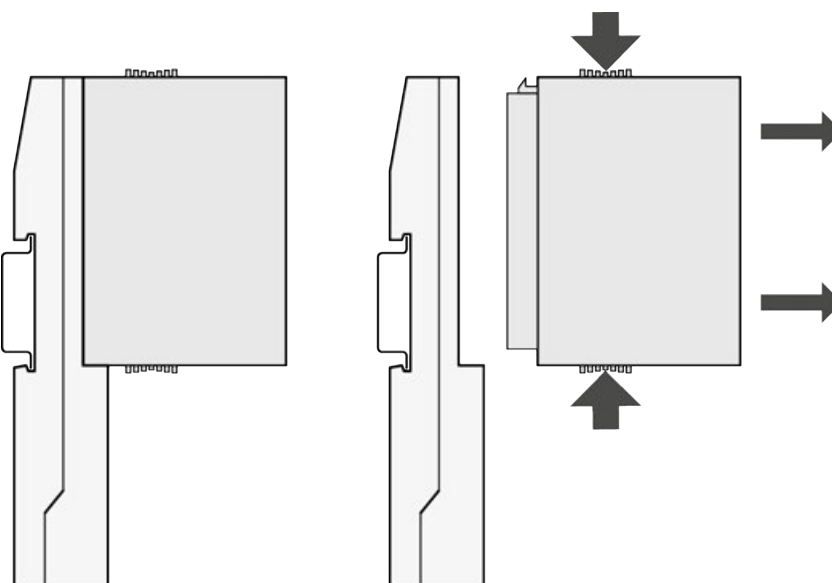
26.3   Dimensions

1   Din rail 15 mm
2   Din rail 7.5 mm

ℹ   *The dimensions are in mm and in brackets in inch.*

26.4   Connections

1   I/O bus
2   Allocation between terminal number and signal name
3   8 yellow LEDs to display the signal states of the configurable digital inputs/outputs (DC0 ... DC7)
4   8 yellow LEDs to display the signal states of the digital inputs (DI8 ... DI15)
5   8 yellow LEDs to display the signal states of the digital outputs (DO8 ... DO15)
6   2 green LEDs to display the process supply voltage UP and UP3
7   3 red LEDs to display errors (CH-ERR1, CH-ERR2, CH-ERR3)
8   5 system LEDs: PWR/RUN, STA1 DP, STA2 DP, S-ERR, I/O-Bus
9   Label
10   2 rotary switches for setting the PROFIBUS ID
11   9-pin D-SUB connector to connect the PROFIBUS DP signals
12   Terminal unit
13   DIN rail
✳   Sign for XC version

> ⓘ   *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

26.4.1   Process supply voltage
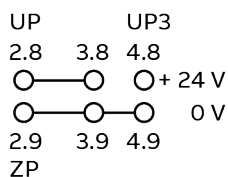
```
        UP        UP3
        2.8   3.8  4.8
         O————O    O  + 24 V
         O————O————O    0 V
        2.9   3.9  4.9
        ZP
```

> ⚠️ **CAUTION!**
>
> The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

26.4.2   Inputs/Outputs
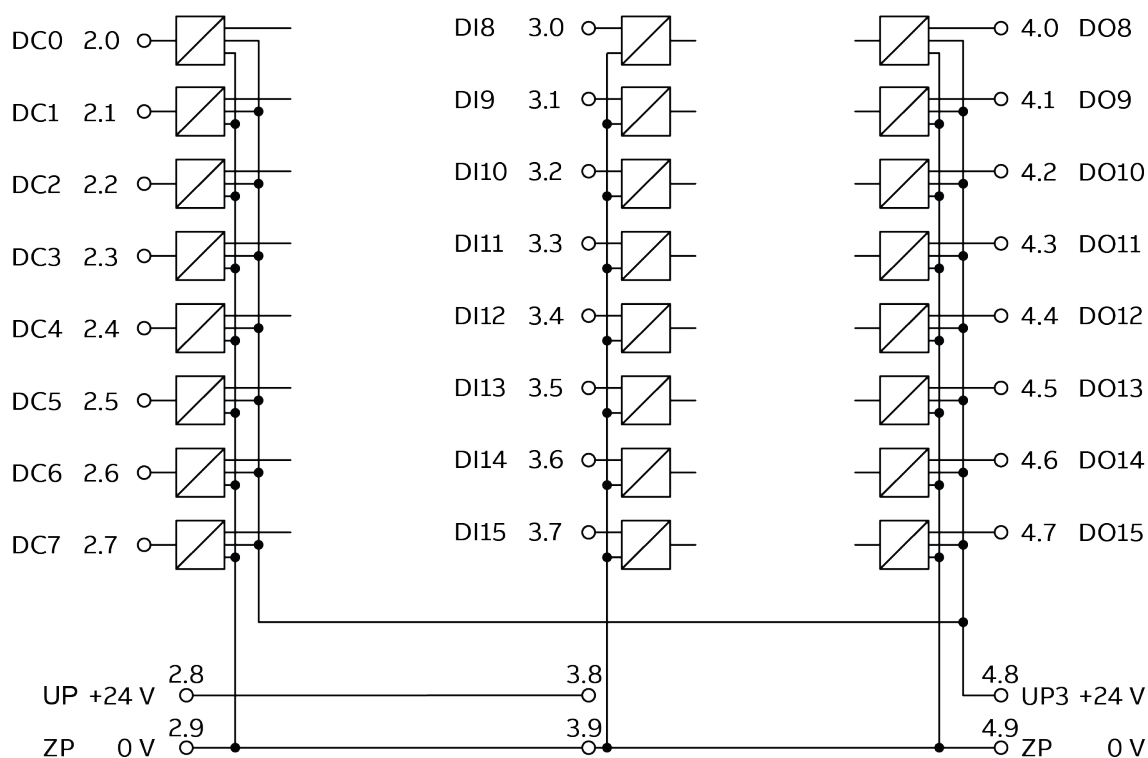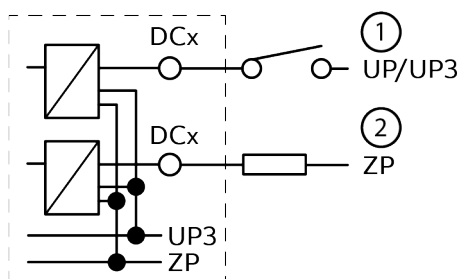
Example input or output

1   Example of connection as an input
2   Example of connection as an output

**Example digital
input**
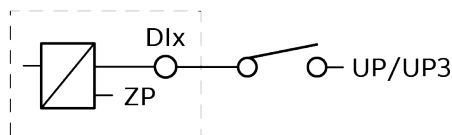
Fig. 33: Example of connection input DIx

**Example digital
output**
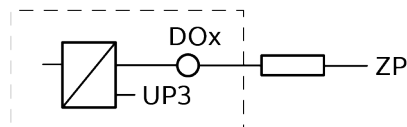
Fig. 34: Example of connection output DOx

26.5   Cleaning

> ⓘ ***Cleaning instructions***
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

26.6   Certification

26.7   Recycling

> ⓘ ***Disposal and recycling information***
>
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

27 CI581-CN(-XC)

- CI581-CN
- CI581-CN-XC
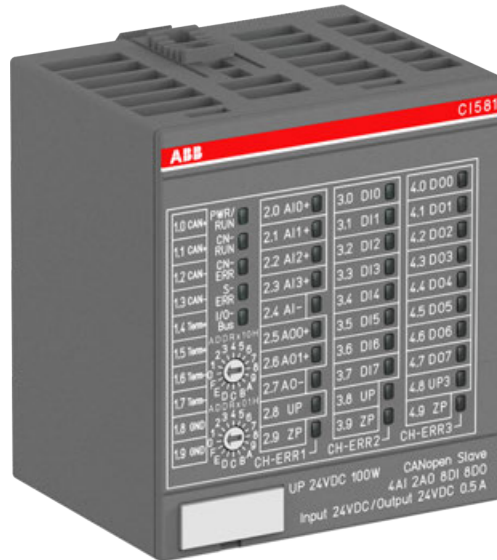
⚠️	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

27.1 Assembly
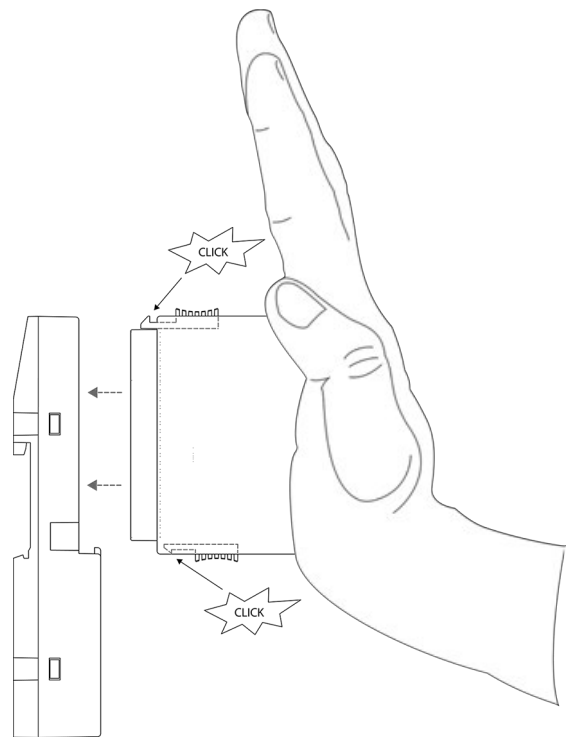
27.2 Disassembly

27.3   Dimensions

1   Din rail 15 mm
2   Din rail 7.5 mm
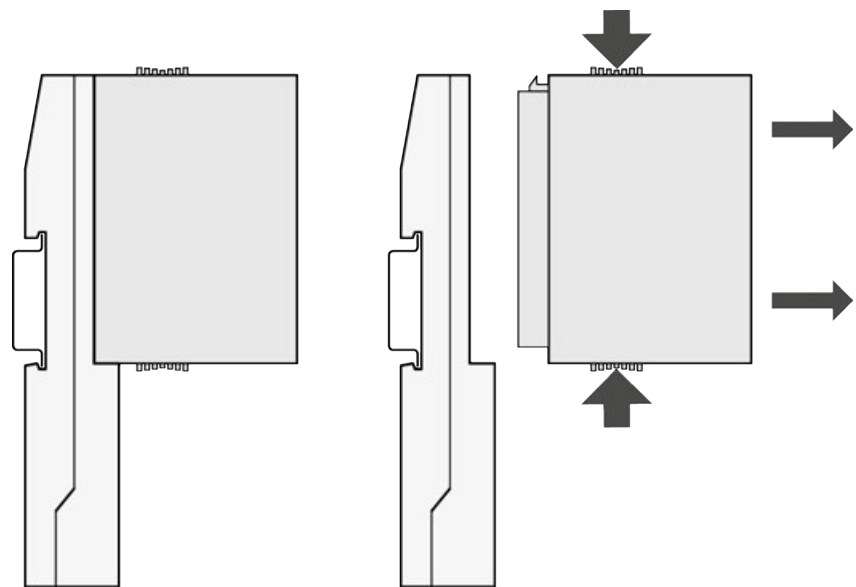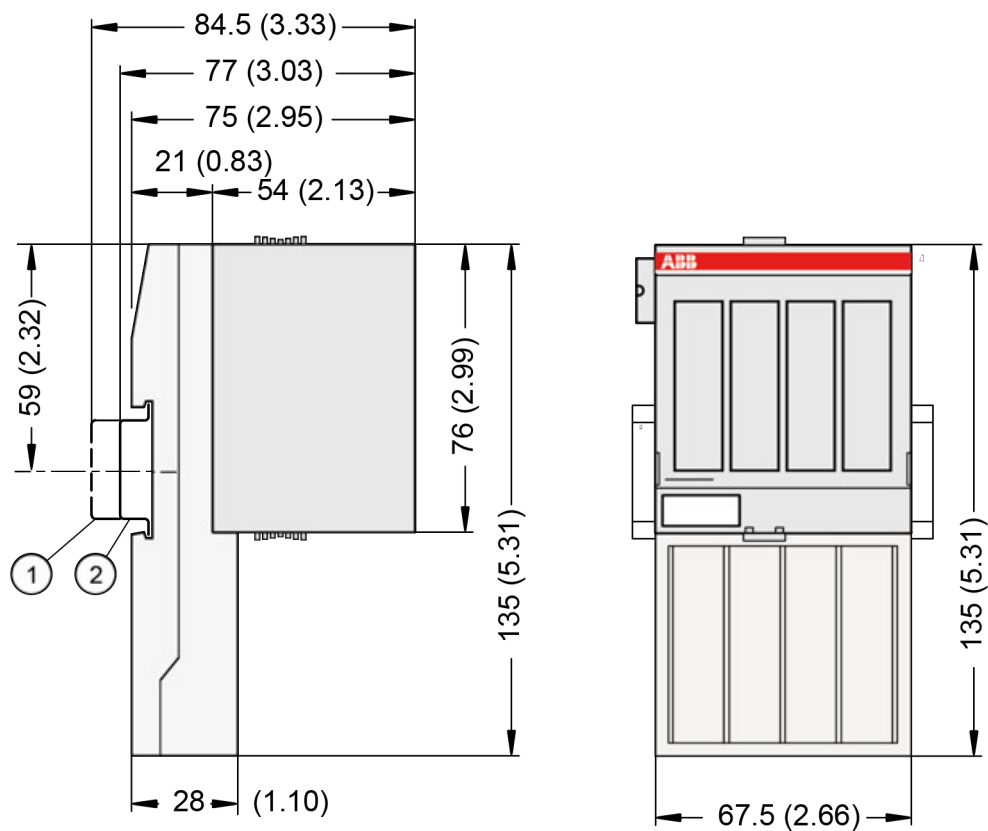
> ℹ️ *The dimensions are in mm and in brackets in inch.*

27.4   Connections

1   I/O bus
2   Allocation between terminal No. and signal name
3   6 yellow LEDs to display the signal states of the analog inputs/outputs (AI0 ... AI3, AO0 ... AO1)
4   8 yellow LEDs to display the signal states of the digital inputs (DI0 ... DI7)
5   8 yellow LEDs to display the signal states of the digital outputs (DO0 ... DO7)
6   2 green LEDs to display the supply voltage UP and UP3
7   3 red LEDs to display errors (CH-ERR1, CH-ERR2, CH-ERR3)
8   5 System LEDs: PWR/RUN, CN-RUN, CN-ERR, S-ERR, I/O-Bus
9   Label
10   2 rotary switches for setting the CANopen Node ID
11   10 terminals to connect the CANopen bus signals
12   Terminal unit
13   DIN rail
✳   Sign for XC version

> *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

27.4.1 Process supply voltage
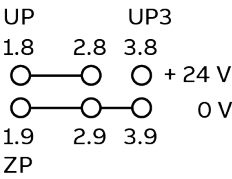
```
            UP        UP3
           1.8   2.8  3.8
            O────O    O    + 24 V
            O────O────O    0 V
           1.9   2.9  3.9
           ZP
```

⚠️ **CAUTION!**

The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

27.4.2 Inputs
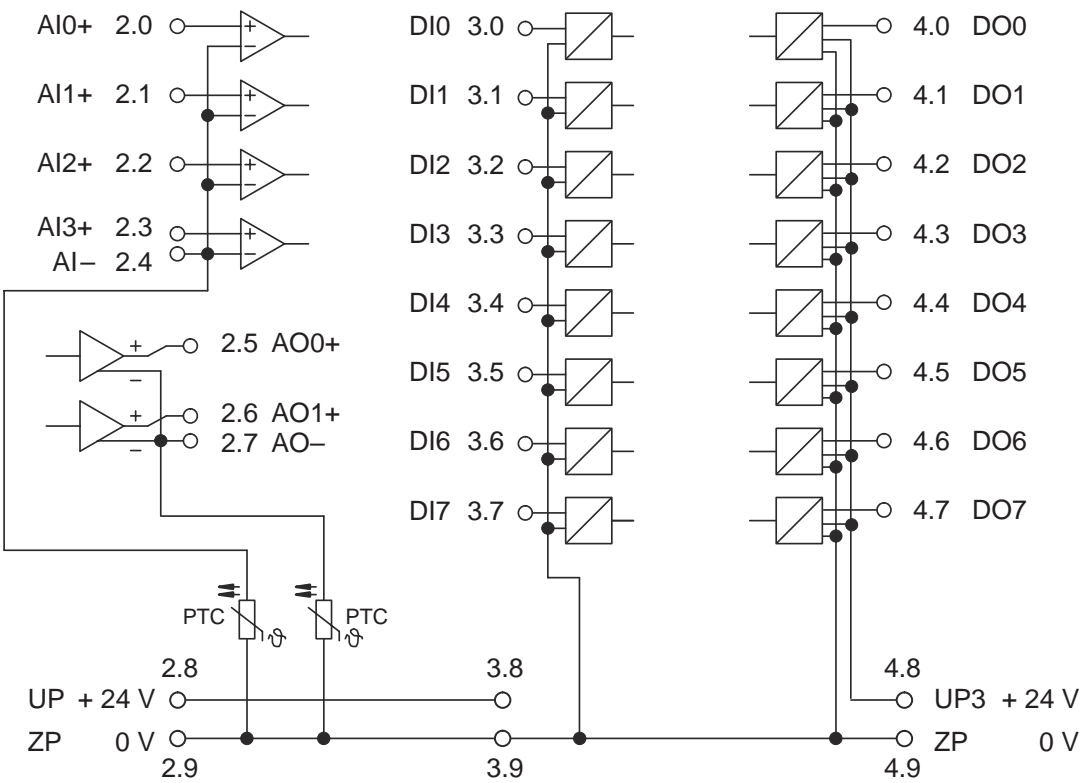
Example analog input
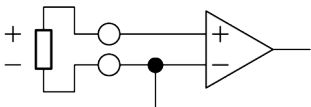
AI0 ... AI3
0 V ... +10 V
± 10 V
0 mA ... +20 mA
+4 mA ... +20 mA
Pt100 / Pt1000
Ni1000

Fig. 35: Example for connection input AIx

Example analog output

AO0 ... AO1
± 10 V
0 mA ... +20 mA
+4 mA ... +20 mA
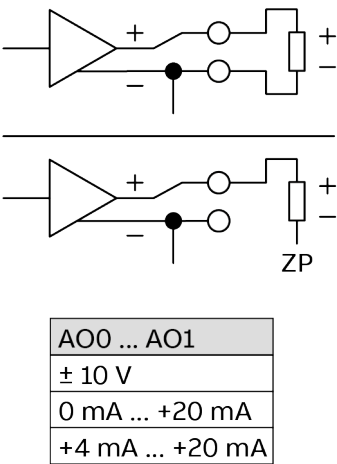
Fig. 36: Example for connection output AOx

Example digital input
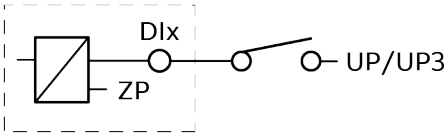
Fig. 37: Example for connection input DIx

Example digital output
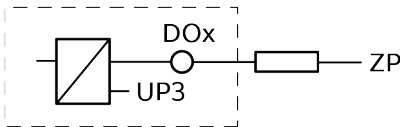
Fig. 38: Example for connection output DOx

27.5   Cleaning

> *Cleaning instructions*
> *Do not use cleaning agent for cleaning the device.*
> *Use a damp cloth instead.*

27.6   Certification

	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

MSIP-REI-Abb-AC500

en	Note These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

27.7   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

28 CI582-CN(-XC)

- CI582-CN
- CI582-CN-XC
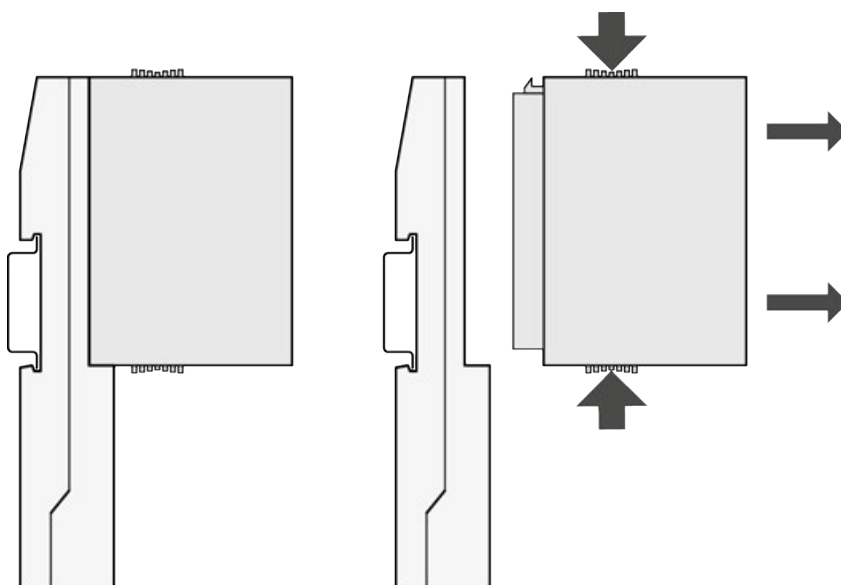
⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

28.1   Assembly
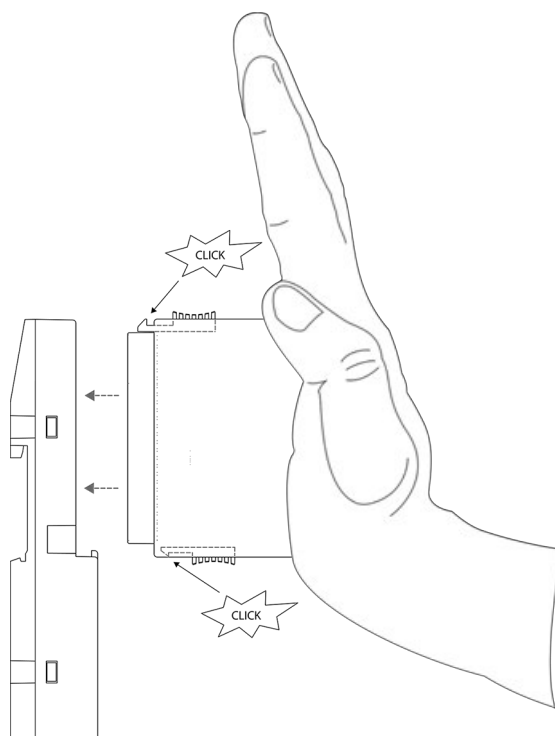
28.2   Disassembly

28.3   Dimensions
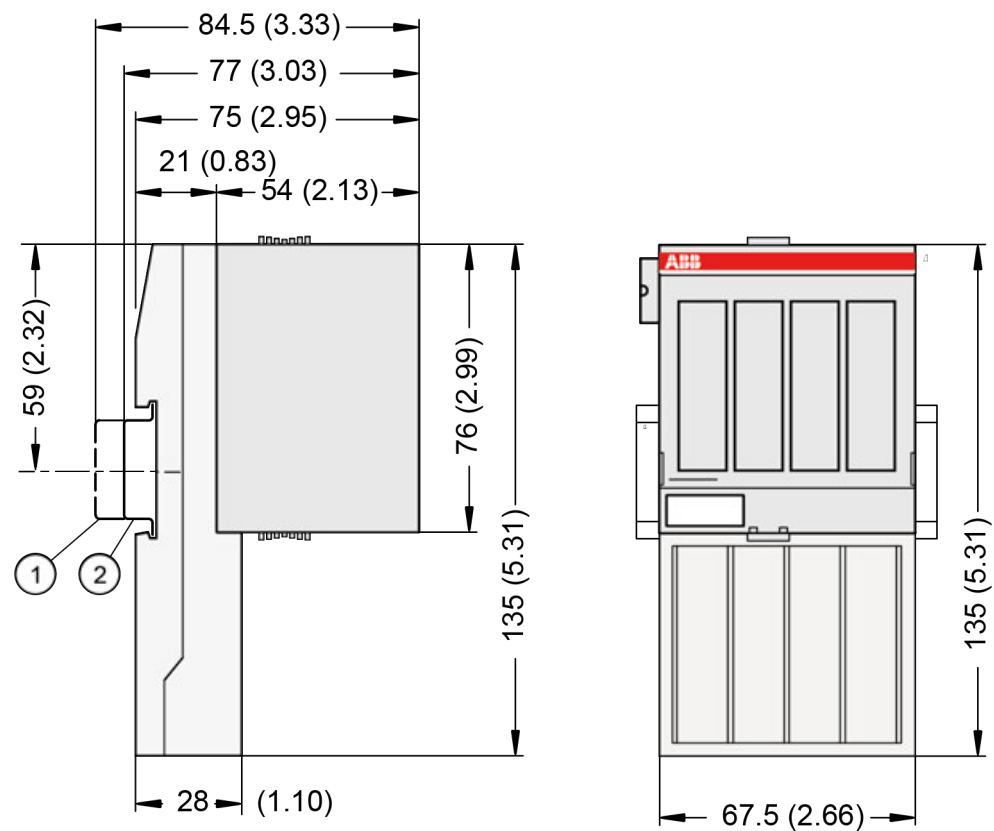
1   Din rail 15 mm
2   Din rail 7.5 mm

ⓘ   *The dimensions are in mm and in brackets in inch.*

28.4   Connections

1   I/O bus
2   Allocation between terminal number and signal name
3   8 yellow LEDs to display the signal states of the configurable digital inputs/outputs
     (DC0 ... DC7)
4   8 yellow LEDs to display the signal states of the digital inputs (DI8 ... DI15)
5   8 yellow LEDs to display the signal states of the digital outputs (DO8 ... DO15)
6   2 green LEDs to display the supply voltage UP and UP3
7   3 red LEDs to display errors (CH-ERR1, CH-ERR2, CH-ERR3)
8   5 System LEDs: PWR/RUN, CN-RUN, CN-ERR, S-ERR, I/O-Bus
9   Label
10   2 rotary switches for setting the CANopen node ID
11   10 terminals to connect the CANopen bus signals
12   Terminal unit
13   DIN rail
✳   Sign for XC version

> ℹ   *All I/O channels (digital and analog) are protected against reverse polarity,*
>   *reverse supply and temporary overvoltage up to 30 VDC.*

28.4.1 Process supply voltage
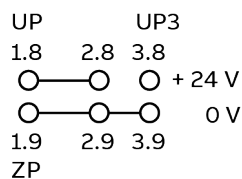
```
        UP      UP3
      1.8    2.8  3.8
       O------O    O    + 24 V
       O------O----O    0 V
      1.9    2.9  3.9
      ZP
```

> ⚠️ **CAUTION!**
>
> The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

28.4.2 Inputs
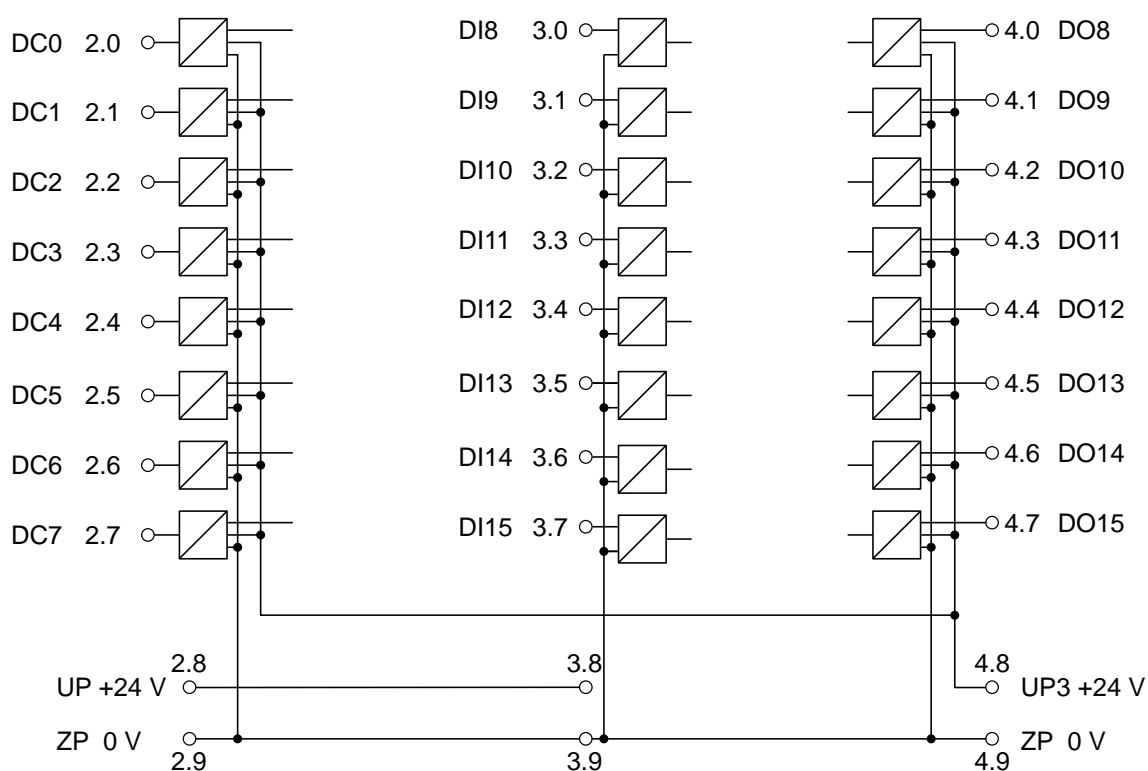
Example input or output
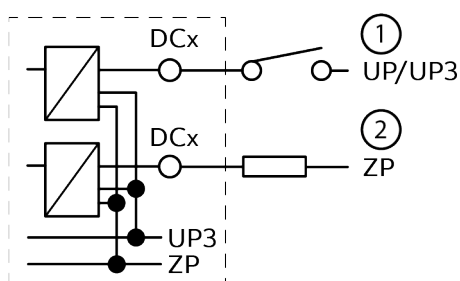
1 Example for connection as an input
2 Example for connection as an output

Example digital input

Fig. 39: Example for connection input DIx

Example digital output

Fig. 40: Example for connection output DOx

28.5 Cleaning

> *Cleaning instructions*
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

28.6 Certification

en — Devices with KCC sign on product sticker and packaging

ko — 제품 스티커 및 포장에 **KCC** 표시가 된 기기

MSIP-REI-Abb-AC500

en — **Note**
These devices correspond to:

KN61000-6-2 "Immunity for industrial environments",
KN61000-6-4 "Emission standard for industrial environments"

ko — 참고
이러한 기기는

KN61000-6-2 "산업 환경에 대한 내성",
KN61000-6-4 "산업 환경 누출 기준"에 적합함

28.7 Recycling

> *Disposal and recycling information*
>
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

29 CI590-CS31-HA(-XC)

- CI590-CS31-HA
- CI590-CS31-HA-XC
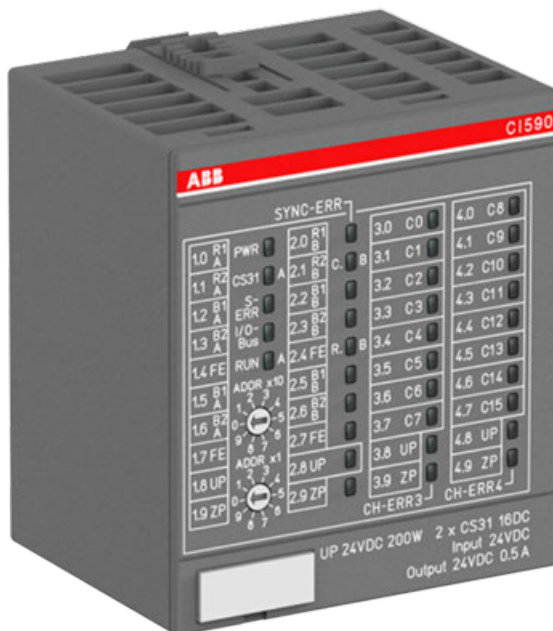
⚠	**CAUTION!** **Risk of injury and damaging the product!** Improper installation and maintenance may result in injury and can damage the product! – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1. – Only by qualified personnel.

29.1   Assembly
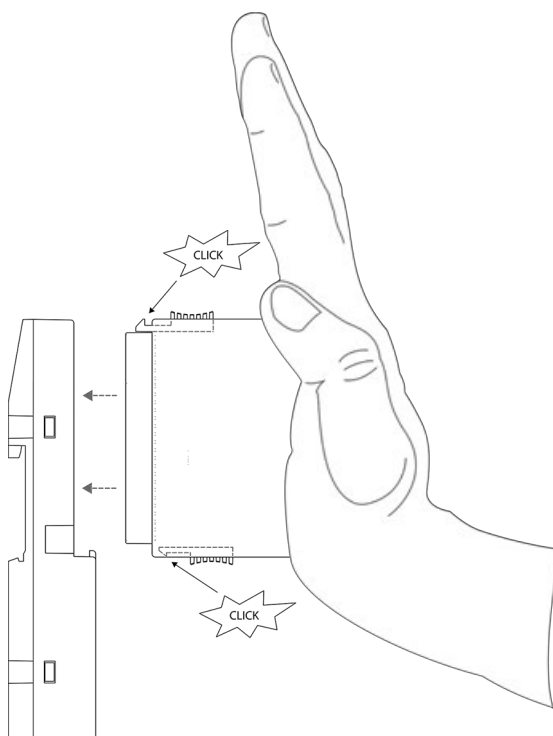
29.2   Disassembly
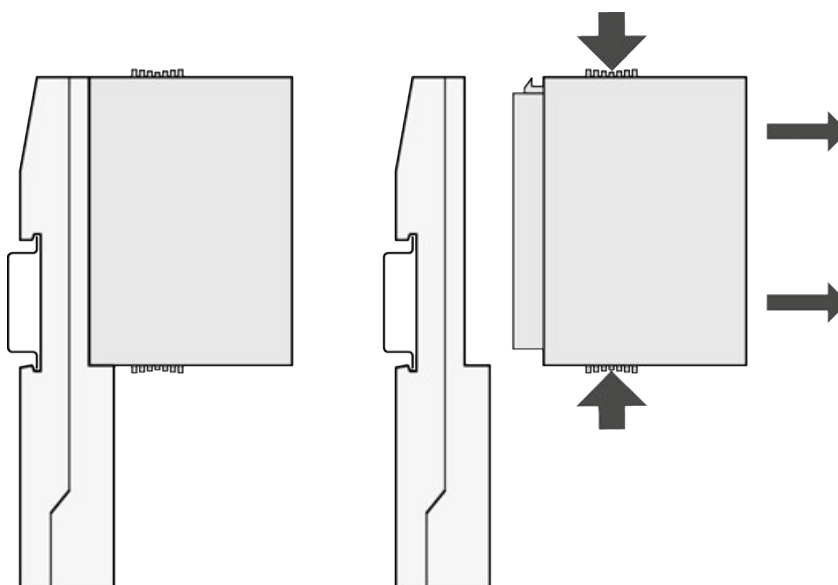
29.3   Dimensions
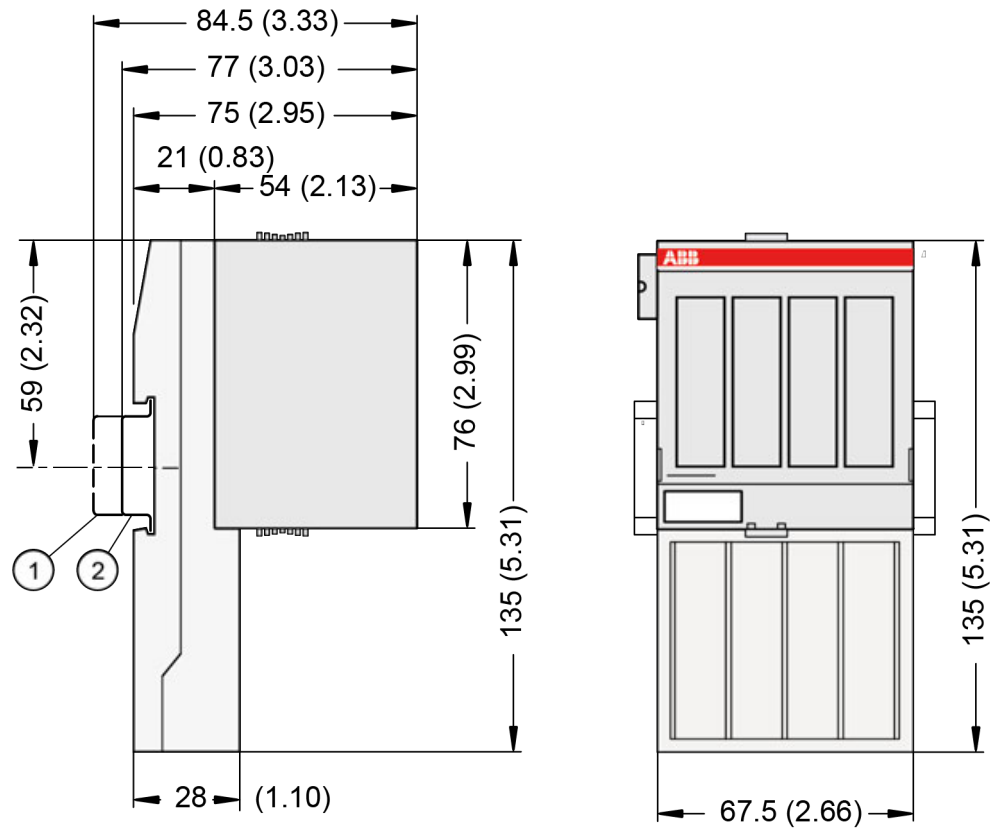
1   Din rail 15 mm
2   Din rail 7.5 mm

> ℹ   *The dimensions are in mm and in brackets in inch.*

29.4   Connections
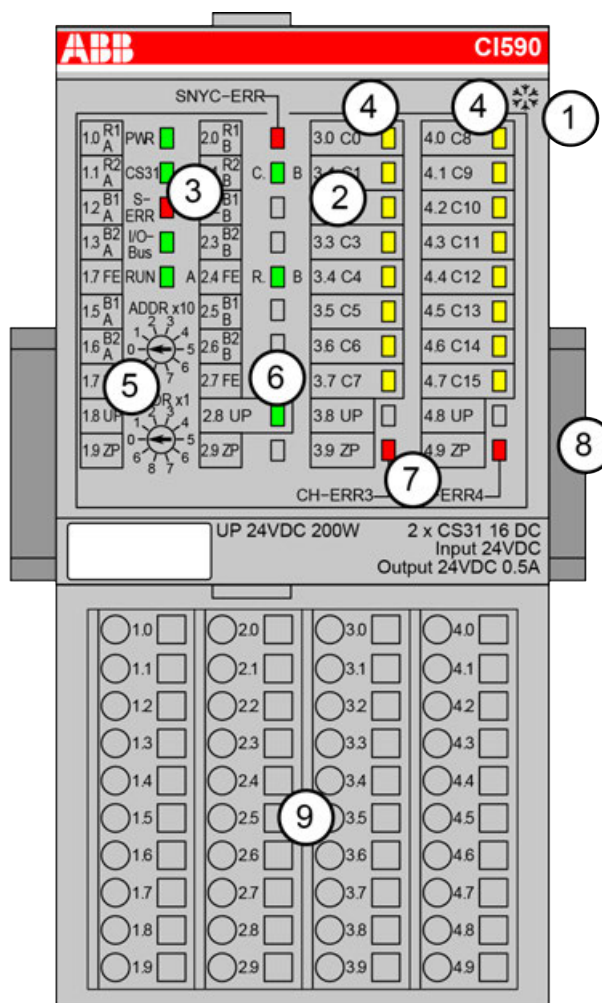
1   I/O bus
2   Allocation between terminal number and signal name
3   5 system LEDs
4   16 yellow LEDs to display the signal states of the configurable digital inputs/outputs
      C0 ... C15
5   2 rotary switches to set the module's address (00d ... 99d)
6   1 green LED to display the process voltage UP
7   2 red LEDs to display errors
8   DIN rail
9   Terminal unit
❄   Sign for XC version

ⓘ *All I/O channels (digital and analog) are protected against reverse polarity,*
    reverse supply and temporary overvoltage up to 30 VDC.

29.4.1   Process supply voltage

UP
1.8 2.8 3.8 4.8
O—O—O—O   + 24 V
O—O—O—O   0 V
1.9 2.9 3.9 4.9
ZP

> ⚠️ **CAUTION!**
>
> The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

29.4.2   Inputs/Outputs
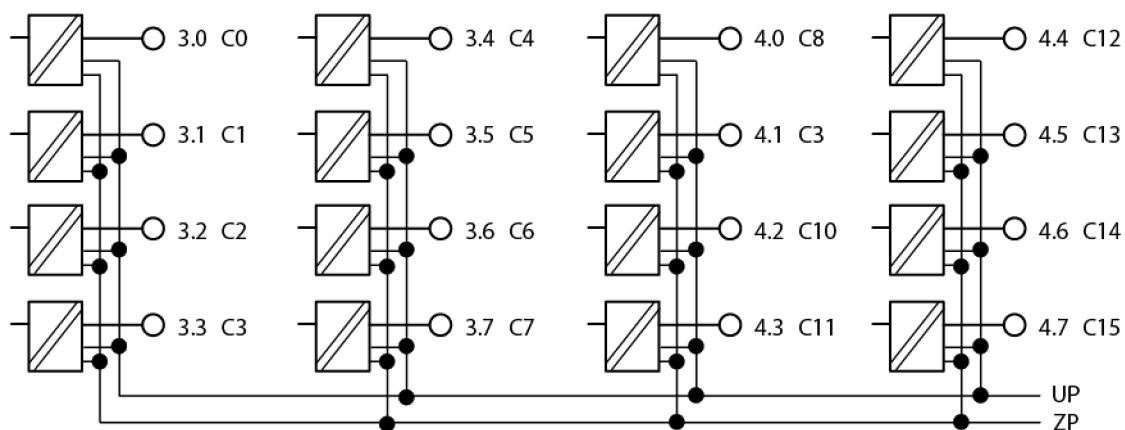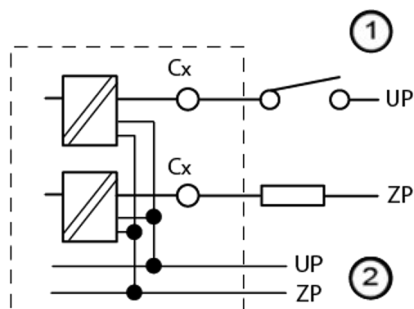
Example

1   Example of connection as an input
2   Example of connection as an output

29.5   Certification

KC MSIP-REI-Abb-AC500	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	**Note** These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

29.6   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

30 CI592-CS31(-XC)

- CI592-CS31
- CI592-CS31-XC

⚠	**CAUTION!** **Risk of injury and damaging the product!** Improper installation and maintenance may result in injury and can damage the product! – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1. – Only by qualified personnel.

30.1   Assembly
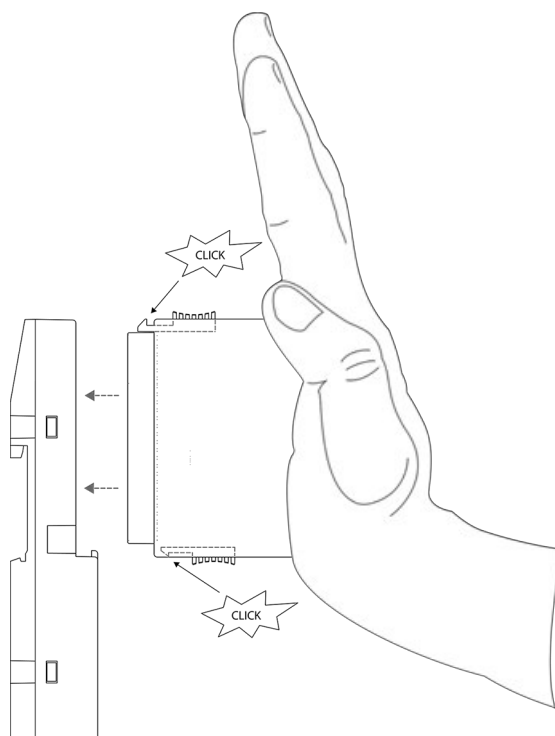
30.2   Disassembly

30.3   Dimensions

1   Din rail 15 mm
2   Din rail 7.5 mm
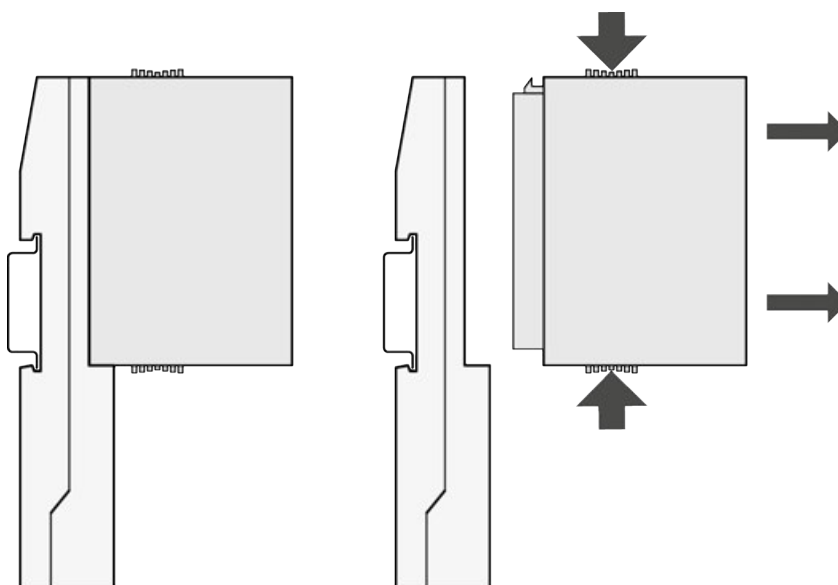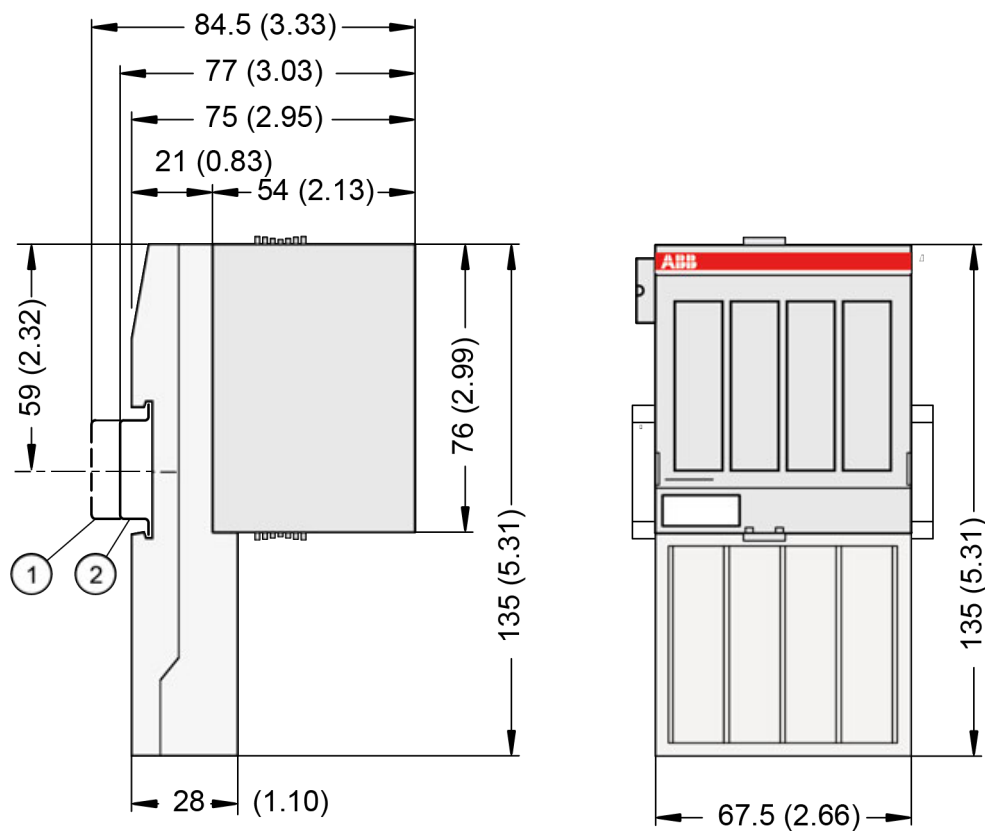
> ⓘ   *The dimensions are in mm and in brackets in inch.*

30.4 Connections
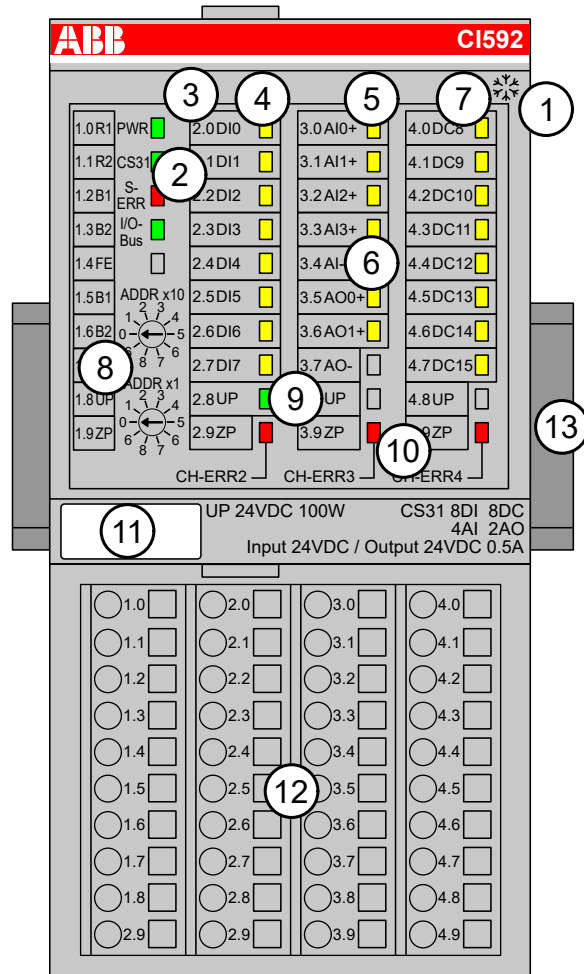
1 I/O bus
2 4 system LEDs
3 Allocation between terminal number and signal name
4 8 yellow LEDs to display the signal states of the digital inputs DI0 ... DI7
5 4 yellow LEDs to display the signal states of the analog inputs AI0 ... AI3
6 2 yellow LEDs to display the signal states of the analog outputs AO0 ... AO1
7 8 yellow LEDs to display the signal states of the configurable digital inputs/outputs DC8 ... DC15
8 2 rotary switches to set the module's address (00d ... 99d)
9 1 green LED to display the process voltage UP
10 3 red LEDs to display errors
11 Label
12 Terminal unit
13 DIN rail
❄ Sign for XC version

ⓘ *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

30.4.1 Process supply voltage
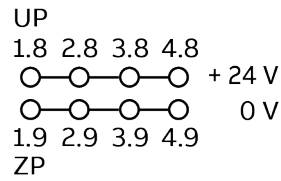
```
UP
1.8  2.8  3.8  4.8
 O——O——O——O   + 24 V
 O——O——O——O     0 V
1.9  2.9  3.9  4.9
ZP
```

> ⚠️ **CAUTION!**
> The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

30.4.2 Inputs/Outputs

```
         +5 V DC
R1  1.0 o          DI0  2.0 o          AI0  3.0 o              4.0  DC8
R2  1.1 o          DI1  2.1 o          AI1  3.1 o              4.1  DC9
B1  1.2 o          DI2  2.2 o          AI2  3.2 o              4.2  DC10
B2  1.3 o          DI3  2.3 o          AI3  3.3 o              4.3  DC11
FE  1.4 o   0 V DC DI4  2.4 o          AI-  3.4 o              4.4  DC12
B1  1.5 o          DI5  2.5 o                    3.5  AO0      4.5  DC13
B2  1.6 o          DI6  2.6 o                    3.6  AO1      4.6  DC14
FE  1.7 o          DI7  2.7 o                    3.7  AO-      4.7  DC15
                                       PTC          PTC
                        2.8                3.8                4.8
UP +24 V DC  1.8 o                                                  4.8
ZP 0 V       1.9 o      2.9                3.9                4.9    4.9
```
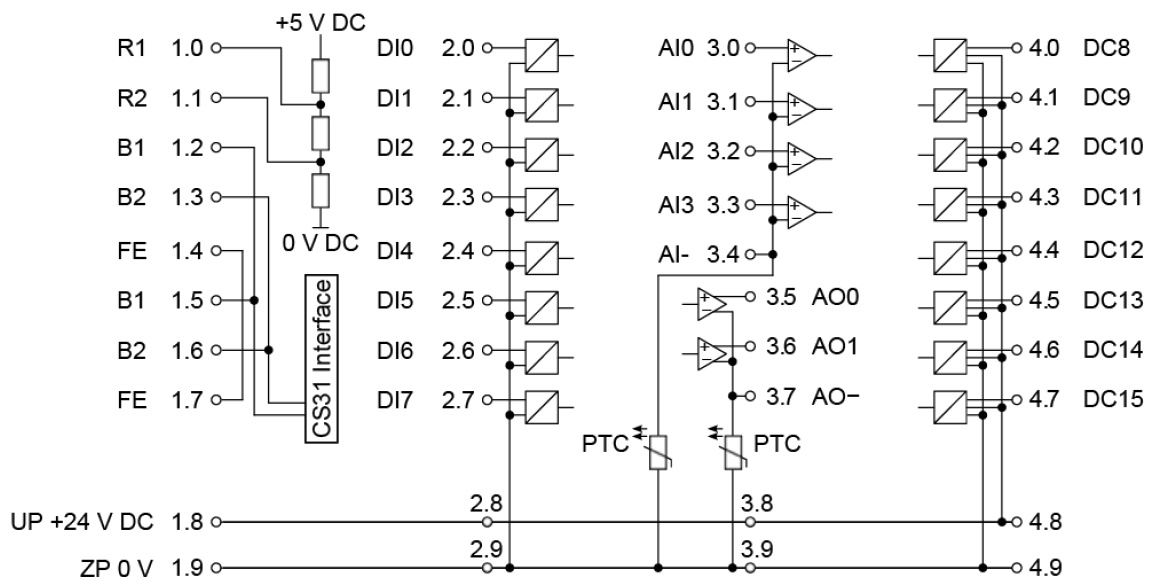
Example input or output
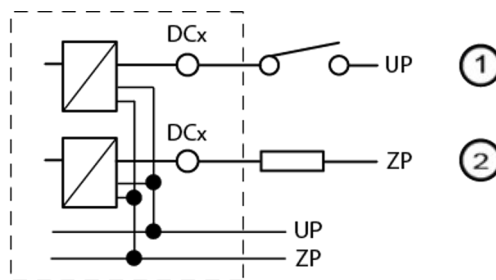
Fig. 41: Example as Input/Output

1   Example of connection as an input
2   Example of connection as an output

**Example analog
input**

AI0 ... AI3
0 V ... +10 V
± 10 V
0 mA ... +20 mA
+4 mA ... +20 mA
Pt100 / Pt1000
Ni1000
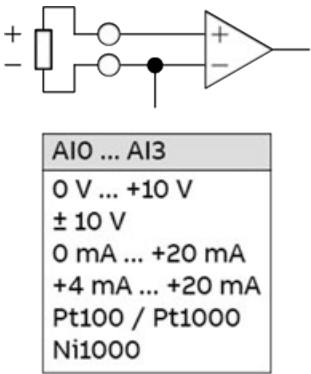
Fig. 42: Example as Input AIx

**Example digital
input**
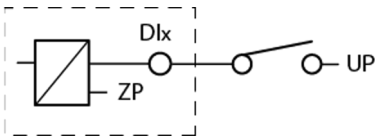
Fig. 43: Example as Input DIx

**Example analog
output**

AO0 ... AO1
± 10 V
0 mA ... +20 mA
+4 mA ... +20 mA
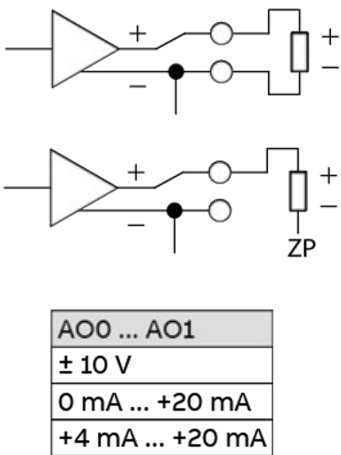
Fig. 44: Example as Output AOx

30.5 Certification

	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

MSIP-REI-Abb-AC500

en	**Note** These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

30.6   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

31 CM5610-2RS(-XC)

- CM5610-2RS
- CM5610-2RS-XC
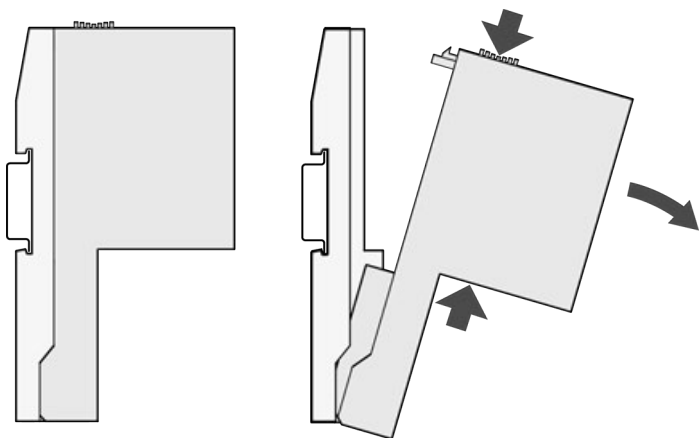
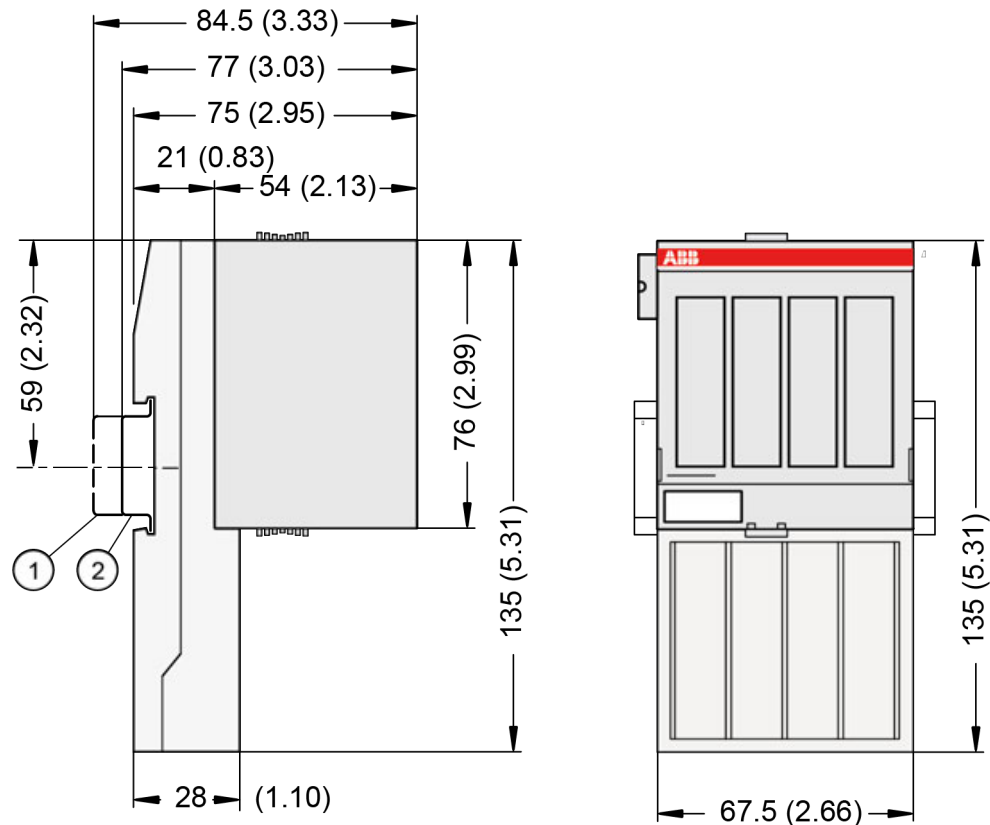| ⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

31.1 Assembly
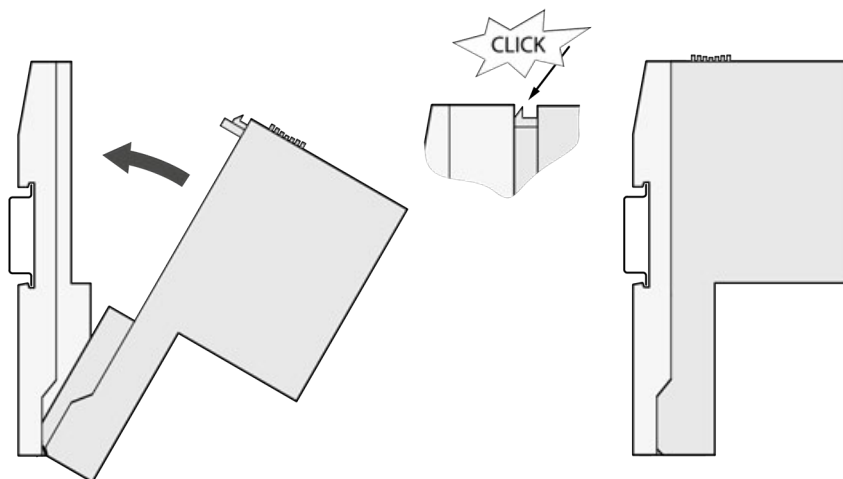
31.2   Disassembly

31.3   Dimensions

1   Din rail 15 mm
2   Din rail 7.5 mm

> *The dimensions are in mm and in brackets in inch.*

31.4 Connections

1 5 LEDs for state display
2 2 rotary switches for address setting
3 Label
4 2 serial interfaces: COM1 and COM2
❊ Sign for XC version

31.4.1 Serial interface

Pin assignment

Pin		Signal	Interface	Description
	1	Term. P	RS-485	Terminator P
	2	RxD/TxD-P	RS-485	Receive/Transmit, positive
	3	RxD/TxD-N	RS-485	Receive/Transmit, negative
	4	Term. N	RS-485	Terminator N
	5	RTS	RS-232	Request to send (output)
	6	TxD	RS-232	Transmit data (output)
	7	SGND	Signal Ground	Signal Ground
	8	RxD	RS-232	Receive data (input)
	9	CTS	RS-232	Clear to send (input)

31.5   Cleaning

> ⓘ ***Cleaning instructions***
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

31.6   Certification

KC MSIP-REI-Abb-AC500	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	Note These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

31.7   Recycling

> ⓘ ***Disposal and recycling information***
>
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

32 CM5640-2ETH(-XC)

- CM5640-2ETH
- CM5640-2ETH-XC

> ⚠ **CAUTION!**
> **Risk of injury and damaging the product!**
>
> Improper installation and maintenance may result in injury and can damage the product!
>
> – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
> – Only by qualified personnel.

32.1 Assembly
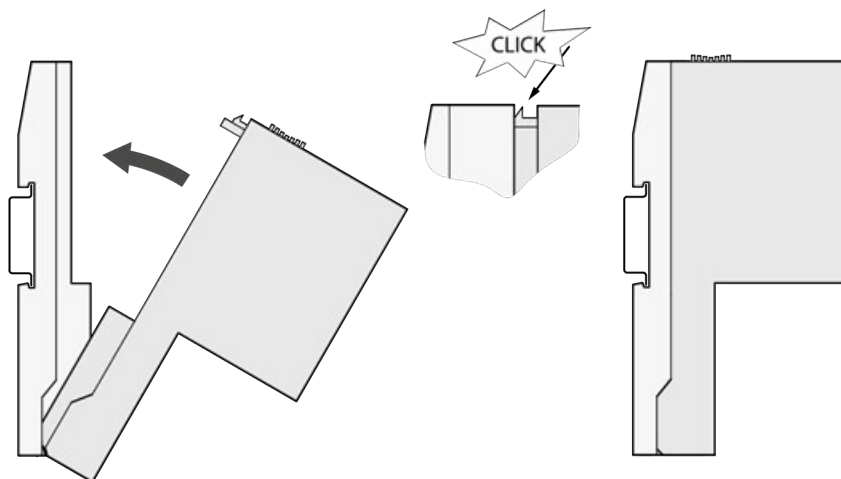
32.2   Disassembly
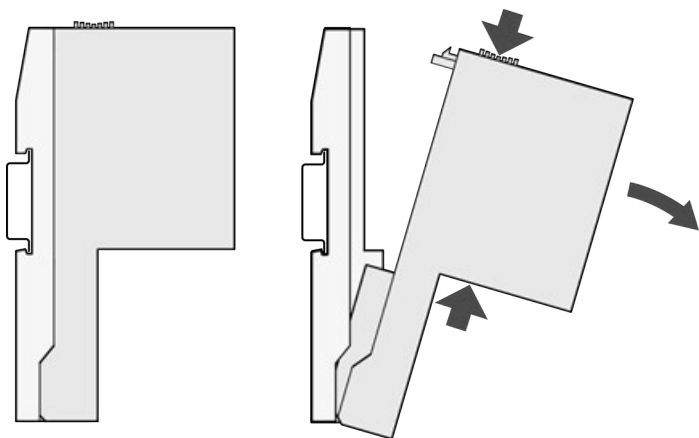
32.3   Dimensions
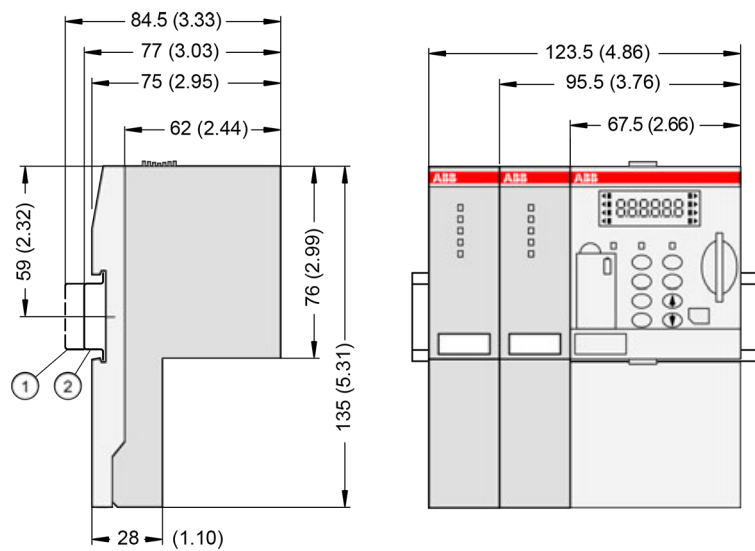
1   Din rail 15 mm
2   Din rail 7.5 mm

ⓘ   *The dimensions are in mm and in brackets in inch.*
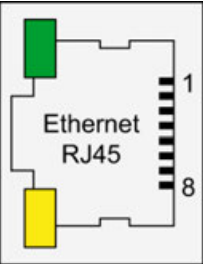
32.4   Connections

1   5 LEDs for state display
2   2 rotary switches for station identification
3   Label
4   2 communication interfaces Ethernet RJ45
❄   Sign for XC version

32.4.1   Ethernet network interface

Pin assignment

Interface	Pin	Signal	Description
Ethernet RJ45	1	TxD+	Transmit data +
	2	TxD-	Transmit data -
	3	RxD+	Receive data +
	4	NC	Not connected
	5	NC	Not connected
	6	RxD-	Receive data -
	7	NC	Not connected
	8	NC	Not connected
	Shield	Cable shield	Functional earth

> ⓘ *In corrosive environment, please protect unused connectors using the TA535 accessory.*
>
> *Not supplied with this device.*

32.5 Cleaning

> ⓘ **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

32.6 Certification

	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

MSIP-REI-Abb-AC500

en	Note These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

32.7 Recycling

> ⓘ **Disposal and recycling information**
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

33 CM574-x

- CM574-RS
- CM574-RCOM

⚠️	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

33.1 Assembly
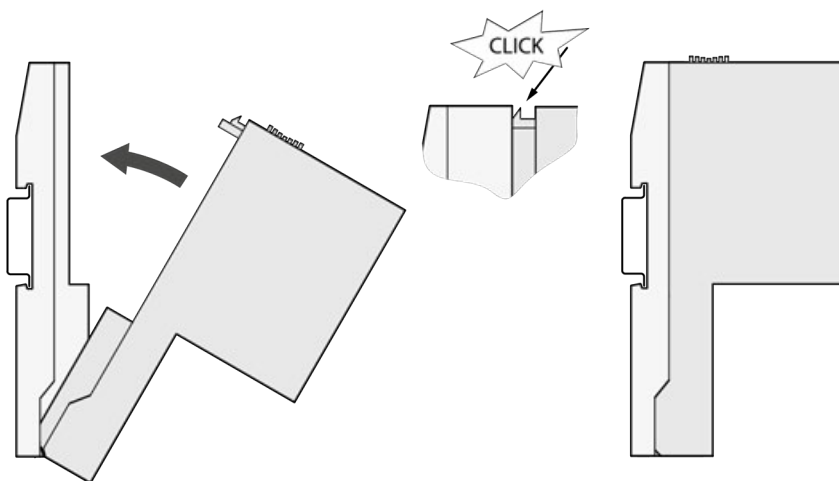
33.2   Disassembly

33.3   Dimensions

1   Din rail 15 mm
2   Din rail 7.5 mm

The dimensions are in mm and in brackets in inch.

33.4   Connections

Fig. 45: CM574-RS

1   5 LEDs for state display
2   2 rotary switches for address setting
3   Label
4   2 serial communication interfaces

Fig. 46: CM574-RCOM

1   5 LEDs for state display
2   Label
3   2 interfaces: 1 RCOM protocol interface, 1 CONSOLE

33.4.1   Serial interface

Pin assignment

Pin		Signal	Interface	Description
	1	Term. P	RS-485	Terminator P
	2	RxD/TxD-P	RS-485	Receive/Transmit, positive
	3	RxD/TxD-N	RS-485	Receive/Transmit, negative
	4	Term. N	RS-485	Terminator N
	5	RTS	RS-232	Request to send (output)
	6	TxD	RS-232	Transmit data (output)
	7	SGND	Signal Ground	Signal Ground
	8	RxD	RS-232	Receive data (input)
	9	CTS	RS-232	Clear to send (input)

33.5   Cleaning

> ⓘ ***Cleaning instructions***
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

33.6   Certification

KC **MSIP-REI-Abb-AC500**	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기
en	**Note** These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

33.7   Recycling

> ⓘ ***Disposal and recycling information***
>
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

34 CM579-x(-XC)

- CM579-PNIO
- CM579-PNIO-XC
- CM579-ETHCAT

⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

34.1   Assembly
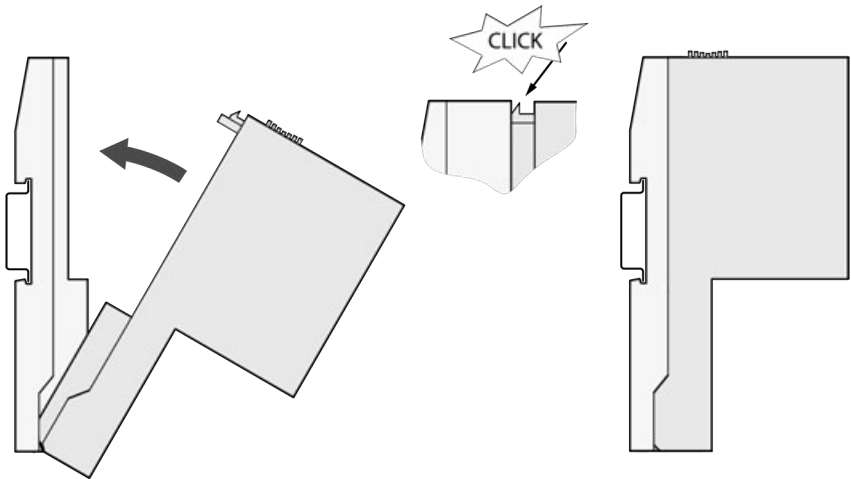
34.2   Disassembly
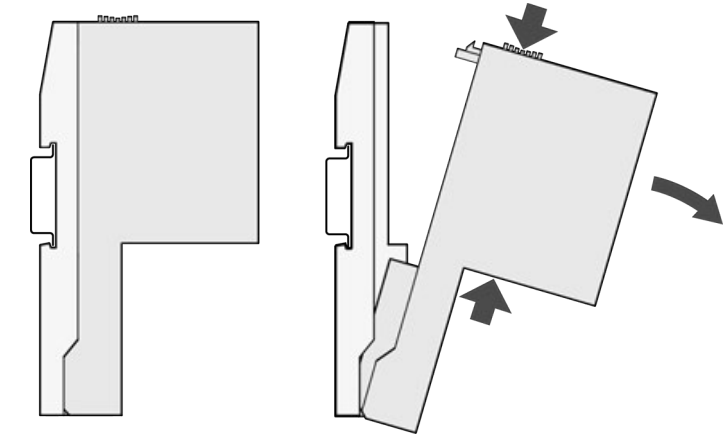
34.3   Dimensions
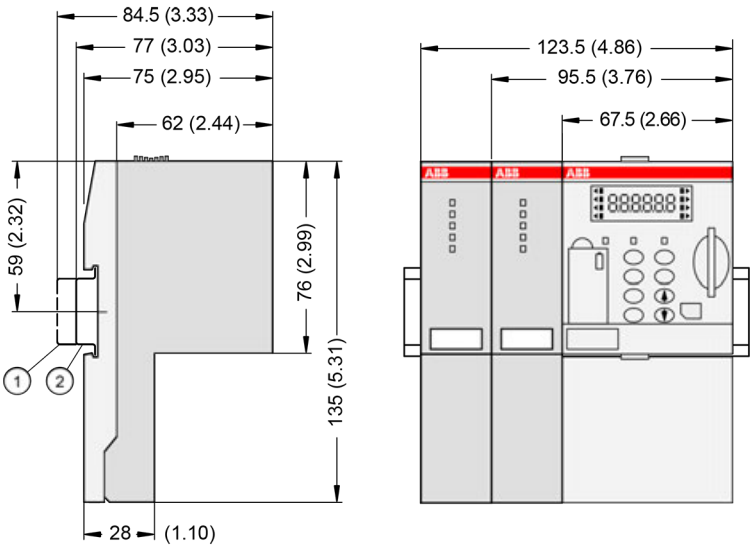
1   Din rail 15 mm
2   Din rail 7.5 mm

> ⓘ *The dimensions are in mm and in brackets in inch.*
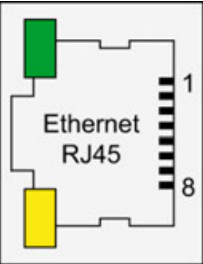
34.4   Connections
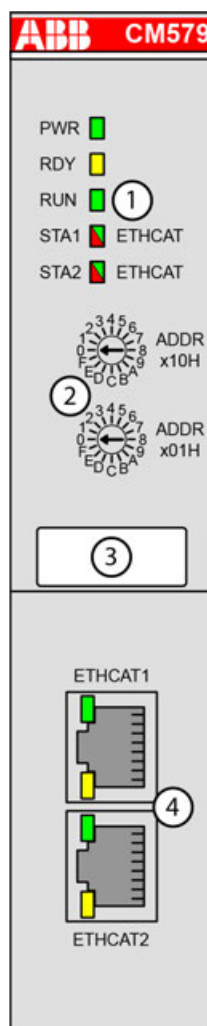
1   5 LEDs for state display
2   2 rotary switches for address setting (not used)
3   Label
4   2 communication interfaces RJ45 (ETHCAT1 and ETHCAT2)

34.4.1 Ethernet network interface

Pin assignment

Interface	Pin	Signal	Description
	1	TxD+	Transmit data +
	2	TxD-	Transmit data -
	3	RxD+	Receive data +
	4	NC	Not connected
Ethernet RJ45	5	NC	Not connected
	6	RxD-	Receive data -
	7	NC	Not connected
	8	NC	Not connected
	Shield	Cable shield	Functional earth

> ℹ️ *In corrosive environment, please protect unused connectors using the TA535 accessory.*
>
> *Not supplied with this device.*

34.5 Cleaning

> ℹ️ **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

34.6 Certification

MSIP-REI-Abb-AC500

en		Devices with KCC sign on product sticker and packaging
ko		제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	**Note** These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

34.7   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

*The symbol indicates that this product must be recycled/disposed of separately from other household waste.*

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

35 CM582-DP(-XC)

- CM582-DP
- CM582-DP-XC

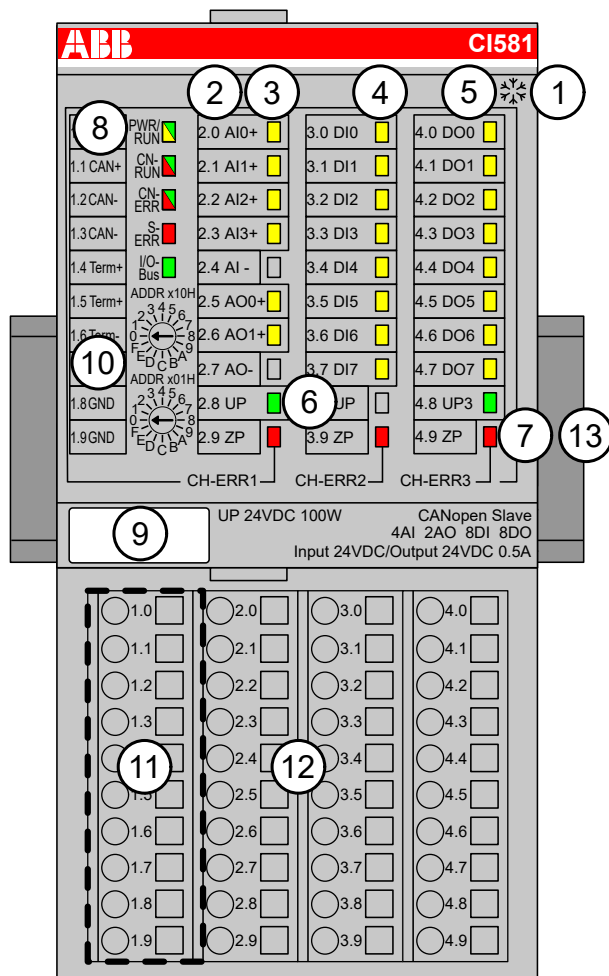|	CAUTION!
⚠️	**Risk of injury and damaging the product!** Improper installation and maintenance may result in injury and can damage the product! – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1. – Only by qualified personnel.

35.1 Assembly
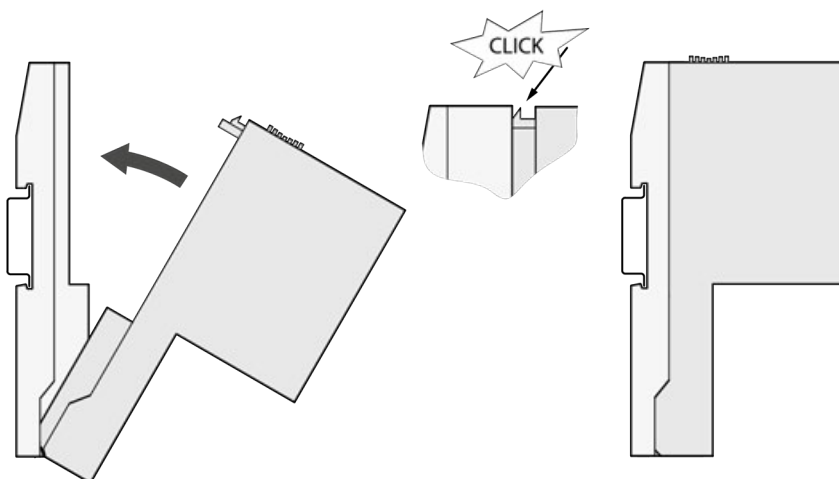
35.2   Disassembly
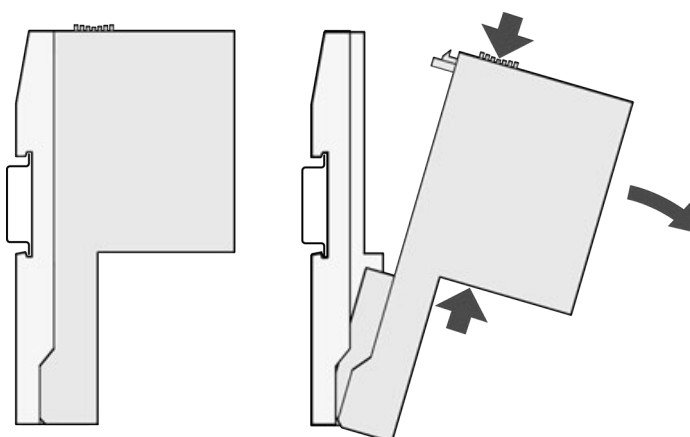
35.3   Dimensions
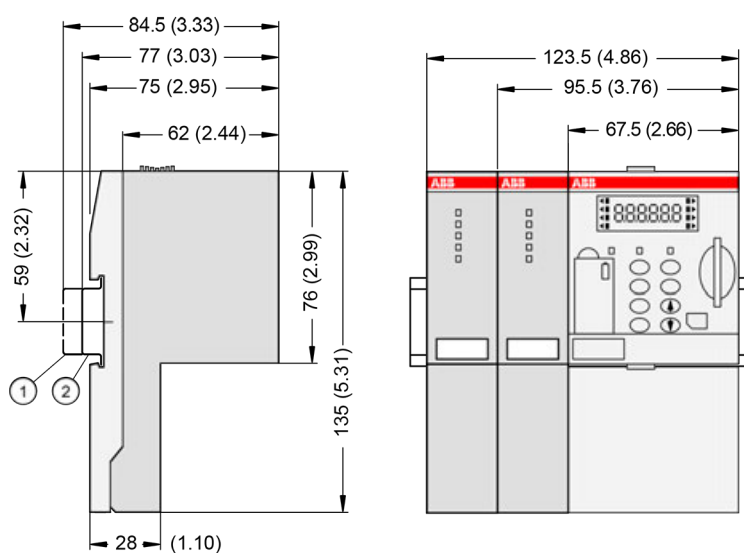
1   Din rail 15 mm
2   Din rail 7.5 mm

> *The dimensions are in mm and in brackets in inch.*

35.4   Connections
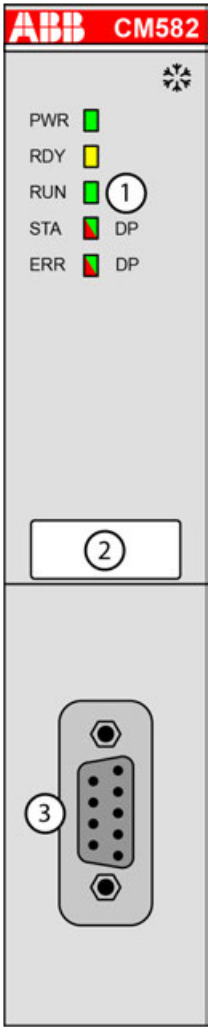
1   5 LEDs for state display
2   Label
3   Communication interface PROFIBUS DP D-sub, 9-pin, female
✻   Sign for XC version

35.4.1   PROFIBUS interface

Pin assignment

Pin		Signal	Description
	1	NC	Not connected
	2	NC	Not connected
	3	RxD/TxD-P	Receive/Transmit positive
	4	CNTR-P	Control signal for repeater, positive
	5	DGND	Reference potential for data exchange and +5 VI
	6	VP	+5 V (power supply for the bus terminating resistors)
	7	NC	Not connected
	8	RxD/TxD-N	Receive/Transmit negative
	9	NC	Not connected

> ℹ️ *In corrosive environment, please protect unused connectors using the TA535 accessory.*
>
> *Not supplied with this device.*

35.5 Cleaning

> ℹ️ **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

35.6 Certification

		en	Devices with KCC sign on product sticker and packaging
		ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

MSIP-REI-Abb-AC500

en	Note	These devices correspond to:	KN61000-6-2 "Immunity for industrial environments", KN61000-6-4 "Emission standard for industrial environments"
ko	참고	이러한 기기는	KN61000-6-2 "산업 환경에 대한 내성", KN61000-6-4 "산업 환경 누출 기준"에 적합함

35.7 Recycling

> ℹ️ **Disposal and recycling information**
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

36 CM588-CN(-XC)

- CM588-CN
- CM588-CN-XC

| ⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

36.1 Assembly
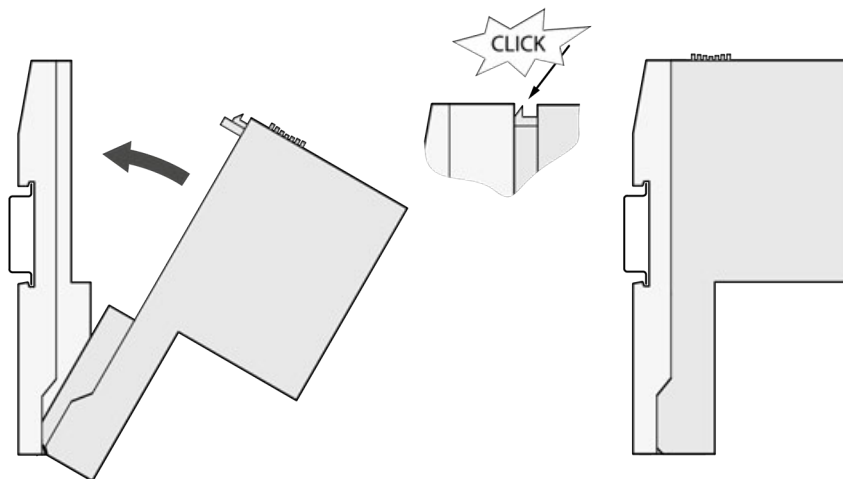
36.2 Disassembly

36.3 Dimensions

1   Din rail 15 mm
2   Din rail 7.5 mm

ⓘ   *The dimensions are in mm and in brackets in inch.*
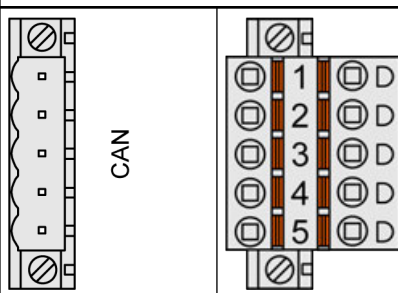
36.4   Connections
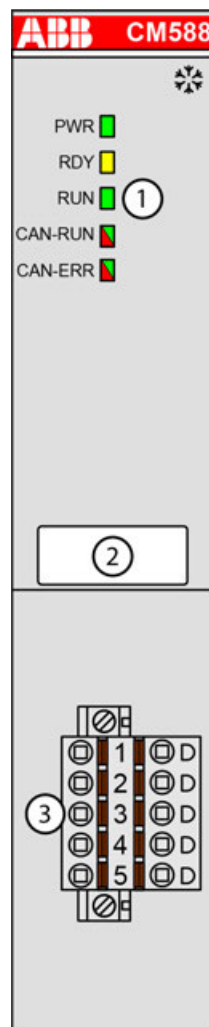
1   5 LEDs for state display
2   Label
3   Communication interface, 5-pin, Combicon, male, removable plug with spring terminals
⁂   Sign for XC version

### 36.4.1 CAN interface

Pin assignment   *Table 1: Pin assignment of the CANopen connector*

Interface		PIN	Signal	Description
Terminal block removed	Terminal block inserted	1	CAN_GND	CAN reference potential
		2	CAN_L	Bus line, receive/transmit line, LOW
		3	CAN_SHLD	Shield of the bus line
		4	CAN_H	Bus line, receive/transmit line, HIGH
		5	NC	Not connected

! NOTICE!

Unused connector!

Make sure that the terminal block is always connected to the terminal base or communication module, even if you do not use the interface.

36.5 Cleaning

ⓘ ***Cleaning instructions***

Do not use cleaning agent for cleaning the device.

Use a damp cloth instead.

36.6 Certification

MSIP-REI-Abb-AC500

en Devices with KCC sign on product sticker and packaging

ko 제품 스티커 및 포장에 **KCC** 표시가 된 기기

en **Note**
These devices correspond to:

ko 참고
이러한 기기는

KN61000-6-2 "Immunity for industrial environments",
KN61000-6-4 "Emission standard for industrial environments"

KN61000-6-2 "산업 환경에 대한 내성",
KN61000-6-4 "산업 환경 누출 기준"에 적합함

36.7   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

37 CM589-PNIO(-4)(-XC)

- CM589-PNIO
- CM589-PNIO-XC
- CM589-PNIO-4
- CM589-PNIO-4-XC

⚠️ **CAUTION!**

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

- – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
- – Only by qualified personnel.

37.1 Assembly
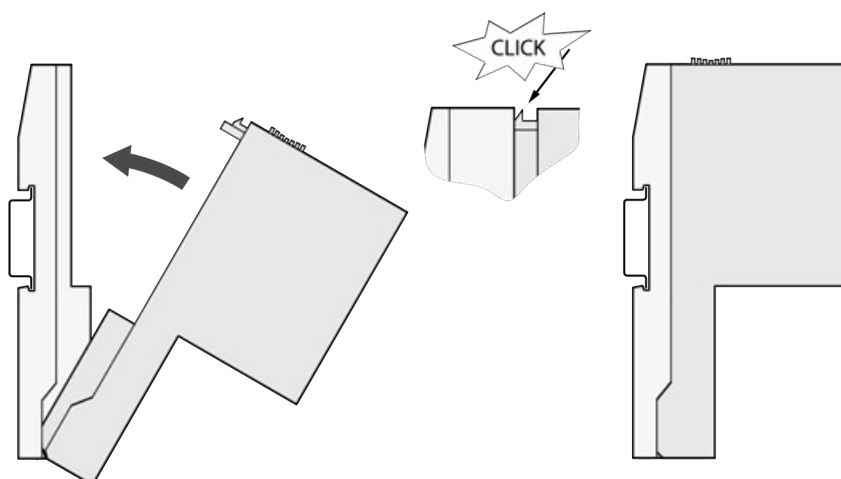
37.2   Disassembly
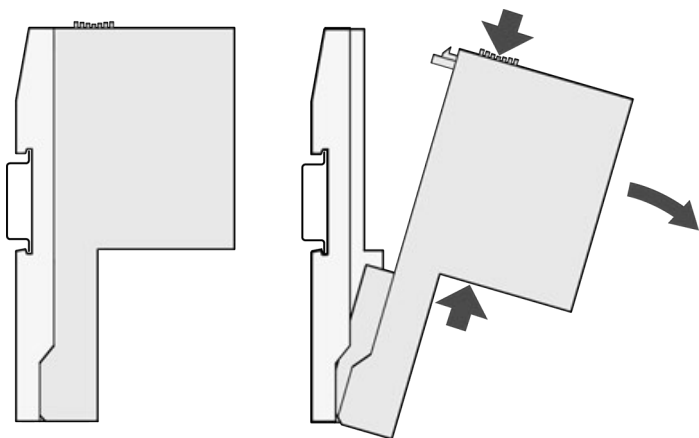
37.3   Dimensions
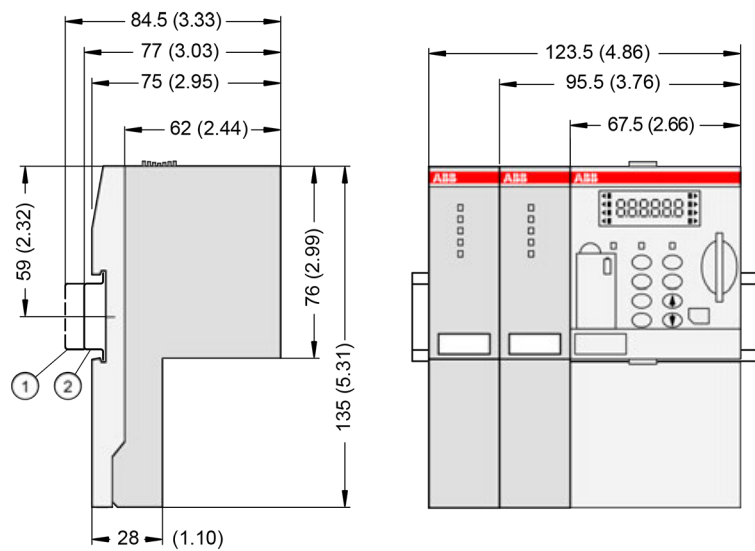
1   Din rail 15 mm
2   Din rail 7.5 mm

> ⓘ   *The dimensions are in mm and in brackets in inch.*
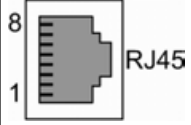
37.4   Connections
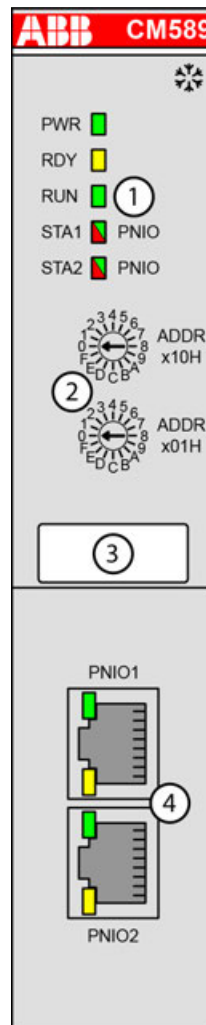
1   5 LEDs for state display
2   2 rotary switches for setting the I/O device identifier
3   Label
4   2 communication interfaces RJ45 (PNIO1 and PNIO2)
❄   Sign for XC version

37.4.1   Ethernet network interface

Pin assignment

	Pin	Signal	Description
RJ45	1	TxD+	Transmit data +
	2	TxD-	Transmit data -
	3	RxD+	Receive data +
	4	NU	Not used
	5	NU	Not used
	6	RxD-	Receive data -
	7	NU	Not used
	8	NU	Not used
	Shield	Cable shield	Functional earth

> ⓘ *In corrosive environment, please protect unused connectors using the TA535 accessory.*
>
> *Not supplied with this device.*

37.5 Cleaning

> ⓘ **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

37.6 Certification

KC MSIP-REI-Abb-AC500	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	Note These devices correspond to:	KN61000-6-2 "Immunity for industrial environments", KN61000-6-4 "Emission standard for industrial environments"
ko	참고 이러한 기기는	KN61000-6-2 "산업 환경에 대한 내성", KN61000-6-4 "산업 환경 누출 기준"에 적합함

37.7 Recycling

> ⓘ **Disposal and recycling information**
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

38 CM592-DP(-XC)

- CM592-DP
- CM592-DP-XC
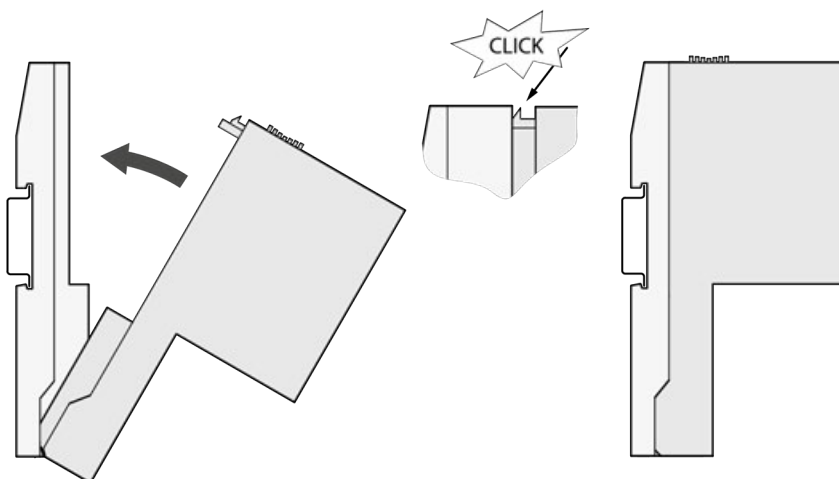
| ⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

38.1 Assembly

38.2   Disassembly
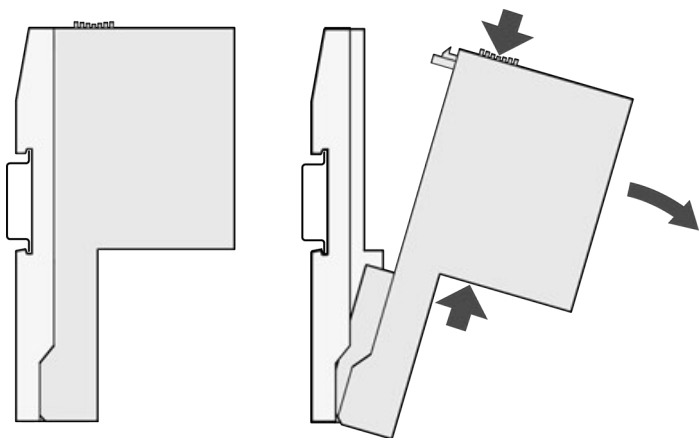
38.3   Dimensions
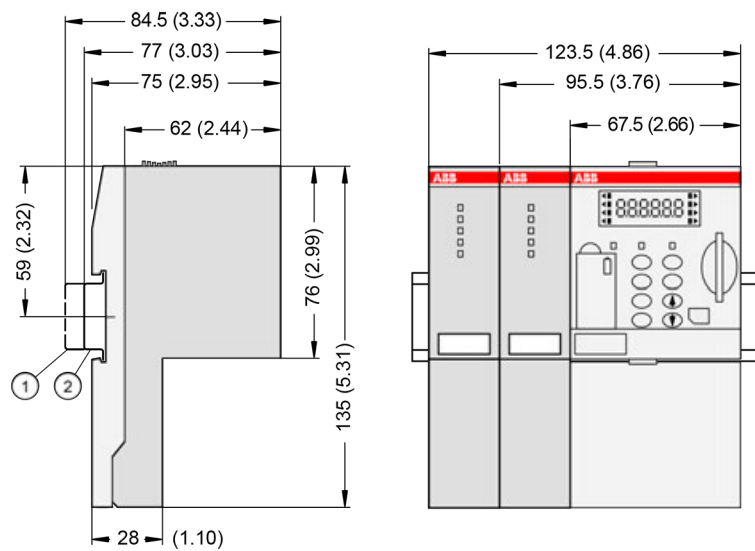
1   Din rail 15 mm
2   Din rail 7.5 mm

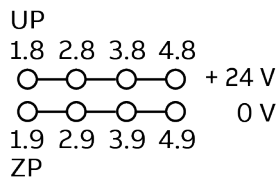> *The dimensions are in mm and in brackets in inch.*
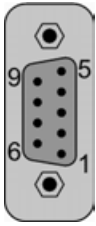
38.4 Connections
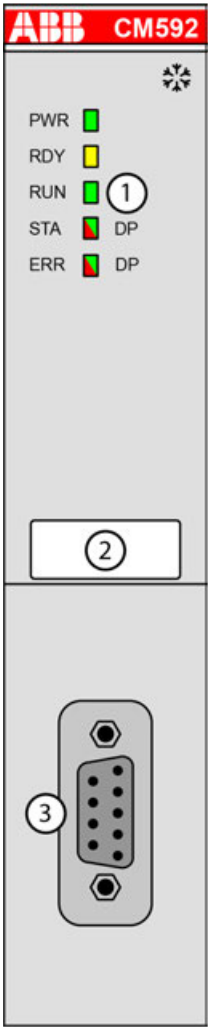
1 5 LEDs for state display
2 Label
3 Communication interface PROFIBUS DP D-sub, 9-pin, female
❄ Sign for XC version

38.4.1 PROFIBUS interface

Pin assignment

Pin		Signal	Description
	1	NC	Not connected
	2	NC	Not connected
	3	RxD/TxD-P	Receive/Transmit positive
	4	CNTR-P	Control signal for repeater, positive
	5	DGND	Reference potential for data exchange and +5 VI
	6	VP	+5 V (power supply for the bus terminating resistors)
	7	NC	Not connected
	8	RxD/TxD-N	Receive/Transmit negative
	9	NC	Not connected

> ⓘ *In corrosive environment, please protect unused connectors using the TA535 accessory.*
>
> *Not supplied with this device.*

38.5 Cleaning

> ⓘ ***Cleaning instructions***
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

38.6 Certification

KC MSIP-REI-Abb-AC500	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	Note These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

38.7 Recycling

> ⓘ ***Disposal and recycling information***
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

39 CM597-ETH(-XC)

- CM597-ETH
- CM597-ETH-XC

> **CAUTION!**
>
> **Risk of injury and damaging the product!**
>
> Improper installation and maintenance may result in injury and can damage the product!
>
> – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
> – Only by qualified personnel.

39.1 Assembly
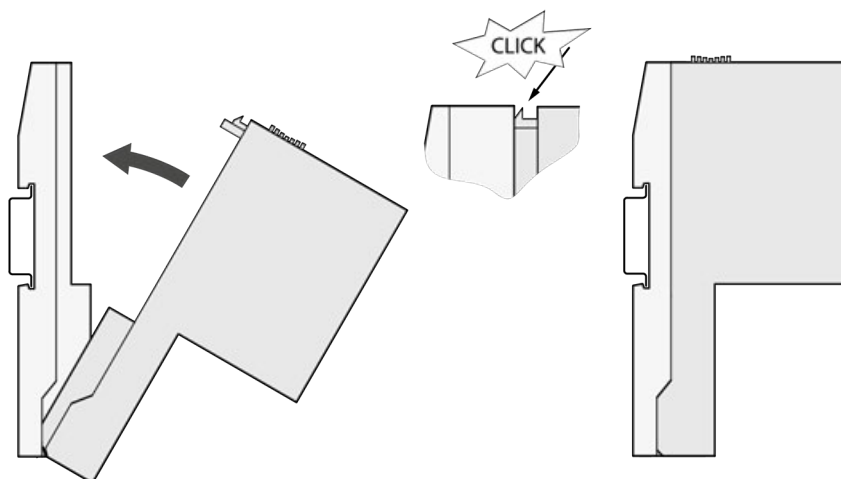
39.2 Disassembly
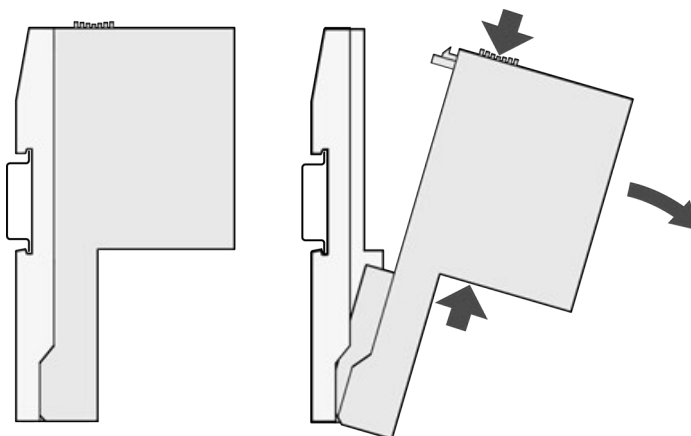
39.3 Dimensions
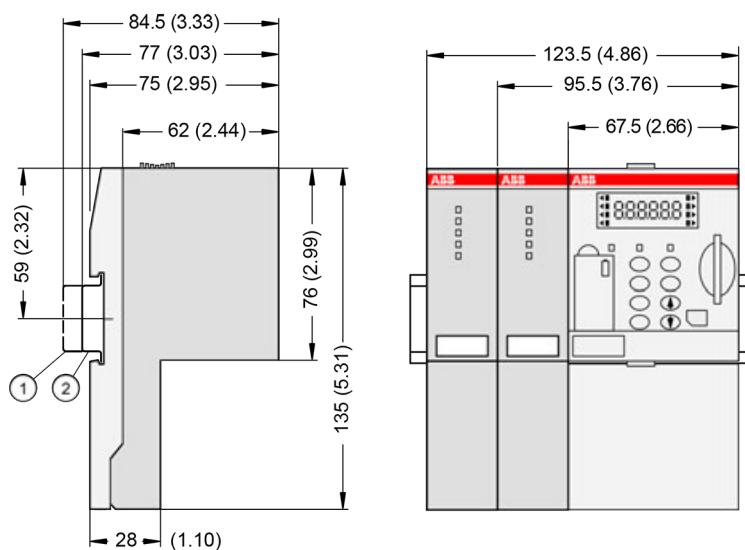
1 Din rail 15 mm
2 Din rail 7.5 mm

ⓘ *The dimensions are in mm and in brackets in inch.*
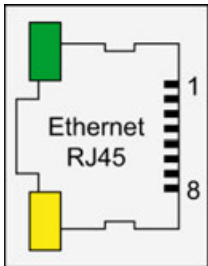
39.4   Connections
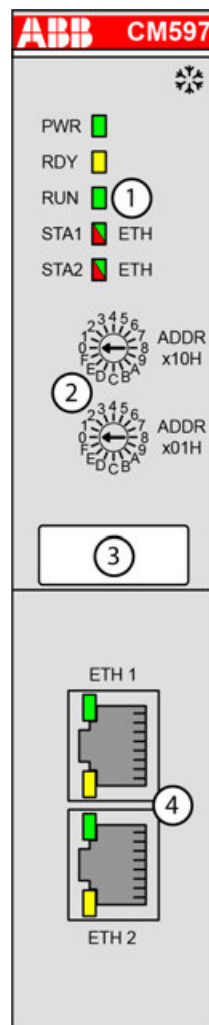
1   5 LEDs for state display
2   2 rotary switches for address setting
3   Label
4   2 communication interfaces Ethernet RJ45
✳   Sign for XC version

39.4.1   Ethernet network interface

Pin assignment

Interface	Pin	Signal	Description
Ethernet RJ45	1	TxD+	Transmit data +
	2	TxD-	Transmit data -
	3	RxD+	Receive data +
	4	NC	Not connected
	5	NC	Not connected
	6	RxD-	Receive data -
	7	NC	Not connected
	8	NC	Not connected
	Shield	Cable shield	Functional earth

> ⓘ *In corrosive environment, please protect unused connectors using the TA535 accessory.*
>
> *Not supplied with this device.*

39.5   Cleaning

> ⓘ **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

39.6   Certification

KC

MSIP-REI-Abb-AC500

en   Devices with KCC sign on product sticker and packaging

ko   제품 스티커 및 포장에 **KCC** 표시가 된 기기

en   Note
These devices correspond to:

ko   참고
이러한 기기는

KN61000-6-2 "Immunity for industrial environments",
KN61000-6-4 "Emission standard for industrial environments"

KN61000-6-2 "산업 환경에 대한 내성",
KN61000-6-4 "산업 환경 누출 기준"에 적합함

39.7   Recycling

> ⓘ **Disposal and recycling information**
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

40 CM598-CN(-XC)

- CM598-CN
- CM598-CN-XC

⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

40.1 Assembly

40.2   Disassembly
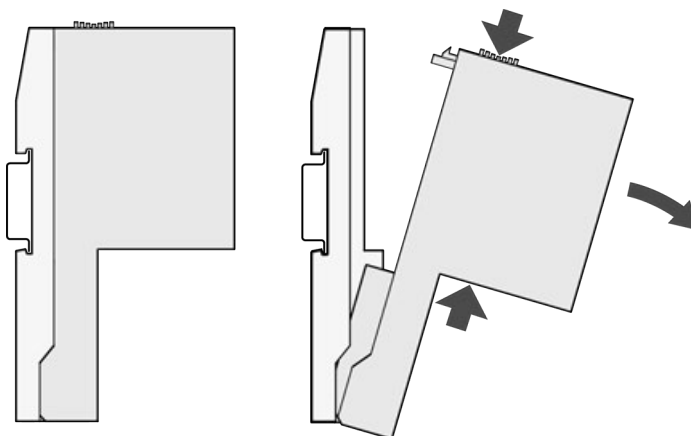
40.3   Dimensions
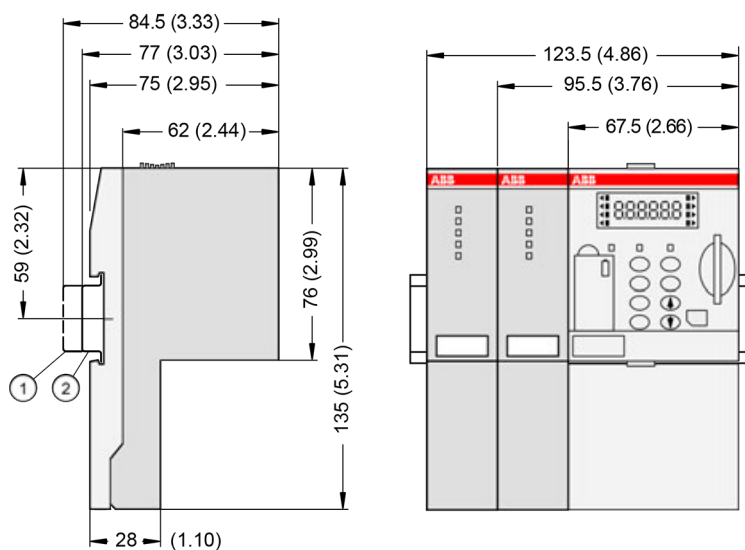
1   Din rail 15 mm
2   Din rail 7.5 mm

The dimensions are in mm and in brackets in inch.

40.4   Connections
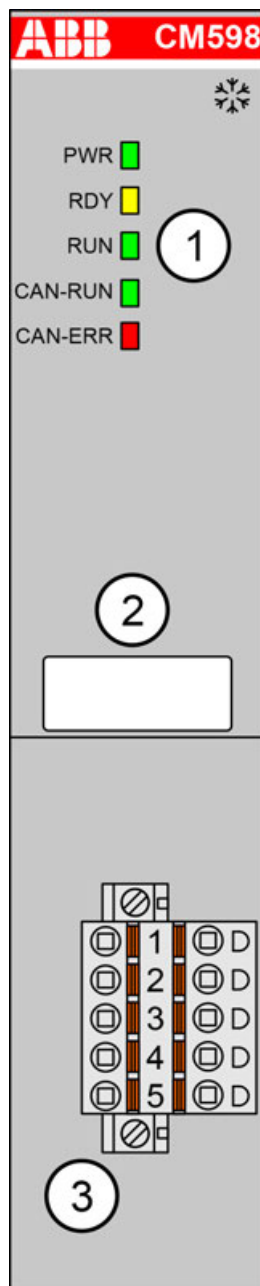
1   5 LEDs for state display
2   Label
3   Communication interface, 5-pin, Combicon, male, removable plug with spring terminals
❄   Sign for XC version

40.4.1 CAN interface

Pin assignment *Table 2: Pin assignment of the CANopen connector*

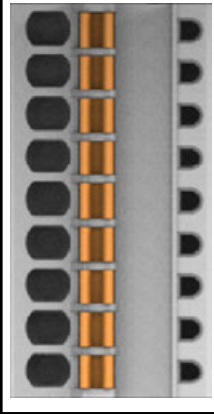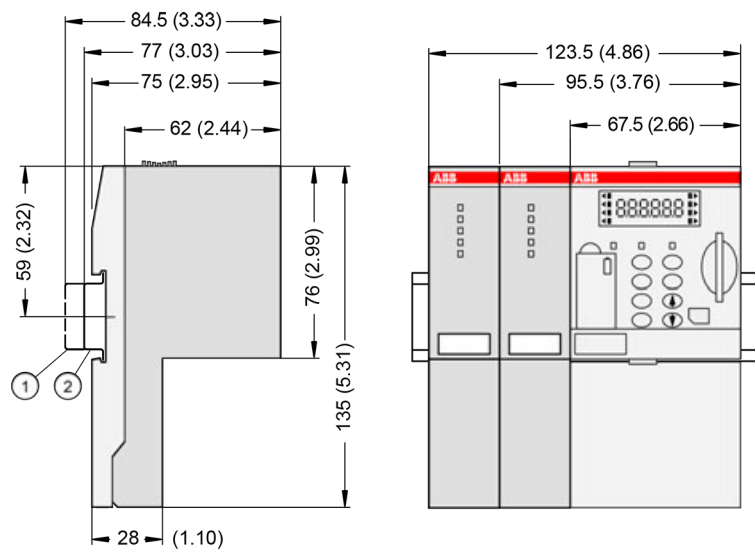| Interface		PIN	Signal	Description
		1	CAN_GND	CAN reference potential
		2	CAN_L	Bus line, receive/transmit line, LOW
		3	CAN_SHLD	Shield of the bus line
		4	CAN_H	Bus line, receive/transmit line, HIGH
		5	NC	Not connected
Terminal block removed	Terminal block inserted			

> **!** **NOTICE!**
> **Unused connector!**
> Make sure that the terminal block is always connected to the terminal base or communication module, even if you do not use the interface.

> ⓘ *In corrosive environment, please protect unused connectors using the TA535 accessory.*
> *Not supplied with this device.*

40.5 Cleaning

> ⓘ ***Cleaning instructions***
> *Do not use cleaning agent for cleaning the device.*
> *Use a damp cloth instead.*

40.6 Certification

KC MSIP-REI-Abb-AC500	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	Note These devices correspond to:	KN61000-6-2 "Immunity for industrial environments", KN61000-6-4 "Emission standard for industrial environments"
ko	참고 이러한 기기는	KN61000-6-2 "산업 환경에 대한 내성", KN61000-6-4 "산업 환경 누출 기준"에 적합함

40.7   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

41 DA501(-XC)

- DA501
- DA501-XC

⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

Hot swap

⚠	**WARNING!**
	Risk of explosion or fire in hazardous environments during hot swapping!
	Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

⚠️ **WARNING!**

Electric shock due to negligent behavior during hot swapping!

To avoid electric shock

- make sure the following conditions apply:
  - Digital outputs are not under load.
  - Input/output voltages above safety extra low voltage/
    protective extra low voltage (SELV/PELV) are switched off.
  - Modules are fully interlocked with the terminal unit with both snap-fits
    engaged before switching on loads or input/output voltage.
- Never touch exposed contacts (dangerous voltages).
- Stay away from electrical contacts to avoid arc discharge.
- Do not operate a mechanical installation improperly.

❗ **NOTICE!**

Risk of damage to I/O modules!

Hot swapping is only allowed for I/O modules.

Processor modules and communication interface modules must not be removed
or inserted during operation.

H = **H**ot swap

ℹ️ *Hot swap*

System requirements for hot swapping of I/O modules:

- *Types of terminal units that support hot swapping of I/O modules have the
  appendix TU5xx-**H**.*
- *I/O modules as of index F0.*

The following I/O bus masters support hot swapping of attached I/O modules:

- *Communication interface modules CI5xx as of index F0.*
- *Processor modules PM56xx-2ETH with firmware version as of V3.2.0.*

ℹ️ *Hot swap is not supported by AC500-eCo V3 CPU!*

> ⓘ *The index of the module is in the right corner of the label.*

> **❗ NOTICE!**
> **Risk of damage to I/O modules!**
> Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

> **❗ NOTICE!**
> **Risk of damage to I/O modules!**
> Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.
>
> For min. required device index see table below.

Device	Min. required device index for I/O module as of FW Version 3.0.14
AC522(-XC)	F0
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DA502 (-XC)	F0
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

41.1   Assembly
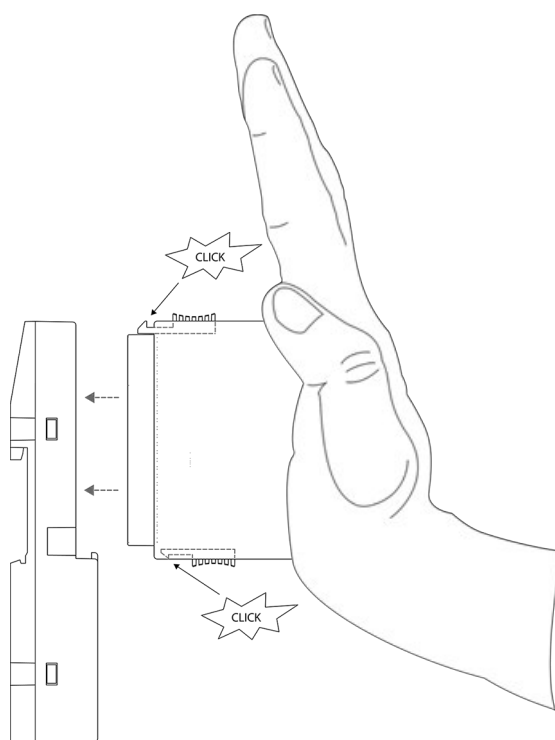
41.2   Disassembly

41.3   Dimensions

1   Din rail 15 mm
2   Din rail 7.5 mm

The dimensions are in mm and in brackets in inch.

41.4   Connections
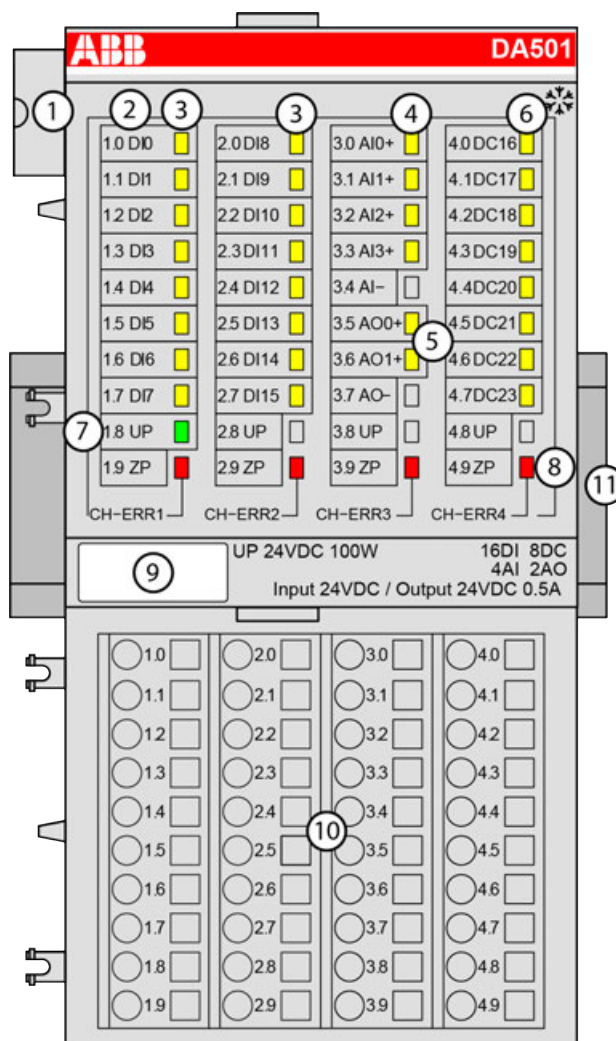
1   I/O bus
2   Allocation between terminal number and signal name
3   16 yellow LEDs to display the signal states of the digital inputs DI0 ... DI15
4   4 yellow LEDs to display the signal states of the analog inputs AI0 ... AI3
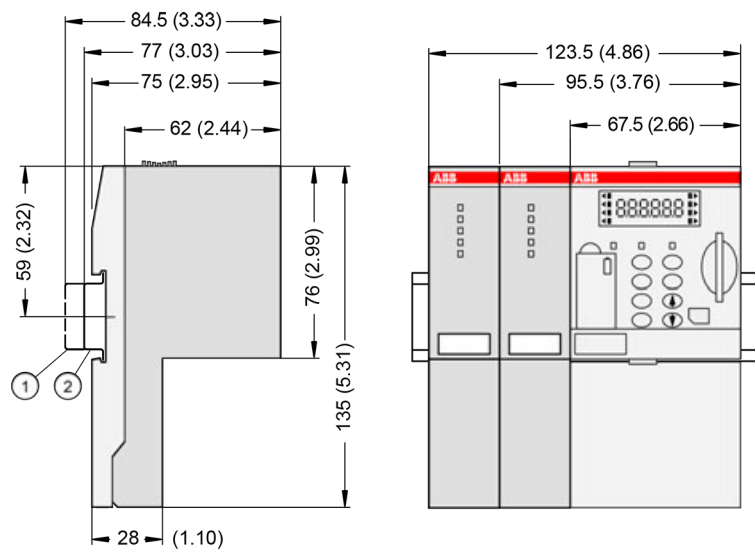5   2 yellow LEDs to display the signal states of the analog outputs AO0 ... AO1
6   8 yellow LEDs to display the signal state of the configurable digital inputs/outputs
    DC16 ... DC23
7   1 green LED to display the state of the process supply voltage UP
8   4 red LEDs to display errors
9   Label
10 Terminal unit
11 DIN rail
✳   Sign for XC version

> ⓘ   *All I/O channels (digital and analog) are protected against reverse polarity,
> reverse supply and temporary overvoltage up to 30 VDC.*

41.4.1 Process supply voltage

UP
1.8 2.8 3.8 4.8
○—○—○—○ + 24 V
○—○—○—○   0 V
1.9 2.9 3.9 4.9
ZP

⚠ **CAUTION!**

The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

41.4.2 Inputs/Outputs
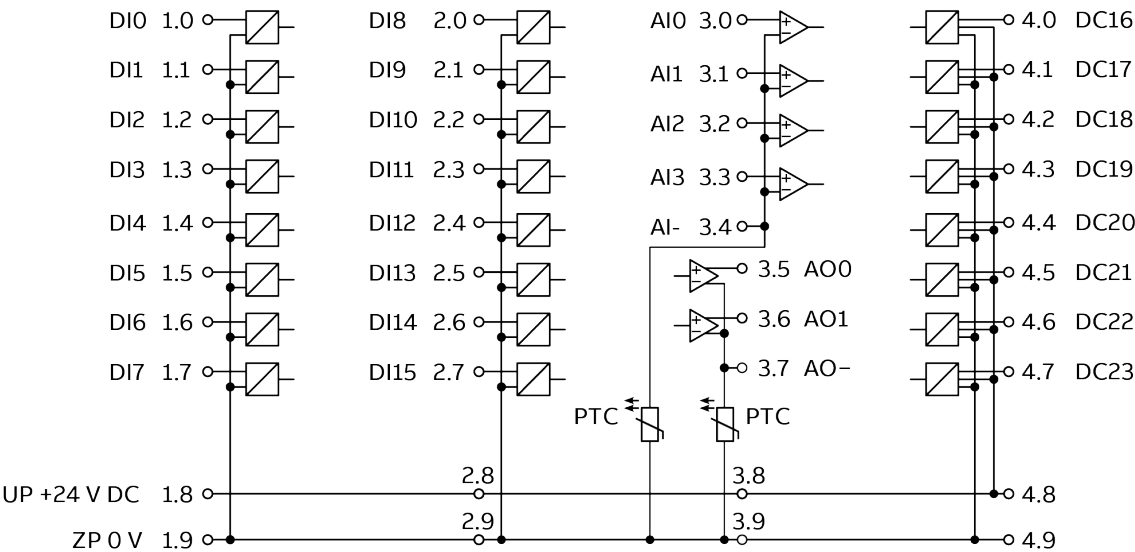
Example digital input
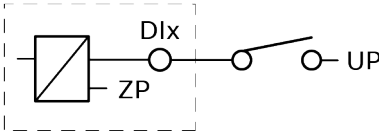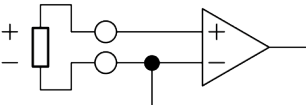
Fig. 47: Example of connection input DIx

Example analog input

AI0 ... AI3
0 V ... +10 V
± 10 V
0 mA ... +20 mA
+4 mA ... +20 mA
Pt100 / Pt1000
Ni1000

Fig. 48: Example of connection input AIx

**Example analog
output**
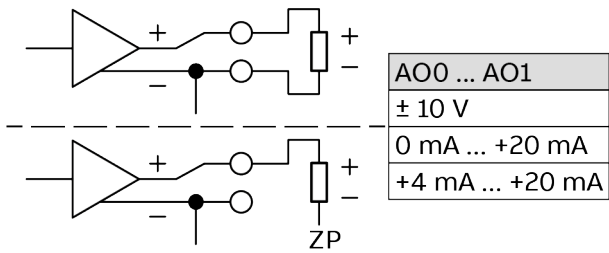
Fig. 49: Example of connection output AOx

**Example input
or output**
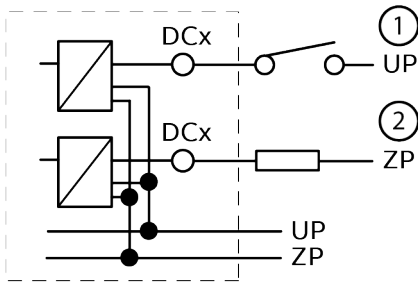
1   Example of connection as an input
2   Example of connection as an output

41.5   Cleaning

> *Cleaning instructions*
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

41.6   Certification

MSIP-REI-Abb-AC500

| | en | Devices with KCC sign on product sticker and packaging |
| | ko | 제품 스티커 및 포장에 **KCC** 표시가 된 기기 |

| en | Note
These devices correspond to: | **KN61000-6-2** "Immunity for industrial environments",
KN61000-6-4 "Emission standard for industrial environments" |
| ko | 참고
이러한 기기는 | **KN61000-6-2** "산업 환경에 대한 내성",
KN61000-6-4 "산업 환경 누출 기준"에 적합함 |

41.7 Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

42 DA502(-XC)

- DA502
- DA502-XC

| ⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

Hot swap

⚠	**WARNING!**
	Risk of explosion or fire in hazardous environments during hot swapping!
	Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

> **⚠ WARNING!**
>
> **Electric shock due to negligent behavior during hot swapping!**
>
> To avoid electric shock
>
> – make sure the following conditions apply:
>   – Digital outputs are not under load.
>   – Input/output voltages above safety extra low voltage/ protective extra low voltage (SELV/PELV) are switched off.
>   – Modules are fully interlocked with the terminal unit with both snap-fits engaged before switching on loads or input/output voltage.
> – Never touch exposed contacts (dangerous voltages).
> – Stay away from electrical contacts to avoid arc discharge.
> – Do not operate a mechanical installation improperly.

> **❗ NOTICE!**
>
> **Risk of damage to I/O modules!**
>
> Hot swapping is only allowed for I/O modules.
>
> Processor modules and communication interface modules must not be removed or inserted during operation.

H = **H**ot swap

> **ⓘ** *Hot swap*
>
> *System requirements for hot swapping of I/O modules:*
>
> – *Types of terminal units that support hot swapping of I/O modules have the appendix TU5xx-**H**.*
> – *I/O modules as of index F0.*
>
> *The following I/O bus masters support hot swapping of attached I/O modules:*
>
> – *Communication interface modules CI5xx as of index F0.*
> – *Processor modules PM56xx-2ETH with firmware version as of V3.2.0.*

> **ⓘ** *Hot swap is not supported by AC500-eCo V3 CPU!*

> ⓘ *The index of the module is in the right corner of the label.*

❗ NOTICE!
Risk of damage to I/O modules!
Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

❗ NOTICE!
Risk of damage to I/O modules!
Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.

For min. required device index see table below.

Device	Min. required device index for I/O module as of FW Version 3.0.14
AC522(-XC)	F0
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DA502 (-XC)	F0
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

42.1   Assembly

## 42.2 Disassembly
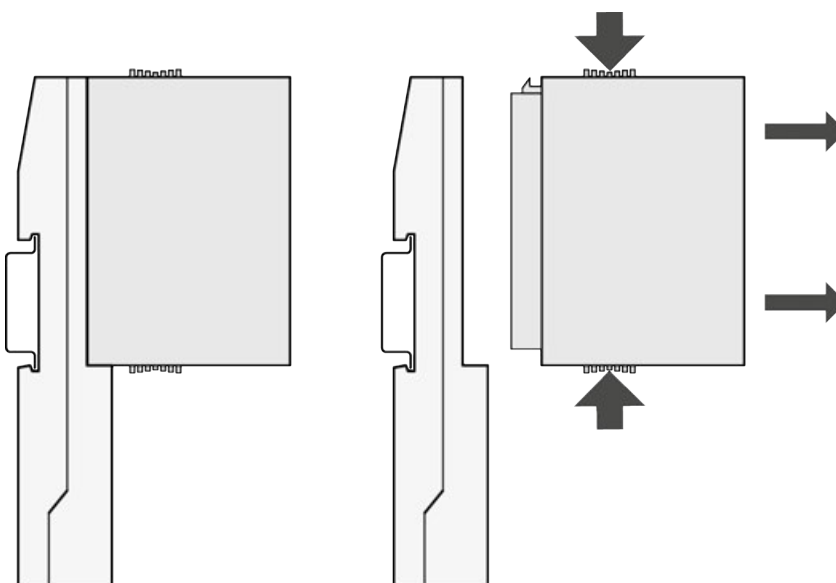
42.3 Dimensions

1 Din rail 15 mm
2 Din rail 7.5 mm

> *The dimensions are in mm and in brackets in inch.*

42.4   Connections
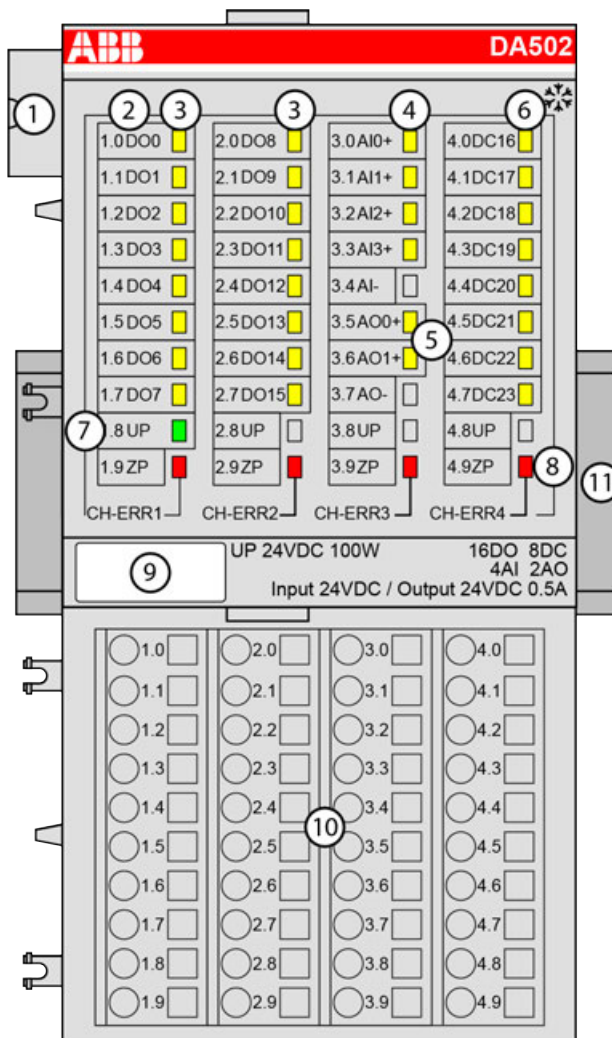
1   I/O bus
2   Allocation between terminal number and signal name
3   16 yellow LEDs to display the signal states of the digital outputs DO0 ... DO15
4   4 yellow LEDs to display the signal states of the analog inputs AI0 ... AI3
5   2 yellow LEDs to display the signal states of the analog outputs AO0 ... AO1
6   8 yellow LEDs to display the signal states of the configurable digital inputs/outputs DC16 ... DC23
7   1 green LED to display the state of the process supply voltage UP
8   4 red LEDs to display errors
9   Label
10 Terminal unit
11 DIN rail
❄ Sign for XC version

> *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

42.4.1 Process supply voltage
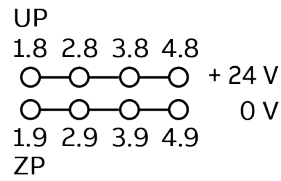
UP
1.8 2.8 3.8 4.8
○─○─○─○ + 24 V
○─○─○─○ 0 V
1.9 2.9 3.9 4.9
ZP

> ⚠️ **CAUTION!**
>
> The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

42.4.2 Inputs/Outputs

1.0 DO0	2.0 DO8	AI0 3.0	4.0 DC16
1.1 DO1	2.1 DO10	AI1 3.1	4.1 DC17
1.2 DO2	2.2 DO10	AI2 3.2	4.2 DC18
1.3 DO3	2.3 DO11	AI3 3.3	4.3 DC19
1.4 DO4	2.4 DO12	AI- 3.4	4.4 DC20
1.5 DO5	2.5 DO13	3.5 AO0	4.5 DC21
1.6 DO6	2.6 DO14	3.6 AO1	4.6 DC22
1.7 DO7	2.7 DO15	3.7 AO−	4.7 DC23

PTC   PTC

1.8 UP +24 V   2.8   3.8   4.8
1.9 ZP 0 V   2.9   3.9   4.9

Example digital output

DOx
ZP
UP
ZP
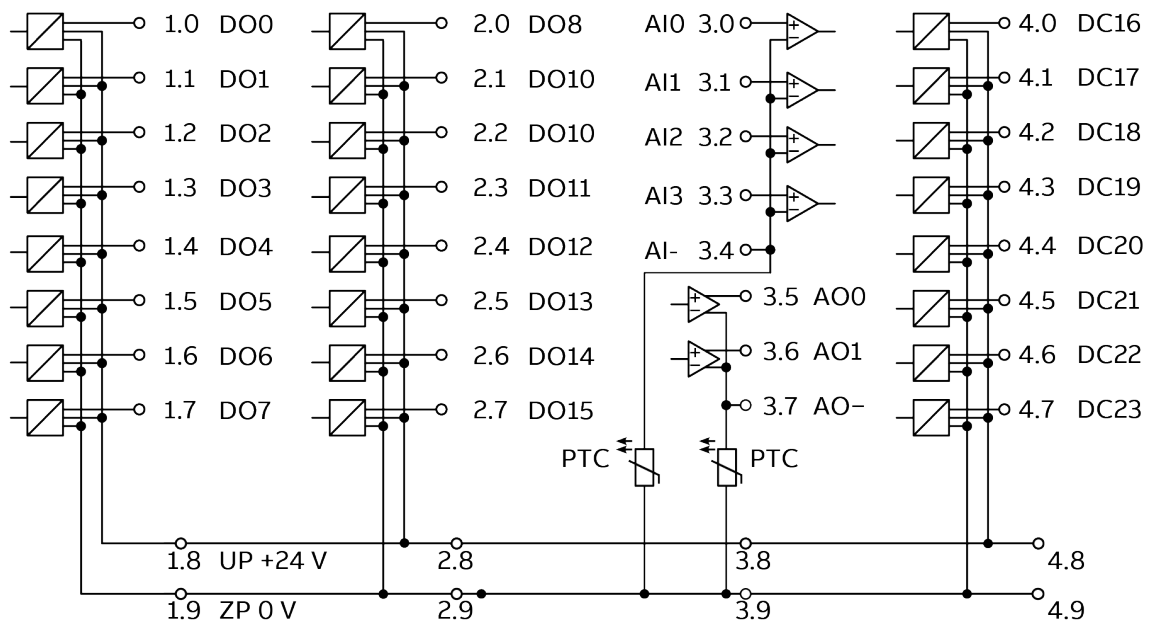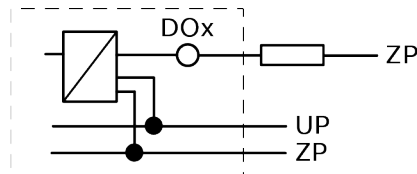
Fig. 50: Example of connection output DOx

Example input or output
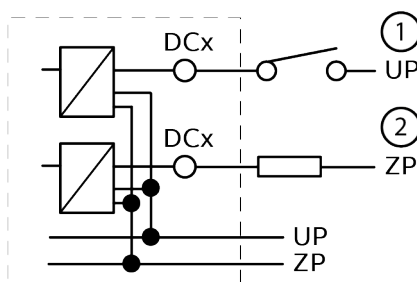
DCx
① UP
DCx
② ZP
UP
ZP

1 Example of connection as an input
2 Example of connection as an output

Example analog input

AI0 ... AI3
0 V ... +10 V
± 10 V
0 mA ... +20 mA
+4 mA ... +20 mA
Pt100 / Pt1000
Ni1000
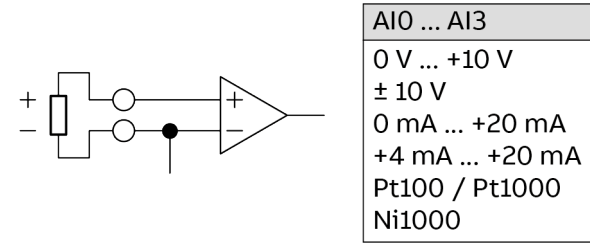
Fig. 51: Example of connection input AIx

Example analog output

AO0 ... AO1
± 10 V
0 mA ... +20 mA
+4 mA ... +20 mA
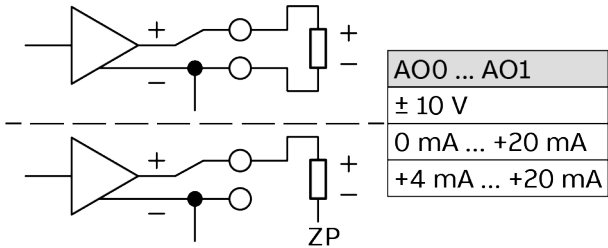
Fig. 52: Example of connection output AOx

42.5 Cleaning

> ***Cleaning instructions***
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

42.6 Certification

MSIP-REI-Abb-AC500

en	Devices with KCC sign on product sticker and packaging
ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	Note These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

42.7   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

43 DC501-CS31-AD

- DC501-CS31-AD

| ⚠️	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

43.1   Dimensions
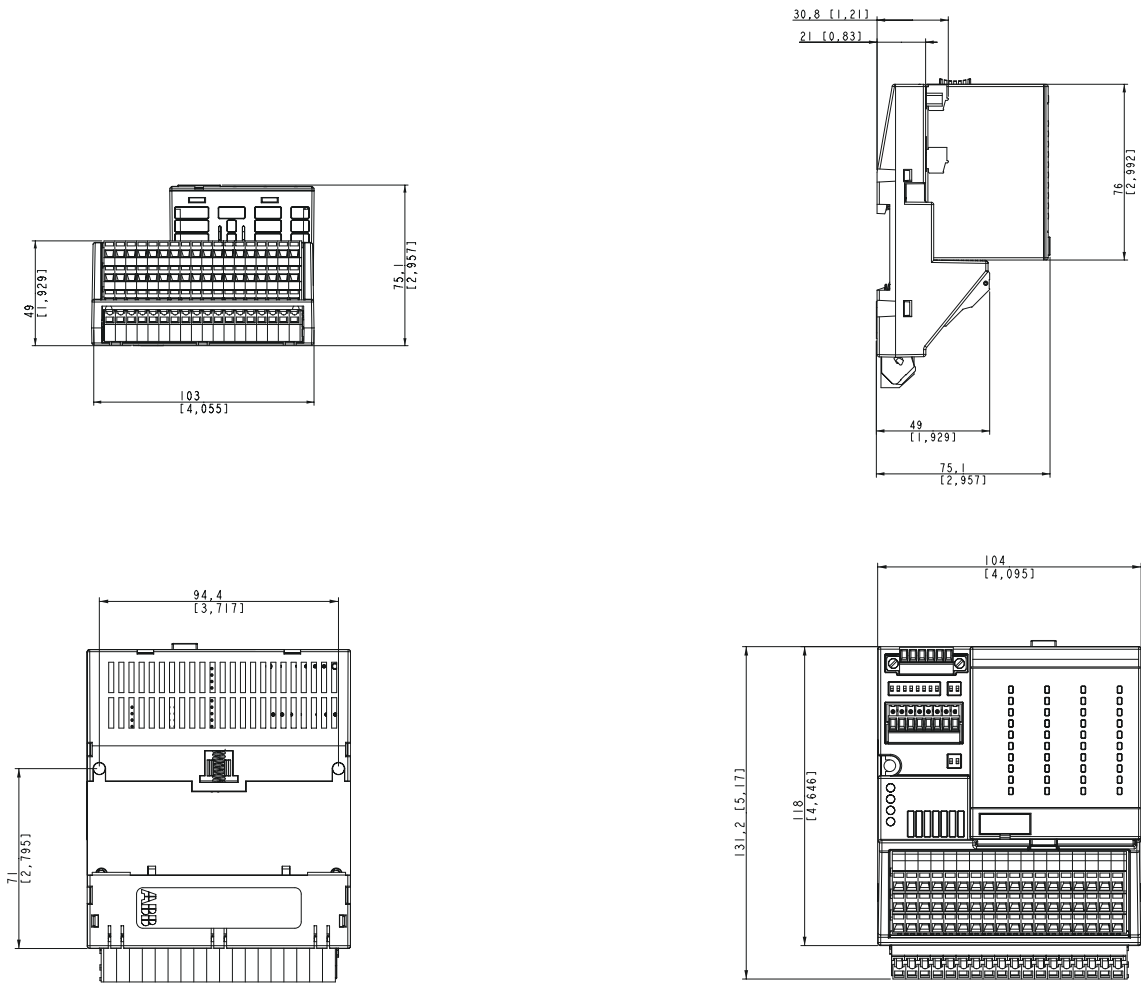
| | The dimensions are in mm and in brackets in inch. |

43.2 Connections
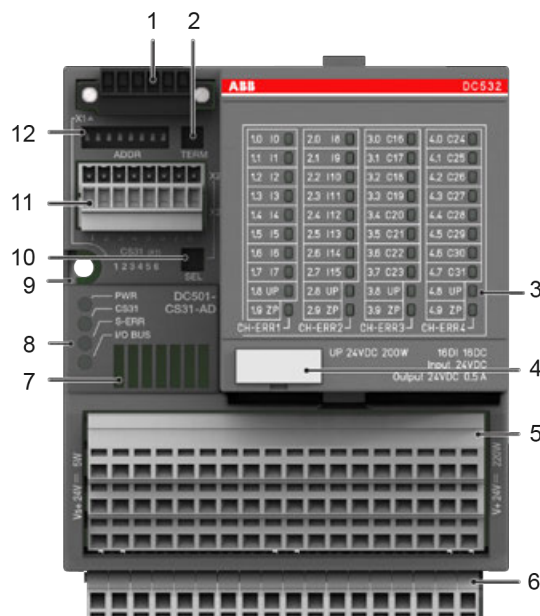
1   Connection for CS31 bus (X1)
2   Bus termination (CS31 bus)
3   Status LEDs for DC532
4   TA525: Label
5   Terminals signal level (X4). 16 digital inputs, 8 digital outputs, 8 DC voltage supply (incl. DC532)
6   Terminals signal level (plug-in power bus)
7   Ventilation
8   4 Status LEDs
9   Hole for screw mounting (screw diameter 4 mm, extension torque 1.2 Nm)
10   Function selector switch for I/O extension
11   4 digital inputs (X2): 24 V DC. 3 analog inputs, 1 analog output (X3): 0 V … +10 V.
12   DIP switch for ADDR (X1)

> *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

43.2.1 Bus termination
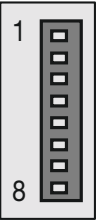
	ON	OFF
S1 + S2:	Term.	No term.

Switch 1 and 2 are set to ON: termination of CS31 bus.

Switch 1 and 2 are set to OFF: CS31 bus is not terminated.

43.2.2   ADDR

		ON	OFF
	S1: C	16 I/ 16 O	24 I/ 16 O
	S2: 64	ADDR: 32	0
	S3: 32	ADDR: 16	0
	S4: 16	ADDR: 8	0
	S5: 8	ADDR: 4	0
	S6: 4	ADDR: 2	0
	S7: 2	ADDR: 1	0
	S8: 1	NC	NC

43.2.3   SEL

	ON	OFF
S1:	DI501	0
S2:	AX501	0

Switch 1 and 2 are set to ON: No extensions are allowed, module DC501R0100 is used.

43.2.4   Plug connection
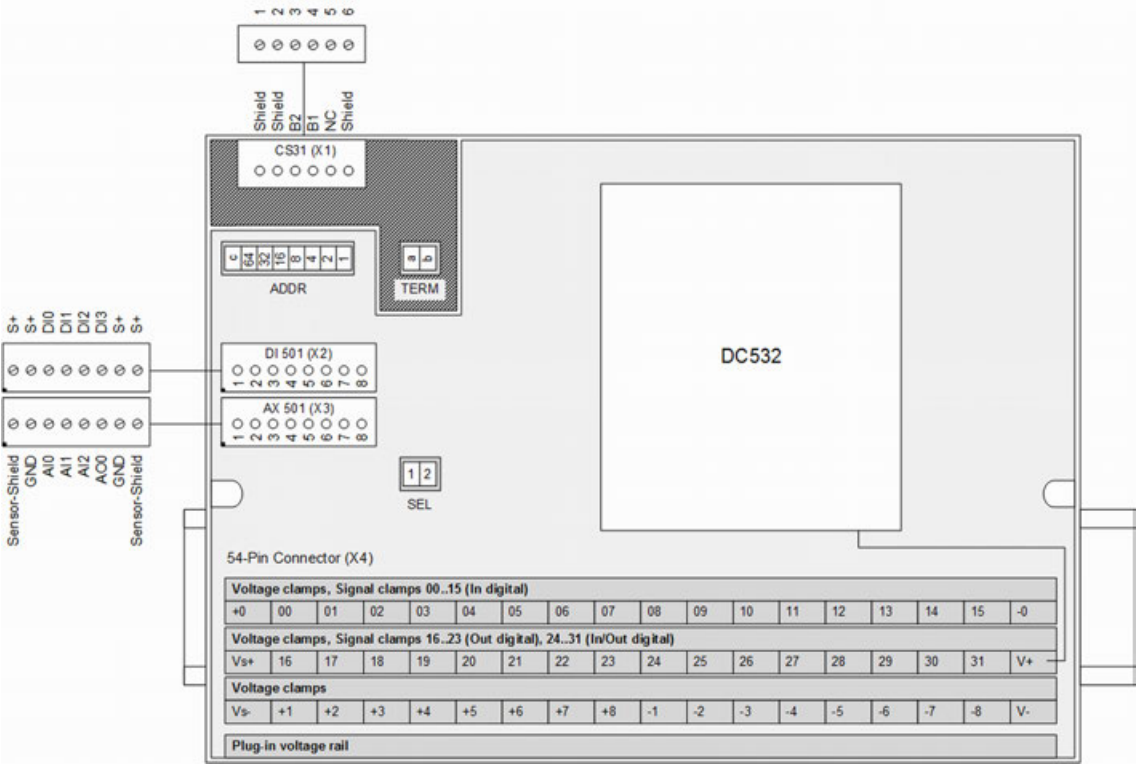
Table 3: Pin assignment CS31 bus (X1)

Connector / Terminal	Pin	Assignment / Signal
X1 / Shield	1	Shield (internally connected to pins 2 and 6. No internal connection to functional earth)
X1 / Shield	2	Shield (internally connected to pins 1 and 6. No internal connection to functional earth)
X1 / B2	3	BUS 2
X1 / B1	4	BUS 1
X1 / NC	5	Not connected
X1 / Shield	6	Shield (internally connected to pins 1 and 2. No internal connection to functional earth)

Table 4: Pin assignment DI501 (X2)

Connector / Terminal	Pin	Assignment / Signal
X2 / S+	1	Auxiliary voltage (max. 32 mA total load of S+ permitted) for DI0 - DI3. Voltage derived from input voltage Vs+ (X4)
X2 / S+	2	Auxiliary voltage (max. 32 mA total load of S+ permitted) for DI0 - DI3. Voltage derived from input voltage Vs+ (X4)
X2 / DI0	3	Digital extension input 0
X2 / DI1	4	Digital extension input 1
X2 / DI2	5	Digital extension input 2
X2 / DI3	6	Digital extension input 3
X2 / S+	7	Auxiliary voltage (max. 32 mA total load of S+ permitted) for DI0 - DI3. Voltage derived from input voltage Vs+ (X4)
X2 / S+	8	Auxiliary voltage (max. 32 mA total load of S+ permitted) for DI0 - DI3. Voltage derived from input voltage Vs+ (X4)

Table 5: Pin assignment AX501 (X3)

Connector / Terminal	Pin	Assignment / Signal
X3 / Sensor shield	1	Sensor shield
X3 / GND	2	GND
X3 / AI0	3	Analog extension input 0
X3 / AI1	4	Analog extension input 1
X3 / AI2	5	Analog extension input 2
X3 / AO0	6	Analog extension output 0
X3 / GND	7	GND
X3 / Sensor shield	8	Sensor shield

The connections X3 / 2 and X3 / 7 (GND) are directly connected to X4 / Vs-, X4 / V-. There is no AGND potential in accordance with module AX501. In module AX501, AGND is connected to GND via a resistor.

Both sensor shield connections of X3 are interconnected and jointly connected to FE via 10 MΩ || 4 nF.

Table 6: Pin assignment 54 pin connector (X4)

Connector / Block	Pin	Assignment / Signal
X4 / 1	+0	Auxiliary voltage (max. 200 mA total load of +0/ +1/ …/ +7/ +8 permitted). Voltage derived from input voltage V+ (X4)
X4 / 1	00	DC532 / I0
X4 / 1	01	DC532 / I1
X4 / 1	02	DC532 / I2
X4 / 1	03	DC532 / I3
X4 / 1	04	DC532 / I4
X4 / 1	05	DC532 / I5
X4 / 1	06	DC532 / I6
X4 / 1	07	DC532 / I7
X4 / 1	08	DC532 / I8
X4 / 1	09	DC532 / I9
X4 / 1	10	DC532 / I10
X4 / 1	11	DC532 / I11
X4 / 1	12	DC532 / I12
X4 / 1	13	DC532 / I13
X4 / 1	14	DC532 / I14
X4 / 1	15	DC532 / I15
X4 / 1	-0	GND
X4 / 2	Vs+	Voltage supply for electronics system (also for functionality of AX501 and DI501)
X4 / 2	16	DC532 / C16
X4 / 2	17	DC532 / C17
X4 / 2	18	DC532 / C18
X4 / 2	19	DC532 / C19
X4 / 2	20	DC532 / C20
X4 / 2	21	DC532 / C21
X4 / 2	22	DC532 / C22
X4 / 2	23	DC532 / C23
X4 / 2	24	DC532 / C24
X4 / 2	25	DC532 / C25
X4 / 2	26	DC532 / C26
X4 / 2	27	DC532 / C27
X4 / 2	28	DC532 / C28
X4 / 2	29	DC532 / C29
X4 / 2	30	DC532 / C30
X4 / 2	31	DC532 / C31
X4 / 2	V+	Voltage supply of inputs/outputs (module DC532 and auxiliary voltage)
X4 / 3	Vs-	GND

Connector / Block	Pin	Assignment / Signal
X4 / 3	+1	Auxiliary voltage (max. 200 mA total load of +0/ +1/ …/ +7/ +8 permitted). Voltage derived from input voltage V+ (X4)
X4 / 3	+2	Auxiliary voltage (max. 200 mA total load of +0/ +1/ …/ +7/ +8 permitted). Voltage derived from input voltage V+ (X4)
X4 / 3	+3	Auxiliary voltage (max. 200 mA total load of +0/ +1/ …/ +7/ +8 permitted). Voltage derived from input voltage V+ (X4)
X4 / 3	+4	Auxiliary voltage (max. 200 mA total load of +0/ +1/ …/ +7/ +8 permitted). Voltage derived from input voltage V+ (X4)
X4 / 3	+5	Auxiliary voltage (max. 200 mA total load of +0/ +1/ …/ +7/ +8 permitted). Voltage derived from input voltage V+ (X4)
X4 / 3	+6	Auxiliary voltage (max. 200 mA total load of +0/ +1/ …/ +7/ +8 permitted). Voltage derived from input voltage V+ (X4)
X4 / 3	+7	Auxiliary voltage (max. 200 mA total load of +0/ +1/ …/ +7/ +8 permitted). Voltage derived from input voltage V+ (X4)
X4 / 3	+8	Auxiliary voltage (max. 200 mA total load of +0/ +1/ …/ +7/ +8 permitted). Voltage derived from input voltage V+ (X4)
X4 / 3	-1	GND
X4 / 3	-2	GND
X4 / 3	-3	GND
X4 / 3	-4	GND
X4 / 3	-5	GND
X4 / 3	-6	GND
X4 / 3	-7	GND
X4 / 3	-8	GND
X4 / 3	V-	GND

Connection data of spring terminals (X4):

- Conductor cross section, single wire: 0.2 mm² to 2.5 mm²
- Conductor cross section, flexible: 0.2 mm² to 1.5 mm² (existing device: 2.5 mm² flexible)
- Conductor cross section, flexible with wire-end ferrule: 0.25 mm² to 1.5 mm²

43.3   Cleaning

Cleaning instructions

Do not use cleaning agent for cleaning the device.

Use a damp cloth instead.

43.4   Certification

| | en | Devices with KCC sign on product sticker and packaging |
| KC logo, MSIP-REI-Abb-AC500 | ko | 제품 스티커 및 포장에 **KCC** 표시가 된 기기 |

| en | Note
These devices correspond to: | **KN61000-6-2** "Immunity for industrial environments",
KN61000-6-4 "Emission standard for industrial environments" |
| ko | 참고
이러한 기기는 | **KN61000-6-2** "산업 환경에 대한 내성",
KN61000-6-4 "산업 환경 누출 기준"에 적합함 |

43.5   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

— 44 DC522(-XC)

- DC522
- DC522-XC

| ⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

Hot swap

⚠	**WARNING!**
	Risk of explosion or fire in hazardous environments during hot swapping!
	Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

<table>
<tr>
<td>⚠️</td>
<td>

WARNING!

Electric shock due to negligent behavior during hot swapping!

To avoid electric shock

– make sure the following conditions apply:
  – Digital outputs are not under load.
  – Input/output voltages above safety extra low voltage/
    protective extra low voltage (SELV/PELV) are switched off.
  – Modules are fully interlocked with the terminal unit with both snap-fits
    engaged before switching on loads or input/output voltage.
– Never touch exposed contacts (dangerous voltages).
– Stay away from electrical contacts to avoid arc discharge.
– Do not operate a mechanical installation improperly.

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NOTICE!

Risk of damage to I/O modules!

Hot swapping is only allowed for I/O modules.

Processor modules and communication interface modules must not be removed
or inserted during operation.

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</table>

H = **H**ot swap

<table>
<tr>
<td>ℹ️</td>
<td>

Hot swap

System requirements for hot swapping of I/O modules:

– *Types of terminal units that support hot swapping of I/O modules have the
  appendix TU5xx-**H**.*
– *I/O modules as of index F0.*

The following I/O bus masters support hot swapping of attached I/O modules:

– *Communication interface modules CI5xx as of index F0.*
– *Processor modules PM56xx-2ETH with firmware version as of V3.2.0.*

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</table>

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<tr>
<td>ℹ️</td>
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Hot swap is not supported by AC500-eCo V3 CPU!

</td>
</tr>
</table>

> ℹ️ *The index of the module is in the right corner of the label.*

> **!** **NOTICE!**
> **Risk of damage to I/O modules!**
> Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

> **!** **NOTICE!**
> **Risk of damage to I/O modules!**
> Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.
>
> For min. required device index see table below.

Device	Min. required device index for I/O module as of FW Version 3.0.14
AC522(-XC)	F0
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DA502 (-XC)	F0
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

44.1   Assembly
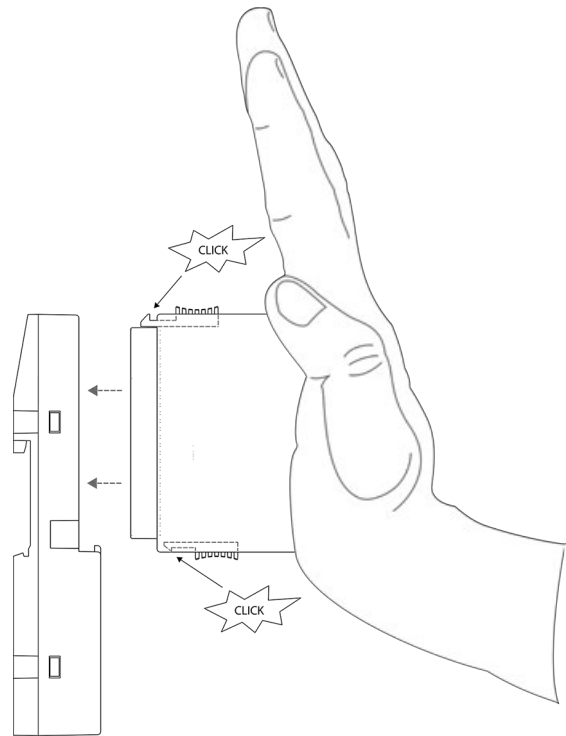
44.2   Disassembly
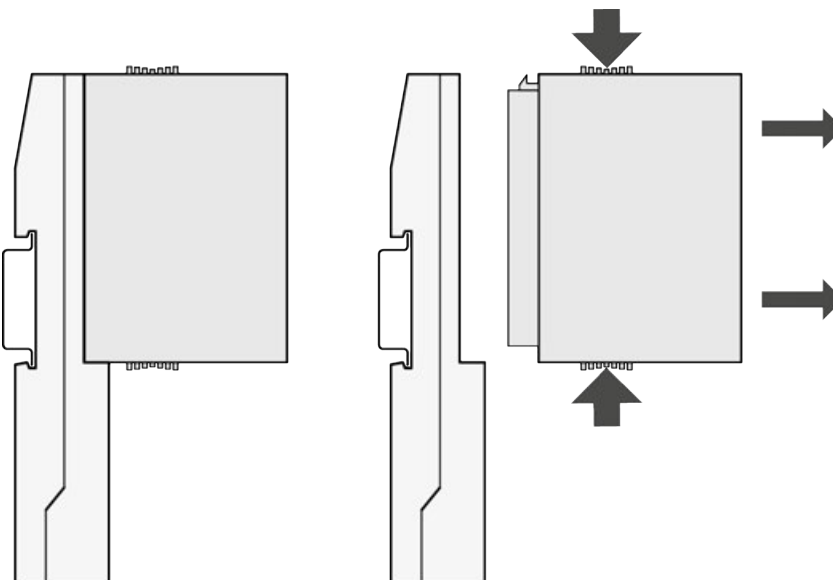
44.3   Dimensions
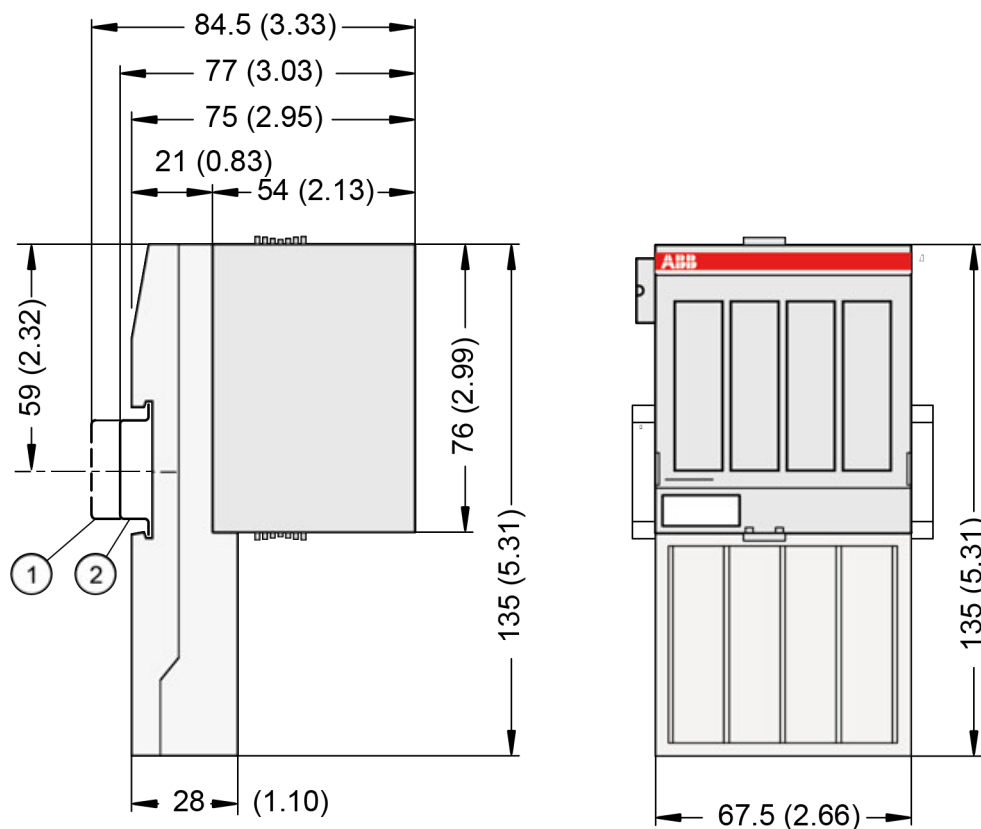
1   Din rail 15 mm
2   Din rail 7.5 mm
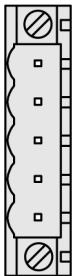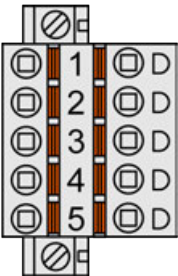
   The dimensions are in mm and in brackets in inch.

44.4   Connections
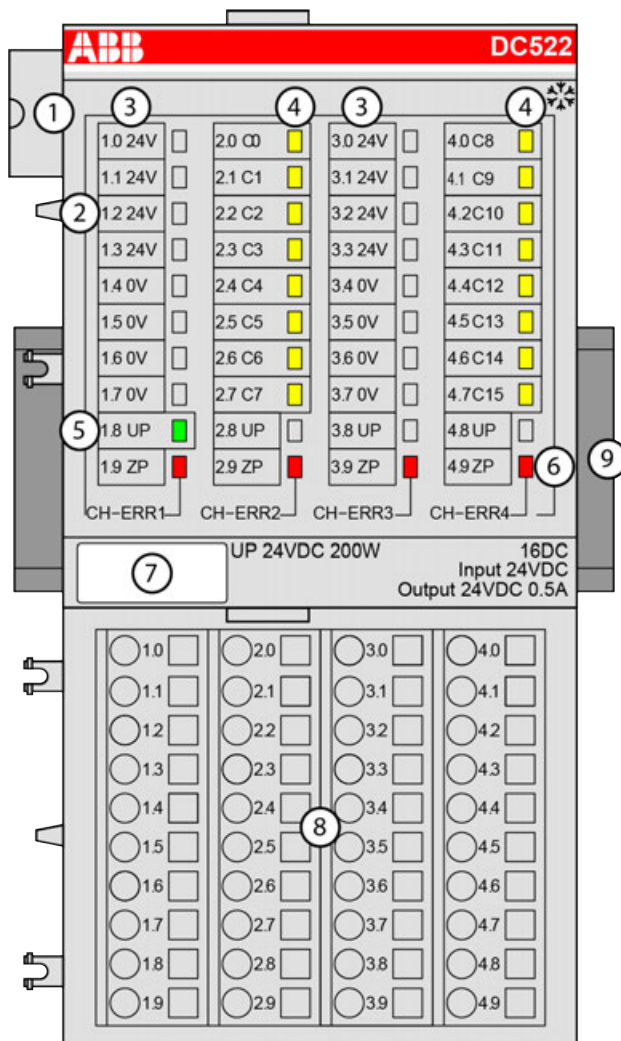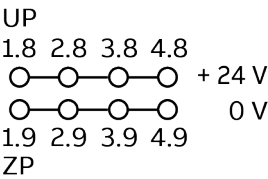
1   I/O bus
2   Allocation between terminal number and signal name
3   Sensor power supply 24 V DC / 0.5 A
4   16 yellow LEDs to display the signal states at the digital inputs/outputs (C0 ... C15)
5   1 green LED to display the state of the process supply voltage UP
6   4 red LEDs to display errors
7   Label
8   Terminal unit
9   DIN rail
❄   Sign for XC version

> ⓘ   *All I/O channels (digital and analog) are protected against reverse polarity,*
> *reverse supply and temporary overvoltage up to 30 VDC.*

44.4.1 Process supply voltage

UP
1.8 2.8 3.8 4.8
○—○—○—○ + 24 V
○—○—○—○   0 V
1.9 2.9 3.9 4.9
ZP

> ⚠️ **CAUTION!**
>
> The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

44.4.2 Inputs/Outputs
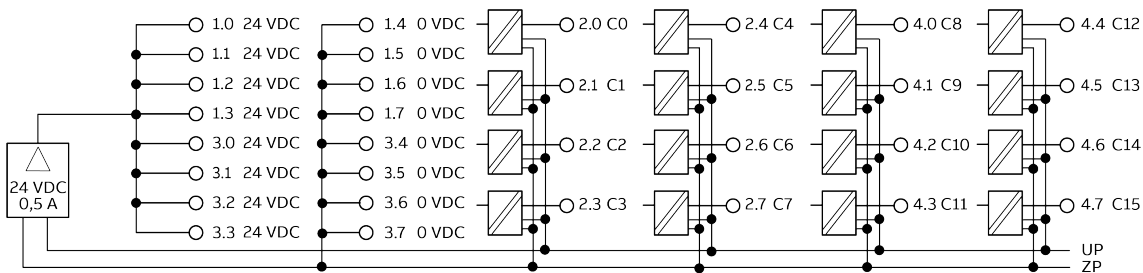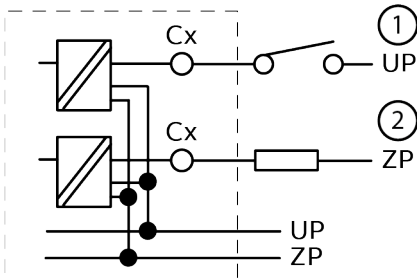
Example

1 Example of connection as an input
2 Example of connection as an output

44.5 Cleaning

> ℹ️ ***Cleaning instructions***
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

44.6 Certification

MSIP-REI-Abb-AC500	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	**Note** These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

44.7 Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

45 DC523(-XC)

- DC523
- DC523-XC

> ⚠ **CAUTION!**
>
> **Risk of injury and damaging the product!**
>
> Improper installation and maintenance may result in injury and can damage the product!
>
> – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
> – Only by qualified personnel.

Hot swap

> ⚠ **WARNING!**
>
> **Risk of explosion or fire in hazardous environments during hot swapping!**
>
> Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

> **WARNING!**
>
> **Electric shock due to negligent behavior during hot swapping!**
>
> To avoid electric shock
>
> – make sure the following conditions apply:
>   – Digital outputs are not under load.
>   – Input/output voltages above safety extra low voltage/
>   protective extra low voltage (SELV/PELV) are switched off.
>   – Modules are fully interlocked with the terminal unit with both snap-fits
>   engaged before switching on loads or input/output voltage.
> – Never touch exposed contacts (dangerous voltages).
> – Stay away from electrical contacts to avoid arc discharge.
> – Do not operate a mechanical installation improperly.

> **NOTICE!**
>
> **Risk of damage to I/O modules!**
>
> Hot swapping is only allowed for I/O modules.
>
> Processor modules and communication interface modules must not be removed
> or inserted during operation.

H = **H**ot swap

> *Hot swap*
>
> *System requirements for hot swapping of I/O modules:*
>
> – *Types of terminal units that support hot swapping of I/O modules have the
>   appendix TU5xx-**H**.*
> – *I/O modules as of index F0.*
>
> *The following I/O bus masters support hot swapping of attached I/O modules:*
>
> – *Communication interface modules CI5xx as of index F0.*
> – *Processor modules PM56xx-2ETH with firmware version as of V3.2.0.*

> *Hot swap is not supported by AC500-eCo V3 CPU!*

> ⓘ *The index of the module is in the right corner of the label.*

> **!** **NOTICE!**
> **Risk of damage to I/O modules!**
> Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

> **!** **NOTICE!**
> **Risk of damage to I/O modules!**
> Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.
>
> For min. required device index see table below.

Device	Min. required device index for I/O module as of FW Version 3.0.14
AC522(-XC)	F0
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DA502 (-XC)	F0
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

45.1   Assembly

45.2   Disassembly

45.3   Dimensions

1   Din rail 15 mm
2   Din rail 7.5 mm

> ⓘ   *The dimensions are in mm and in brackets in inch.*

45.4 Connections
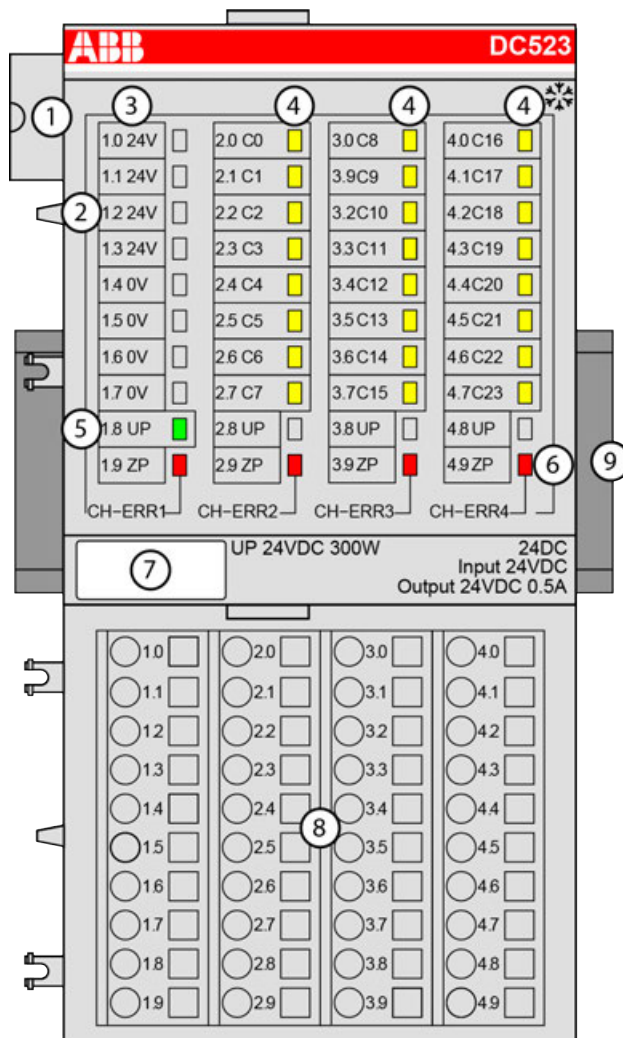
1   I/O bus
2   Allocation between terminal number and signal name
3   Sensor power supply 24 V DC / 0.5 A
4   24 yellow LEDs to display the signal states at the digital inputs/outputs (C0 ... C23)
5   1 green LED to display the status of the process supply voltage UP
6   4 red LEDs to display errors
7   Label
8   Terminal unit
9   DIN rail
❄ Sign for XC version

> ⓘ   *All I/O channels (digital and analog) are protected against reverse polarity,
>   reverse supply and temporary overvoltage up to 30 VDC.*

45.4.1 Process supply voltage
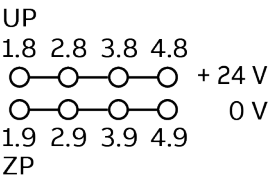
```
UP
1.8  2.8  3.8  4.8
 O—O—O—O  + 24 V
 O—O—O—O    0 V
1.9  2.9  3.9  4.9
ZP
```

⚠️ **CAUTION!**

The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

45.4.2 Inputs/Outputs
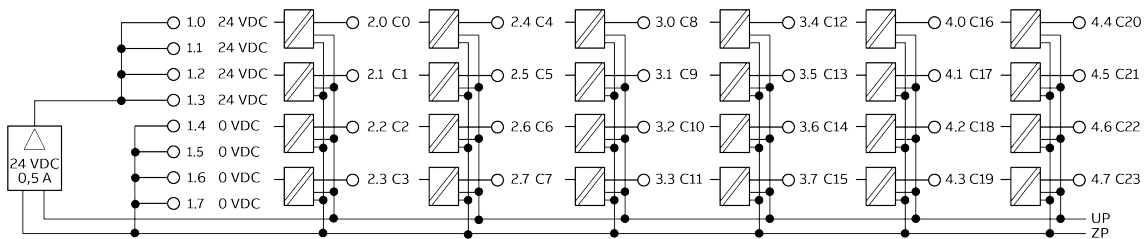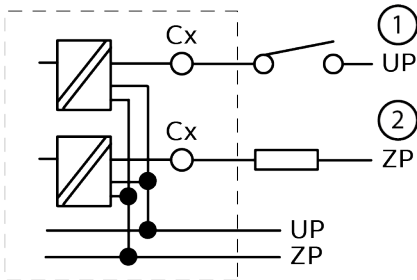
Example

1   Example of connection as an input
2   Example of connection as an output

45.5 Cleaning

ⓘ *Cleaning instructions*

Do not use cleaning agent for cleaning the device.

Use a damp cloth instead.

45.6   Certification

KC logo		
MSIP-REI-Abb-AC500	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	Note These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

45.7   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

46 DC532(-XC)

- DC532
- DC532-XC

⚠️	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

Hot swap

⚠️	**WARNING!**
	Risk of explosion or fire in hazardous environments during hot swapping!
	Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

> **WARNING!**
> **Electric shock due to negligent behavior during hot swapping!**
> To avoid electric shock
>
> – make sure the following conditions apply:
>   – Digital outputs are not under load.
>   – Input/output voltages above safety extra low voltage/
>   protective extra low voltage (SELV/PELV) are switched off.
>   – Modules are fully interlocked with the terminal unit with both snap-fits
>   engaged before switching on loads or input/output voltage.
> – Never touch exposed contacts (dangerous voltages).
> – Stay away from electrical contacts to avoid arc discharge.
> – Do not operate a mechanical installation improperly.

> **NOTICE!**
> **Risk of damage to I/O modules!**
> Hot swapping is only allowed for I/O modules.
>
> Processor modules and communication interface modules must not be removed
> or inserted during operation.

H = **H**ot swap

> *Hot swap*
> *System requirements for hot swapping of I/O modules:*
>
> – *Types of terminal units that support hot swapping of I/O modules have the appendix TU5xx-**H**.*
> – *I/O modules as of index F0.*
>
> *The following I/O bus masters support hot swapping of attached I/O modules:*
>
> – *Communication interface modules CI5xx as of index F0.*
> – *Processor modules PM56xx-2ETH with firmware version as of V3.2.0.*

> *Hot swap is not supported by AC500-eCo V3 CPU!*

> ℹ️ *The index of the module is in the right corner of the label.*

> ❗ **NOTICE!**
> **Risk of damage to I/O modules!**
> Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.
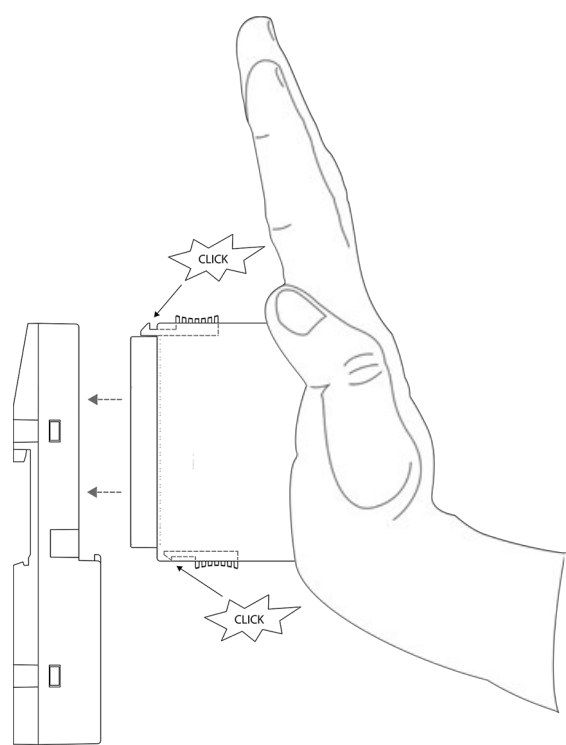
> ❗ **NOTICE!**
> **Risk of damage to I/O modules!**
> Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.
>
> For min. required device index see table below.

Device	Min. required device index for I/O module as of FW Version 3.0.14
AC522(-XC)	F0
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DA502 (-XC)	F0
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

46.1   Assembly
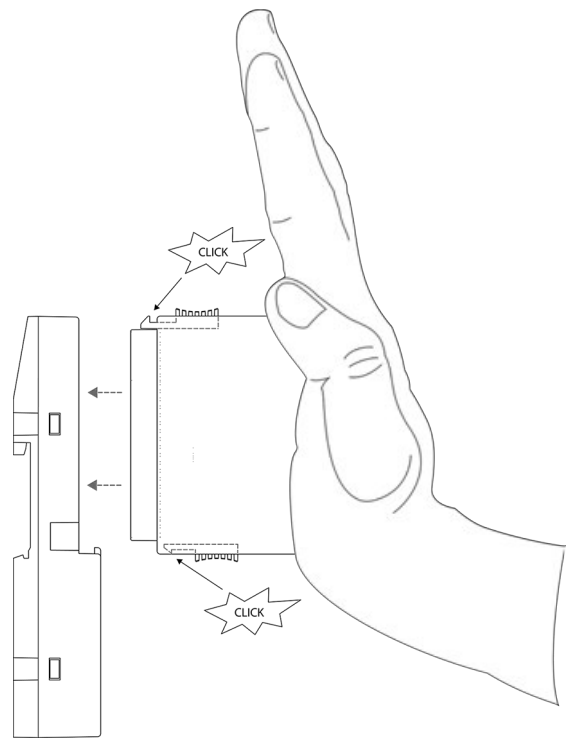
46.2   Disassembly

46.3   Dimensions

1   Din rail 15 mm
2   Din rail 7.5 mm

ℹ   *The dimensions are in mm and in brackets in inch.*

46.4   Connections
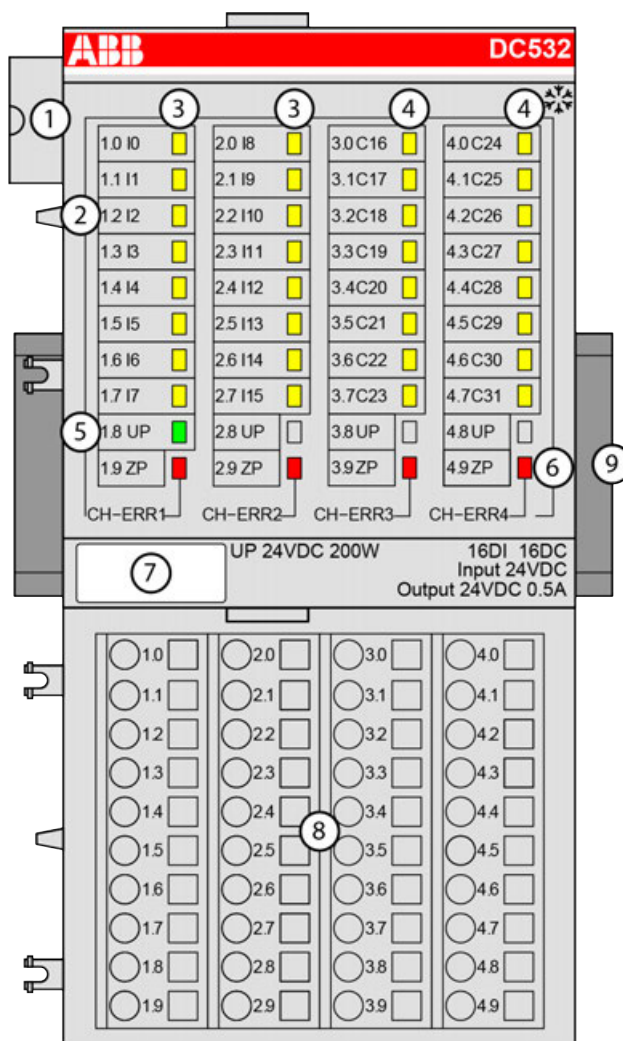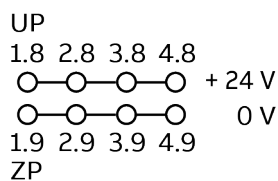
1   I/O bus
2   Allocation between terminal number and signal name
3   16 yellow LEDs to display the signal states at the digital inputs (I0 ... I15)
4   16 yellow LEDs to display the signal states at the digital inputs/outputs (C16 ... C31)
5   1 green LED to display the state of the process supply voltage UP
6   4 red LEDs to display errors
7   Label
8   Terminal unit
9   DIN rail
❄   Sign for XC version

> ⓘ   *All I/O channels (digital and analog) are protected against reverse polarity,
> reverse supply and temporary overvoltage up to 30 VDC.*

46.4.1 Process supply voltage

```
            UP
            1.8  2.8  3.8  4.8
            O----O----O----O   + 24 V
            O----O----O----O     0 V
            1.9  2.9  3.9  4.9
            ZP
```

> ⚠️ **CAUTION!**
>
> The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

46.4.2 Inputs

```
1.0  I0                 1.4  I4                 2.0  I8                 2.4  I12

1.1  I1                 1.5  I5                 2.1  I9                 2.5  I13

1.2  I2                 1.6  I6                 2.2  I10                2.6  I14

1.3  I3                 1.7  I7                 2.3  I11                2.7  I15

                                        ZP
```

Example

```
UP ----O   O--O   Ix


              O ZP
```
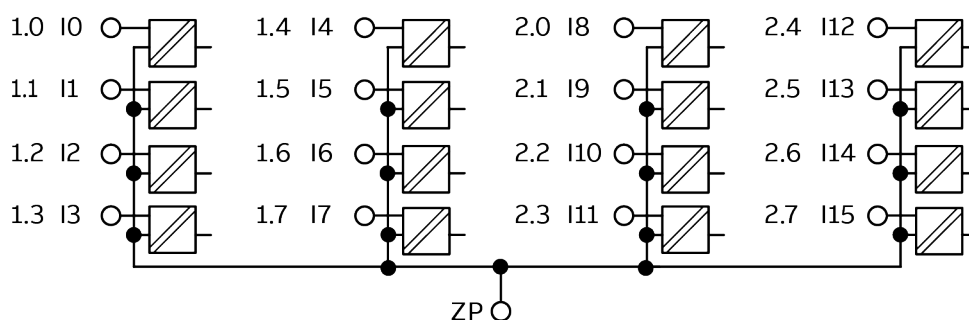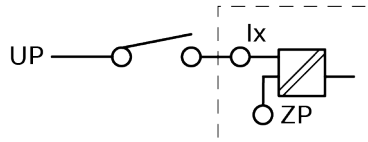
Fig. 53: Example of connection input Ix

46.4.3 Inputs/Outputs

```
        3.0  C16            3.4  C20            4.0  C24            4.4  C28

        3.1  C17            3.5  C21            4.1  C25            4.5  C29

        3.2  C18            3.6  C22            4.2  C26            4.6  C30

        3.3  C19            3.7  C23            4.3  C27            4.7  C31
                                                                         UP
                                                                         ZP
```
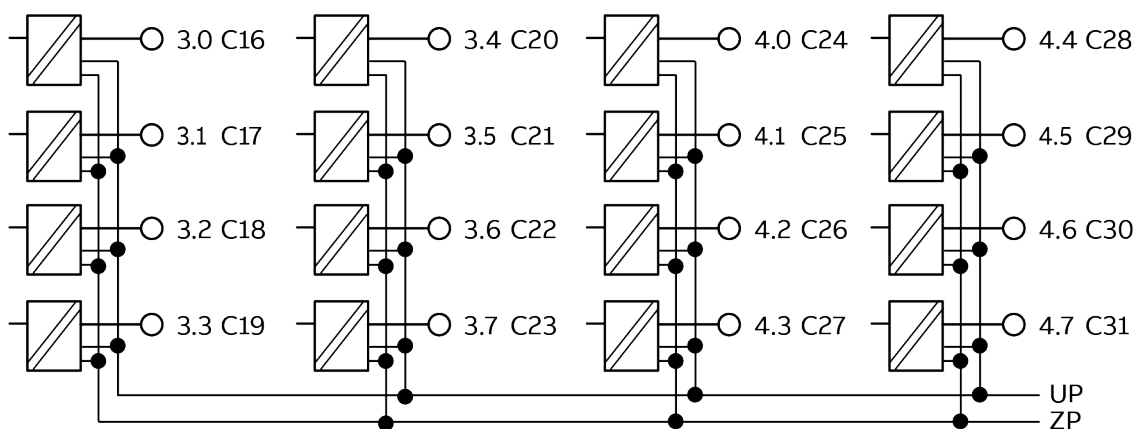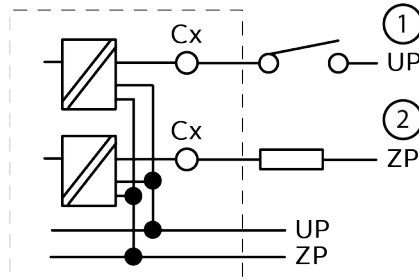
Example

1   Example of connection as an input
2   Example of connection as an output

46.5   Cleaning

> ⓘ   *Cleaning instructions*
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

46.6   Certification

| | en | Devices with KCC sign on product sticker and packaging |
| | ko | 제품 스티커 및 포장에 **KCC** 표시가 된 기기 |

MSIP-REI-Abb-AC500

| en | **Note**
These devices correspond to: | **KN61000-6-2** "Immunity for industrial environments",
KN61000-6-4 "Emission standard for industrial environments" |
| ko | 참고
이러한 기기는 | **KN61000-6-2** "산업 환경에 대한 내성",
KN61000-6-4 "산업 환경 누출 기준"에 적합함 |

46.7   Recycling

> ⓘ   *Disposal and recycling information*
>
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

47 DC541-CM(-XC)

- DC541-CM
- DC541-CM-XC

|	CAUTION!
⚠️	**Risk of injury and damaging the product!** Improper installation and maintenance may result in injury and can damage the product! – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1. – Only by qualified personnel.

47.1 Assembly
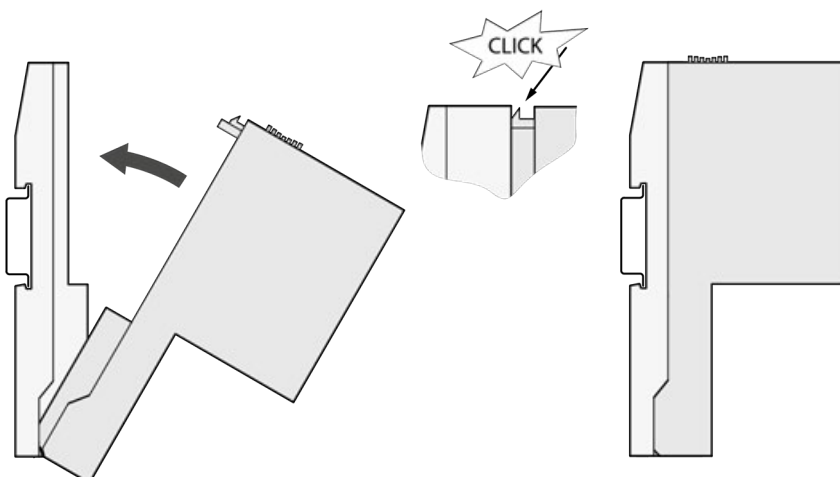
47.2 Disassembly

47.3 Dimensions

1   Din rail 15 mm
2   Din rail 7.5 mm

> ⓘ   *The dimensions are in mm and in brackets in inch.*

47.4   Connections
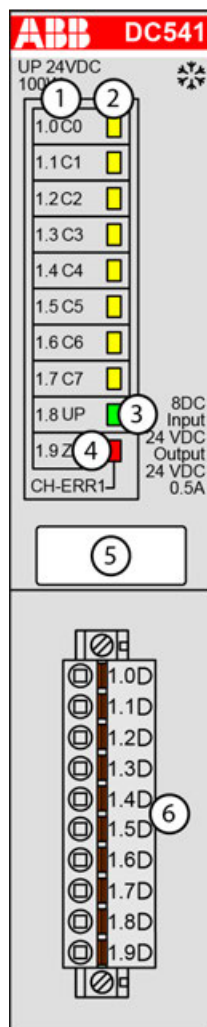
1   Allocation between terminal number and signal name
2   8 yellow LEDs to display the signal states at the inputs/outputs C0 ... C7
3   1 green LED to display the state of the process supply voltage UP
4   1 red LED to display errors (CH-ERR1)
5   Label
6   Terminal block with 10 terminals for 8 inputs/outputs and process power supply (ZP/UP)
❄   Sign for XC version

Terminal unit
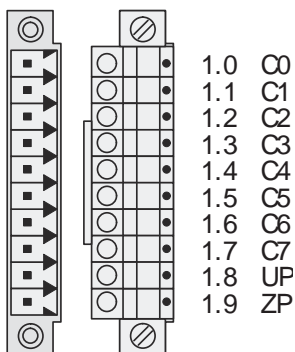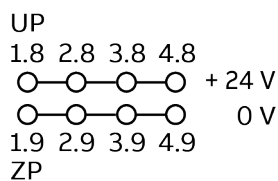
1.0	C0
1.1	C1
1.2	C2
1.3	C3
1.4	C4
1.5	C5
1.6	C6
1.7	C7
1.8	UP
1.9	ZP

47.4.1 Process supply voltage

```
        UP
      1.8  2.8  3.8  4.8
       O───O───O───O   + 24 V
       O───O───O───O     0 V
      1.9  2.9  3.9  4.9
        ZP
```

> ⚠️ **CAUTION!**
>
> The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

47.4.2 Inputs/Outputs
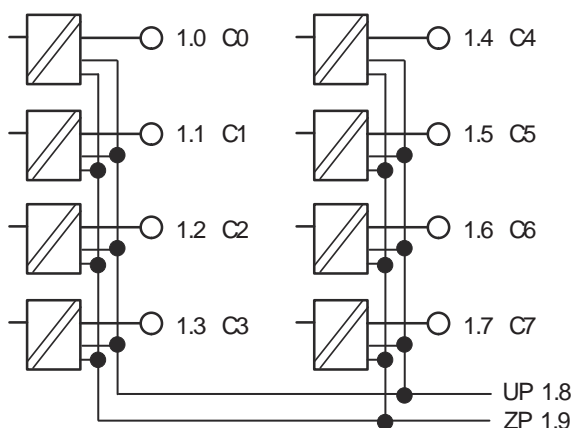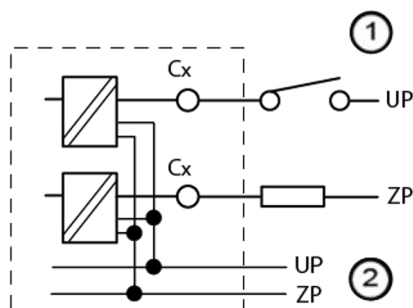
Examples

1   Example for connection as an input
2   Example for connection as an output

47.5 Cleaning

> ℹ️ *Cleaning instructions*
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

47.6   Certification

	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

MSIP-REI-Abb-AC500

en	Note These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

47.7   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

48 DC551-CS31(-XC)

- DC551-CS31
- DC551-CS31-XC

⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

48.1   Assembly

48.2   Disassembly

48.3   Dimensions

84.5 (3.33)

77 (3.03)

75 (2.95)

21 (0.83)

54 (2.13)

59 (2.32)

76 (2.99)

135 (5.31)

135 (5.31)

28 (1.10)

67.5 (2.66)

1   Din rail 15 mm
2   Din rail 7.5 mm

The dimensions are in mm and in brackets in inch.

48.4   Connections
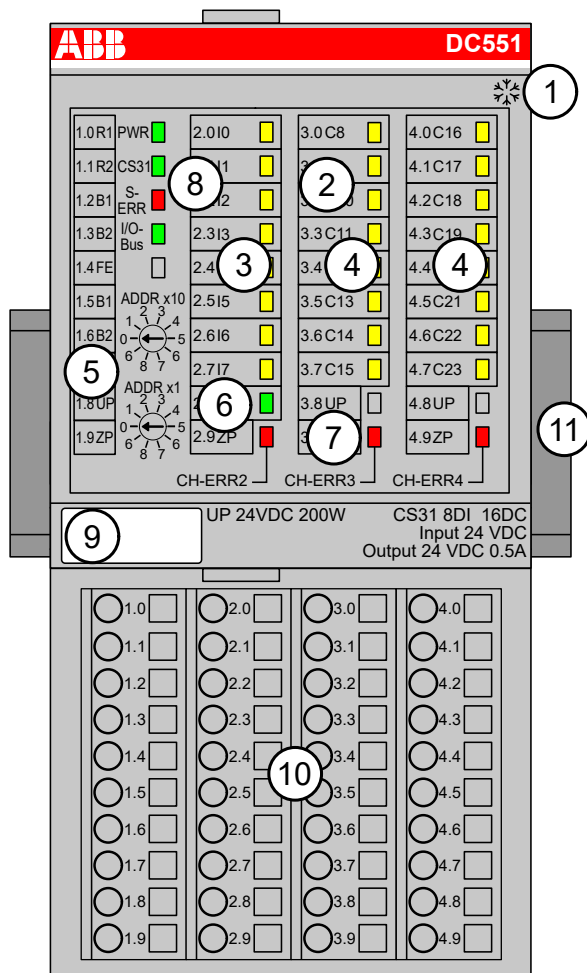
1   I/O bus
2   Allocation between terminal number and signal name
3   8 yellow LEDs to display the signal states of the digital inputs I0 ... I7
4   16 yellow LEDs to display the signal states of the digital inputs/outputs C8 ... C23
5   2 rotary switches to set the module's address (00d ... 99d)
6   1 green LED to display the process voltage UP
7   3 red LEDs to display errors
8   4 system LEDs
9   Label
10   Terminal unit
11   DIN rail
※   Sign for XC version

> All I/O channels (digital and analog) are protected against reverse polarity,
> reverse supply and temporary overvoltage up to 30 VDC.

48.4.1 Process supply voltage

```
        UP
        1.8  2.8  3.8  4.8
        O—O—O—O   + 24 V
        O—O—O—O     0 V
        1.9  2.9  3.9  4.9
        ZP
```

> **⚠ CAUTION!**
>
> The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

48.4.2 Inputs
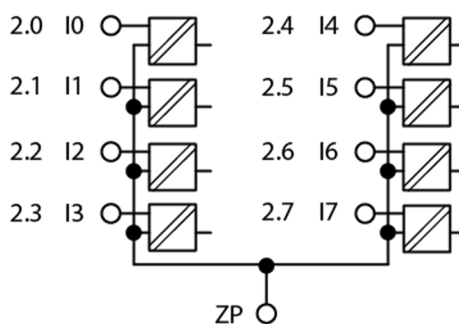
Example
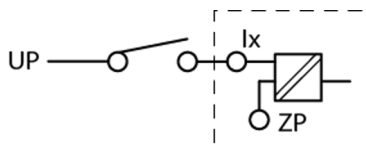
Fig. 54: Example for connection input Ix

48.4.3 Inputs/Outputs
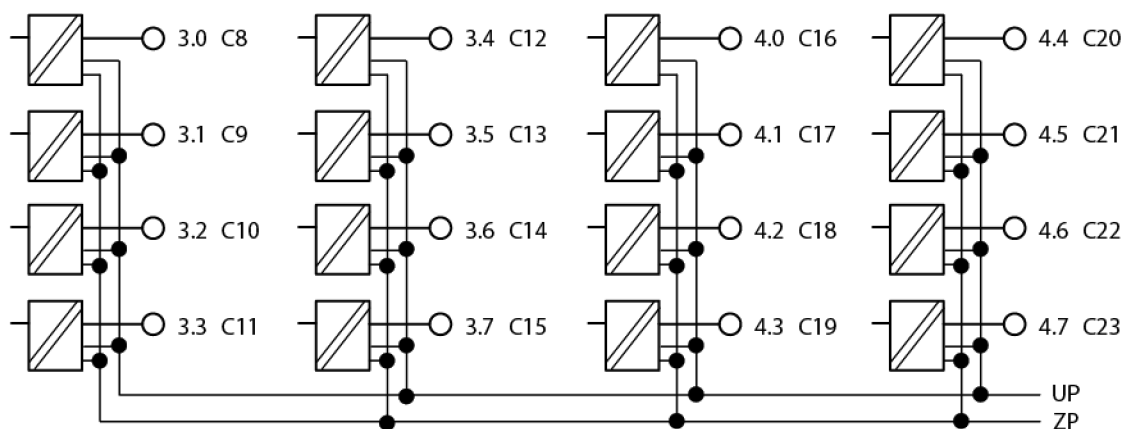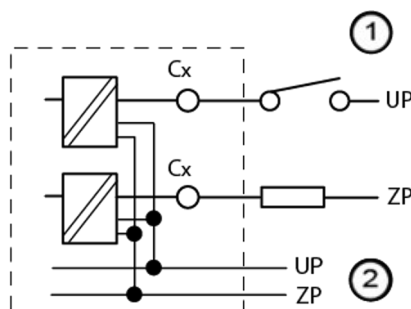
Example

1   Example of connection as an input
2   Example of connection as an output

48.5   Cleaning

> ⓘ   *Cleaning instructions*
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

48.6   Certification

| | en | Devices with KCC sign on product sticker and packaging |
| | ko | 제품 스티커 및 포장에 **KCC** 표시가 된 기기 |

MSIP-REI-Abb-AC500

| en | **Note**
These devices correspond to: | **KN61000-6-2** "Immunity for industrial environments",
KN61000-6-4 "Emission standard for industrial environments" |
| ko | 참고
이러한 기기는 | **KN61000-6-2** "산업 환경에 대한 내성",
KN61000-6-4 "산업 환경 누출 기준"에 적합함 |

48.7   Recycling

> ⓘ   *Disposal and recycling information*
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

49 DC562

- DC562
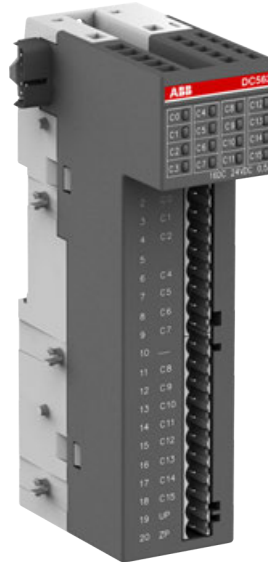
> **CAUTION!**
> **Risk of injury and damaging the product!**
>
> Improper installation and maintenance may result in injury and can damage the product!
>
> – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
> – Read product documentation carefully before wiring. Improper wiring or wrong terminal block from other devices can damage the product!
> – Only by qualified personnel.

> **CAUTION!**
> Do not use this module together with the DC505-FBP/CI590-CS31-HA module.

49.1   Assembly

49.2   Disassembly

49.3   Assembly with screws

1   Fasten the module with two screws (max. diameter 4 mm)

> **! NOTICE!**
> The insertion of the accessories TA566 for wall mounting is essential.

49.4   Dimensions

84.2 (3.31)
76.6 (3.02)
74 (2.91)
30.5 (1.2)

ABB

59 (2.32)
135 (5.31)
34 (1.34)

19.4 (0.76)
4 (0.16)
4 (0.16)
21 (0.83)

The dimensions are in mm and in brackets in inch.

49.5   Connections
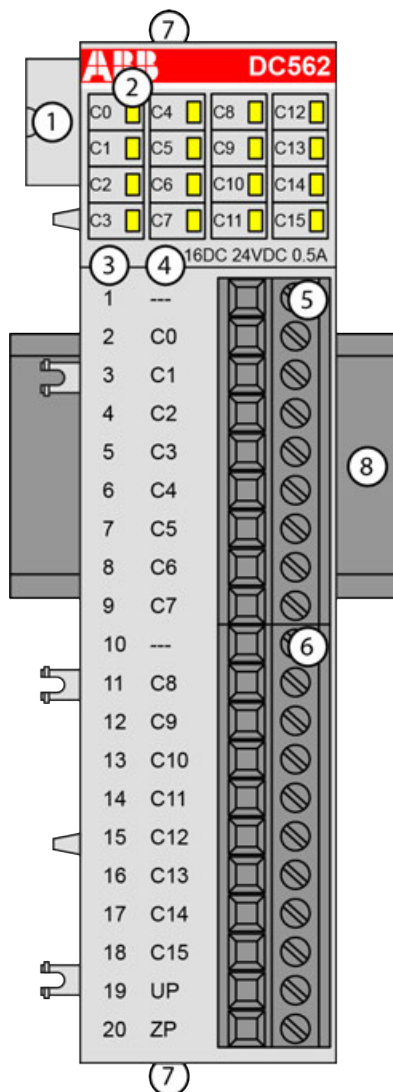
1   I/O bus
2   16 yellow LEDs to display the states of the inputs/outputs C0 ... C15
3   Terminal number
4   Allocation of signal name
5   Terminal block for input and output signals (9-pin)
6   Terminal block for input and output signals (11-pin)
7   2 holes for wall-mounting with screws
8   DIN rail

> *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

5	TA563-9	9-pin, screw, cable from side
	TA564-9	9-pin, screw, cable from front
	TA565-9	9-pin, spring, cable from front
6	TA563-11	11-pin, screw, cable from side

	TA564-11	11-pin, screw, cable from front
	TA565-11	11-pin, spring, cable from front

49.5.1 Inputs/Outputs

```
---    1   o

C0     2   o─[◿]─
C1     3   o─[◿]─
C2     4   o─[◿]─
C3     5   o─[◿]─
C4     6   o─[◿]─
C5     7   o─[◿]─
C6     8   o─[◿]─
C7     9   o─[◿]─

---    10  o

C8     11  o─[◿]─
C9     12  o─[◿]─
C10    13  o─[◿]─
C11    14  o─[◿]─
C12    15  o─[◿]─
C13    16  o─[◿]─
C14    17  o─[◿]─
C15    18  o─[◿]─

UP     19  o─
ZP     20  o─
```
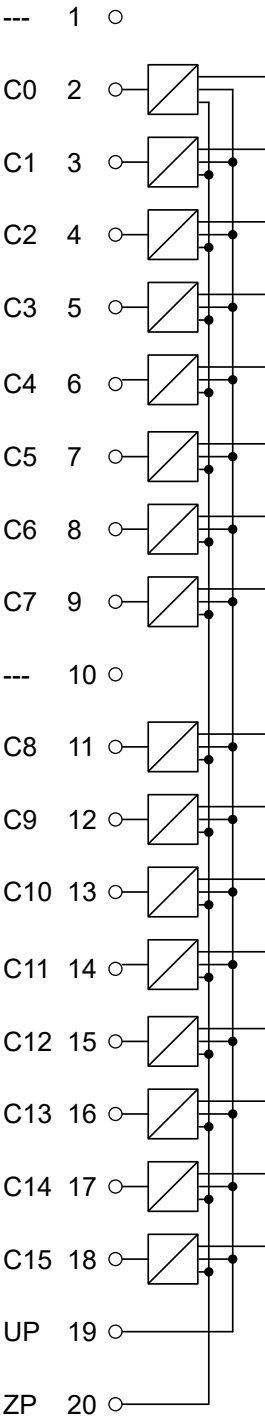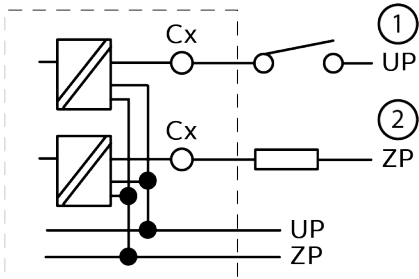
Examples

1　Example for connection as an input
2　Example for connection as an output

49.6　Cleaning

> *Cleaning instructions*
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

49.7　Certification

KC MSIP-REI-Abb-AC500	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	**Note** These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 누출 기준"에 적합함

49.8　Recycling

> *Disposal and recycling information*
>
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

50 DI524(-XC)

- DI524
- DI524-XC

⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

Hot swap

⚠	**WARNING!**
	Risk of explosion or fire in hazardous environments during hot swapping!
	Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

> **WARNING!**
> **Electric shock due to negligent behavior during hot swapping!**
> To avoid electric shock
>
> – make sure the following conditions apply:
>   – Digital outputs are not under load.
>   – Input/output voltages above safety extra low voltage/
>   protective extra low voltage (SELV/PELV) are switched off.
>   – Modules are fully interlocked with the terminal unit with both snap-fits
>   engaged before switching on loads or input/output voltage.
> – Never touch exposed contacts (dangerous voltages).
> – Stay away from electrical contacts to avoid arc discharge.
> – Do not operate a mechanical installation improperly.

> **NOTICE!**
> **Risk of damage to I/O modules!**
> Hot swapping is only allowed for I/O modules.
>
> Processor modules and communication interface modules must not be removed
> or inserted during operation.

H = **H**ot swap

> *Hot swap*
> *System requirements for hot swapping of I/O modules:*
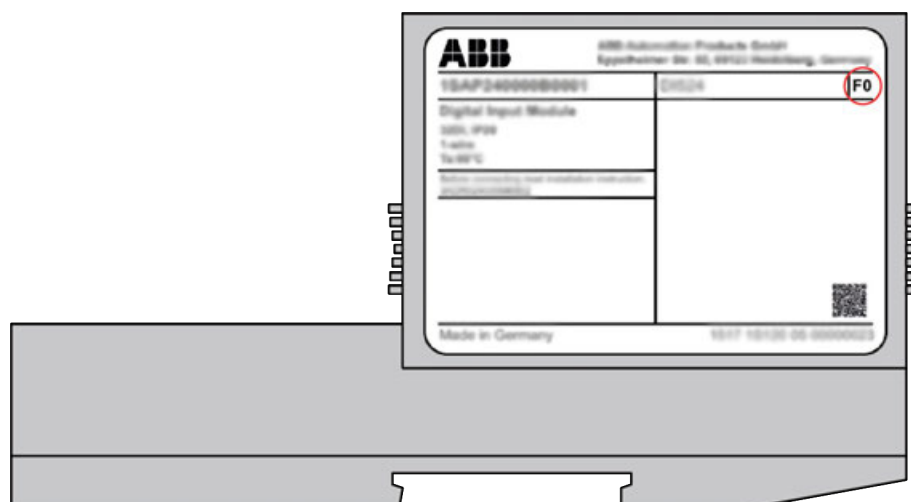>
> – *Types of terminal units that support hot swapping of I/O modules have the
>   appendix TU5xx-**H**.*
> – *I/O modules as of index F0.*
>
> *The following I/O bus masters support hot swapping of attached I/O modules:*
>
> – *Communication interface modules CI5xx as of index F0.*
> – *Processor modules PM56xx-2ETH with firmware version as of V3.2.0.*

> *Hot swap is not supported by AC500-eCo V3 CPU!*

> ⓘ *The index of the module is in the right corner of the label.*

> ❗ **NOTICE!**
> **Risk of damage to I/O modules!**
> Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

> ❗ **NOTICE!**
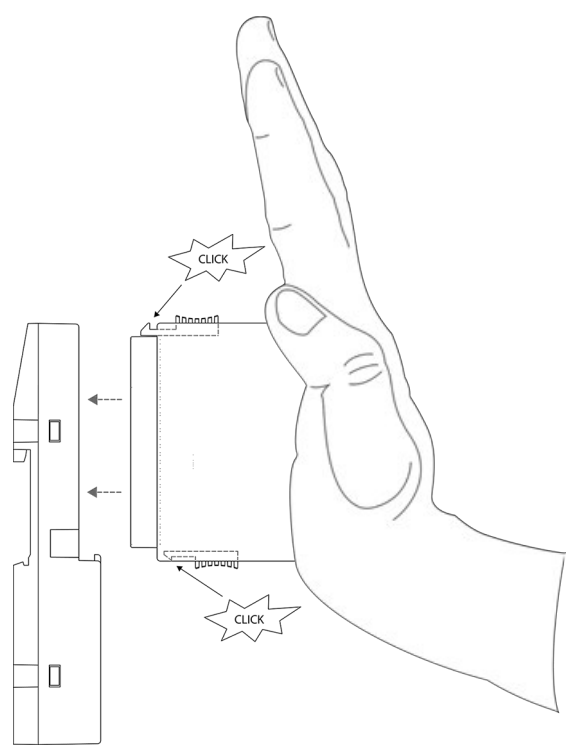> **Risk of damage to I/O modules!**
> Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.
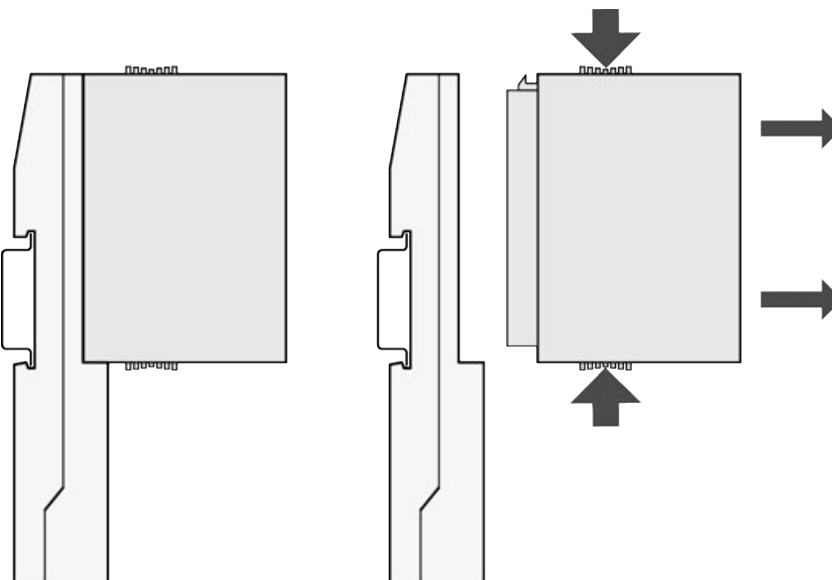>
> For min. required device index see table below.

Device	Min. required device index for I/O module as of FW Version 3.0.14
AC522(-XC)	F0
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DA502 (-XC)	F0
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

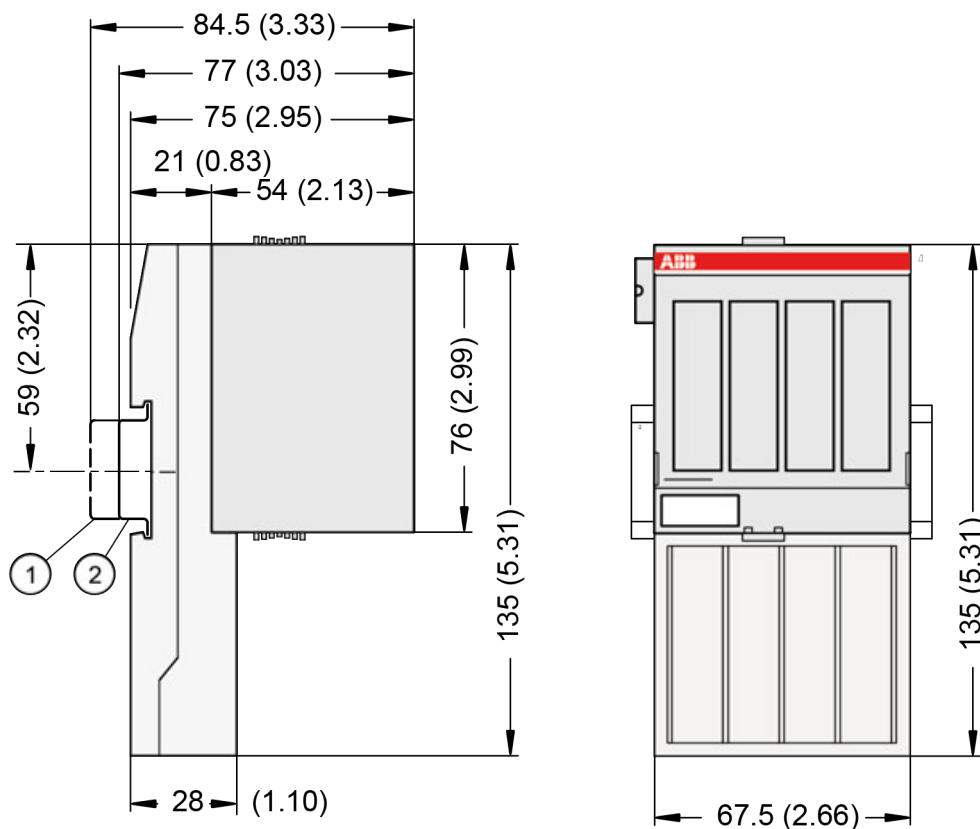## 50.1   Assembly
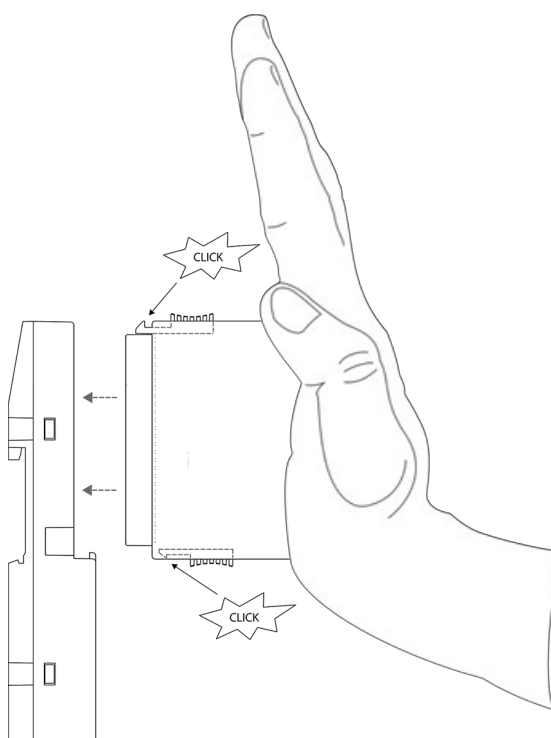
50.2 Disassembly
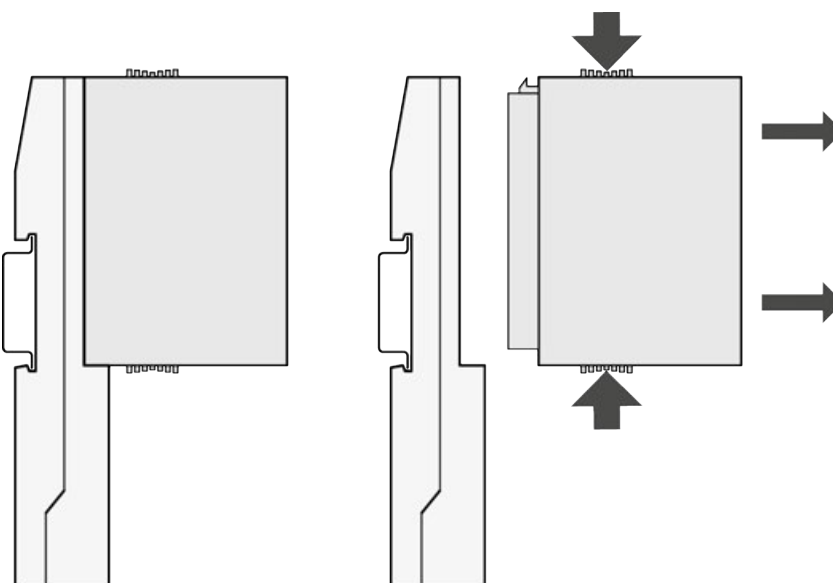
50.3 Dimensions
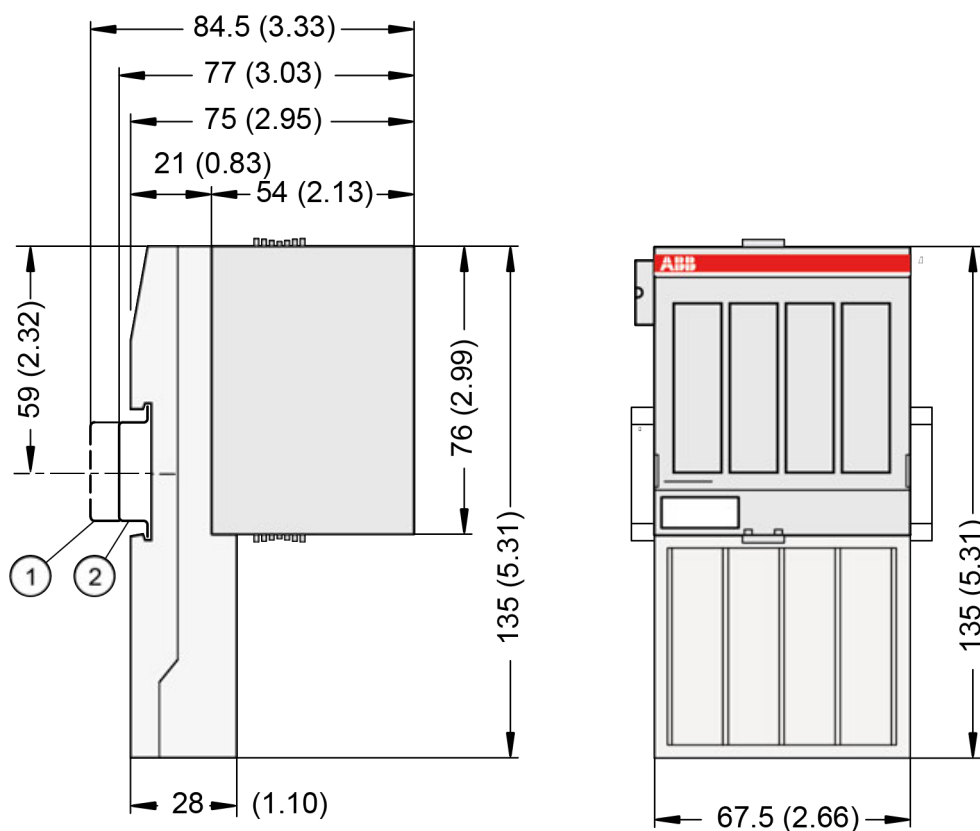

1   Din rail 15 mm
2   Din rail 7.5 mm

The dimensions are in mm and in brackets in inch.

50.4   Connections
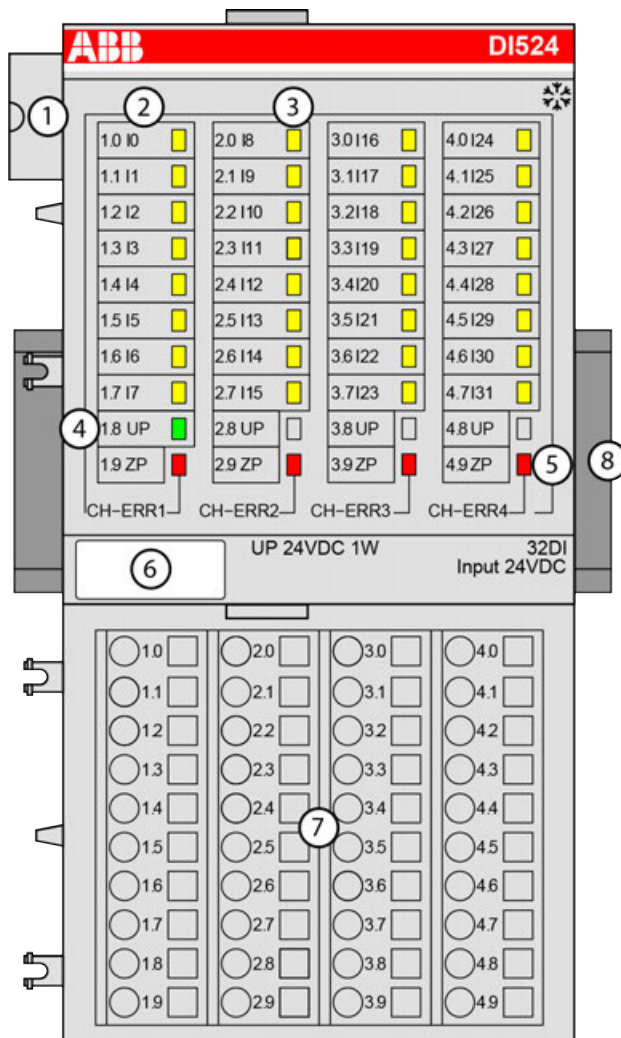
1   I/O bus
2   Allocation between terminal number and signal name
3   32 yellow LEDs to display the signal states at the digital inputs (I0 ... I31)
4   1 green LED to display the state of the process supply voltage UP
5   4 red LEDs to display errors
6   Label
7   Terminal unit
8   DIN rail
❄   Sign for XC version

> ○
> ⁀ⅉ   *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

50.4.1 Process supply voltage
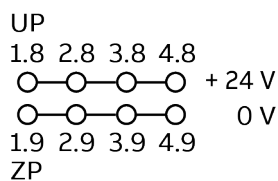
```
UP
1.8  2.8  3.8  4.8
O—O—O—O   + 24 V
O—O—O—O    0 V
1.9  2.9  3.9  4.9
ZP
```

> **CAUTION!**
>
> The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

50.4.2 Inputs

```
1.0  I0          1.4  I4          2.0  I8          2.4  I12
1.1  I1          1.5  I5          2.1  I9          2.5  I13
1.2  I2          1.6  I6          2.2  I10         2.6  I14
1.3  I3          1.7  I7          2.3  I11         2.7  I15

3.0  I16         3.4  I20         4.0  I24         4.4  I28
3.1  I17         3.5  I21         4.1  I25         4.5  I29
3.2  I18         3.6  I22         4.2  I26         4.6  I30
3.3  I19         3.7  I23         4.3  I27         4.7  I31

                         ZP
```

Example

```
         UP ——O   O—O— Ix
                         
                      O ZP
```
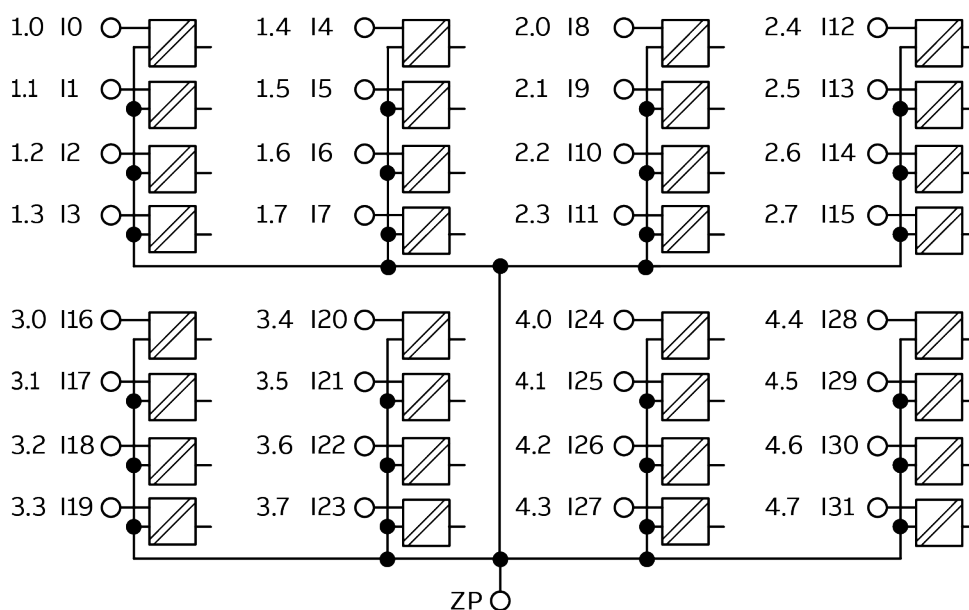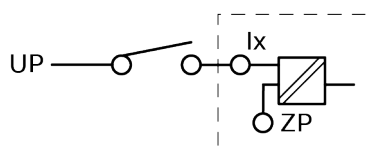
Fig. 55: Example of connection input Ix

50.5 Cleaning

> **Cleaning instructions**
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

50.6   Certification

	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

MSIP-REI-Abb-AC500

en	Note These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

50.7   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

51   DI561

- DI561

> ⚠️ **CAUTION!**
> **Risk of injury and damaging the product!**
> Improper installation and maintenance may result in injury and can damage the product!
>
> – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
> – Read product documentation carefully before wiring. Improper wiring or wrong terminal block from other devices can damage the product!
> – Only by qualified personnel.
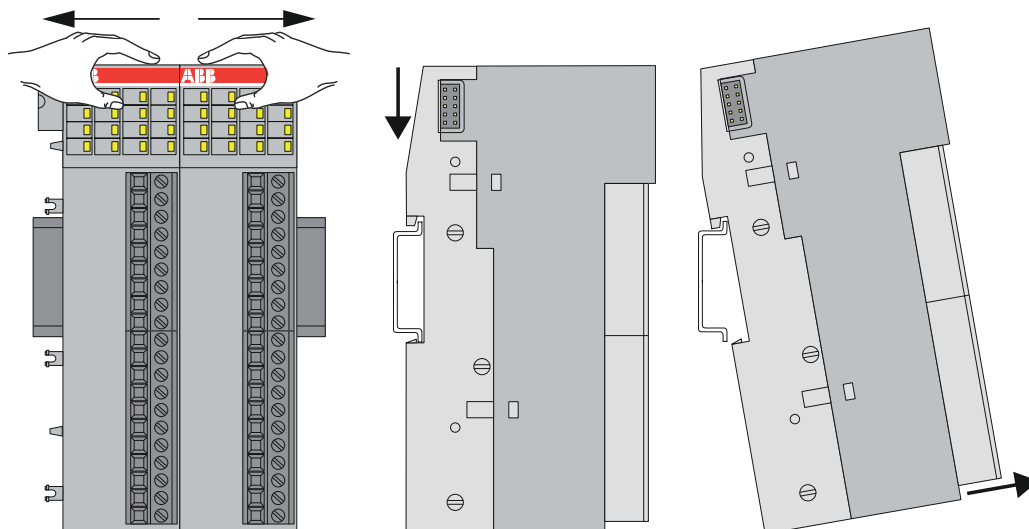
> ⚠️ **CAUTION!**
> Do not use this module together with the DC505-FBP/CI590-CS31-HA module.

51.1   Assembly

51.2   Disassembly

51.3   **Assembly with screws**

1   Fasten the module with two screws (max. diameter 4 mm)

> **NOTICE!**
> The insertion of the accessories TA566 for wall mounting is essential.

51.4 Dimensions
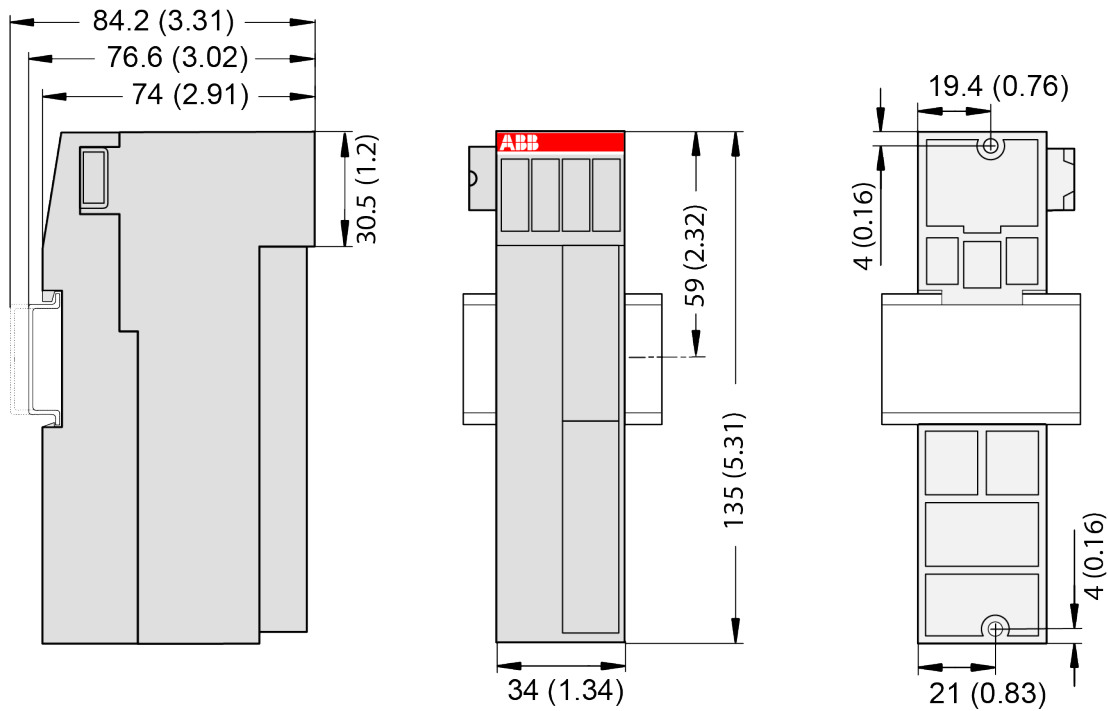
> The dimensions are in mm and in brackets in inch.

51.5   Connections
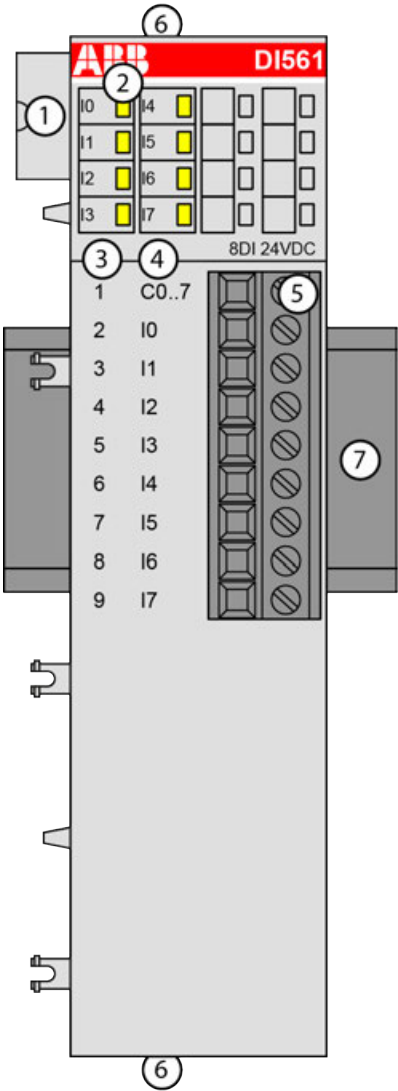
1   I/O bus
2   8 yellow LEDs to display the signal states of the inputs I0 to I7
3   Terminal number
4   Allocation of signal name
5   Terminal block for input signals (9-pin)
6   2 holes for wall-mounting with screws
7   DIN rail

> ⓘ *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

5	TA563-9	9-pin, screw, cable from side
	TA564-9	9-pin, screw, cable from front
	TA565-9	9-pin, spring, cable from front

51.5.1   Inputs/Outputs
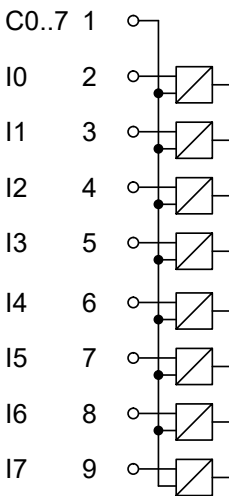
Examples
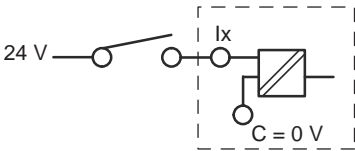
Fig. 56: DI561 used as source inputs
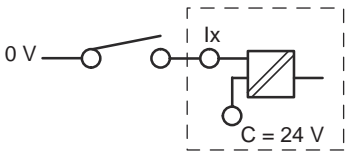
Fig. 57: DI561 used as sink inputs

51.6   Cleaning

> ⓘ ***Cleaning instructions***
> *Do not use cleaning agent for cleaning the device.*
> *Use a damp cloth instead.*

51.7   Certification

MSIP-REI-Abb-AC500-eCo

| en | Devices with KCC sign on product sticker and packaging |
| ko | 제품 스티커 및 포장에 **KCC** 표시가 된 기기 |

en	Note
	These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments",
		KN61000-6-4 "Emission standard for industrial environments"
ko	참고
	이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성",
		KN61000-6-4 "산업 환경 누출 기준"에 적합함

51.8   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

52   DI562

- DI562

⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Read product documentation carefully before wiring. Improper wiring or wrong terminal block from other devices can damage the product!
	– Only by qualified personnel.

⚠	**CAUTION!**
	Do not use this module together with the DC505-FBP/CI590-CS31-HA module.

52.1   Assembly
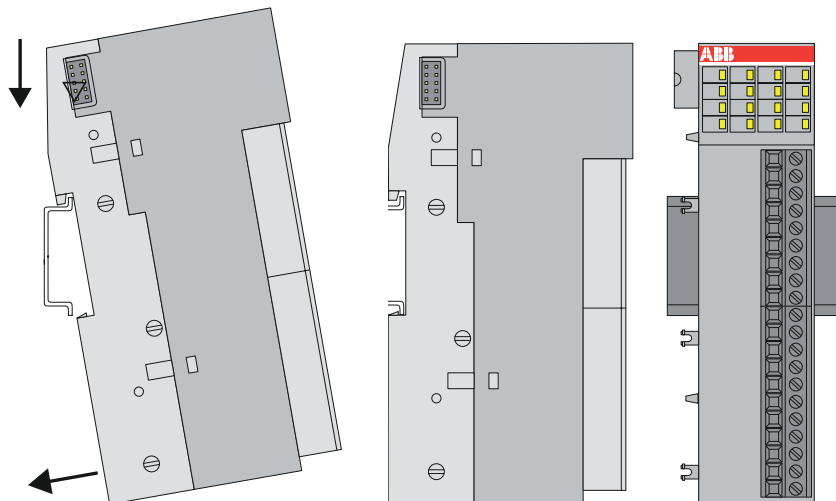
52.2   Disassembly
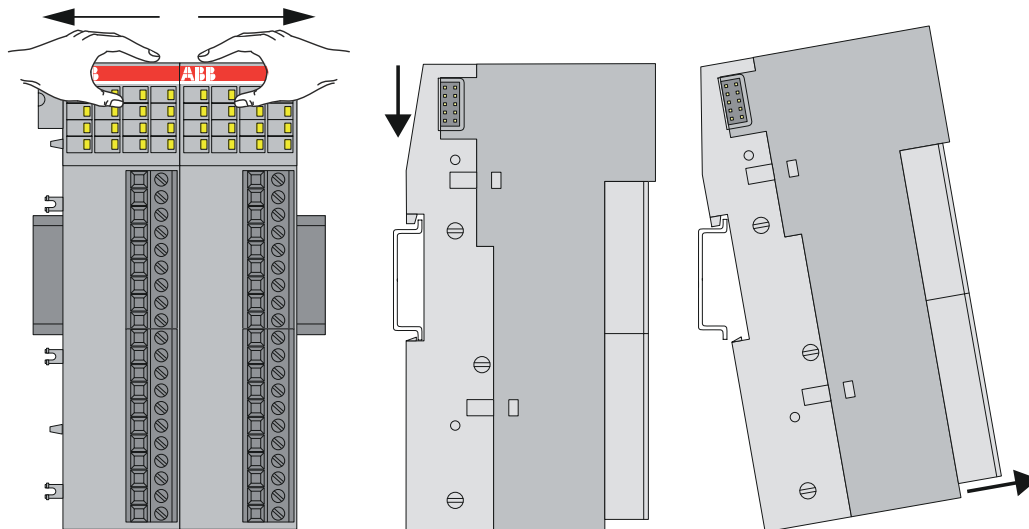
52.3   Assembly with screws
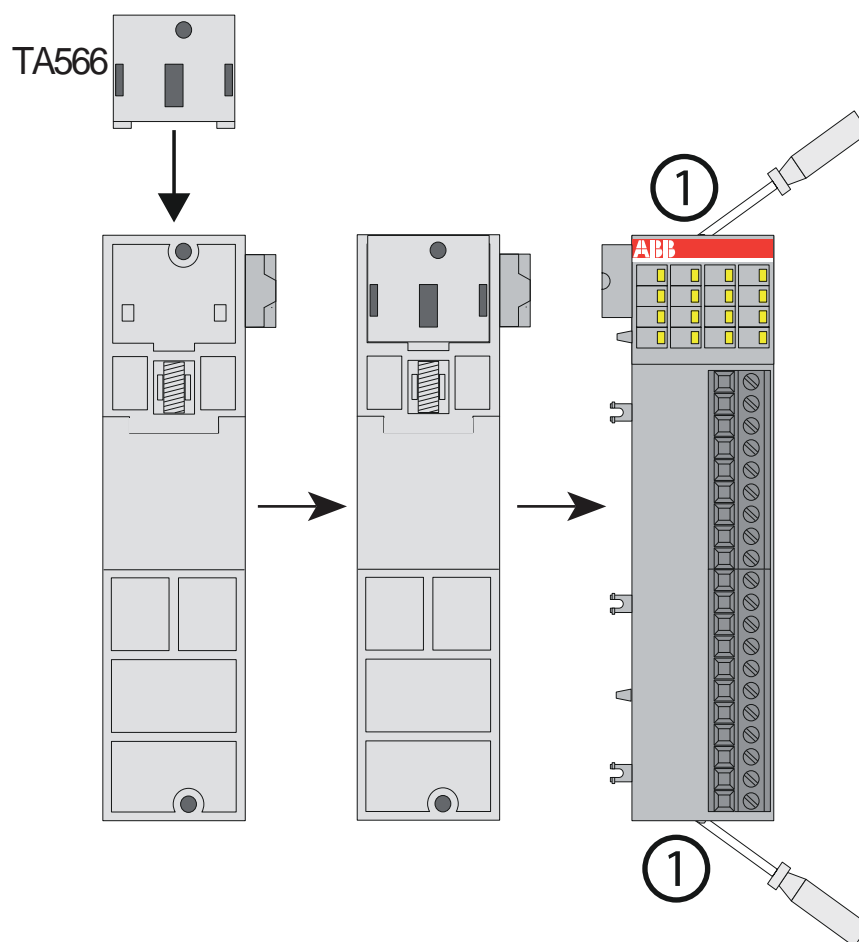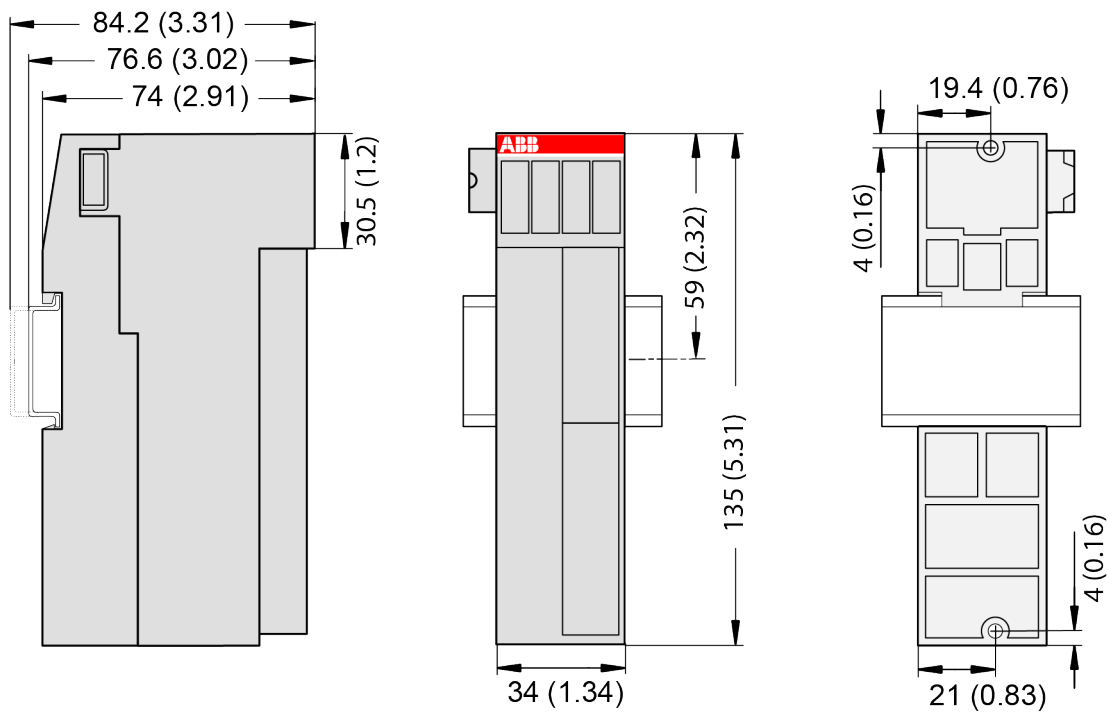
TA566

1   Fasten the module with two screws (max. diameter 4 mm)

> **NOTICE!**
> The insertion of the accessories TA566 for wall mounting is essential.

52.4   Dimensions

84.2 (3.31)
76.6 (3.02)
74 (2.91)
30.5 (1.2)

ABB

59 (2.32)

135 (5.31)

34 (1.34)

19.4 (0.76)
4 (0.16)
4 (0.16)

21 (0.83)

ⓘ   *The dimensions are in mm and in brackets in inch.*

52.5   Connections

1   I/O bus
2   16 yellow LEDs to display the signal states of the inputs I0 ... I15
3   Terminal number
4   Allocation of signal name
5   Terminal block for input signals (9-pin)
6   Terminal block for input signals (11-pin)
7   2 holes for wall-mounting with screws
8   DIN rail

	All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.	

5	TA563-9	9-pin, screw, cable from side
	TA564-9	9-pin, screw, cable from front
	TA565-9	9-pin, spring, cable from front
6	TA563-11	11-pin, screw, cable from side

| | TA564-11 | 11-pin, screw, cable from front |
| | TA565-11 | 11-pin, spring, cable from front |

52.5.1 Inputs

```
C0..7    1  o
I0       2  o
I1       3  o
I2       4  o
I3       5  o
I4       6  o
I5       7  o
I6       8  o
I7       9  o
C8..15  10  o
I8      11  o
I9      12  o
I10     13  o
I11     14  o
I12     15  o
I13     16  o
I14     17  o
I15     18  o
---     19  o
---     20  o
```

Examples

24 V ——o   o—o Ix

C = 0 V
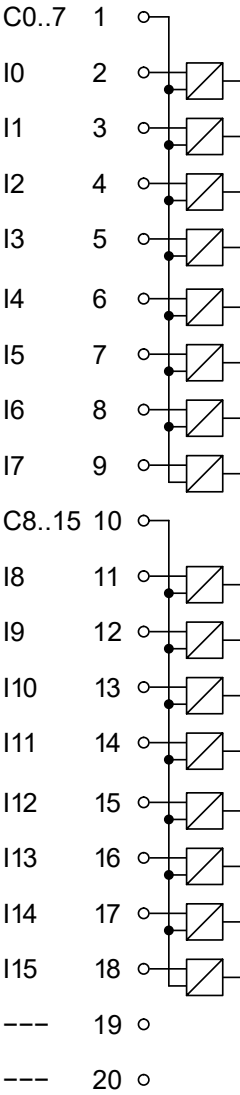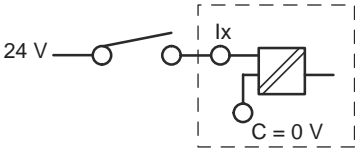
Fig. 58: DI562 used as source inputs

0 V ——o   o—o Ix

C = 24 V
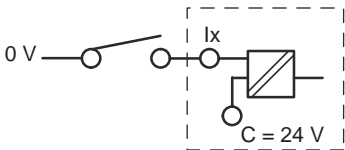
Fig. 59: DI562 used as sink inputs

52.6   Cleaning

> **Cleaning instructions**
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

52.7   Certification

MSIP-REI-Abb-AC500-eCo

| en | Devices with KCC sign on product sticker and packaging |
| ko | 제품 스티커 및 포장에 **KCC** 표시가 된 기기 |

| en | **Note**
These devices correspond to: | **KN61000-6-2** "Immunity for industrial environments",
KN61000-6-4 "Emission standard for industrial environments" |
| ko | 참고
이러한 기기는 | **KN61000-6-2** "산업 환경에 대한 내성",
KN61000-6-4 "산업 환경 누출 기준"에 적합함 |

52.8   Recycling

> **Disposal and recycling information**
>
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

53 DI571

- DI571

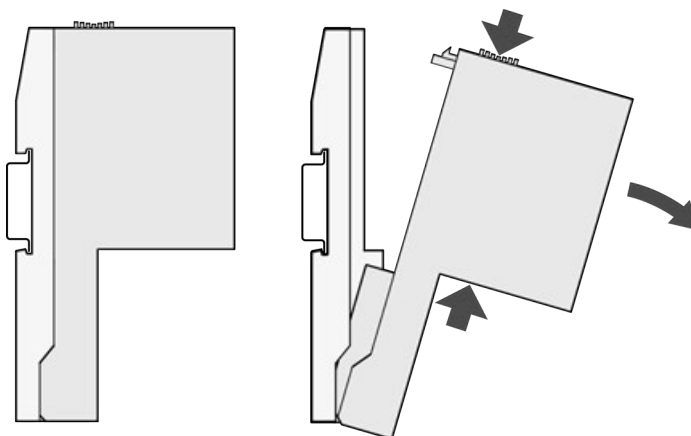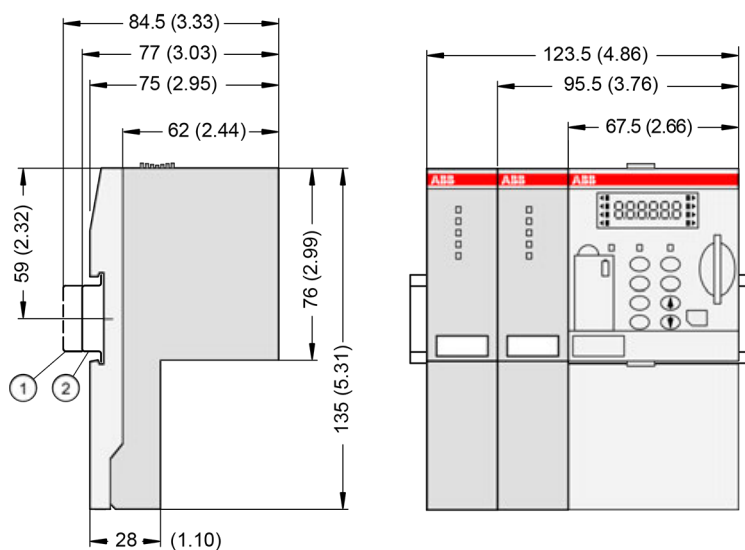| ⚠	**CAUTION!** **Risk of injury and damaging the product!** Improper installation and maintenance may result in injury and can damage the product! – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1. – Read product documentation carefully before wiring. Improper wiring or wrong terminal block from other devices can damage the product! – Only by qualified personnel.

⚠	**CAUTION!** Do not use this module together with the DC505-FBP/CI590-CS31-HA module.
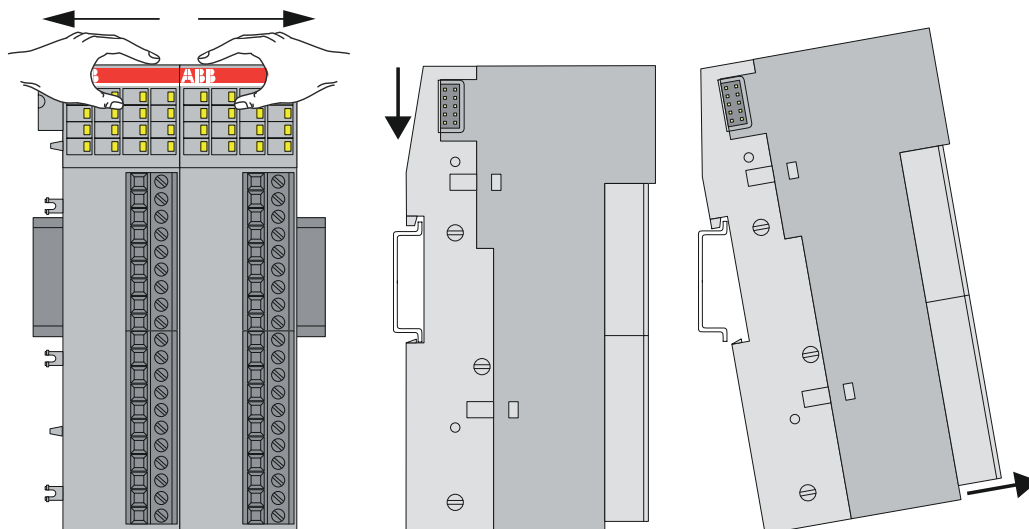
⚠	**CAUTION!** Make sure that all channels are supplied from the same phase.

53.1 Assembly
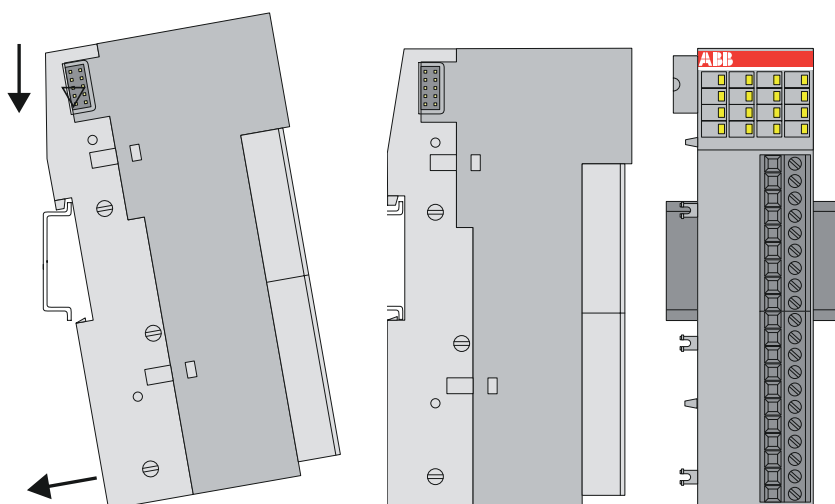
53.2 Disassembly

53.3   Assembly with screws

1   Fasten the module with two screws (max. diameter 4 mm)

> **NOTICE!**
> The insertion of the accessories TA566 for wall mounting is essential.

53.4 Dimensions

84.2 (3.31)
76.6 (3.02)
74 (2.91)
30.5 (1.2)

59 (2.32)
135 (5.31)
34 (1.34)

19.4 (0.76)
4 (0.16)
4 (0.16)
21 (0.83)

ⓘ *The dimensions are in mm and in brackets in inch.*

53.5 Connections
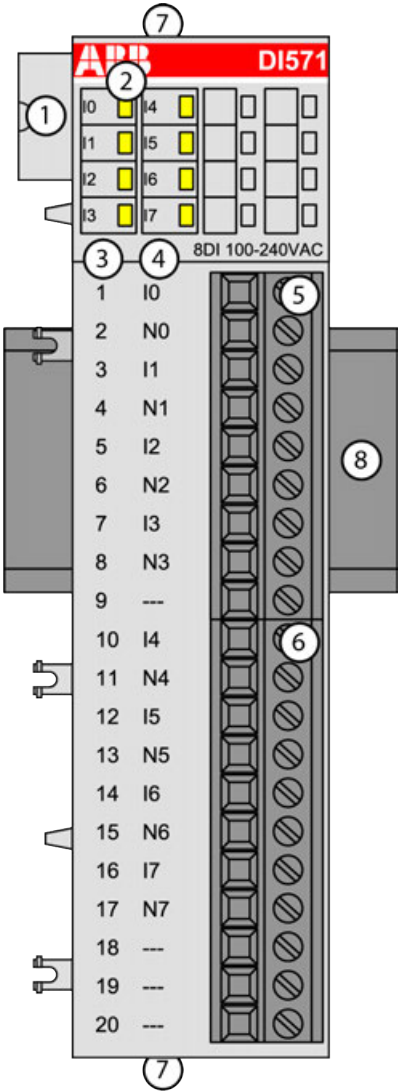
1 I/O bus
2 8 yellow LEDs to display the signal states of the inputs I0 ... I7
3 Terminal number
4 Allocation of signal name
5 Terminal block for input signals (9-pin)
6 Terminal block for input signals (11-pin)
7 2 holes for wall-mounting with screws
8 DIN rail

> *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

5	TA563-9	9-pin, screw, cable from side
	TA564-9	9-pin, screw, cable from front
	TA565-9	9-pin, spring, cable from front
6	TA563-11	11-pin, screw, cable from side

	TA564-11	11-pin, screw, cable from front
	TA565-11	11-pin, spring, cable from front

53.5.1   Inputs/Outputs

```
I0    1  ○──┐ ▱
N0    2  ○──┘

I1    3  ○──┐ ▱
N1    4  ○──┘

I2    5  ○──┐ ▱
N2    6  ○──┘

I3    7  ○──┐ ▱
N3    8  ○──┘

---   9  ○

I4   10  ○──┐ ▱
N4   11  ○──┘

I5   12  ○──┐ ▱
N5   13  ○──┘

I6   14  ○──┐ ▱
N6   15  ○──┘

I7   16  ○──┐ ▱
N7   17  ○──┘

---  18  ○

---  19  ○

---  20  ○
```

Examples

Lx (100-240 V AC) ──────○ ○──┤ ○ Ix
Nx ────────────────────────── ○ ▱

Fig. 60: Example for connection input Ix

53.6   Cleaning

> ⓘ **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

53.7   Certification

	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

MSIP-REI-Abb-AC500-eCo

en	**Note** These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

53.8   Recycling

> ⓘ **Disposal and recycling information**
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

54 DI572

- DI572

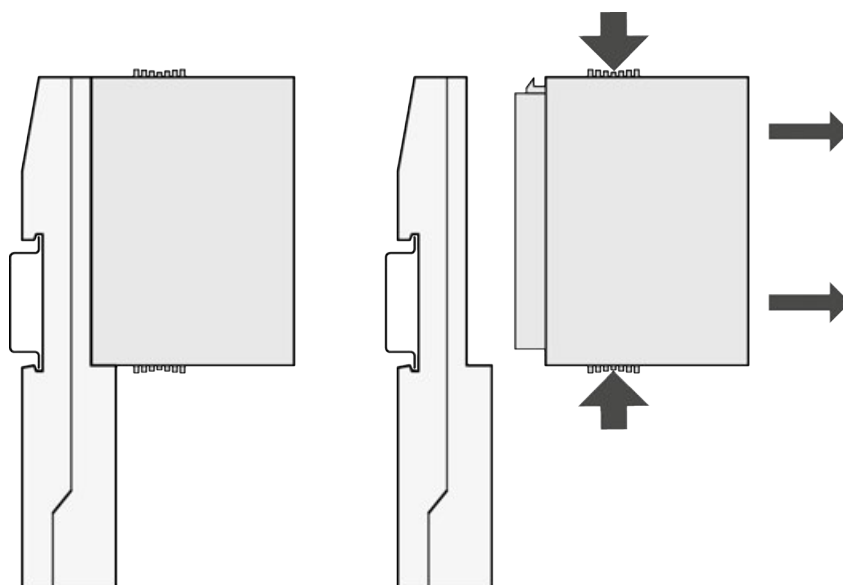|	CAUTION!
⚠️	**Risk of injury and damaging the product!**

Improper installation and maintenance may result in injury and can damage the product!

– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
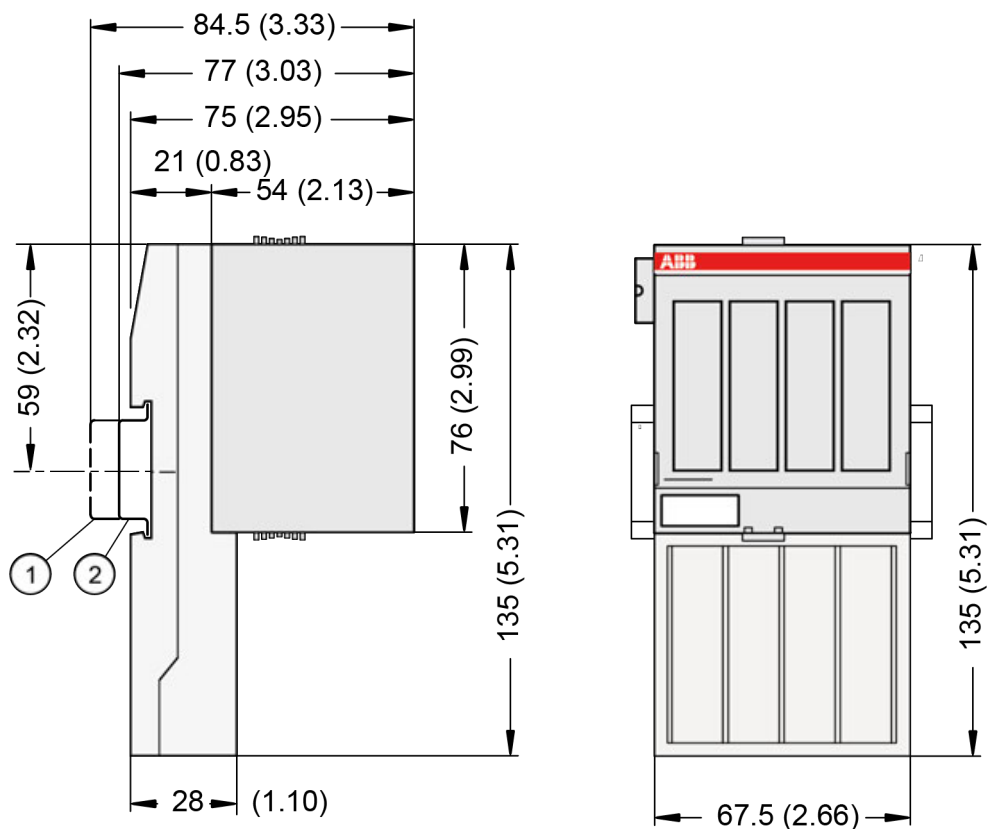– Read product documentation carefully before wiring. Improper wiring or wrong terminal block from other devices can damage the product!
– Only by qualified personnel.

	CAUTION!
⚠️	Do not use this module together with the DC505-FBP/CI590-CS31-HA module.

	CAUTION!
⚠️	Make sure that all channels are supplied from the same phase.
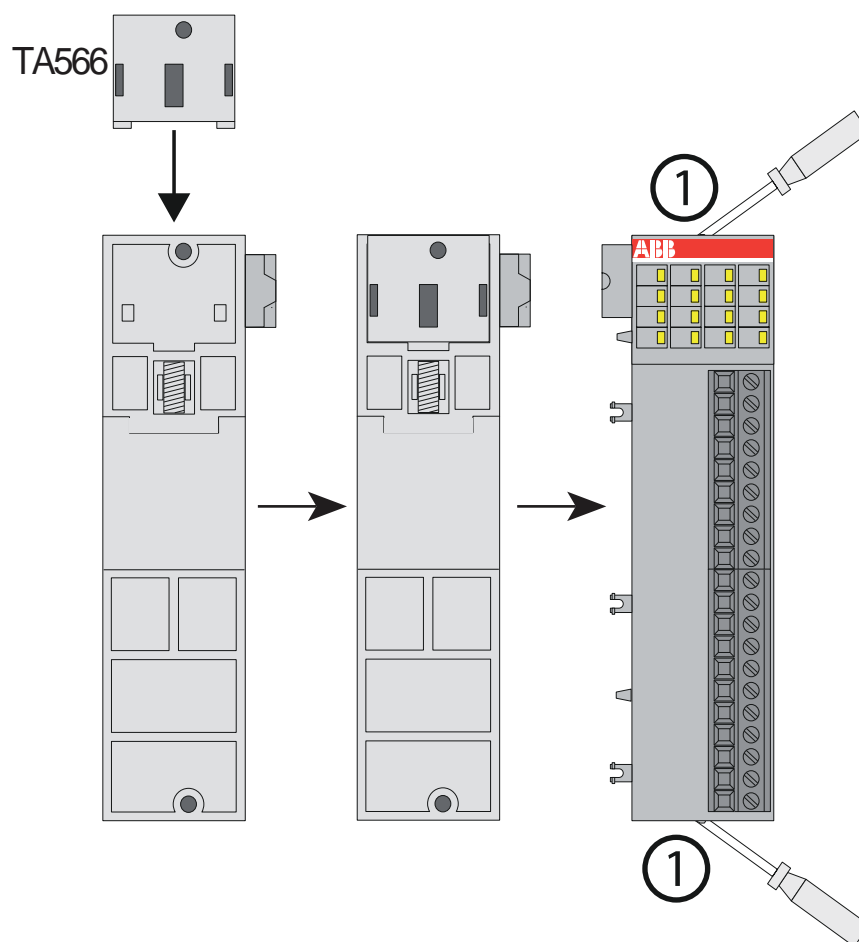
54.1 Assembly

54.2 Disassembly

54.3   Assembly with screws
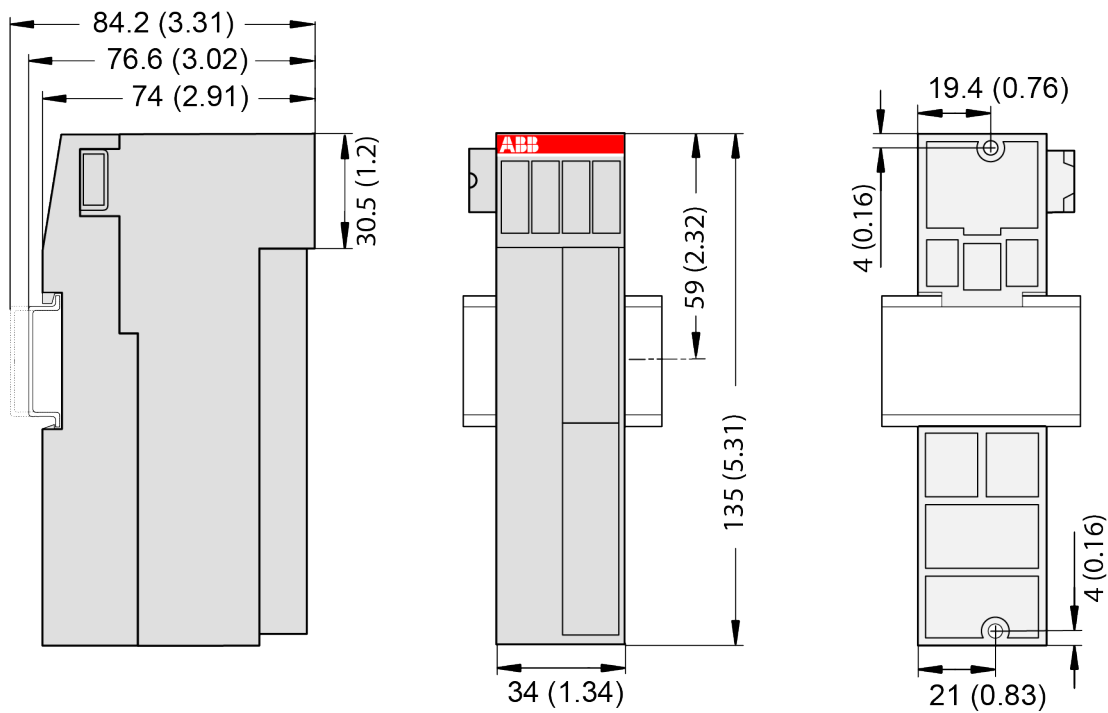
1   Fasten the module with two screws (max. diameter 4 mm)

> **❗ NOTICE!**
> The insertion of the accessories TA566 for wall mounting is essential.

54.4   Dimensions

84.2 (3.31)
76.6 (3.02)
74 (2.91)
30.5 (1.2)

ABB

59 (2.32)

135 (5.31)

34 (1.34)

19.4 (0.76)
4 (0.16)
4 (0.16)
21 (0.83)

The dimensions are in mm and in brackets in inch.

54.5   Connections

1   I/O bus
2   16 yellow LEDs to display the signal states of the inputs I0 ... I15
3   Terminal number
4   Allocation of signal name
5   Terminal block for input signals (9-pin)
6   Terminal block for input signals (11-pin)
7   2 holes for wall-mounting with screws
8   DIN rail

> *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

5	TA563-9	9-pin, screw, cable from side
	TA564-9	9-pin, screw, cable from front
	TA565-9	9-pin, spring, cable from front
6	TA563-11	11-pin, screw, cable from side

	TA564-11	11-pin, screw, cable from front
	TA565-11	11-pin, spring, cable from front

54.5.1 Inputs/Outputs

I0	1	
I1	2	
I2	3	
I3	4	
I4	5	
I5	6	
I6	7	
I7	8	
N0..7	9	
I8	10	
I9	11	
I10	12	
LI11	13	
I12	14	
I13	15	
I14	16	
I15	17	
N8..15	18	
---	19	
---	20	

Examples

Lx (100-240 V AC)

Ix
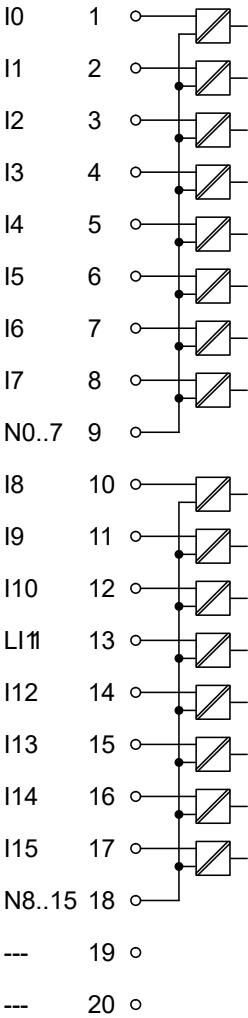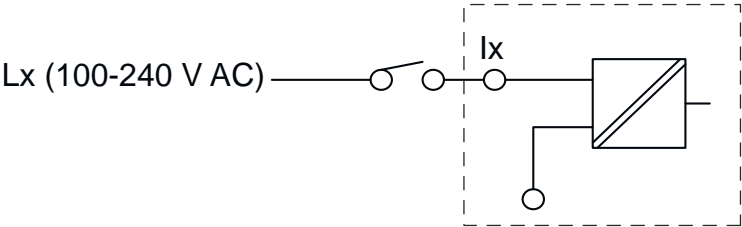
Fig. 61: Example for connection input Ix

54.6   Cleaning

> **Cleaning instructions**
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

54.7   Certification

KC	en	**Devices with KCC sign on product sticker and packaging**
MSIP-REI-Abb-AC500	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기
en	**Note** These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

54.8   Recycling

> **Disposal and recycling information**
>
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

55   DI581-S(-XC)

- DI581-S
- DI581-S-XC
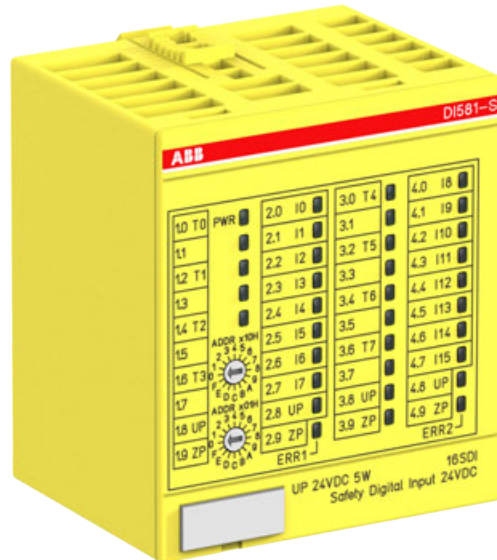
⚠️	**CAUTION!** **Risk of injury and damaging the product!** Improper installation and maintenance may result in injury and can damage the product! – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1. – Only by qualified personnel.

55.1 Assembly
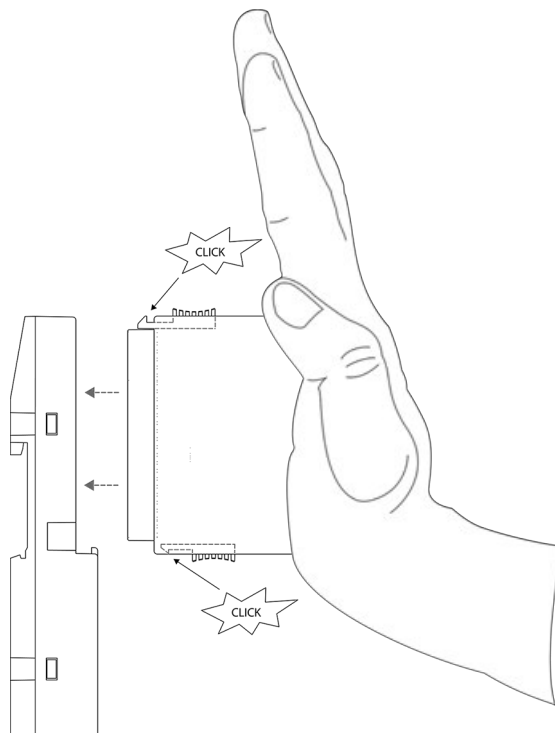
1. Put the module on the terminal unit

   ⇨ Module clicks in.

2. Then press the module with a force of at least 100 N into the terminal unit to achieve proper electrical contact.

55.2 Disassembly

55.3   Dimensions

84.5 (3.33)

77 (3.03)

75 (2.95)

21 (0.83)

54 (2.13)

59 (2.32)

76 (2.99)

135 (5.31)

① ②

28   (1.10)

135 (5.31)

67.5 (2.66)

1   Din rail 15 mm
2   Din rail 7.5 mm
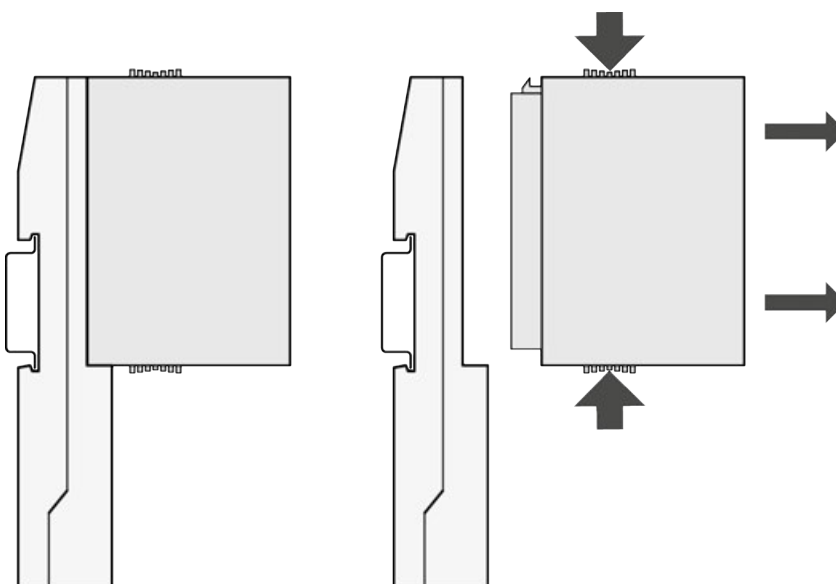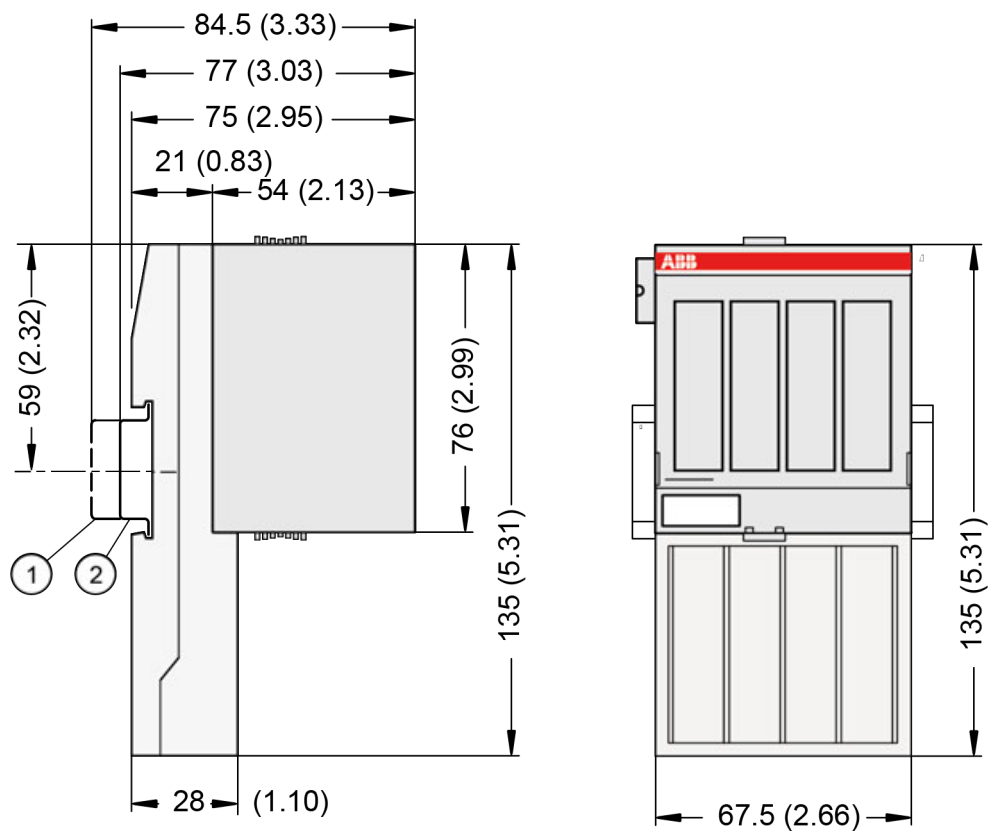
The dimensions are in mm and in brackets in inch.

55.4   Connections
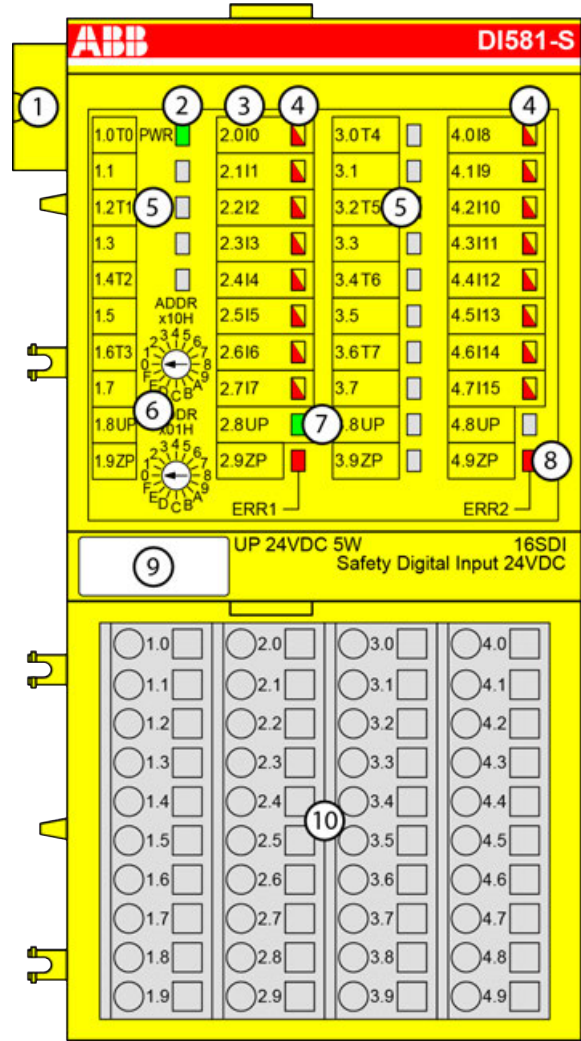
1   I/O bus
2   System LED
3   Allocation of terminal number and signal name
4   16 yellow/red LEDs to display the signal states of the digital inputs I0 to I15
5   8 Test pulse outputs T0 to T7
6   2 rotary switches for setting the PROFIsafe address
7   1 green LED to display the state of the process supply voltage UP
8   2 red LEDs to display errors
9   Label
10 Terminal unit TU582-S(-XC)
❄ Sign for XC version

55.4.1 Process supply voltage
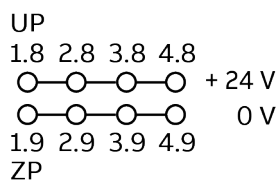
UP
1.8 2.8 3.8 4.8
○──○──○──○ + 24 V
○──○──○──○   0 V
1.9 2.9 3.9 4.9
ZP

> ⚠️ **CAUTION!**
>
> The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

55.4.2 Inputs

I0	2.0		I8	4.0			T0	1.0
I1	2.1		I9	4.1		U_{out}	T1	1.2
I2	2.2		I10	4.2		U_{out}	T2	1.4
I3	2.3		I11	4.3		U_{out}	T3	1.6
I4	2.4		I12	4.4		U_{out}	T4	3.0
I5	2.5		I13	4.5		U_{out}	T5	3.2
I6	2.6		I14	4.6		U_{out}	T6	3.4
I7	2.7		I15	4.7		U_{out}	T7	3.6

UP +24 V   1.8   2.8   3.8   4.8
ZP   0 V   1.9   2.9   3.9   4.9

Example

UP ── ○ ○─○ Ix
              ○ ZP
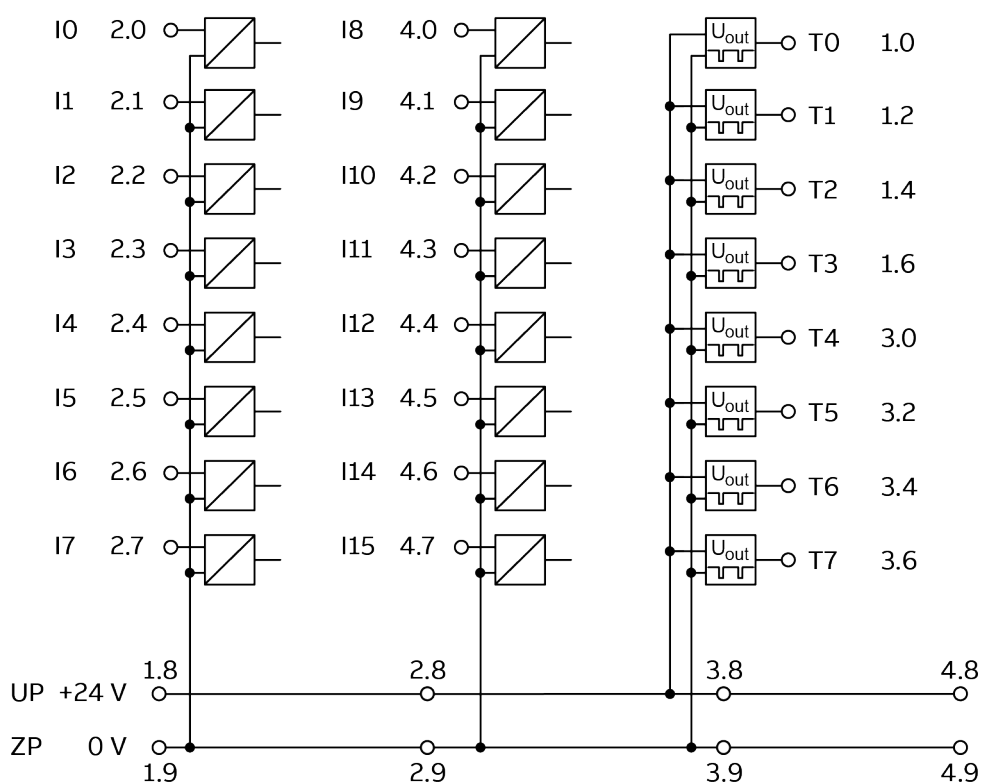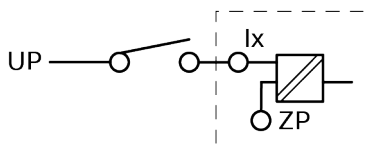
Fig. 62: Example of connection input Ix

> ℹ️ ***AC500-S safety user manual***
>
> *For a detailed description of the connection of the module, please refer to the "AC500-S safety user manual".*

55.5 Cleaning

> ⓘ **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
> *Use a damp cloth instead.*

55.6 Certification

KC

MSIP-REI-Abb-AC500

en		Devices with KCC sign on product sticker and packaging
ko		제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	**Note** These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

55.7 Recycling

> ⓘ **Disposal and recycling information**
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

56 DO524(-XC)

- DO524
- DO524-XC

	CAUTION!
⚠	**Risk of injury and damaging the product!** Improper installation and maintenance may result in injury and can damage the product! – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1. – Only by qualified personnel.

Hot swap

	WARNING!
⚠	**Risk of explosion or fire in hazardous environments during hot swapping!** Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

> ⚠️ **WARNING!**
>
> **Electric shock due to negligent behavior during hot swapping!**
>
> To avoid electric shock
>
> – make sure the following conditions apply:
>   – Digital outputs are not under load.
>   – Input/output voltages above safety extra low voltage/
>   protective extra low voltage (SELV/PELV) are switched off.
>   – Modules are fully interlocked with the terminal unit with both snap-fits
>   engaged before switching on loads or input/output voltage.
> – Never touch exposed contacts (dangerous voltages).
> – Stay away from electrical contacts to avoid arc discharge.
> – Do not operate a mechanical installation improperly.

> ❗ **NOTICE!**
>
> **Risk of damage to I/O modules!**
>
> Hot swapping is only allowed for I/O modules.
>
> Processor modules and communication interface modules must not be removed
> or inserted during operation.

H = **H**ot swap

> ℹ️ *Hot swap*
>
> *System requirements for hot swapping of I/O modules:*
>
> – *Types of terminal units that support hot swapping of I/O modules have the
>   appendix TU5xx-**H**.*
> – *I/O modules as of index F0.*
>
> *The following I/O bus masters support hot swapping of attached I/O modules:*
>
> – *Communication interface modules CI5xx as of index F0.*
> – *Processor modules PM56xx-2ETH with firmware version as of V3.2.0.*

> ℹ️ *Hot swap is not supported by AC500-eCo V3 CPU!*

> ℹ️ *The index of the module is in the right corner of the label.*

> **!** **NOTICE!**
> **Risk of damage to I/O modules!**
> Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

> **!** **NOTICE!**
> **Risk of damage to I/O modules!**
> Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.
>
> For min. required device index see table below.

Device	Min. required device index for I/O module as of FW Version 3.0.14
AC522(-XC)	F0
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DA502 (-XC)	F0
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

56.1   Assembly
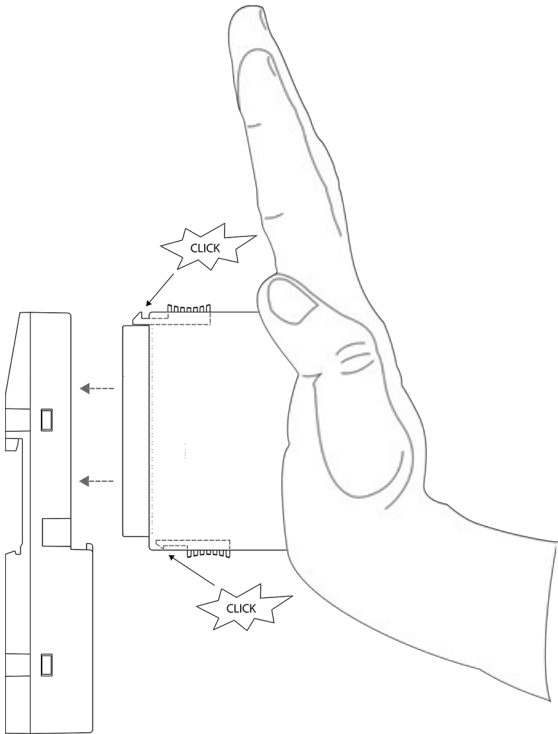
56.2 Disassembly

56.3 Dimensions

1   Din rail 15 mm
2   Din rail 7.5 mm

The dimensions are in mm and in brackets in inch.

56.4 Connections
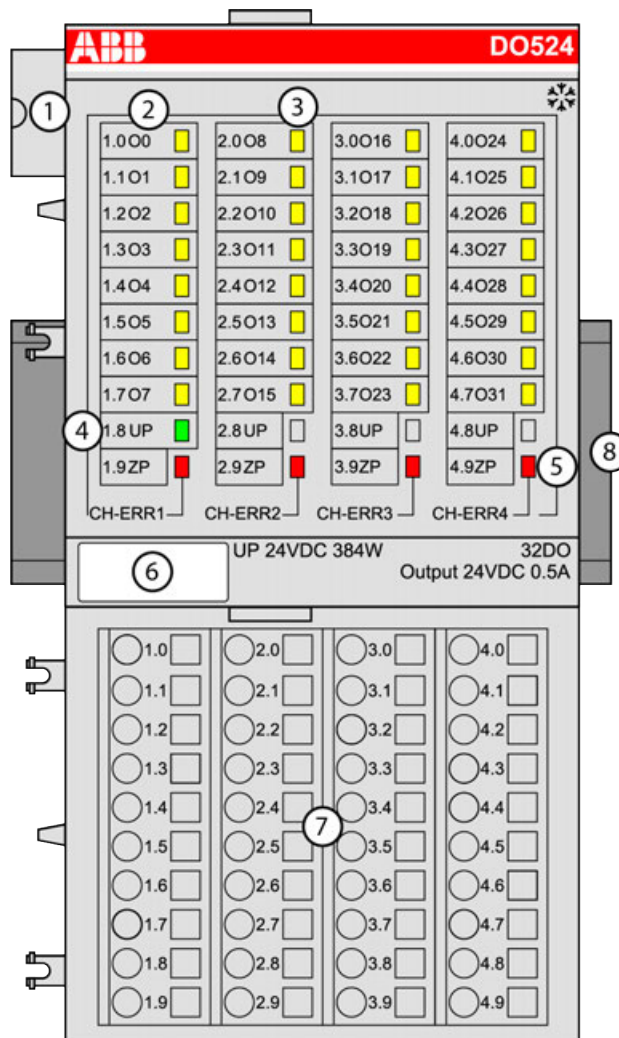
1   I/O bus
2   Allocation between terminal number and signal name
3   32 yellow LEDs to display the signal states at the digital outputs (O0 ... O31)
4   1 green LED to display the state of the process supply voltage UP
5   4 red LEDs to display errors
6   Label
7   Terminal unit
8   DIN rail
❅   Sign for XC version

> ℹ️ *All I/O channels (digital and analog) are protected against reverse polarity,
> reverse supply and temporary overvoltage up to 30 VDC.*

56.4.1 Process supply voltage
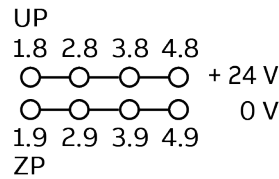
```
UP
1.8  2.8  3.8  4.8
O——O——O——O   + 24 V
O——O——O——O     0 V
1.9  2.9  3.9  4.9
ZP
```

⚠️ **CAUTION!**

The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

56.4.2 Outputs
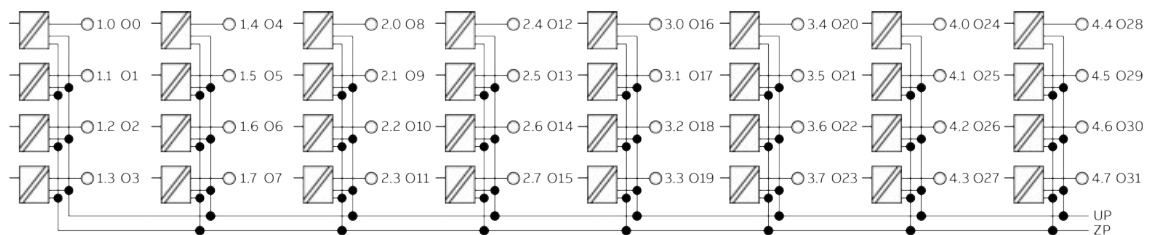
Example
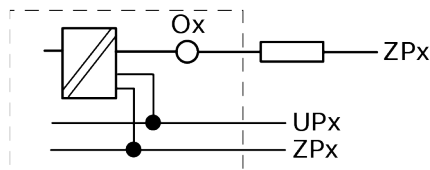
Fig. 63: Example of connection output

56.5 Cleaning

ℹ️ *Cleaning instructions*

Do not use cleaning agent for cleaning the device.

Use a damp cloth instead.

56.6 Certification

KC MSIP-REI-Abb-AC500	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	Note
	These devices correspond to:
	KN61000-6-2 "Immunity for industrial environments", KN61000-6-4 "Emission standard for industrial environments"
ko	참고 이러한 기기는
	KN61000-6-2 "산업 환경에 대한 내성", KN61000-6-4 "산업 환경 누출 기준"에 적합함

56.7   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

57 DO526(-XC)

- DO526
- DO526-XC

⚠	**CAUTION!** **Risk of injury and damaging the product!** Improper installation and maintenance may result in injury and can damage the product! – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1. – Only by qualified personnel.

Hot swap

⚠	**WARNING!** **Risk of explosion or fire in hazardous environments during hot swapping!** Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

> ⚠ **WARNING!**
>
> **Electric shock due to negligent behavior during hot swapping!**
>
> To avoid electric shock
>
> – make sure the following conditions apply:
>   – Digital outputs are not under load.
>   – Input/output voltages above safety extra low voltage/
>   protective extra low voltage (SELV/PELV) are switched off.
>   – Modules are fully interlocked with the terminal unit with both snap-fits
>   engaged before switching on loads or input/output voltage.
> – Never touch exposed contacts (dangerous voltages).
> – Stay away from electrical contacts to avoid arc discharge.
> – Do not operate a mechanical installation improperly.

> ❗ **NOTICE!**
>
> **Risk of damage to I/O modules!**
>
> Hot swapping is only allowed for I/O modules.
>
> Processor modules and communication interface modules must not be removed
> or inserted during operation.

H = **H**ot swap

> 🛈 *Hot swap*
>
> *System requirements for hot swapping of I/O modules:*
>
> – *Types of terminal units that support hot swapping of I/O modules have the
>   appendix TU5xx-**H**.*
> – *I/O modules as of index F0.*
>
> *The following I/O bus masters support hot swapping of attached I/O modules:*
>
> – *Communication interface modules CI5xx as of index F0.*
> – *Processor modules PM56xx-2ETH with firmware version as of V3.2.0.*

> 🛈 *Hot swap is not supported by AC500-eCo V3 CPU!*

> ⓘ *The index of the module is in the right corner of the label.*

> ❗ **NOTICE!**
> **Risk of damage to I/O modules!**
> Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

> ❗ **NOTICE!**
> **Risk of damage to I/O modules!**
> Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.
>
> For min. required device index see table below.

Device	Min. required device index for I/O module as of FW Version 3.0.14
AC522(-XC)	F0
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DA502 (-XC)	F0
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

57.1   Assembly
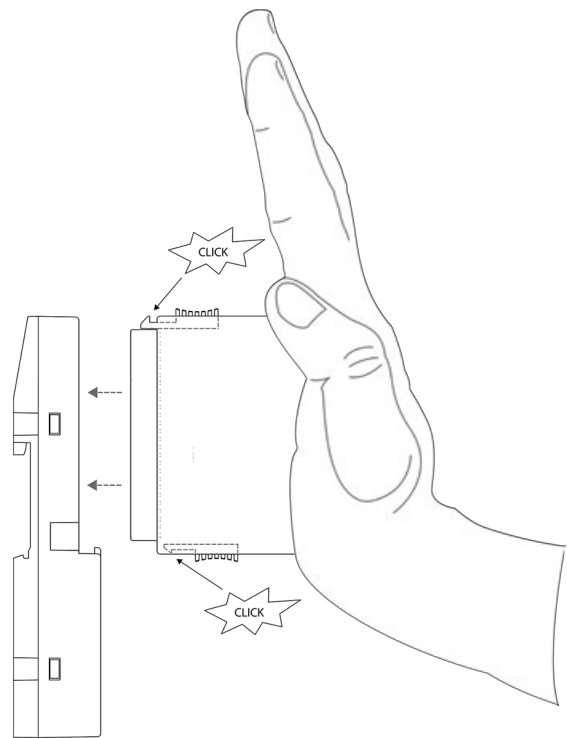
57.2 Disassembly
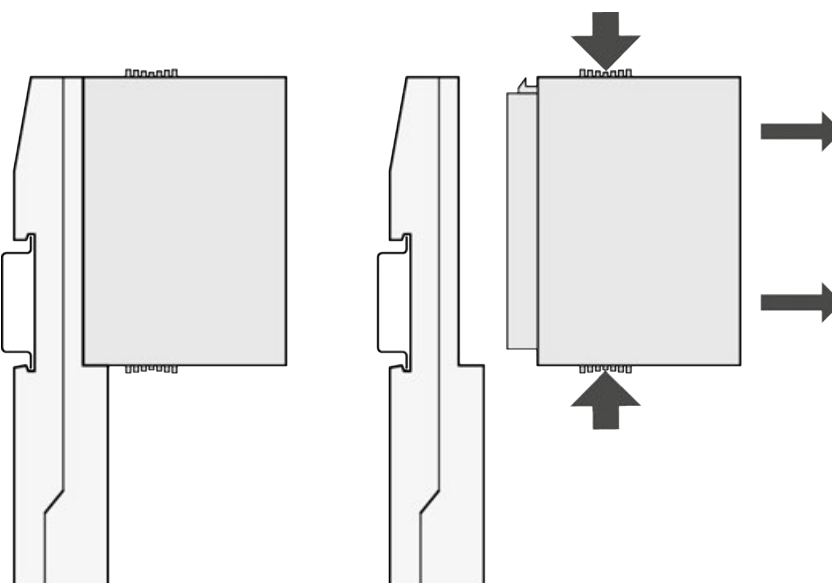
57.3 Dimensions

1   Din rail 15 mm
2   Din rail 7.5 mm

> ⓘ   *The dimensions are in mm and in brackets in inch.*

57.4 Connections
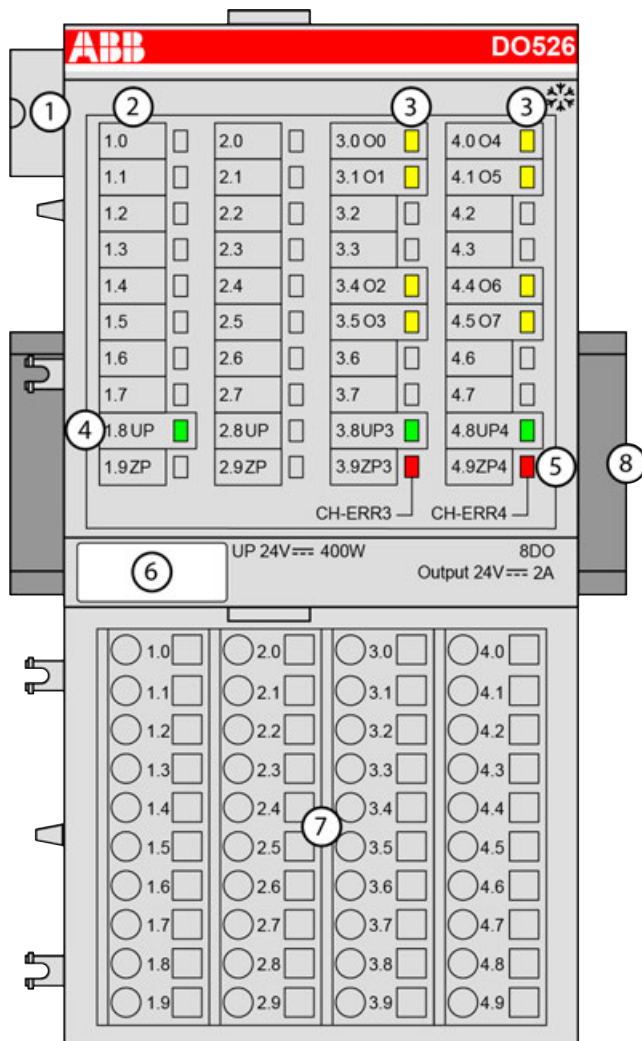
1   I/O bus
2   Allocation between terminal number and signal name
3   8 yellow LEDs to display the signal states of the outputs O0 ... O7
4   3 green LEDs to display the states of the process supply voltage UP, UP3 and UP4
5   2 red LEDs to display errors
6   Label
7   Terminal unit
8   DIN-rail
✳   Sign for XC version

> All I/O channels (digital and analog) are protected against reverse polarity,
> reverse supply and temporary overvoltage up to 30 VDC.

57.4.1 Process supply voltage

```
           UP      UP3 UP4
          1.8 2.8  3.8  4.8
           O──O    O    O    + 24 V
           O──O    O    O      0 V
          1.9 2.9  3.9  4.9
           ZP      ZP3  ZP4
```

<table>
<tr><td>⚠️</td><td>CAUTION!
The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).</td></tr>
</table>

57.4.2 Outputs

○ 1.0	○ 2.0	○ 3.0 O0	○ 4.0 O4
○ 1.1	○ 2.1	○ 3.1 O1	○ 4.1 O5
○ 1.2	○ 2.2	○ 3.2	○ 4.2
○ 1.3	○ 2.3	○ 3.3	○ 4.3
○ 1.4	○ 2.4	○ 3.4 O2	○ 4.4 O6
○ 1.5	○ 2.5	○ 3.5 O3	○ 4.5 O7
○ 1.6	○ 2.6	○ 3.6	○ 4.6
○ 1.7	○ 2.7	○ 3.7	○ 4.7
1.8 UP +24 V	2.8 UP +24 V	3.8 UP3 +24 V	4.8 UP4 +24 V
1.9 ZP 0 V	2.9 ZP 0 V	3.9 ZP3 0 V	4.9 ZP4 0 V
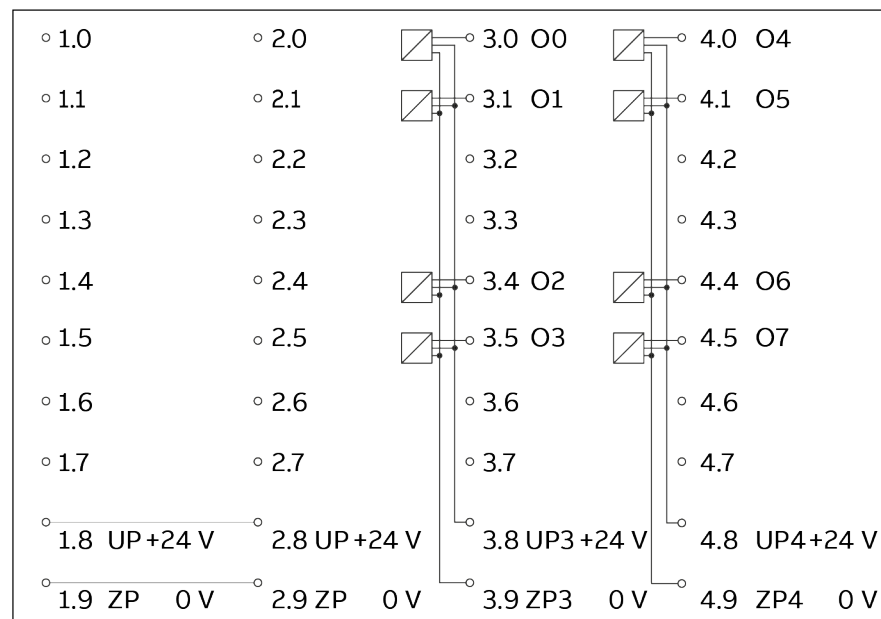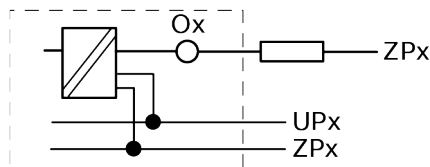
Example

Fig. 64: Example of connection output

57.5 Cleaning

<table>
<tr><td>ⓘ</td><td><i>Cleaning instructions</i>
<i>Do not use cleaning agent for cleaning the device.</i>

<i>Use a damp cloth instead.</i></td></tr>
</table>

57.6   Certification

KC MSIP-REI-Abb-AC500	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	Note These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

57.7   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

58 DO561

- DO561
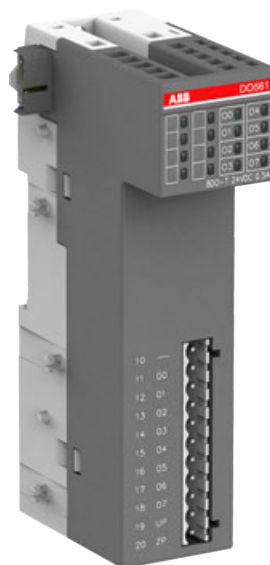
⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Read product documentation carefully before wiring. Improper wiring or wrong terminal block from other devices can damage the product!
	– Only by qualified personnel.

⚠	**CAUTION!**
	Do not use this module together with the DC505-FBP/CI590-CS31-HA module.

58.1 Assembly

58.2 Disassembly
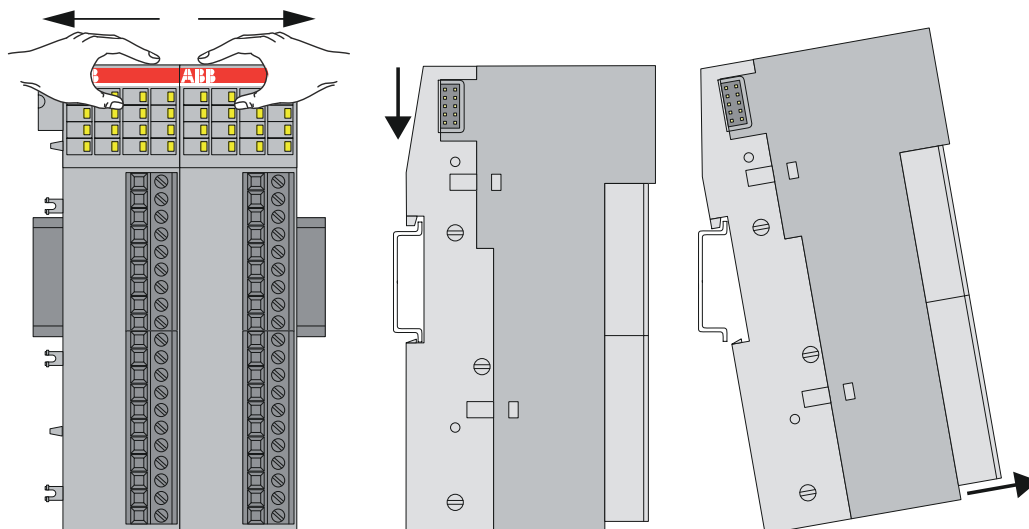
58.3   Assembly with screws

1   Fasten the module with two screws (max. diameter 4 mm)

> **NOTICE!**
> The insertion of the accessories TA566 for wall mounting is essential.

58.4   Dimensions

| | The dimensions are in mm and in brackets in inch. |

58.5   Connections

1   I/O bus
2   8 yellow LEDs to display the signal states of the outputs O0 ... O7
3   Terminal number
4   Allocation of signal name
5   Terminal block for output signals (11-pin)
6   2 holes for wall-mounting with screws
7   DIN rail

> ℹ️ *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

5	TA563-9	9-pin, screw, cable from side
	TA564-9	9-pin, screw, cable from front
	TA565-9	9-pin, spring, cable from front
6	TA563-11	11-pin, screw, cable from side

	TA564-11	11-pin, screw, cable from front
	TA565-11	11-pin, spring, cable from front

58.5.1 Outputs
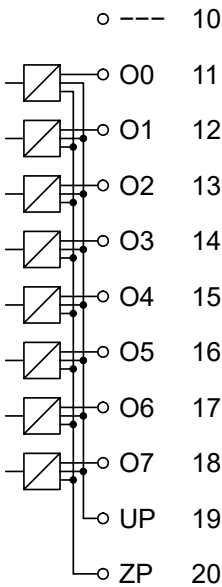
Examples
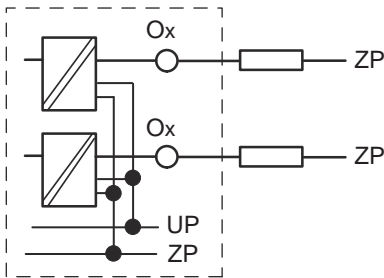
Fig. 65: Example of connection output Ox

58.6 Cleaning

> ⓘ **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

58.7 Certification

| | en | Devices with KCC sign on product sticker and packaging |
| | ko | 제품 스티커 및 포장에 **KCC** 표시가 된 기기 |

MSIP-REI-Abb-AC500-eCo

| en | **Note** These devices correspond to: | **KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments" |
| ko | 참고 이러한 기기는 | **KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 누출 기준"에 적합함 |

58.8 Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

59 DO562

- DO562

⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Read product documentation carefully before wiring. Improper wiring or wrong terminal block from other devices can damage the product!
	– Only by qualified personnel.

⚠	**CAUTION!**
	Do not use this module together with the DC505-FBP/CI590-CS31-HA module.

59.1 Assembly

59.2 Disassembly

59.3   Assembly with screws

1   Fasten the module with two screws (max. diameter 4 mm)

! **NOTICE!**

The insertion of the accessories TA566 for wall mounting is essential.

59.4   Dimensions

84.2 (3.31)	
76.6 (3.02)	
74 (2.91)	
30.5 (1.2)	

59 (2.32)

135 (5.31)

34 (1.34)

19.4 (0.76)

4 (0.16)

4 (0.16)

21 (0.83)

The dimensions are in mm and in brackets in inch.

59.5 Connections

1 I/O bus
2 16 yellow LEDs to display the signal states of the outputs O0 ... O15
3 Terminal number
4 Allocation of signal name
5 Terminal block for output signals (9-pin)
6 Terminal block for output signals (11-pin)
7 2 holes for wall-mounting with screws
8 DIN rail

All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.

5	TA563-9	9-pin, screw, cable from side
	TA564-9	9-pin, screw, cable from front
	TA565-9	9-pin, spring, cable from front
6	TA563-11	11-pin, screw, cable from side

59.5.1 Outputs

○ ---	1
○ O0	2
○ O1	3
○ O2	4
○ O3	5
○ O4	6
○ O5	7
○ O6	8
○ O7	9
○ ---	10
○ O8	11
○ O9	12
○ O10	13
○ O11	14
○ O12	15
○ O13	16
○ O14	17
○ O15	18
○ UP	19
○ ZP	20

Examples

Fig. 66: Example for connection output Ox

59.6   Cleaning

> ⓘ **Cleaning instructions**
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

59.7   Certification

KC

MSIP-REI-Abb-AC500

en		Devices with KCC sign on product sticker and packaging
ko		제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	**Note** These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

59.8   Recycling

> ⓘ **Disposal and recycling information**
>
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

60 DO571

- DO571
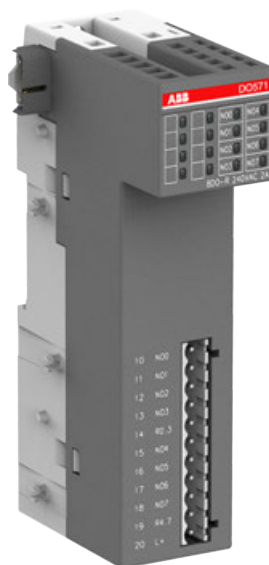
⚠	**CAUTION!** **Risk of injury and damaging the product!** Improper installation and maintenance may result in injury and can damage the product! – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1. – Read product documentation carefully before wiring. Improper wiring or wrong terminal block from other devices can damage the product! – Only by qualified personnel.

⚠	**CAUTION!** Do not use this module together with the DC505-FBP/CI590-CS31-HA module.

⚠	**CAUTION!** Make sure that all channels are supplied from the same phase.

60.1   Assembly

60.2   Disassembly

60.3 Assembly with screws

1   Fasten the module with two screws (max. diameter 4 mm)

> ❗ **NOTICE!**
> The insertion of the accessories TA566 for wall mounting is essential.

60.4 Dimensions

84.2 (3.31)

76.6 (3.02)

74 (2.91)

30.5 (1.2)

ABB

59 (2.32)

135 (5.31)

34 (1.34)

19.4 (0.76)

4 (0.16)

4 (0.16)

21 (0.83)

ⓘ *The dimensions are in mm and in brackets in inch.*

60.5 Connections

1   I/O bus
2   8 yellow LEDs to display the signal states of the outputs O0 ... O7
3   Terminal number
4   Allocation of signal name
5   Terminal block for output signals (11-pin)
6   2 holes for wall-mounting with screws
7   DIN rail

> *All I/O channels (digital and analog) are protected against reverse polarity,*
> *reverse supply and temporary overvoltage up to 30 VDC.*

5	TA563-9	9-pin, screw, cable from side
	TA564-9	9-pin, screw, cable from front
	TA565-9	9-pin, spring, cable from front
6	TA563-11	11-pin, screw, cable from side

	TA564-11	11-pin, screw, cable from front
	TA565-11	11-pin, spring, cable from front

1   CPU or communication interface module
2   I/O bus
3   DO571

60.5.1   Inputs/Outputs

	10	NO0
	11	NO1
	12	NO2
	13	NO3
	14	R0..3
	15	NO4
	16	NO5
	17	NO6
	18	NO7
	19	R4..7
	20	L+
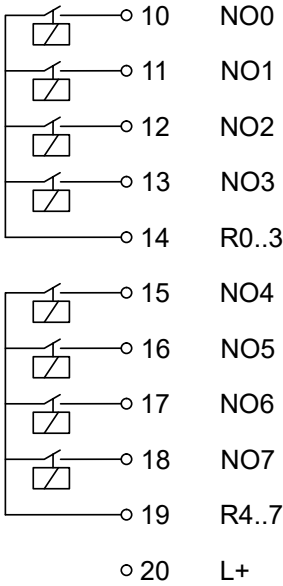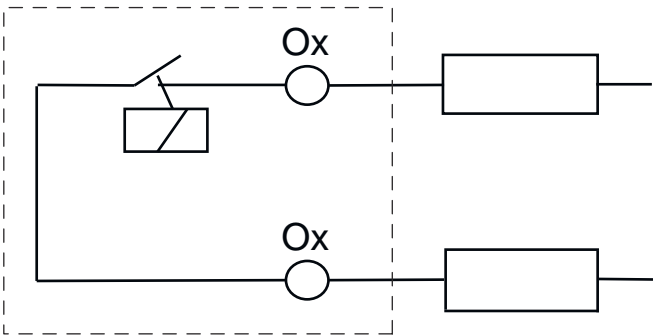
Examples

Fig. 67: Example for connection output Ox

60.6 Cleaning

> **Cleaning instructions**
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

60.7 Certification

	en	Devices with KCC sign on product sticker and packaging
MSIP-REI-Abb-AC500-eCo	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	**Note** These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

60.8 Recycling

> **Disposal and recycling information**
>
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

61 DO572

- DO572
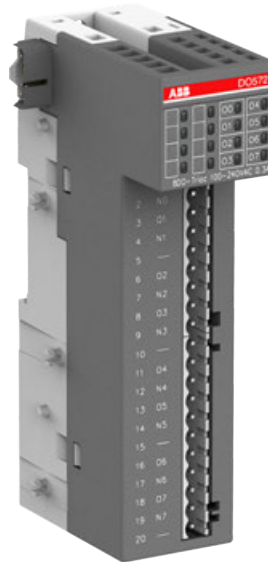
	CAUTION!
⚠	**Risk of injury and damaging the product!**

Improper installation and maintenance may result in injury and can damage the product!

– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
– Read product documentation carefully before wiring. Improper wiring or wrong terminal block from other devices can damage the product!
– Only by qualified personnel.

	CAUTION!
⚠	Do not use this module together with the DC505-FBP/CI590-CS31-HA module.

	CAUTION!
⚠	Make sure that all channels are supplied from the same phase.

61.1   Assembly
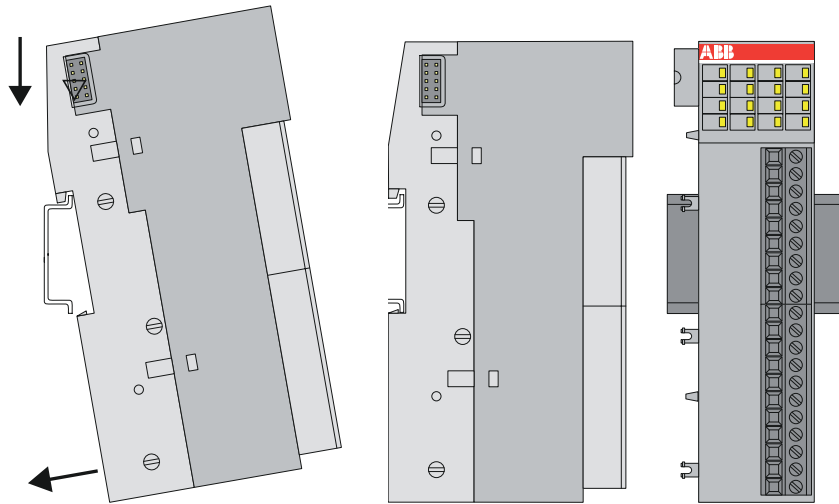
61.2   Disassembly
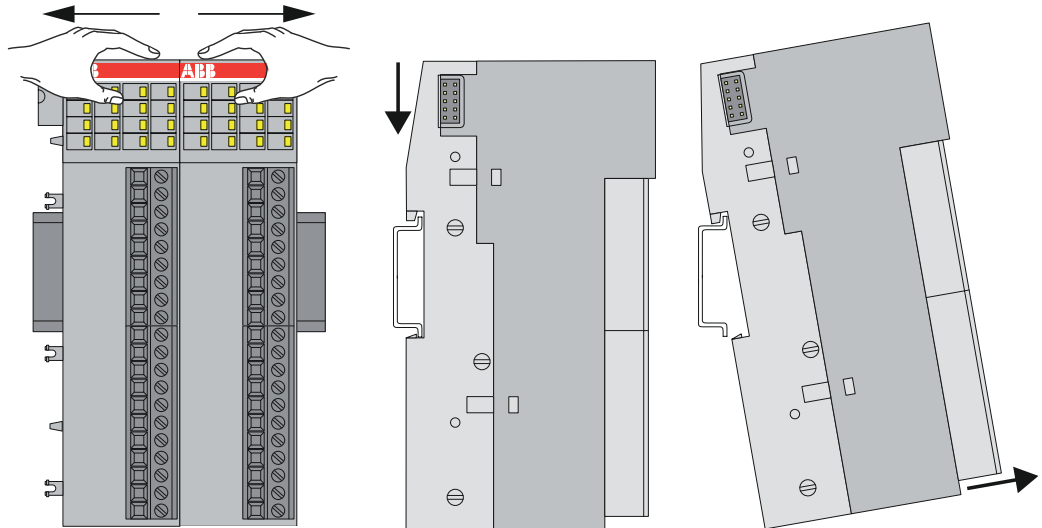
61.3   Assembly with screws
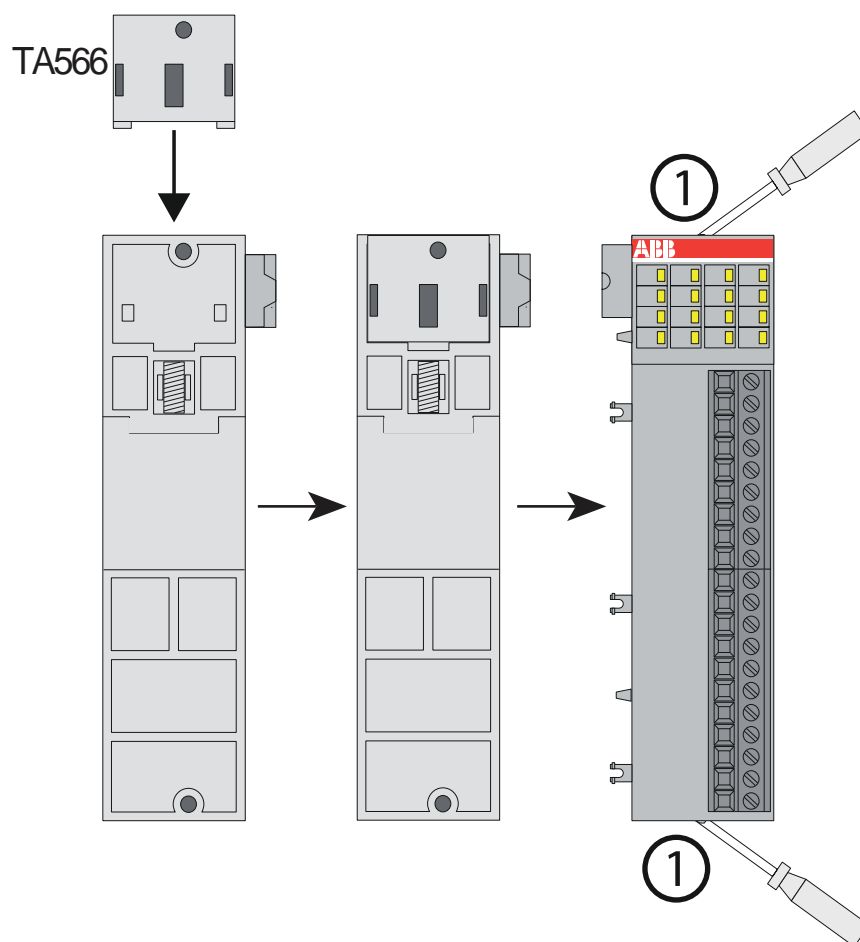
1   Fasten the module with two screws (max. diameter 4 mm)

> **NOTICE!**
> The insertion of the accessories TA566 for wall mounting is essential.

61.4   Dimensions

84.2 (3.31)
76.6 (3.02)
74 (2.91)
30.5 (1.2)

59 (2.32)
135 (5.31)
34 (1.34)

19.4 (0.76)
4 (0.16)
4 (0.16)
21 (0.83)

ABB

The dimensions are in mm and in brackets in inch.

61.5 Connections

1   I/O bus
2   8 yellow LEDs to display the signal states of the outputs O0 ... O7
3   Terminal number
4   Allocation of signal name
5   Terminal block for output signals (9-pin)
6   Terminal block for output signals (11-pin)
7   2 holes for wall-mounting with screws
8   DIN rail

All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.


5	TA563-9	9-pin, screw, cable from side
	TA564-9	9-pin, screw, cable from front
	TA565-9	9-pin, spring, cable from front
6	TA563-11	11-pin, screw, cable from side

	TA564-11	11-pin, screw, cable from front
	TA565-11	11-pin, spring, cable from front

61.5.1 Outputs

Pin	Signal
1	O0
2	N0
3	O1
4	N1
5	---
6	O2
7	N2
8	O3
9	N3
10	---
11	O4
12	N4
13	O5
14	N5
15	---
16	O6
17	N6
18	O7
19	N7
20	---
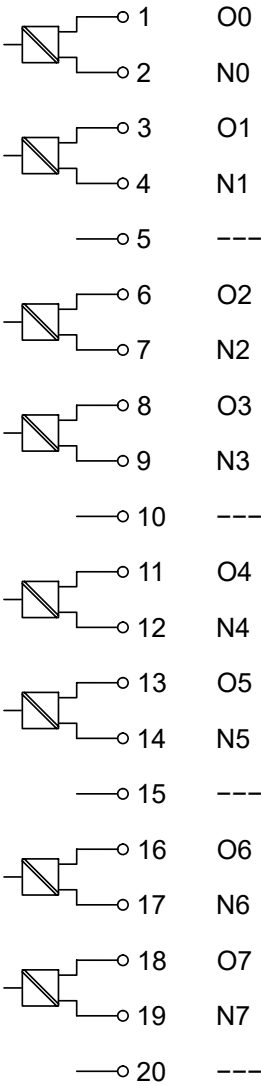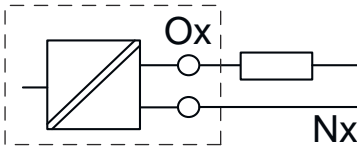
Examples

Fig. 68: Example for connection output Ox

61.6   Cleaning

> **Cleaning instructions**
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

61.7   Certification

KC

MSIP-REI-Abb-AC500-eCo

en   Devices with KCC sign on product sticker and packaging

ko   제품 스티커 및 포장에 **KCC** 표시가 된 기기

en   **Note**
These devices correspond to:

ko   참고
이러한 기기는

KN61000-6-2 "Immunity for industrial environments",
KN61000-6-4 "Emission standard for industrial environments"

KN61000-6-2 "산업 환경에 대한 내성",
KN61000-6-4 "산업 환경 누출 기준"에 적합함

61.8   Recycling

> **Disposal and recycling information**
>
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

62 DO573

- DO573

	CAUTION!
⚠️	**Risk of injury and damaging the product!** Improper installation and maintenance may result in injury and can damage the product! – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1. – Read product documentation carefully before wiring. Improper wiring or wrong terminal block from other devices can damage the product! – Only by qualified personnel.

	CAUTION!
⚠️	Do not use this module together with the DC505-FBP/CI590-CS31-HA module.

	CAUTION!
⚠️	Make sure that all channels are supplied from the same phase.

62.1   Assembly

62.2   Disassembly
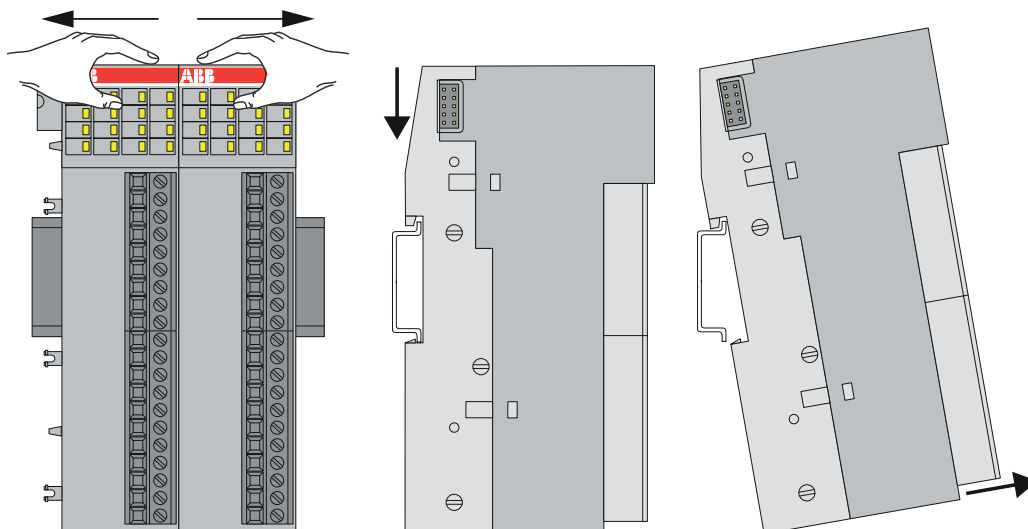
62.3   Assembly with screws

1   Fasten the module with two screws (max. diameter 4 mm)

> **NOTICE!**
> The insertion of the accessories TA566 for wall mounting is essential.

62.4   Dimensions

84.2 (3.31)
76.6 (3.02)
74 (2.91)
30.5 (1.2)

59 (2.32)

135 (5.31)

34 (1.34)

19.4 (0.76)

4 (0.16)

4 (0.16)

21 (0.83)

ABB

The dimensions are in mm and in brackets in inch.

62.5   Connections

1   I/O bus
2   16 yellow LEDs to display the signal states of the outputs O0 ... O15
3   Terminal number
4   Allocation of signal name
5   Terminal block for output signals (9-pin)
6   Terminal block for output signals (11-pin)
7   2 holes for wall-mounting with screws
8   DIN rail

> *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

5	TA563-9	9-pin, screw, cable from side
	TA564-9	9-pin, screw, cable from front
	TA565-9	9-pin, spring, cable from front
6	TA563-11	11-pin, screw, cable from side

	TA564-11	11-pin, screw, cable from front
	TA565-11	11-pin, spring, cable from front

1   CPU or communication interface module
2   I/O bus
3   DO573

62.5.1 Outputs

Terminal	Label
1	NO0
2	NO1
3	NO2
4	NO3
5	NO4
6	NO5
7	NO6
8	NO7
9	R0..7
10	NO8
11	NO9
12	NO10
13	NO11
14	NO12
15	NO13
16	NO14
17	NO15
18	R8..15
19	L+
20	M
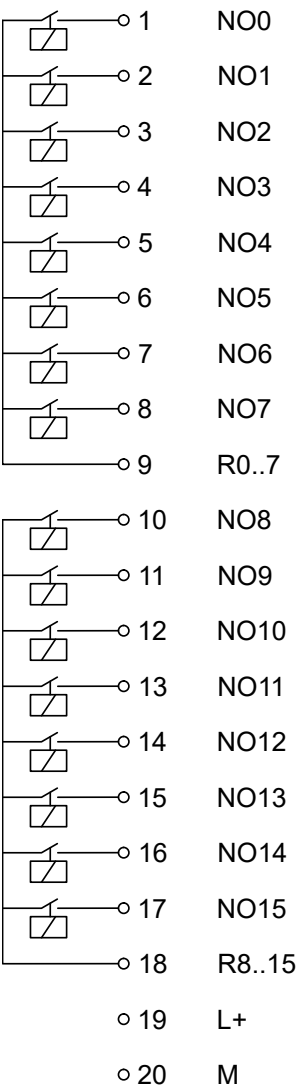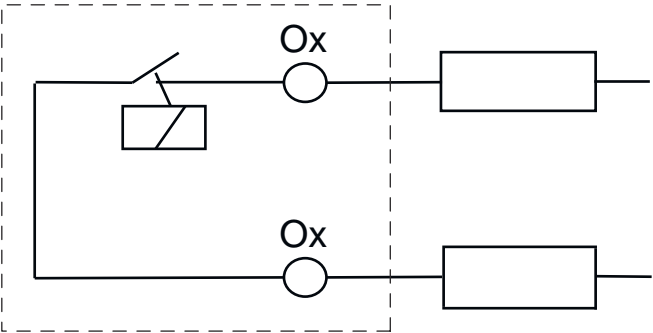
Examples

Fig. 69: Example for connection output Ox

62.6 Cleaning

> **Cleaning instructions**
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

62.7 Certification

	en	Devices with KCC sign on product sticker and packaging
KC	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기
MSIP-REI-Abb-AC500		

en	Note	
	These devices correspond to:	KN61000-6-2 "Immunity for industrial environments", KN61000-6-4 "Emission standard for industrial environments"
ko	참고 이러한 기기는	KN61000-6-2 "산업 환경에 대한 내성", KN61000-6-4 "산업 환경 누출 기준"에 적합함

62.8 Recycling

> **Disposal and recycling information**
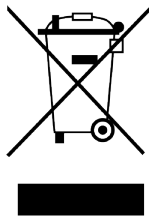>
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

63 DX522(-XC)

- DX522
- DX522-XC

⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

Hot swap

⚠	**WARNING!**
	Risk of explosion or fire in hazardous environments during hot swapping!
	Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

> ⚠️ **WARNING!**
>
> **Electric shock due to negligent behavior during hot swapping!**
>
> To avoid electric shock
>
> – make sure the following conditions apply:
>   – Digital outputs are not under load.
>   – Input/output voltages above safety extra low voltage/ protective extra low voltage (SELV/PELV) are switched off.
>   – Modules are fully interlocked with the terminal unit with both snap-fits engaged before switching on loads or input/output voltage.
> – Never touch exposed contacts (dangerous voltages).
> – Stay away from electrical contacts to avoid arc discharge.
> – Do not operate a mechanical installation improperly.

> ❗ **NOTICE!**
>
> **Risk of damage to I/O modules!**
>
> Hot swapping is only allowed for I/O modules.
>
> Processor modules and communication interface modules must not be removed or inserted during operation.

H = **H**ot swap

> ℹ️ *Hot swap*
>
> *System requirements for hot swapping of I/O modules:*
>
> – *Types of terminal units that support hot swapping of I/O modules have the appendix TU5xx-**H**.*
> – *I/O modules as of index F0.*
>
> *The following I/O bus masters support hot swapping of attached I/O modules:*
>
> – *Communication interface modules CI5xx as of index F0.*
> – *Processor modules PM56xx-2ETH with firmware version as of V3.2.0.*

> ℹ️ *Hot swap is not supported by AC500-eCo V3 CPU!*

> ⓘ *The index of the module is in the right corner of the label.*

> ❗ **NOTICE!**
> **Risk of damage to I/O modules!**
> Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

> ❗ **NOTICE!**
> **Risk of damage to I/O modules!**
> Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.
>
> For min. required device index see table below.

Device	Min. required device index for I/O module as of FW Version 3.0.14
AC522(-XC)	F0
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DA502 (-XC)	F0
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

63.1   Assembly
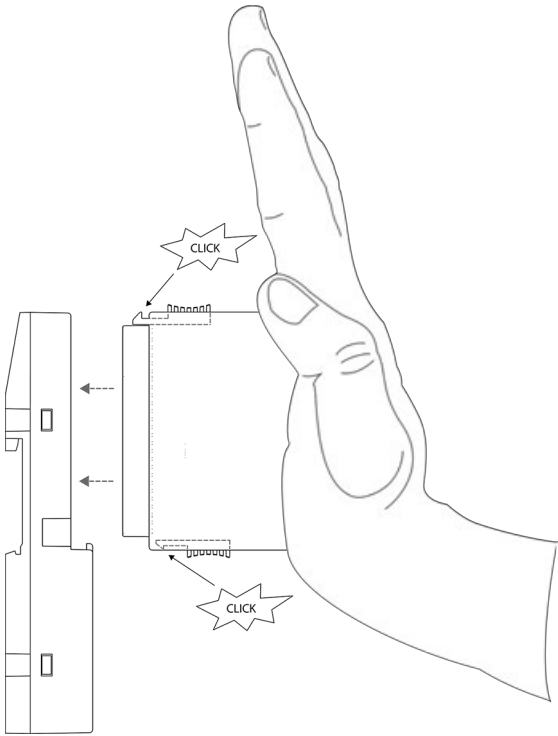
63.2 Disassembly

63.3 Dimensions

1   Din rail 15 mm
2   Din rail 7.5 mm

The dimensions are in mm and in brackets in inch.

63.4   Connections
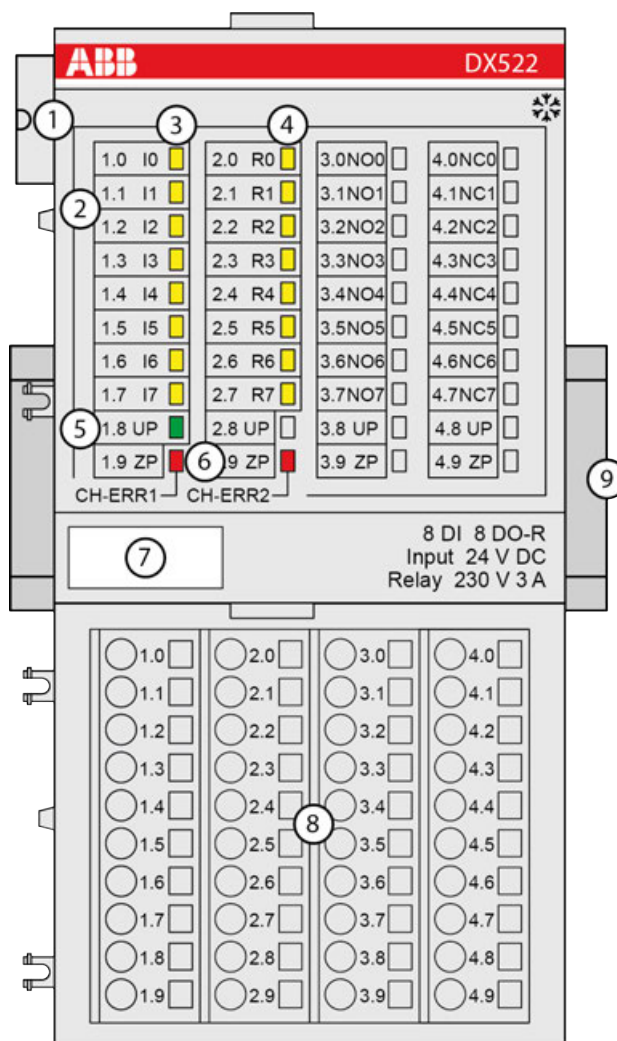
1   I/O bus
2   Allocation between terminal number and signal name
3   8 yellow LEDs to display the signal states at the digital inputs (I0 ... I7)
4   8 yellow LEDs to display the signal states at the digital relay outputs (R0 ... R7)
5   1 green LED to display the state of the process supply voltage UP
6   2 red LEDs to display errors
7   Label
8   Terminal unit
9   DIN rail
✳   Sign for XC version

> ⓘ   *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

63.4.1 Process supply voltage

```
UP
1.8  2.8  3.8  4.8
O——O——O——O   + 24 V
O——O——O——O     0 V
1.9  2.9  3.9  4.9
ZP
```

⚠️ **CAUTION!**

The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

63.4.2 Inputs

```
1.0  I0  O                    1.4  I4  O
1.1  I1  O                    1.5  I5  O
1.2  I2  O                    1.6  I6  O
1.3  I3  O                    1.7  I7  O

              ZP  O
```

Example

```
UP ——O   O—O—  Ix
                 O ZP
```
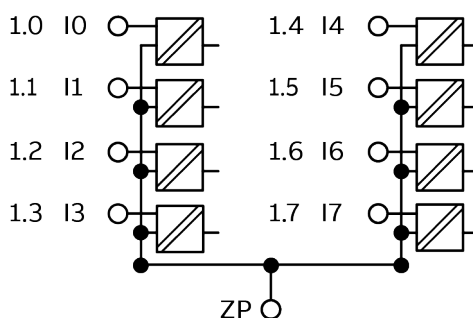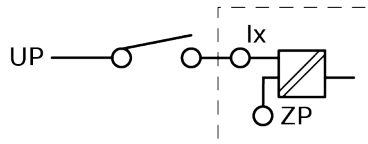
Fig. 70: Example of connection input

63.4.3 Outputs
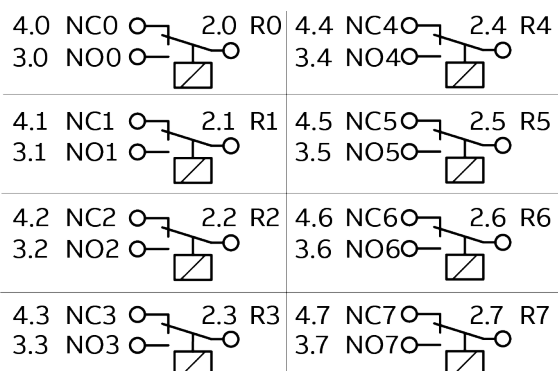
```
4.0  NC0 O         2.0  R0 | 4.4  NC4 O         2.4  R4
3.0  NO0 O——O              | 3.4  NO4 O——O

4.1  NC1 O         2.1  R1 | 4.5  NC5 O         2.5  R5
3.1  NO1 O——O              | 3.5  NO5 O——O

4.2  NC2 O         2.2  R2 | 4.6  NC6 O         2.6  R6
3.2  NO2 O——O              | 3.6  NO6 O——O

4.3  NC3 O         2.3  R3 | 4.7  NC7 O         2.7  R7
3.3  NO3 O——O              | 3.7  NO7 O——O
```

ℹ️ *If the relay outputs have to switch inductive DC loads, free-wheeling diodes must be circuited in parallel to these loads.*

> ⓘ *If the relay outputs have to switch inductive AC loads, spark suppressors are required.*

63.5   Cleaning

> ⓘ ***Cleaning instructions***
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

63.6   Certification

KC

MSIP-REI-Abb-AC500

en		Devices with KCC sign on product sticker and packaging
ko		제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	**Note** These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

63.7   Recycling

> ***Disposal and recycling information***
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

64 DX531

- DX531

⚠️	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

Hot swap

⚠️	**WARNING!**
	Risk of explosion or fire in hazardous environments during hot swapping!
	Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

⚠️	**WARNING!**
	Electric shock due to negligent behavior during hot swapping!
	To avoid electric shock
	– make sure the following conditions apply:
	– Digital outputs are not under load.
	– Input/output voltages above safety extra low voltage/ protective extra low voltage (SELV/PELV) are switched off.
	– Modules are fully interlocked with the terminal unit with both snap-fits engaged before switching on loads or input/output voltage.
	– Never touch exposed contacts (dangerous voltages).
	– Stay away from electrical contacts to avoid arc discharge.
	– Do not operate a mechanical installation improperly.

> **!** **NOTICE!**
> **Risk of damage to I/O modules!**
> Hot swapping is only allowed for I/O modules.
>
> Processor modules and communication interface modules must not be removed or inserted during operation.

H = **H**ot swap

> **i** *Hot swap*
> *System requirements for hot swapping of I/O modules:*
> – *Types of terminal units that support hot swapping of I/O modules have the appendix TU5xx-**H**.*
> – *I/O modules as of index F0.*
>
> *The following I/O bus masters support hot swapping of attached I/O modules:*
>
> – *Communication interface modules CI5xx as of index F0.*
> – *Processor modules PM56xx-2ETH with firmware version as of V3.2.0.*

> **i** *Hot swap is not supported by AC500-eCo V3 CPU!*

> **i** *The index of the module is in the right corner of the label.*

> **!** **NOTICE!**
> **Risk of damage to I/O modules!**
> Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

> **NOTICE!**
> **Risk of damage to I/O modules!**
> Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.
>
> For min. required device index see table below.

Device	Min. required device index for I/O module as of FW Version 3.0.14
AC522(-XC)	F0
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DA502 (-XC)	F0
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3
DO572	B2
DO573	A1
DX522 (-XC)	D2

Device	Min. required device index for I/O module as of FW Version 3.0.14
DX531	D2
DX561	B2
DX571	B3
FM562	A1

64.1   Assembly
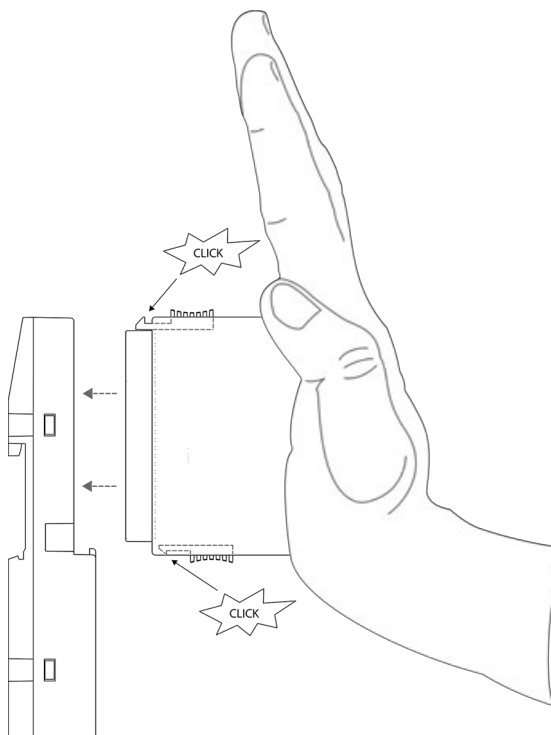
64.2   Disassembly
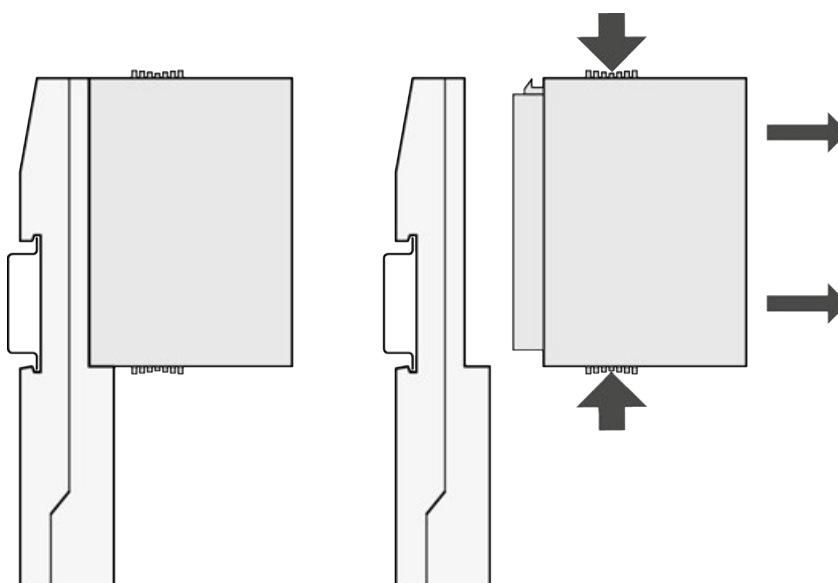
64.3   Dimensions

84.5 (3.33)
77 (3.03)
75 (2.95)
21 (0.83)
54 (2.13)
59 (2.32)
76 (2.99)
135 (5.31)
28 (1.10)
135 (5.31)
67.5 (2.66)
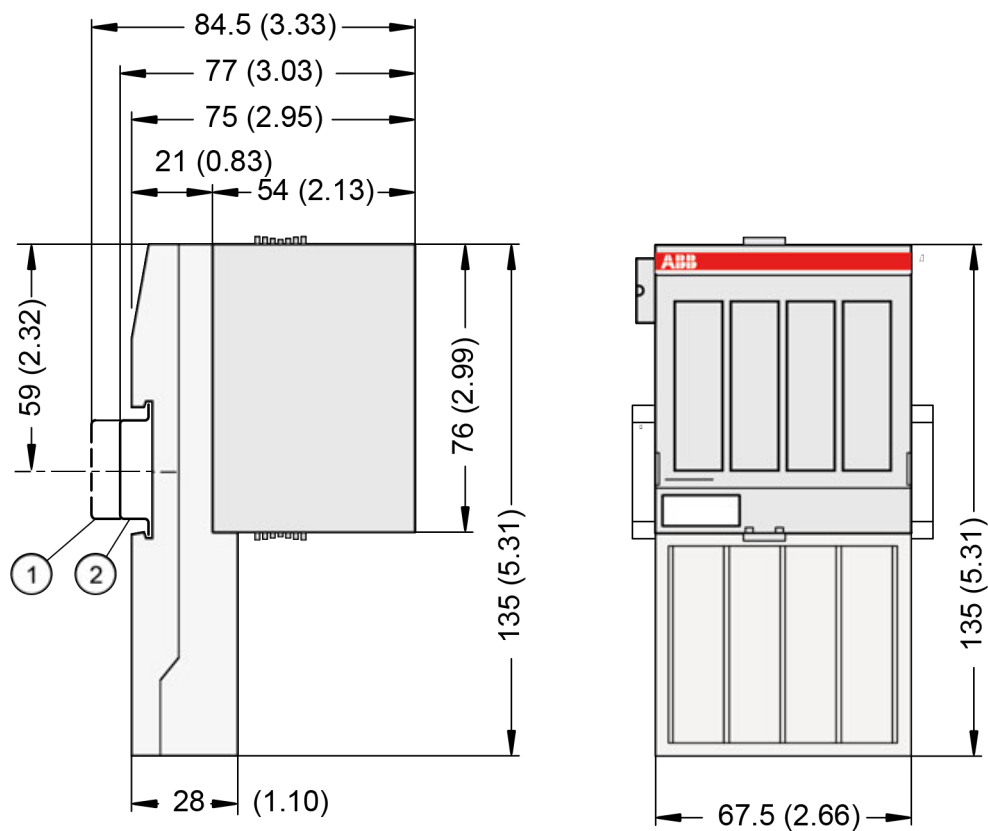
1   Din rail 15 mm
2   Din rail 7.5 mm

The dimensions are in mm and in brackets in inch.

64.4   Connections
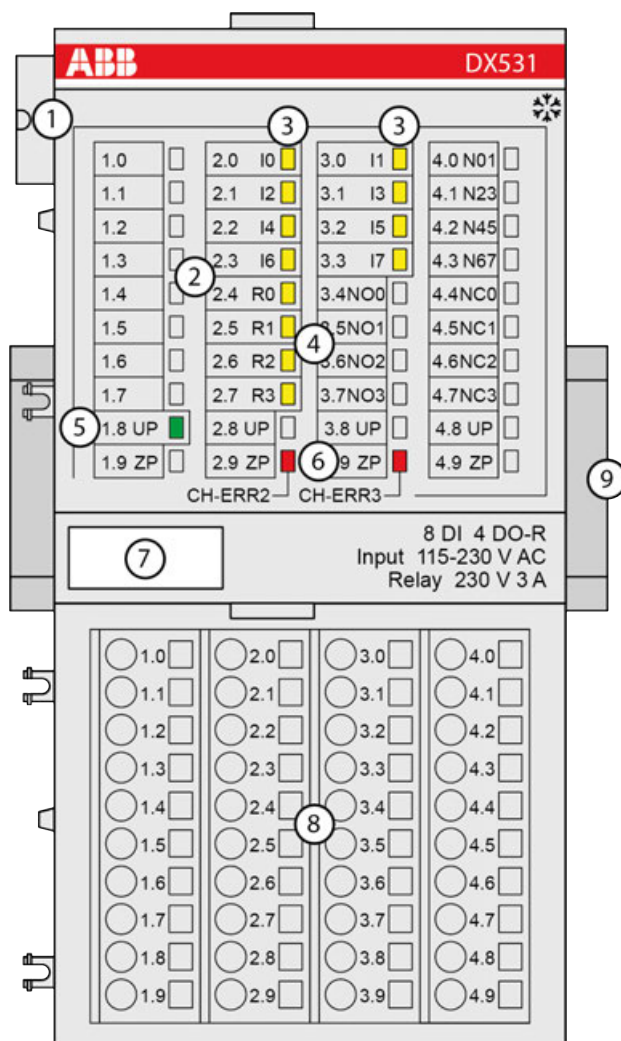
1   I/O bus
2   Allocation between terminal number and signal name
3   8 yellow LEDs to display the signal states at the digital inputs (I0 ... I7)
4   4 yellow LEDs to display the signal states at the digital relay outputs (R0 ... R3)
5   1 green LED to display the state of the process supply voltage UP
6   2 red LEDs to display errors
7   Label
8   Terminal unit
9   DIN rail
❄   Sign for XC version

> ⓘ   *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

64.4.1 Process supply voltage

```
                    UP
                    1.8  2.8  3.8  4.8
                    O——O——O——O   + 24 V
                    O——O——O——O      0 V
                    1.9  2.9  3.9  4.9
                    ZP
```

> ⚠️ **CAUTION!**
>
> The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

64.4.2 Inputs
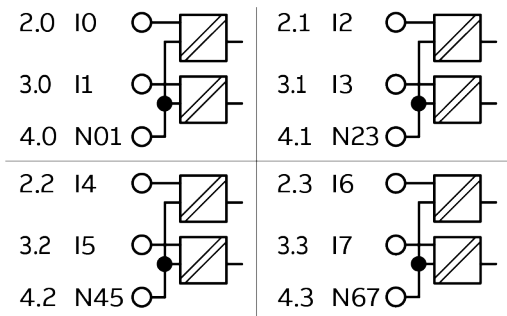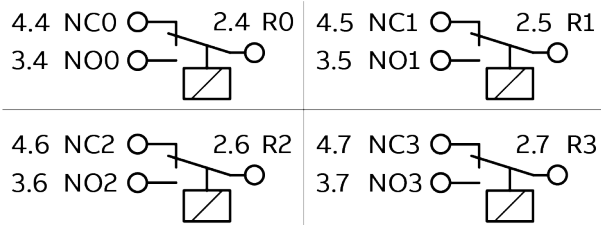
```
2.0  I0   O—�          2.1  I2   O—�
3.0  I1   O—⌐                3.1  I3   O—⌐
4.0  N01  O—                 4.1  N23  O—

2.2  I4   O—                 2.3  I6   O—
3.2  I5   O—                 3.3  I7   O—
4.2  N45  O—                 4.3  N67  O—
```

64.4.3 Outputs

```
4.4  NC0  O⌐      2.4  R0    4.5  NC1  O⌐      2.5  R1
3.4  NO0  O—   O            3.5  NO1  O—   O

4.6  NC2  O⌐      2.6  R2    4.7  NC3  O⌐      2.7  R3
3.6  NO2  O—   O            3.7  NO3  O—   O
```

> ℹ️ *If the relay outputs have to switch inductive DC loads, free-wheeling diodes must be circuited in parallel to these loads.*

> ℹ️ *If the relay outputs have to switch inductive AC loads, spark suppressors are required.*

64.5   Cleaning

> ⓘ **Cleaning instructions**
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*
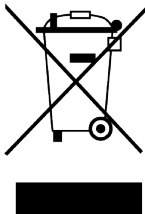
64.6   Certification

KC

MSIP-REI-Abb-AC500

en	Devices with KCC sign on product sticker and packaging
ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	**Note** These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

64.7   Recycling

> ⓘ **Disposal and recycling information**
>
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

65 DX561

- DX561
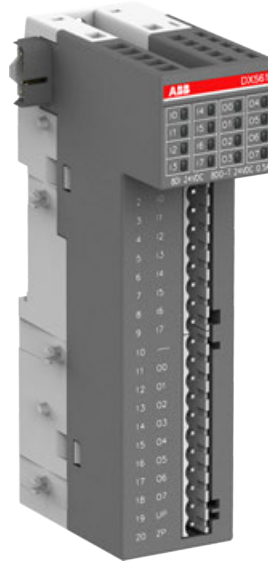
|	CAUTION!
⚠️	**Risk of injury and damaging the product!** Improper installation and maintenance may result in injury and can damage the product! – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1. – Read product documentation carefully before wiring. Improper wiring or wrong terminal block from other devices can damage the product! – Only by qualified personnel.
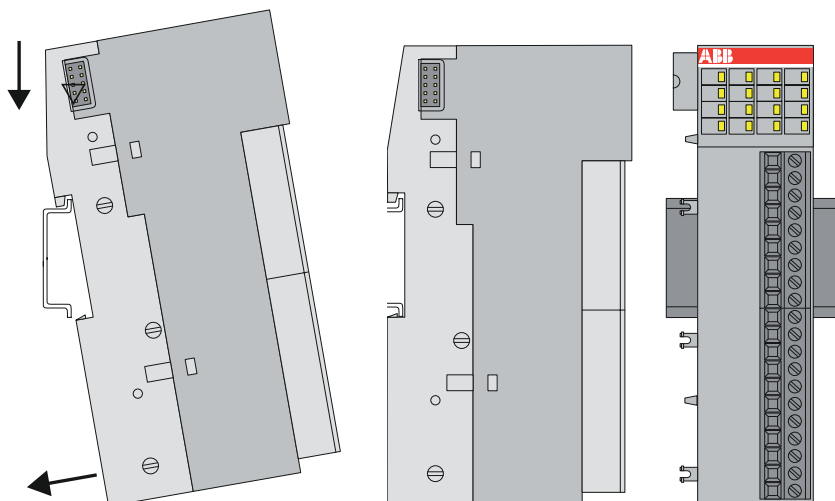
	CAUTION!
⚠️	Do not use this module together with the DC505-FBP/CI590-CS31-HA module.

65.1   Assembly

65.2   Disassembly

65.3   Assembly with screws

1   Fasten the module with two screws (max. diameter 4 mm)

! **NOTICE!**
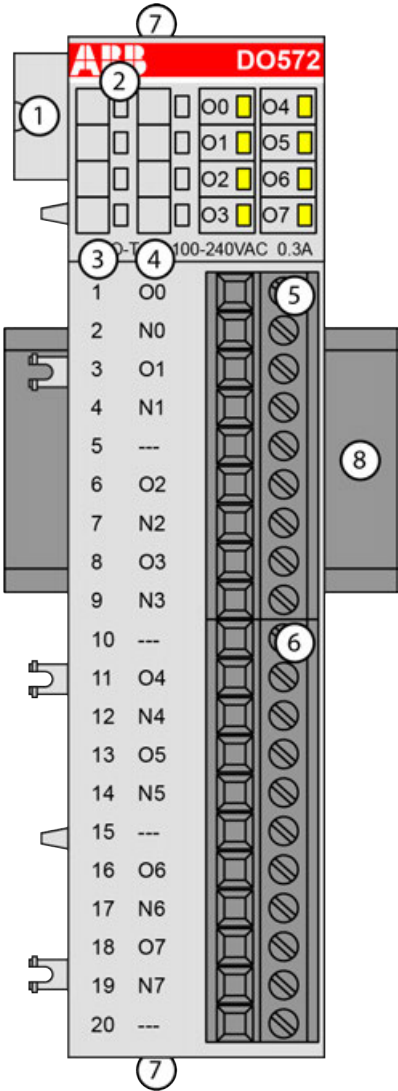The insertion of the accessories TA566 for wall mounting is essential.

65.4   Dimensions

84.2 (3.31)
76.6 (3.02)
74 (2.91)
30.5 (1.2)

59 (2.32)
135 (5.31)
34 (1.34)

19.4 (0.76)
4 (0.16)
4 (0.16)
21 (0.83)

> ℹ   *The dimensions are in mm and in brackets in inch.*

65.5   Connections
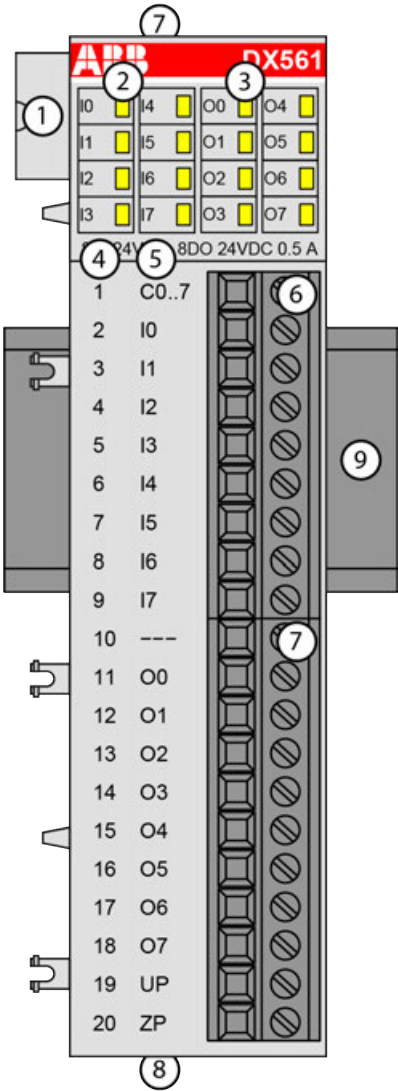
1   I/O bus
2   8 yellow LEDs to display the signal states of the inputs I0 ... I7
3   8 yellow LEDs to display the signal states of the outputs O0 ... O7
4   Terminal number
5   Allocation of signal name
6   Terminal block for input signals (9-pin)
7   Terminal block for output signals (11-pin)
8   2 holes for wall-mounting with screws
9   DIN rail

---

*All I/O channels (digital and analog) are protected against reverse polarity,
reverse supply and temporary overvoltage up to 30 VDC.*

5	TA563-9	9-pin, screw, cable from side
	TA564-9	9-pin, screw, cable from front
	TA565-9	9-pin, spring, cable from front
6	TA563-11	11-pin, screw, cable from side

	TA564-11	11-pin, screw, cable from front
	TA565-11	11-pin, spring, cable from front

65.5.1   Inputs/Outputs
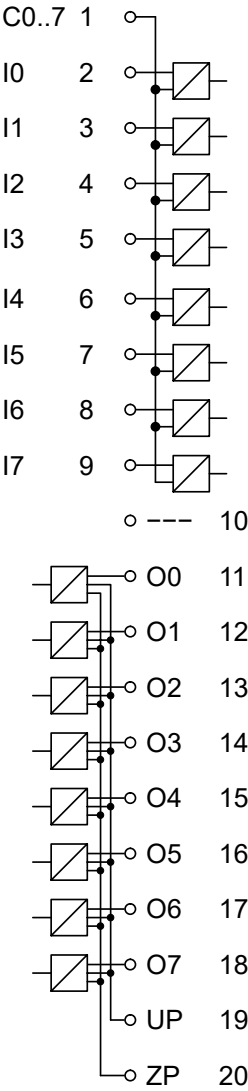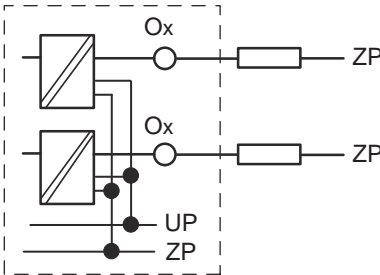
Examples

Fig. 71: Example for connection output Ox
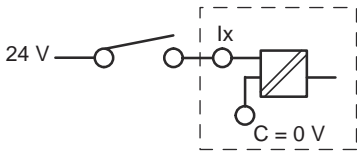
Fig. 72: DX561 used as source inputs
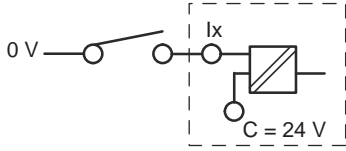
Fig. 73: DX561 used as sink inputs

65.6   Cleaning

> **Cleaning instructions**
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

65.7   Certification

en		Devices with KCC sign on product sticker and packaging
ko		제품 스티커 및 포장에 **KCC** 표시가 된 기기

MSIP-REI-Abb-AC500-eCo

en	**Note** These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

65.8   Recycling

> **Disposal and recycling information**
>
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

66 DX571

- DX571
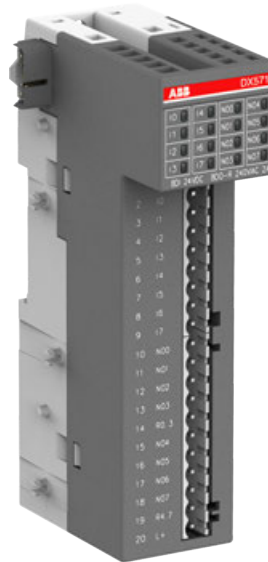
⚠	**CAUTION!** **Risk of injury and damaging the product!** Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Read product documentation carefully before wiring. Improper wiring or wrong terminal block from other devices can damage the product!
	– Only by qualified personnel.

⚠	**CAUTION!** Do not use this module together with the DC505-FBP/CI590-CS31-HA module.

⚠	**CAUTION!** Make sure that all channels are supplied from the same phase.

66.1 Assembly

66.2 Disassembly

66.3   Assembly with screws

1   Fasten the module with two screws (max. diameter 4 mm)

> ❗ **NOTICE!**
> The insertion of the accessories TA566 for wall mounting is essential.

66.4 Dimensions

84.2 (3.31)
76.6 (3.02)
74 (2.91)
30.5 (1.2)

ABB

59 (2.32)

135 (5.31)

34 (1.34)

19.4 (0.76)
4 (0.16)
4 (0.16)
21 (0.83)

> ⓘ *The dimensions are in mm and in brackets in inch.*

66.5   Connections
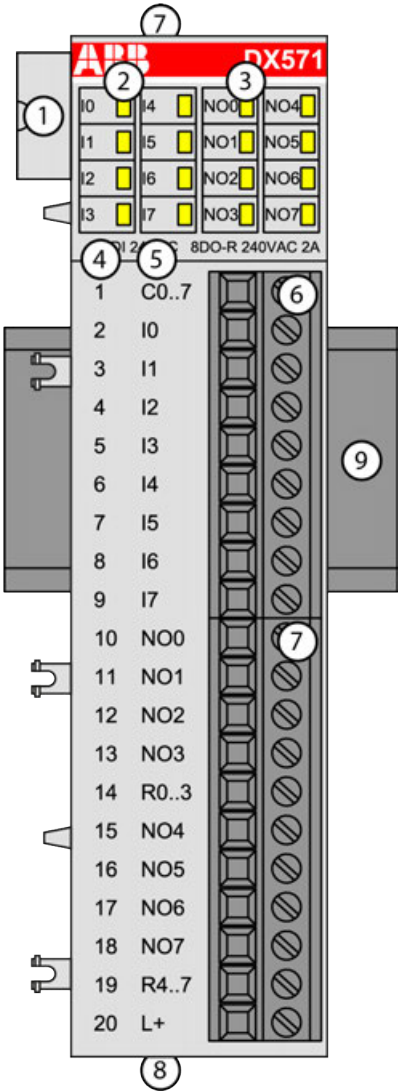
1   I/O bus
2   8 yellow LEDs to display the signal states of the inputs I0 ... I7
3   8 yellow LEDs to display the signal states of the outputs NO0 ... NO7
4   Terminal number
5   Allocation of signal name
6   Terminal block for input signals (9-pin)
7   Terminal block for output signals (11-pin)
8   2 holes for wall-mounting with screws
9   DIN rail

> *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

5	TA563-9	9-pin, screw, cable from side
	TA564-9	9-pin, screw, cable from front
	TA565-9	9-pin, spring, cable from front
6	TA563-11	11-pin, screw, cable from side

	TA564-11	11-pin, screw, cable from front
	TA565-11	11-pin, spring, cable from front

1   CPU or communication interface module
2   I/O bus
3   DO571

66.5.1 Inputs/Outputs

C0..7	1
I0	2
I1	3
I2	4
I3	5
I4	6
I5	7
I6	8
I7	9
10	NO0
11	NO1
12	NO2
13	NO3
14	R0..3
15	NO4
16	NO5
17	NO6
18	NO7
19	R4..7
20	L+
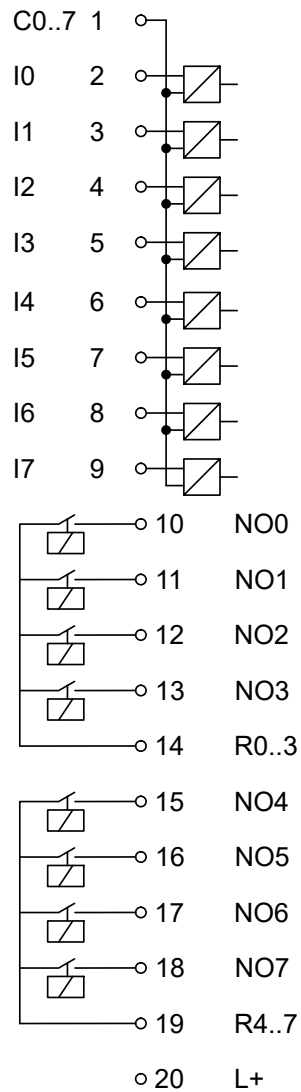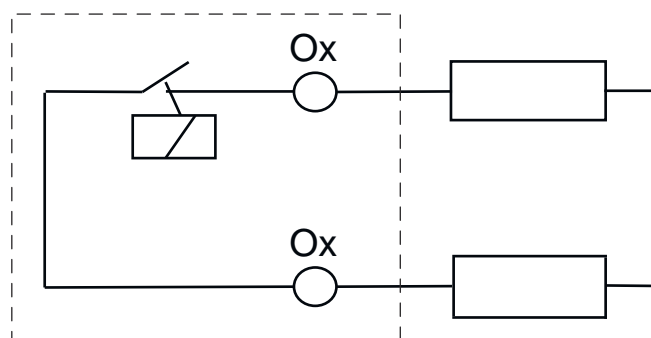
Examples

Fig. 74: Example for connection output Ox
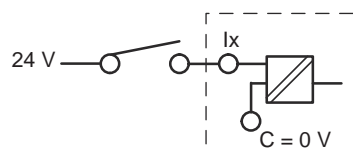
Fig. 75: DX571 used as source inputs
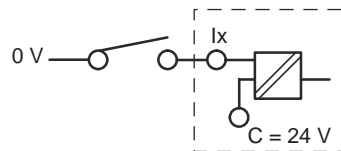
Fig. 76: DX571 used as sink inputs

66.6   Cleaning

> ⓘ **Cleaning instructions**
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

66.7   Certification

66.8   Recycling

> ⓘ **Disposal and recycling information**
>
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

67 DX581-S(-XC)

- DX581-S
- DX581-S-XC
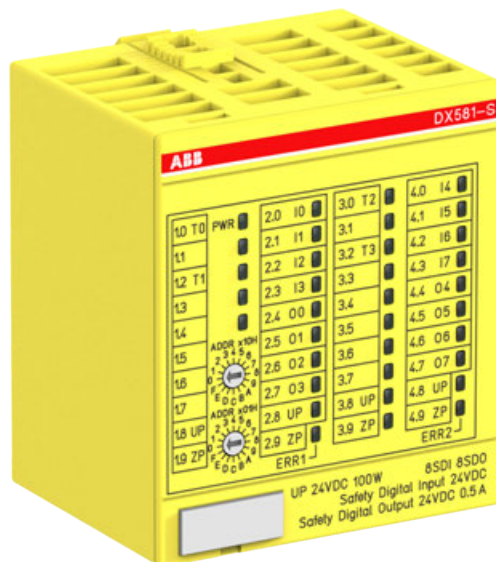
⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

67.1 Assembly
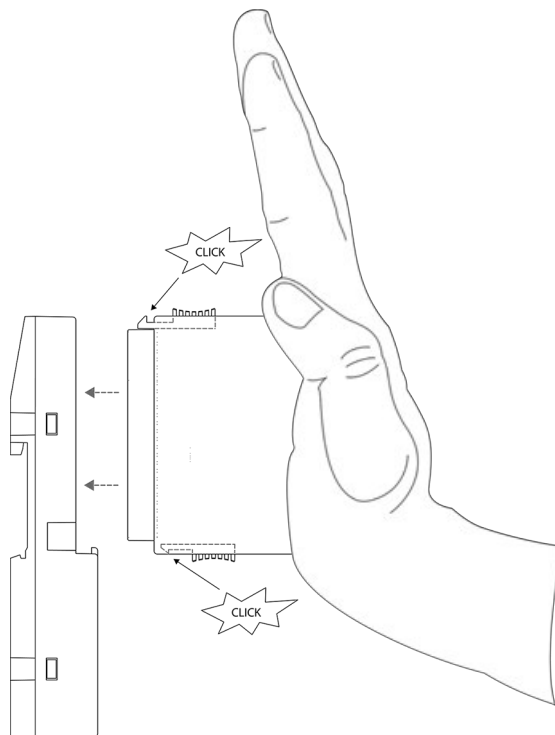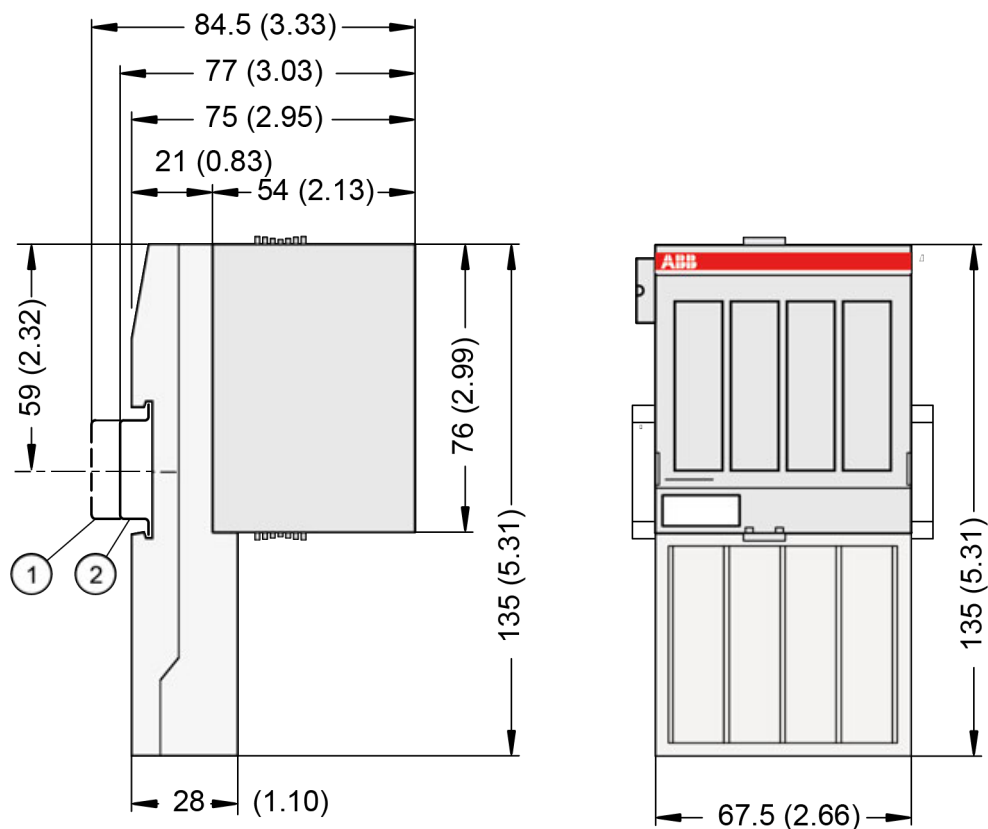
1.   Put the module on the terminal unit

     ⇨   Module clicks in.

2.   Then press the module with a force of at least 100 N into the terminal unit to achieve
     proper electrical contact.

67.2 Disassembly

67.3   Dimensions

84.5 (3.33)

77 (3.03)

75 (2.95)

21 (0.83)

54 (2.13)

59 (2.32)

76 (2.99)

135 (5.31)

135 (5.31)

28 (1.10)

67.5 (2.66)

1   Din rail 15 mm
2   Din rail 7.5 mm

ⓘ   *The dimensions are in mm and in brackets in inch.*

67.4   Connections

1   I/O bus
2   System LED
3   Allocation of terminal number and signal name
4   8 yellow/red LEDs to display the signal states of the digital inputs I0 to I7
5   4 Test pulse outputs T0 to T3
6   8 yellow/red LEDs to display the signal states of the digital outputs O0 to O7
7   2 rotary switches for setting the PROFIsafe address
8   1 green LED to display the state of the process supply voltage UP
9   2 red LEDs to display errors
10 Label
11 Terminal unit TU582-S(-XC)
❄   Sign for XC version

67.4.1 Process supply voltage
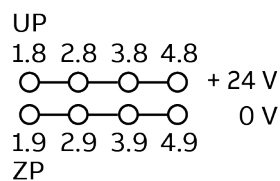
UP
1.8 2.8 3.8 4.8
○─○─○─○ + 24 V
○─○─○─○   0 V
1.9 2.9 3.9 4.9
ZP

> ⚠️ **CAUTION!**
> The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

67.4.2 Inputs/Outputs
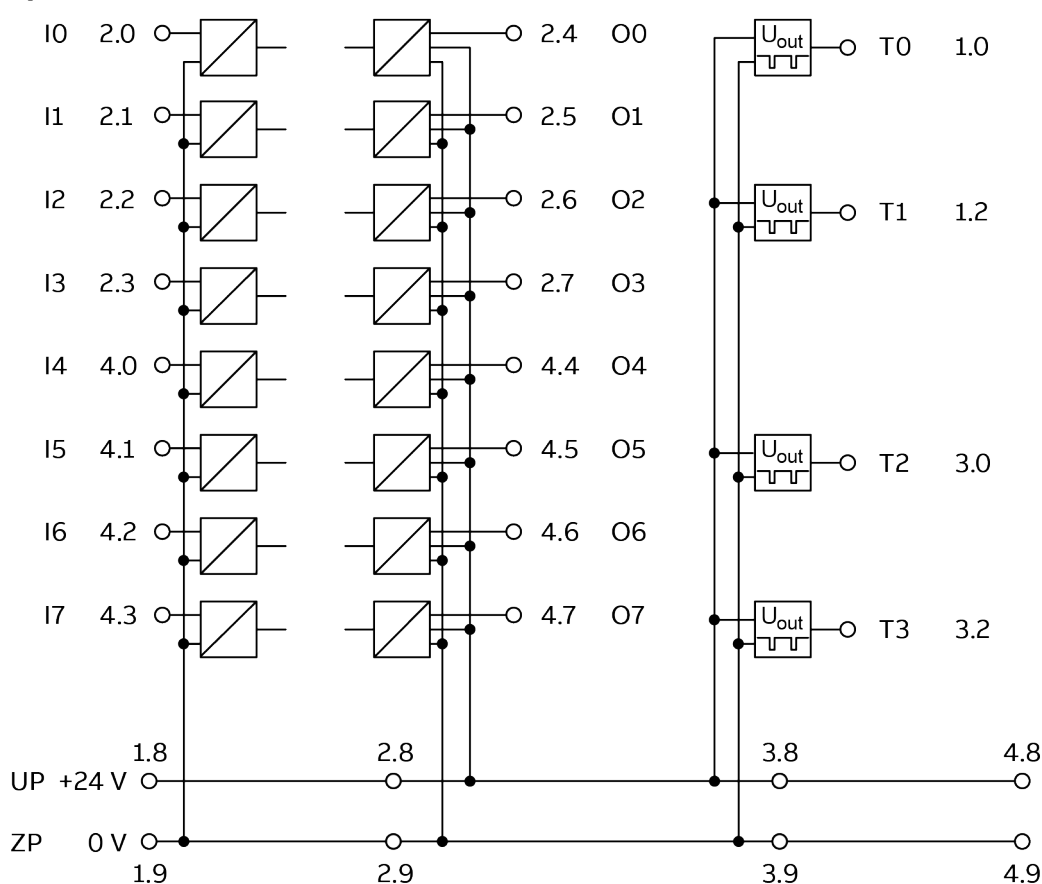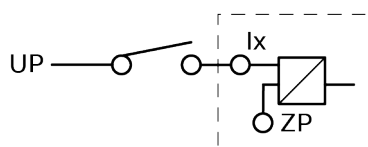
Example input

Fig. 77: Example of connection input Ix

Example output
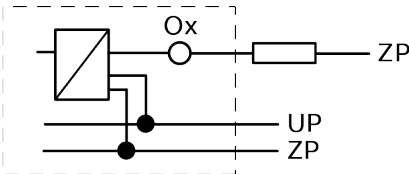
Fig. 78: Example of connection output Ox

> ⓘ **AC500-S safety user manual**
> *For a detailed description of the connection of the module, please refer to the "AC500-S safety user manual".*

67.5   Cleaning

> ⓘ **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

67.6   Certification

en	Devices with KCC sign on product sticker and packaging	
ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기	

MSIP-REI-Abb-AC500

en	**Note** These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

67.7   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

68 FM502-CMS(-XC)

- FM502-CMS
- FM502-CMS-XC

⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

68.1   Assembly

68.2   Disassembly

68.3   Dimensions

84.5 (3.33)
77 (3.03)
75 (2.95)
21 (0.83)
54 (2.13)
59 (2.32)
76 (2.99)
135 (5.31)
28 (1.10)

DIN rail 15 mm
DIN rail 7.5 mm

67.5 (2.66)
135 (5.31)
135 (5.31)

ABB
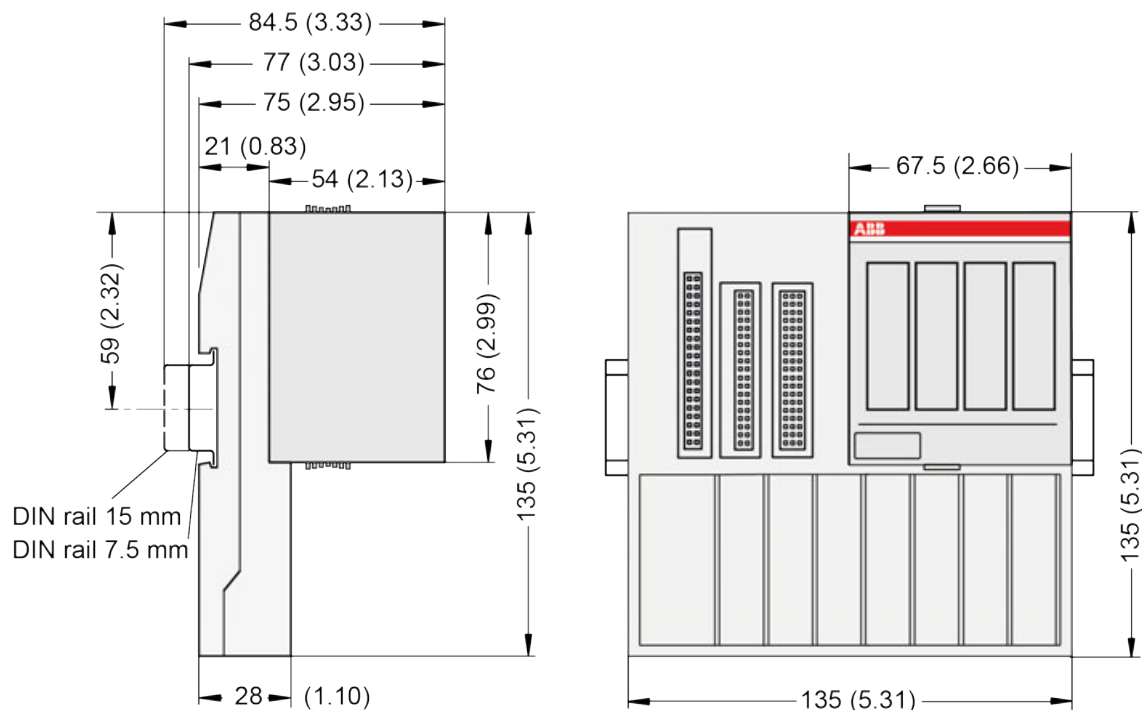
> ⓘ   *The dimensions are in mm and in brackets in inch.*

68.4 Connections
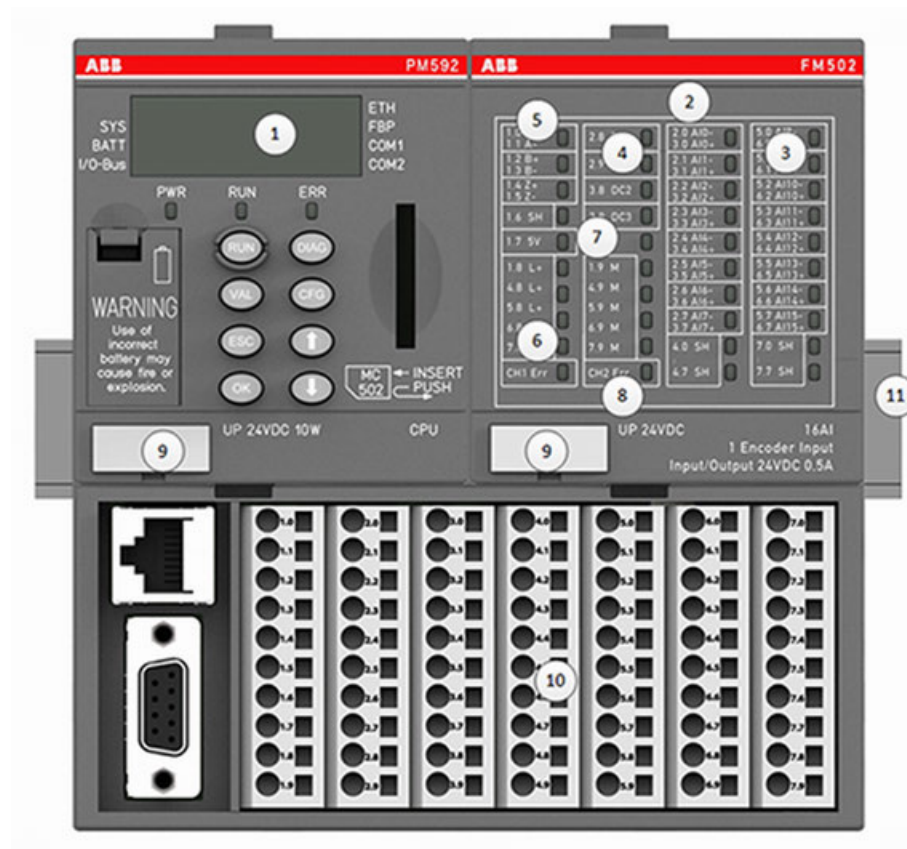
1 Processor module PM592-ETH
2 Allocation between terminal no. and signal name
3 16 green/red LEDs to display the signal states at the analog inputs A0 ... A15
4 4 yellow LEDs to display digital inputs DI0, DI1 and digital inputs/outputs DC2,DC3
5 3 yellow LEDs display encoder/counter inputs
6 1 green LED to display the state of the process supply voltage L+
7 1 green LED to display the state of 5 V supply voltage for encoder
8 2 red LEDs to display errors
9 Label
10 Function module terminal base
11 DIN rail
❄ Sign for XC version

ⓘ *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

Table 7: Function module terminal base - pin assignment

1.0 FE	2.0 AI0-	3.0 AI0+	4.0 SH	5.0 AI8-	6.0 AI8+	7.0 SH
1.1 A+	2.1 AI1-	3.1 AI1+	4.1 SH	5.1 AI9-	6.1 AI9+	7.1 SH
1.2 A-	2.2 AI2-	3.2 AI2+	4.2 SH	5.2 AI10-	6.2 AI10+	7.2 SH
1.3 B+	2.3 AI3-	3.3 AI3+	4.3 SH	5.3 AI11-	6.3 AI11+	7.3 SH
1.4 B-	2.4 AI4-	3.4 AI4+	4.4 SH	5.4 AI12-	6.4 AI12+	7.4 SH
1.5 Z+	2.5 AI5-	3.5 AI5+	4.5 SH	5.5 AI13-	6.5 AI13+	7.5 SH

1.6 Z-	2.6 AI6-	3.6 AI6+	4.6 SH	5.6 AI14-	6.6 AI14+	7.6 SH
1.7 5V	2.7 AI7-	3.7 AI7+	4.7 SH	5.7 AI15-	6.7 AI15+	7.7 SH
1.8 L+	2.8 DI0	3.8 DC2	4.8 L+	5.8 L+	6.8 L+	7.8 L+
1.9 M	2.9 DI1	3.9 DC3	4.9 M	5.9 M	6.9 M	7.9 M

68.4.1 Process supply voltage
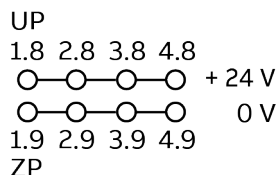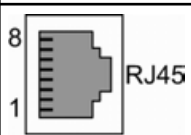
UP
1.8 2.8 3.8 4.8
○──○──○──○ + 24 V
○──○──○──○   0 V
1.9 2.9 3.9 4.9
ZP

> ⚠ **CAUTION!**
>
> The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

68.4.2 Ethernet network interface

Pin assignment

PIN	Signal	Description
1	TxD+	Transmit data +
2	TxD-	Transmit data -
3	RxD+	Receive data +
4	NC	Not connected
5	NC	Not connected
6	RxD-	Receive data -
7	NC	Not connected
8	NC	Not connected
Shield	Cable shield	Functional earth

RJ45 (8, 1)
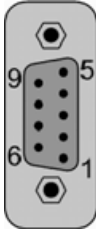
> ❗ **NOTICE!**
> **Risk of corrosion!**
> Unused connectors and slots may corrode if XC devices are used in salt-mist environments.
>
> Protect unused connectors and slots with TA535 protective caps for XC devices.

68.4.3   Serial interface COM

Pin assignment

Serial Interface	Pin	Signal	Interface	Description	
	1	FE	-	Functional earth	
	2	TxD	RS-232	Transmit data	Output
	3	RxD/TxD-P	RS-485	Receive/Transmit	Positive
	4	RTS	RS-232	Request to send	Output
	5	SGND	Signal ground	0 V supply out	
	6	+5 V	-	5 V supply out	
	7	RxD	RS-232	Receive data	Input
	8	RxD/TxD-N	RS-485	Receive/Transmit	Negative
	9	CTS	RS-232	Clear to send	Input
	Shield	FE	-	Functional earth	

> **!**
> **NOTICE!**
> **Risk of corrosion!**
> Unused connectors and slots may corrode if XC devices are used in salt-mist environments.
>
> Protect unused connectors and slots with TA535 protective caps for XC devices.

68.4.4   Inputs/Outputs

16 analog inputs for
IEPE
-10 V ... +10 V

| AI0+ | 3.0 | | | | | 3.4 | AI4+ | AI8+ | 6.0 | | | | | 6.4 | AI12+ |
| AI0- | 2.0 | | | | | 2.4 | AI4- | AI8- | 5.0 | | | | | 5.4 | AI12- |

ϑ PTC   PTC ϑ   ϑ PTC   PTC ϑ

| AI1+ | 3.1 | | | | | 3.5 | AI5+ | AI9+ | 6.1 | | | | | 6.5 | AI13+ |
| AI1- | 2.1 | | | | | 2.5 | AI5- | AI9- | 5.1 | | | | | 5.5 | AI13- |

ϑ PTC   PTC ϑ   ϑ PTC   PTC ϑ

| AI2+ | 3.2 | | | | | 3.6 | AI6+ | AI10+ | 6.2 | | | | | 6.6 | AI14+ |
| AI2- | 2.2 | | | | | 2.6 | AI6- | AI11- | 5.2 | | | | | 5.6 | AI14- |

ϑ PTC   PTC ϑ   ϑ PTC   PTC ϑ

| AI3+ | 3.3 | | | | | 3.7 | A7+ | AI11+ | 6.3 | | | | | 6.7 | AI15+ |
| AI3- | 2.3 | | | | | 2.7 | AI7- | AI11- | 5.3 | | | | | 5.7 | AI15- |

ϑ PTC   PTC ϑ   ϑ PTC   PTC ϑ

GND   GND

| 1.8 | | 4.8 | | 5.8 | | 6.8 | | 7.8 | L+ +24 V |
| 1.9 | | 4.9 | | 5.9 | | 6.9 | | 7.9 | M 0 V |
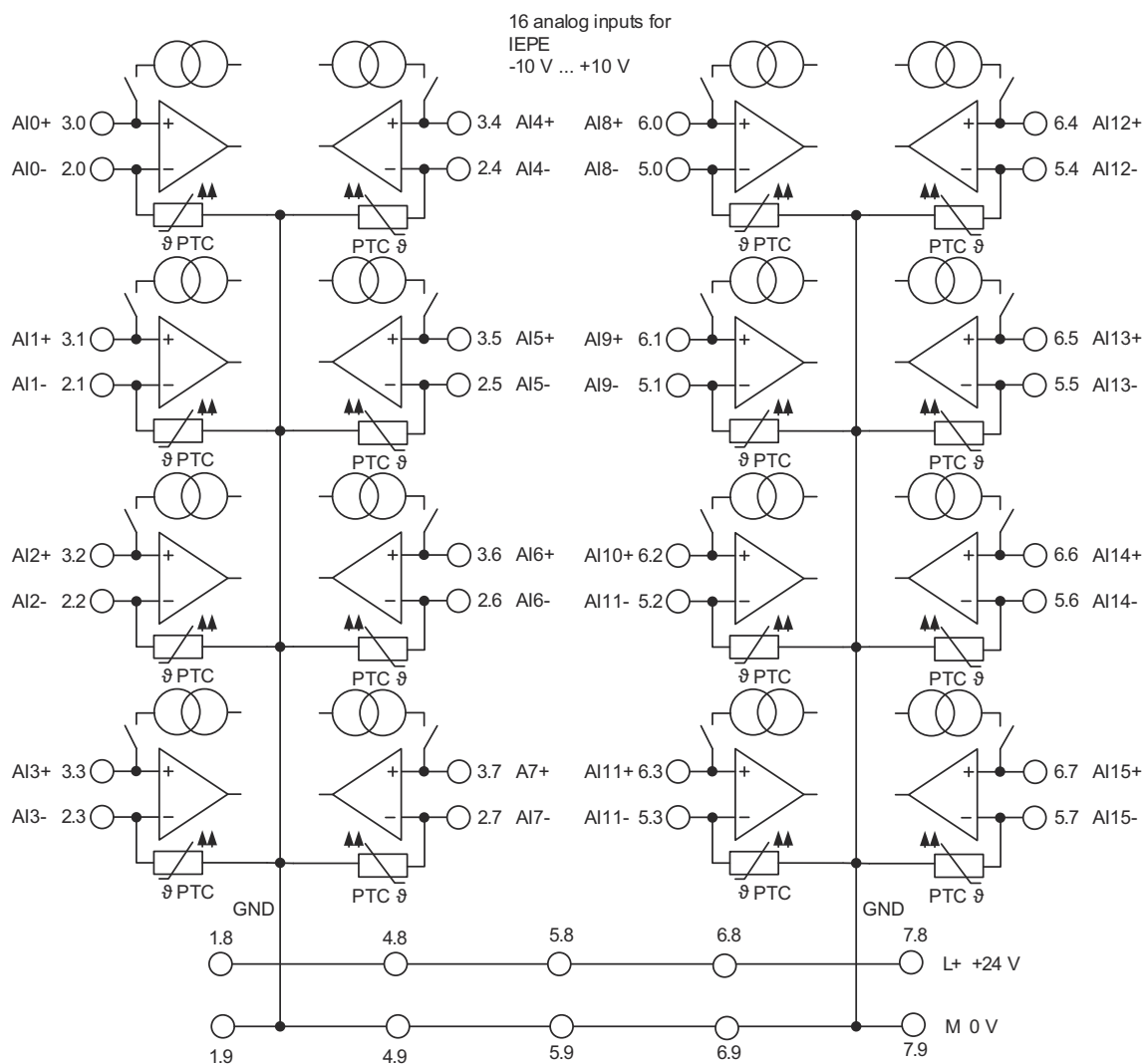
5V

◯— 1.7 5 V DC

◯—◯—◯—◯—◯
1.9   4.9   5.9   6.9   7.9
M 0 V DC

Inputs

1.1 A+ ◯
2.8 I0 ◯

1.3 B+ ◯
2.9 I1 ◯

1.5 Z+ ◯

M 0 V DC

In-/Outputs

◯ 3.8 C2

◯ 3.9 C3

L+ 24 V DC
M 0 V DC
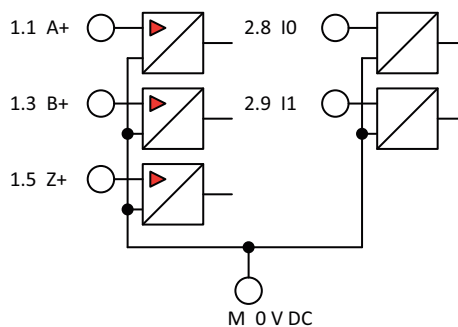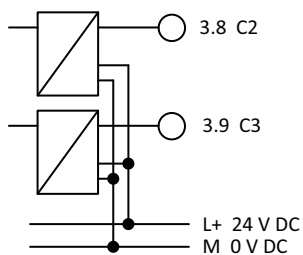
68.5   Cleaning

> **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

68.6   Certification

	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

MSIP-REI-Abb-AC500

en	**Note** These devices correspond to:
ko	참고 이러한 기기는

KN61000-6-2 "Immunity for industrial environments",
KN61000-6-4 "Emission standard for industrial environments"

KN61000-6-2 "산업 환경에 대한 내성",
KN61000-6-4 "산업 환경 누출 기준"에 적합함

68.7   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

69 FM562

- FM562
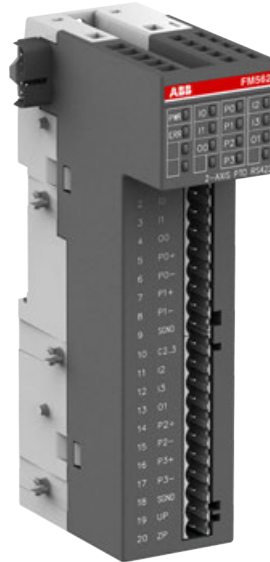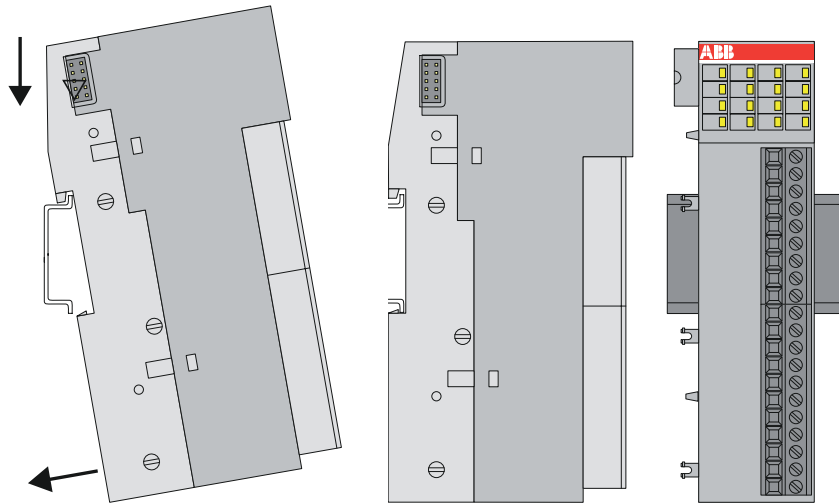
> ⚠️ **CAUTION!**
> **Risk of injury and damaging the product!**
>
> Improper installation and maintenance may result in injury and can damage the product!
>
> – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
> – Read product documentation carefully before wiring. Improper wiring or wrong terminal block from other devices can damage the product!
> – Only by qualified personnel.

> ⚠️ **CAUTION!**
>
> This module must not be used together with the DC505-FBP/DC551- CS31/CI51X/CI59X module.

69.1   Assembly

69.2   Disassembly

69.3   Assembly with screws

1   Fasten the module with two screws (max. diameter 4 mm)

> **NOTICE!**
> The insertion of the accessories TA566 for wall mounting is essential.

69.4   Dimensions

84.2 (3.31)
76.6 (3.02)
74 (2.91)
30.5 (1.2)

ABB

59 (2.32)

135 (5.31)

34 (1.34)

19.4 (0.76)

4 (0.16)

4 (0.16)

21 (0.83)

The dimensions are in mm and in brackets in inch.

69.5 Connections
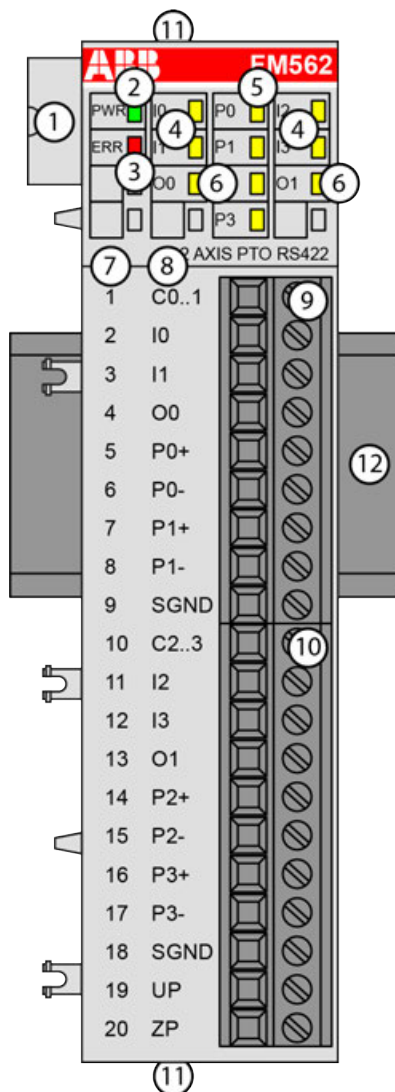
1 I/O bus
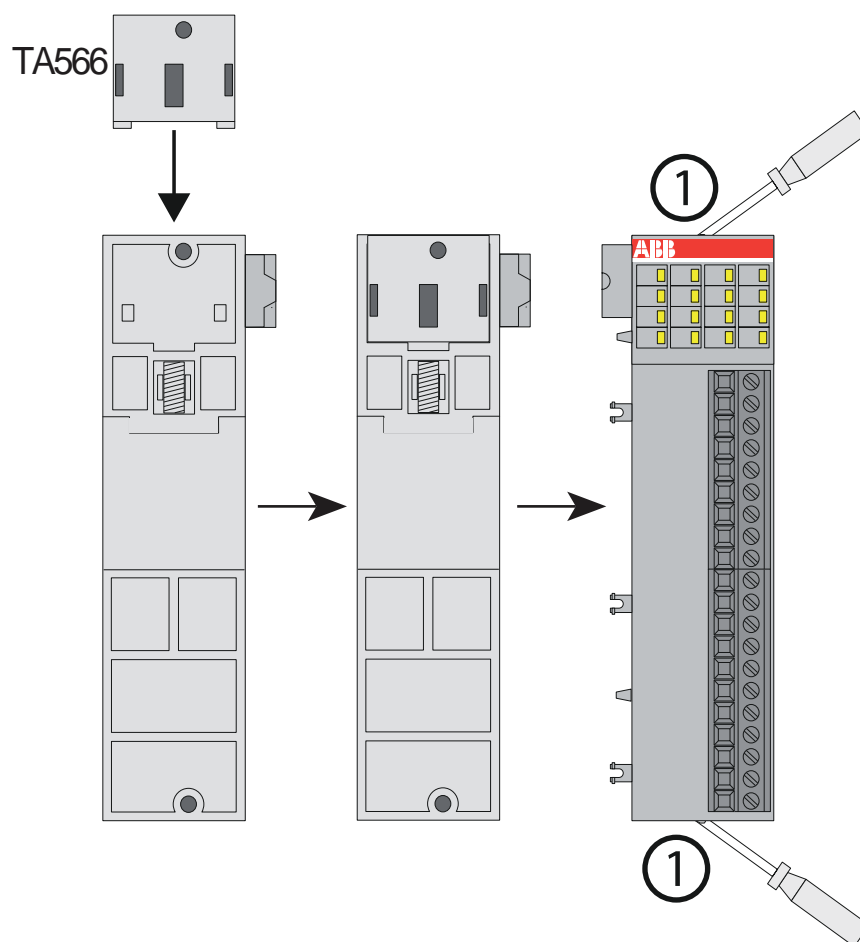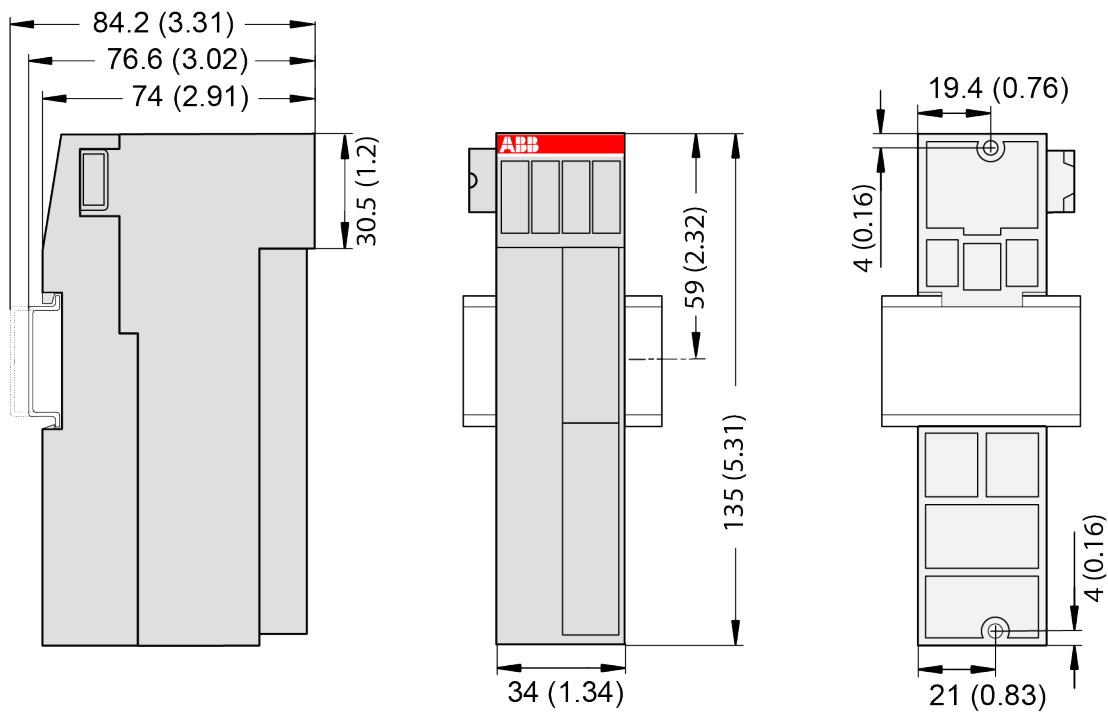2 1 green LED to display power supply
3 1 red LED to display error
4 4 yellow LEDs to display the signal states of the inputs I0 to I3
5 4 yellow LEDs to display the signal states of the pulse train outputs P0 ... P3
6 2 yellow LEDs to display the signal states of O0 ... O1 (reserved)
7 Terminal number
8 Allocation of signal name
9 Terminal block for axis signals (9-pin)
10 Terminal block for axis signals and process supply voltage (11-pin)
11 2 holes for wall-mounting with screws
12 DIN rail

5	TA563-9	9-pin, screw, cable from side
	TA564-9	9-pin, screw, cable from front
	TA565-9	9-pin, spring, cable from front
6	TA563-11	11-pin, screw, cable from side
	TA564-11	11-pin, screw, cable from front
	TA565-11	11-pin, spring, cable from front

69.5.1 Inputs/Outputs

```
C0..1    1  o──┐
I0       2  o──┤ ▱
I1       3  o──┤ ▱
O0       4  ---
P0+      5  o──┐ ▷
P0-      6  o──┤
P1+      7  o──┐ ▷
P1-      8  o──┤
SGND     9  o──┤
C2..3    10 o──┐
I2       11 o──┤ ▱
I3       12 o──┤ ▱
O1       13 ---
P2+      14 o──┐ ◁
P2-      15 o──┤
P3+      16 o──┐ ◁
P3-      17 o──┤
SGND     18 o──┤
UP       19 o────
ZP       20 o────
```
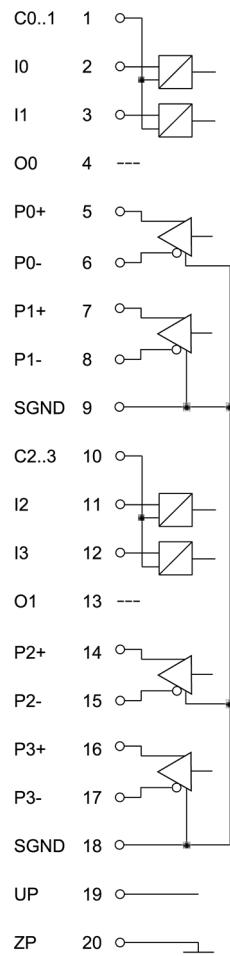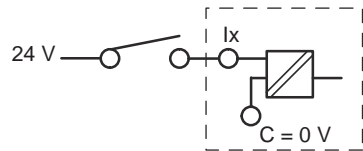
Examples

Fig. 79: FM562 used as source input
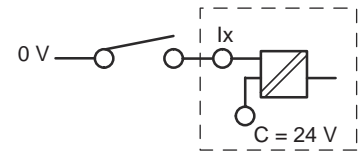
Fig. 80: FM562 used as sink input

```
P0/2+   5/14  o──┐ ◁
P0/2-   6/15  o──┤
P1/3+   7/16  o──┐ ◁
P1/3-   8/17  o──┤
SGND    9/18  o──┤
```
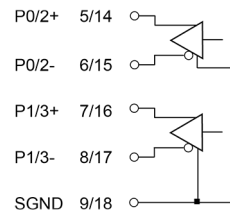
Fig. 81: Example for RS-422 differential output Px

69.6   Cleaning

> *Cleaning instructions*
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

69.7   Certification

MSIP-REI-Abb-AC500

en		Devices with KCC sign on product sticker and packaging
ko		제품 스티커 및 포장에 **KCC** 표시가 된 기기

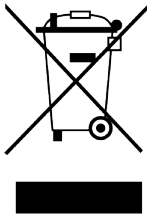| en	Note	
	These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

69.8   Recycling

> *Disposal and recycling information*
>
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

70 MC5xx(x) - Memory card

- MC502 memory card
- MC5141 memory card
- MC5102 micro memory card with TA5350-AD micro memory card adapter
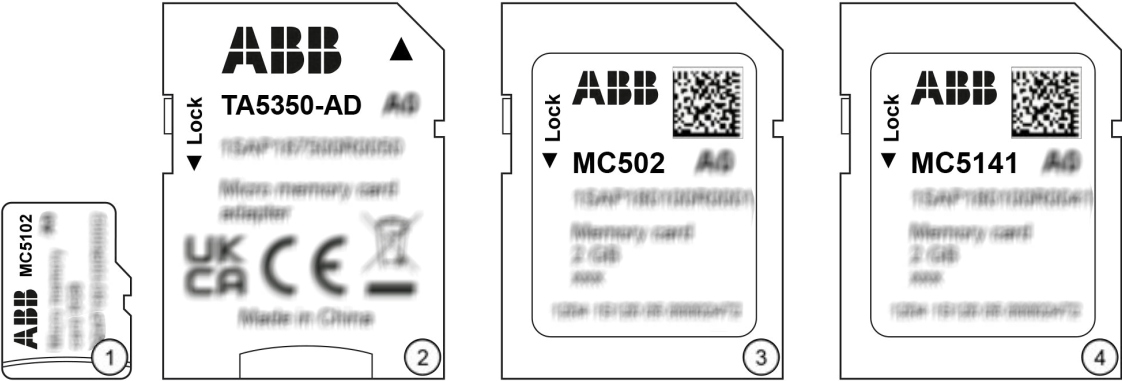
1 MC5102 micro memory card
2 TA5350-AD micro memory card adapter
3 MC502 memory card
4 MC5141 memory card

The use of other memory cards than MC502, MC5141 and MC5102 is prohibited.

ABB is not responsible nor liable for consequences resulting from use of unapproved memory cards.

Memory card type	AC500 V2	AC500-XC V2	AC500 V3	AC500-XC V3	AC500-eCo V3
MC5141	x	x	x	x	-
MC5102 **with** TA5350-AD micro memory card adapter	x [1]	x [1] [2]	x	x [2]	-
MC5102 **without** TA5350-AD micro memory card adapter	-	-	-	-	x

[1] As of firmware 2.5.x

[2] Temporary use of MC5102 is possible under normal environmental conditions, but MC5141 should be preferred.

⚠ **CAUTION!**

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
– Only by qualified personnel.

70.1 Assembly

▷   Insert the memory card into the memory card slot of the processor module until locked.

AC500 V2 and
AC500 V3
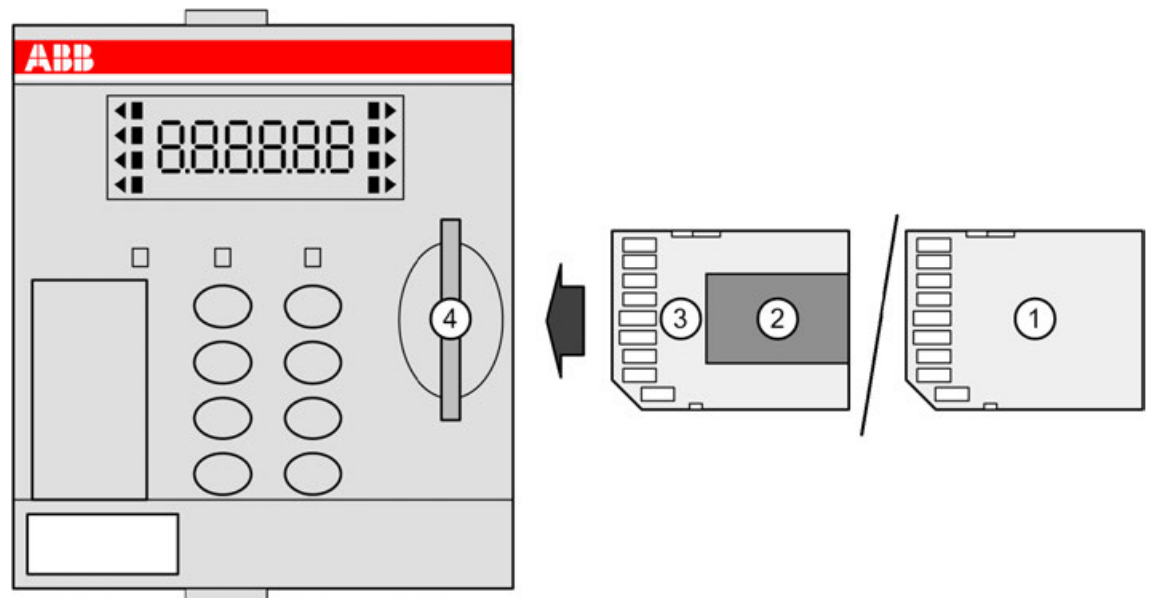
1   MC502 or MC5141 memory card
2   MC5102 micro memory card
3   TA5350-AD micro memory card adapter
4   Memory card slot
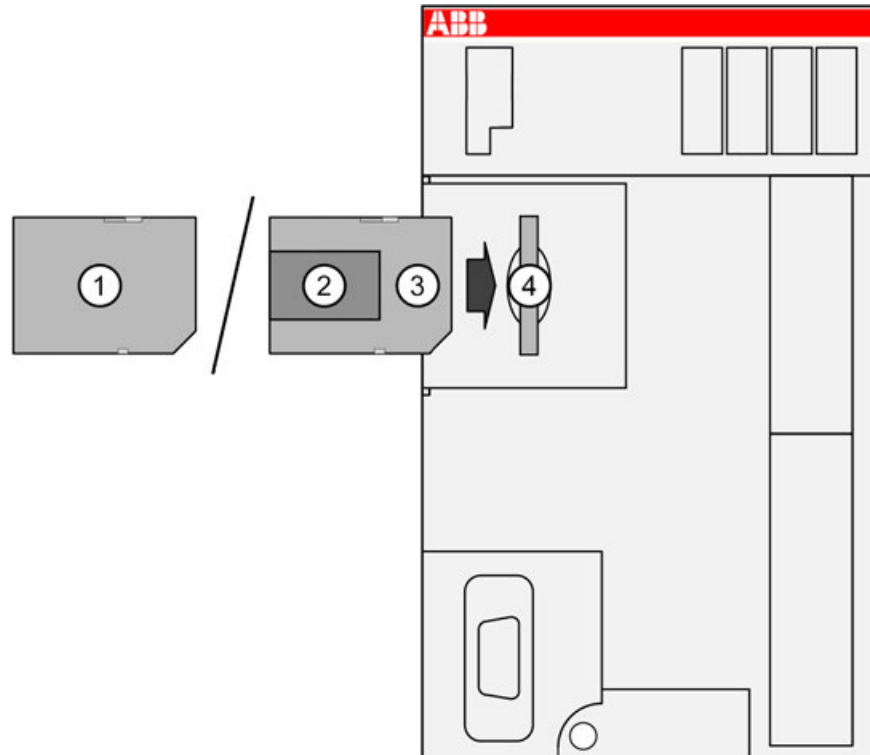
AC500-eCo V2

1   MC502 or MC5141 memory card
2   MC5102 micro memory card
3   TA5350-AD micro memory card adapter
4   MC503 memory card adapter

AC500-eCo V3
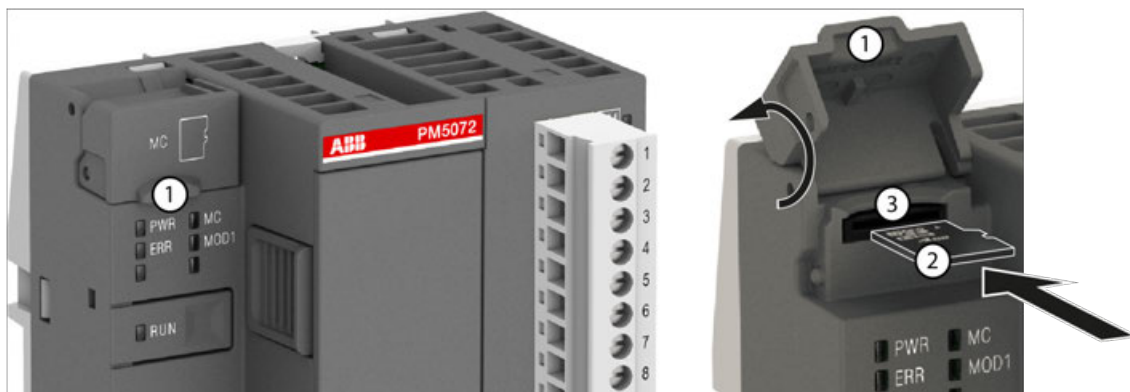
1   Micro memory card slot cover
2   Micro memory card
3   Micro memory card slot

1.   Open the micro memory card slot cover by turning it upwards.

2.   Carefully insert the micro memory card into the micro memory card slot as far as it will go. Observe orientation of card.

3.   Close the micro memory card slot cover by turning it downwards.

70.2   Disassembly

> **!**
>
> **NOTICE!**
>
> **Removal of the memory card**
>
> Do not remove the memory card during access.
>
> Otherwise the memory card and/or files on it might get corrupted and/or normal PLC operation might be disturbed.

▷   To remove the memory card, push on the memory card until it moves forward. By this, the memory card is unlocked and can be removed.

**AC500 V2 and
AC500 V3**
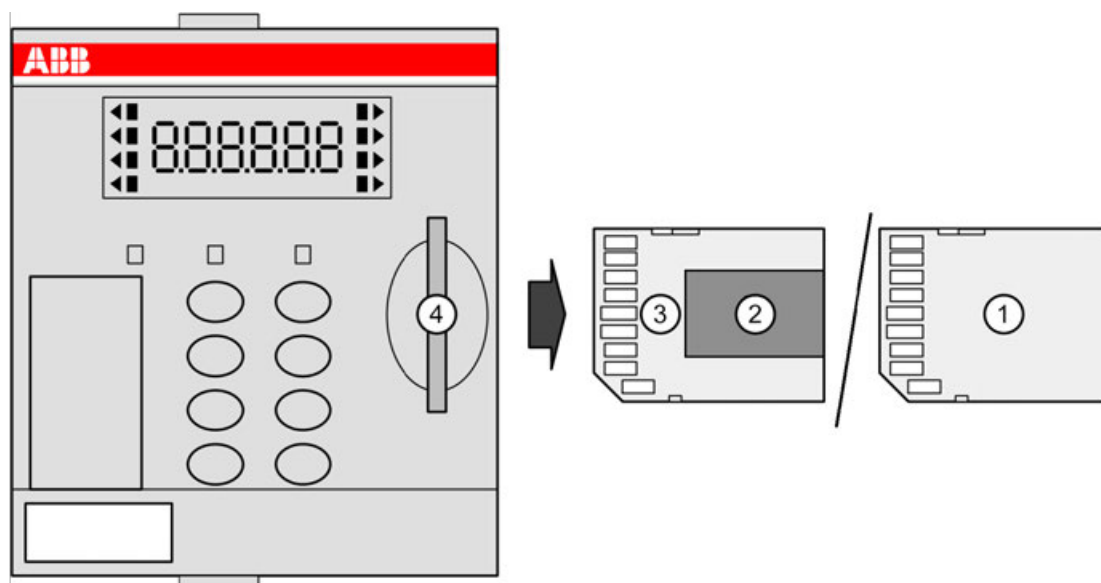
1 MC502 or MC5141 memory card
2 MC5102 micro memory card
3 TA5350-AD micro memory card adapter
4 Memory card slot
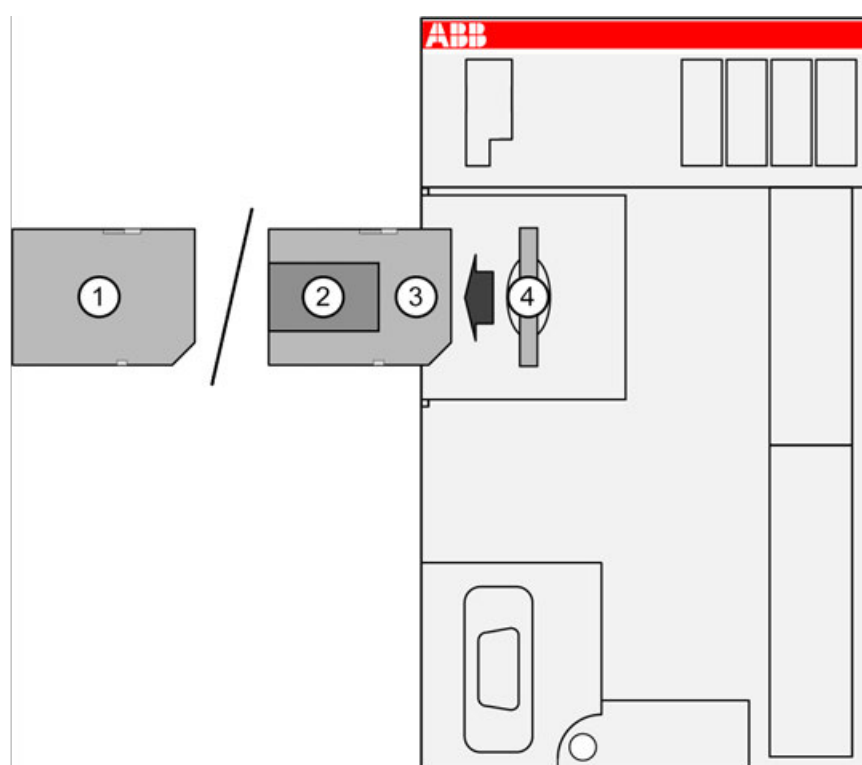
AC500-eCo V2

1 MC502 or MC5141 memory card
2 MC5102 micro memory card
3 TA5350-AD micro memory card adapter
4 MC503 memory card adapter

AC500-eCo V3

> **!**
>
> **NOTICE!**
>
> **Disturbed PLC operation**
>
> Do not remove the memory card when it is working!
>
> Otherwise the memory card and/or files on it might get corrupted and/or normal PLC operation might be disturbed.
>
> – Remove the memory card only when no black square (■) is shown next to MC in the display.
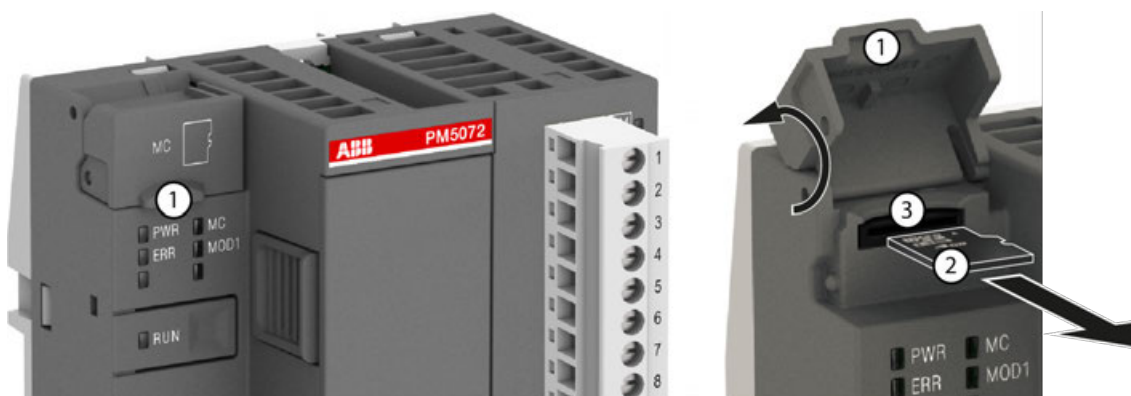
1 Micro memory card slot cover
2 Micro memory card
3 Micro memory card slot

1. Open the micro memory card slot cover by turning it upwards.

2. Micro memory card can be removed from the micro memory card slot by gripping and pulling with two fingers.

3. Close the micro memory card slot cover by turning it downwards.

70.3 Dimensions

Micro memory card
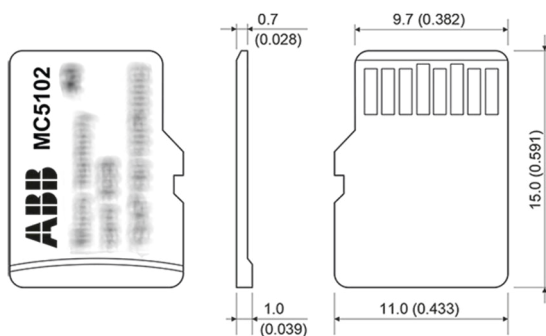
> **ⓘ** *The dimensions are in mm and in brackets in inch.*

**Memory card /
Micro memory
card adapter**
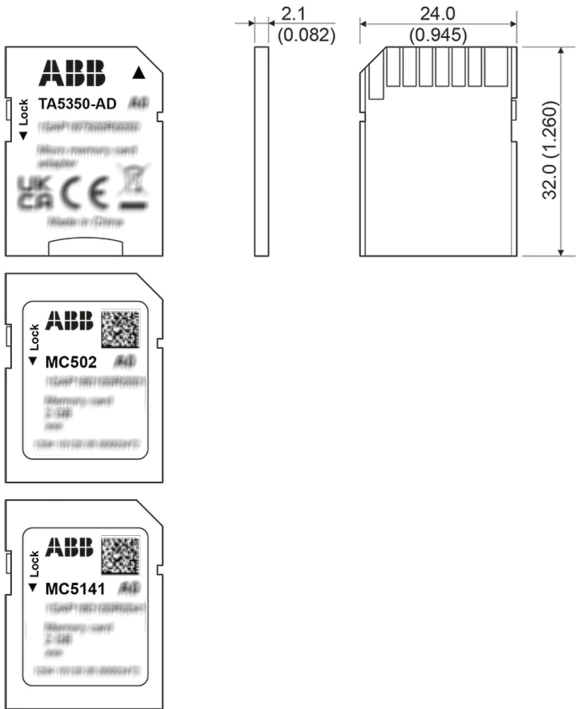
> ⓘ *The dimensions are in mm and in brackets in inch.*

70.4   Cleaning

> ⓘ ***Cleaning instructions***
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

70.5   Certification

| | en | Devices with KCC sign on product sticker and packaging |
| | ko | 제품 스티커 및 포장에 **KCC** 표시가 된 기기 |

MSIP-REI-Abb-AC500

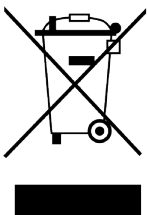| en | **Note** | |
| | These devices correspond to: | KN61000-6-2 "Immunity for industrial environments",
KN61000-6-4 "Emission standard for industrial environments" |
| ko | 참고 | |
| | 이러한 기기는 | KN61000-6-2 "산업 환경에 대한 내성",
KN61000-6-4 "산업 환경 누출 기준"에 적합함 |

70.6   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

— 71 PM5012-x-ETH

- PM5012-T-ETH
- PM5012-R-ETH

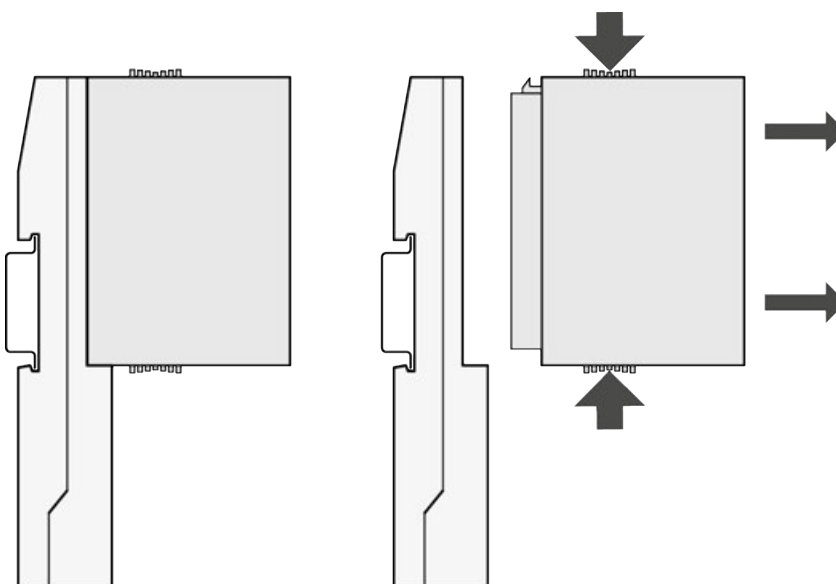| ⚠	**CAUTION!** **Risk of injury and damaging the product!** Improper installation and maintenance may result in injury and can damage the product! – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1. – Read product documentation carefully before wiring. Improper wiring or wrong terminal block from other devices can damage the product! – Only by qualified personnel.

⚠	**CAUTION!** **Risk of injury and damaging the module when using unapproved terminal blocks!** Only use terminal blocks approved by ABB to avoid injury and damage to the module.

> **Terminal block set for PM50x2**
>
> *Processor modules PM50x2 CPU are not delivered with terminal blocks.*
>
> *Screw terminal block set:*
>
> – *TA5211-TSCL-B (1SAP187400R0001) for PM5012-x-ETH*
> – *TA5212-TSCL (1SAP187400R0004) for PM5032-x-ETH, PM5052-x-ETH, PM5072-T-2ETH(W), PM5082-T-2ETH*
>
> *Spring terminal block set:*
>
> – *TA5211-TSPF-B (1SAP187400R0002) for PM5012-x-ETH*
> – *TA5212-TSPF (1SAP187400R0005) for PM5032-x-ETH, PM5052-x-ETH, PM5072-T-2ETH(W), PM5082-T-2ETH*

71.1 Assembly

71.1.1   Assembly TA5301-CFA
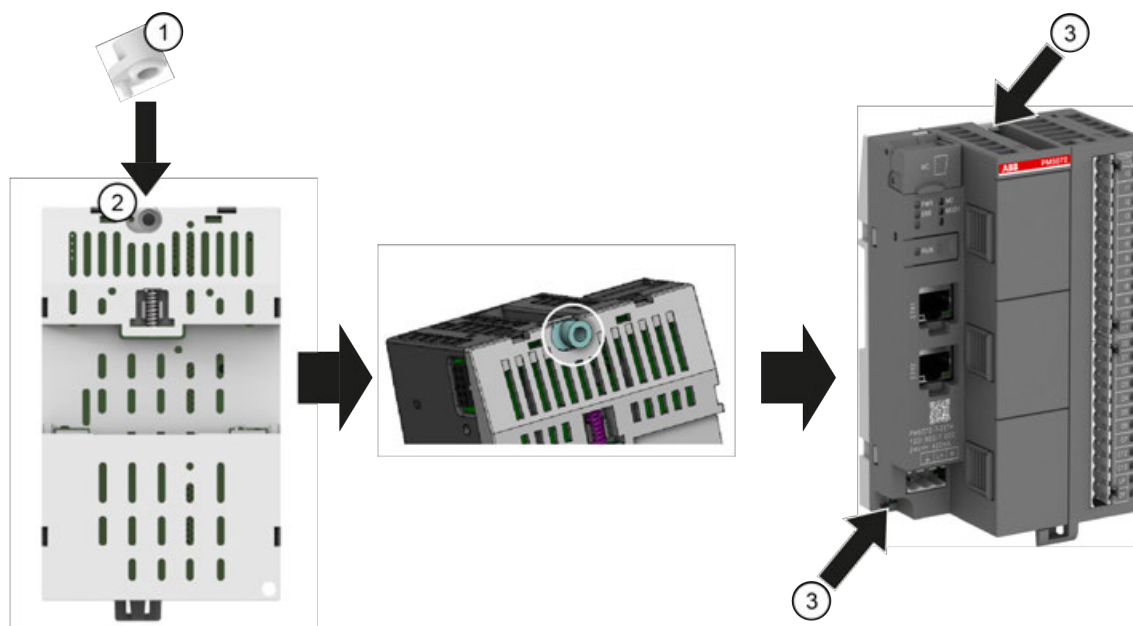
1   TA5301-CFA cable fixing accessory
2   2 openings on the PM50x2 processor module

▷   Insert the TA5301-CFA cable fixing accessory into the two openings on the PM50x2
      processor module marked white in the figure.

71.2   Disassembly

71.3 Assembly with screws

1   TA543 screw mounting accessory
2   Slot for TA543 screw mounting accessory
3   2 holes for screw mounting

1.   Insert the TA543 screw mounting accessory into the slot on the back side of the processor module.

⇨   **!**
       NOTICE!
       Use screw mounting accessory to avoid damage!
       For screw mounting, the use of the TA543 screw mounting accessory (1SAP182800R0001) is mandatory to prevent bending and damage to the module.

2.   Fasten the processor module with 2 screws (M4, max 1.2 Nm) from the front side.

⇨   *With screw mounting, the processor module is grounded through the screws.*

       It is necessary that

       – *the screws have a conductive surface (e.g. steel zinc-plated or brass nickel-plated)*
       – *the mounting plate is grounded*
       – *the screws have a good electrical contact to the mounting plate*

       To prevent the screw from loosening after prolonged use, a thread lock washer is highly recommended.

71.4   Dimensions
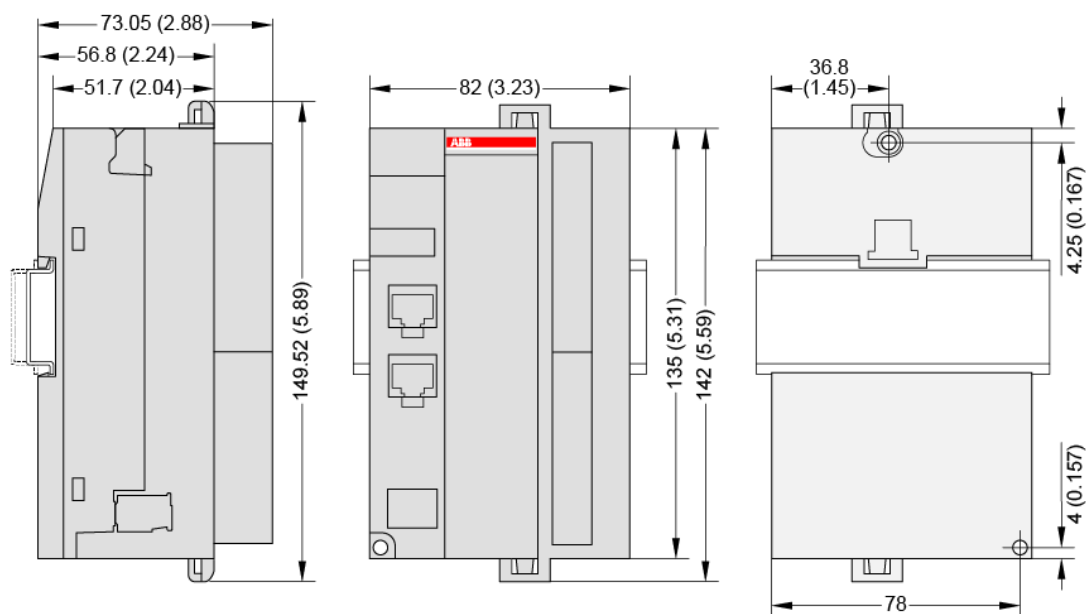
> The dimensions are in mm and in brackets in inch.

71.5   Connections

Fig. 82: Example: PM5072-T-2ETH

1   Micro memory card slot
2   5 LEDs to display the states of the processor module (Power, Error, Run, MC, MOD1)
3   RUN button
4   RJ45 female connector for Ethernet1 connection
5   RJ45 female connector for Ethernet2 connection (available for PM50x2-T-2ETH)
6   3-pin terminal block for power supply 24 V DC
7   2 holes for screw mounting
8   Option board slot cover for option board slot (the number of available slots varies according
     to the CPU type)
9   Cable fixing
10   13-pin terminal block for onboard I/Os
11   12-pin terminal block for onboard I/Os (not available on PM5012-x-ETH)
12   12 LEDs to display the states of the signals
13   10 LEDs to display the states of the signals
14   Cable fixing accessory TA5301-CFA on the top of the housing (optional)

The processor module is shown with pluggable terminal blocks. These terminal blocks must be ordered separately.

The cable fixing accessory on the top of the housing is optional.

Please use TA5301-CFA cable fixing accessory to provide strain relief.

It can also be used for AC500-eCo I/O modules.

> ℹ️ *The PM50x2 processor modules are supplied with option board slot covers as standard.*
>
> *There are various TA51xx option boards for the processor modules that can be ordered separately.*
>
> *Which and how many option boards can be plugged, depends on the respective processor module.*

71.5.1 Power supply

The processor modules PM50x2 can be connected to the 24 V DC supply voltage via a removable 3-pin spring terminal block or a 3-pin screw terminal block.

Table 8: Removable terminal block for the supply voltage 24 V DC

3-pin spring terminal block	3-pin screw terminal block

The terminal block is available as a set for AC500-eCo V3 processor modules.

Basic CPU (PM5012)		Standard CPUs (PM5032, PM5052) and Pro CPUs (PM5072, PM5082)	
Spring type	**Screw type**	**Spring type**	**Screw type**
TA5211-TSPF-B	TA5211-TSCL-B	TA5212-TSPF	TA5212-TSCL

Pin assignment

Pin Assignment	Pin	Label	Function	Description
Terminal block inserted	1	⏚	FE	Functional earth
	2	L+	+24 V DC	Positive pin of the power supply voltage
	3	M	0 V	Negative pin of the power supply voltage

> **!** **NOTICE!**
> **Risk of damaging the PLC due to improper voltage levels!**
>
> – Never exceed the maximum tolerance values for process and supply voltages.
> – Never fall below the minimum tolerance values for process and supply voltages.
>   Observe the **system data** and the **technical data** of the used module.

71.5.2 Ethernet network interface(s)

The Ethernet interface is carried out via a RJ45 jack.

Table 9: Pin assignment of the Ethernet interface

Interface	Pin	Description	
1 8	1	Tx+	Transmit data +
	2	Tx-	Transmit data -
	3	Rx+	Receive data +
	4	NC	Not connected
	5	NC	Not connected
	6	Rx-	Receive data -
	7	NC	Not connected
	8	NC	Not connected
	Shield	Cable shield	Functional earth

71.5.3 Onboard I/Os

71.5.3.1 Connections

71.5.3.1.1 General

> ⚠ **WARNING!**
> **Risk of death by electric shock!**
> Hazardous voltages can be present at the terminals of the module.
>
> Make sure that all voltage sources (supply voltage and process supply voltage) are switched off before you begin with operations on the system.

> **!** **NOTICE!**
> **Risk of damaging the PLC modules!**
> The PLC modules must not be removed while the plant is connected to a power supply.
>
> Make sure that all voltage sources (supply and process voltage) are switched off before you
>
> – connect or disconnect any signal or terminal block
> – remove or replace a module.

> **NOTICE!**
> **Risk of damaging the PLC modules!**
> Overvoltages and short circuits might damage the PLC modules.
> – Make sure that all voltage sources (supply voltage and process supply voltage) are switched off before you begin with operations on the system.
> – Never connect any voltages or signals to reserved terminals (marked with ---). Reserved terminals may carry internal voltages.

> *When replacing a processor module, it is recommended to mark each wire connected to the onboard I/O terminal block before disconnecting it. This should make sure that the wires can be reconnected in the same order.*

The connection is carried out by using removable 12-pin and 13-pin terminal blocks.

Table 10: Assignment of the terminals for PM5012-T-ETH:

Terminal	Signal	Description
1	COM 0..5	Input common for digital input signals I0 to I5
2	I0	Digital input signal I0 (5 kHz)
3	I1	Digital input signal I1 (5 kHz)
4	I2	Digital input signal I2 (5 kHz)
5	I3	Digital input signal I3 (5 kHz)
6	I4	Digital input signal I4 (5 kHz)
7	I5	Digital input signal I5 (5 kHz)
8	O0	Digital output signal O0 (5 kHz)
9	O1	Digital output signal O1 (5 kHz)
10	O2	Digital output signal O2 (5 kHz)
11	O3	Digital output signal O3 (5 kHz)
12	UP	Process supply voltage UP +24 V DC
13	ZP	Process supply voltage ZP 0 V DC

Table 11: Assignment of the terminals for PM5012-R-ETH:

Terminal	Signal	Description
1	COM 0..5	Input common for digital input signals I0 to I5
2	I0	Digital input signal I0 (5 kHz)
3	I1	Digital input signal I1 (5 kHz)
4	I2	Digital input signal I2 (5 kHz)
5	I3	Digital input signal I3 (5 kHz)
6	I4	Digital input signal I4 (5 kHz)
7	I5	Digital input signal I5 (5 kHz)
8	NO0	Normally-open relay contact of the output NO0
9	NO1	Normally-open relay contact of the output NO1
10	R0..1	Output common for signals NO0 to NO1

Terminal	Signal	Description
11	NO2	Normally-open relay contact of the output NO2
12	NO3	Normally-open relay contact of the output NO3
13	R2..3	Output common for signals NO2 to NO3

Table 12: Assignment of the terminals for PM5032-T-ETH, PM5052-T-ETH, PM5072-T-2ETH(W) and PM5082-T-2ETH:

Terminal	Signal	Description
1	COM 0..11	Input common for digital input signals I0 to I11
2	I0	Digital input signal I0 (max. 5 kHz)
3	I1	Digital input signal I1 (max. 5 kHz)
4	I2	Digital input signal I2 (max. 5 kHz)
5	I3	Digital input signal I3 (max. 5 kHz)
6	I4	Digital input signal I4 Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
7	I5	Digital input signal I5 (100 kHz) Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
8	I6	Digital input signal I6 (100 kHz) Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
9	I7	Digital input signal I7 (100 kHz) Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
10	I8	Digital input signal I8
11	I9	Digital input signal I9
12	I10	Digital input signal I10
13	I11	Digital input signal I11
14	O0	Digital output signal O0 (max. 5 kHz)
15	O1	Digital output signal O1 (max. 5 kHz)
16	O2	Digital output signal O2 (max. 5 kHz)
17	O3	Digital output signal O3 (max. 5 kHz)
18	O4	Digital output signal O4 PWM (max. 100 kHz), PTO (max. 200 kHz)
19	O5	Digital output signal O5 PWM (max. 100 kHz), PTO (max. 200 kHz)
20	O6	Digital output signal O6 PWM (max. 100 kHz), PTO (max. 200 kHz)
21	O7	Digital output signal O7 PWM (max. 100 kHz), PTO (max. 200 kHz)
22	C12	Digital input/output signal configurable C12
23	C13	Digital input/output signal configurable C13

Terminal	Signal	Description
24	UP	Process supply voltage UP +24 V DC
25	ZP	Process supply voltage ZP 0 V DC

Table 13: Assignment of the terminals for PM5032-R-ETH and PM5052-R-ETH:

Terminal	Signal	Description
1	COM 0..11	Input common for digital input signals I0 to I11
2	I0	Digital input signal I0 (max. 5 kHz)
3	I1	Digital input signal I1 (max. 5 kHz)
4	I2	Digital input signal I2 (max. 5 kHz)
5	I3	Digital input signal I3 (max. 5 kHz)
6	I4	Digital input signal I4 Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
7	I5	Digital input signal I5 Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
8	I6	Digital input signal I6 Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
9	I7	Digital input signal I7 Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
10	I8	Digital input signal I8
11	I9	Digital input signal I9
12	I10	Digital input signal I10
13	I11	Digital input signal I11
14	NO0	Normally-open relay contact of the output NO0
15	NO1	Normally-open relay contact of the output NO1
16	NO2	Normally-open relay contact of the output NO2
17	R0..2	Output common for signals NO0 to NO2
18	NO3	Normally-open relay contact of the output NO3
19	NO4	Normally-open relay contact of the output NO4
20	NO5	Normally-open relay contact of the output NO5
21	R3..5	Output common for signals NO3 to NO5
22	C12	Digital input/output signal configurable C12 PWM (max. 100 kHz), PTO (max. 200 kHz)
23	C13	Digital input/output signal configurable C13 PWM (max. 100 kHz), PTO (max. 200 kHz)
24	UP	Process supply voltage UP +24 V DC
25	ZP	Process supply voltage ZP 0 V DC

Block diagrams *Table 14: Internal structure of the onboard I/Os*

PM5012-T-ETH	PM5012-R-ETH	PM5032-ETH PM5052-T-ETH PM5072-T-2ETH(W) PM5082-T-2ETH	PM5032-R-ETH PM5052-R-ETH

71.5.3.1.2 Connection of the digital inputs

The digital inputs can be used as source inputs or as sink inputs.

> **!**
>
> **NOTICE!**
> **Risk of malfunctions in the plant!**
> A ground fault, e. g. caused by a damaged cable insulation, can bridge switches accidentally.
>
> Use sink inputs when possible or make sure that, in case of error, there will be no risks to persons or plant.

Table 15: Connection of the digital inputs to the PM50x2 processor modules

| Connection of digital inputs (sink inputs) | Connection digital inputs (source inputs) |
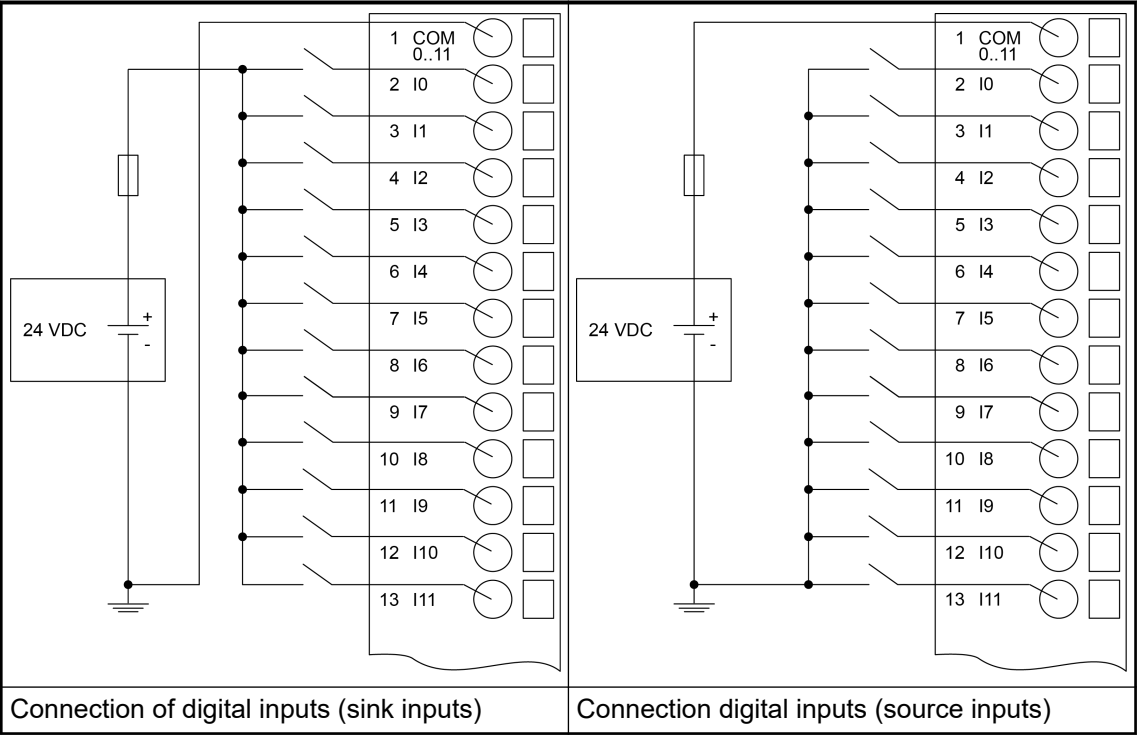
71.5.3.1.3 Connection of the digital transistor outputs (PM50xx-T-xETH only)

Fig. 83: Connection of digital transistor outputs and configurable digital inputs/outputs

C12 used as configurable digital input
C13 used as configurable digital transistor output

⚠	**CAUTION!**
	Risk of damaging the processor module!
	The outputs are not protected against short circuit and overload.
	– Never short-circuit or overload the outputs.
	– Never connect the outputs to other voltages.
	– Use an external fuse for each output.

ⓘ	*The configurable digital channels (C12 and C13) used as digital inputs have the same electrical characteristics as standard digital inputs.*
	The configurable digital channels (C12 and C13) used as digital transistor outputs have the same electrical characteristics as standard digital outputs.

71.5.3.1.4   Connection of the digital relay outputs (PM50xx-R-ETH only)

Fig. 84: Connection of digital relay outputs and configurable digital inputs/outputs

C12 used as configurable digital input
C13 used as configurable digital transistor output

> **WARNING!**
> **Risk of death by electric shock!**
> Hazardous voltages can be present at the terminals of the module.
>
> Make sure that all voltage sources (supply voltage and process supply voltage) are switched off before you begin with operations on the system.

> **CAUTION!**
> **Risk of damaging the processor module!**
> – Never short-circuit or overload the outputs.
> – Never connect inductive loads without an external suppression against voltage peaks due to inductive kickback.
> – Never connect voltages > 240 V. All outputs must be fed from the same phase.
> – Use an external fuse for each output.

> ⓘ *The configurable digital channels (C12 and C13) used as digital inputs have the same electrical characteristics as standard digital inputs.*
>
> *The configurable digital channels (C12 and C13) used as digital transistor outputs have the same electrical characteristics as standard digital outputs.*

71.6   Cleaning

> ⓘ **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

71.7   Certification

KC MSIP-REI-Abb-AC500	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	Note These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

71.8   Recycling

> ⓘ **Disposal and recycling information**
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

—
72 PM5032-x-ETH

- PM5032-T-ETH
- PM5032-R-ETH

⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Read product documentation carefully before wiring. Improper wiring or wrong terminal block from other devices can damage the product!
	– Only by qualified personnel.

⚠	**CAUTION!**
	Risk of injury and damaging the module when using unapproved terminal blocks!
	Only use terminal blocks approved by ABB to avoid injury and damage to the module.

> **Terminal block set for PM50x2**
>
> *Processor modules PM50x2 CPU are not delivered with terminal blocks.*
>
> *Screw terminal block set:*
>
> – *TA5211-TSCL-B (1SAP187400R0001) for PM5012-x-ETH*
> – *TA5212-TSCL (1SAP187400R0004) for PM5032-x-ETH, PM5052-x-ETH, PM5072-T-2ETH(W), PM5082-T-2ETH*
>
> *Spring terminal block set:*
>
> – *TA5211-TSPF-B (1SAP187400R0002) for PM5012-x-ETH*
> – *TA5212-TSPF (1SAP187400R0005) for PM5032-x-ETH, PM5052-x-ETH, PM5072-T-2ETH(W), PM5082-T-2ETH*

72.1   Assembly

72.1.1 Assembly TA5301-CFA

1 TA5301-CFA cable fixing accessory
2 2 openings on the PM50x2 processor module

▷ Insert the TA5301-CFA cable fixing accessory into the two openings on the PM50x2 processor module marked white in the figure.

72.2 Disassembly

72.3   Assembly with screws

1   TA543 screw mounting accessory
2   Slot for TA543 screw mounting accessory
3   2 holes for screw mounting

1.   Insert the TA543 screw mounting accessory into the slot on the back side of the processor module.

   ⇨   **NOTICE!**
   Use screw mounting accessory to avoid damage!
   For screw mounting, the use of the TA543 screw mounting accessory (1SAP182800R0001) is mandatory to prevent bending and damage to the module.

2.   Fasten the processor module with 2 screws (M4, max 1.2 Nm) from the front side.

   ⇨   *With screw mounting, the processor module is grounded through the screws.*

   It is necessary that

   –   *the screws have a conductive surface (e.g. steel zinc-plated or brass nickel-plated)*
   –   *the mounting plate is grounded*
   –   *the screws have a good electrical contact to the mounting plate*

   To prevent the screw from loosening after prolonged use, a thread lock washer is highly recommended.

72.4   Dimensions
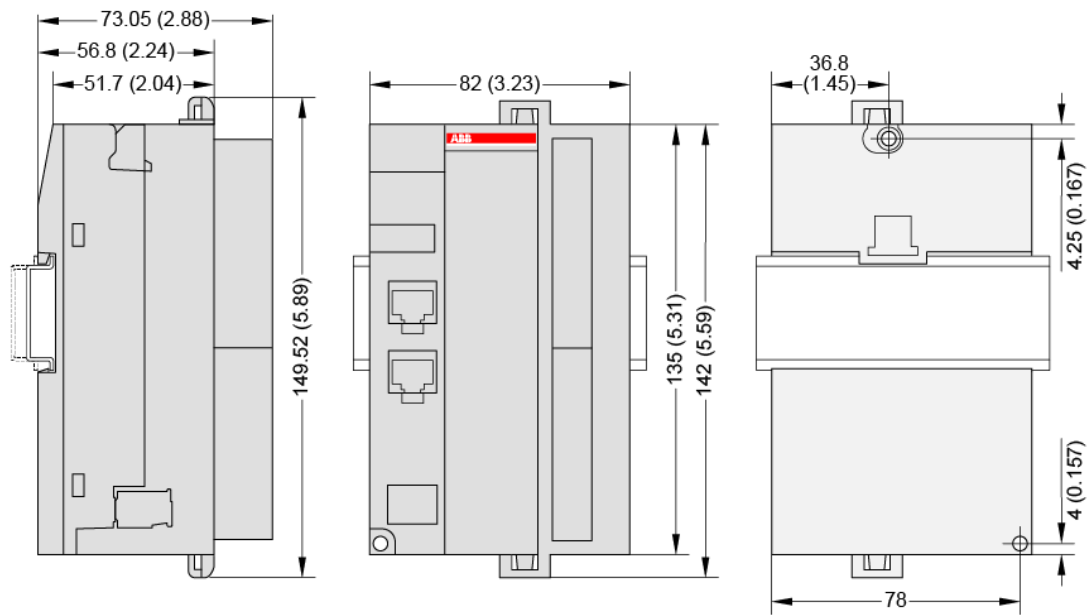
> The dimensions are in mm and in brackets in inch.

72.5   Connections

Fig. 85: Example: PM5072-T-2ETH

1   Micro memory card slot
2   5 LEDs to display the states of the processor module (Power, Error, Run, MC, MOD1)
3   RUN button
4   RJ45 female connector for Ethernet1 connection
5   RJ45 female connector for Ethernet2 connection (available for PM50x2-T-2ETH)
6   3-pin terminal block for power supply 24 V DC
7   2 holes for screw mounting
8   Option board slot cover for option board slot (the number of available slots varies according
     to the CPU type)
9   Cable fixing
10   13-pin terminal block for onboard I/Os
11   12-pin terminal block for onboard I/Os (not available on PM5012-x-ETH)
12   12 LEDs to display the states of the signals
13   10 LEDs to display the states of the signals
14   Cable fixing accessory TA5301-CFA on the top of the housing (optional)

ⓘ   *The processor module is shown with pluggable terminal blocks. These terminal
     blocks must be ordered separately.*

ⓘ   *The cable fixing accessory on the top of the housing is optional.*

     Please use TA5301-CFA cable fixing accessory to provide strain relief.

     It can also be used for AC500-eCo I/O modules.

> *The PM50x2 processor modules are supplied with option board slot covers as standard.*
>
> *There are various TA51xx option boards for the processor modules that can be ordered separately.*
>
> *Which and how many option boards can be plugged, depends on the respective processor module.*

72.5.1 Power supply

The processor modules PM50x2 can be connected to the 24 V DC supply voltage via a removable 3-pin spring terminal block or a 3-pin screw terminal block.

Table 16: Removable terminal block for the supply voltage 24 V DC

3-pin spring terminal block	3-pin screw terminal block

The terminal block is available as a set for AC500-eCo V3 processor modules.

Basic CPU (PM5012)		Standard CPUs (PM5032, PM5052) and Pro CPUs (PM5072, PM5082)	
Spring type	**Screw type**	**Spring type**	**Screw type**
TA5211-TSPF-B	TA5211-TSCL-B	TA5212-TSPF	TA5212-TSCL

Pin assignment

Pin Assignment	Pin	Label	Function	Description
 Terminal block inserted	1	⏚	FE	Functional earth
	2	L+	+24 V DC	Positive pin of the power supply voltage
	3	M	0 V	Negative pin of the power supply voltage

!

NOTICE!
Risk of damaging the PLC due to improper voltage levels!

– Never exceed the maximum tolerance values for process and supply voltages.
– Never fall below the minimum tolerance values for process and supply voltages.
  Observe the **system data** and the **technical data** of the used module.

72.5.2 Ethernet network interface(s)

The Ethernet interface is carried out via a RJ45 jack.

Table 17: Pin assignment of the Ethernet interface

Interface	Pin	Description	
1 8	1	Tx+	Transmit data +
	2	Tx-	Transmit data -
	3	Rx+	Receive data +
	4	NC	Not connected
	5	NC	Not connected
	6	Rx-	Receive data -
	7	NC	Not connected
	8	NC	Not connected
	Shield	Cable shield	Functional earth

72.5.3 Onboard I/Os

72.5.3.1   Connections

72.5.3.1.1   General

⚠ **WARNING!**
Risk of death by electric shock!
Hazardous voltages can be present at the terminals of the module.

Make sure that all voltage sources (supply voltage and process supply voltage) are switched off before you begin with operations on the system.

! **NOTICE!**
Risk of damaging the PLC modules!
The PLC modules must not be removed while the plant is connected to a power supply.

Make sure that all voltage sources (supply and process voltage) are switched off before you

– connect or disconnect any signal or terminal block
– remove or replace a module.

> **NOTICE!**
> **Risk of damaging the PLC modules!**
> Overvoltages and short circuits might damage the PLC modules.
> – Make sure that all voltage sources (supply voltage and process supply voltage) are switched off before you begin with operations on the system.
> – Never connect any voltages or signals to reserved terminals (marked with ---). Reserved terminals may carry internal voltages.

> *When replacing a processor module, it is recommended to mark each wire connected to the onboard I/O terminal block before disconnecting it. This should make sure that the wires can be reconnected in the same order.*

The connection is carried out by using removable 12-pin and 13-pin terminal blocks.

Table 18: Assignment of the terminals for PM5012-T-ETH:

Terminal	Signal	Description
1	COM 0..5	Input common for digital input signals I0 to I5
2	I0	Digital input signal I0 (5 kHz)
3	I1	Digital input signal I1 (5 kHz)
4	I2	Digital input signal I2 (5 kHz)
5	I3	Digital input signal I3 (5 kHz)
6	I4	Digital input signal I4 (5 kHz)
7	I5	Digital input signal I5 (5 kHz)
8	O0	Digital output signal O0 (5 kHz)
9	O1	Digital output signal O1 (5 kHz)
10	O2	Digital output signal O2 (5 kHz)
11	O3	Digital output signal O3 (5 kHz)
12	UP	Process supply voltage UP +24 V DC
13	ZP	Process supply voltage ZP 0 V DC

Table 19: Assignment of the terminals for PM5012-R-ETH:

Terminal	Signal	Description
1	COM 0..5	Input common for digital input signals I0 to I5
2	I0	Digital input signal I0 (5 kHz)
3	I1	Digital input signal I1 (5 kHz)
4	I2	Digital input signal I2 (5 kHz)
5	I3	Digital input signal I3 (5 kHz)
6	I4	Digital input signal I4 (5 kHz)
7	I5	Digital input signal I5 (5 kHz)
8	NO0	Normally-open relay contact of the output NO0
9	NO1	Normally-open relay contact of the output NO1
10	R0..1	Output common for signals NO0 to NO1

Terminal	Signal	Description
11	NO2	Normally-open relay contact of the output NO2
12	NO3	Normally-open relay contact of the output NO3
13	R2..3	Output common for signals NO2 to NO3

Table 20: Assignment of the terminals for PM5032-T-ETH, PM5052-T-ETH, PM5072-T-2ETH(W) and PM5082-T-2ETH:

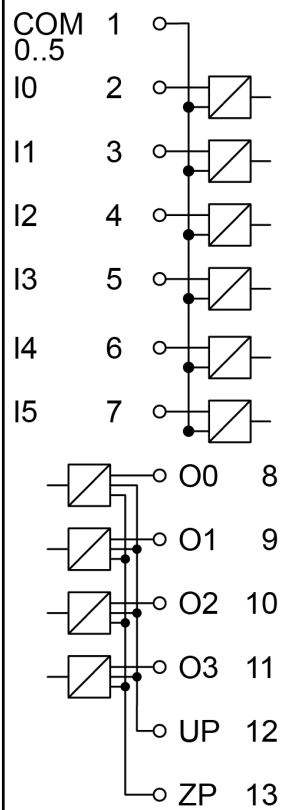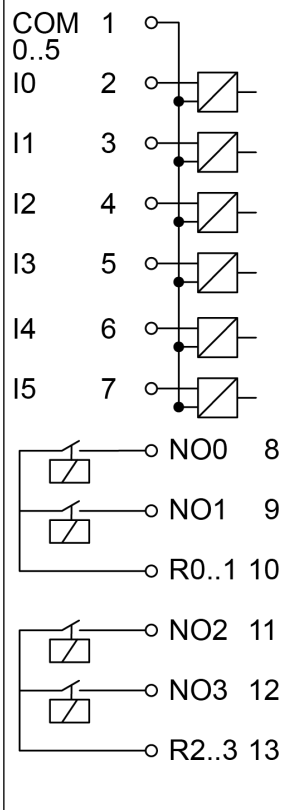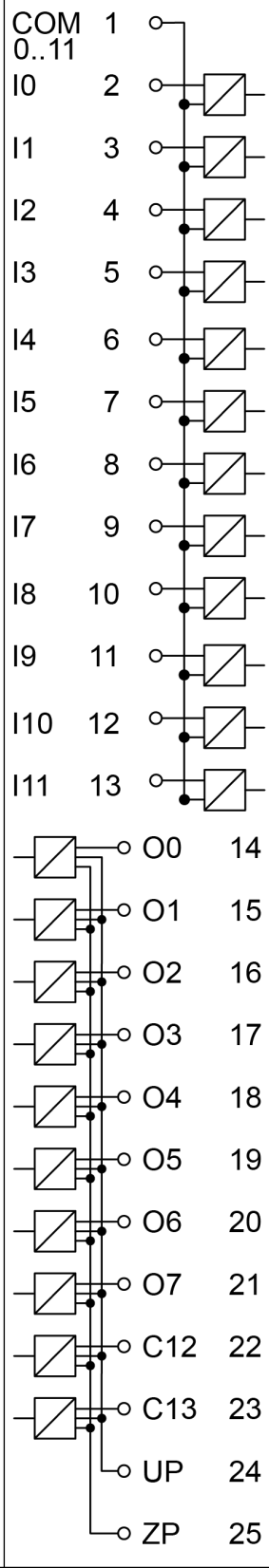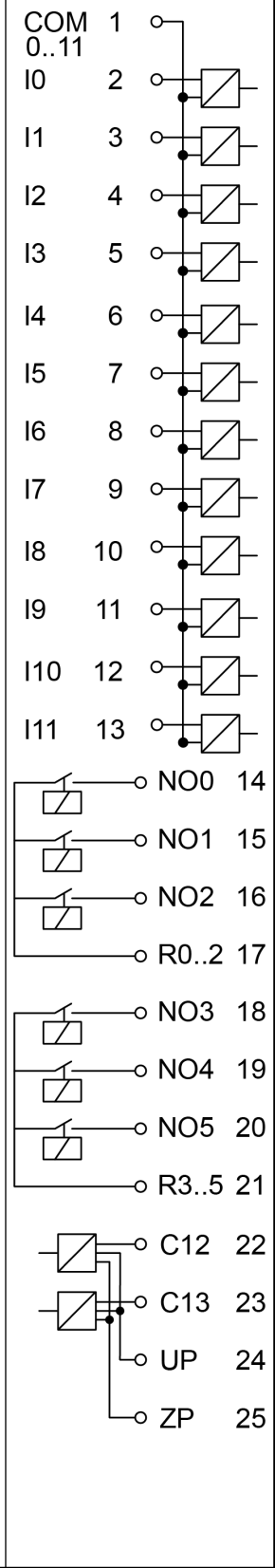| Terminal	Signal	Description
1	COM 0..11	Input common for digital input signals I0 to I11
2	I0	Digital input signal I0 (max. 5 kHz)
3	I1	Digital input signal I1 (max. 5 kHz)
4	I2	Digital input signal I2 (max. 5 kHz)
5	I3	Digital input signal I3 (max. 5 kHz)
6	I4	Digital input signal I4 Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
7	I5	Digital input signal I5 (100 kHz) Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
8	I6	Digital input signal I6 (100 kHz) Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
9	I7	Digital input signal I7 (100 kHz) Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
10	I8	Digital input signal I8
11	I9	Digital input signal I9
12	I10	Digital input signal I10
13	I11	Digital input signal I11
14	O0	Digital output signal O0 (max. 5 kHz)
15	O1	Digital output signal O1 (max. 5 kHz)
16	O2	Digital output signal O2 (max. 5 kHz)
17	O3	Digital output signal O3 (max. 5 kHz)
18	O4	Digital output signal O4 PWM (max. 100 kHz), PTO (max. 200 kHz)
19	O5	Digital output signal O5 PWM (max. 100 kHz), PTO (max. 200 kHz)
20	O6	Digital output signal O6 PWM (max. 100 kHz), PTO (max. 200 kHz)
21	O7	Digital output signal O7 PWM (max. 100 kHz), PTO (max. 200 kHz)
22	C12	Digital input/output signal configurable C12
23	C13	Digital input/output signal configurable C13

Terminal	Signal	Description
24	UP	Process supply voltage UP +24 V DC
25	ZP	Process supply voltage ZP 0 V DC

Table 21: Assignment of the terminals for PM5032-R-ETH and PM5052-R-ETH:

Terminal	Signal	Description
1	COM 0..11	Input common for digital input signals I0 to I11
2	I0	Digital input signal I0 (max. 5 kHz)
3	I1	Digital input signal I1 (max. 5 kHz)
4	I2	Digital input signal I2 (max. 5 kHz)
5	I3	Digital input signal I3 (max. 5 kHz)
6	I4	Digital input signal I4 Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
7	I5	Digital input signal I5 Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
8	I6	Digital input signal I6 Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
9	I7	Digital input signal I7 Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
10	I8	Digital input signal I8
11	I9	Digital input signal I9
12	I10	Digital input signal I10
13	I11	Digital input signal I11
14	NO0	Normally-open relay contact of the output NO0
15	NO1	Normally-open relay contact of the output NO1
16	NO2	Normally-open relay contact of the output NO2
17	R0..2	Output common for signals NO0 to NO2
18	NO3	Normally-open relay contact of the output NO3
19	NO4	Normally-open relay contact of the output NO4
20	NO5	Normally-open relay contact of the output NO5
21	R3..5	Output common for signals NO3 to NO5
22	C12	Digital input/output signal configurable C12 PWM (max. 100 kHz), PTO (max. 200 kHz)
23	C13	Digital input/output signal configurable C13 PWM (max. 100 kHz), PTO (max. 200 kHz)
24	UP	Process supply voltage UP +24 V DC
25	ZP	Process supply voltage ZP 0 V DC

Block diagrams   *Table 22: Internal structure of the onboard I/Os*

PM5012-T-ETH	PM5012-R-ETH	PM5032-ETH PM5052-T-ETH PM5072-T-2ETH(W) PM5082-T-2ETH	PM5032-R-ETH PM5052-R-ETH

72.5.3.1.2 Connection of the digital inputs

The digital inputs can be used as source inputs or as sink inputs.

> **!**
> **NOTICE!**
> **Risk of malfunctions in the plant!**
> A ground fault, e. g. caused by a damaged cable insulation, can bridge switches accidentally.
>
> Use sink inputs when possible or make sure that, in case of error, there will be no risks to persons or plant.

Table 23: Connection of the digital inputs to the PM50x2 processor modules

Connection of digital inputs (sink inputs)	Connection digital inputs (source inputs)

72.5.3.1.3   Connection of the digital transistor outputs (PM50xx-T-xETH only)

Fig. 86: Connection of digital transistor outputs and configurable digital inputs/outputs

C12 used as configurable digital input
C13 used as configurable digital transistor output

> ⚠ **CAUTION!**
> **Risk of damaging the processor module!**
> The outputs are not protected against short circuit and overload.
>
> – Never short-circuit or overload the outputs.
> – Never connect the outputs to other voltages.
> – Use an external fuse for each output.

> ⓘ *The configurable digital channels (C12 and C13) used as digital inputs have the same electrical characteristics as standard digital inputs.*
>
> *The configurable digital channels (C12 and C13) used as digital transistor outputs have the same electrical characteristics as standard digital outputs.*

72.5.3.1.4   Connection of the digital relay outputs (PM50xx-R-ETH only)

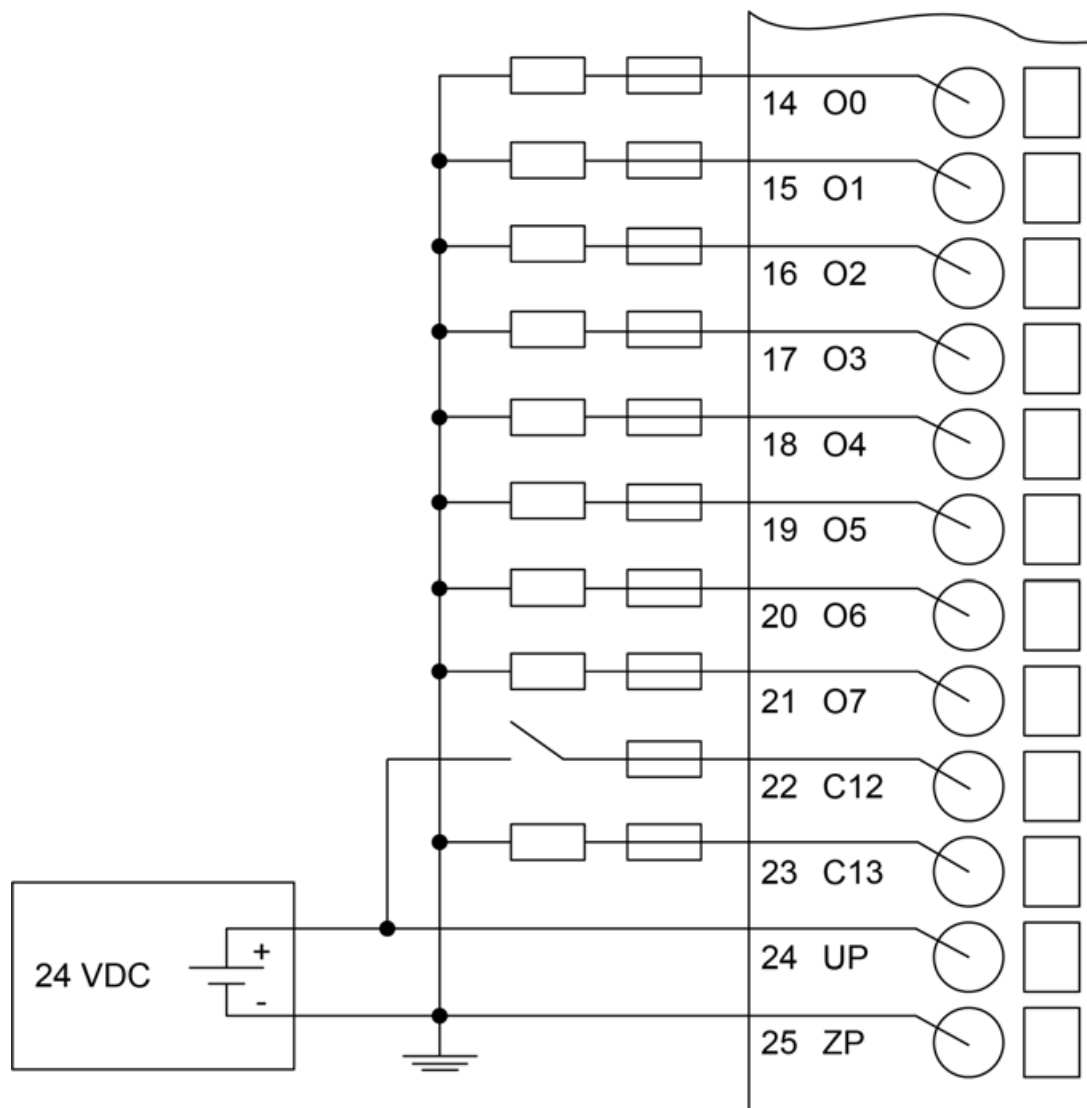*Fig. 87: Connection of digital relay outputs and configurable digital inputs/outputs*

C12 used as configurable digital input
C13 used as configurable digital transistor output

> **WARNING!**
> **Risk of death by electric shock!**
> Hazardous voltages can be present at the terminals of the module.
>
> Make sure that all voltage sources (supply voltage and process supply voltage) are switched off before you begin with operations on the system.

> **CAUTION!**
> **Risk of damaging the processor module!**
> – Never short-circuit or overload the outputs.
> – Never connect inductive loads without an external suppression against voltage peaks due to inductive kickback.
> – Never connect voltages > 240 V. All outputs must be fed from the same phase.
> – Use an external fuse for each output.

> ⓘ *The configurable digital channels (C12 and C13) used as digital inputs have the same electrical characteristics as standard digital inputs.*
>
> *The configurable digital channels (C12 and C13) used as digital transistor outputs have the same electrical characteristics as standard digital outputs.*

72.6 Cleaning

> ⓘ ***Cleaning instructions***
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

72.7 Certification

KC MSIP-REI-Abb-AC500	en ko	Devices with KCC sign on product sticker and packaging 제품 스티커 및 포장에 **KCC** 표시가 된 기기
en	Note These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

72.8 Recycling

> ⓘ ***Disposal and recycling information***
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

73 PM5052-x-ETH

- PM5052-T-ETH
- PM5052-R-ETH

⚠	**CAUTION!** **Risk of injury and damaging the product!** Improper installation and maintenance may result in injury and can damage the product! – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1. – Read product documentation carefully before wiring. Improper wiring or wrong terminal block from other devices can damage the product! – Only by qualified personnel.

⚠	**CAUTION!** **Risk of injury and damaging the module when using unapproved terminal blocks!** Only use terminal blocks approved by ABB to avoid injury and damage to the module.

> **Terminal block set for PM50x2**
>
> *Processor modules PM50x2 CPU are not delivered with terminal blocks.*
>
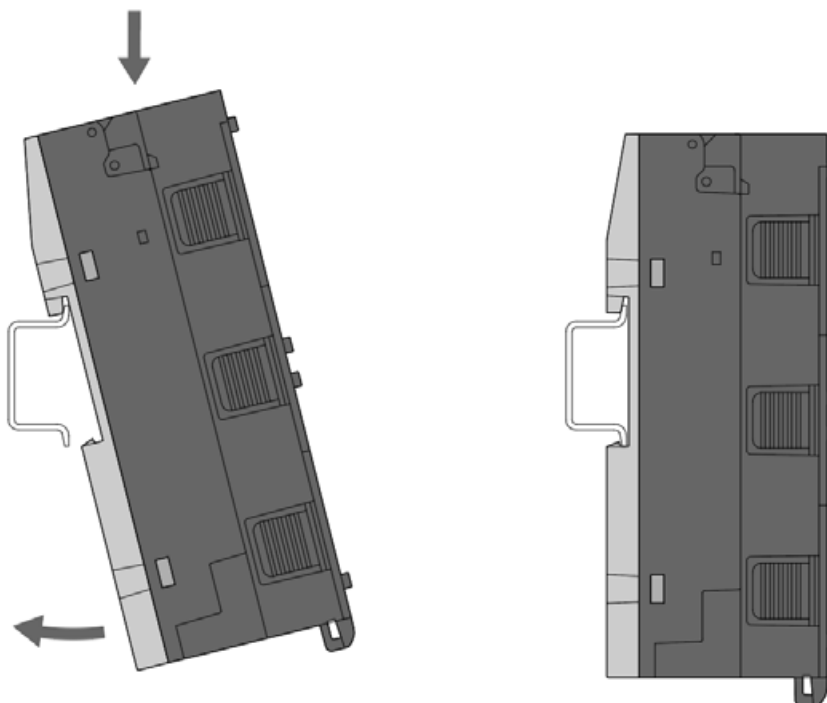> *Screw terminal block set:*
>
> – *TA5211-TSCL-B (1SAP187400R0001) for PM5012-x-ETH*
> – *TA5212-TSCL (1SAP187400R0004) for PM5032-x-ETH, PM5052-x-ETH, PM5072-T-2ETH(W), PM5082-T-2ETH*
>
> *Spring terminal block set:*
>
> – *TA5211-TSPF-B (1SAP187400R0002) for PM5012-x-ETH*
> – *TA5212-TSPF (1SAP187400R0005) for PM5032-x-ETH, PM5052-x-ETH, PM5072-T-2ETH(W), PM5082-T-2ETH*

73.1   Assembly

73.1.1 Assembly TA5301-CFA

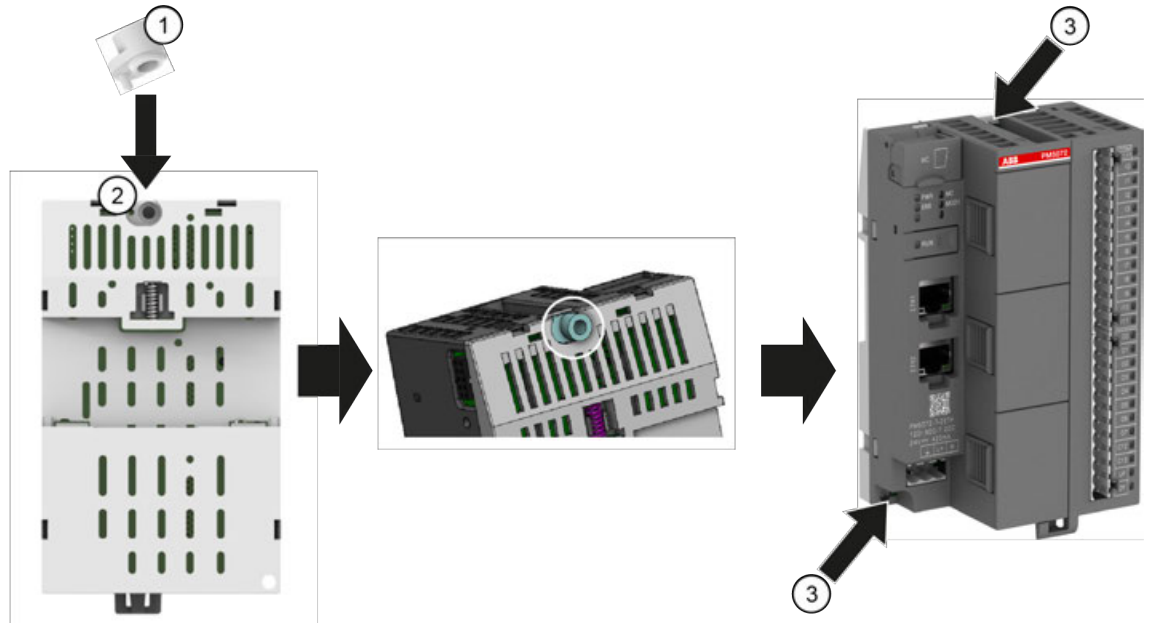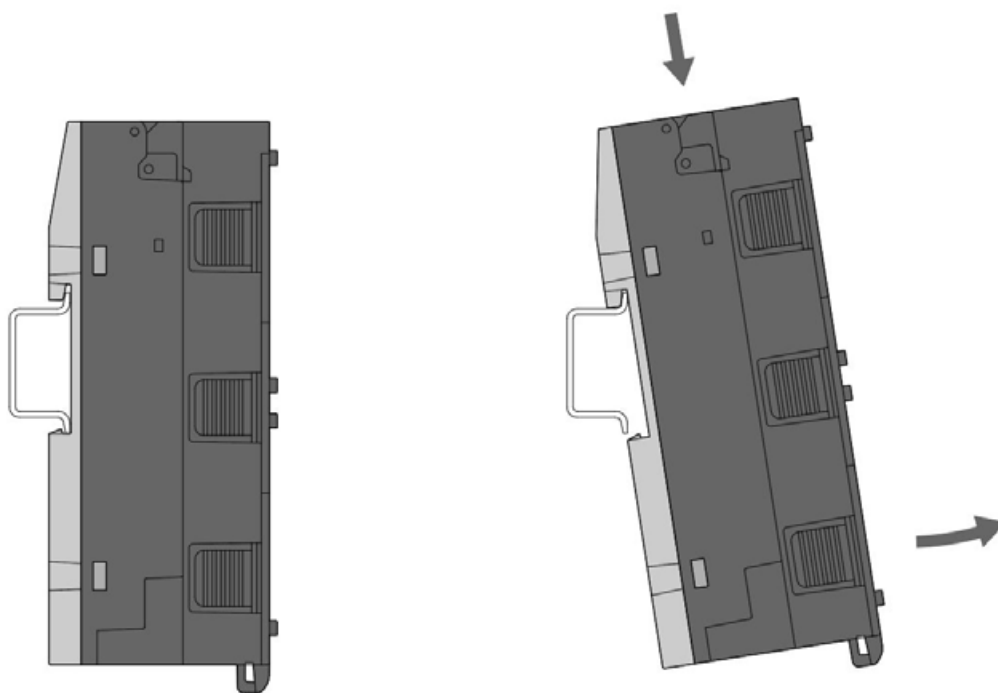1   TA5301-CFA cable fixing accessory
2   2 openings on the PM50x2 processor module

▷   Insert the TA5301-CFA cable fixing accessory into the two openings on the PM50x2
      processor module marked white in the figure.

73.2   Disassembly

73.3   Assembly with screws

1   TA543 screw mounting accessory
2   Slot for TA543 screw mounting accessory
3   2 holes for screw mounting

1. Insert the TA543 screw mounting accessory into the slot on the back side of the processor module.

    ⇨   **NOTICE!**
        Use screw mounting accessory to avoid damage!
        For screw mounting, the use of the TA543 screw mounting accessory (1SAP182800R0001) is mandatory to prevent bending and damage to the module.

2. Fasten the processor module with 2 screws (M4, max 1.2 Nm) from the front side.

    ⇨   *With screw mounting, the processor module is grounded through the screws.*

        It is necessary that

   –   *the screws have a conductive surface (e.g. steel zinc-plated or brass nickel-plated)*
        –   *the mounting plate is grounded*
        –   *the screws have a good electrical contact to the mounting plate*

        To prevent the screw from loosening after prolonged use, a thread lock washer is highly recommended.

73.4   Dimensions
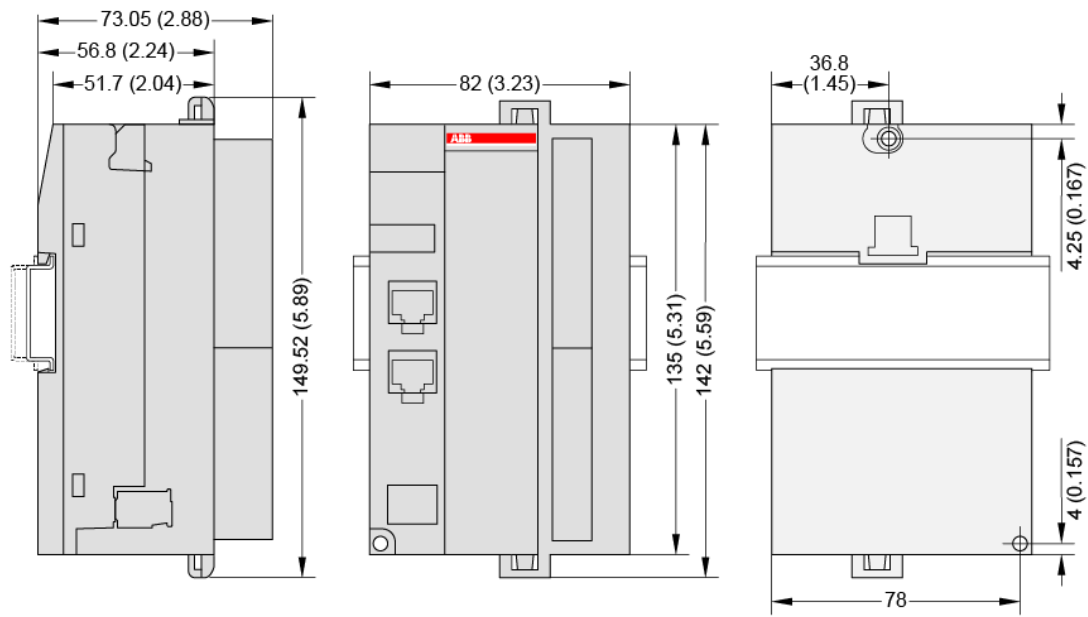
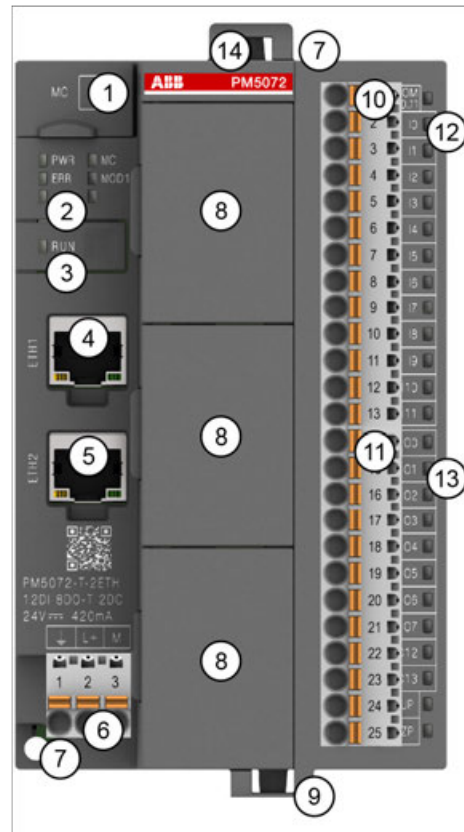The dimensions are in mm and in brackets in inch.

73.5 Connections

Fig. 88: Example: PM5072-T-2ETH

1 Micro memory card slot
2 5 LEDs to display the states of the processor module (Power, Error, Run, MC, MOD1)
3 RUN button
4 RJ45 female connector for Ethernet1 connection
5 RJ45 female connector for Ethernet2 connection (available for PM50x2-T-2ETH)
6 3-pin terminal block for power supply 24 V DC
7 2 holes for screw mounting
8 Option board slot cover for option board slot (the number of available slots varies according to the CPU type)
9 Cable fixing
10 13-pin terminal block for onboard I/Os
11 12-pin terminal block for onboard I/Os (not available on PM5012-x-ETH)
12 12 LEDs to display the states of the signals
13 10 LEDs to display the states of the signals
14 Cable fixing accessory TA5301-CFA on the top of the housing (optional)

The processor module is shown with pluggable terminal blocks. These terminal blocks must be ordered separately.

The cable fixing accessory on the top of the housing is optional.

Please use TA5301-CFA cable fixing accessory to provide strain relief.

It can also be used for AC500-eCo I/O modules.

> ⓘ *The PM50x2 processor modules are supplied with option board slot covers as standard.*
>
> *There are various TA51xx option boards for the processor modules that can be ordered separately.*
>
> *Which and how many option boards can be plugged, depends on the respective processor module.*

73.5.1 Power supply

The processor modules PM50x2 can be connected to the 24 V DC supply voltage via a removable 3-pin spring terminal block or a 3-pin screw terminal block.

Table 24: Removable terminal block for the supply voltage 24 V DC

3-pin spring terminal block	3-pin screw terminal block

The terminal block is available as a set for AC500-eCo V3 processor modules.

Basic CPU (PM5012)		Standard CPUs (PM5032, PM5052) and Pro CPUs (PM5072, PM5082)	
Spring type	**Screw type**	**Spring type**	**Screw type**
TA5211-TSPF-B	TA5211-TSCL-B	TA5212-TSPF	TA5212-TSCL

Pin assignment

Pin Assignment	Pin	Label	Function	Description
  Terminal block inserted	1	⏚	FE	Functional earth
	2	L+	+24 V DC	Positive pin of the power supply voltage
	3	M	0 V	Negative pin of the power supply voltage

> **!** **NOTICE!**
> **Risk of damaging the PLC due to improper voltage levels!**
>
> – Never exceed the maximum tolerance values for process and supply voltages.
> – Never fall below the minimum tolerance values for process and supply voltages.
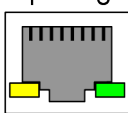>   Observe the **system data** and the **technical data** of the used module.

73.5.2   Ethernet network interface(s)

The Ethernet interface is carried out via a RJ45 jack.

Table 25: Pin assignment of the Ethernet interface

Interface	Pin	Description	
1 8	1	Tx+	Transmit data +
	2	Tx-	Transmit data -
	3	Rx+	Receive data +
	4	NC	Not connected
	5	NC	Not connected
	6	Rx-	Receive data -
	7	NC	Not connected
	8	NC	Not connected
	Shield	Cable shield	Functional earth

73.5.3   Onboard I/Os

73.5.3.1   Connections

73.5.3.1.1   General

> **⚠ WARNING!**
> **Risk of death by electric shock!**
> Hazardous voltages can be present at the terminals of the module.
>
> Make sure that all voltage sources (supply voltage and process supply voltage) are switched off before you begin with operations on the system.

> **!** **NOTICE!**
> **Risk of damaging the PLC modules!**
> The PLC modules must not be removed while the plant is connected to a power supply.
>
> Make sure that all voltage sources (supply and process voltage) are switched off before you
>
> – connect or disconnect any signal or terminal block
> – remove or replace a module.

> **NOTICE!**
>
> **Risk of damaging the PLC modules!**
>
> Overvoltages and short circuits might damage the PLC modules.
>
> – Make sure that all voltage sources (supply voltage and process supply voltage) are switched off before you begin with operations on the system.
> – Never connect any voltages or signals to reserved terminals (marked with ---). Reserved terminals may carry internal voltages.

> *When replacing a processor module, it is recommended to mark each wire connected to the onboard I/O terminal block before disconnecting it. This should make sure that the wires can be reconnected in the same order.*

The connection is carried out by using removable 12-pin and 13-pin terminal blocks.

Table 26: Assignment of the terminals for PM5012-T-ETH:

Terminal	Signal	Description
1	COM 0..5	Input common for digital input signals I0 to I5
2	I0	Digital input signal I0 (5 kHz)
3	I1	Digital input signal I1 (5 kHz)
4	I2	Digital input signal I2 (5 kHz)
5	I3	Digital input signal I3 (5 kHz)
6	I4	Digital input signal I4 (5 kHz)
7	I5	Digital input signal I5 (5 kHz)
8	O0	Digital output signal O0 (5 kHz)
9	O1	Digital output signal O1 (5 kHz)
10	O2	Digital output signal O2 (5 kHz)
11	O3	Digital output signal O3 (5 kHz)
12	UP	Process supply voltage UP +24 V DC
13	ZP	Process supply voltage ZP 0 V DC

Table 27: Assignment of the terminals for PM5012-R-ETH:

Terminal	Signal	Description
1	COM 0..5	Input common for digital input signals I0 to I5
2	I0	Digital input signal I0 (5 kHz)
3	I1	Digital input signal I1 (5 kHz)
4	I2	Digital input signal I2 (5 kHz)
5	I3	Digital input signal I3 (5 kHz)
6	I4	Digital input signal I4 (5 kHz)
7	I5	Digital input signal I5 (5 kHz)
8	NO0	Normally-open relay contact of the output NO0
9	NO1	Normally-open relay contact of the output NO1
10	R0..1	Output common for signals NO0 to NO1

Terminal	Signal	Description
11	NO2	Normally-open relay contact of the output NO2
12	NO3	Normally-open relay contact of the output NO3
13	R2..3	Output common for signals NO2 to NO3

Table 28: Assignment of the terminals for PM5032-T-ETH, PM5052-T-ETH, PM5072-T-2ETH(W) and PM5082-T-2ETH:

Terminal	Signal	Description
1	COM 0..11	Input common for digital input signals I0 to I11
2	I0	Digital input signal I0 (max. 5 kHz)
3	I1	Digital input signal I1 (max. 5 kHz)
4	I2	Digital input signal I2 (max. 5 kHz)
5	I3	Digital input signal I3 (max. 5 kHz)
6	I4	Digital input signal I4 Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
7	I5	Digital input signal I5 (100 kHz) Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
8	I6	Digital input signal I6 (100 kHz) Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
9	I7	Digital input signal I7 (100 kHz) Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
10	I8	Digital input signal I8
11	I9	Digital input signal I9
12	I10	Digital input signal I10
13	I11	Digital input signal I11
14	O0	Digital output signal O0 (max. 5 kHz)
15	O1	Digital output signal O1 (max. 5 kHz)
16	O2	Digital output signal O2 (max. 5 kHz)
17	O3	Digital output signal O3 (max. 5 kHz)
18	O4	Digital output signal O4 PWM (max. 100 kHz), PTO (max. 200 kHz)
19	O5	Digital output signal O5 PWM (max. 100 kHz), PTO (max. 200 kHz)
20	O6	Digital output signal O6 PWM (max. 100 kHz), PTO (max. 200 kHz)
21	O7	Digital output signal O7 PWM (max. 100 kHz), PTO (max. 200 kHz)
22	C12	Digital input/output signal configurable C12
23	C13	Digital input/output signal configurable C13

Terminal	Signal	Description
24	UP	Process supply voltage UP +24 V DC
25	ZP	Process supply voltage ZP 0 V DC

Table 29: Assignment of the terminals for PM5032-R-ETH and PM5052-R-ETH:

Terminal	Signal	Description
1	COM 0..11	Input common for digital input signals I0 to I11
2	I0	Digital input signal I0 (max. 5 kHz)
3	I1	Digital input signal I1 (max. 5 kHz)
4	I2	Digital input signal I2 (max. 5 kHz)
5	I3	Digital input signal I3 (max. 5 kHz)
6	I4	Digital input signal I4 Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
7	I5	Digital input signal I5 Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
8	I6	Digital input signal I6 Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
9	I7	Digital input signal I7 Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
10	I8	Digital input signal I8
11	I9	Digital input signal I9
12	I10	Digital input signal I10
13	I11	Digital input signal I11
14	NO0	Normally-open relay contact of the output NO0
15	NO1	Normally-open relay contact of the output NO1
16	NO2	Normally-open relay contact of the output NO2
17	R0..2	Output common for signals NO0 to NO2
18	NO3	Normally-open relay contact of the output NO3
19	NO4	Normally-open relay contact of the output NO4
20	NO5	Normally-open relay contact of the output NO5
21	R3..5	Output common for signals NO3 to NO5
22	C12	Digital input/output signal configurable C12 PWM (max. 100 kHz), PTO (max. 200 kHz)
23	C13	Digital input/output signal configurable C13 PWM (max. 100 kHz), PTO (max. 200 kHz)
24	UP	Process supply voltage UP +24 V DC
25	ZP	Process supply voltage ZP 0 V DC

Block diagrams *Table 30: Internal structure of the onboard I/Os*

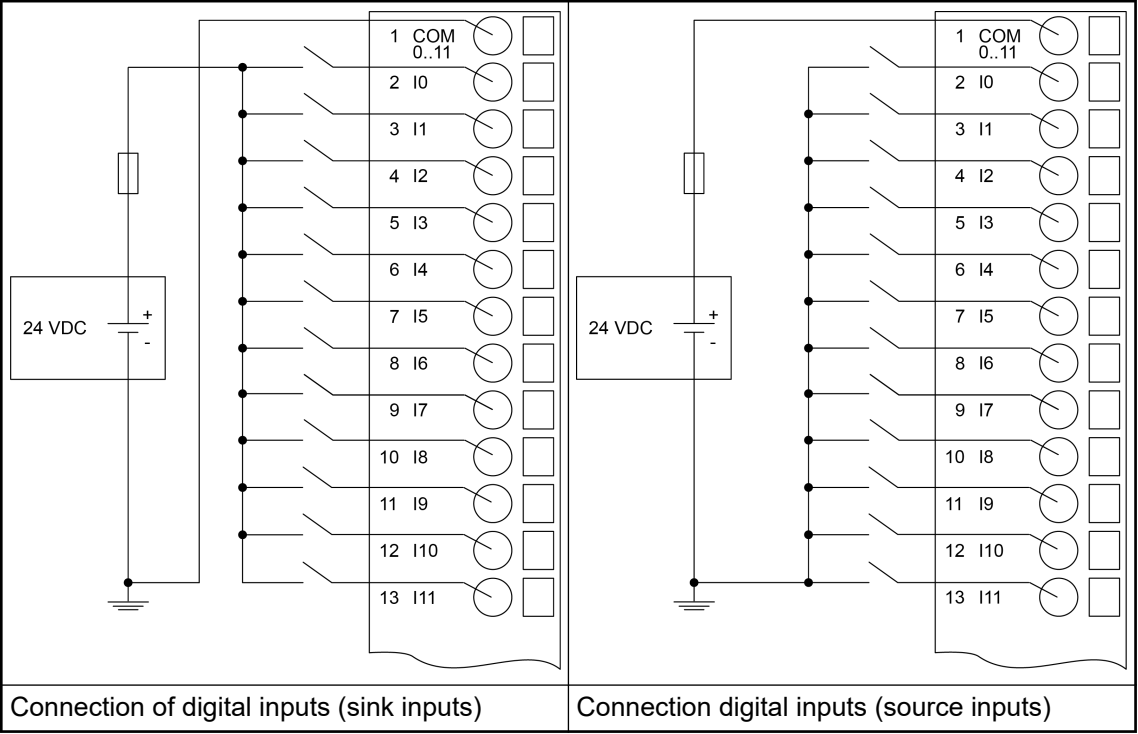| PM5012-T-ETH	PM5012-R-ETH	PM5032-ETH PM5052-T-ETH PM5072-T-2ETH(W) PM5082-T-2ETH	PM5032-R-ETH PM5052-R-ETH

73.5.3.1.2 Connection of the digital inputs

The digital inputs can be used as source inputs or as sink inputs.

> **!**
>
> **NOTICE!**
> **Risk of malfunctions in the plant!**
> A ground fault, e. g. caused by a damaged cable insulation, can bridge switches accidentally.
>
> Use sink inputs when possible or make sure that, in case of error, there will be no risks to persons or plant.

Table 31: Connection of the digital inputs to the PM50x2 processor modules

Connection of digital inputs (sink inputs)	Connection digital inputs (source inputs)

73.5.3.1.3 Connection of the digital transistor outputs (PM50xx-T-xETH only)
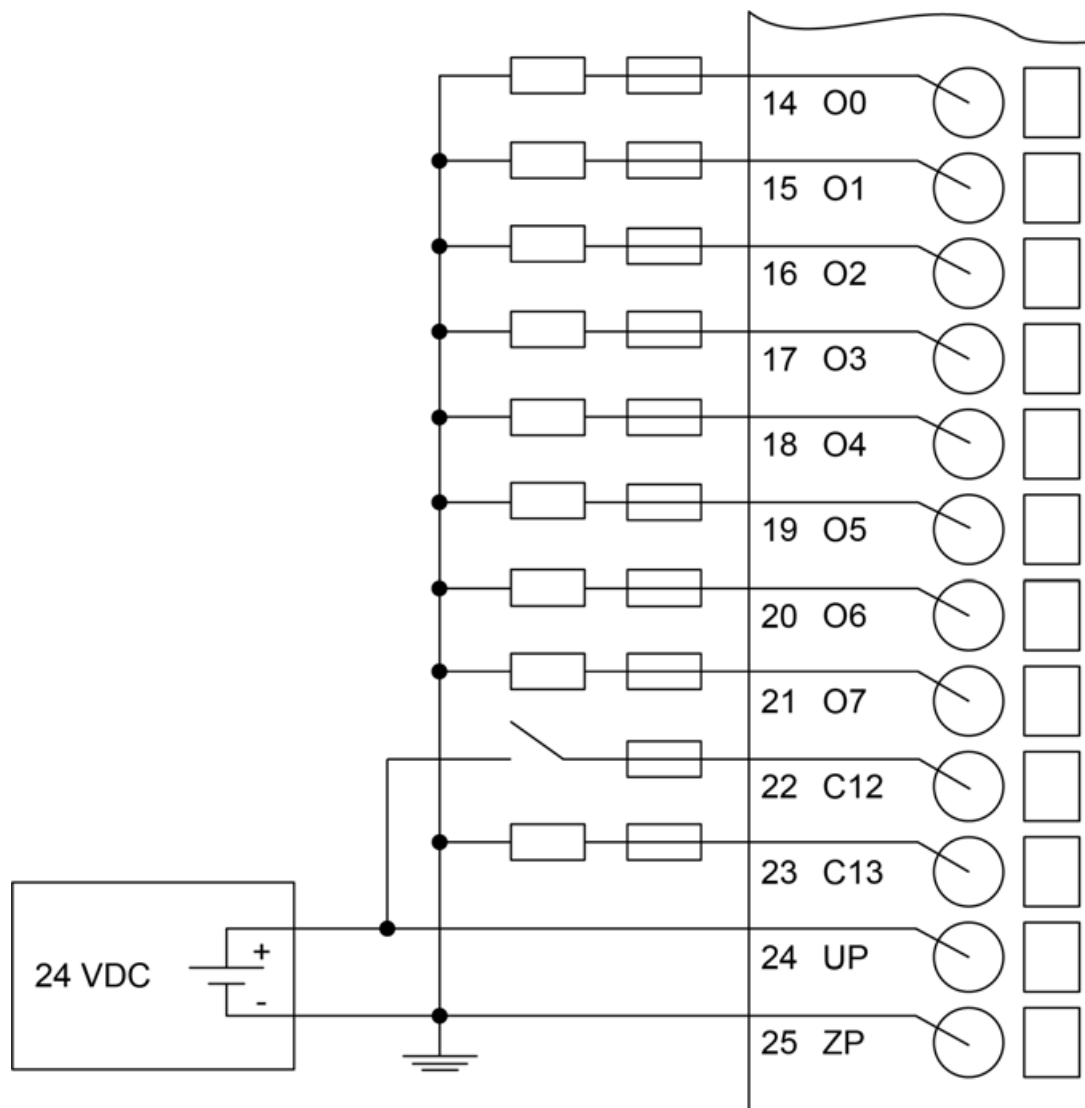

Fig. 89: Connection of digital transistor outputs and configurable digital inputs/outputs

C12 used as configurable digital input
C13 used as configurable digital transistor output

> **CAUTION!**
> **Risk of damaging the processor module!**
> The outputs are not protected against short circuit and overload.
>
> – Never short-circuit or overload the outputs.
> – Never connect the outputs to other voltages.
> – Use an external fuse for each output.

> *The configurable digital channels (C12 and C13) used as digital inputs have the same electrical characteristics as standard digital inputs.*
>
> *The configurable digital channels (C12 and C13) used as digital transistor outputs have the same electrical characteristics as standard digital outputs.*

73.5.3.1.4   Connection of the digital relay outputs (PM50xx-R-ETH only)
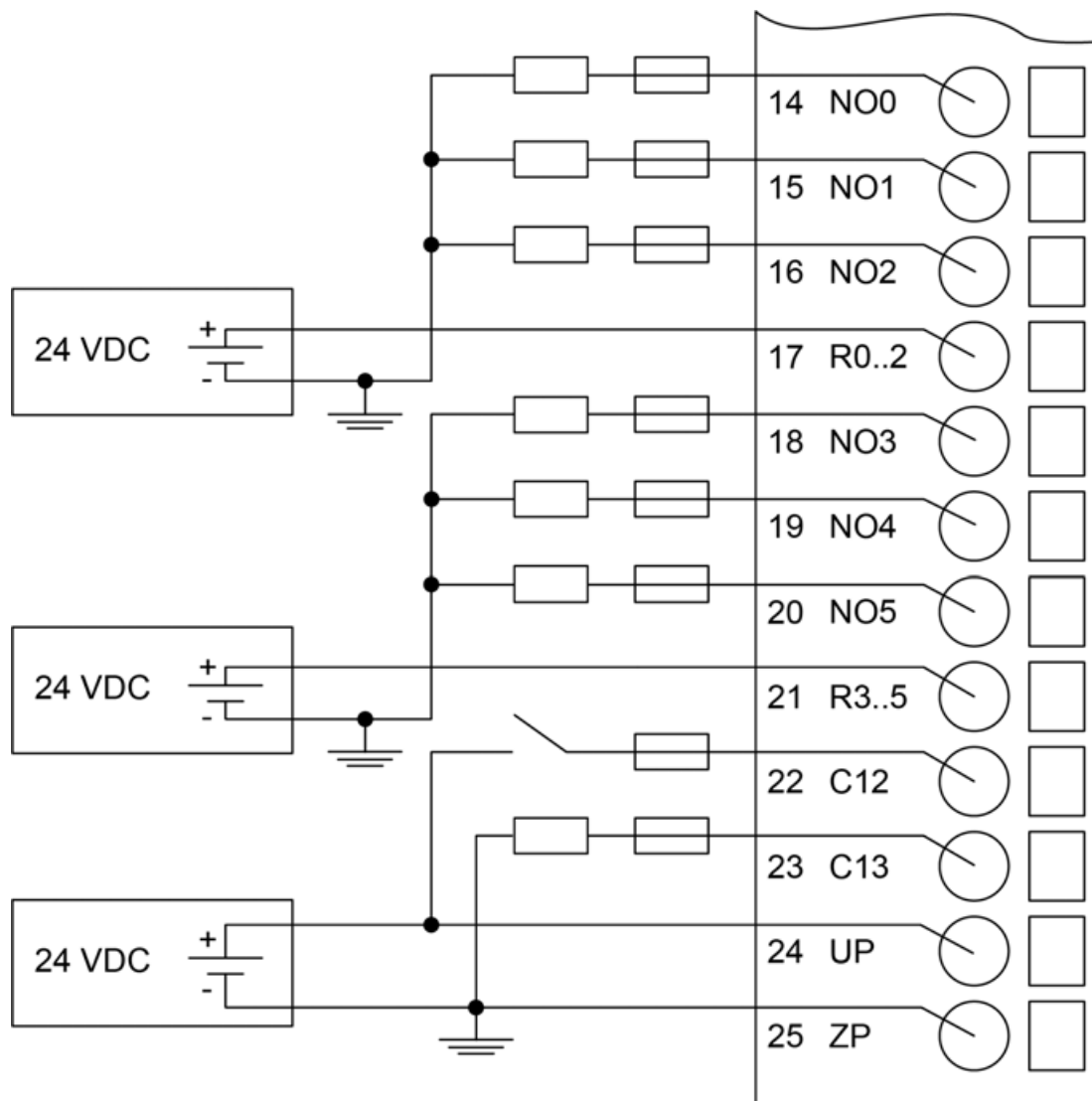

Fig. 90: Connection of digital relay outputs and configurable digital inputs/outputs

C12 used as configurable digital input
C13 used as configurable digital transistor output

	WARNING!
⚠	**Risk of death by electric shock!**
	Hazardous voltages can be present at the terminals of the module.
	Make sure that all voltage sources (supply voltage and process supply voltage) are switched off before you begin with operations on the system.

	CAUTION!
⚠	**Risk of damaging the processor module!**
	– Never short-circuit or overload the outputs.
	– Never connect inductive loads without an external suppression against voltage peaks due to inductive kickback.
	– Never connect voltages > 240 V. All outputs must be fed from the same phase.
	– Use an external fuse for each output.

> *The configurable digital channels (C12 and C13) used as digital inputs have the same electrical characteristics as standard digital inputs.*
>
> *The configurable digital channels (C12 and C13) used as digital transistor outputs have the same electrical characteristics as standard digital outputs.*

73.6   Cleaning

> **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

73.7   Certification

KC MSIP-REI-Abb-AC500	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	Note These devices correspond to:	KN61000-6-2 "Immunity for industrial environments", KN61000-6-4 "Emission standard for industrial environments"
ko	참고 이러한 기기는	KN61000-6-2 "산업 환경에 대한 내성", KN61000-6-4 "산업 환경 누출 기준"에 적합함

73.8   Recycling

> **Disposal and recycling information**
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

74 PM5072-T-2ETH(W)

- PM5072-T-2ETH
- PM5072-T-2ETHW

⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Read product documentation carefully before wiring. Improper wiring or wrong terminal block from other devices can damage the product!
	– Only by qualified personnel.

⚠	**CAUTION!**
	Risk of injury and damaging the module when using unapproved terminal blocks!
	Only use terminal blocks approved by ABB to avoid injury and damage to the module.

> *Terminal block set for PM50x2*
>
> *Processor modules PM50x2 CPU are not delivered with terminal blocks.*
>
> *Screw terminal block set:*
>
> – *TA5211-TSCL-B (1SAP187400R0001) for PM5012-x-ETH*
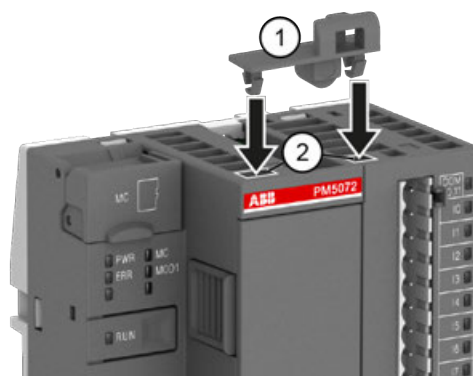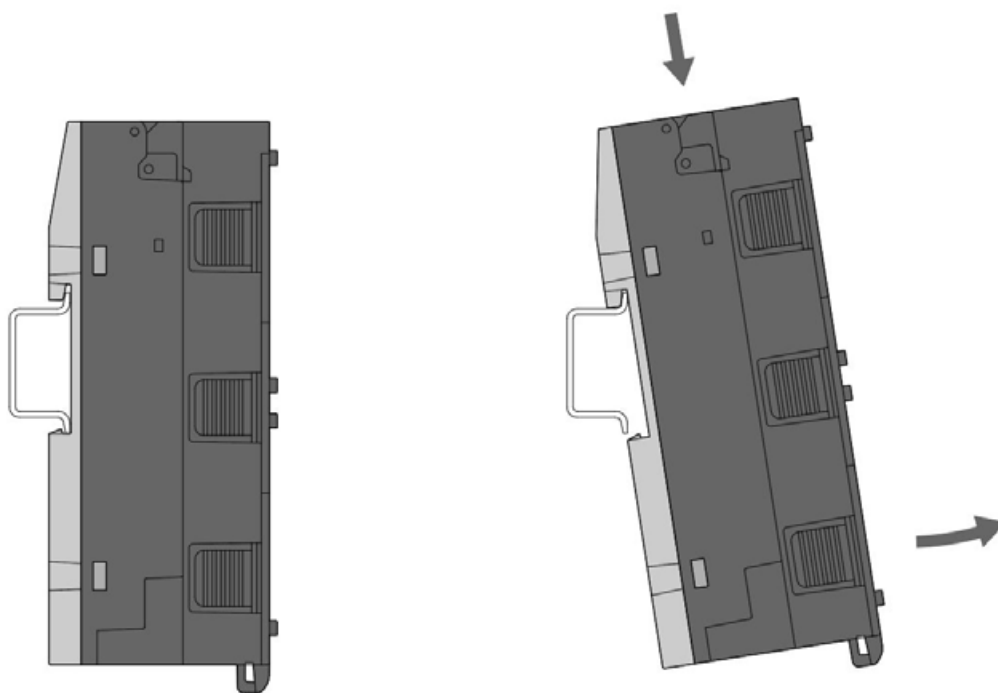> – *TA5212-TSCL (1SAP187400R0004) for PM5032-x-ETH, PM5052-x-ETH, PM5072-T-2ETH(W), PM5082-T-2ETH*
>
> *Spring terminal block set:*
>
> – *TA5211-TSPF-B (1SAP187400R0002) for PM5012-x-ETH*
> – *TA5212-TSPF (1SAP187400R0005) for PM5032-x-ETH, PM5052-x-ETH, PM5072-T-2ETH(W), PM5082-T-2ETH*

74.1   Assembly

74.1.1 Assembly TA5301-CFA

1 TA5301-CFA cable fixing accessory
2 2 openings on the PM50x2 processor module

▷ Insert the TA5301-CFA cable fixing accessory into the two openings on the PM50x2 processor module marked white in the figure.

74.2 Disassembly

74.3   Assembly with screws

1   TA543 screw mounting accessory
2   Slot for TA543 screw mounting accessory
3   2 holes for screw mounting

1. Insert the TA543 screw mounting accessory into the slot on the back side of the processor module.

    ⇨

    > **!**
    >
    > **NOTICE!**
    > **Use screw mounting accessory to avoid damage!**
    > For screw mounting, the use of the TA543 screw mounting accessory (1SAP182800R0001) is mandatory to prevent bending and damage to the module.

2. Fasten the processor module with 2 screws (M4, max 1.2 Nm) from the front side.

    ⇨

    > *With screw mounting, the processor module is grounded through the screws.*
    >
    > *It is necessary that*
    >
    > – *the screws have a conductive surface (e.g. steel zinc-plated or brass nickel-plated)*
    > – *the mounting plate is grounded*
    > – *the screws have a good electrical contact to the mounting plate*

    > *To prevent the screw from loosening after prolonged use, a thread lock washer is highly recommended.*

74.4   Dimensions

73.05 (2.88)
56.8 (2.24)
51.7 (2.04)
82 (3.23)
36.8
(1.45)
149.52 (5.89)
135 (5.31)
142 (5.59)
4.25 (0.167)
4 (0.157)
78
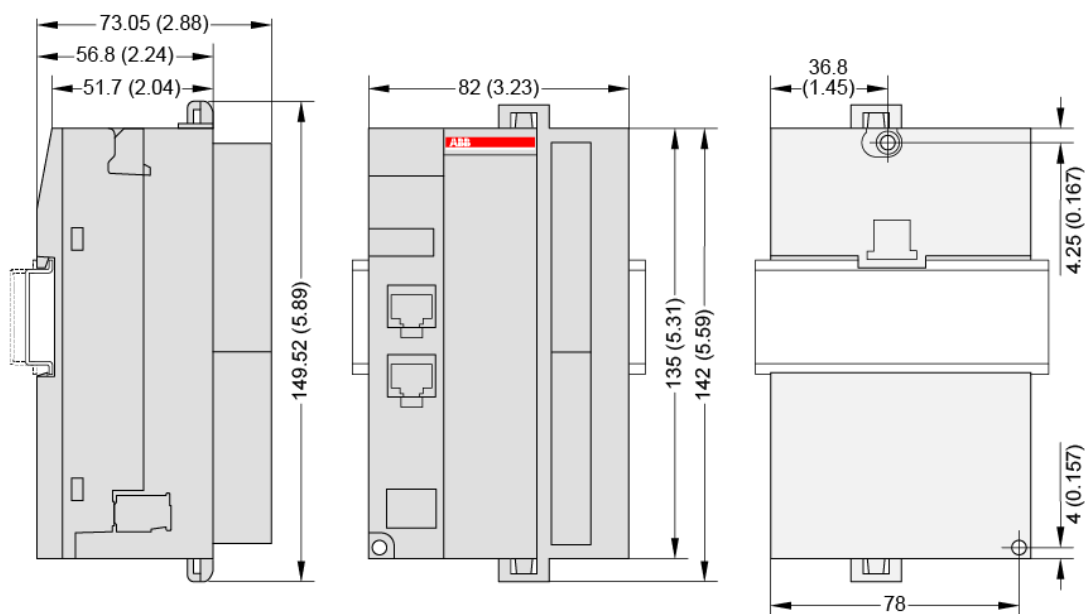
The dimensions are in mm and in brackets in inch.

74.5 Connections

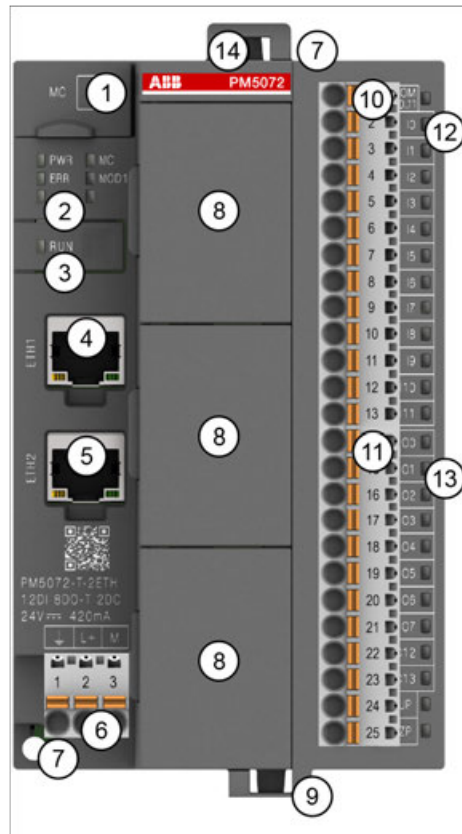*Fig. 91: Example: PM5072-T-2ETH*

1   Micro memory card slot
2   5 LEDs to display the states of the processor module (Power, Error, Run, MC, MOD1)
3   RUN button
4   RJ45 female connector for Ethernet1 connection
5   RJ45 female connector for Ethernet2 connection (available for PM50x2-T-2ETH)
6   3-pin terminal block for power supply 24 V DC
7   2 holes for screw mounting
8   Option board slot cover for option board slot (the number of available slots varies according
    to the CPU type)
9   Cable fixing
10 13-pin terminal block for onboard I/Os
11 12-pin terminal block for onboard I/Os (not available on PM5012-x-ETH)
12 12 LEDs to display the states of the signals
13 10 LEDs to display the states of the signals
14 Cable fixing accessory TA5301-CFA on the top of the housing (optional)

ⓘ	*The processor module is shown with pluggable terminal blocks. These terminal blocks must be ordered separately.*

ⓘ	*The cable fixing accessory on the top of the housing is optional.* *Please use TA5301-CFA cable fixing accessory to provide strain relief.* *It can also be used for AC500-eCo I/O modules.*

> ℹ️ *The PM50x2 processor modules are supplied with option board slot covers as standard.*
>
> *There are various TA51xx option boards for the processor modules that can be ordered separately.*
>
> *Which and how many option boards can be plugged, depends on the respective processor module.*

74.5.1 Power supply

The processor modules PM50x2 can be connected to the 24 V DC supply voltage via a removable 3-pin spring terminal block or a 3-pin screw terminal block.

Table 32: Removable terminal block for the supply voltage 24 V DC

3-pin spring terminal block	3-pin screw terminal block

The terminal block is available as a set for AC500-eCo V3 processor modules.

Basic CPU (PM5012)		Standard CPUs (PM5032, PM5052) and Pro CPUs (PM5072, PM5082)	
Spring type	**Screw type**	**Spring type**	**Screw type**
TA5211-TSPF-B	TA5211-TSCL-B	TA5212-TSPF	TA5212-TSCL

Pin assignment

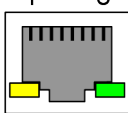| Pin Assignment	Pin	Label	Function	Description
Terminal block inserted	1	⏚	FE	Functional earth
	2	L+	+24 V DC	Positive pin of the power supply voltage
	3	M	0 V	Negative pin of the power supply voltage

> **!**
> **NOTICE!**
> **Risk of damaging the PLC due to improper voltage levels!**
>
> – Never exceed the maximum tolerance values for process and supply voltages.
> – Never fall below the minimum tolerance values for process and supply voltages.
>   Observe the **system data** and the **technical data** of the used module.

74.5.2 Ethernet network interface(s)

The Ethernet interface is carried out via a RJ45 jack.

Table 33: Pin assignment of the Ethernet interface

Interface	Pin	Description	
1 8	1	Tx+	Transmit data +
	2	Tx-	Transmit data -
	3	Rx+	Receive data +
	4	NC	Not connected
	5	NC	Not connected
	6	Rx-	Receive data -
	7	NC	Not connected
	8	NC	Not connected
	Shield	Cable shield	Functional earth

74.5.3 Onboard I/Os

74.5.3.1 Connections

74.5.3.1.1 General

> **⚠ WARNING!**
> **Risk of death by electric shock!**
> Hazardous voltages can be present at the terminals of the module.
>
> Make sure that all voltage sources (supply voltage and process supply voltage) are switched off before you begin with operations on the system.

> **!**
> **NOTICE!**
> **Risk of damaging the PLC modules!**
> The PLC modules must not be removed while the plant is connected to a power supply.
>
> Make sure that all voltage sources (supply and process voltage) are switched off before you
>
> – connect or disconnect any signal or terminal block
> – remove or replace a module.

> **NOTICE!**
>
> **Risk of damaging the PLC modules!**
>
> Overvoltages and short circuits might damage the PLC modules.
>
> – Make sure that all voltage sources (supply voltage and process supply voltage) are switched off before you begin with operations on the system.
> – Never connect any voltages or signals to reserved terminals (marked with ---). Reserved terminals may carry internal voltages.

> *When replacing a processor module, it is recommended to mark each wire connected to the onboard I/O terminal block before disconnecting it. This should make sure that the wires can be reconnected in the same order.*

The connection is carried out by using removable 12-pin and 13-pin terminal blocks.

Table 34: Assignment of the terminals for PM5012-T-ETH:

Terminal	Signal	Description
1	COM 0..5	Input common for digital input signals I0 to I5
2	I0	Digital input signal I0 (5 kHz)
3	I1	Digital input signal I1 (5 kHz)
4	I2	Digital input signal I2 (5 kHz)
5	I3	Digital input signal I3 (5 kHz)
6	I4	Digital input signal I4 (5 kHz)
7	I5	Digital input signal I5 (5 kHz)
8	O0	Digital output signal O0 (5 kHz)
9	O1	Digital output signal O1 (5 kHz)
10	O2	Digital output signal O2 (5 kHz)
11	O3	Digital output signal O3 (5 kHz)
12	UP	Process supply voltage UP +24 V DC
13	ZP	Process supply voltage ZP 0 V DC

Table 35: Assignment of the terminals for PM5012-R-ETH:

Terminal	Signal	Description
1	COM 0..5	Input common for digital input signals I0 to I5
2	I0	Digital input signal I0 (5 kHz)
3	I1	Digital input signal I1 (5 kHz)
4	I2	Digital input signal I2 (5 kHz)
5	I3	Digital input signal I3 (5 kHz)
6	I4	Digital input signal I4 (5 kHz)
7	I5	Digital input signal I5 (5 kHz)
8	NO0	Normally-open relay contact of the output NO0
9	NO1	Normally-open relay contact of the output NO1
10	R0..1	Output common for signals NO0 to NO1

Terminal	Signal	Description
11	NO2	Normally-open relay contact of the output NO2
12	NO3	Normally-open relay contact of the output NO3
13	R2..3	Output common for signals NO2 to NO3

Table 36: Assignment of the terminals for PM5032-T-ETH, PM5052-T-ETH, PM5072-T-2ETH(W) and PM5082-T-2ETH:

Terminal	Signal	Description
1	COM 0..11	Input common for digital input signals I0 to I11
2	I0	Digital input signal I0 (max. 5 kHz)
3	I1	Digital input signal I1 (max. 5 kHz)
4	I2	Digital input signal I2 (max. 5 kHz)
5	I3	Digital input signal I3 (max. 5 kHz)
6	I4	Digital input signal I4 Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
7	I5	Digital input signal I5 (100 kHz) Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
8	I6	Digital input signal I6 (100 kHz) Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
9	I7	Digital input signal I7 (100 kHz) Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
10	I8	Digital input signal I8
11	I9	Digital input signal I9
12	I10	Digital input signal I10
13	I11	Digital input signal I11
14	O0	Digital output signal O0 (max. 5 kHz)
15	O1	Digital output signal O1 (max. 5 kHz)
16	O2	Digital output signal O2 (max. 5 kHz)
17	O3	Digital output signal O3 (max. 5 kHz)
18	O4	Digital output signal O4 PWM (max. 100 kHz), PTO (max. 200 kHz)
19	O5	Digital output signal O5 PWM (max. 100 kHz), PTO (max. 200 kHz)
20	O6	Digital output signal O6 PWM (max. 100 kHz), PTO (max. 200 kHz)
21	O7	Digital output signal O7 PWM (max. 100 kHz), PTO (max. 200 kHz)
22	C12	Digital input/output signal configurable C12
23	C13	Digital input/output signal configurable C13

Terminal	Signal	Description
24	UP	Process supply voltage UP +24 V DC
25	ZP	Process supply voltage ZP 0 V DC

Table 37: Assignment of the terminals for PM5032-R-ETH and PM5052-R-ETH:

Terminal	Signal	Description
1	COM 0..11	Input common for digital input signals I0 to I11
2	I0	Digital input signal I0 (max. 5 kHz)
3	I1	Digital input signal I1 (max. 5 kHz)
4	I2	Digital input signal I2 (max. 5 kHz)
5	I3	Digital input signal I3 (max. 5 kHz)
6	I4	Digital input signal I4 Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
7	I5	Digital input signal I5 Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
8	I6	Digital input signal I6 Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
9	I7	Digital input signal I7 Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
10	I8	Digital input signal I8
11	I9	Digital input signal I9
12	I10	Digital input signal I10
13	I11	Digital input signal I11
14	NO0	Normally-open relay contact of the output NO0
15	NO1	Normally-open relay contact of the output NO1
16	NO2	Normally-open relay contact of the output NO2
17	R0..2	Output common for signals NO0 to NO2
18	NO3	Normally-open relay contact of the output NO3
19	NO4	Normally-open relay contact of the output NO4
20	NO5	Normally-open relay contact of the output NO5
21	R3..5	Output common for signals NO3 to NO5
22	C12	Digital input/output signal configurable C12 PWM (max. 100 kHz), PTO (max. 200 kHz)
23	C13	Digital input/output signal configurable C13 PWM (max. 100 kHz), PTO (max. 200 kHz)
24	UP	Process supply voltage UP +24 V DC
25	ZP	Process supply voltage ZP 0 V DC

Block diagrams   *Table 38: Internal structure of the onboard I/Os*

PM5012-T-ETH	PM5012-R-ETH	PM5032-ETH PM5052-T-ETH PM5072-T-2ETH(W) PM5082-T-2ETH	PM5032-R-ETH PM5052-R-ETH
COM 1 0..5 I0 2 I1 3 I2 4 I3 5 I4 6 I5 7 O0 8 O1 9 O2 10 O3 11 UP 12 ZP 13	COM 1 0..5 I0 2 I1 3 I2 4 I3 5 I4 6 I5 7 NO0 8 NO1 9 R0..1 10 NO2 11 NO3 12 R2..3 13	COM 1 0..11 I0 2 I1 3 I2 4 I3 5 I4 6 I5 7 I6 8 I7 9 I8 10 I9 11 I10 12 I11 13 O0 14 O1 15 O2 16 O3 17 O4 18 O5 19 O6 20 O7 21 C12 22 C13 23 UP 24 ZP 25	COM 1 0..11 I0 2 I1 3 I2 4 I3 5 I4 6 I5 7 I6 8 I7 9 I8 10 I9 11 I10 12 I11 13 NO0 14 NO1 15 NO2 16 R0..2 17 NO3 18 NO4 19 NO5 20 R3..5 21 C12 22 C13 23 UP 24 ZP 25

74.5.3.1.2 Connection of the digital inputs

The digital inputs can be used as source inputs or as sink inputs.

> **!**
>
> **NOTICE!**
> **Risk of malfunctions in the plant!**
> A ground fault, e. g. caused by a damaged cable insulation, can bridge switches accidentally.
>
> Use sink inputs when possible or make sure that, in case of error, there will be no risks to persons or plant.

Table 39: Connection of the digital inputs to the PM50x2 processor modules

Connection of digital inputs (sink inputs)	Connection digital inputs (source inputs)
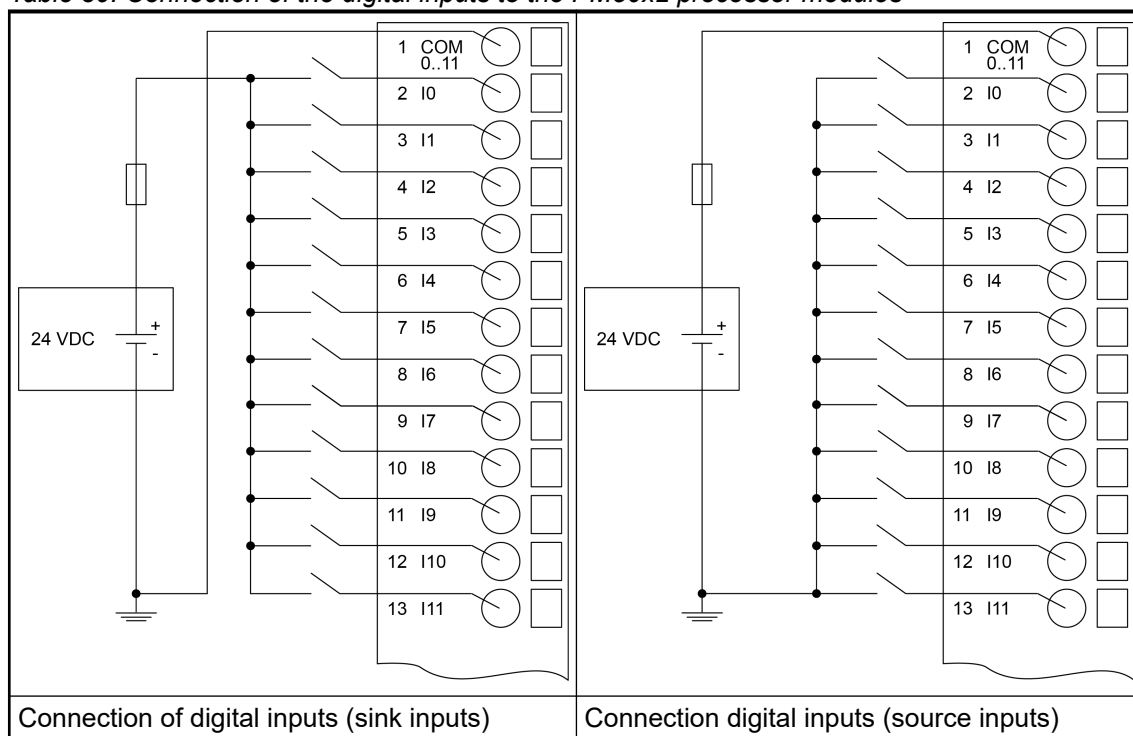
74.5.3.1.3 Connection of the digital transistor outputs (PM50xx-T-xETH only)

Fig. 92: Connection of digital transistor outputs and configurable digital inputs/outputs

C12 used as configurable digital input
C13 used as configurable digital transistor output

> ⚠️ **CAUTION!**
> **Risk of damaging the processor module!**
> The outputs are not protected against short circuit and overload.
>
> – Never short-circuit or overload the outputs.
> – Never connect the outputs to other voltages.
> – Use an external fuse for each output.

> ℹ️ *The configurable digital channels (C12 and C13) used as digital inputs have the same electrical characteristics as standard digital inputs.*
>
> *The configurable digital channels (C12 and C13) used as digital transistor outputs have the same electrical characteristics as standard digital outputs.*

74.5.3.1.4   Connection of the digital relay outputs (PM50xx-R-ETH only)

Fig. 93: Connection of digital relay outputs and configurable digital inputs/outputs

C12 used as configurable digital input
C13 used as configurable digital transistor output

> **WARNING!**
> **Risk of death by electric shock!**
> Hazardous voltages can be present at the terminals of the module.
>
> Make sure that all voltage sources (supply voltage and process supply voltage) are switched off before you begin with operations on the system.

> **CAUTION!**
> **Risk of damaging the processor module!**
> – Never short-circuit or overload the outputs.
> – Never connect inductive loads without an external suppression against voltage peaks due to inductive kickback.
> – Never connect voltages > 240 V. All outputs must be fed from the same phase.
> – Use an external fuse for each output.

> ℹ️ *The configurable digital channels (C12 and C13) used as digital inputs have the same electrical characteristics as standard digital inputs.*
>
> *The configurable digital channels (C12 and C13) used as digital transistor outputs have the same electrical characteristics as standard digital outputs.*

74.6 Cleaning

> ℹ️ **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

74.7 Certification

KC MSIP-REI-Abb-AC500	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	Note These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

74.8 Recycling

> ℹ️ **Disposal and recycling information**
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

— 75 PM5082-T-2ETH

- PM5082-T-2ETH

⚠️ **CAUTION!**

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

- Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
- Read product documentation carefully before wiring. Improper wiring or wrong terminal block from other devices can damage the product!
- Only by qualified personnel.

⚠️ **CAUTION!**

Risk of injury and damaging the module when using unapproved terminal blocks!

Only use terminal blocks approved by ABB to avoid injury and damage to the module.

> **Terminal block set for PM50x2**
>
> *Processor modules PM50x2 CPU are not delivered with terminal blocks.*
>
> *Screw terminal block set:*
>
> – *TA5211-TSCL-B (1SAP187400R0001) for PM5012-x-ETH*
> – *TA5212-TSCL (1SAP187400R0004) for PM5032-x-ETH, PM5052-x-ETH, PM5072-T-2ETH(W), PM5082-T-2ETH*
>
> *Spring terminal block set:*
>
> – *TA5211-TSPF-B (1SAP187400R0002) for PM5012-x-ETH*
> – *TA5212-TSPF (1SAP187400R0005) for PM5032-x-ETH, PM5052-x-ETH, PM5072-T-2ETH(W), PM5082-T-2ETH*

75.1 Assembly

75.1.1 Assembly TA5301-CFA

1   TA5301-CFA cable fixing accessory
2   2 openings on the PM50x2 processor module

▷   Insert the TA5301-CFA cable fixing accessory into the two openings on the PM50x2 processor module marked white in the figure.

75.2   Disassembly

75.3   Assembly with screws

1   TA543 screw mounting accessory
2   Slot for TA543 screw mounting accessory
3   2 holes for screw mounting

1. Insert the TA543 screw mounting accessory into the slot on the back side of the processor module.

    ⇨ **!** **NOTICE!**
        Use screw mounting accessory to avoid damage!
        For screw mounting, the use of the TA543 screw mounting accessory (1SAP182800R0001) is mandatory to prevent bending and damage to the module.

2. Fasten the processor module with 2 screws (M4, max 1.2 Nm) from the front side.

    ⇨ ⓘ *With screw mounting, the processor module is grounded through the screws.*

        It is necessary that

        – *the screws have a conductive surface (e.g. steel zinc-plated or brass nickel-plated)*
        – *the mounting plate is grounded*
        – *the screws have a good electrical contact to the mounting plate*

        ⓘ *To prevent the screw from loosening after prolonged use, a thread lock washer is highly recommended.*

75.4   Dimensions

73.05 (2.88)

56.8 (2.24)

51.7 (2.04)

149.52 (5.89)

82 (3.23)

135 (5.31)

142 (5.59)

36.8 (1.45)

4.25 (0.167)

4 (0.157)

78
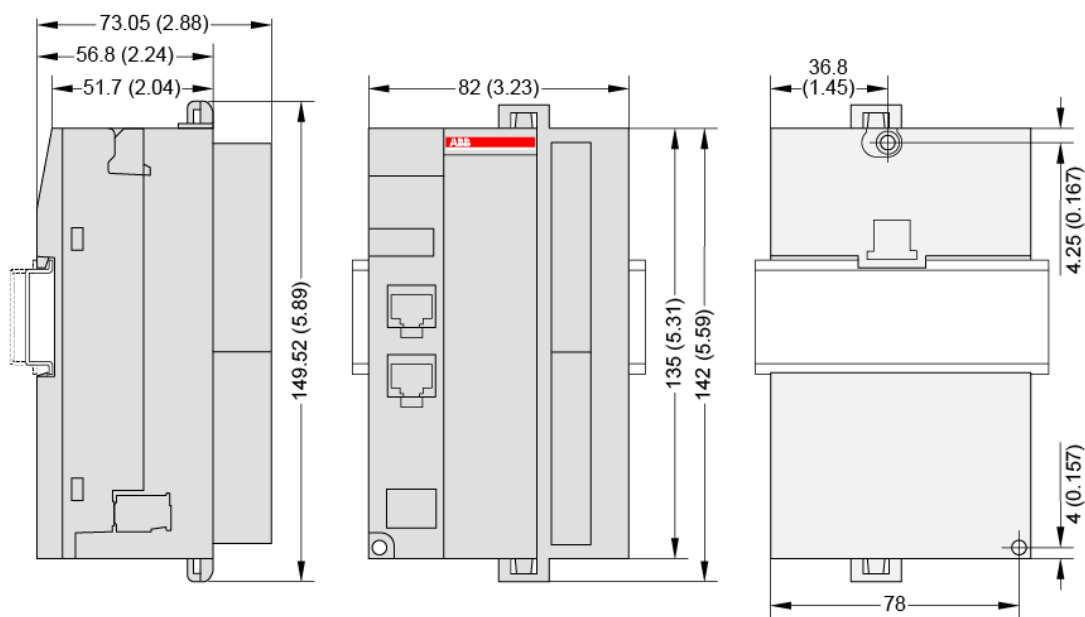
> *The dimensions are in mm and in brackets in inch.*

75.5 Connections

Fig. 94: Example: PM5072-T-2ETH

1   Micro memory card slot
2   5 LEDs to display the states of the processor module (Power, Error, Run, MC, MOD1)
3   RUN button
4   RJ45 female connector for Ethernet1 connection
5   RJ45 female connector for Ethernet2 connection (available for PM50x2-T-2ETH)
6   3-pin terminal block for power supply 24 V DC
7   2 holes for screw mounting
8   Option board slot cover for option board slot (the number of available slots varies according
    to the CPU type)
9   Cable fixing
10 13-pin terminal block for onboard I/Os
11 12-pin terminal block for onboard I/Os (not available on PM5012-x-ETH)
12 12 LEDs to display the states of the signals
13 10 LEDs to display the states of the signals
14 Cable fixing accessory TA5301-CFA on the top of the housing (optional)

> *The processor module is shown with pluggable terminal blocks. These terminal blocks must be ordered separately.*

> *The cable fixing accessory on the top of the housing is optional.*
>
> *Please use TA5301-CFA cable fixing accessory to provide strain relief.*
>
> *It can also be used for AC500-eCo I/O modules.*

> ℹ️ *The PM50x2 processor modules are supplied with option board slot covers as standard.*
>
> *There are various TA51xx option boards for the processor modules that can be ordered separately.*
>
> *Which and how many option boards can be plugged, depends on the respective processor module.*

75.5.1 Power supply

The processor modules PM50x2 can be connected to the 24 V DC supply voltage via a removable 3-pin spring terminal block or a 3-pin screw terminal block.

Table 40: Removable terminal block for the supply voltage 24 V DC

3-pin spring terminal block	3-pin screw terminal block

The terminal block is available as a set for AC500-eCo V3 processor modules.

Basic CPU (PM5012)		Standard CPUs (PM5032, PM5052) and Pro CPUs (PM5072, PM5082)	
Spring type	**Screw type**	**Spring type**	**Screw type**
TA5211-TSPF-B	TA5211-TSCL-B	TA5212-TSPF	TA5212-TSCL

Pin assignment

Pin Assignment	Pin	Label	Function	Description
 Terminal block inserted	1	⏚	FE	Functional earth
	2	L+	+24 V DC	Positive pin of the power supply voltage
	3	M	0 V	Negative pin of the power supply voltage

> **NOTICE!**
> **Risk of damaging the PLC due to improper voltage levels!**
>
> – Never exceed the maximum tolerance values for process and supply voltages.
> – Never fall below the minimum tolerance values for process and supply voltages.
>   Observe the **system data** and the **technical data** of the used module.

75.5.2   Ethernet network interface(s)

The Ethernet interface is carried out via a RJ45 jack.

Table 41: Pin assignment of the Ethernet interface

Interface	Pin	Description	
1 8	1	Tx+	Transmit data +
	2	Tx-	Transmit data -
	3	Rx+	Receive data +
	4	NC	Not connected
	5	NC	Not connected
	6	Rx-	Receive data -
	7	NC	Not connected
	8	NC	Not connected
	Shield	Cable shield	Functional earth

75.5.3   Onboard I/Os

75.5.3.1   Connections

75.5.3.1.1   General

> **WARNING!**
> **Risk of death by electric shock!**
> Hazardous voltages can be present at the terminals of the module.
>
> Make sure that all voltage sources (supply voltage and process supply voltage) are switched off before you begin with operations on the system.

> **NOTICE!**
> **Risk of damaging the PLC modules!**
> The PLC modules must not be removed while the plant is connected to a power supply.
>
> Make sure that all voltage sources (supply and process voltage) are switched off before you
>
> – connect or disconnect any signal or terminal block
> – remove or replace a module.

> **NOTICE!**
> **Risk of damaging the PLC modules!**
> Overvoltages and short circuits might damage the PLC modules.
> – Make sure that all voltage sources (supply voltage and process supply voltage) are switched off before you begin with operations on the system.
> – Never connect any voltages or signals to reserved terminals (marked with ---). Reserved terminals may carry internal voltages.

> *When replacing a processor module, it is recommended to mark each wire connected to the onboard I/O terminal block before disconnecting it. This should make sure that the wires can be reconnected in the same order.*

The connection is carried out by using removable 12-pin and 13-pin terminal blocks.

Table 42: Assignment of the terminals for PM5012-T-ETH:

Terminal	Signal	Description
1	COM 0..5	Input common for digital input signals I0 to I5
2	I0	Digital input signal I0 (5 kHz)
3	I1	Digital input signal I1 (5 kHz)
4	I2	Digital input signal I2 (5 kHz)
5	I3	Digital input signal I3 (5 kHz)
6	I4	Digital input signal I4 (5 kHz)
7	I5	Digital input signal I5 (5 kHz)
8	O0	Digital output signal O0 (5 kHz)
9	O1	Digital output signal O1 (5 kHz)
10	O2	Digital output signal O2 (5 kHz)
11	O3	Digital output signal O3 (5 kHz)
12	UP	Process supply voltage UP +24 V DC
13	ZP	Process supply voltage ZP 0 V DC

Table 43: Assignment of the terminals for PM5012-R-ETH:

Terminal	Signal	Description
1	COM 0..5	Input common for digital input signals I0 to I5
2	I0	Digital input signal I0 (5 kHz)
3	I1	Digital input signal I1 (5 kHz)
4	I2	Digital input signal I2 (5 kHz)
5	I3	Digital input signal I3 (5 kHz)
6	I4	Digital input signal I4 (5 kHz)
7	I5	Digital input signal I5 (5 kHz)
8	NO0	Normally-open relay contact of the output NO0
9	NO1	Normally-open relay contact of the output NO1
10	R0..1	Output common for signals NO0 to NO1

Terminal	Signal	Description
11	NO2	Normally-open relay contact of the output NO2
12	NO3	Normally-open relay contact of the output NO3
13	R2..3	Output common for signals NO2 to NO3

Table 44: Assignment of the terminals for PM5032-T-ETH, PM5052-T-ETH, PM5072-T-2ETH(W) and PM5082-T-2ETH:

Terminal	Signal	Description
1	COM 0..11	Input common for digital input signals I0 to I11
2	I0	Digital input signal I0 (max. 5 kHz)
3	I1	Digital input signal I1 (max. 5 kHz)
4	I2	Digital input signal I2 (max. 5 kHz)
5	I3	Digital input signal I3 (max. 5 kHz)
6	I4	Digital input signal I4 Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
7	I5	Digital input signal I5 (100 kHz) Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
8	I6	Digital input signal I6 (100 kHz) Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
9	I7	Digital input signal I7 (100 kHz) Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
10	I8	Digital input signal I8
11	I9	Digital input signal I9
12	I10	Digital input signal I10
13	I11	Digital input signal I11
14	O0	Digital output signal O0 (max. 5 kHz)
15	O1	Digital output signal O1 (max. 5 kHz)
16	O2	Digital output signal O2 (max. 5 kHz)
17	O3	Digital output signal O3 (max. 5 kHz)
18	O4	Digital output signal O4 PWM (max. 100 kHz), PTO (max. 200 kHz)
19	O5	Digital output signal O5 PWM (max. 100 kHz), PTO (max. 200 kHz)
20	O6	Digital output signal O6 PWM (max. 100 kHz), PTO (max. 200 kHz)
21	O7	Digital output signal O7 PWM (max. 100 kHz), PTO (max. 200 kHz)
22	C12	Digital input/output signal configurable C12
23	C13	Digital input/output signal configurable C13

Terminal	Signal	Description
24	UP	Process supply voltage UP +24 V DC
25	ZP	Process supply voltage ZP 0 V DC

Table 45: Assignment of the terminals for PM5032-R-ETH and PM5052-R-ETH:

Terminal	Signal	Description
1	COM 0..11	Input common for digital input signals I0 to I11
2	I0	Digital input signal I0 (max. 5 kHz)
3	I1	Digital input signal I1 (max. 5 kHz)
4	I2	Digital input signal I2 (max. 5 kHz)
5	I3	Digital input signal I3 (max. 5 kHz)
6	I4	Digital input signal I4 Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
7	I5	Digital input signal I5 Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
8	I6	Digital input signal I6 Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
9	I7	Digital input signal I7 Forward counter (max. 100 kHz), Encoder (max. 200 kHz)
10	I8	Digital input signal I8
11	I9	Digital input signal I9
12	I10	Digital input signal I10
13	I11	Digital input signal I11
14	NO0	Normally-open relay contact of the output NO0
15	NO1	Normally-open relay contact of the output NO1
16	NO2	Normally-open relay contact of the output NO2
17	R0..2	Output common for signals NO0 to NO2
18	NO3	Normally-open relay contact of the output NO3
19	NO4	Normally-open relay contact of the output NO4
20	NO5	Normally-open relay contact of the output NO5
21	R3..5	Output common for signals NO3 to NO5
22	C12	Digital input/output signal configurable C12 PWM (max. 100 kHz), PTO (max. 200 kHz)
23	C13	Digital input/output signal configurable C13 PWM (max. 100 kHz), PTO (max. 200 kHz)
24	UP	Process supply voltage UP +24 V DC
25	ZP	Process supply voltage ZP 0 V DC

Block diagrams   *Table 46: Internal structure of the onboard I/Os*

PM5012-T-ETH	PM5012-R-ETH	PM5032-ETH PM5052-T-ETH PM5072-T-2ETH(W) PM5082-T-2ETH	PM5032-R-ETH PM5052-R-ETH

75.5.3.1.2 Connection of the digital inputs

The digital inputs can be used as source inputs or as sink inputs.

> **!**
> **NOTICE!**
> **Risk of malfunctions in the plant!**
> A ground fault, e. g. caused by a damaged cable insulation, can bridge switches accidentally.
>
> Use sink inputs when possible or make sure that, in case of error, there will be no risks to persons or plant.

Table 47: Connection of the digital inputs to the PM50x2 processor modules

Connection of digital inputs (sink inputs)	Connection digital inputs (source inputs)

75.5.3.1.3   Connection of the digital transistor outputs (PM50xx-T-xETH only)

Fig. 95: Connection of digital transistor outputs and configurable digital inputs/outputs

C12 used as configurable digital input
C13 used as configurable digital transistor output

> **CAUTION!**
> **Risk of damaging the processor module!**
> The outputs are not protected against short circuit and overload.
>
> –   Never short-circuit or overload the outputs.
> –   Never connect the outputs to other voltages.
> –   Use an external fuse for each output.

> *The configurable digital channels (C12 and C13) used as digital inputs have the same electrical characteristics as standard digital inputs.*
>
> *The configurable digital channels (C12 and C13) used as digital transistor outputs have the same electrical characteristics as standard digital outputs.*

75.5.3.1.4   Connection of the digital relay outputs (PM50xx-R-ETH only)

Fig. 96: Connection of digital relay outputs and configurable digital inputs/outputs

C12 used as configurable digital input
C13 used as configurable digital transistor output

> ⚠ **WARNING!**
> **Risk of death by electric shock!**
> Hazardous voltages can be present at the terminals of the module.
>
> Make sure that all voltage sources (supply voltage and process supply voltage) are switched off before you begin with operations on the system.

> ⚠ **CAUTION!**
> **Risk of damaging the processor module!**
> – Never short-circuit or overload the outputs.
> – Never connect inductive loads without an external suppression against voltage peaks due to inductive kickback.
> – Never connect voltages > 240 V. All outputs must be fed from the same phase.
> – Use an external fuse for each output.

> ⓘ *The configurable digital channels (C12 and C13) used as digital inputs have the same electrical characteristics as standard digital inputs.*
>
> *The configurable digital channels (C12 and C13) used as digital transistor outputs have the same electrical characteristics as standard digital outputs.*

75.6 Cleaning

> ⓘ **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

75.7 Certification

KC MSIP-REI-Abb-AC500	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	Note These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

75.8 Recycling

> ⓘ **Disposal and recycling information**
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

76   PM5630-2ETH(-XC)

- PM5630-2ETH
- PM5630-2ETH-XC

⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

ⓘ	*Processor modules PM56xx-2ETH can only be used with TB56xx-2ETH terminal bases.*

Table 48: Combination of TB56xx-2ETH(-XC) and PM56xx(-XC)

Processor module	PM5630	PM5650	PM5670	PM5675
TB5600-2ETH	0 slot	0 slot	0 slot	0 slot
TB5610-2ETH	1 slot	1 slot	1 slot	1 slot
TB5620-2ETH	2 slots	2 slots	2 slots	2 slots
TB5640-2ETH	-	4 slots	4 slots	4 slots
TB5660-2ETH	-	-	6 slots [1]	6 slots [1]
Remarks:				
The slots can be used for connecting communication modules or AC500-S modules. Note that only one AC500-S module can be connected at one terminal base.				
[1] PM567x must have an index $\geq$ C0.				

76.1 Assembly

76.2 Disassembly
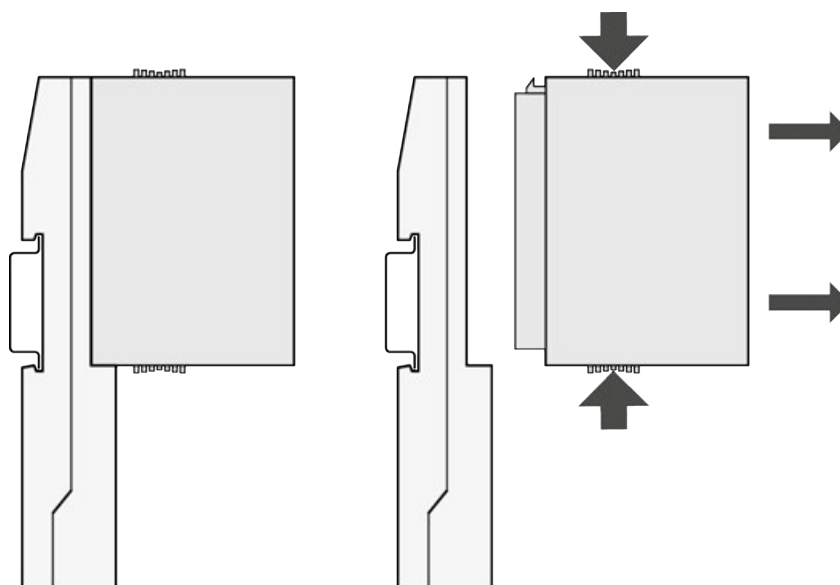
76.3   Dimensions
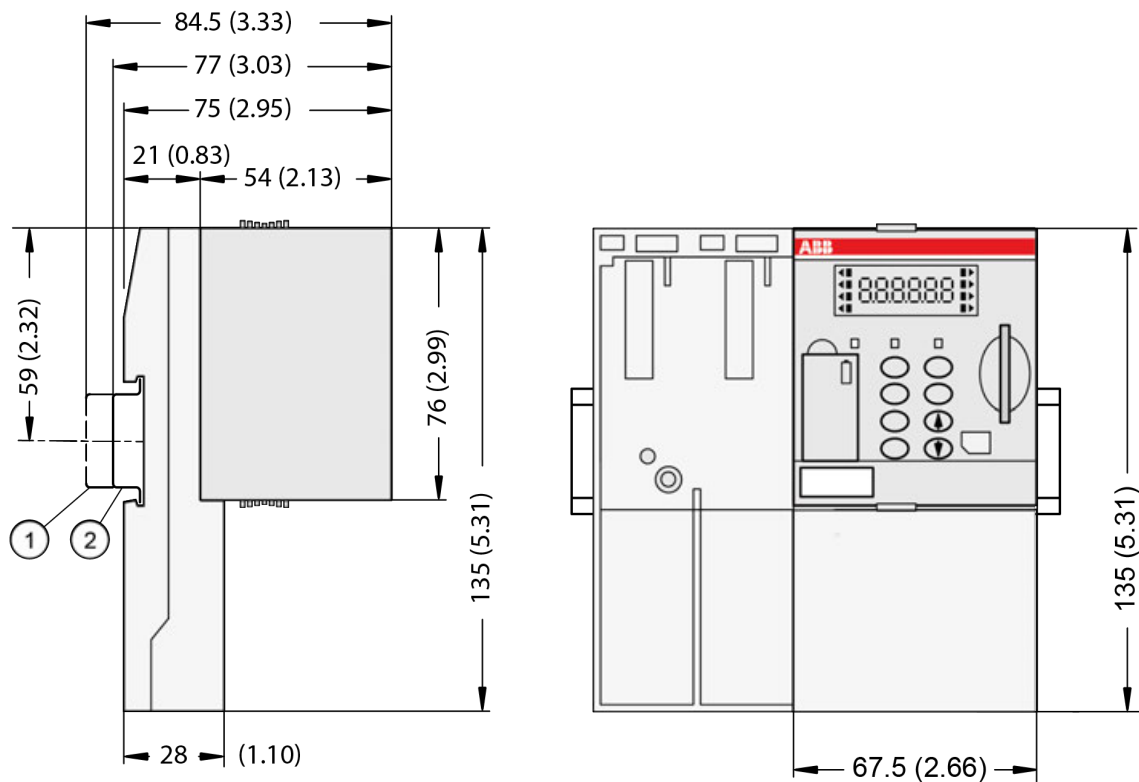
1   Din rail 15 mm
2   Din rail 7.5 mm

> ⓘ   *The dimensions are in mm and in brackets in inch.*

76.4   Connections
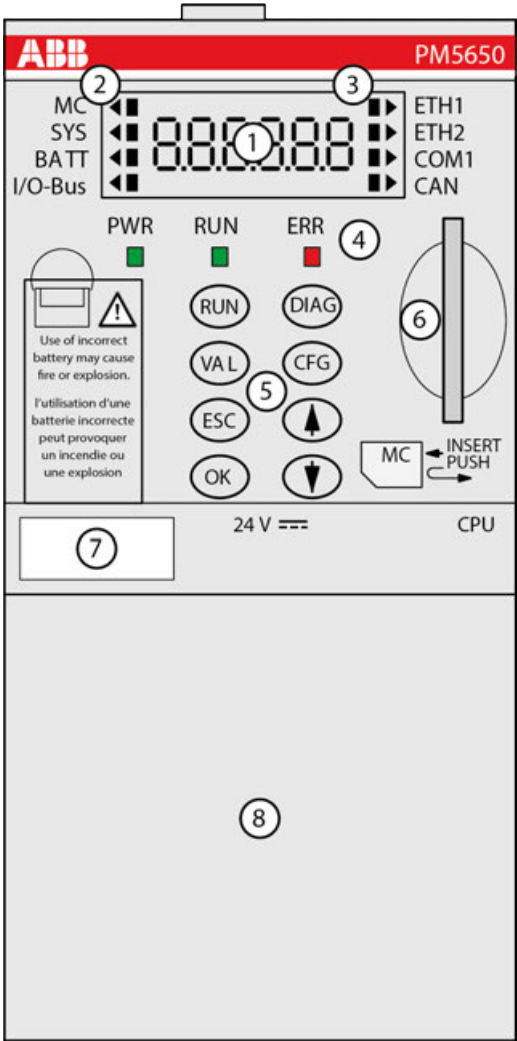
1   Status displays (7-segment)
2   Triangle displays for "Item"
3   Square displays for "Status"
4   Status LEDs
5   Function keys
6   Slot for memory card
7   TA525: Label
8   The connection part may be different on various terminal base types. See installation
    instructions of the specific terminal base suitable for this CPU for connection specifications.
❄ Sign for XC version

> *Processor modules PM56xx-2ETH can only be used with TB56xx-2ETH terminal bases.*

Table 49: Combination of TB56xx-2ETH(-XC) and PM56xx(-XC)

Processor module	PM5630	PM5650	PM5670	PM5675
TB5600-2ETH	0 slot	0 slot	0 slot	0 slot
TB5610-2ETH	1 slot	1 slot	1 slot	1 slot
TB5620-2ETH	2 slots	2 slots	2 slots	2 slots

Processor module	PM5630	PM5650	PM5670	PM5675
TB5640-2ETH	-	4 slots	4 slots	4 slots
TB5660-2ETH	-	-	6 slots [1]	6 slots [1]
Remarks:				
The slots can be used for connecting communication modules or AC500-S modules. Note that only one AC500-S module can be connected at one terminal base.				
[1] PM567x must have an index $\geq$ C0.				

76.5 Cleaning

> **Cleaning instructions**
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

76.6 Certification

en	Devices with KCC sign on product sticker and packaging
ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

MSIP-REI-Abb-AC500

en	Note
	These devices correspond to:
	KN61000-6-2 "Immunity for industrial environments",
	KN61000-6-4 "Emission standard for industrial environments"
ko	참고
	이러한 기기는
	KN61000-6-2 "산업 환경에 대한 내성",
	KN61000-6-4 "산업 환경 누출 기준"에 적합함

76.7 Recycling

> **Disposal and recycling information**
>
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

77 PM5650-2ETH(-XC)

- PM5650-2ETH
- PM5650-2ETH-XC

⚠️	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

ℹ️	*Processor modules PM56xx-2ETH can only be used with TB56xx-2ETH terminal bases.*

Table 50: Combination of TB56xx-2ETH(-XC) and PM56xx(-XC)

Processor module	PM5630	PM5650	PM5670	PM5675
TB5600-2ETH	0 slot	0 slot	0 slot	0 slot
TB5610-2ETH	1 slot	1 slot	1 slot	1 slot
TB5620-2ETH	2 slots	2 slots	2 slots	2 slots
TB5640-2ETH	-	4 slots	4 slots	4 slots
TB5660-2ETH	-	-	6 slots [1]	6 slots [1]
Remarks:				
The slots can be used for connecting communication modules or AC500-S modules. Note that only one AC500-S module can be connected at one terminal base.				
[1] PM567x must have an index $\geq$ C0.				

77.1   Assembly

77.2   Disassembly
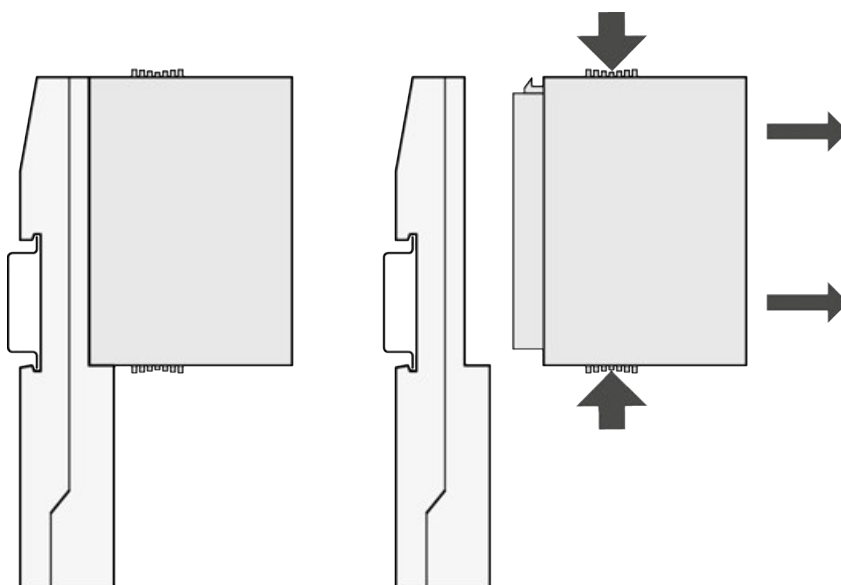
77.3   Dimensions

84.5 (3.33)

77 (3.03)

75 (2.95)

21 (0.83)

54 (2.13)

59 (2.32)

76 (2.99)

135 (5.31)

① ②

28 (1.10)

135 (5.31)

67.5 (2.66)

1   Din rail 15 mm
2   Din rail 7.5 mm

The dimensions are in mm and in brackets in inch.

77.4   Connections
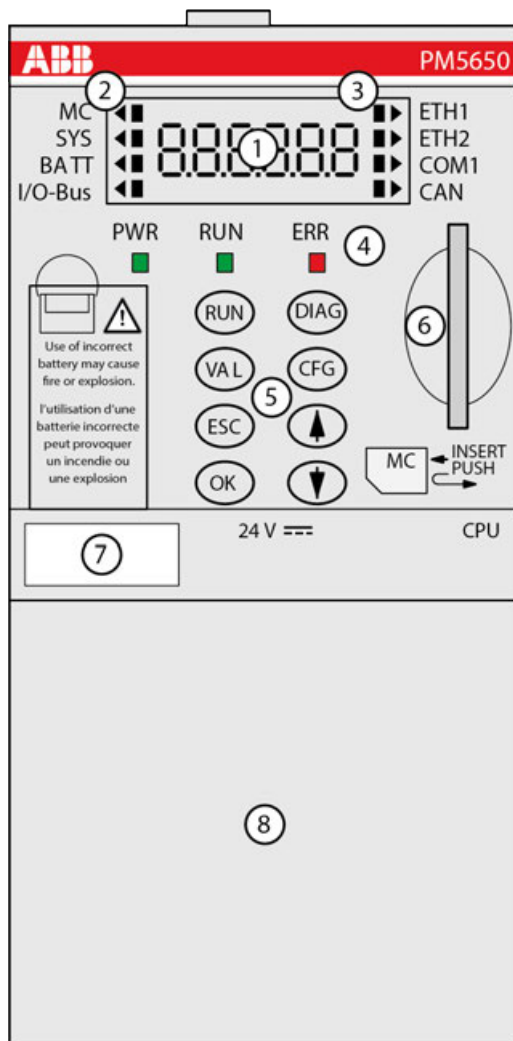
1   Status displays (7-segment)
2   Triangle displays for "Item"
3   Square displays for "Status"
4   Status LEDs
5   Function keys
6   Slot for memory card
7   TA525: Label
8   The connection part may be different on various terminal base types. See installation instructions of the specific terminal base suitable for this CPU for connection specifications.
❄   Sign for XC version

> ⓘ   *Processor modules PM56xx-2ETH can only be used with TB56xx-2ETH terminal bases.*

Table 51: Combination of TB56xx-2ETH(-XC) and PM56xx(-XC)

Processor module	PM5630	PM5650	PM5670	PM5675
TB5600-2ETH	0 slot	0 slot	0 slot	0 slot
TB5610-2ETH	1 slot	1 slot	1 slot	1 slot
TB5620-2ETH	2 slots	2 slots	2 slots	2 slots

Processor module	PM5630	PM5650	PM5670	PM5675
TB5640-2ETH	-	4 slots	4 slots	4 slots
TB5660-2ETH	-	-	6 slots [1]	6 slots [1]
Remarks:				
The slots can be used for connecting communication modules or AC500-S modules. Note that only one AC500-S module can be connected at one terminal base.				
[1] PM567x must have an index $\geq$ C0.				

77.5   Cleaning

> **Cleaning instructions**
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

77.6   Certification

en	Devices with KCC sign on product sticker and packaging	
ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기	

MSIP-REI-Abb-AC500

en	Note These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

77.7   Recycling

> **Disposal and recycling information**
>
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

78 PM5670-2ETH(-XC)

- PM5670-2ETH
- PM5670-2ETH-XC

CAUTION!

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
– Only by qualified personnel.

Processor modules PM56xx-2ETH can only be used with TB56xx-2ETH terminal bases.

Table 52: Combination of TB56xx-2ETH(-XC) and PM56xx(-XC)

Processor module	PM5630	PM5650	PM5670	PM5675
TB5600-2ETH	0 slot	0 slot	0 slot	0 slot
TB5610-2ETH	1 slot	1 slot	1 slot	1 slot
TB5620-2ETH	2 slots	2 slots	2 slots	2 slots
TB5640-2ETH	-	4 slots	4 slots	4 slots
TB5660-2ETH	-	-	6 slots [1]	6 slots [1]
Remarks:				
The slots can be used for connecting communication modules or AC500-S modules. Note that only one AC500-S module can be connected at one terminal base.				
[1] PM567x must have an index $\geq$ C0.				

78.1   Assembly
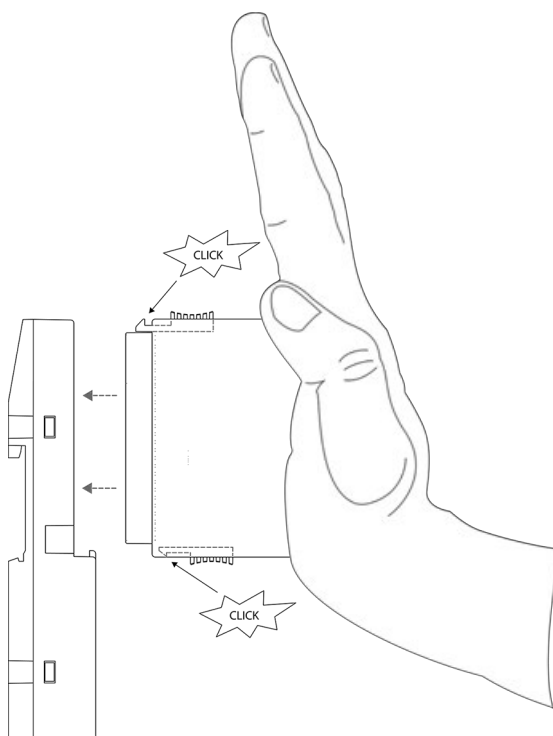
78.2   Disassembly
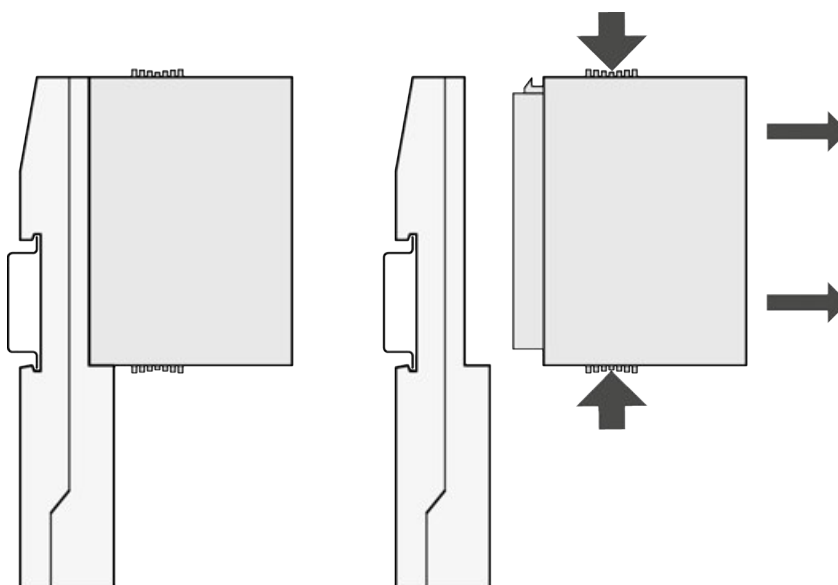
78.3   Dimensions
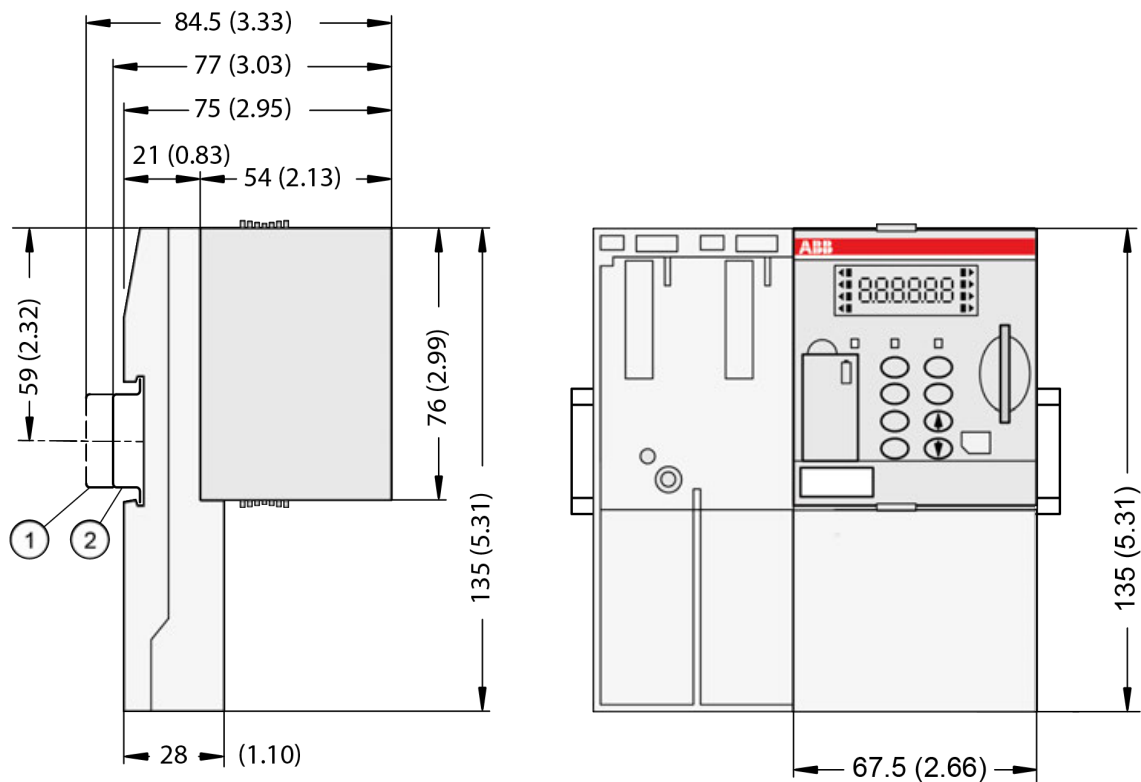
1   Din rail 15 mm
2   Din rail 7.5 mm

> ⓘ   *The dimensions are in mm and in brackets in inch.*

78.4   Connections
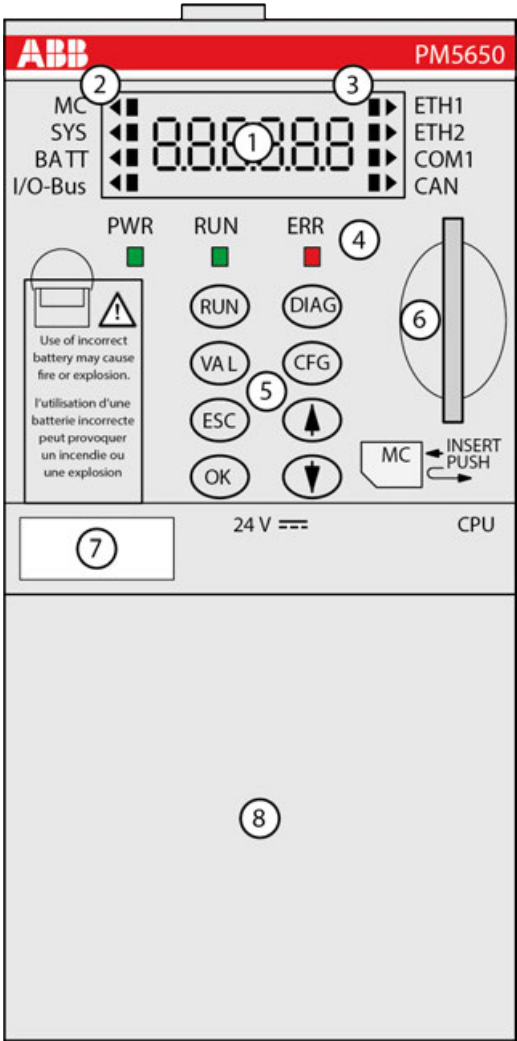
1   Status displays (7-segment)
2   Triangle displays for "Item"
3   Square displays for "Status"
4   Status LEDs
5   Function keys
6   Slot for memory card
7   TA525: Label
8   The connection part may be different on various terminal base types. See installation
     instructions of the specific terminal base suitable for this CPU for connection specifications.
❄   Sign for XC version

> *Processor modules PM56xx-2ETH can only be used with TB56xx-2ETH
> terminal bases.*

Table 53: Combination of TB56xx-2ETH(-XC) and PM56xx(-XC)
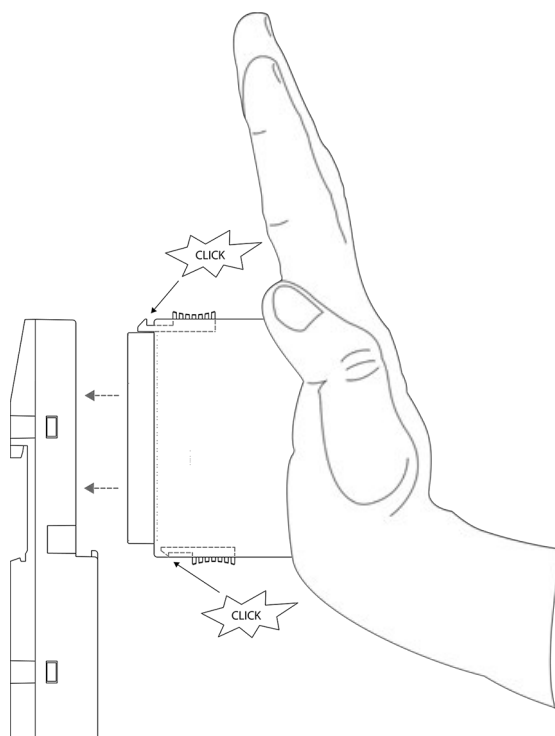
Processor module	PM5630	PM5650	PM5670	PM5675
TB5600-2ETH	0 slot	0 slot	0 slot	0 slot
TB5610-2ETH	1 slot	1 slot	1 slot	1 slot
TB5620-2ETH	2 slots	2 slots	2 slots	2 slots

| Processor module	PM5630	PM5650	PM5670	PM5675
TB5640-2ETH	-	4 slots	4 slots	4 slots
TB5660-2ETH	-	-	6 slots [1]	6 slots [1]
Remarks:				
The slots can be used for connecting communication modules or AC500-S modules. Note that only one AC500-S module can be connected at one terminal base.				
[1] PM567x must have an index $\geq$ C0.				

78.5   Cleaning

> ⓘ **Cleaning instructions**
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

78.6   Certification

en   Devices with KCC sign on product sticker and packaging

ko   제품 스티커 및 포장에 **KCC** 표시가 된 기기

MSIP-REI-Abb-AC500

en   Note
These devices correspond to: **KN61000-6-2** "Immunity for industrial environments",
KN61000-6-4 "Emission standard for industrial environments"

ko   참고
이러한 기기는   **KN61000-6-2** "산업 환경에 대한 내성",
KN61000-6-4 "산업 환경 누출 기준"에 적합함

78.7   Recycling

> ⓘ **Disposal and recycling information**
>
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

79 PM5675-2ETH(-XC)

- PM5675-2ETH
- PM5675-2ETH-XC

⚠️ **CAUTION!**

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.

– Only by qualified personnel.

ⓘ *Processor modules PM56xx-2ETH can only be used with TB56xx-2ETH terminal bases.*

Table 54: Combination of TB56xx-2ETH(-XC) and PM56xx(-XC)

Processor module	PM5630	PM5650	PM5670	PM5675
TB5600-2ETH	0 slot	0 slot	0 slot	0 slot
TB5610-2ETH	1 slot	1 slot	1 slot	1 slot
TB5620-2ETH	2 slots	2 slots	2 slots	2 slots
TB5640-2ETH	-	4 slots	4 slots	4 slots
TB5660-2ETH	-	-	6 slots [1]	6 slots [1]
Remarks:				
The slots can be used for connecting communication modules or AC500-S modules. Note that only one AC500-S module can be connected at one terminal base.				
[1] PM567x must have an index $\geq$ C0.				

79.1   Assembly
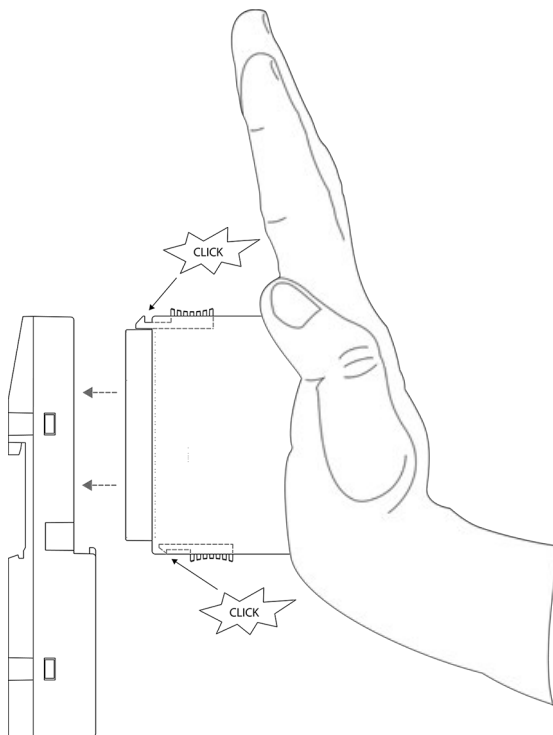
79.2   Disassembly
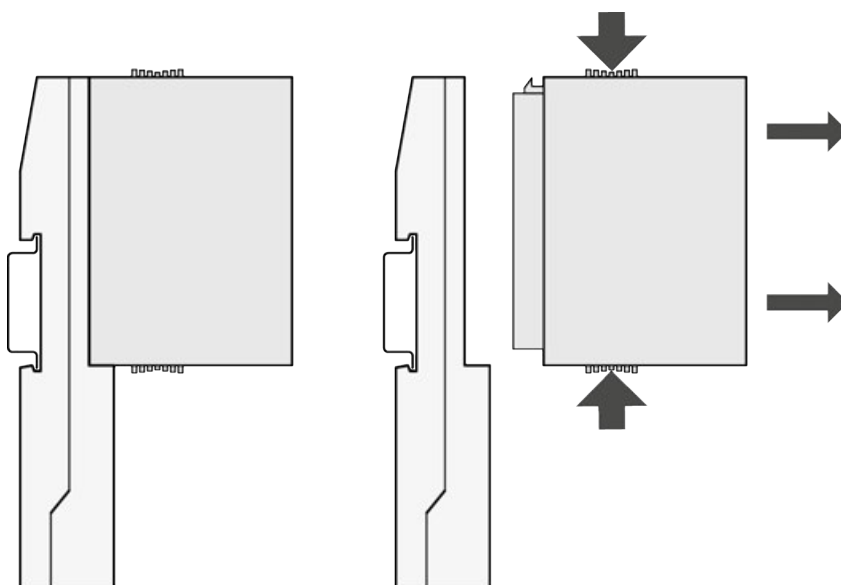
79.3   Dimensions

1   Din rail 15 mm
2   Din rail 7.5 mm

> ⓘ   *The dimensions are in mm and in brackets in inch.*

79.4 Connections
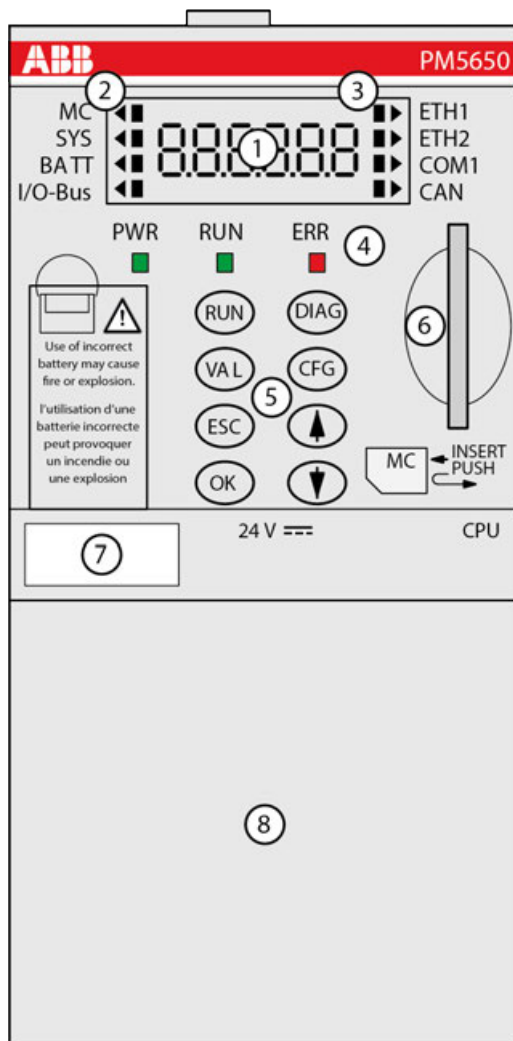
1   Status displays (7-segment)
2   Triangle displays for "Item"
3   Square displays for "Status"
4   Status LEDs
5   Function keys
6   Slot for memory card
7   TA525: Label
8   The connection part may be different on various terminal base types. See installation
    instructions of the specific terminal base suitable for this CPU for connection specifications.
❄ Sign for XC version

> *Processor modules PM56xx-2ETH can only be used with TB56xx-2ETH terminal bases.*

Table 55: Combination of TB56xx-2ETH(-XC) and PM56xx(-XC)

Processor module	PM5630	PM5650	PM5670	PM5675
TB5600-2ETH	0 slot	0 slot	0 slot	0 slot
TB5610-2ETH	1 slot	1 slot	1 slot	1 slot
TB5620-2ETH	2 slots	2 slots	2 slots	2 slots

Processor module	PM5630	PM5650	PM5670	PM5675
TB5640-2ETH	-	4 slots	4 slots	4 slots
TB5660-2ETH	-	-	6 slots [1]	6 slots [1]
Remarks:				
The slots can be used for connecting communication modules or AC500-S modules. Note that only one AC500-S module can be connected at one terminal base.				
[1] PM567x must have an index $\geq$ C0.				

79.5   Cleaning

> **Cleaning instructions**
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

79.6   Certification

en Devices with KCC sign on product sticker and packaging

ko 제품 스티커 및 포장에 **KCC** 표시가 된 기기

MSIP-REI-Abb-AC500

en Note
These devices correspond to:

KN61000-6-2 "Immunity for industrial environments",
KN61000-6-4 "Emission standard for industrial environments"

ko 참고
이러한 기기는

KN61000-6-2 "산업 환경에 대한 내성",
KN61000-6-4 "산업 환경 누출 기준"에 적합함

79.7   Recycling

> **Disposal and recycling information**
>
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

80 PM572

- PM572

CAUTION!

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
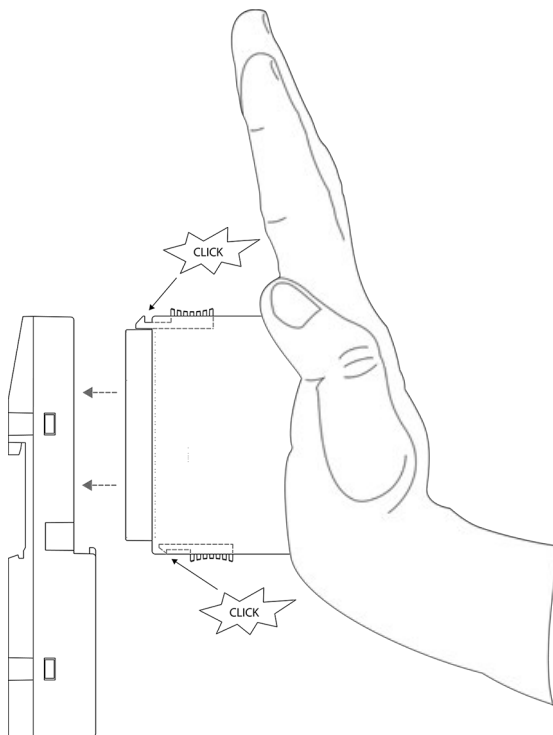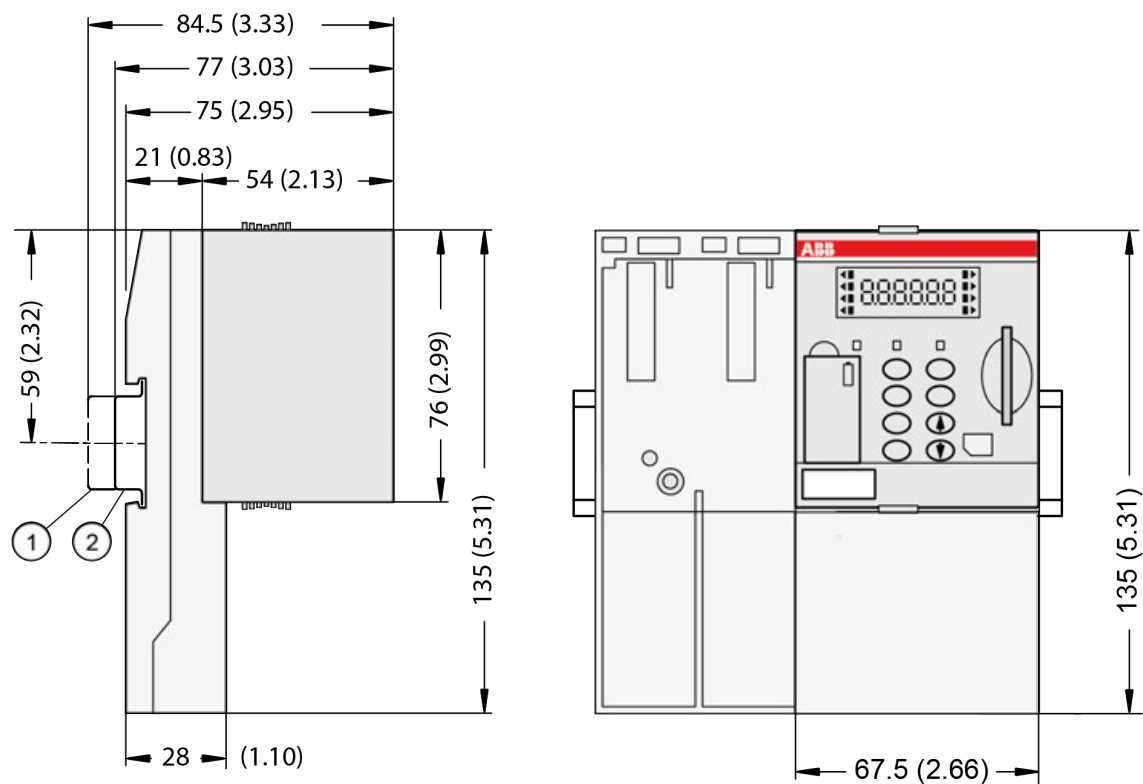– Only by qualified personnel.

Processor modules PM57x-ETH, PM58x-ETH and PM59x-ETH with ordering No. 1SAPxxxxxxR0271 can only be used with terminal bases TB5xx with ordering No. 1SAPxxxxxxR0270.

Processor module PM591-2ETH can only be used with TB523-2ETH.

The processor modules PM59x-ETH can only be used with terminal bases TB5xx with product index C6 or higher. Otherwise, they should be updated to that index.

80.1   Assembly

80.2   Disassembly
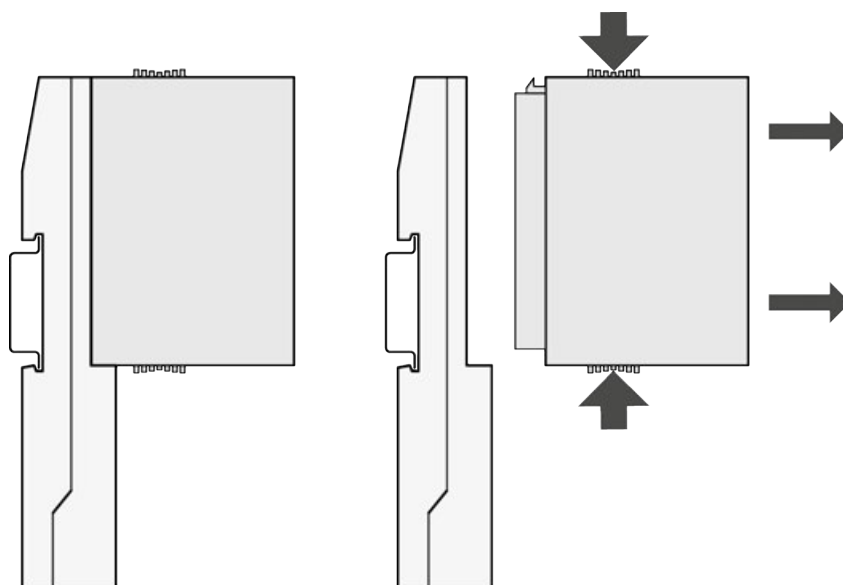
80.3   Dimensions
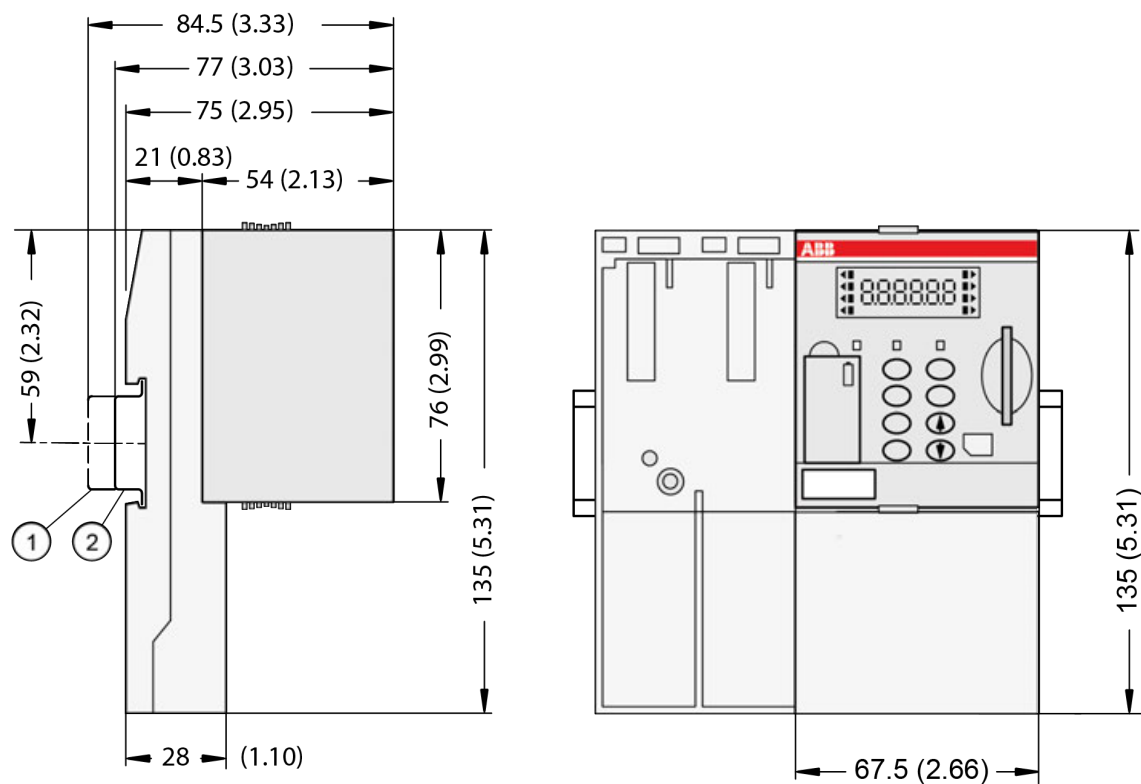
1   Din rail 15 mm
2   Din rail 7.5 mm

> ⓘ   *The dimensions are in mm and in brackets in inch.*

80.4 Connections
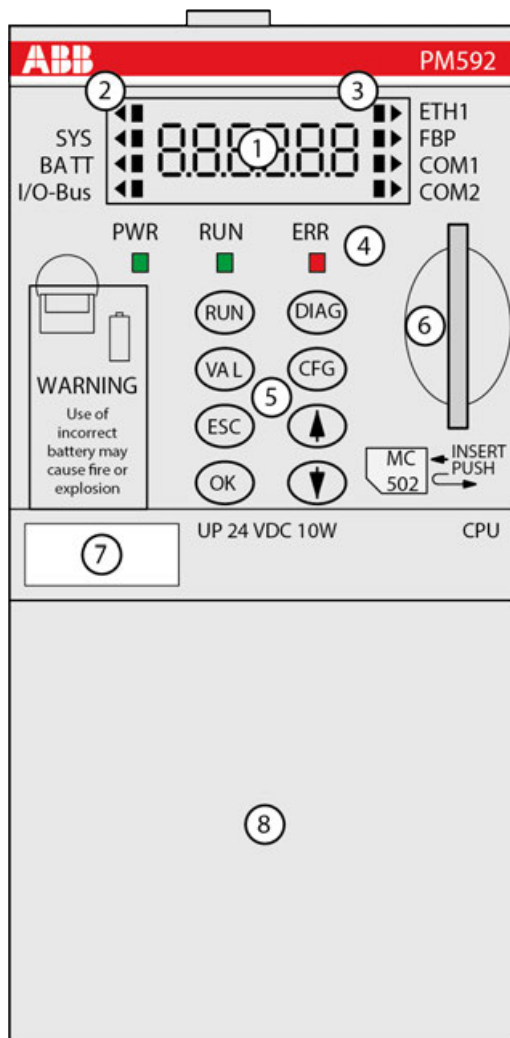
1 Status displays (7-segment)
2 Triangle displays for "Item"
3 Square displays for "Status"
4 Status LEDs
5 Function keys
6 Slot for memory card
7 TA525: Label
8 The connection part may be different on various terminal base types. See installation instructions of the specific terminal base suitable for this CPU for connection specifications.
❄ Sign for XC version

80.5 Cleaning

> ⓘ **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

80.6   Certification

KC MSIP-REI-Abb-AC500	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	Note These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

80.7   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

81 PM573-ETH(-XC)

- PM573-ETH
- PM573-ETH-XC

⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

ⓘ	*Processor modules PM57x-ETH, PM58x-ETH and PM59x-ETH with ordering No. 1SAPxxxxxxR0271 can only be used with terminal bases TB5xx with ordering No. 1SAPxxxxxxR0270.*

ⓘ	*Processor module PM591-2ETH can only be used with TB523-2ETH.*

ⓘ	*The processor modules PM59x-ETH can only be used with terminal bases TB5xx with product index C6 or higher. Otherwise, they should be updated to that index.*

81.1 Assembly

81.2 Disassembly

81.3   Dimensions

84.5 (3.33)
77 (3.03)
75 (2.95)
21 (0.83)
54 (2.13)
59 (2.32)
76 (2.99)
135 (5.31)
28   (1.10)
135 (5.31)
67.5 (2.66)

1   Din rail 15 mm
2   Din rail 7.5 mm

> *The dimensions are in mm and in brackets in inch.*

81.4   Connections
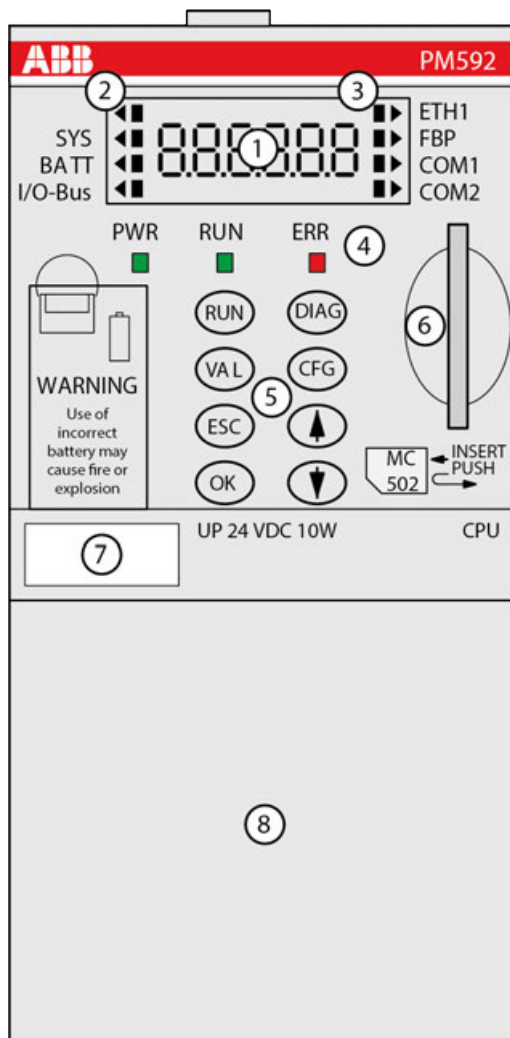
1   Status displays (7-segment)
2   Triangle displays for "Item"
3   Square displays for "Status"
4   Status LEDs
5   Function keys
6   Slot for memory card
7   TA525: Label
8   The connection part may be different on various terminal base types. See installation
     instructions of the specific terminal base suitable for this CPU for connection specifications.
❄   Sign for XC version

81.5   Cleaning

> *Cleaning instructions*
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

81.6   Certification

| | en | Devices with KCC sign on product sticker and packaging |
| | ko | 제품 스티커 및 포장에 **KCC** 표시가 된 기기 |

MSIP-REI-Abb-AC500

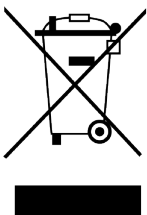| en | Note
These devices correspond to: | **KN61000-6-2** "Immunity for industrial environments",
KN61000-6-4 "Emission standard for industrial environments" |
| ko | 참고
이러한 기기는 | **KN61000-6-2** "산업 환경에 대한 내성",
KN61000-6-4 "산업 환경 누출 기준"에 적합함 |

81.7   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

82 PM582(-XC)

- PM582
- PM582-XC

⚠️ **CAUTION!**

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
– Only by qualified personnel.

ℹ️ *Processor modules PM57x-ETH, PM58x-ETH and PM59x-ETH with ordering No. 1SAPxxxxxxR0271 can only be used with terminal bases TB5xx with ordering No. 1SAPxxxxxxR0270.*

ℹ️ *Processor module PM591-2ETH can only be used with TB523-2ETH.*

ℹ️ *The processor modules PM59x-ETH can only be used with terminal bases TB5xx with product index C6 or higher. Otherwise, they should be updated to that index.*
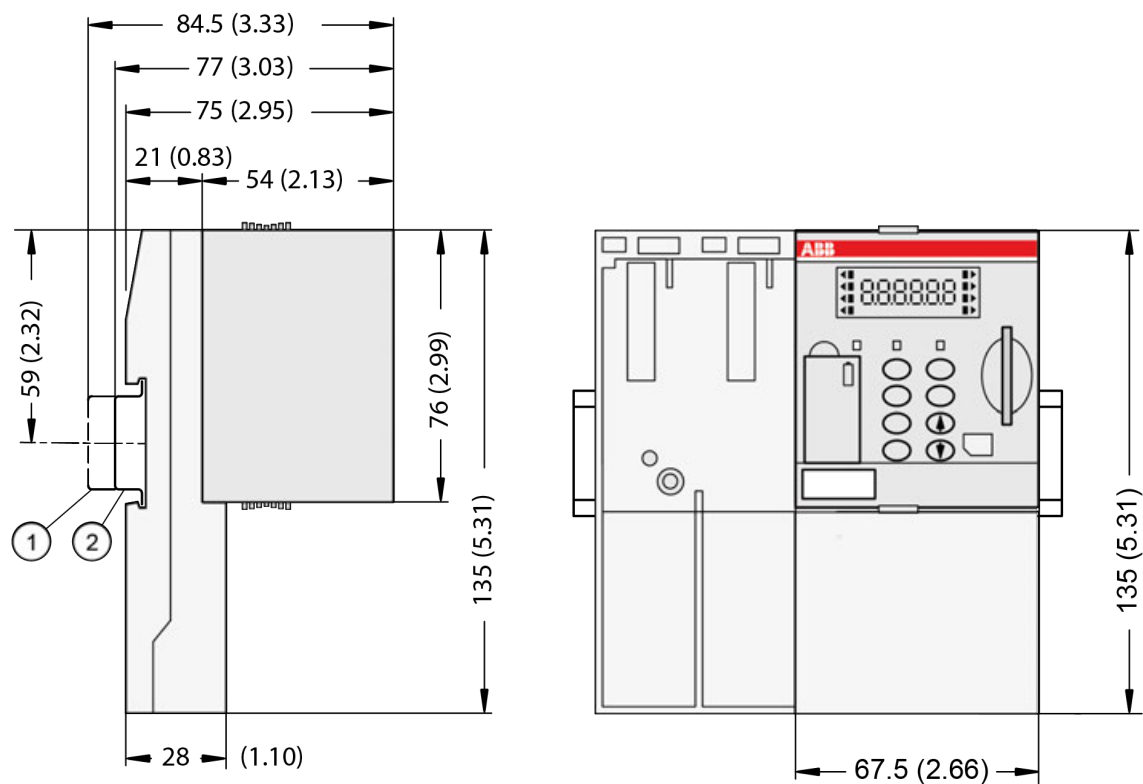
82.1 Assembly
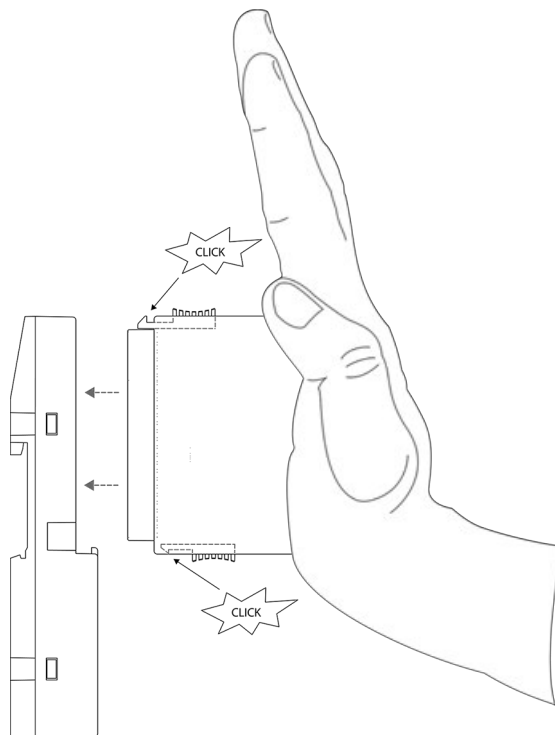
82.2 Disassembly
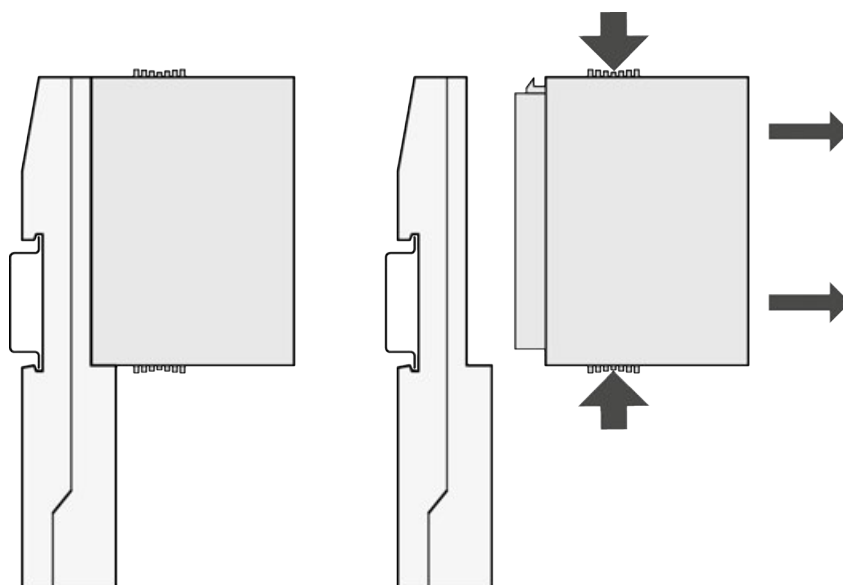
82.3   Dimensions
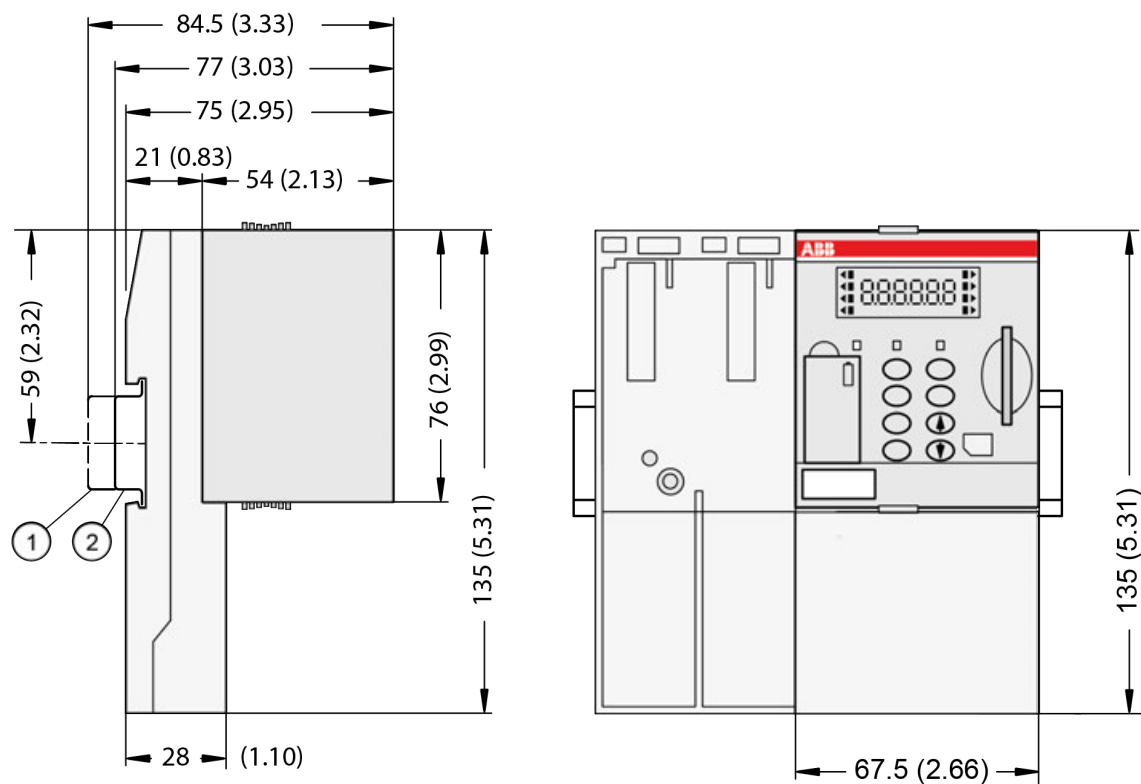

1   Din rail 15 mm
2   Din rail 7.5 mm

ⓘ   *The dimensions are in mm and in brackets in inch.*

82.4   Connections
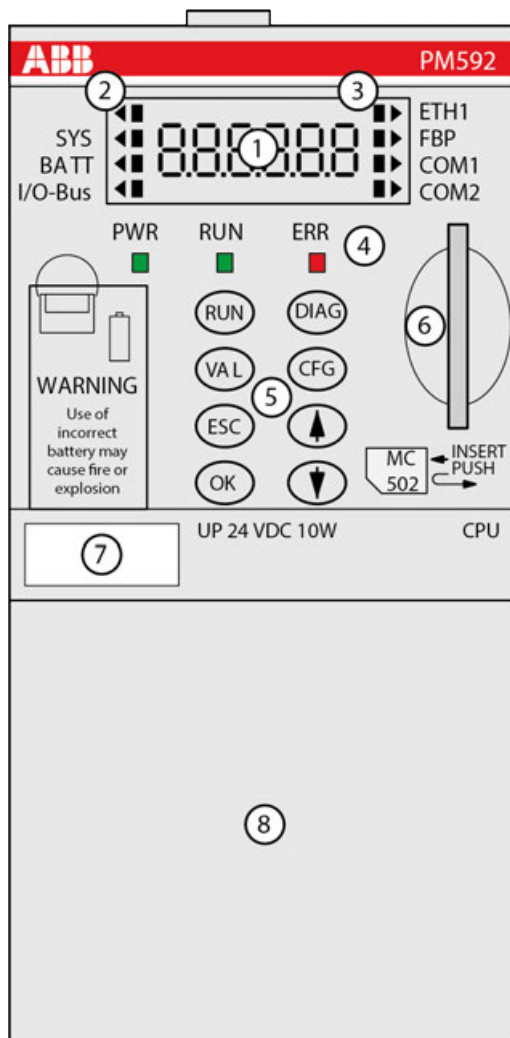
1   Status displays (7-segment)
2   Triangle displays for "Item"
3   Square displays for "Status"
4   Status LEDs
5   Function keys
6   Slot for memory card
7   TA525: Label
8   The connection part may be different on various terminal base types. See installation instructions of the specific terminal base suitable for this CPU for connection specifications.
❄   Sign for XC version

82.5   Cleaning

> **Cleaning instructions**
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

82.6   Certification

KC MSIP-REI-Abb-AC500		
	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 KCC 표시가 된 기기

en	Note These devices correspond to:	KN61000-6-2 "Immunity for industrial environments", KN61000-6-4 "Emission standard for industrial environments"
ko	참고 이러한 기기는	KN61000-6-2 "산업 환경에 대한 내성", KN61000-6-4 "산업 환경 누출 기준"에 적합함

82.7   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

83 PM583-ETH(-XC)

- PM583-ETH
- PM583-ETH-XC

	CAUTION!
⚠️	**Risk of injury and damaging the product!**

Improper installation and maintenance may result in injury and can damage the product!

– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.

– Only by qualified personnel.

ⓘ *Processor modules PM57x-ETH, PM58x-ETH and PM59x-ETH with ordering No. 1SAPxxxxxxR0271 can only be used with terminal bases TB5xx with ordering No. 1SAPxxxxxxR0270.*
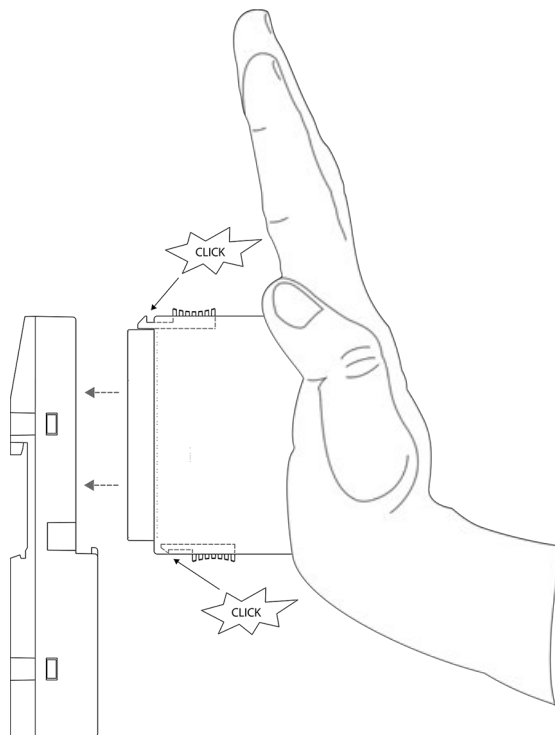

ⓘ *Processor module PM591-2ETH can only be used with TB523-2ETH.*

ⓘ *The processor modules PM59x-ETH can only be used with terminal bases TB5xx with product index C6 or higher. Otherwise, they should be updated to that index.*

83.1 Assembly

83.2 Disassembly

## 83.3   Dimensions

84.5 (3.33)

77 (3.03)

75 (2.95)

21 (0.83)

54 (2.13)

59 (2.32)

76 (2.99)

135 (5.31)

① ②

28 (1.10)

135 (5.31)

67.5 (2.66)
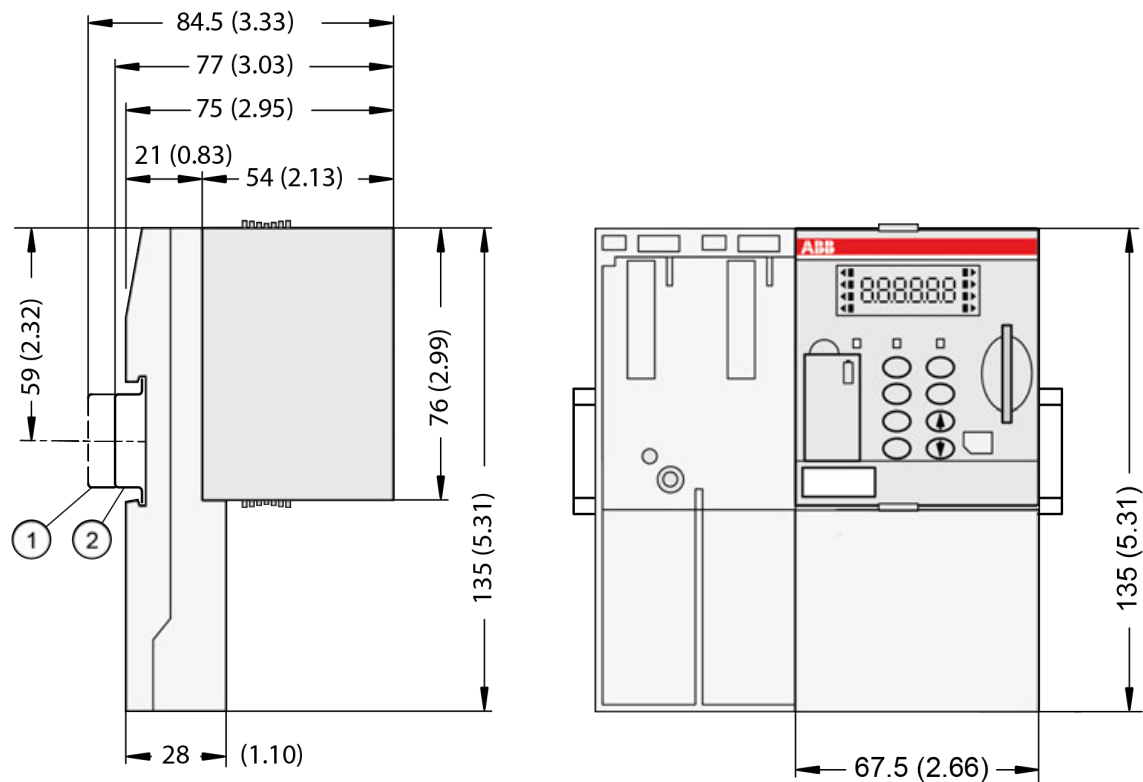
1   Din rail 15 mm
2   Din rail 7.5 mm

ⓘ   *The dimensions are in mm and in brackets in inch.*

83.4 Connections
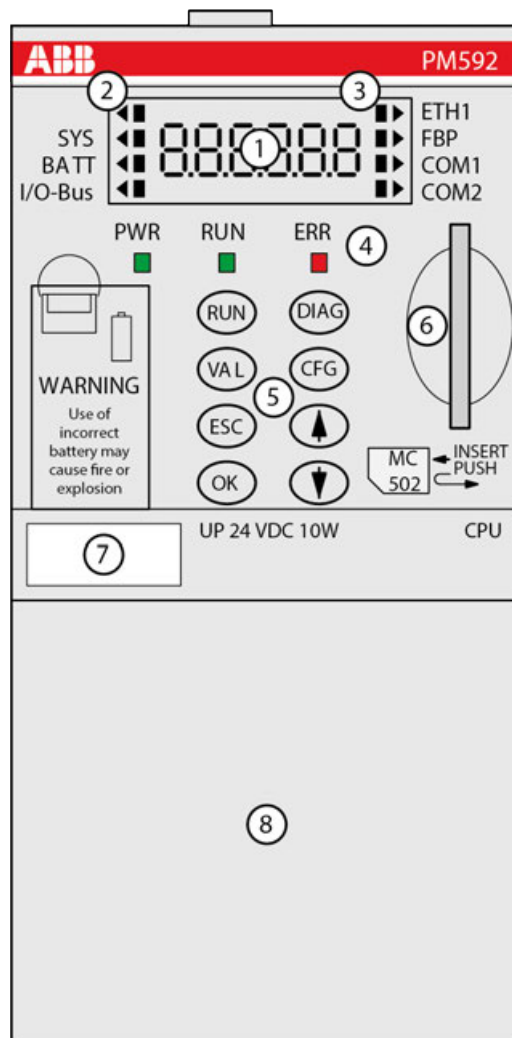
1 Status displays (7-segment)
2 Triangle displays for "Item"
3 Square displays for "Status"
4 Status LEDs
5 Function keys
6 Slot for memory card
7 TA525: Label
8 The connection part may be different on various terminal base types. See installation
   instructions of the specific terminal base suitable for this CPU for connection specifications.
❄ Sign for XC version

83.5 Cleaning

> **Cleaning instructions**
>
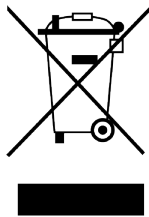> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

83.6   Certification

KC MSIP-REI-Abb-AC500	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	Note These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

83.7   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

84 PM585-ETH

- PM585-ETH

⚠️ **CAUTION!**

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
– Only by qualified personnel.

ℹ️ *Processor modules PM57x-ETH, PM58x-ETH and PM59x-ETH with ordering No. 1SAPxxxxxxR0271 can only be used with terminal bases TB5xx with ordering No. 1SAPxxxxxxR0270.*
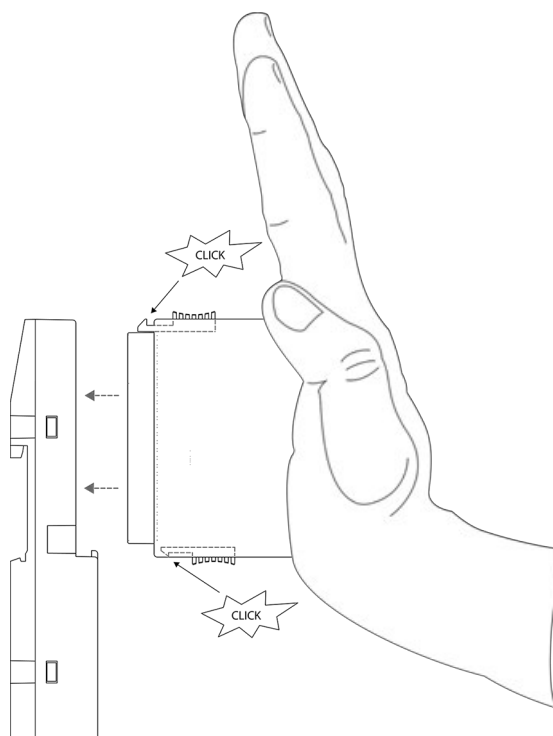

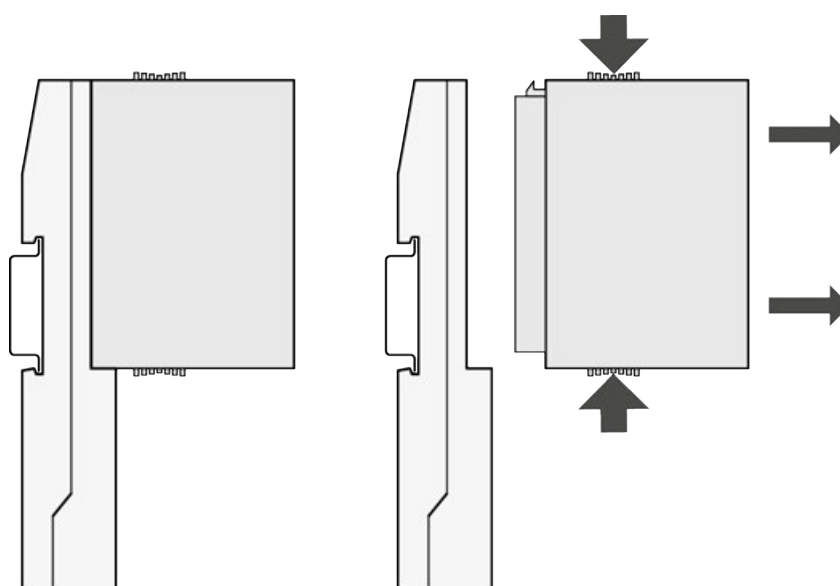ℹ️ *Processor module PM591-2ETH can only be used with TB523-2ETH.*

ℹ️ *The processor modules PM59x-ETH can only be used with terminal bases TB5xx with product index C6 or higher. Otherwise, they should be updated to that index.*
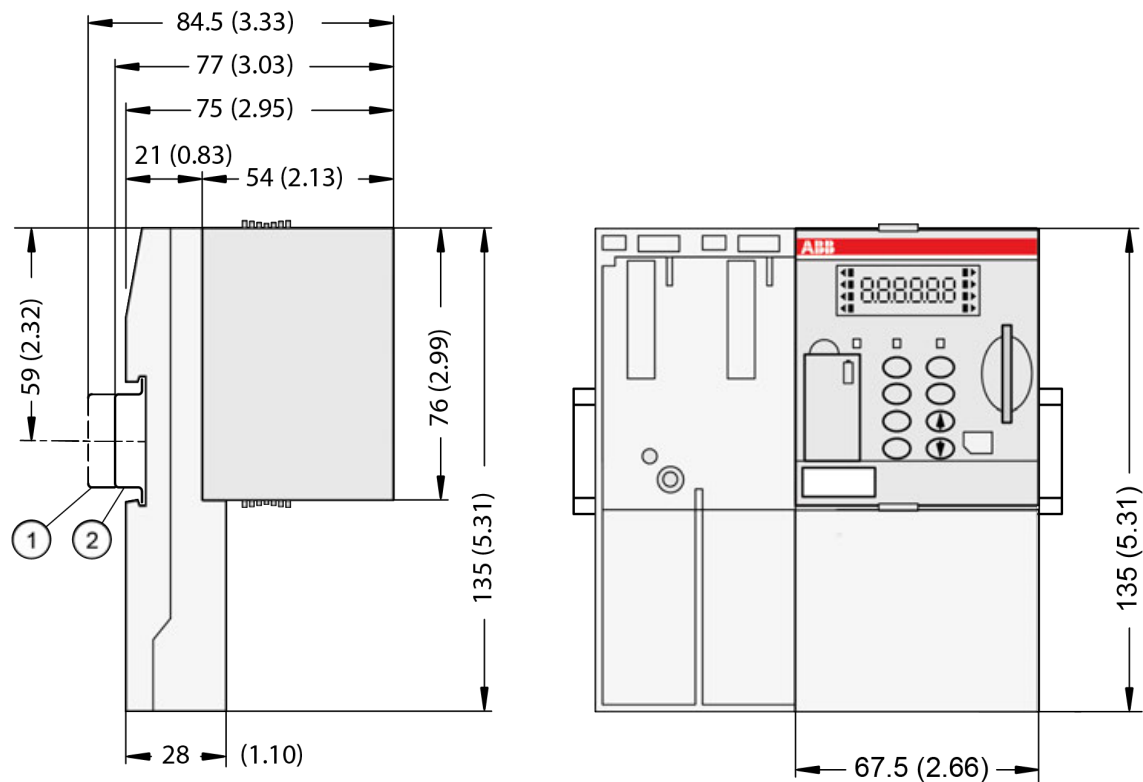
84.1 Assembly

84.2 Disassembly

84.3   Dimensions

1   Din rail 15 mm
2   Din rail 7.5 mm

> *The dimensions are in mm and in brackets in inch.*

84.4   Connections
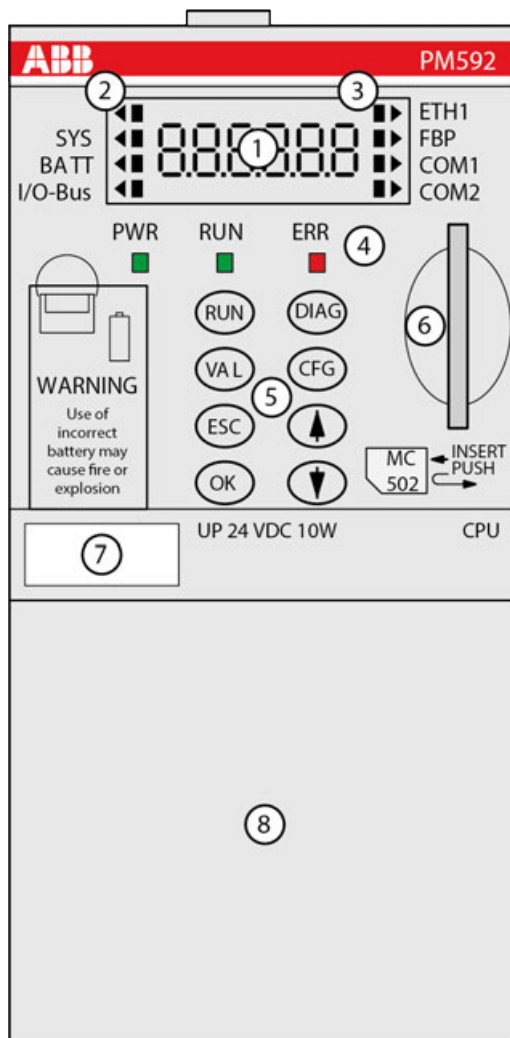
1   Status displays (7-segment)
2   Triangle displays for "Item"
3   Square displays for "Status"
4   Status LEDs
5   Function keys
6   Slot for memory card
7   TA525: Label
8   The connection part may be different on various terminal base types. See installation
     instructions of the specific terminal base suitable for this CPU for connection specifications.
❄   Sign for XC version
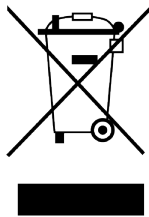
84.5   Cleaning

> ⓘ   **Cleaning instructions**
>   *Do not use cleaning agent for cleaning the device.*
>   *Use a damp cloth instead.*

84.6   Certification

| KC | en | Devices with KCC sign on product sticker and packaging |
| | ko | 제품 스티커 및 포장에 **KCC** 표시가 된 기기 |

MSIP-REI-Abb-AC500

| en | Note
These devices correspond to: | **KN61000-6-2** "Immunity for industrial environments",
KN61000-6-4 "Emission standard for industrial environments" |
| ko | 참고
이러한 기기는 | **KN61000-6-2** "산업 환경에 대한 내성",
KN61000-6-4 "산업 환경 누출 기준"에 적합함 |

84.7   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

85 PM590-x

- PM590-ARCNET
- PM590-ETH

⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

| ⓘ	*Processor modules PM57x-ETH, PM58x-ETH and PM59x-ETH with ordering No. 1SAPxxxxxxR0271 can only be used with terminal bases TB5xx with ordering No. 1SAPxxxxxxR0270.*

ⓘ	*Processor module PM591-2ETH can only be used with TB523-2ETH.*

ⓘ	*The processor modules PM59x-ETH can only be used with terminal bases TB5xx with product index C6 or higher. Otherwise, they should be updated to that index.*

85.1 Assembly
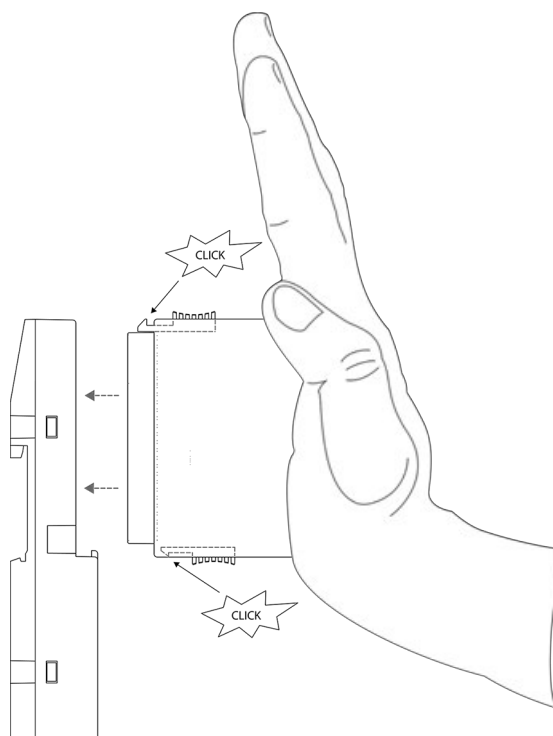
85.2 Disassembly
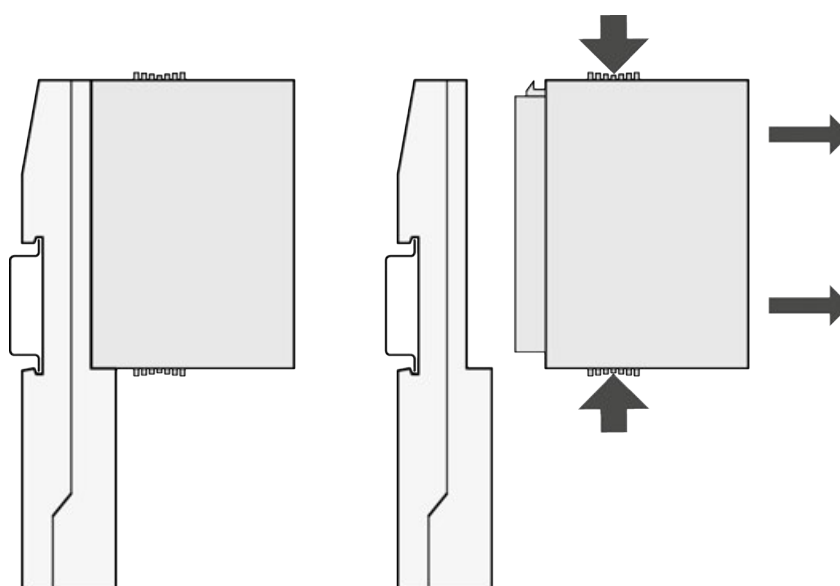
85.3   Dimensions

84.5 (3.33)

77 (3.03)

75 (2.95)

21 (0.83)

54 (2.13)

59 (2.32)

76 (2.99)

135 (5.31)

28 (1.10)

135 (5.31)

67.5 (2.66)
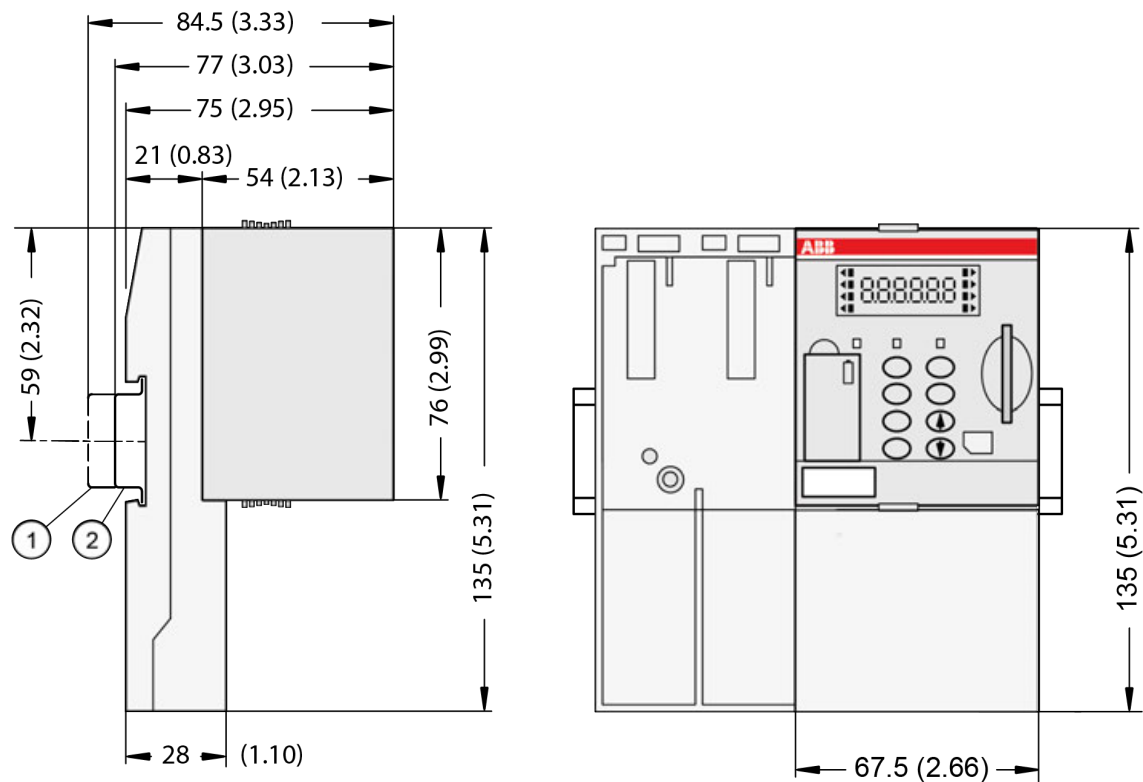
1   Din rail 15 mm
2   Din rail 7.5 mm

The dimensions are in mm and in brackets in inch.

85.4   Connections
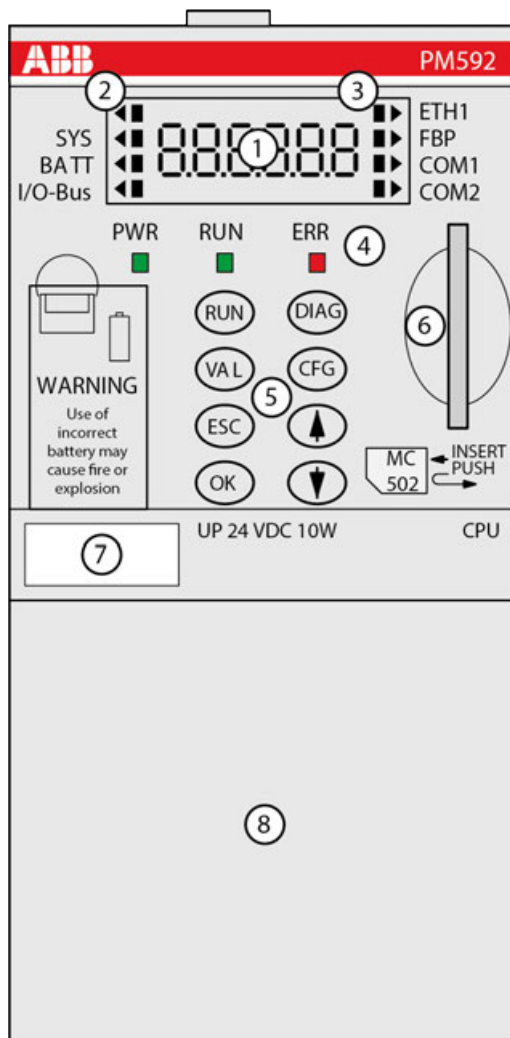
1   Status displays (7-segment)
2   Triangle displays for "Item"
3   Square displays for "Status"
4   Status LEDs
5   Function keys
6   Slot for memory card
7   TA525: Label
8   The connection part may be different on various terminal base types. See installation
     instructions of the specific terminal base suitable for this CPU for connection specifications.
❄   Sign for XC version

85.5   Cleaning

> ⓘ   **Cleaning instructions**
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

85.6 Certification

KC MSIP-REI-Abb-AC500	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	Note These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

85.7 Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

86 PM591-ETH(-XC)

- PM591-ETH
- PM591-ETH-XC

⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

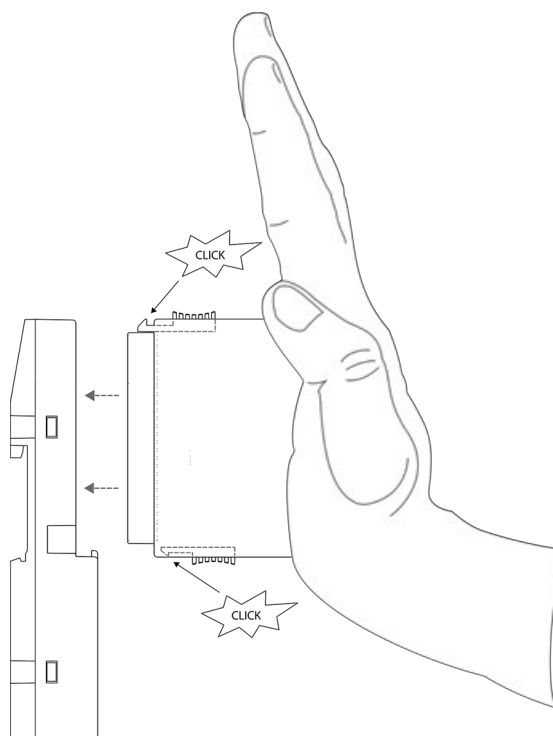| ⓘ	*Processor modules PM57x-ETH, PM58x-ETH and PM59x-ETH with ordering No. 1SAPxxxxxxR0271 can only be used with terminal bases TB5xx with ordering No. 1SAPxxxxxxR0270.*

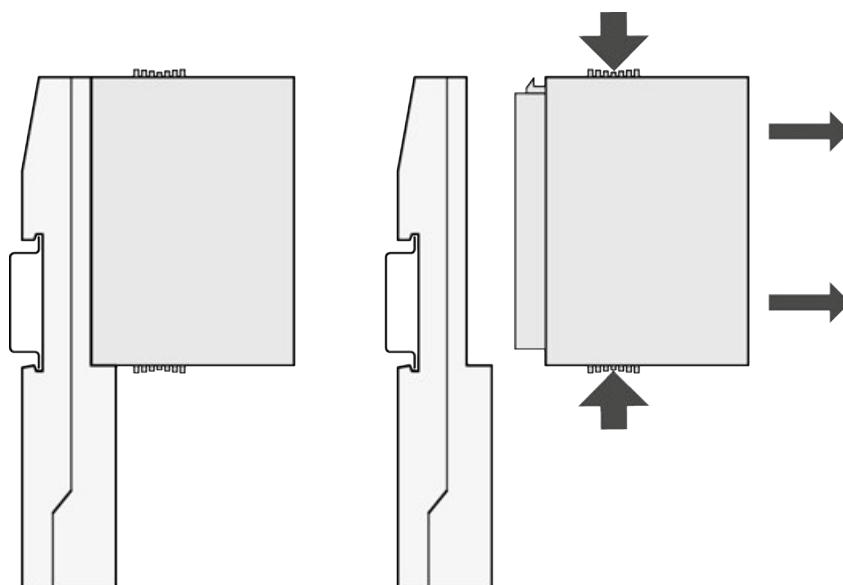| ⓘ	*Processor module PM591-2ETH can only be used with TB523-2ETH.*

ⓘ	*The processor modules PM59x-ETH can only be used with terminal bases TB5xx with product index C6 or higher. Otherwise, they should be updated to that index.*

86.1 Assembly
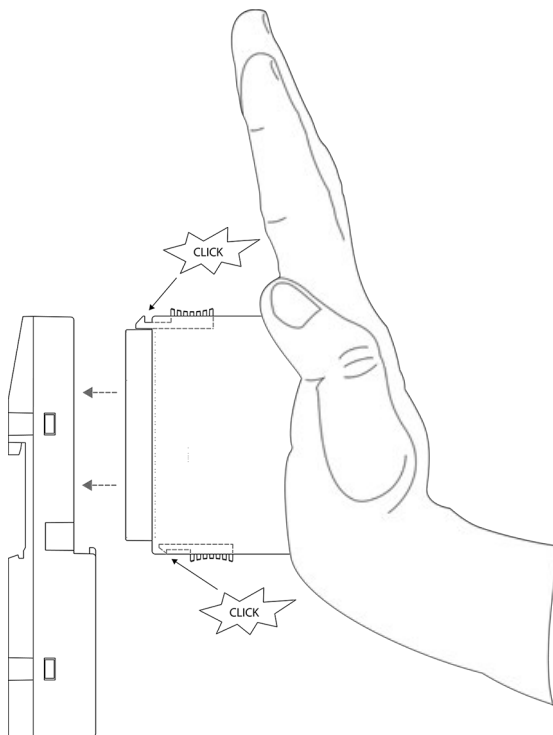
86.2 Disassembly

86.3   Dimensions

84.5 (3.33)
77 (3.03)
75 (2.95)
21 (0.83)
54 (2.13)
59 (2.32)
76 (2.99)
135 (5.31)
① ②
28 (1.10)
135 (5.31)
67.5 (2.66)
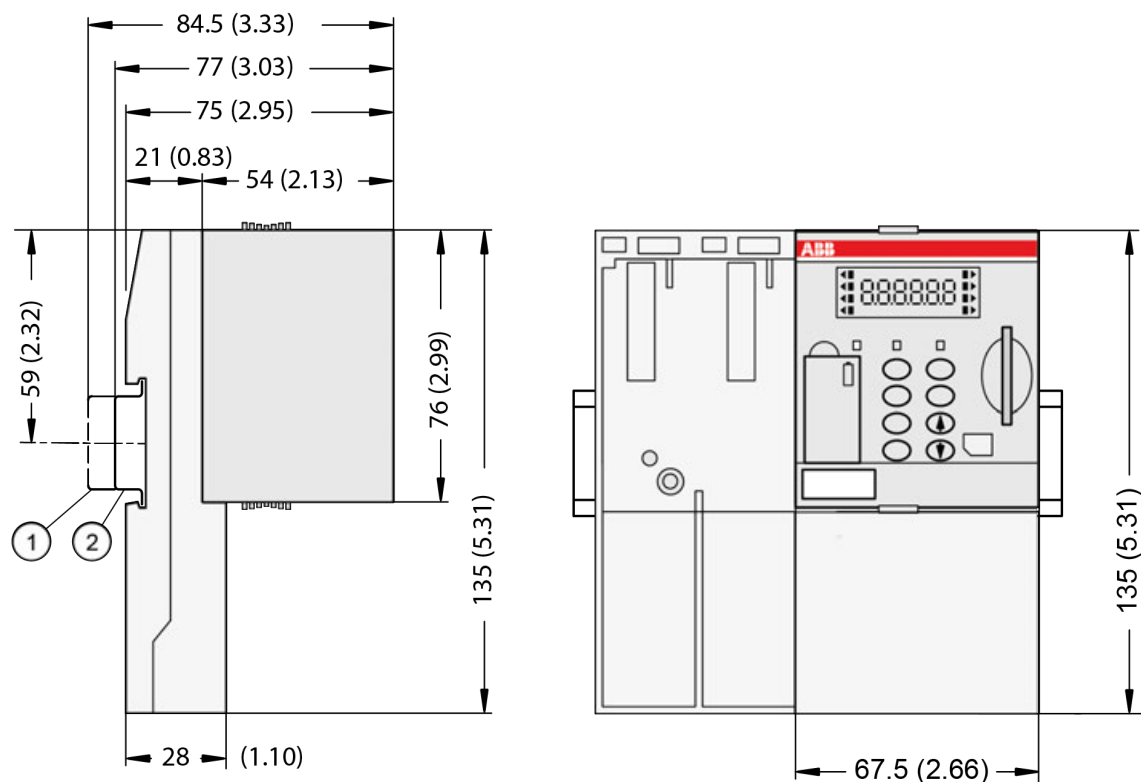
1   Din rail 15 mm
2   Din rail 7.5 mm

> ⓘ   *The dimensions are in mm and in brackets in inch.*

86.4   Connections
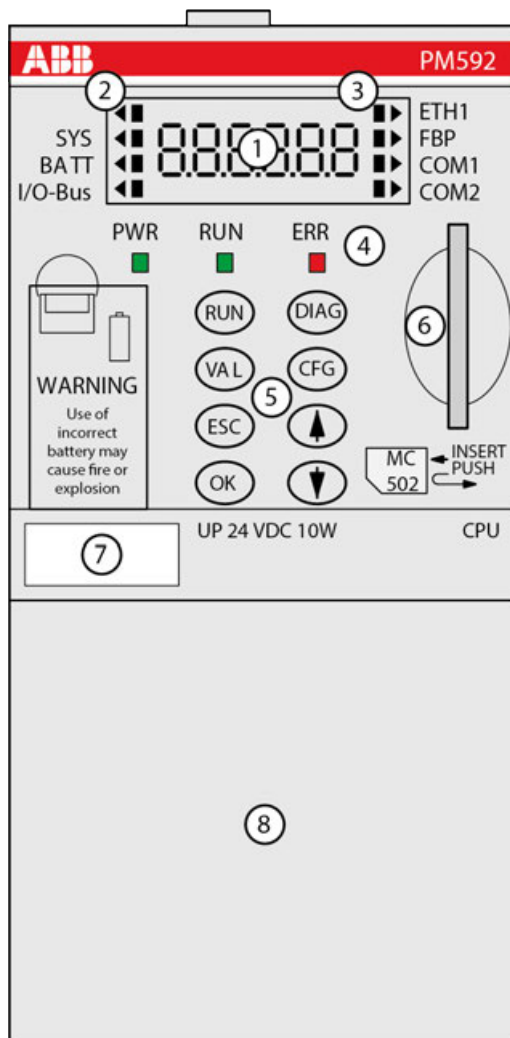
1   Status displays (7-segment)
2   Triangle displays for "Item"
3   Square displays for "Status"
4   Status LEDs
5   Function keys
6   Slot for memory card
7   TA525: Label
8   The connection part may be different on various terminal base types. See installation
     instructions of the specific terminal base suitable for this CPU for connection specifications.
❄   Sign for XC version

86.5   Cleaning

> **Cleaning instructions**
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

86.6   Certification

KC MSIP-REI-Abb-AC500	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	Note These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

86.7   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

87 PM592-ETH(-XC)

- PM592-ETH
- PM592-ETH-XC

⚠ **CAUTION!**

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
– Only by qualified personnel.

ⓘ *Processor modules PM57x-ETH, PM58x-ETH and PM59x-ETH with ordering No. 1SAPxxxxxxR0271 can only be used with terminal bases TB5xx with ordering No. 1SAPxxxxxxR0270.*
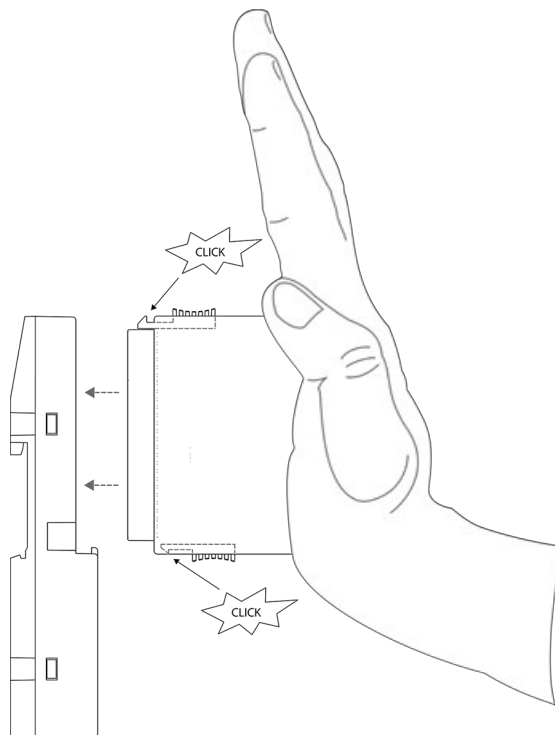

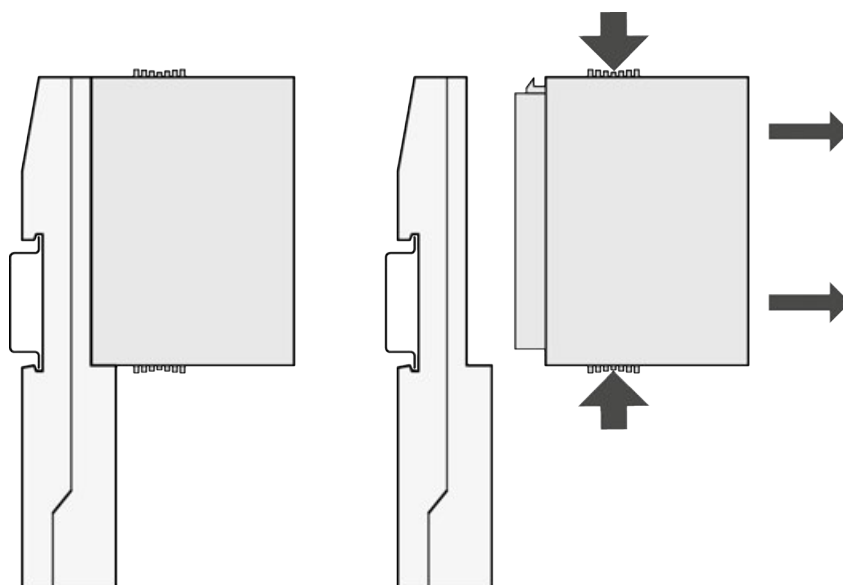ⓘ *Processor module PM591-2ETH can only be used with TB523-2ETH.*

ⓘ *The processor modules PM59x-ETH can only be used with terminal bases TB5xx with product index C6 or higher. Otherwise, they should be updated to that index.*

87.1 Assembly
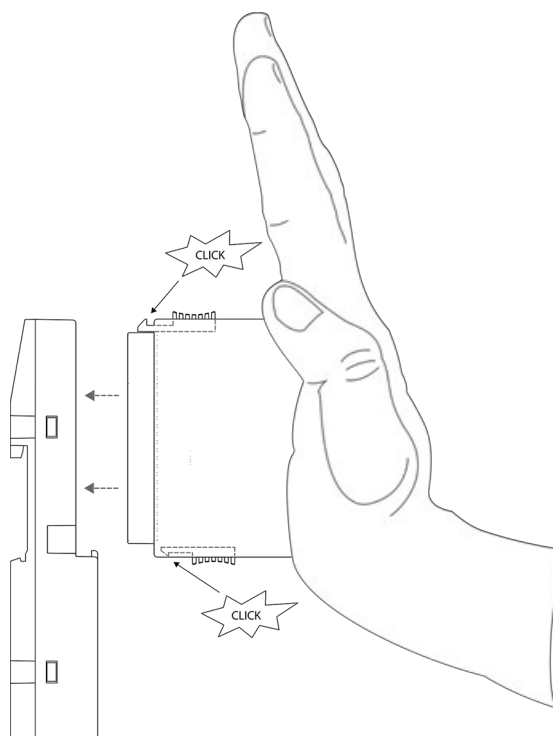
87.2 Disassembly
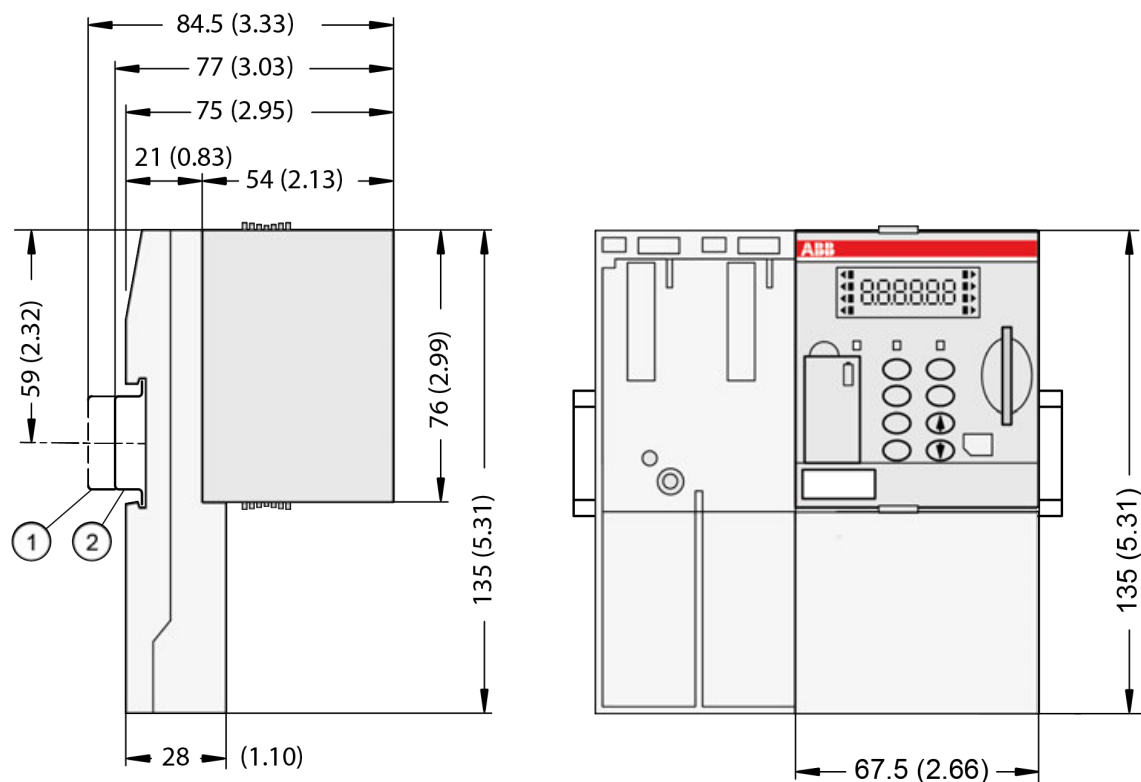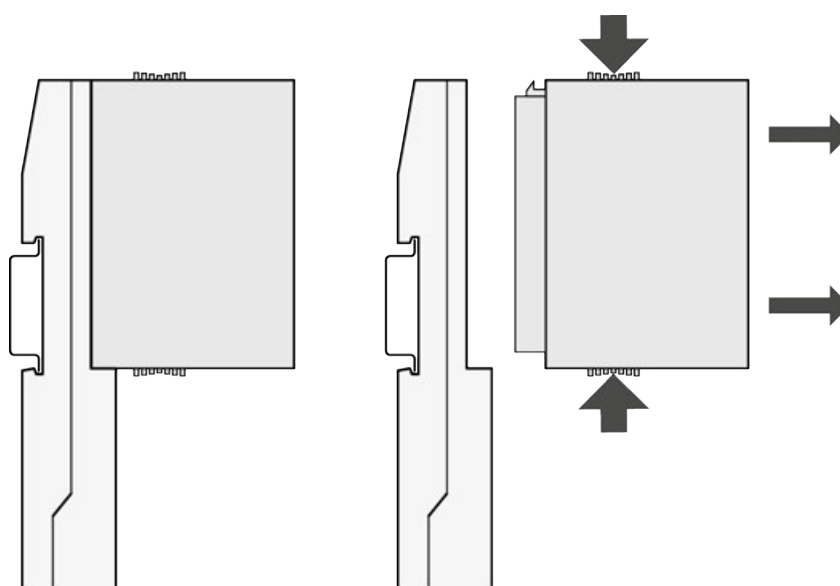
87.3   Dimensions

84.5 (3.33)
77 (3.03)
75 (2.95)
21 (0.83)
54 (2.13)
59 (2.32)
76 (2.99)
135 (5.31)
① ②
28 (1.10)

135 (5.31)
67.5 (2.66)
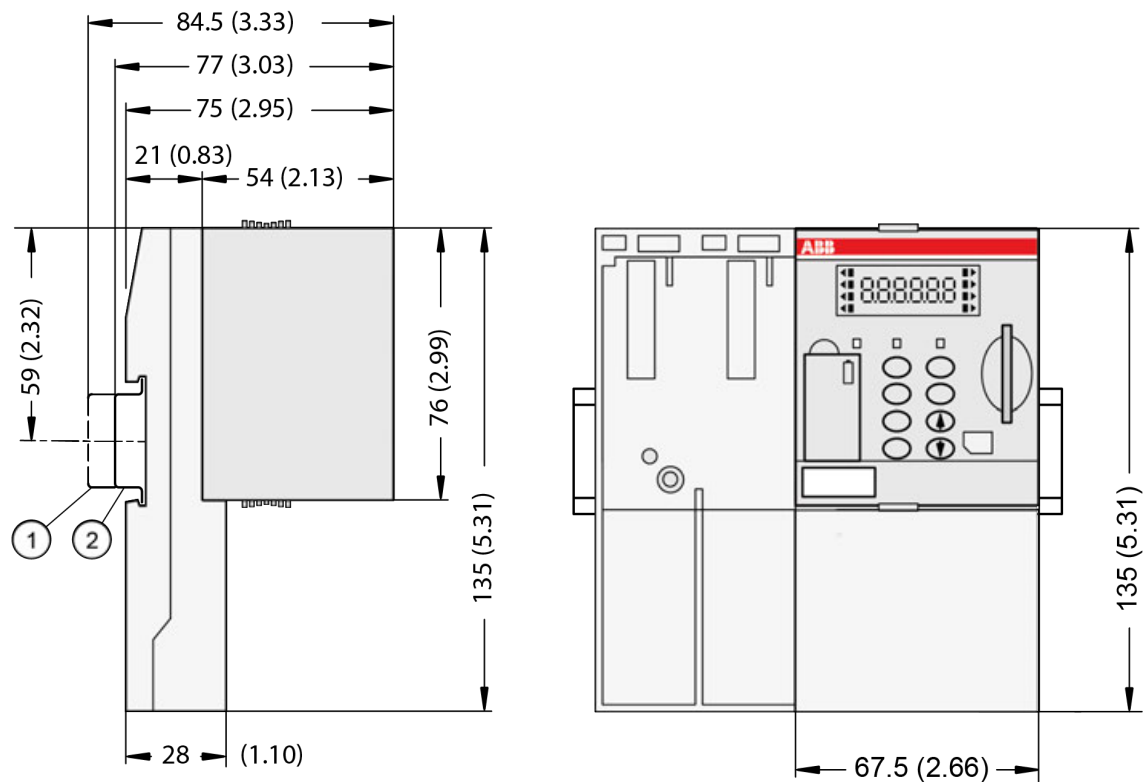
1   Din rail 15 mm
2   Din rail 7.5 mm

The dimensions are in mm and in brackets in inch.

87.4   Connections
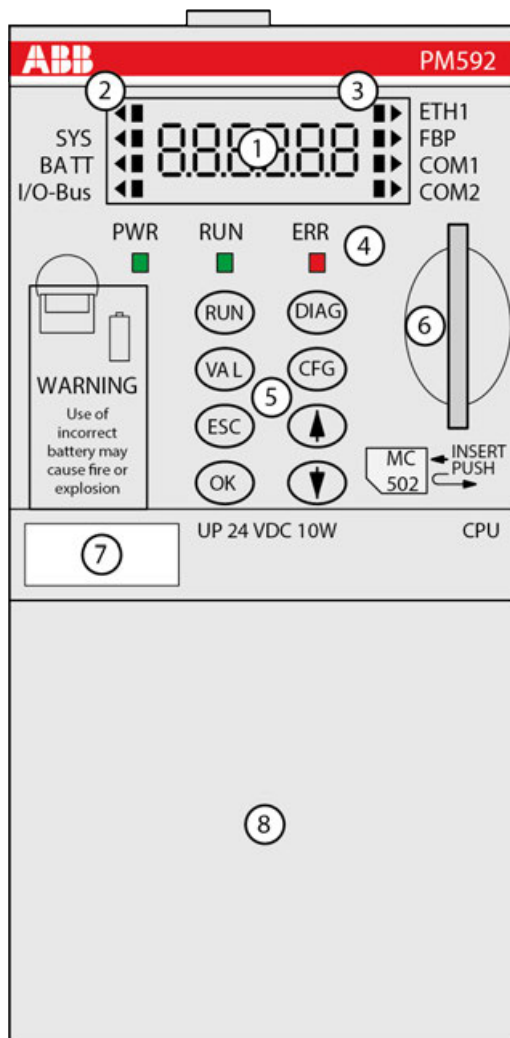
1   Status displays (7-segment)
2   Triangle displays for "Item"
3   Square displays for "Status"
4   Status LEDs
5   Function keys
6   Slot for memory card
7   TA525: Label
8   The connection part may be different on various terminal base types. See installation
     instructions of the specific terminal base suitable for this CPU for connection specifications.
❄   Sign for XC version

87.5   Cleaning
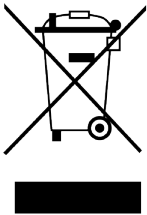
> ⓘ **Cleaning instructions**
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

87.6 Certification

KC MSIP-REI-Abb-AC500	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	Note These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

87.7 Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

88 PM595-4ETH-x(-XC)

- PM595-4ETH-F
- PM595-4ETH-M-XC
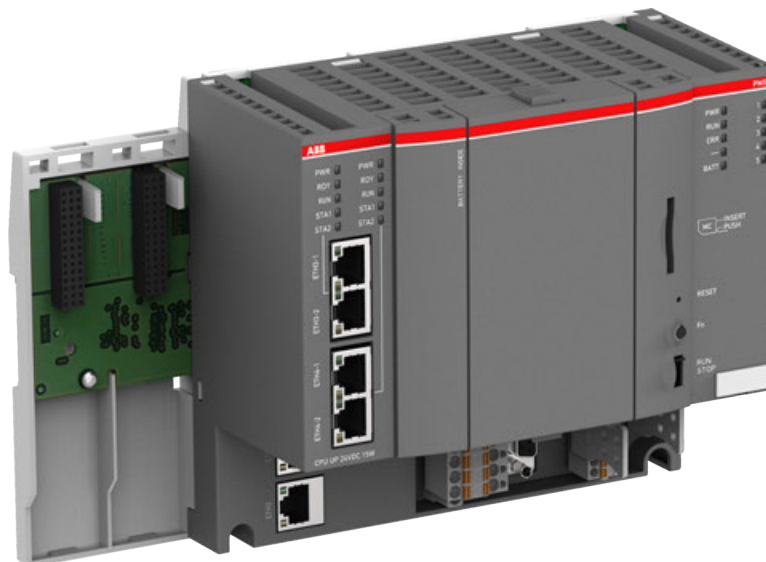
⚠️	**CAUTION!** **Risk of injury and damaging the product!** Improper installation and maintenance may result in injury and can damage the product! – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1. – Only by qualified personnel.

88.1 Assembly
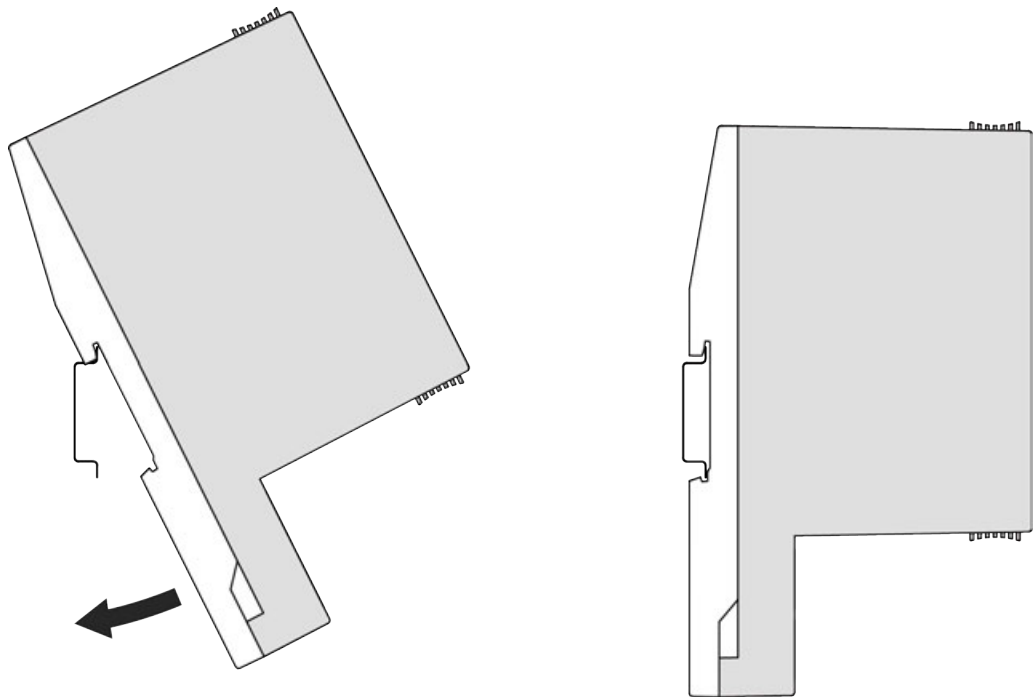
88.2 Disassembly
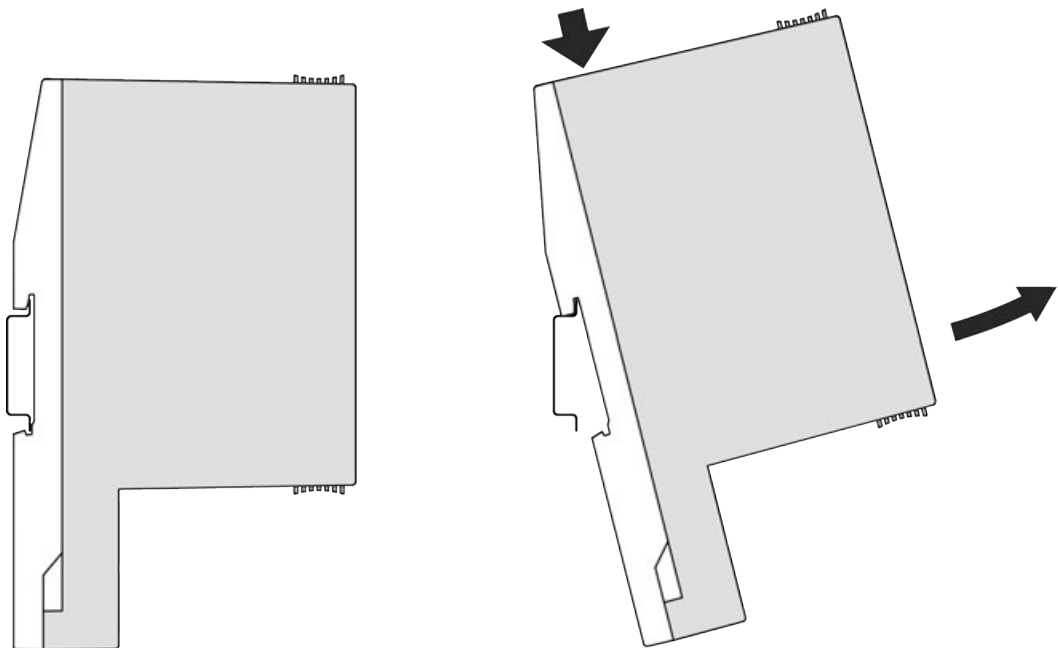
88.3   Assembly with screws
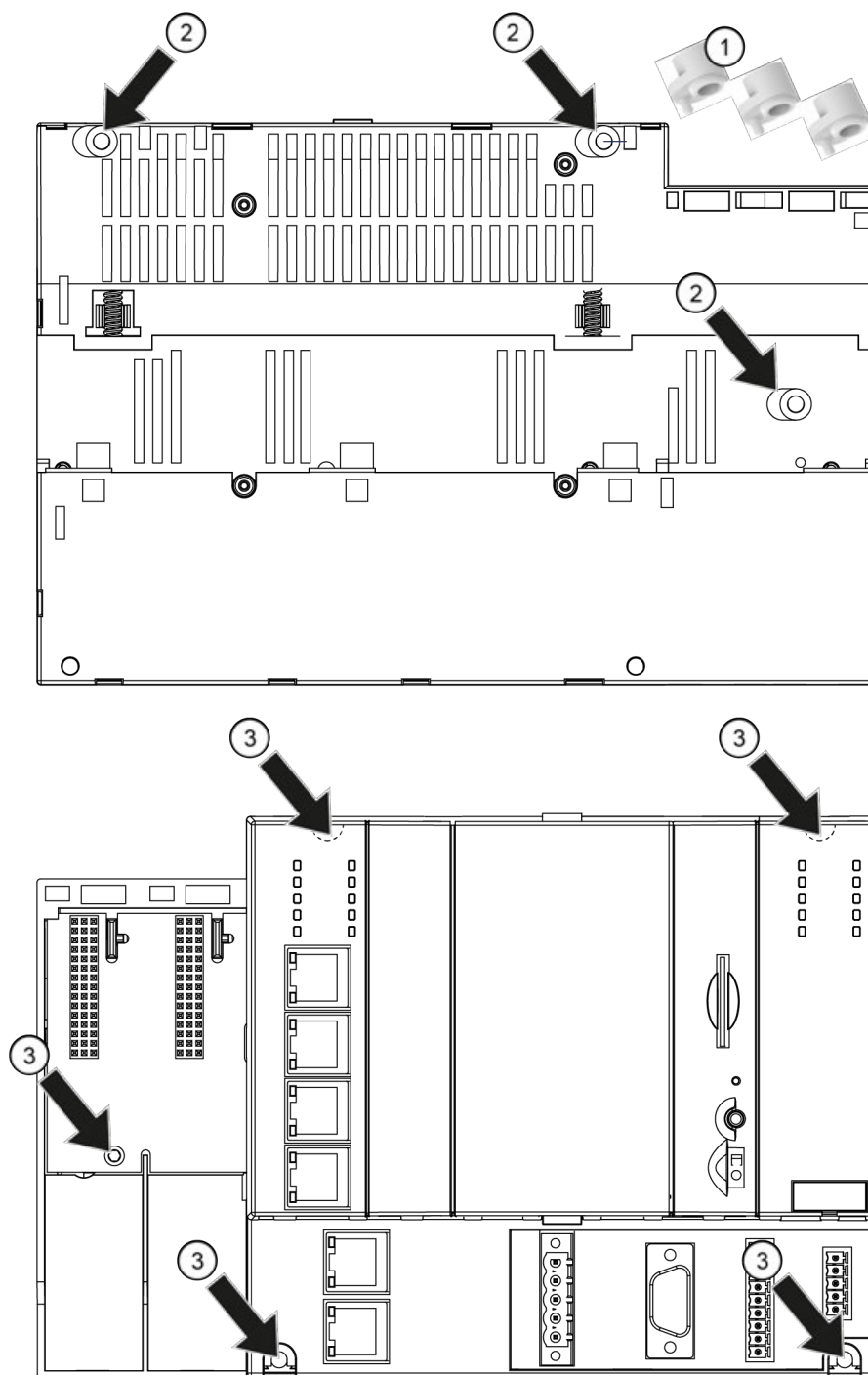
1   3 parts of TA543 screw mounting accessory
2   3 slots for TA543 screw mounting accessory
3   5 holes for screw mounting

1.   Insert 3 parts of the TA543 screw mounting accessory into the slots on the back side of the processor module.

⇨   **NOTICE!**
Use screw mounting accessory to avoid damage!
For screw mounting, the use of the TA543 screw mounting accessory (1SAP182800R0001) is mandatory to prevent bending and damage to the module.

2.   Fasten the processor module with 5 screws (M4, max 1.2 Nm) from the front side.

⇨

> *With screw mounting, the processor module is grounded through the screws.*
>
> *It is necessary that*
> – *the screws have a conductive surface (e.g. steel zinc-plated or brass nickel-plated)*
> – *the mounting plate is grounded*
> – *the screws have a good electrical contact to the mounting plate*

> *To prevent the screw from loosening after prolonged use, a thread lock washer is highly recommended.*

88.4   Dimensions
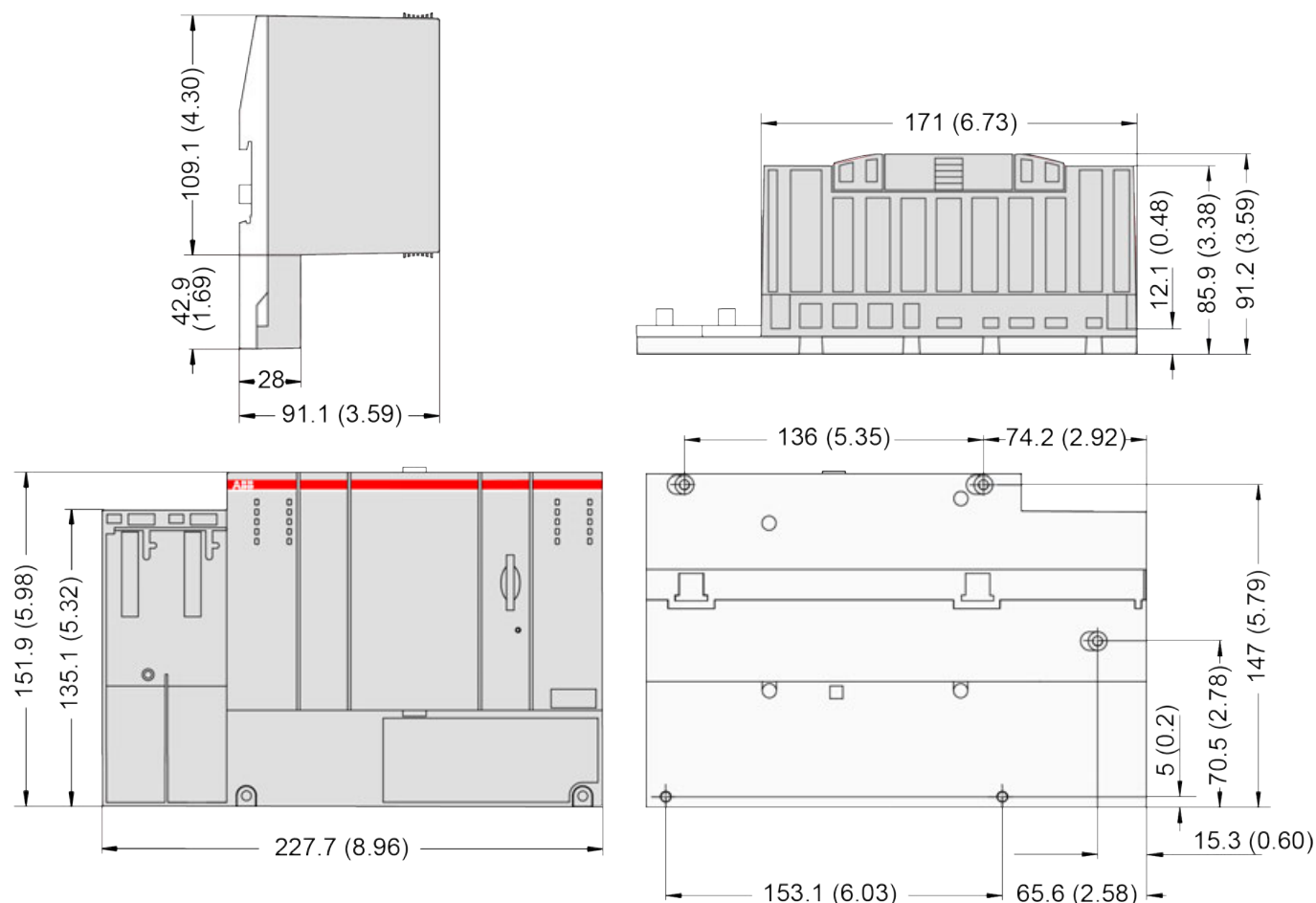
> *The dimensions are in mm and in brackets in inch.*
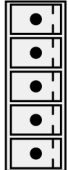
88.5 Connections
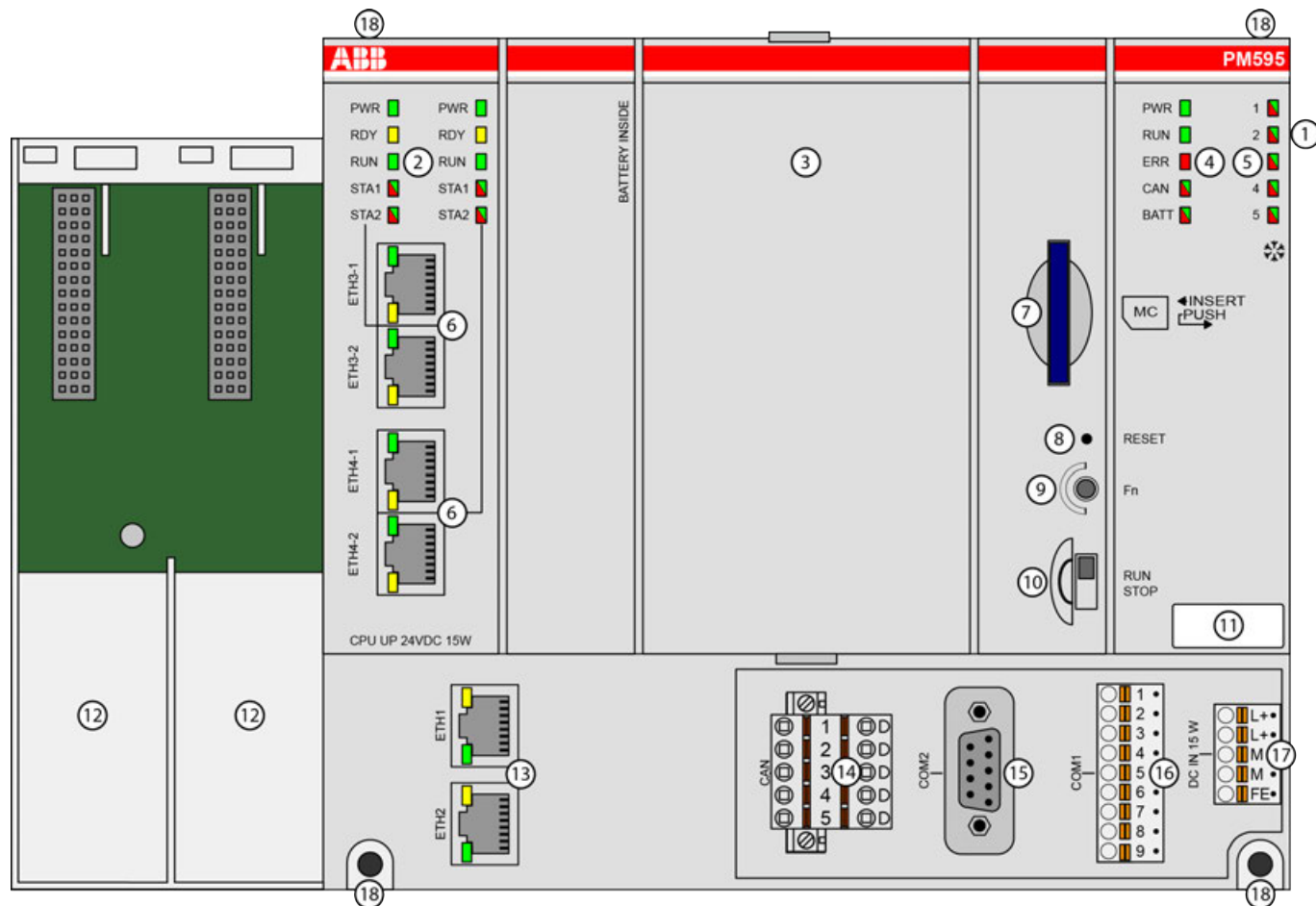
1   I/O bus for connection of I/O modules
2   2x 5 LEDs to display the states of the fieldbuses
3   Cover for battery and display
4   5 LEDs to display the states of the processor
    module
5   5 LEDs (reserved)
6   2x2 RJ45 interfaces for fieldbuses
7   Slot for memory card
8   Reset button
9   Button (reserved)
10 RUN/STOP switch
11 Label
12 Slots for communication modules (max 2; unused
    slots must be covered with TA524)
13 2 RJ45 interfaces for Ethernet connection
14 5-pin terminal block (reserved)
15 Serial interface COM2 (D-sub 9)
16 Serial interface COM1 (9-pin terminal block, remov-
    able)
17 Power supply (5-pin terminal block, removable)
18 5 holes for screw mounting
❄ Sign for XC version
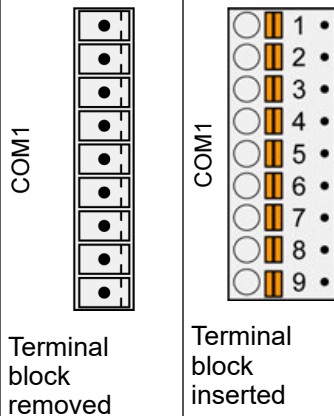
88.5.1 Power supply

Pin assignment

Pin Assignment		Label	Function	Description
Terminal block removed	Terminal block inserted	L+	+24 V DC	Positive pin of the power supply voltage
		L+	+24 V DC	Positive pin of the power supply voltage
		M	0 V	Negative pin of the power supply voltage
		M	0 V	Negative pin of the power supply voltage
		⏚	FE	Functional earth

88.5.2   Serial interface COM1

Pin assignment (RS-485 / RS-232)

		Pin	Signal	Interface	Description
COM1 (terminal block removed)	COM1 (terminal block inserted)	1	Terminator P	RS-485	Terminator P
		2	RxD/TxD-P	RS-485	Receive/Transmit, positive
		3	RxD/TxD-N	RS-485	Receive/Transmit, negative
		4	Terminator N	RS-485	Terminator N
Terminal block removed	Terminal block inserted	5	RTS	RS-232	Request to send (output)
		6	TxD	RS-232	Transmit data (output)
		7	SGND	Signal Ground	Signal Ground
		8	RxD	RS-232	Receive data (input)
		9	CTS	RS-232	Clear to send (input)

> **! NOTICE!**
> **Unused connector!**
> Make sure that the terminal block is always connected to the terminal base or communication module, even if you do not use the interface.

88.5.3   Serial interface COM2

Pin assignment

Serial Interface	Pin	Signal	Interface	Description	
	1	FE	-	Functional earth	
	2	TxD	RS-232	Transmit data	Output
	3	RxD/TxD-P	RS-485	Receive/Transmit	Positive
	4	RTS	RS-232	Request to send	Output
	5	SGND	Signal ground	0 V supply out	
	6	+5 V	-	5 V supply out	
	7	RxD	RS-232	Receive data	Input
	8	RxD/TxD-N	RS-485	Receive/Transmit	Negative
	9	CTS	RS-232	Clear to send	Input
	Shield	FE	-	Functional earth	

> **! NOTICE!**
> **Risk of corrosion!**
> Unused connectors and slots may corrode if XC devices are used in salt-mist environments.
>
> Protect unused connectors and slots with TA535 protective caps for XC devices.

88.5.4   Ethernet network interface

Pin assignment

	Pin	Signal	Description
	1	TxD+	Transmit data +
	2	TxD-	Transmit data -
	3	RxD+	Receive data +
	4	NU	Not used
	5	NU	Not used
	6	RxD-	Receive data -
	7	NU	Not used
	8	NU	Not used
	Shield	Cable shield	Functional earth

!

NOTICE!

Risk of corrosion!

Unused connectors and slots may corrode if XC devices are used in salt-mist environments.

Protect unused connectors and slots with TA535 protective caps for XC devices.

88.6   Cleaning

i

Cleaning instructions

Do not use cleaning agent for cleaning the device.

Use a damp cloth instead.

88.7   Certification

KC

MSIP-REI-Abb-AC500

en	Devices with KCC sign on product sticker and packaging	
ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기	

en	Note These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

88.8   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

89 SM560-S(-FD-x)(-XC)

- SM560-S
- SM560-S-XC
- SM560-S-FD-1
- SM560-S-FD-1-XC
- SM560-S-FD-4
- SM560-S-FD-4-XC

⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

89.1 Assembly
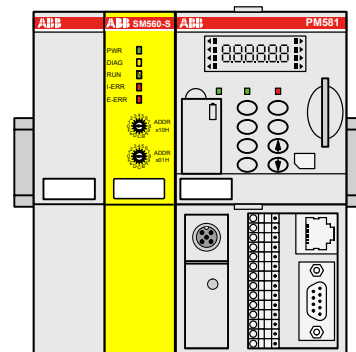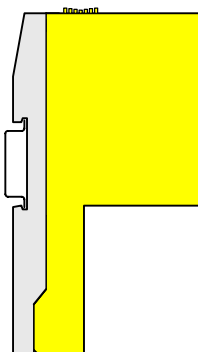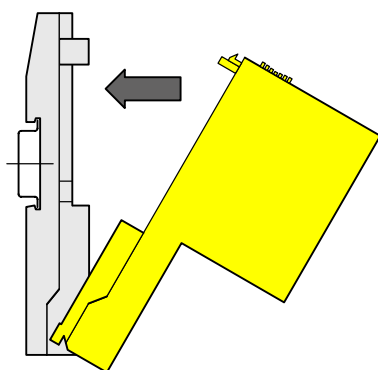
89.2 Disassembly
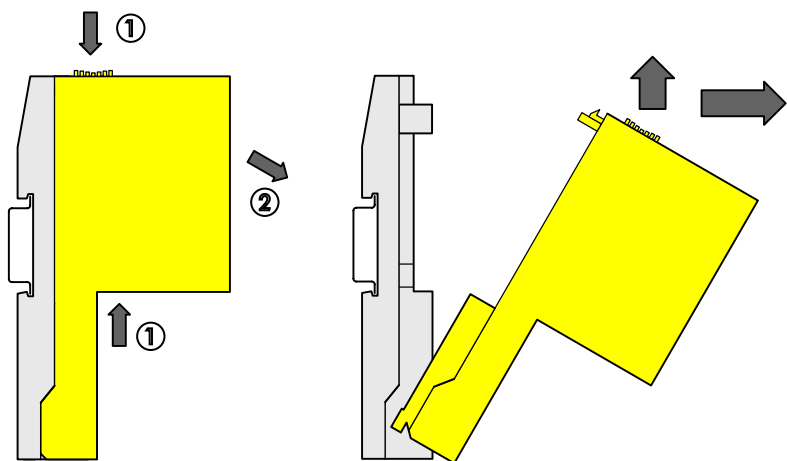
89.3 Dimensions
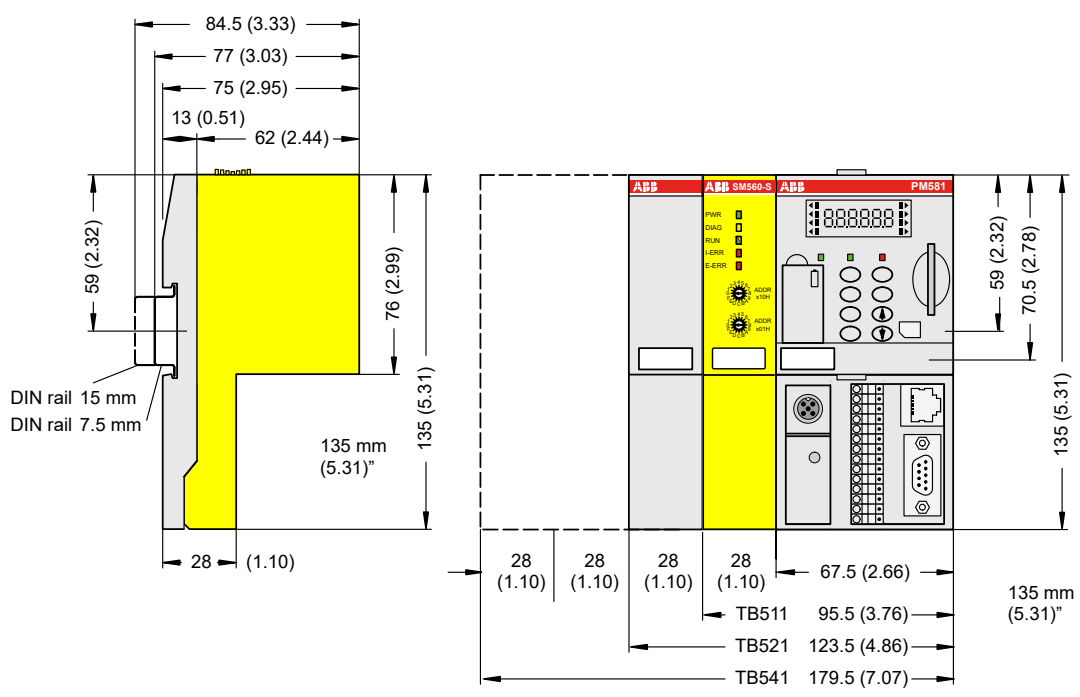
89.4 Connections
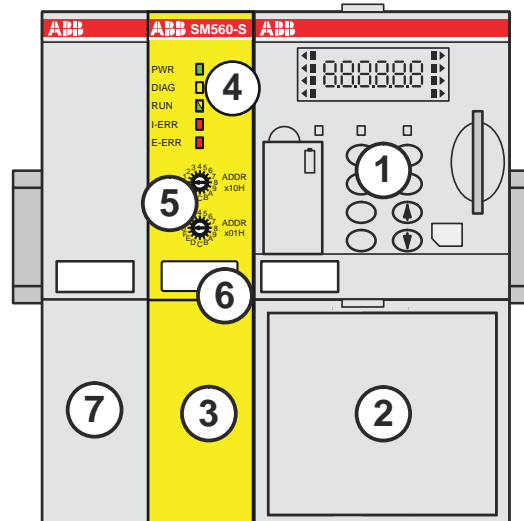
1 CPU
2 Connectors of the CPU
3 Safety CPU
4 System LEDs
5 2 rotary switches for address/configuration
6 TA525 Label
7 TA524 Dummy communication module
❄ Sign for XC version

89.5 Cleaning

> **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

89.6 Certification

MSIP-REI-Abb-AC500

en		Devices with KCC sign on product sticker and packaging
ko		제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	Note	
	These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

89.7   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

90 TA5101-4DI(W) - Option board for digital I/O extension

- TA5101-4DI
- TA5101-4DIW

| ⚠	**CAUTION!** **Risk of injury and damaging the product!** Improper installation and maintenance may result in injury and can damage the product! – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1. – Read product documentation carefully before wiring. Improper wiring or wrong terminal block from other devices can damage the product! – Only by qualified personnel.

⚠	**CAUTION!** **Risk of damaging the product!** Option boards are sensitive electronic devices. Wrong handling can damage the product. – ESD (electrostatic discharge) protection measures are required when handling the option board. – Do not touch contacts and circuit board.

90.1 Assembly
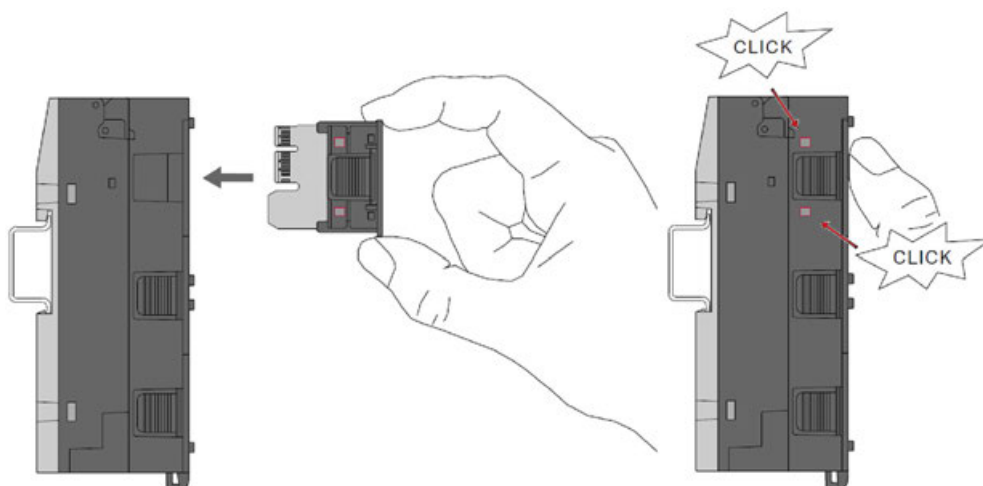
90.1.1 Optimized mounting of the option boards

The AC500-eCo processor modules have up to 3 slots for option boards.

Table 56: Option board slots
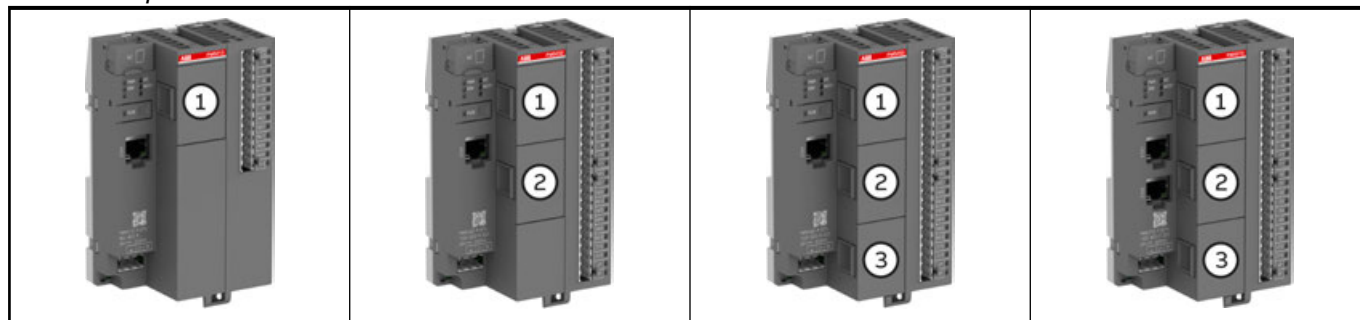
The best thermal circulation is given on slot 3 (bottom slot), followed by slot 2 (middle slot) and then slot 1 (top slot).

The best mounting position of the option board depends on its power dissipation.

> ⓘ ***Rules for optimized mounting of the option boards***
>
> – *The higher the power dissipation of the option board, the lower the mounting position should be selected.*
> – ***The TA5126-2AO-UI option board has the highest power dissipation and must always be mounted at the lowest option board slot.***
>
> *The optimized mounting position can be easily determined with the help of this table.*

Table 57: Power dissipation of the option boards

Power dissipation of the option boards	Digital	Analog	Serial interface	Accessory
very small			TA5141-RS232I(W) TA5142-RS485I(W) TA5142-RS485(W)	TA5130-KNXPB(W) TA5131-RTC
small	TA5105-4DOT(W)	TA5123-2AI-RT(D/W)		
medium	TA5110-2DI2DO(T/W) TA5101-4DI(W)	TA5120-2AI-UI(W)		
large		TA5126-2AO-UI(W)		

> ⓘ *If the option boards to be mounted are in the same power dissipation level, then the slots can be freely selected.*

90.2   Disassembly
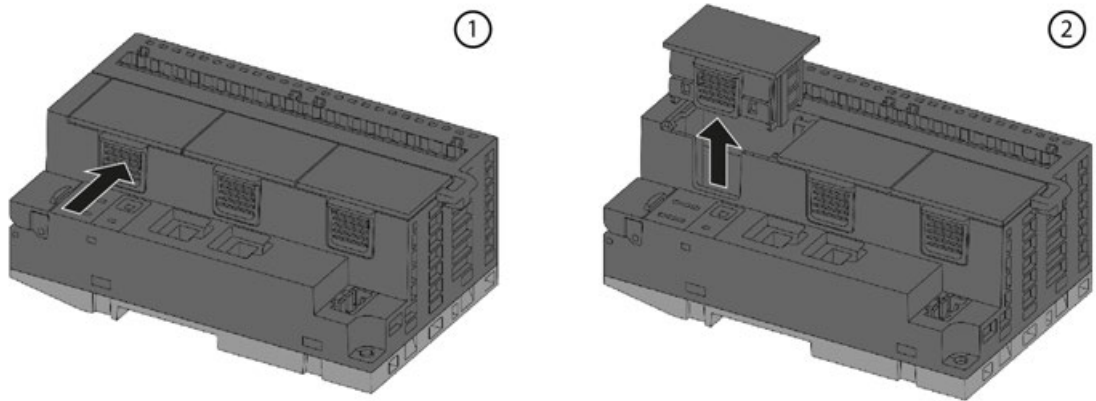
> ⚠ **CAUTION!**
> **Risk of injury and damaging the product!**
> Always plug in the option board slot cover when the option board is not inserted.
>
> If the option board slot cover is lost, please order the replacement TA5300-CVR (1SAP187500R0001).
>
> Never power up the CPU with uncovered option board slot, otherwise it may cause serious injury and/or damage the product.

90.3   Dimensions

40.0 (1.57)

16.5 (0.65)

41.2 (1.62)

23.5 (0.93)

42.1 (1.66)

39.8 (1.57)

37.3 (1.47)

42.1 (1.66)

28.8 (1.13)

TA5101-4DI
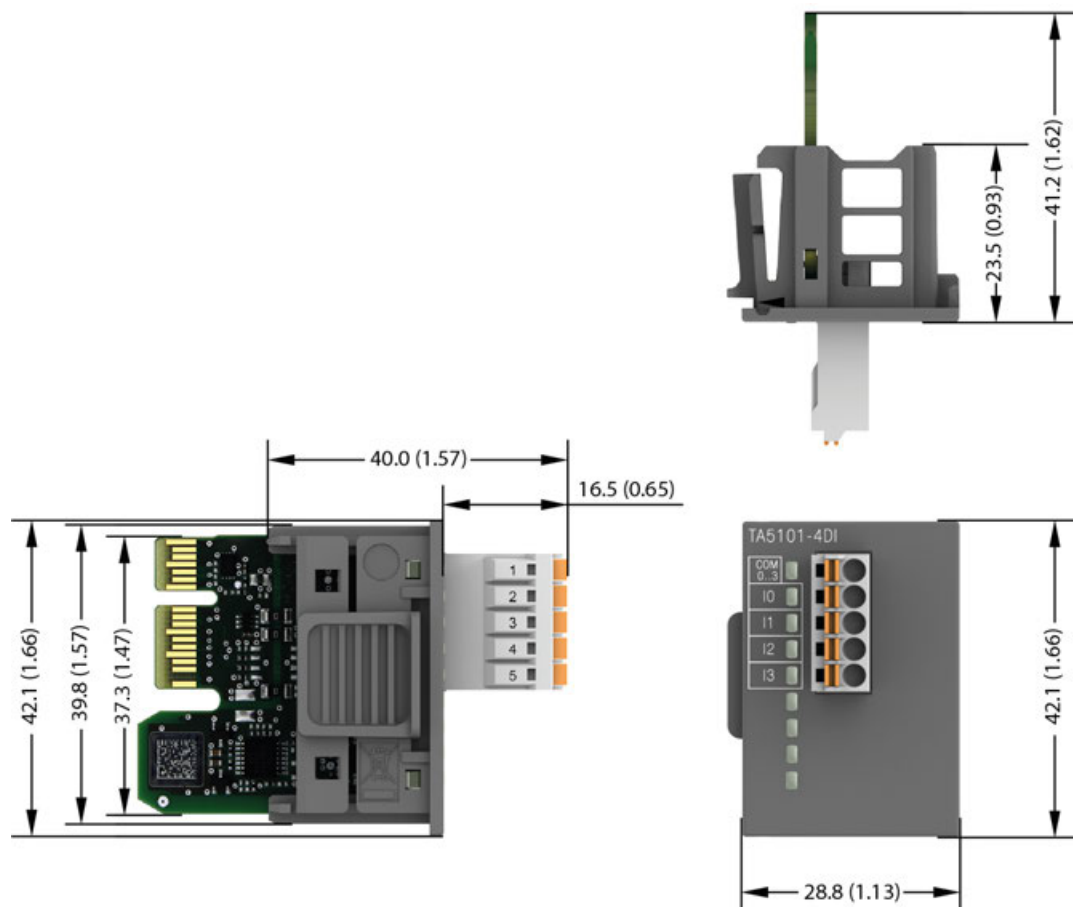
The dimensions are in mm and in brackets in inch.

90.4   Connections
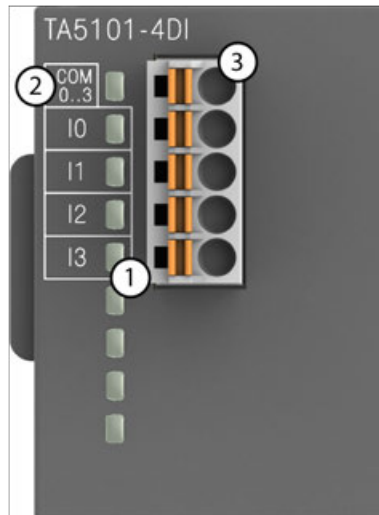
1   4 yellow LEDs to display the signal states at the digital inputs I0 to I3
2   Allocation of signal name
3   5-pin terminal block for input signals

!   **NOTICE!**

Risk of damaging the PLC modules!

Overvoltages and short circuits might damage the PLC modules.

Make sure that all voltage sources (supply voltage and process supply voltage) are switched off before you begin with operations on the system.

The digital inputs can be used as source inputs or as sink inputs.

!   **NOTICE!**

Risk of malfunctions in the plant!

A ground fault, e. g. caused by a damaged cable insulation, can bridge switches accidentally.

Use sink inputs when possible or make sure that, in case of error, there will be no risks to persons or plant.

!   **NOTICE!**

Risk of malfunctions in the plant!

Only if L+/M of the CPU is available and the outputs are already configured in the AB program, the outputs will switch on as soon as the UP/ZP is available.

This must be considered in the application planning.

!   **NOTICE!**

Risk of damaging the I/O module!

The outputs are not protected against short circuits and overload.

–   Never short-circuit or overload the outputs.
–   Never connect the outputs to other voltages.
–   Use an external 3 A fast-protection fuse for the outputs.

90.4.1   Inputs/Outputs
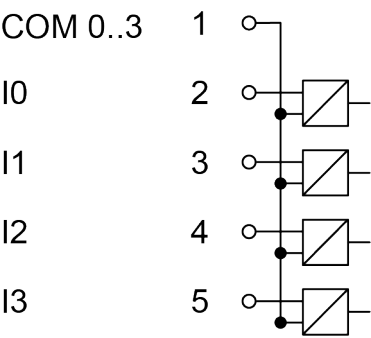
Table 58: Assignment of the terminals:

Terminal	Signal	Description
1	COM 0..3	Input common for signals I0 to I3
2	I0	Input signal I0
3	I1	Input signal I1
4	I2	Input signal I2
5	I3	Input signal I3

Table 59: Connection of the option board for digital I/O extension TA5101-4DI

Sink inputs of TA5101-4DI	Source inputs of TA5101-4DI
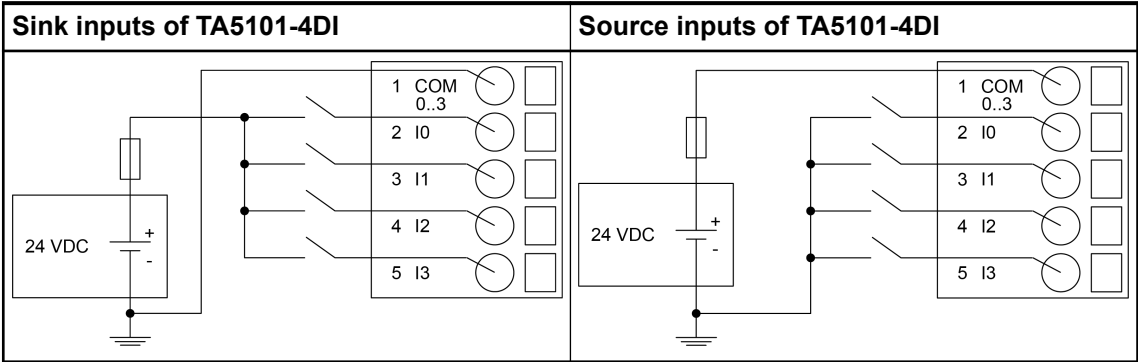
90.5   Cleaning

> **Cleaning instructions**
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

90.6   Certification

| | en | Devices with KCC sign on product sticker and packaging |
| | ko | 제품 스티커 및 포장에 **KCC** 표시가 된 기기 |

MSIP-REI-Abb-AC500

| en | Note
These devices correspond to: | **KN61000-6-2** "Immunity for industrial environments",
KN61000-6-4 "Emission standard for industrial environments" |
| ko | 참고
이러한 기기는 | **KN61000-6-2** "산업 환경에 대한 내성",
KN61000-6-4 "산업 환경 누출 기준"에 적합함 |

90.7   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

91 TA5105-4DOT(W) - Digital output module option board

- TA5105-4DOT
- TA5105-4DOTW for wide temperature range

> **CAUTION!**
> **Risk of injury and damaging the product!**
> Improper installation and maintenance may result in injury and can damage the product!
>
> – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
> – Read product documentation carefully before wiring. Improper wiring or wrong terminal block from other devices can damage the product!
> – Only by qualified personnel.

> **CAUTION!**
> **Risk of damaging the product!**
> Option boards are sensitive electronic devices. Wrong handling can damage the product.
>
> – ESD (electrostatic discharge) protection measures are required when handling the option board.
> – Do not touch contacts and circuit board.

91.1 Assembly
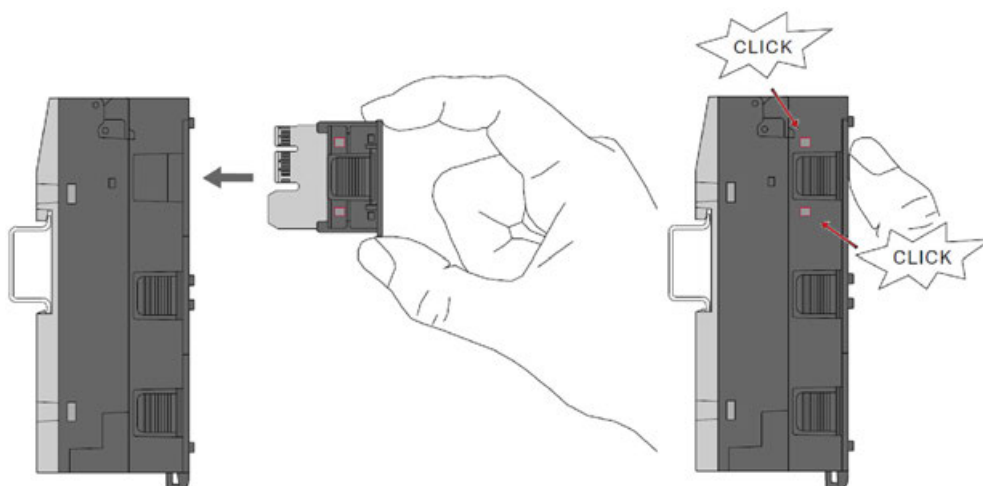
91.1.1 Optimized mounting of the option boards

The AC500-eCo processor modules have up to 3 slots for option boards.

Table 60: Option board slots
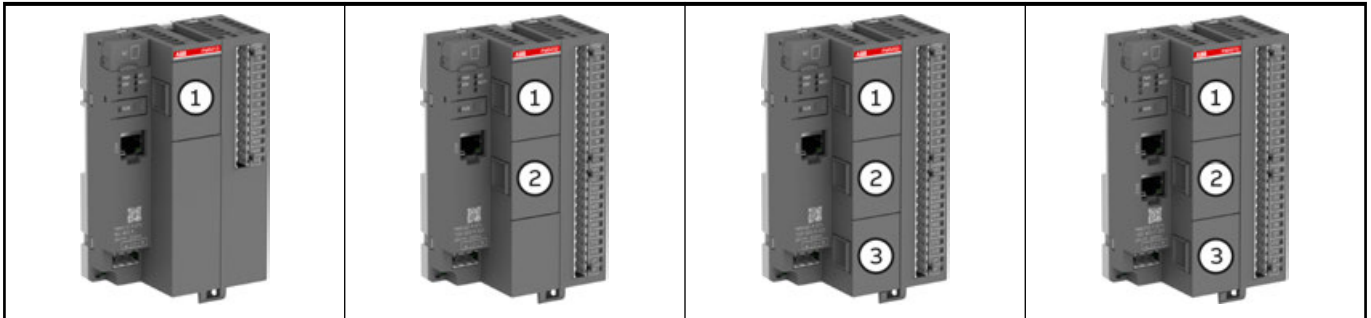
The best thermal circulation is given on slot 3 (bottom slot), followed by slot 2 (middle slot) and then slot 1 (top slot).

The best mounting position of the option board depends on its power dissipation.

> ***Rules for optimized mounting of the option boards***
>
> – *The higher the power dissipation of the option board, the lower the mounting position should be selected.*
> – ***The TA5126-2AO-UI option board has the highest power dissipation and must always be mounted at the lowest option board slot.***
>
> *The optimized mounting position can be easily determined with the help of this table.*

Table 61: Power dissipation of the option boards

Power dissipation of the option boards	Digital	Analog	Serial interface	Accessory
very small			TA5141-RS232I(W) TA5142-RS485I(W) TA5142-RS485(W)	TA5130-KNXPB(W) TA5131-RTC
small	TA5105-4DOT(W)	TA5123-2AI-RT(D/W)		
medium	TA5110-2DI2DO(T/W) TA5101-4DI(W)	TA5120-2AI-UI(W)		
large		TA5126-2AO-UI(W)		

> *If the option boards to be mounted are in the same power dissipation level, then the slots can be freely selected.*

91.2   Disassembly
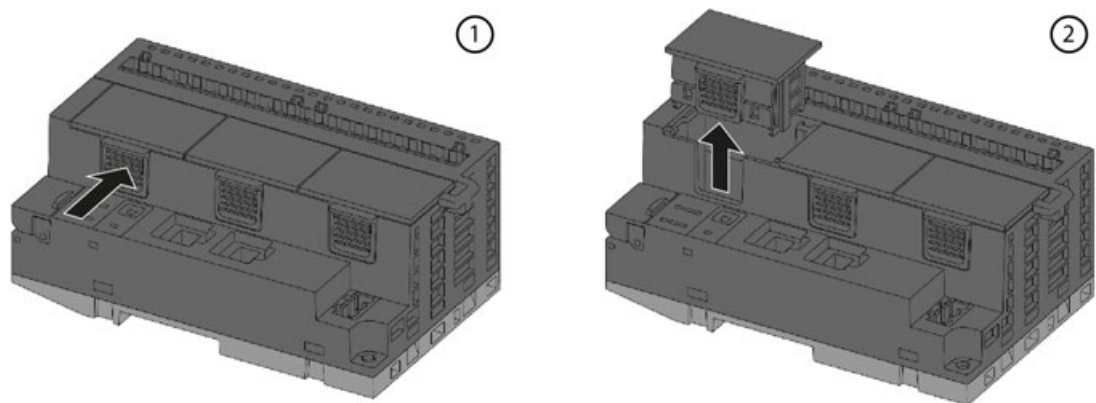
	CAUTION!
⚠	**Risk of injury and damaging the product!**

CAUTION!

Risk of injury and damaging the product!

Always plug in the option board slot cover when the option board is not inserted.

If the option board slot cover is lost, please order the replacement TA5300-CVR (1SAP187500R0001).

Never power up the CPU with uncovered option board slot, otherwise it may cause serious injury and/or damage the product.

91.3   Dimensions
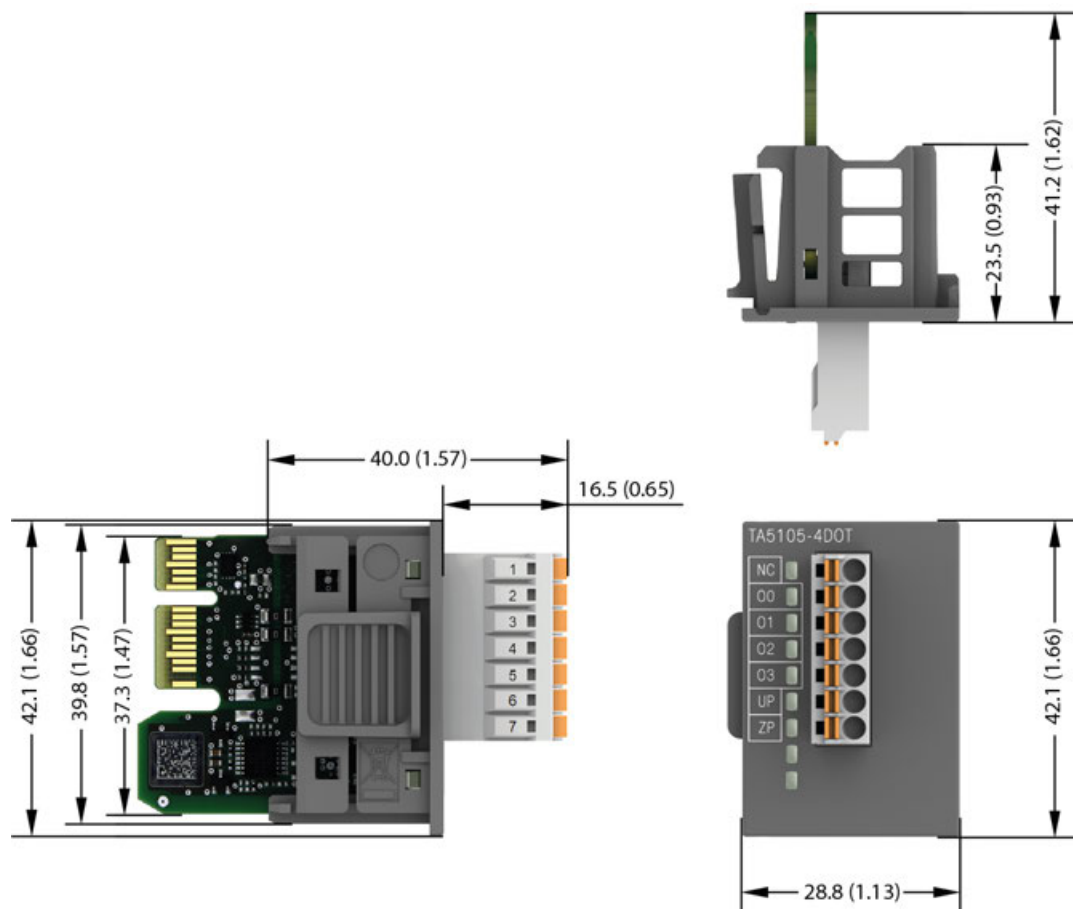
The dimensions are in mm and in brackets in inch.

91.4   Connections
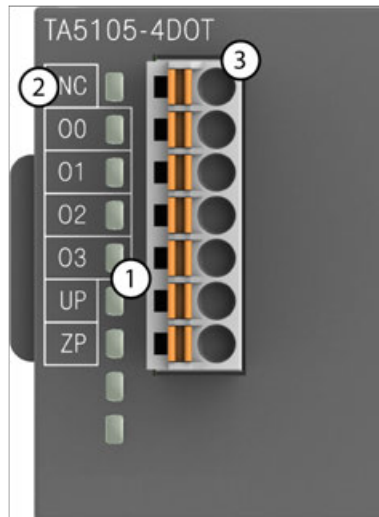
1   4 yellow LEDs to display the signal states at the digital outputs O0 ... O3
2   Allocation of signal name
3   7-pin terminal block for output signals

> **!**
>
> **NOTICE!**
>
> **Risk of damaging the PLC modules!**
>
> Overvoltages and short circuits might damage the PLC modules.
>
> Make sure that all voltage sources (supply voltage and process supply voltage) are switched off before you begin with operations on the system.

The digital inputs can be used as source inputs or as sink inputs.

> **!**
>
> **NOTICE!**
>
> **Risk of malfunctions in the plant!**
>
> A ground fault, e. g. caused by a damaged cable insulation, can bridge switches accidentally.
>
> Use sink inputs when possible or make sure that, in case of error, there will be no risks to persons or plant.

> **!**
>
> **NOTICE!**
>
> **Risk of malfunctions in the plant!**
>
> Only if L+/M of the CPU is available and the outputs are already configured in the AB program, the outputs will switch on as soon as the UP/ZP is available.
>
> This must be considered in the application planning.

> **!**
>
> **NOTICE!**
>
> **Risk of damaging the I/O module!**
>
> The outputs are not protected against short circuits and overload.
>
> – Never short-circuit or overload the outputs.
> – Never connect the outputs to other voltages.
> – Use an external 3 A fast-protection fuse for the outputs.

91.4.1 Inputs/Outputs
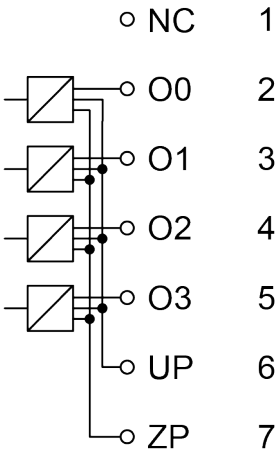
Table 62: Assignment of the terminals:

Terminal	Signal	Description
1	NC	Not connected
2	O0	Output signal O0
3	O1	Output signal O1
4	O2	Output signal O2
5	O3	Output signal O3
6	UP	Process supply voltage UP +24 V DC
7	ZP	Process supply voltage ZP 0 V DC
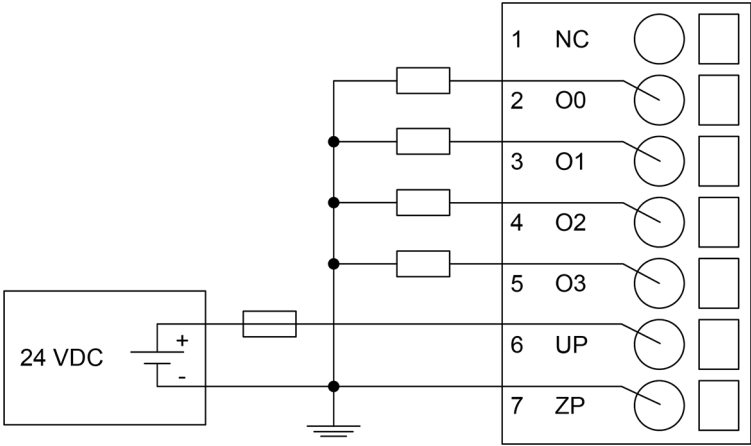
Fig. 97: Outputs of TA5105-4DOT

91.5 Cleaning

> **Cleaning instructions**
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

91.6   Certification

	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

MSIP-REI-Abb-AC500

en	Note	
	These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고	
	이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

91.7   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

92 TA5110-2DI2DO(T/W) - Option board for digital I/O extension

- TA5110-2DI2DOT
- TA5110-2DI2DOW for wide temperature range

> **CAUTION!**
> **Risk of injury and damaging the product!**
> Improper installation and maintenance may result in injury and can damage the product!
>
> – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
> – Read product documentation carefully before wiring. Improper wiring or wrong terminal block from other devices can damage the product!
> – Only by qualified personnel.

> **CAUTION!**
> **Risk of damaging the product!**
> Option boards are sensitive electronic devices. Wrong handling can damage the product.
>
> – ESD (electrostatic discharge) protection measures are required when handling the option board.
> – Do not touch contacts and circuit board.

92.1 Assembly
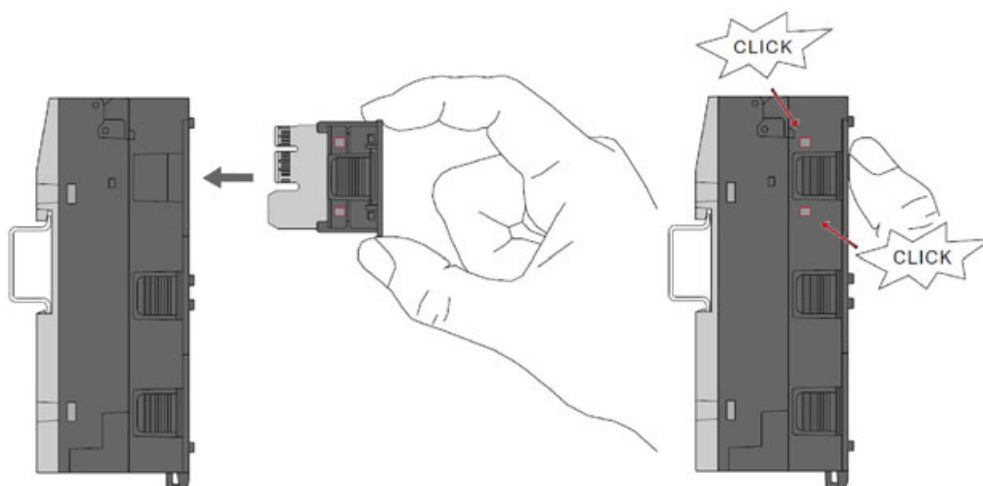
92.1.1   Optimized mounting of the option boards

The AC500-eCo processor modules have up to 3 slots for option boards.

Table 63: Option board slots
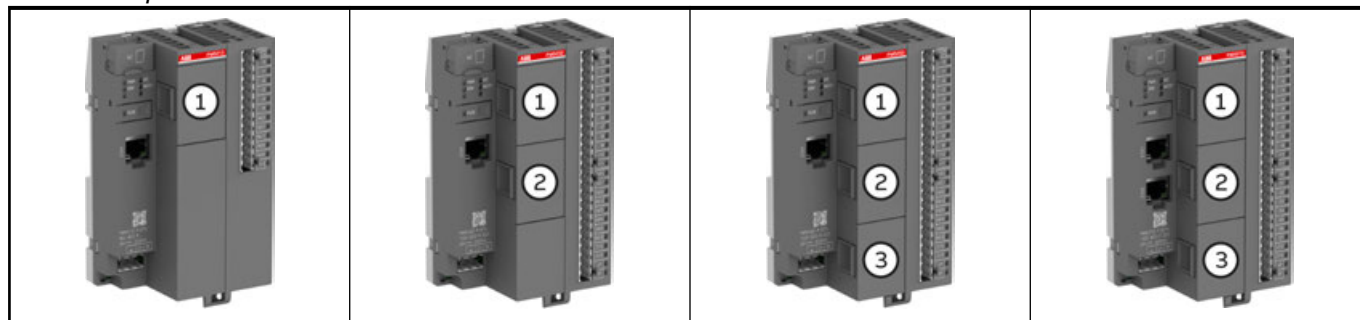
The best thermal circulation is given on slot 3 (bottom slot), followed by slot 2 (middle slot) and then slot 1 (top slot).

The best mounting position of the option board depends on its power dissipation.

> ***Rules for optimized mounting of the option boards***
>
> – *The higher the power dissipation of the option board, the lower the mounting position should be selected.*
> – ***The TA5126-2AO-UI option board has the highest power dissipation and must always be mounted at the lowest option board slot.***
>
> *The optimized mounting position can be easily determined with the help of this table.*

Table 64: Power dissipation of the option boards

Power dissipation of the option boards	Digital	Analog	Serial interface	Accessory
very small			TA5141-RS232I(W) TA5142-RS485I(W) TA5142-RS485(W)	TA5130-KNXPB(W) TA5131-RTC
small	TA5105-4DOT(W)	TA5123-2AI-RT(D/W)		
medium	TA5110-2DI2DO(T/W) TA5101-4DI(W)	TA5120-2AI-UI(W)		
large		TA5126-2AO-UI(W)		

> *If the option boards to be mounted are in the same power dissipation level, then the slots can be freely selected.*

92.2   Disassembly
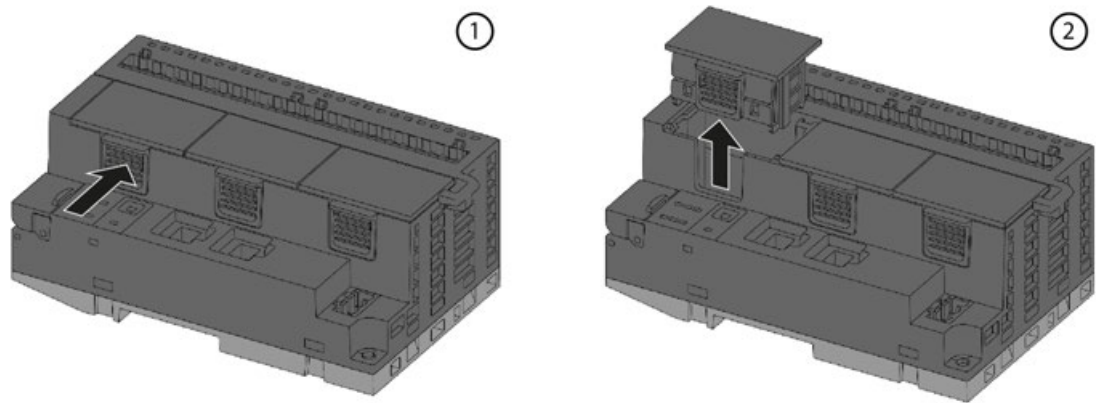
⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Always plug in the option board slot cover when the option board is not inserted.
	If the option board slot cover is lost, please order the replacement TA5300-CVR (1SAP187500R0001).
	Never power up the CPU with uncovered option board slot, otherwise it may cause serious injury and/or damage the product.

92.3   Dimensions

40.0 (1.57)

16.5 (0.65)

42.1 (1.66)

39.8 (1.57)

37.3 (1.47)

1
2
3
4
5
6
7

41.2 (1.62)

23.5 (0.93)

TA5110-2DI2DOT

COM 0..1
I0
I1
O0
O1
UP
ZP

42.1 (1.66)

28.8 (1.13)
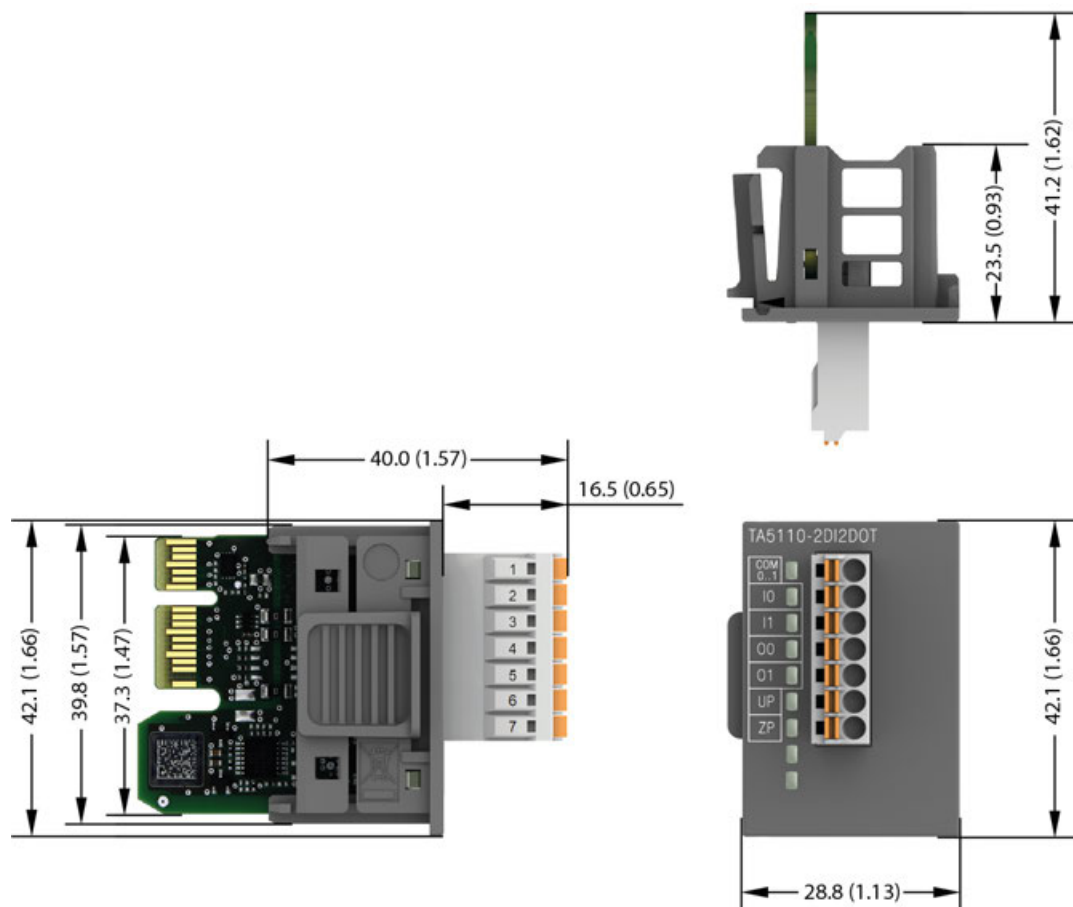
> *The dimensions are in mm and in brackets in inch.*

92.4   Connections
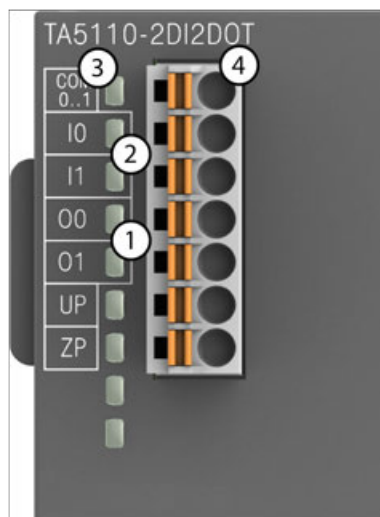
1   2 yellow LEDs to display the signal states at the digital outputs O0 to O1
2   2 yellow LEDs to display the signal states at the digital inputs I0 to I1
3   Allocation of signal name
4   7-pin terminal block for input/output signals

> **NOTICE!**
> **Risk of damaging the PLC modules!**
> Overvoltages and short circuits might damage the PLC modules.
>
> Make sure that all voltage sources (supply voltage and process supply voltage) are switched off before you begin with operations on the system.

The digital inputs can be used as source inputs or as sink inputs.

> **NOTICE!**
> **Risk of malfunctions in the plant!**
> A ground fault, e. g. caused by a damaged cable insulation, can bridge switches accidentally.
>
> Use sink inputs when possible or make sure that, in case of error, there will be no risks to persons or plant.

> **NOTICE!**
> **Risk of malfunctions in the plant!**
> Only if L+/M of the CPU is available and the outputs are already configured in the AB program, the outputs will switch on as soon as the UP/ZP is available.
>
> This must be considered in the application planning.

> **!** **NOTICE!**
>
> **Risk of damaging the I/O module!**
>
> The outputs are not protected against short circuits and overload.
>
> – Never short-circuit or overload the outputs.
> – Never connect the outputs to other voltages.
> – Use an external 3 A fast-protection fuse for the outputs.

92.4.1   Inputs/Outputs
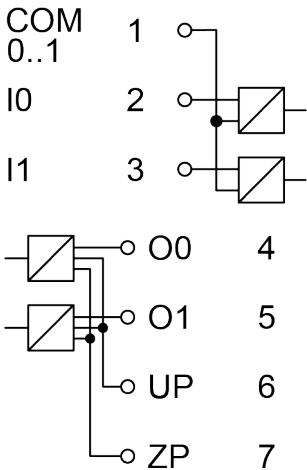
Table 65: Assignment of the terminals:

Terminal	Signal	Description
1	COM 0 ... 1	Input common for signals I0 to I1
2	I0	Input signal I0
3	I1	Input signal I1
4	O0	Output signal O0
5	O1	Output signal O1
6	UP	Process supply voltage UP +24 V DC
7	ZP	Process supply voltage ZP 0 V DC

Table 66: Connection for inputs of the option board for digital I/O extension TA5110-2DI2DOT

Sink inputs of TA5110-2DI2DOT	Source inputs of TA5110-2DI2DOT
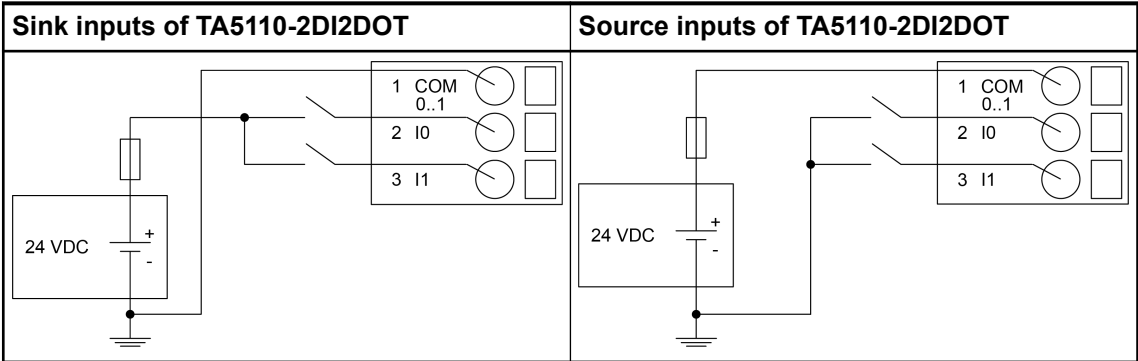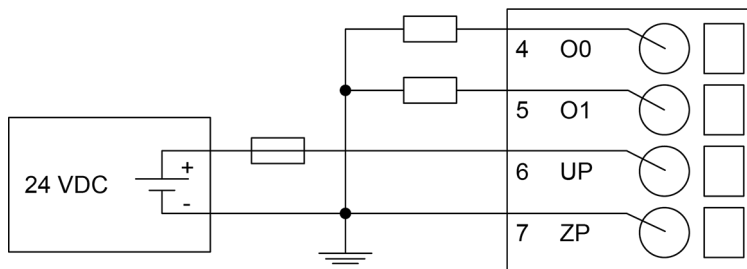
Fig. 98: Outputs of TA5110-2DI2DOT

92.5   Cleaning

> **Cleaning instructions**
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

92.6   Certification

MSIP-REI-Abb-AC500

en		Devices with KCC sign on product sticker and packaging
ko		제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	**Note** These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

92.7   Recycling

> **Disposal and recycling information**
>
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

93 TA5120-2AI-UI(W) - Option board for analog I/O extension

- TA5120-2AI-UI
- TA5120-2AI-UIW for wide temperature range

> **CAUTION!**
> **Risk of injury and damaging the product!**
> Improper installation and maintenance may result in injury and can damage the product!
>
> – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
> – Read product documentation carefully before wiring. Improper wiring or wrong terminal block from other devices can damage the product!
> – Only by qualified personnel.

> **CAUTION!**
> **Risk of damaging the product!**
> Option boards are sensitive electronic devices. Wrong handling can damage the product.
>
> – ESD (electrostatic discharge) protection measures are required when handling the option board.
> – Do not touch contacts and circuit board.

93.1 Assembly
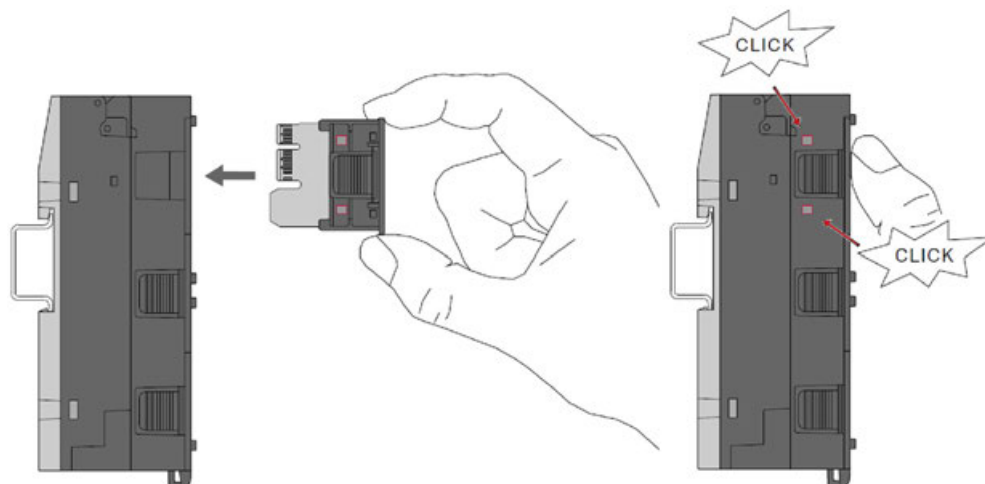
93.1.1 Optimized mounting of the option boards

The AC500-eCo processor modules have up to 3 slots for option boards.

Table 67: Option board slots
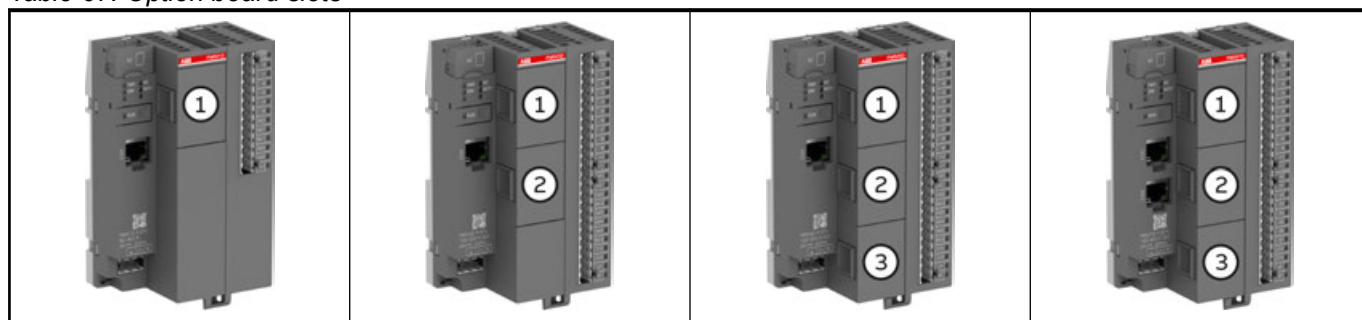
The best thermal circulation is given on slot 3 (bottom slot), followed by slot 2 (middle slot) and then slot 1 (top slot).

The best mounting position of the option board depends on its power dissipation.

> ⓘ **Rules for optimized mounting of the option boards**
>
> – *The higher the power dissipation of the option board, the lower the mounting position should be selected.*
> – **The TA5126-2AO-UI option board has the highest power dissipation and must always be mounted at the lowest option board slot.**
>
> *The optimized mounting position can be easily determined with the help of this table.*

Table 68: Power dissipation of the option boards

Power dissipation of the option boards	Digital	Analog	Serial interface	Accessory
very small			TA5141-RS232I(W) TA5142-RS485I(W) TA5142-RS485(W)	TA5130-KNXPB(W) TA5131-RTC
small	TA5105-4DOT(W)	TA5123-2AI-RT(D/W)		
medium	TA5110-2DI2DO(T/W) TA5101-4DI(W)	TA5120-2AI-UI(W)		
large		TA5126-2AO-UI(W)		

> ⓘ *If the option boards to be mounted are in the same power dissipation level, then the slots can be freely selected.*

93.2   Disassembly
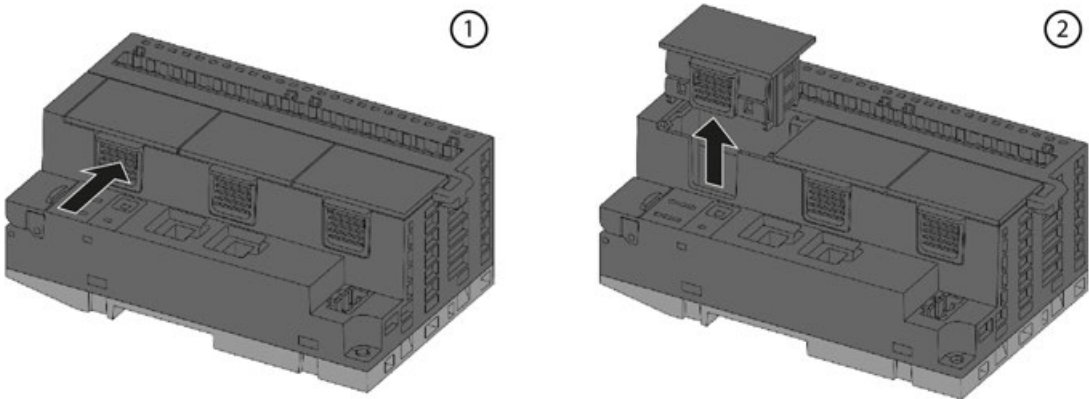
> ⚠ **CAUTION!**
>
> **Risk of injury and damaging the product!**
>
> Always plug in the option board slot cover when the option board is not inserted.
>
> If the option board slot cover is lost, please order the replacement TA5300-CVR (1SAP187500R0001).
>
> Never power up the CPU with uncovered option board slot, otherwise it may cause serious injury and/or damage the product.

93.3   Dimensions
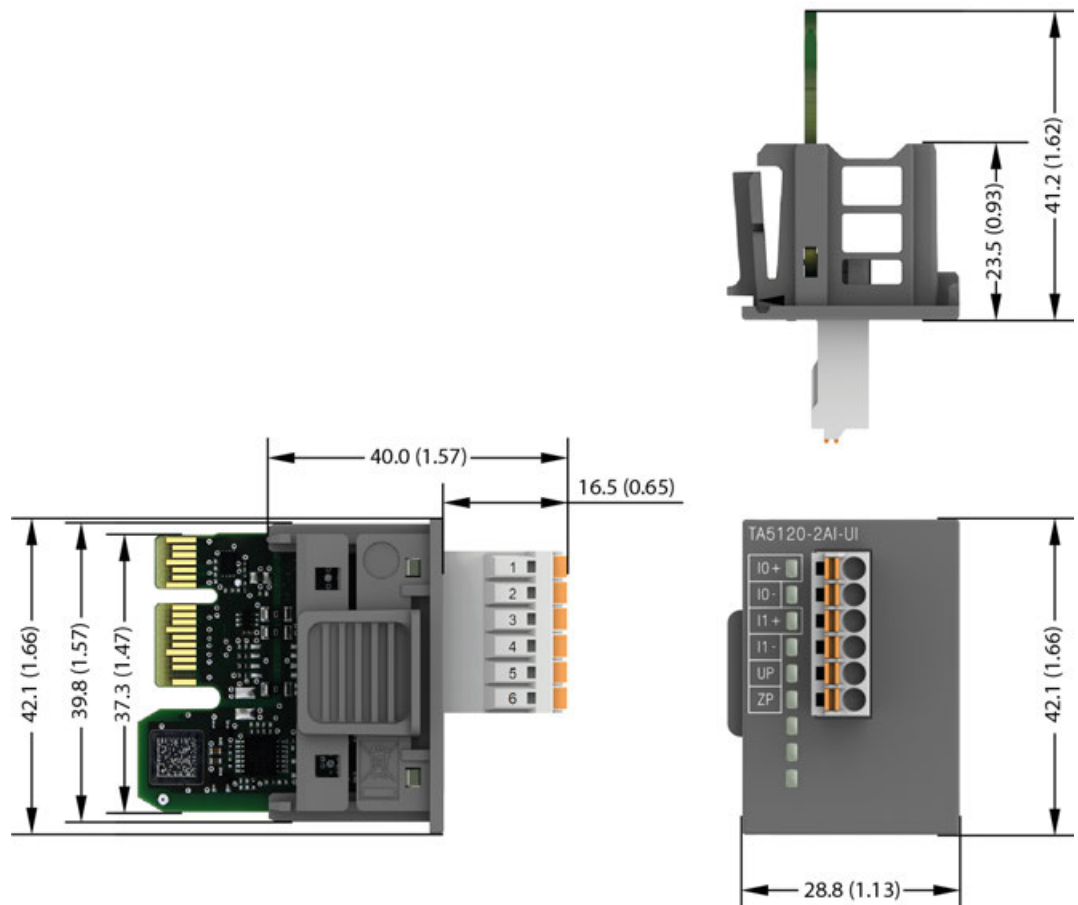
The dimensions are in mm and in brackets in inch.

93.4   Connections

1   Allocation of terminal and signal name
2   2 yellow LEDs to display the signal states at the analog inputs I0 and I1
3   6-pin terminal block for analog input signals and power supply (UP, ZP)
4   Input connection diagram for U and I

The option board TA5120-2AI-UI for analog input extension is plugged into an AC500-eCo V3 CPU PM50xx. Insert the module and press it into the slot until it clicks into place.

The electrical connection is carried out by using a removable 6-pin terminal block. For more information, please refer to the chapter **TA52xx(-x) - Terminal block sets** ⮑ *Chapter 103 "TA52xx(-x) - Terminal block sets" on page 744.*

Table 69: Assignment of the terminals:

Terminal	Signal	Description
1	I0+	Positive terminal of the analog input I0
2	I0-	Negative terminal of the analog input I0
3	I1+	Positive terminal of the analog input I1
4	I1-	Negative terminal of the analog input I1
5	UP	Process voltage UP = +24 V DC
6	ZP	Process voltage ZP = 0 V DC

> ⚠️ **CAUTION!**
>
> Analog sensors must be galvanically isolated against the ground. In order to avoid inaccuracy with the measuring results, the analog sensors should also be isolated against the power supply.

> ⚠️ **CAUTION!**
>
> The negative terminals of the analog inputs are electrically connected to each other. They form an "Analog Ground" signal for the module (AGND).

> **CAUTION!**
> There is no galvanic isolation between the analog circuitry and ZP/UP. There-
> fore, the analog sensors must be electrically isolated in order to avoid loops via
> the ground potential or the supply voltage (Voltage 0V...10 V).

> *For the open-circuit detection (wire break), each analog input channel is pulled*
> *up to "plus" by a high-resistance resistor. If nothing is connected, the maximum*
> *voltage will be read in then.*

The internal power supply voltage for the module's circuitry is carried out via the connection to
CPU. Thus, the current consumption from 24 V DC power supply at the terminals L+ and M of
the CPU module increases by << 1 mA per TA5120-2AI-UI.

The external power supply connection is carried out via the terminals UP (+24 V DC) and ZP (0
V DC).

> **WARNING!**
> **Removal/Insertion under power**
> The option boards are not designed for removal or insertion under power.
> Because of unforeseeable consequences, it is not allowed to plug or unplug
> option boards with the power being ON.
>
> Make sure that all voltage sources (supply and process voltage) are switched
> off before you
>
> – connect or disconnect any signal or terminal block
> – remove, mount or replace an option board.
>
> Disconnecting any powered option board while energized in a hazardous loca-
> tion could result in an electric arc, which could create a flammable ignition
> resulting in fire or explosion.
>
> Make sure that power is removed and that the area has been thoroughly
> checked to ensure that flammable materials are not present prior to proceeding.

> **NOTICE!**
> **Risk of damaging the PLC modules!**
> Overvoltages and short circuits might damage the PLC modules.
>
> Make sure that all voltage sources (supply voltage and process supply voltage)
> are switched off before you begin with operations on the system.

> *Generally, analog signals must be laid in shielded cables. The cable shields*
> *must be grounded at both sides of the cables. In order to avoid unacceptable*
> *potential differences between different parts of the installation, low resistance*
> *equipotential bonding conductors must be laid.*

Fig. 99: Internal construction of the analog inputs

> ⚠️ **CAUTION!**
>
> By installing equipotential bonding conductors between the different parts of the system, it must be ensured that the potential difference between ZP and AGND never can exceed 1 V.

> ⚠️ **CAUTION!**
>
> The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

93.5 Cleaning

> ℹ️ **Cleaning instructions**
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

93.6 Certification

	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

MSIP-REI-Abb-AC500
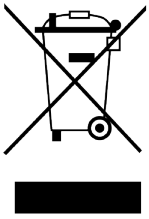
en	**Note** These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

93.7   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

94 TA5123-2AI-RT(D/W) - Option board for analog I/O extension

- TA5123-2AI-RTD
- TA5123-2AI-RTW for wide temperature range

| ⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Read product documentation carefully before wiring. Improper wiring or wrong terminal block from other devices can damage the product!
	– Only by qualified personnel.

| ⚠	**CAUTION!**
	Risk of damaging the product!
	Option boards are sensitive electronic devices. Wrong handling can damage the product.
	– ESD (electrostatic discharge) protection measures are required when handling the option board.
	– Do not touch contacts and circuit board.

94.1 Assembly

94.1.1 Optimized mounting of the option boards

The AC500-eCo processor modules have up to 3 slots for option boards.

Table 70: Option board slots

The best thermal circulation is given on slot 3 (bottom slot), followed by slot 2 (middle slot) and then slot 1 (top slot).

The best mounting position of the option board depends on its power dissipation.

> ***Rules for optimized mounting of the option boards***
>
> – *The higher the power dissipation of the option board, the lower the mounting position should be selected.*
> – ***The TA5126-2AO-UI option board has the highest power dissipation and must always be mounted at the lowest option board slot.***
>
> *The optimized mounting position can be easily determined with the help of this table.*

Table 71: Power dissipation of the option boards

Power dissipation of the option boards	Digital	Analog	Serial interface	Accessory
very small			TA5141-RS232I(W) TA5142-RS485I(W) TA5142-RS485(W)	TA5130-KNXPB(W) TA5131-RTC
small	TA5105-4DOT(W)	TA5123-2AI-RT(D/W)		
medium	TA5110-2DI2DO(T/W) TA5101-4DI(W)	TA5120-2AI-UI(W)		
large		TA5126-2AO-UI(W)		

> ⓘ *If the option boards to be mounted are in the same power dissipation level, then the slots can be freely selected.*

94.2 Disassembly
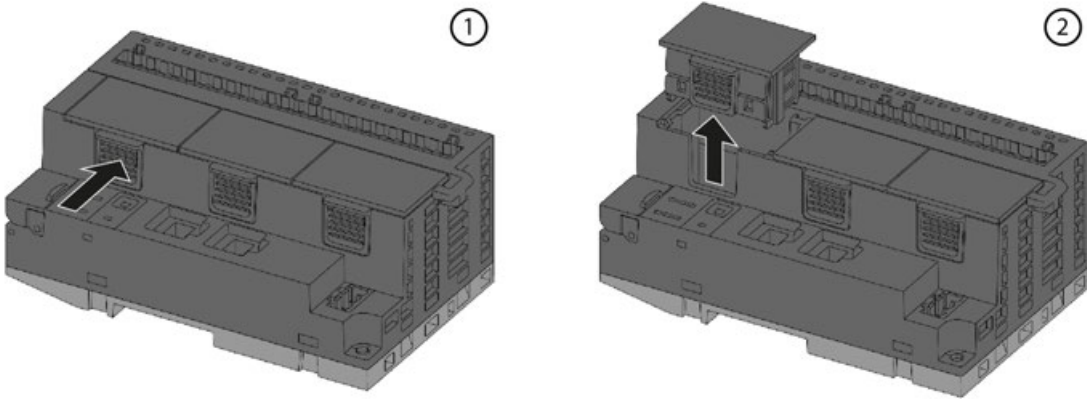
> ⚠️ **CAUTION!**
>
> **Risk of injury and damaging the product!**
>
> Always plug in the option board slot cover when the option board is not inserted.
>
> If the option board slot cover is lost, please order the replacement TA5300-CVR (1SAP187500R0001).
>
> Never power up the CPU with uncovered option board slot, otherwise it may cause serious injury and/or damage the product.
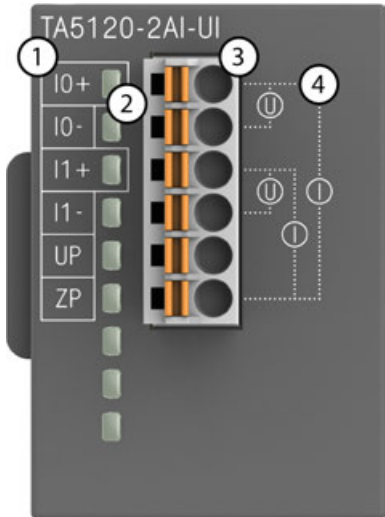
94.3   Dimensions
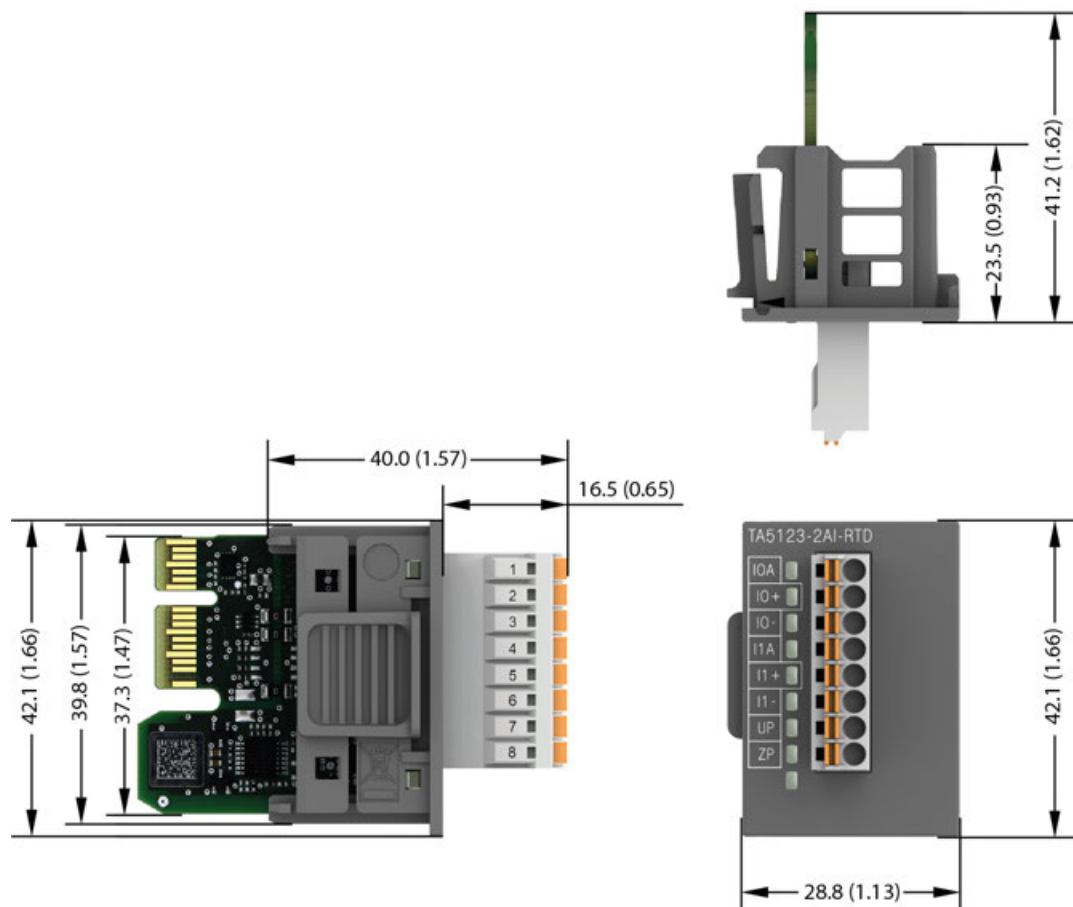
> The dimensions are in mm and in brackets in inch.

94.4   Connections
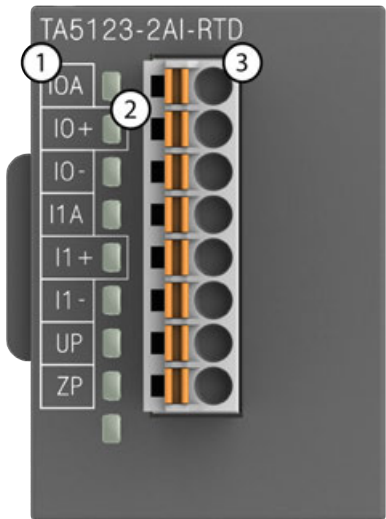
1   Allocation of signal name
2   2 yellow LEDs to display the signal states at the analog inputs I0 and I1
3   8-pin terminal block for analog input signals and power supply (UP, ZP)

The option board TA5123-2AI-RTD for analog input extension is plugged into an AC500-eCo V3 CPU PM50x2. Insert the module and press it until it locks into place.

The electrical connection is carried out by using a removable 8-pin terminal block. For more information, please refer to the chapter **TA52xx(-x) - Terminal block sets** ✋ *Chapter 103 "TA52xx(-x) - Terminal block sets" on page 744*.

Table 72: Assignment of the terminals:

Terminal	Signal	Description
1	I0A	Connection A (supply) of the analog input I0
2	I0+	Positive terminal of the analog input I0
3	I0-	Negative terminal of the analog input I0
4	I1A	Connection A (supply) of the analog input I1
5	I1+	Positive terminal of the analog input I1
6	I1-	Negative terminal of the analog input I1
7	UP	Process voltage UP = +24 VDC
8	ZP	Process voltage ZP = 0 V

> ⚠ **CAUTION!**
> Analog sensors must be galvanically isolated against the ground. In order to avoid inaccuracy with the measuring results, the analog sensors should also be isolated against the power supply.

> ⚠ **CAUTION!**
> The negative terminals of the analog inputs are electrically connected to each other. They form an "Analog Ground" signal for the module.

> **CAUTION!**
> There is no galvanic isolation between the analog circuitry and ZP/UP. There-fore, the analog sensors must be electrically isolated in order to avoid loops via the earth potential or the supply voltage.

> *For the open-circuit detection (wire break), each analog input channel is pulled up to "plus" by a high-resistance resistor. If nothing is connected, the maximum voltage will be read in then.*

The internal power supply voltage for the module's circuitry is carried out via the connection to CPU. Thus, the current consumption from 24 VDC power supply at the terminals L+ and M of the CPU module increases by << 1 mA per TA5123-2AI-RTD.

The external power supply connection is carried out via the UP (+24 VDC) and the ZP (0 VDC) terminals.

> **WARNING!**
> **Removal/Insertion under power**
> The option boards are not designed for removal or insertion under power. Because of unforeseeable consequences, it is not allowed to plug or unplug option boards with the power being ON.
>
> Make sure that all voltage sources (supply and process voltage) are switched off before you
>
> – connect or disconnect any signal or terminal block
> – remove, mount or replace an option board.
>
> Disconnecting any powered option board while energized in a hazardous loca-tion could result in an electric arc, which could create a flammable ignition resulting in fire or explosion.
>
> Make sure that power is removed and that the area has been thoroughly checked to ensure that flammable materials are not present prior to proceeding.

> **NOTICE!**
> **Risk of damaging the PLC modules!**
> Overvoltages and short circuits might damage the PLC modules.
>
> Make sure that all voltage sources (supply voltage and process supply voltage) are switched off before you begin with operations on the system.

> *Generally, analog signals must be laid in shielded cables. The cable shields must be grounded at both sides of the cables. In order to avoid unacceptable potential differences between different parts of the installation, low resistance equipotential bonding conductors must be laid.*
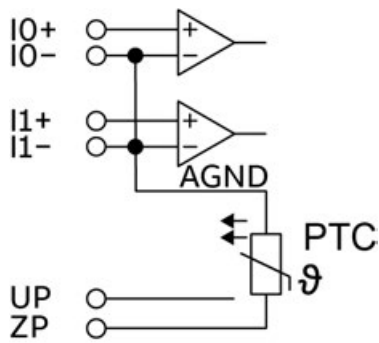
The following block diagram shows the internal construction of the analog inputs:
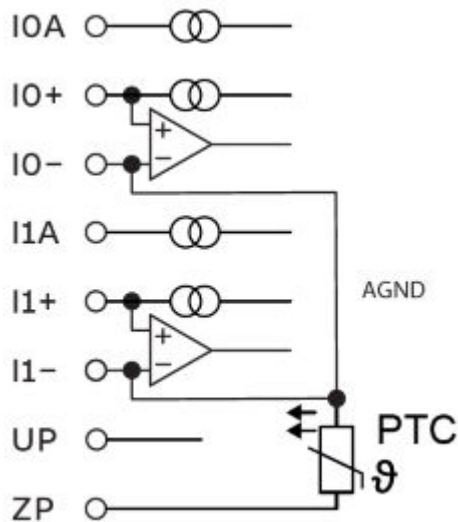
> ⚠️ **CAUTION!**
> By installing equipotential bonding conductors between the different parts of the system, it must be ensured that the potential difference between ZP and AGND never can exceed 1 V.

> ⚠️ **CAUTION!**
> The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

94.5 Cleaning

> ⓘ ***Cleaning instructions***
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

94.6 Certification

en	Devices with KCC sign on product sticker and packaging	
ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기	

MSIP-REI-Abb-AC500

en	**Note** These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

94.7   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

95 TA5126-2AO-UI(W) - Option board for analog I/O extension

- TA5126-2AO-UI
- TA5126-2AO-UIW for wide temperature range

⚠	**CAUTION!** **Risk of injury and damaging the product!** Improper installation and maintenance may result in injury and can damage the product! – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1. – Read product documentation carefully before wiring. Improper wiring or wrong terminal block from other devices can damage the product! – Only by qualified personnel.

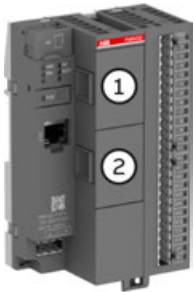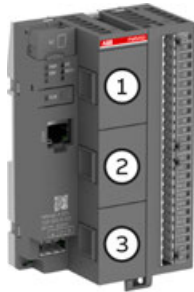| ⚠	**CAUTION!** **Risk of damaging the product!** Option boards are sensitive electronic devices. Wrong handling can damage the product. – ESD (electrostatic discharge) protection measures are required when handling the option board. – Do not touch contacts and circuit board.

95.1   Assembly

95.1.1   Optimized mounting of the option boards

The AC500-eCo processor modules have up to 3 slots for option boards.

Table 73: Option board slots

The best thermal circulation is given on slot 3 (bottom slot), followed by slot 2 (middle slot) and then slot 1 (top slot).

The best mounting position of the option board depends on its power dissipation.

> ***Rules for optimized mounting of the option boards***
>
> – *The higher the power dissipation of the option board, the lower the mounting position should be selected.*
> – ***The TA5126-2AO-UI option board has the highest power dissipation and must always be mounted at the lowest option board slot.***
>
> *The optimized mounting position can be easily determined with the help of this table.*

Table 74: Power dissipation of the option boards

Power dissipation of the option boards	Digital	Analog	Serial interface	Accessory
very small			TA5141-RS232I(W) TA5142-RS485I(W) TA5142-RS485(W)	TA5130-KNXPB(W) TA5131-RTC
small	TA5105-4DOT(W)	TA5123-2AI-RT(D/W)		
medium	TA5110-2DI2DO(T/W) TA5101-4DI(W)	TA5120-2AI-UI(W)		
large		TA5126-2AO-UI(W)		

> ⓘ *If the option boards to be mounted are in the same power dissipation level, then the slots can be freely selected.*

95.2   Disassembly
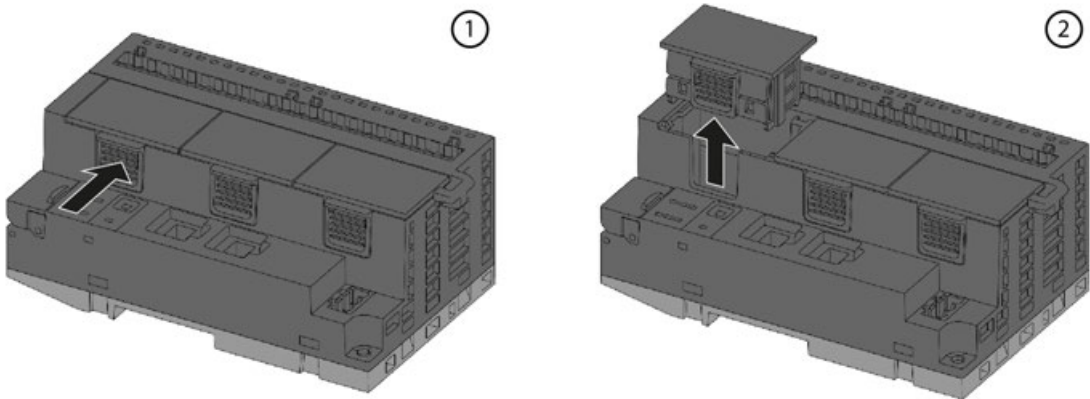
> ⚠️ **CAUTION!**
> **Risk of injury and damaging the product!**
> Always plug in the option board slot cover when the option board is not inserted.
>
> If the option board slot cover is lost, please order the replacement TA5300-CVR (1SAP187500R0001).
>
> Never power up the CPU with uncovered option board slot, otherwise it may cause serious injury and/or damage the product.

95.3   Dimensions
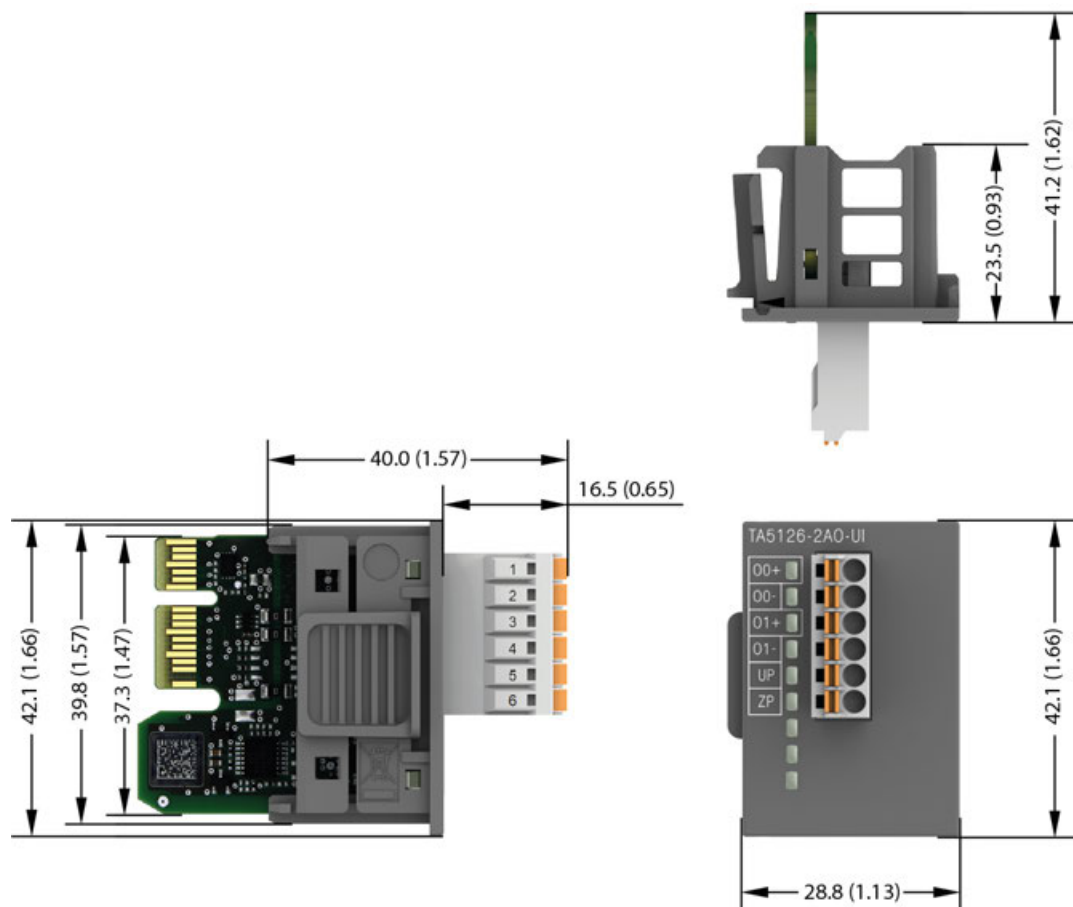
> *The dimensions are in mm and in brackets in inch.*

95.4   Connections
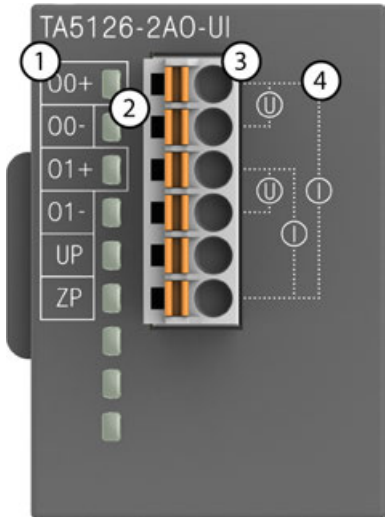
1   Allocation of signal name
2   2 yellow LEDs to display the signal states at the analog outputs O0 and O1
3   6-pin terminal block for analog output signals and power supply (UP, ZP)
4   Output connection diagram for U and I

The option board TA5126-2AO-UI for analog output extension is plugged into an AC500-eCo V3 CPU PM50xx. Insert the module and press it into the slot until it clicks into place.

The electrical connection is carried out by using a removable 6-pin terminal block. For more information, please refer to the chapter **TA52xx(-x) - Terminal block sets** ⮑ *Chapter 103 "TA52xx(-x) - Terminal block sets" on page 744.*

Table 75: Assignment of the terminals:

Terminal	Signal	Description
1	O0+	Positive terminal of the analog output O0
2	O0-	Negative terminal of the analog output O0
3	O1+	Positive terminal of the analog output O1
4	O1-	Negative terminal of the analog output O1
5	UP	Process voltage UP = +24 V DC
6	ZP	Process voltage ZP = 0 V DC

> ⚠ **CAUTION!**
>
> Analog sensors must be galvanically isolated against the ground. In order to avoid inaccuracy with the measuring results, the analog sensors should also be isolated against the power supply.

> ⚠ **CAUTION!**
>
> The negative terminals of the analog inputs are electrically connected to each other. They form an "Analog Ground" signal for the module (AGND).

> **CAUTION!**
> There is no galvanic isolation between the analog circuitry and ZP/UP. There-fore, the analog sensors must be electrically isolated in order to avoid loops via the ground potential or the supply voltage (Voltage 0V...10 V).

> *For the open-circuit detection (wire break), each analog input channel is pulled up to "plus" by a high-resistance resistor. If nothing is connected, the maximum voltage will be read in then.*

The internal power supply voltage for the module's circuitry is carried out via the connection to CPU. Thus, the current consumption from 24 V DC power supply at the terminals L+ and M of the CPU module increases by << 1 mA per TA5126-2AO-UI.

The external power supply connection is carried out via the terminals UP (+24 V DC) and ZP (0 V DC).

> **WARNING!**
> **Removal/Insertion under power**
> The option boards are not designed for removal or insertion under power. Because of unforeseeable consequences, it is not allowed to plug or unplug option boards with the power being ON.
>
> Make sure that all voltage sources (supply and process voltage) are switched off before you
>
> – connect or disconnect any signal or terminal block
> – remove, mount or replace an option board.
>
> Disconnecting any powered option board while energized in a hazardous loca-tion could result in an electric arc, which could create a flammable ignition resulting in fire or explosion.
>
> Make sure that power is removed and that the area has been thoroughly checked to ensure that flammable materials are not present prior to proceeding.

> **NOTICE!**
> **Risk of damaging the PLC modules!**
> Overvoltages and short circuits might damage the PLC modules.
>
> Make sure that all voltage sources (supply voltage and process supply voltage) are switched off before you begin with operations on the system.

> *Generally, analog signals must be laid in shielded cables. The cable shields must be grounded at both sides of the cables. In order to avoid unacceptable potential differences between different parts of the installation, low resistance equipotential bonding conductors must be laid.*

Fig. 100: Internal construction of the analog inputs

> ⚠️ **CAUTION!**
> By installing equipotential bonding conductors between the different parts of the system, it must be ensured that the potential difference between ZP and AGND never can exceed 1 V.

> ⚠️ **CAUTION!**
> The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

95.5 Cleaning

> ℹ️ ***Cleaning instructions***
> *Do not use cleaning agent for cleaning the device.*
> *Use a damp cloth instead.*

95.6 Certification

KC MSIP-REI-Abb-AC500	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	**Note** These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

95.7   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

96 TA5130-KNXPB(W) - Option board KNX adress push button

- TA5130-KNXPB
- TA5130-KNXPBW for wide temperature range

ⓘ *TA5130-KNXPB(W) option board is only intended to be used with PM5072-T-2ETH(W).*

This option board can only be used once per CPU.

This option board is not supported by other AC500-eCo V3 PLCs.

⚠️ **CAUTION!**
Risk of injury and damaging the product!
Improper installation and maintenance may result in injury and can damage the product!

- Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
- Only by qualified personnel.

⚠️ **CAUTION!**
Risk of damaging the product!
Option boards are sensitive electronic devices. Wrong handling can damage the product.

- ESD (electrostatic discharge) protection measures are required when handling the option board.
- Do not touch contacts and circuit board.

96.1 Assembly
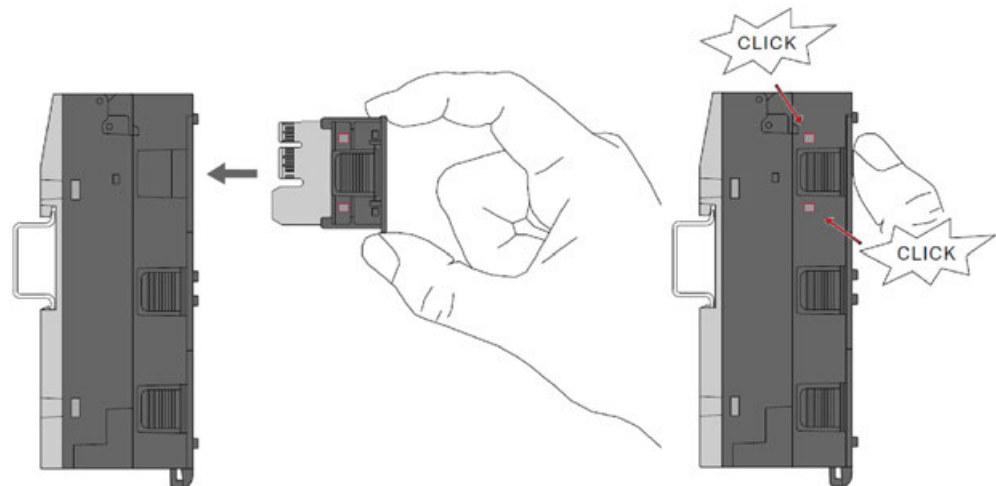
96.1.1 Optimized mounting of the option boards

The AC500-eCo processor modules have up to 3 slots for option boards.

Table 76: Option board slots
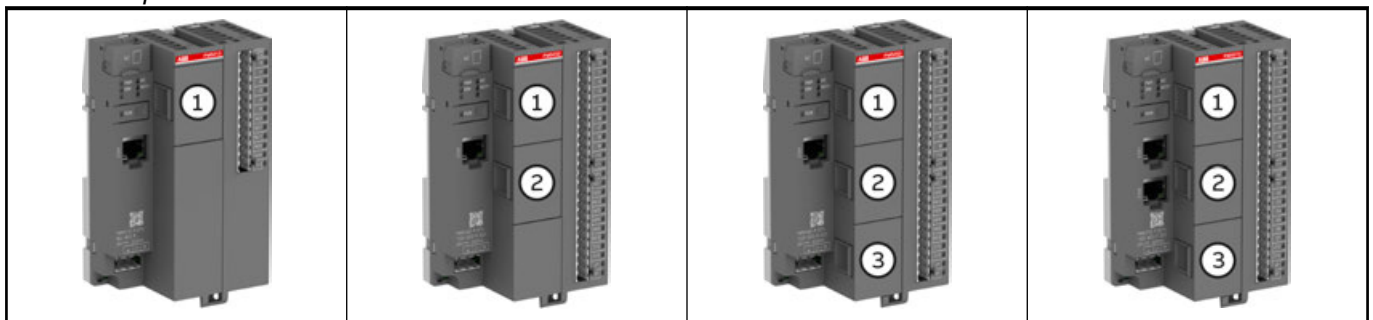
The best thermal circulation is given on slot 3 (bottom slot), followed by slot 2 (middle slot) and then slot 1 (top slot).

The best mounting position of the option board depends on its power dissipation.

> ***Rules for optimized mounting of the option boards***
>
> – *The higher the power dissipation of the option board, the lower the mounting position should be selected.*
> – ***The TA5126-2AO-UI option board has the highest power dissipation and must always be mounted at the lowest option board slot.***
>
> *The optimized mounting position can be easily determined with the help of this table.*

Table 77: Power dissipation of the option boards

Power dissipation of the option boards	Digital	Analog	Serial interface	Accessory
very small			TA5141-RS232I(W) TA5142-RS485I(W) TA5142-RS485(W)	TA5130-KNXPB(W) TA5131-RTC
small	TA5105-4DOT(W)	TA5123-2AI-RT(D/W)		
medium	TA5110-2DI2DO(T/W) TA5101-4DI(W)	TA5120-2AI-UI(W)		
large		TA5126-2AO-UI(W)		

> ⓘ *If the option boards to be mounted are in the same power dissipation level, then the slots can be freely selected.*

96.2   Disassembly
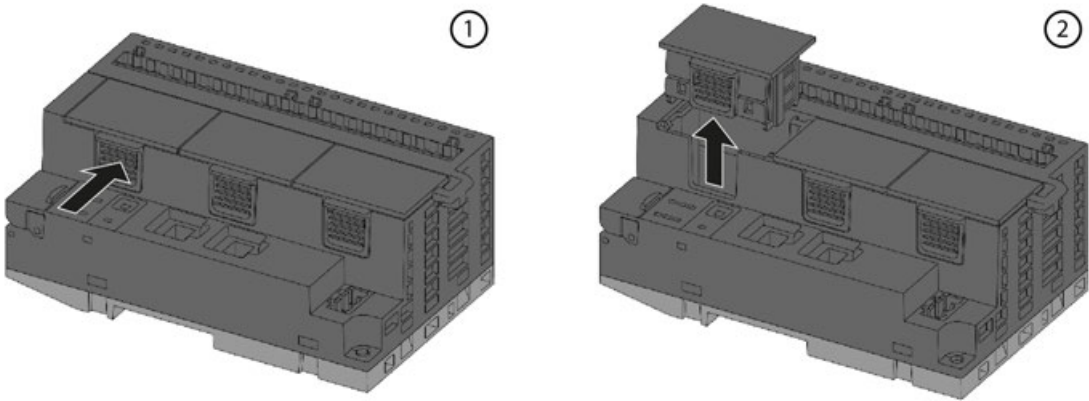
> ⚠️ **CAUTION!**
>
> **Risk of injury and damaging the product!**
>
> Always plug in the option board slot cover when the option board is not inserted.
>
> If the option board slot cover is lost, please order the replacement TA5300-CVR (1SAP187500R0001).
>
> Never power up the CPU with uncovered option board slot, otherwise it may cause serious injury and/or damage the product.

96.3 Dimensions
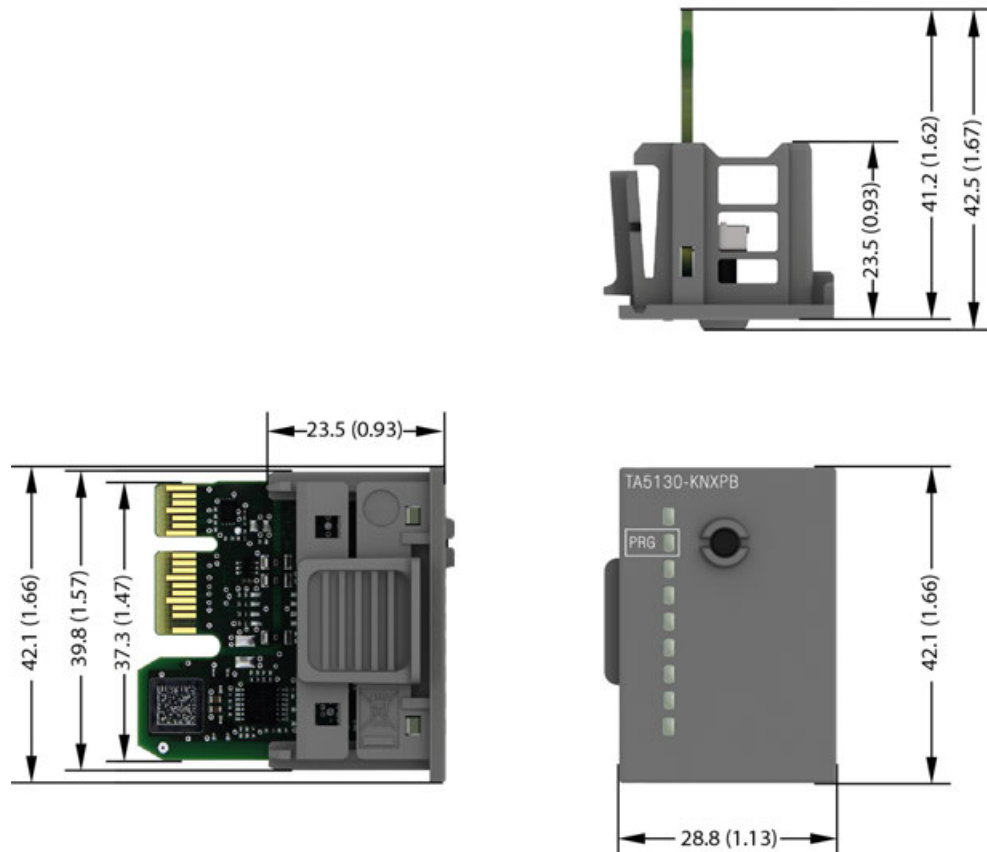
> ⓘ *The dimensions are in mm and in brackets in inch.*

96.4 Connections
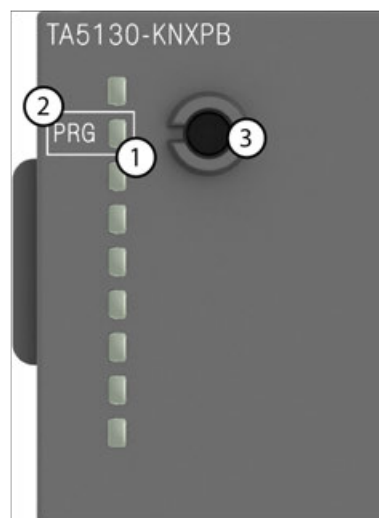
1 State LED
2 Allocation of signal name
3 Connector

96.5 Cleaning

> ⓘ **Cleaning instructions**
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

96.6 Certification

KC MSIP-REI-Abb-AC500	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	**Note** These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

96.7 Recycling

> ⓘ **Disposal and recycling information**
>
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

97 TA5131-RTC - Option board for real-time clock

● TA5131-RTC

> ⓘ *This option board is only for the basic CPUs PM5012-T-ETH and PM5012-R-ETH.*
>
> *All other AC500-eCo V3 CPUs have the real-time clock already integrated.*

> ⚠ **CAUTION!**
> **Risk of injury and damaging the product!**
> Improper installation and maintenance may result in injury and can damage the product!
>
> – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
> – Only by qualified personnel.

> ⚠ **CAUTION!**
> **Risk of damaging the product!**
> Option boards are sensitive electronic devices. Wrong handling can damage the product.
>
> – ESD (electrostatic discharge) protection measures are required when handling the option board.
> – Do not touch contacts and circuit board.

97.1 Assembly
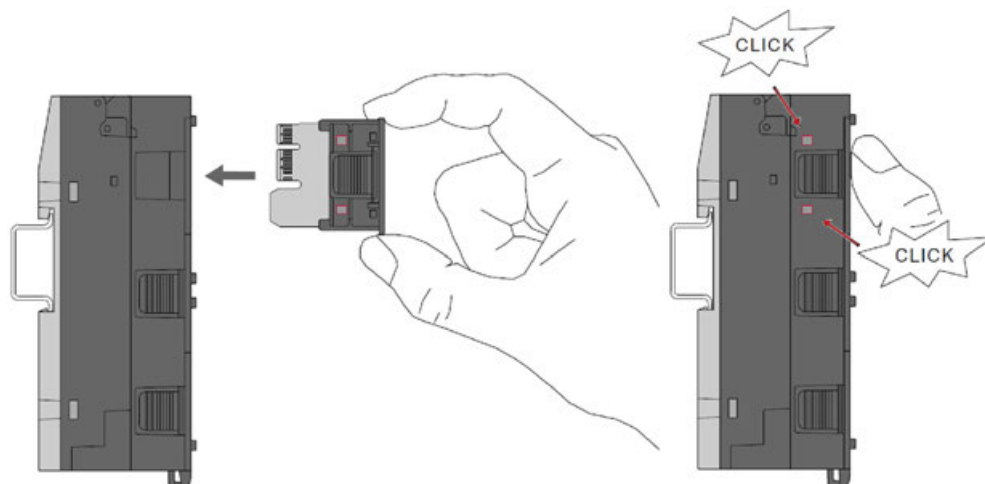
97.1.1 Optimized mounting of the option boards

The AC500-eCo processor modules have up to 3 slots for option boards.

Table 78: Option board slots
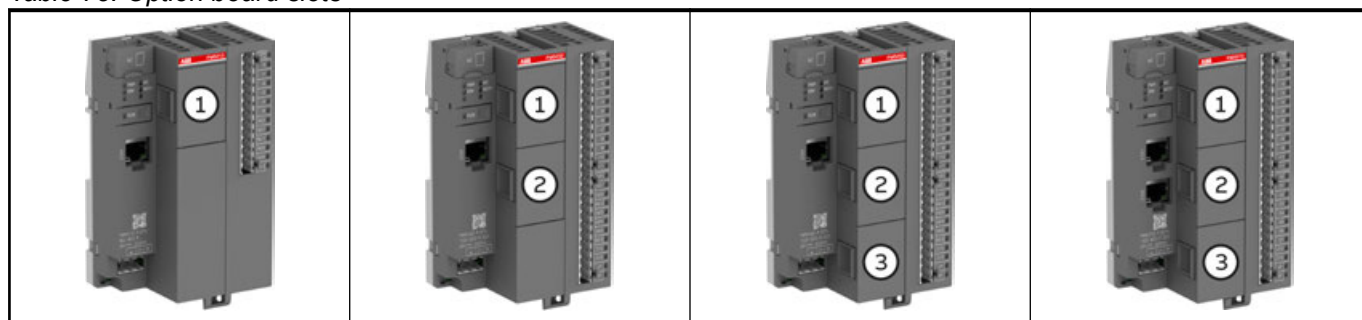
The best thermal circulation is given on slot 3 (bottom slot), followed by slot 2 (middle slot) and then slot 1 (top slot).

The best mounting position of the option board depends on its power dissipation.

> ***Rules for optimized mounting of the option boards***
>
> – *The higher the power dissipation of the option board, the lower the mounting position should be selected.*
> – ***The TA5126-2AO-UI option board has the highest power dissipation and must always be mounted at the lowest option board slot.***
>
> *The optimized mounting position can be easily determined with the help of this table.*

Table 79: Power dissipation of the option boards

Power dissipation of the option boards	Digital	Analog	Serial interface	Accessory
very small			TA5141-RS232I(W) TA5142-RS485I(W) TA5142-RS485(W)	TA5130-KNXPB(W) TA5131-RTC
small	TA5105-4DOT(W)	TA5123-2AI-RT(D/W)		
medium	TA5110-2DI2DO(T/W) TA5101-4DI(W)	TA5120-2AI-UI(W)		
large		TA5126-2AO-UI(W)		

> ⓘ *If the option boards to be mounted are in the same power dissipation level, then the slots can be freely selected.*

97.2 Disassembly
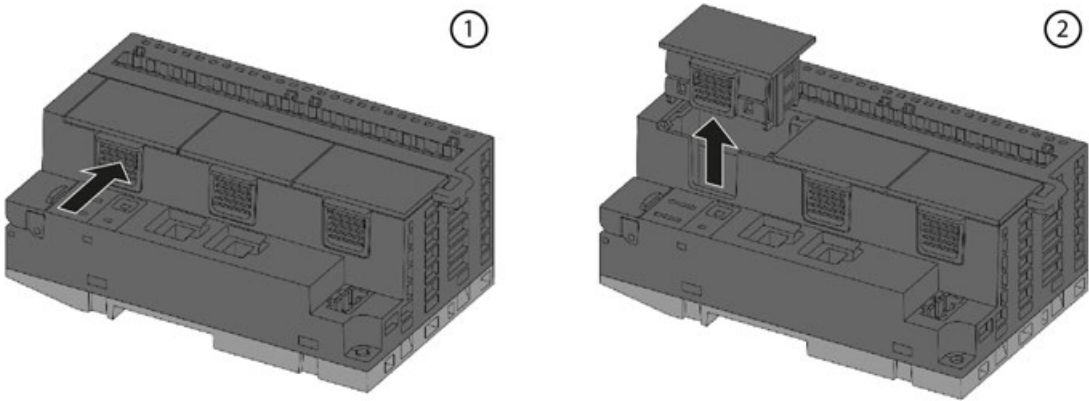
> ⚠️ **CAUTION!**
>
> **Risk of injury and damaging the product!**
>
> Always plug in the option board slot cover when the option board is not inserted.
>
> If the option board slot cover is lost, please order the replacement TA5300-CVR (1SAP187500R0001).
>
> Never power up the CPU with uncovered option board slot, otherwise it may cause serious injury and/or damage the product.

97.3 Dimensions
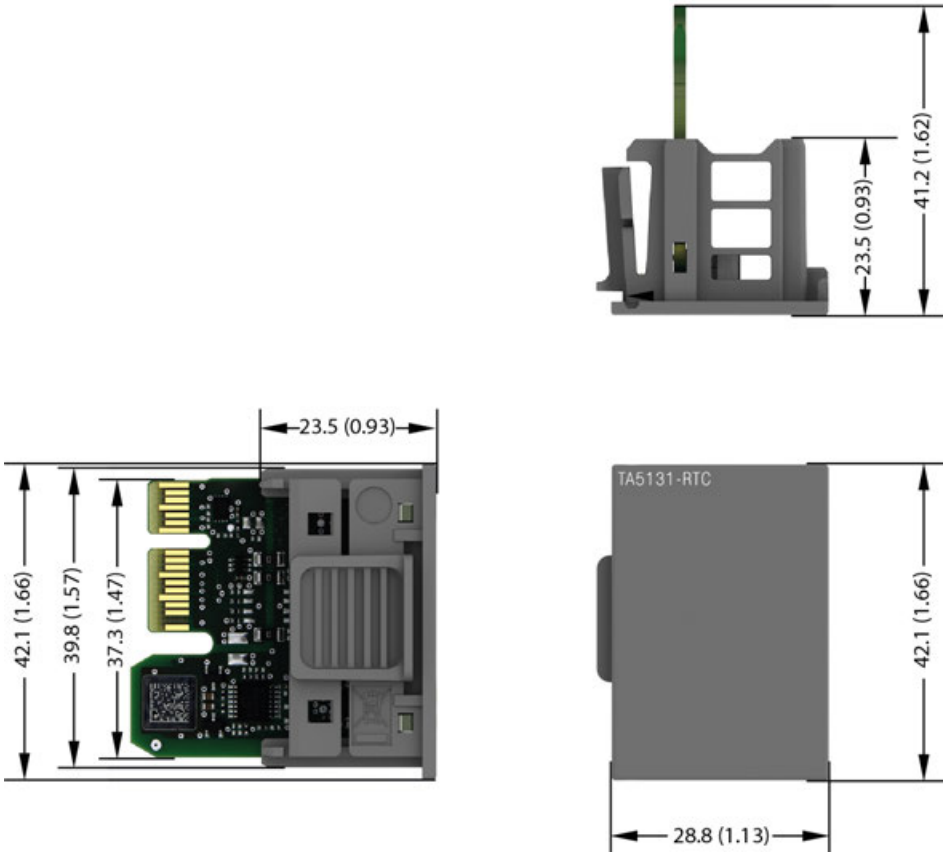
> ⓘ *The dimensions are in mm and in brackets in inch.*

97.4 Cleaning

> ⓘ **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
> *Use a damp cloth instead.*

97.5 Certification

	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

MSIP-REI-Abb-AC500

	en	**Note**	
		These devices correspond to:	KN61000-6-2 "Immunity for industrial environments",
			KN61000-6-4 "Emission standard for industrial environments"
	ko	참고	
		이러한 기기는	KN61000-6-2 "산업 환경에 대한 내성",
			KN61000-6-4 "산업 환경 누출 기준"에 적합함

97.6   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

98   TA514-SAFETY

- TA514-SAFETY

!	**WARNING!**
	Risk of injury and damaging the product!
	This training case is only intended to be used by skilled persons aware of the risks using electrical equipment and knowing the technical rules, codes and relevant standards.

!	**WARNING!**
	Risk of injury and damaging the product!
	– Only use the training case with the delivered power supply adapter
	– Only use the training case for demonstration and training activities
	– The operating temperature for training case is 0 °C … + 40°C
	– This training case is a class A device for EMC, because the main components (e.g. PLC) inside are designed for industrial applications. It can cause radio-interference in residential areas.

98.1   Assembly

1.   Take out the power adapter

2.   Connect the AC power cable

3.   Connect the power adapter to socket 24 V DC input

4.   Connect AC power to socket

5.   Switch on the power

98.2   Connections
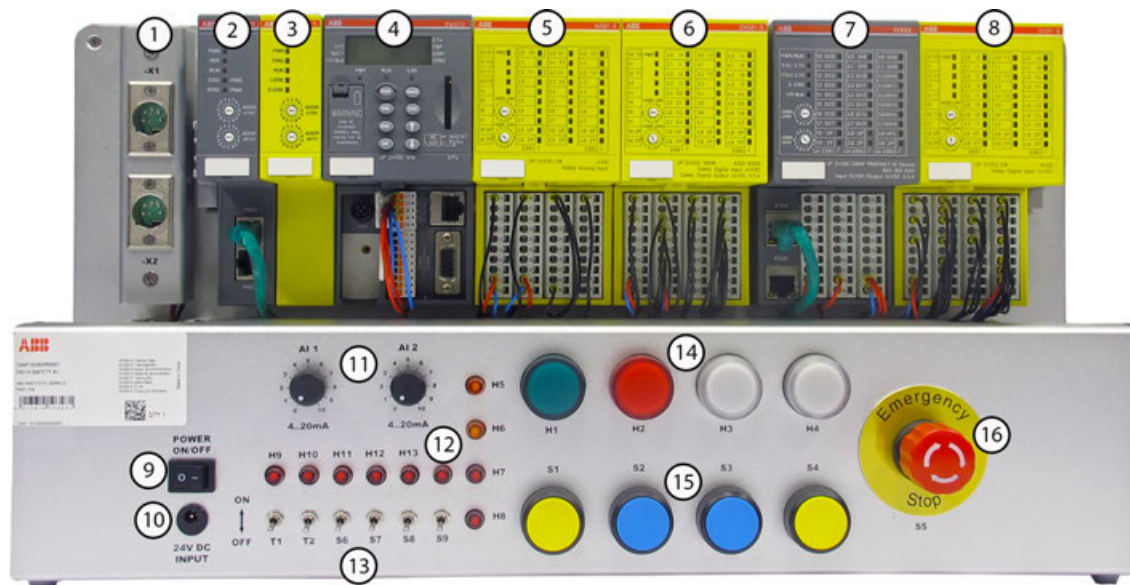
1   Light curtain interface socket (2-channel)
2   Communication module CM579-PNIO
3   Safety CPU SM560-S
4   CPU unit PM573-ETH
5   Safety analog input module AI581-S
6   Digital safety I/O module DX581-S
7   PROFINETcommunication interface module CI502-PNIO
8   Safety digital input module DI581-S
9   24 V DC On/Off switch
10 24 V DC Power Supply
11 Analog potentiometer
12 Indicating LEDs
13 Switches for input simulation
14 Indicating lamps
15 Buttons for input simulation
16 Emergency Stop button

98.3   Cleaning

> **Cleaning instructions**
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

98.4 Certification

KC **MSIP-REI-Abb-AC500**	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	Note These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

98.5 Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

99 TA5141-RS232I(W) - Option board for COMx serial communication

- TA5141-RS232I
- TA5141-RS232IW for wide temperature range

| ⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Read product documentation carefully before wiring. Improper wiring or wrong terminal block from other devices can damage the product!
	– Only by qualified personnel.

⚠	**CAUTION!**
	Risk of damaging the product!
	Option boards are sensitive electronic devices. Wrong handling can damage the product.
	– ESD (electrostatic discharge) protection measures are required when handling the option board.
	– Do not touch contacts and circuit board.

99.1   Assembly
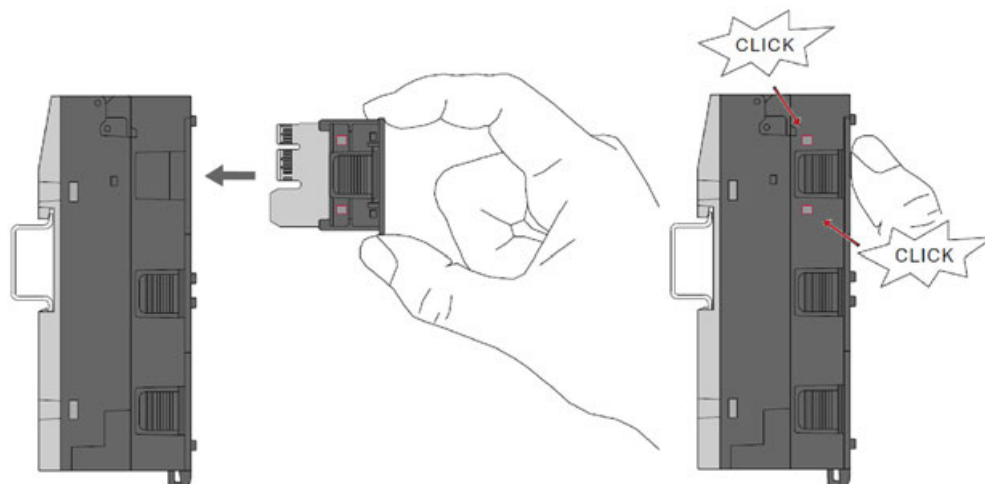
99.1.1   Optimized mounting of the option boards

The AC500-eCo processor modules have up to 3 slots for option boards.

Table 80: Option board slots
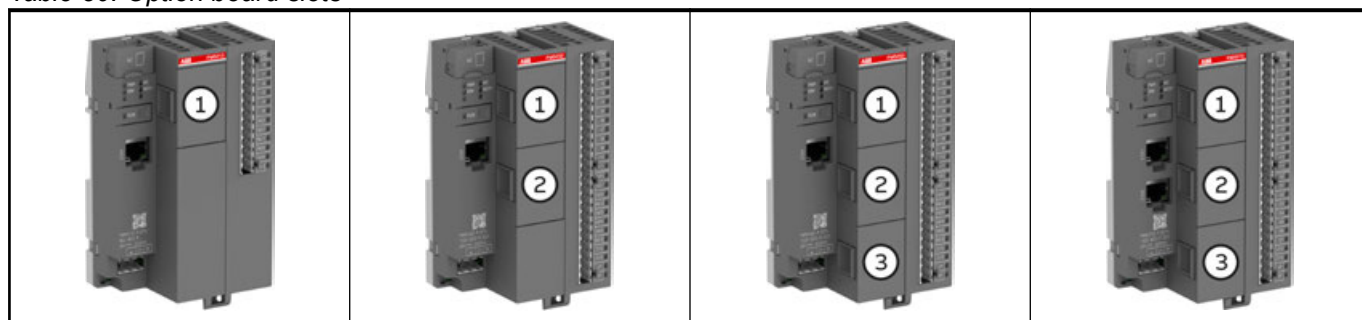
The best thermal circulation is given on slot 3 (bottom slot), followed by slot 2 (middle slot) and then slot 1 (top slot).

The best mounting position of the option board depends on its power dissipation.

> *Rules for optimized mounting of the option boards*
>
> – *The higher the power dissipation of the option board, the lower the mounting position should be selected.*
> – ***The TA5126-2AO-UI option board has the highest power dissipation and must always be mounted at the lowest option board slot.***
>
> *The optimized mounting position can be easily determined with the help of this table.*

Table 81: Power dissipation of the option boards

Power dissipation of the option boards	Digital	Analog	Serial interface	Accessory
very small			TA5141-RS232I(W)	TA5130-KNXPB(W)
			TA5142-RS485I(W)	TA5131-RTC
			TA5142-RS485(W)	
small	TA5105-4DOT(W)	TA5123-2AI-RT(D/W)		
medium	TA5110-2DI2DO(T/W)	TA5120-2AI-UI(W)		
	TA5101-4DI(W)			
large		TA5126-2AO-UI(W)		

> ⓘ *If the option boards to be mounted are in the same power dissipation level, then the slots can be freely selected.*

99.2 Disassembly
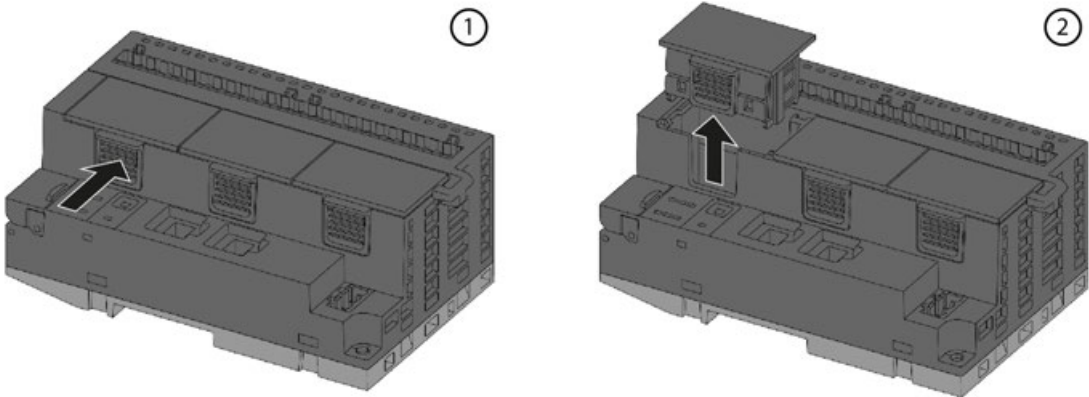
> ⚠️ **CAUTION!**
>
> **Risk of injury and damaging the product!**
>
> Always plug in the option board slot cover when the option board is not inserted.
>
> If the option board slot cover is lost, please order the replacement TA5300-CVR (1SAP187500R0001).
>
> Never power up the CPU with uncovered option board slot, otherwise it may cause serious injury and/or damage the product.

99.3   Dimensions
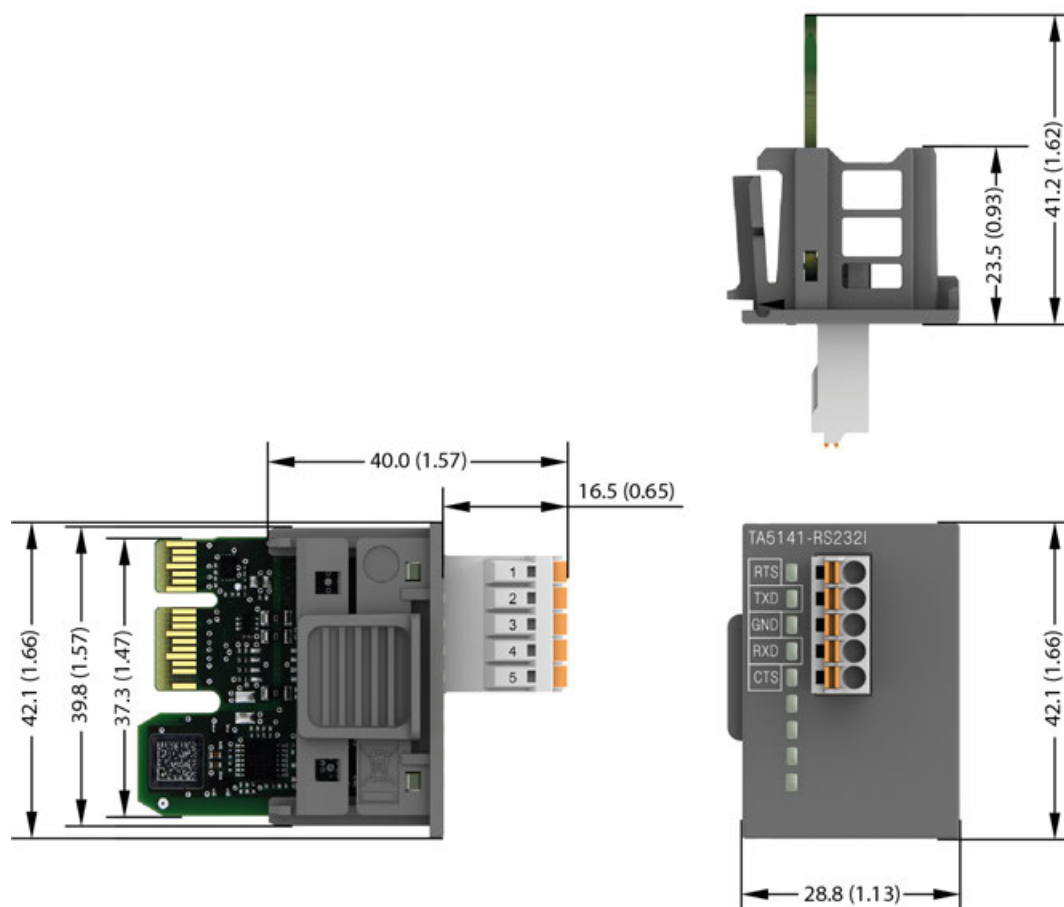
The dimensions are in mm and in brackets in inch.

99.4   Connections
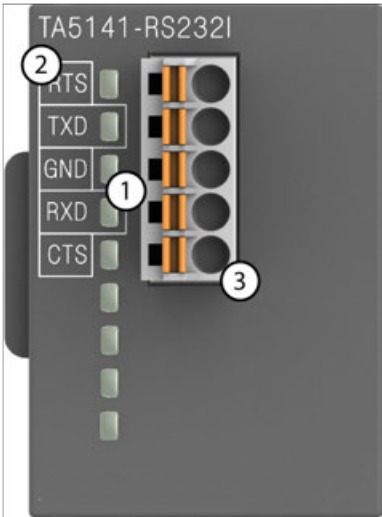
1   2 LEDs for communication state display (TxD and RxD)
2   Allocation of signal name
3   5-pin terminal block for communication interface

99.4.1   Serial interface

Serial interface RS232I

> **!** **NOTICE!**
>
> **Damage to the serial communication interface by using 5-pin terminal block of the TA5101-4DI!**
>
> If the 5-pin terminal block of the TA5101-4DI option board is plugged into a option board for COMx serial communication TA5141-RS232I, TA5142-RS485I or TA5142-RS485, the communication interface will be damaged by the 24 V.
>
> Please do not confuse the 5-pin terminal block of the TA5101-4DI with the 5-pin terminal block for serial communication interface of TA5141-RS232I, TA5142-RS485I or TA5142-RS485.

Table 82: TA5141-RS232I

Serial interface	Pin	Signal	Description
	1	RTS	Request To Send DCE is ready to accept data from the DTE
	2	TxD	Transmit data (output)
	3	GND	Common Ground
	4	RxD	Receive data (input)
	5	CTS	Clear To Send (input) DCE is ready to accept data from the DTE

99.5   Cleaning

> *Cleaning instructions*
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

99.6   Certification

MSIP-REI-Abb-AC500

en		Devices with KCC sign on product sticker and packaging
ko		제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	**Note** These devices correspond to:	KN61000-6-2 "Immunity for industrial environments", KN61000-6-4 "Emission standard for industrial environments"
ko	참고 이러한 기기는	KN61000-6-2 "산업 환경에 대한 내성", KN61000-6-4 "산업 환경 누출 기준"에 적합함

99.7   Recycling

> *Disposal and recycling information*
>
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

100 TA5142-RS485(I)(W) - Option board for COMx serial communication

- TA5142-RS485
- TA5142-RS485I
- TA5142-RS485W for wide temperature range
- TA5142-RS485IW for wide temperature range

| ⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Read product documentation carefully before wiring. Improper wiring or wrong terminal block from other devices can damage the product!
	– Only by qualified personnel.

⚠	**CAUTION!**
	Risk of damaging the product!
	Option boards are sensitive electronic devices. Wrong handling can damage the product.
	– ESD (electrostatic discharge) protection measures are required when handling the option board.
	– Do not touch contacts and circuit board.

## 100.1 Assembly
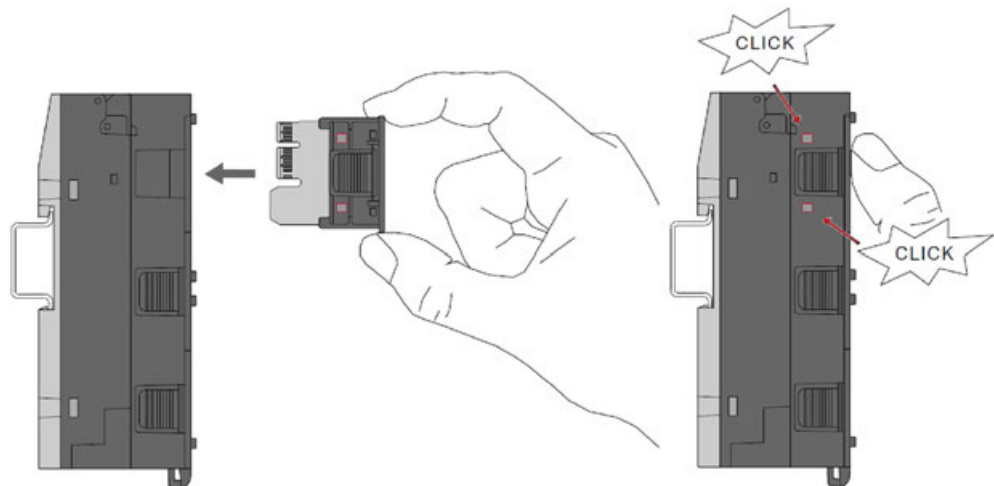
100.1.1 Optimized mounting of the option boards

The AC500-eCo processor modules have up to 3 slots for option boards.

Table 83: Option board slots
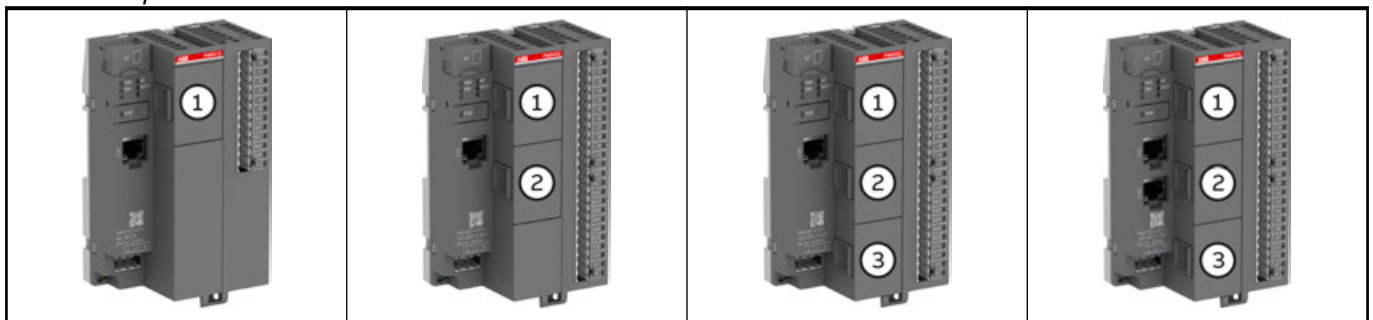
The best thermal circulation is given on slot 3 (bottom slot), followed by slot 2 (middle slot) and then slot 1 (top slot).

The best mounting position of the option board depends on its power dissipation.

> *__Rules for optimized mounting of the option boards__*
>
> – *The higher the power dissipation of the option board, the lower the mounting position should be selected.*
> – *__The TA5126-2AO-UI option board has the highest power dissipation and must always be mounted at the lowest option board slot.__*
>
> *The optimized mounting position can be easily determined with the help of this table.*

Table 84: Power dissipation of the option boards

| Power dissipation of the option boards	Digital	Analog	Serial interface	Accessory
very small			TA5141-RS232I(W) TA5142-RS485I(W) TA5142-RS485(W)	TA5130-KNXPB(W) TA5131-RTC
small	TA5105-4DOT(W)	TA5123-2AI-RT(D/W)		
medium	TA5110-2DI2DO(T/W) TA5101-4DI(W)	TA5120-2AI-UI(W)		
large		TA5126-2AO-UI(W)		

> ⓘ *If the option boards to be mounted are in the same power dissipation level, then the slots can be freely selected.*

100.2 Disassembly
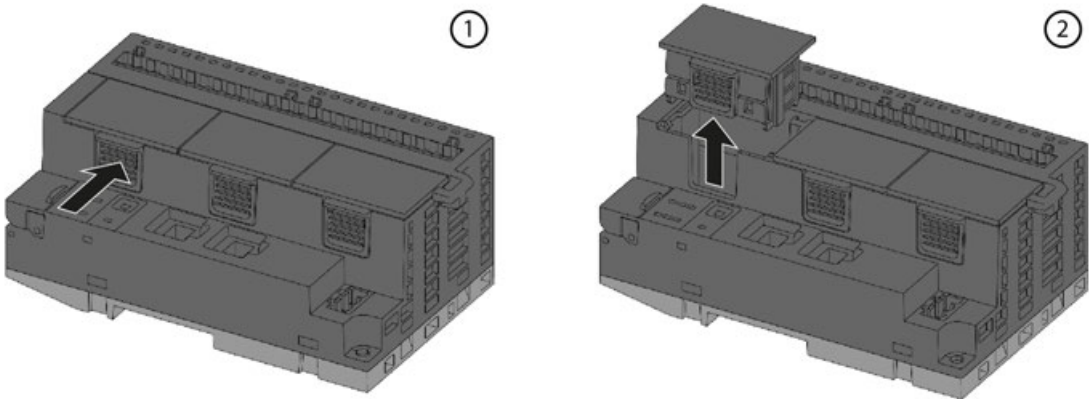
> ⚠️ **CAUTION!**
> **Risk of injury and damaging the product!**
> Always plug in the option board slot cover when the option board is not inserted.
>
> If the option board slot cover is lost, please order the replacement TA5300-CVR (1SAP187500R0001).
>
> Never power up the CPU with uncovered option board slot, otherwise it may cause serious injury and/or damage the product.

100.3 Dimensions
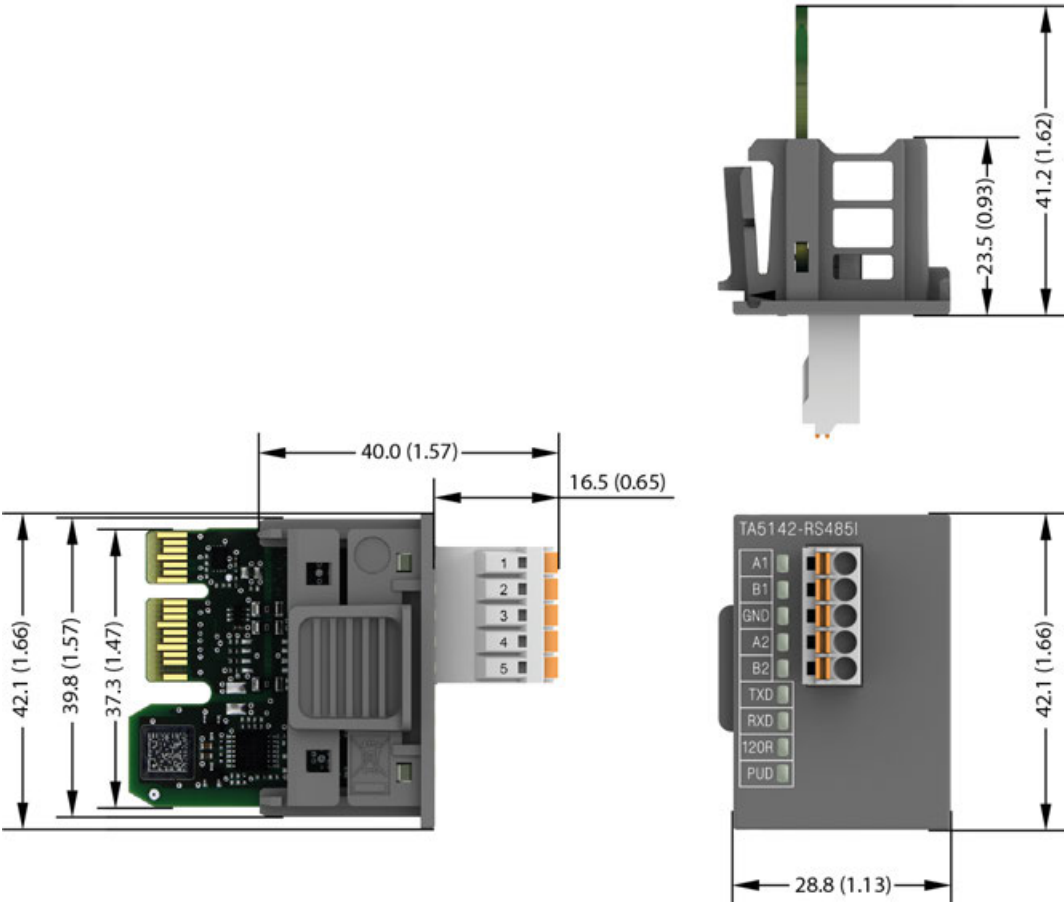
The dimensions are in mm and in brackets in inch.

100.4 Connections
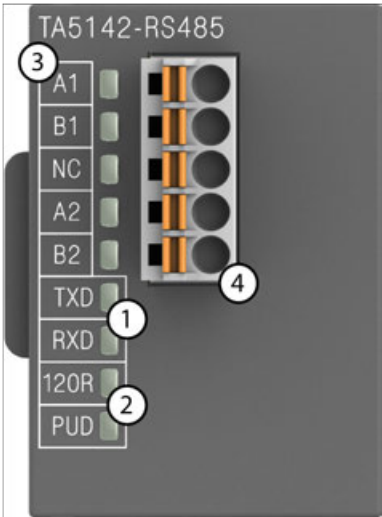
1   2 LEDs for communication state display (TxD and RxD)
2   2 LEDs for termination state display
3   Allocation of signal name
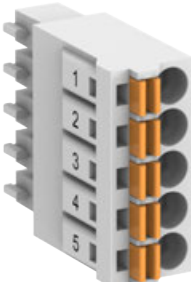4   5-pin terminal block for communication interface
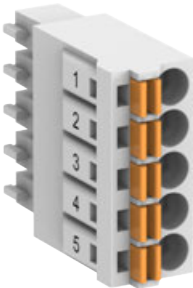
100.4.1 Serial interface

Serial interface RS-485(I)

> **!** **NOTICE!**
>
> **Damage to the serial communication interface by using 5-pin terminal block of the TA5101-4DI!**
>
> If the 5-pin terminal block of the TA5101-4DI option board is plugged into a option board for COMx serial communication TA5141-RS232I, TA5142-RS485I or TA5142-RS485, the communication interface will be damaged by the 24 V.
>
> Please do not confuse the 5-pin terminal block of the TA5101-4DI with the 5-pin terminal block for serial communication interface of TA5141-RS232I, TA5142-RS485I or TA5142-RS485.

Table 85: TA5142-RS485(I)
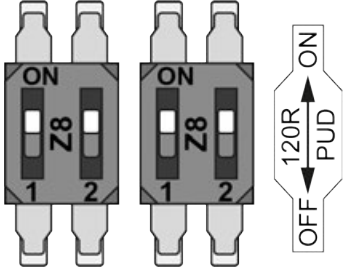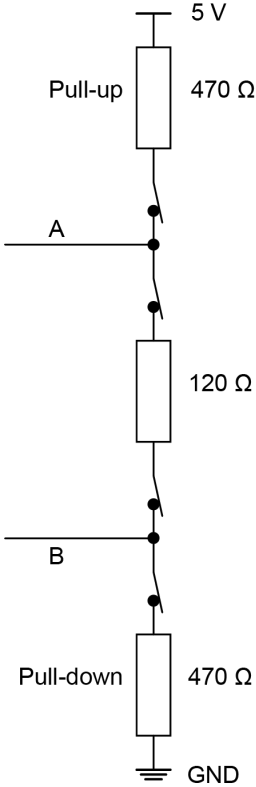
Serial interface	Pin	Signal
	1	A1 internally connected to A2
	2	B1 internally connected to B2
	3	GND
	4	A2 internally connected to A1
	5	B2 internally connected to B1

100.4.2 Bus termination configuration
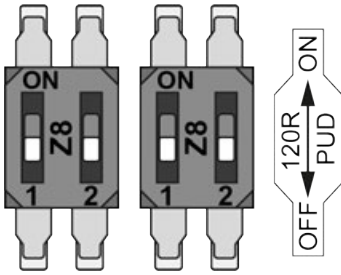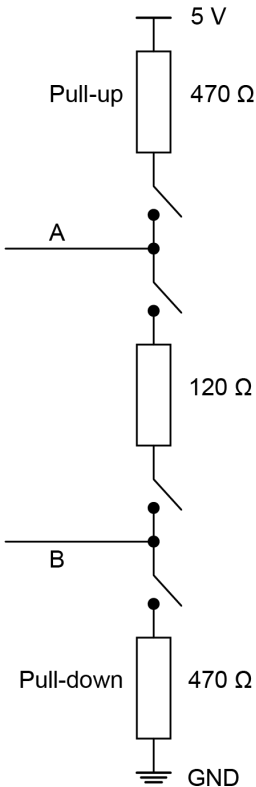
> ⓘ **Bus termination configuration**
> *The bus termination configuration is only available for TA5142-RS485I and TA5142-RS485.*

Table 86: Configuration

Settings on the module	State of LEDs	Internal wiring diagram	Description
			Master at the bus line end, pull-up and pull-down activated, bus termination 120 Ω

Settings on the module	State of LEDs	Internal wiring diagram	Description
			Master within the bus line, pull-up and pull-down activated
			Slave at the bus line end, bus termination 120 Ω

Settings on the module	State of LEDs	Internal wiring diagram	Description
	TXD RXD 120R PUD	5 V Pull-up 470 Ω A 120 Ω B Pull-down 470 Ω GND	Slave within the bus line

100.5 Cleaning

> ⓘ **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
> *Use a damp cloth instead.*

100.6 Certification

KC MSIP-REI-Abb-AC500	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	Note These devices correspond to:	KN61000-6-2 "Immunity for industrial environments", KN61000-6-4 "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 누출 기준"에 적합함

100.7 Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

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The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

101 TA515-CASE / TA5450-CASE

- TA515-CASE
- TA5450-CASE

> **CAUTION!**
> **Risk of injury and damaging the product!**
> Improper installation and maintenance may result in injury and can damage the product!
>
> – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
> – Only by qualified personnel.

> **WARNING!**
> **Risk of injury and damaging the product!**
> – Only use the training case with the delivered power supply adapter
> – Only use the training case for demonstration and training activities
> – The operating temperature for training case is 0 °C … + 40°C
> – This training case is a class A device for EMC, because the main components (e.g. PLC) inside are designed for industrial applications. It can cause radio-interference in residential areas.

101.1   Connections
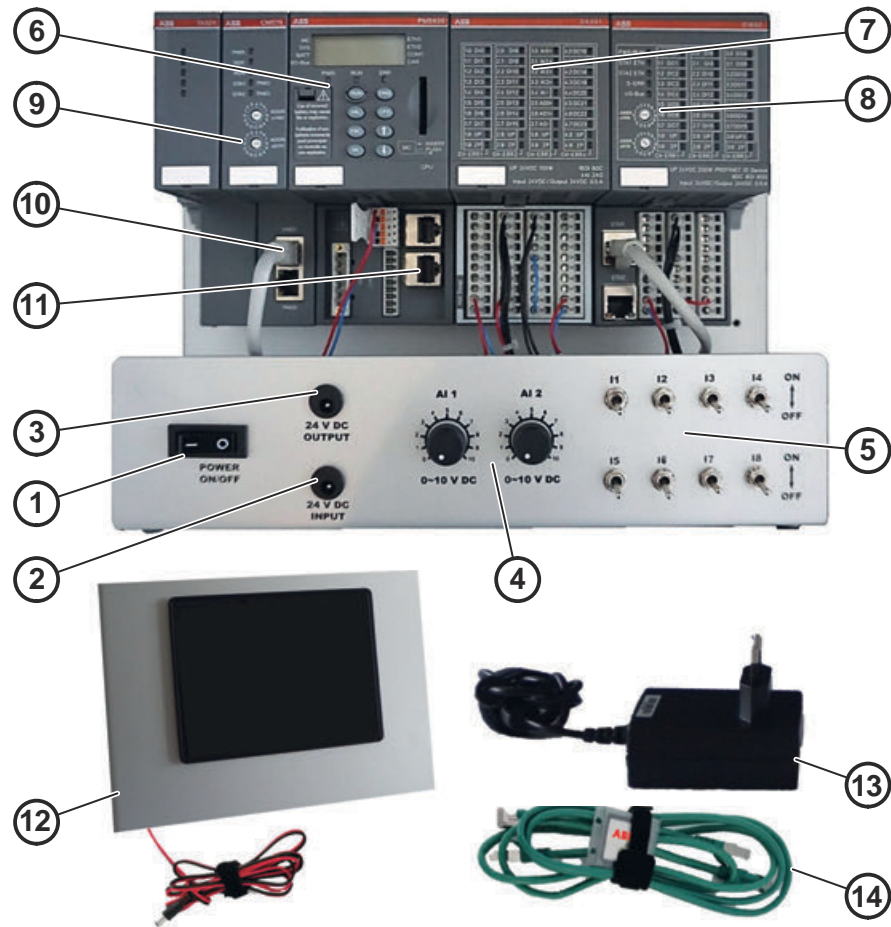
1   24 V DC power switch
2   24 V DC power input socket
3   24 V DC power output socket
4   2 Potentiometers
5   8 switches
6   TA515-CASE: CPU PM585-ETH / TA5450-CASE: CPU PM5630-2ETH
7   Analog/digital I/O module DA501
8   Communication interface module CI502-PNIO
9   Communication module CM579-PNIO
10 PROFINET connection
11 TA515-CASE: TB521-ETH Ethernet Plug ETH1 for Panel connection / TA5450-CASE:
    TB5620-2ETH Ethernet Plug ETH2 for Panel connection
12 Panel with power supply cable
13 Power adapter, AC DC Power supply 24 Volt, 40 Watt, Type GE40I24-P1J
14 Ethernet cables and memory card containing demo program

101.1.1   System setup

Remove the system from the case and place it upright.

For initial start-up, remove the power supply unit (13) and the supplied socket adapters. Select the appropriate socket adapter and lock it firmly onto the power supply unit. Make sure that the mains voltage is within the input range of the power supply unit.

Connect the power supply unit to the mains socket and the cable plug to the power input socket (2). Connect the power supply cable of the control panel (12) to the output socket (3). Connect an Ethernet cable (14) on one side to the ETH0 Ethernet socket of the control panel (12) and on the other side to the Ethernet socket (11) of the terminal base. After switching on the power switch (1), the system starts loading the demo programs of PLC and control panel and is then ready to use the demo program.

101.1.2 Features of demo program

The demo is ready for use when the CPU display is showing „run" and the panel screen shows „CP600-Pro Demo Project". Touching „Training Case" opens the visualization of the input states of the I/O channels. The input status on the screen changes when potentiometer (4) or switches (5) are operated. The demo program in the PLC reads inputs and copies the input state to outputs. On the I/O modules can be observed that the status LED of outputs are following the input status. Touching the house symbol (upper right corner) closes the demo visualization. The other buttons on the panel screen open demos for features of the panel.

101.1.3 Restoring demo program

The training case is delivered with demo program installed. If needed, the demo program can be restored from the memory card. The QR code opens the operation instruction explaining configuration of components and procedure for loading the demo program into PLC and panel.

101.1.4 Power supply
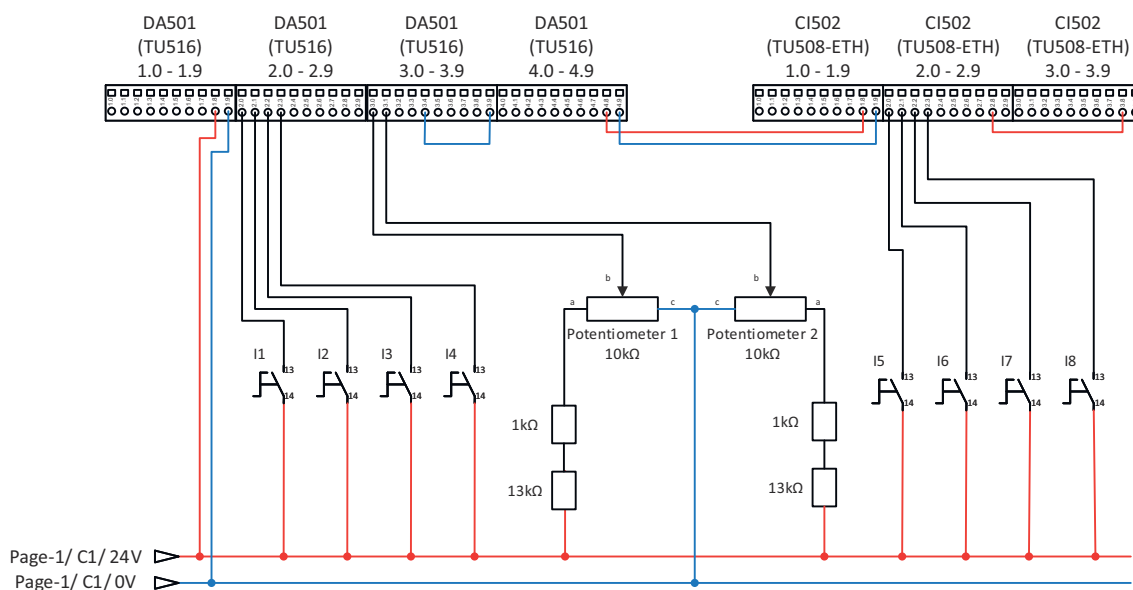
101.1.5   Inputs/Outputs

TA515
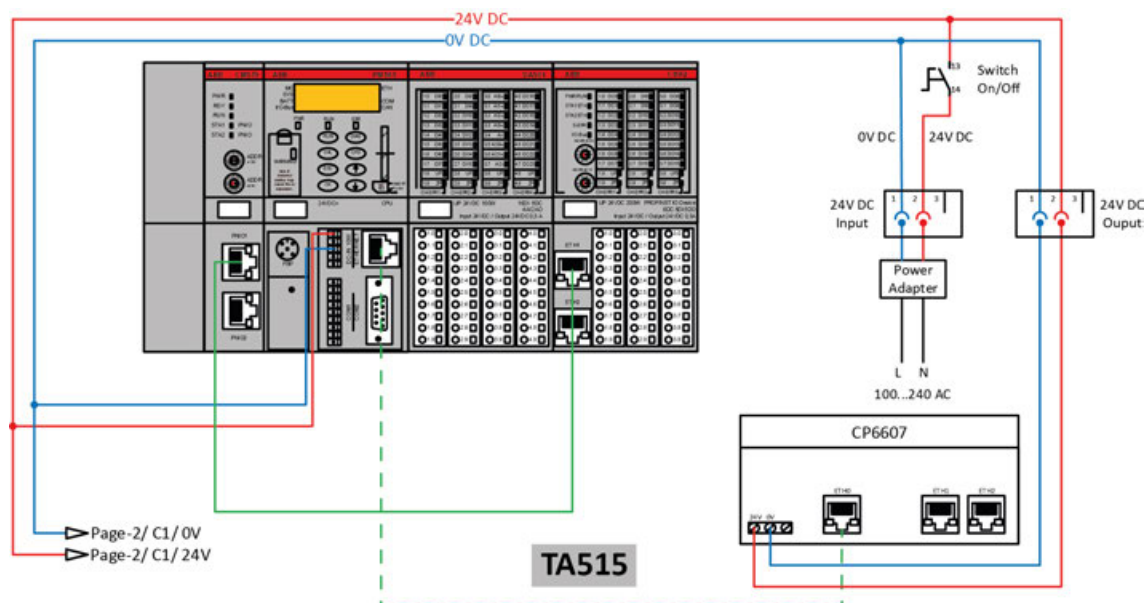
TA5450
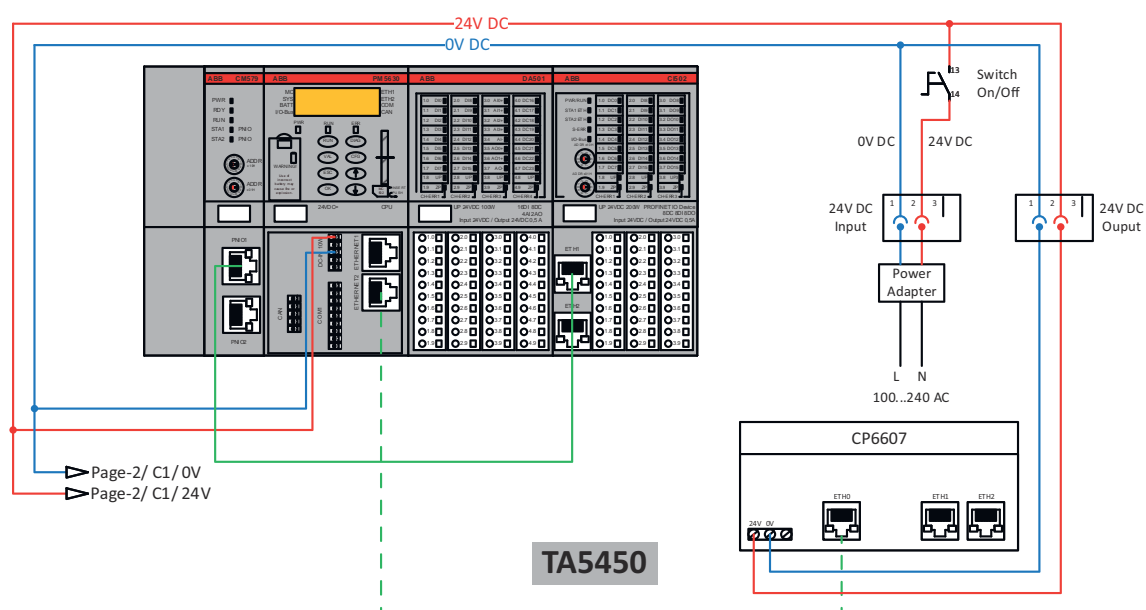
101.2   Cleaning

> ⓘ **Cleaning instructions**
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

101.3   Certification

	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

MSIP-REI-Abb-AC500

en	Note	These devices correspond to:	KN61000-6-2 "Immunity for industrial environments", KN61000-6-4 "Emission standard for industrial environments"
ko	참고	이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

101.4   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

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The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

102 TA521 - Battery

- TA521

|	
⚠️	**CAUTION!** **Risk of injury and damaging the product!** Improper installation and maintenance may result in injury and can damage the product! – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1. – Only by qualified personnel.

⚠️	**CAUTION!** This Lithium Battery is the only one which can be used with AC500 CPUs. – Replace battery only with activated supply voltage. – Don't use a battery older than 3 years for replacement (e.g. battery kept to long in stock). – Lithium batteries must not be re-charged, not be disassembled and not be disposed of in fire. – They must be stored in a dry place. – Exhausted batteries must be recycled to respect the environment.

102.1 Assembly

Insertion

ⓘ	*To ensure propper operation and to prevent data loss, the battery insertion or replacement must be always done with the system under power. Without battery and power supply there is no data buffering possible.*

⚠️	**WARNING!** **Risk of fire or explosion!** Use of incorrect Battery may cause fire or explosion.
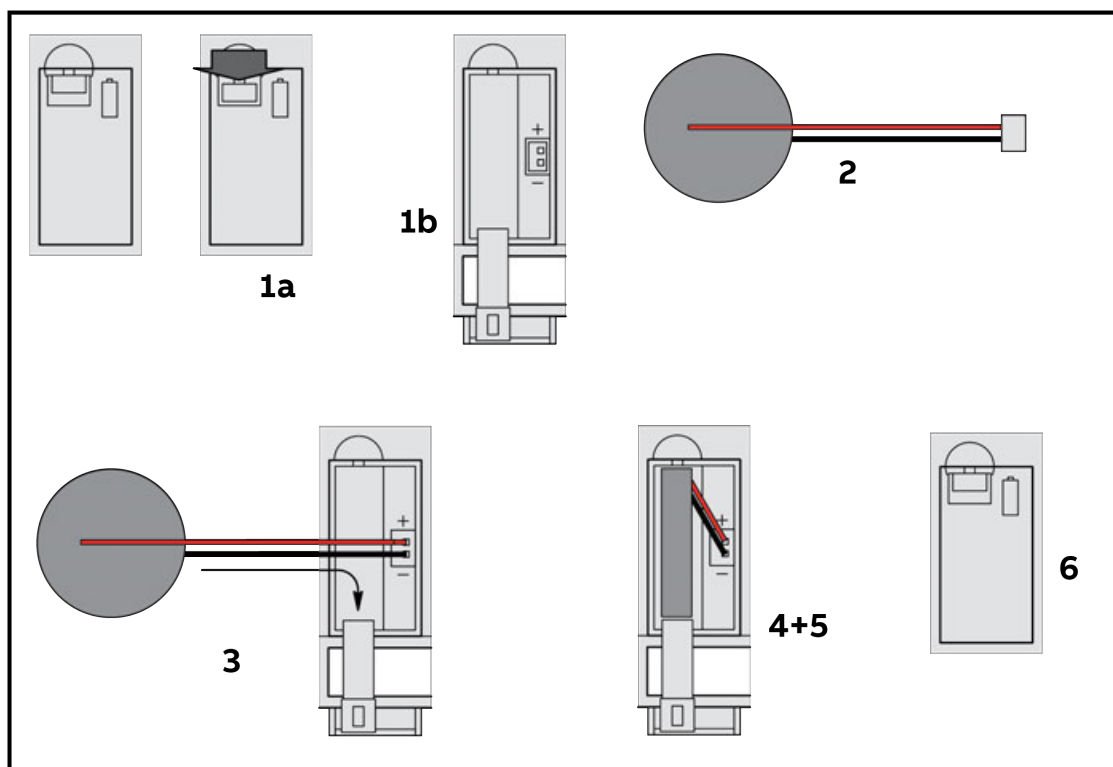
1. Open the battery compartment with the small locking mechanism, press it down and slip down the door. The door is attached to the front face of the processor module and cannot be removed.

2. Remove the TA521 battery from its package and hold it by the small cable. Remove then the small connector from the socket, do this best by lifting it out with a screwdriver.

3. Insert the battery connector into the small connector port of the compartment. The connector is keyed to find the correct polarity (red = positive pole = above).

4. Insert first the cable and then the battery into the compartment, push it until it reaches the bottom of the compartment.

5. Arrange the cable in order not to inhibit the door to close.

6. Pull-up the door and press until the locking mechanism snaps.

> *In order to prevent data losses or problems, the battery should be replaced after 3 years of utilisation or at least as soon as possible after receiving the "low battery warning" indication.*
>
> *Do not use a battery older than 3 years for replacement, do not keep batteries too long in stock.*

Replacement of the battery

> *To ensure propper operation and to prevent data loss, the battery insertion or replacement must be always done with the system under power. Without battery and power supply there is no data buffering possible.*

1. Open the battery compartment with the small locking mechanism, press it down and slip down the door. The door is attached to the front view of the processor module and cannot be removed.

2. Remove the old TA521 battery from the battery compartment by pulling it by the small cable. Remove then the small connector from the socket, do this best by lifting it out with a screwdriver.

3. Follow the previous instructions to insert a new battery.

⚠ **CAUTION!**

Risk of explosion!

Do not open, re-charge or disassemble lithium batteries. Attempting to charge lithium batteries will lead to overheating and can cause explosions.

Protect them from heat and fire and store them in a dry place.

Never short-circuit or operate lithium batteries with the polarities reversed. The batteries are likely to overheat and explode. Avoid unintentional short circuiting do not store batteries in metal containers and do not place them on metallic surfaces. Escaping lithium is a health hazard.

ⓘ *In order to prevent data losses or problems, the battery should be replaced after 3 years of utilisation or at least as soon as possible after receiving the "low battery warning" indication.*

Do not use a battery older than 3 years for replacement, do not keep batteries too long in stock.

102.2   Certification

	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

MSIP-REI-Abb-AC500

	Note	
en	These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

102.3   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

103 TA52xx(-x) - Terminal block sets

- TA5211-TSPF-B
- TA5211-TSCL-B
- TA5212-TSPF
- TA5212-TSCL
- TA5220-SPF5
- TA5220-SPF6
- TA5220-SPF7
- TA5220-SPF8
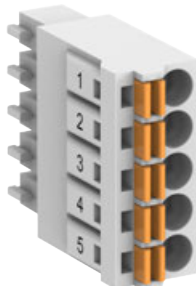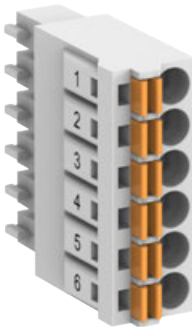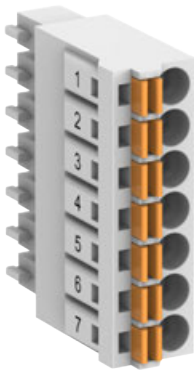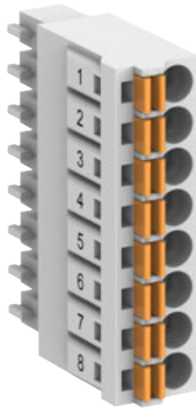
For the AC500-eCo V3 **Basic CPUs** a 3-pin terminal block for power supply and a 13-pin terminal block for I/O connectors are used.

For the AC500-eCo V3 **Standard CPUs** and **Pro CPUs** a 3-pin terminal block for power supply, a 13-pin terminal block and a 12-pin terminal block for I/O connectors are used.

For all CPUs there is a screw and a spring variant available.

Basic CPU		Standard and Pro CPUs	
Spring terminal **TA5211-TSPF-B**	Screw terminal **TA5211-TSCL-B**	Spring terminal **TA5212-TSPF**	Screw terminal **TA5212-TSCL**

Various removable spring terminal blocks are available for option boards.

The following spare parts are available (depending on the number of pins).

Spring terminals			
TA5220-SPF5	TA5220-SPF6	TA5220-SPF7	TA5220-SPF8

CAUTION!

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
– Read product documentation carefully before wiring. Improper wiring or wrong terminal block from other devices can damage the product!
– Only by qualified personnel.

CAUTION!

Risk of injury and damaging the module when using unapproved terminal blocks!

Only use terminal blocks approved by ABB to avoid injury and damage to the module.

Terminal block set for PM50x2

Processor modules PM50x2 CPU are not delivered with terminal blocks.

Screw terminal block set:

– *TA5211-TSCL-B (1SAP187400R0001) for PM5012-x-ETH*
– *TA5212-TSCL (1SAP187400R0004) for PM5032-x-ETH, PM5052-x-ETH, PM5072-T-2ETH(W), PM5082-T-2ETH*

Spring terminal block set:

– *TA5211-TSPF-B (1SAP187400R0002) for PM5012-x-ETH*
– *TA5212-TSPF (1SAP187400R0005) for PM5032-x-ETH, PM5052-x-ETH, PM5072-T-2ETH(W), PM5082-T-2ETH*

103.1   Assembly
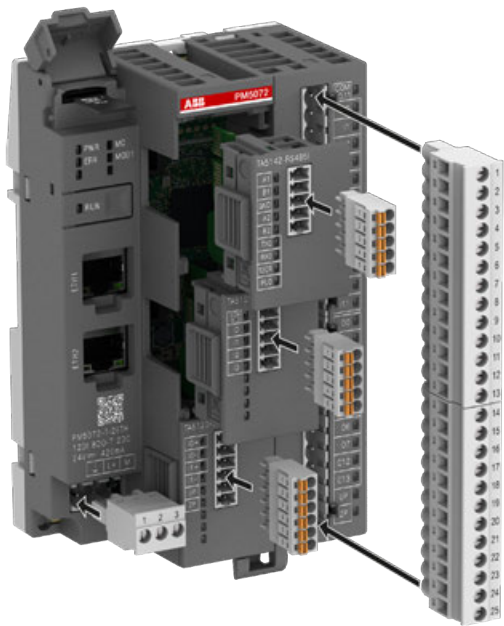
103.2   Disassembly
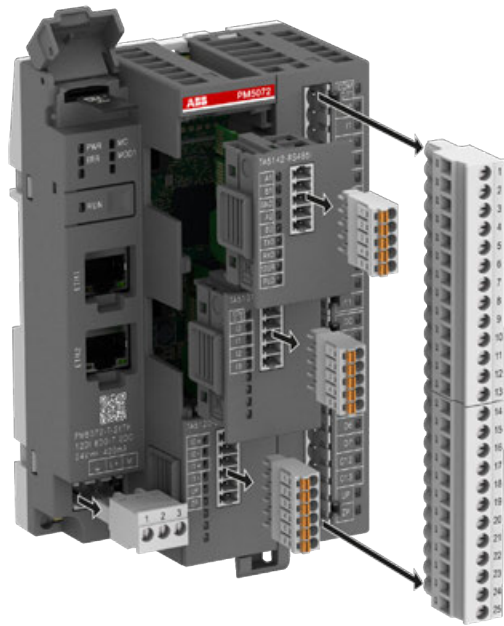
103.3   Dimensions

103.3.1   3-pin terminal block for power supply

Screw terminal
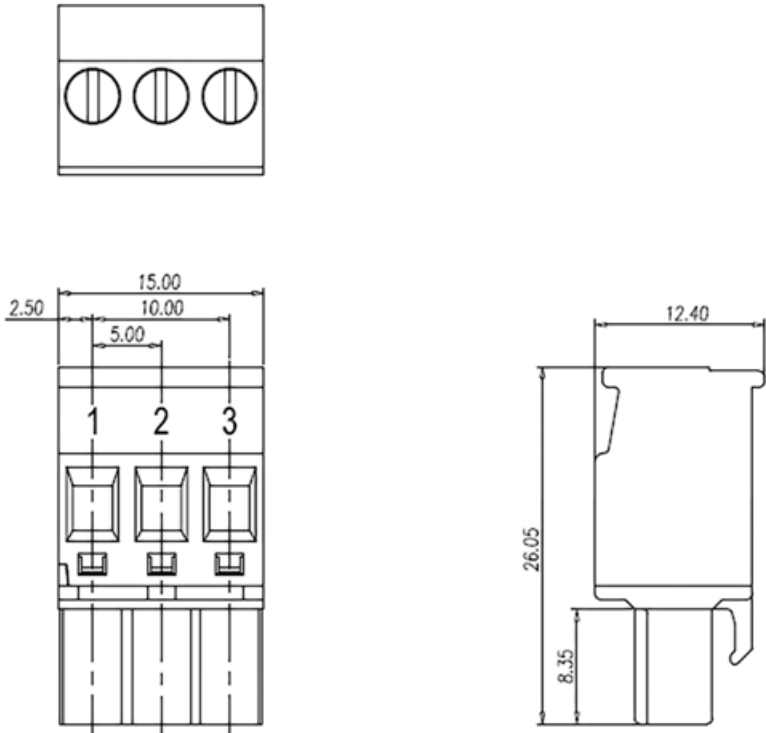
Spring terminal
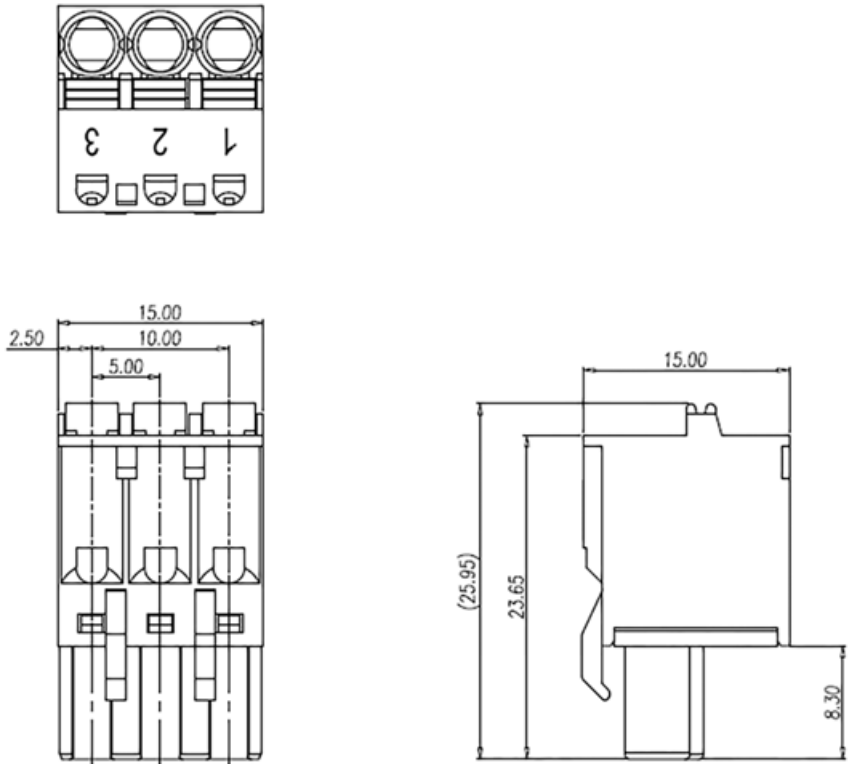
103.3.2   13-pin terminal block for I/O connectors
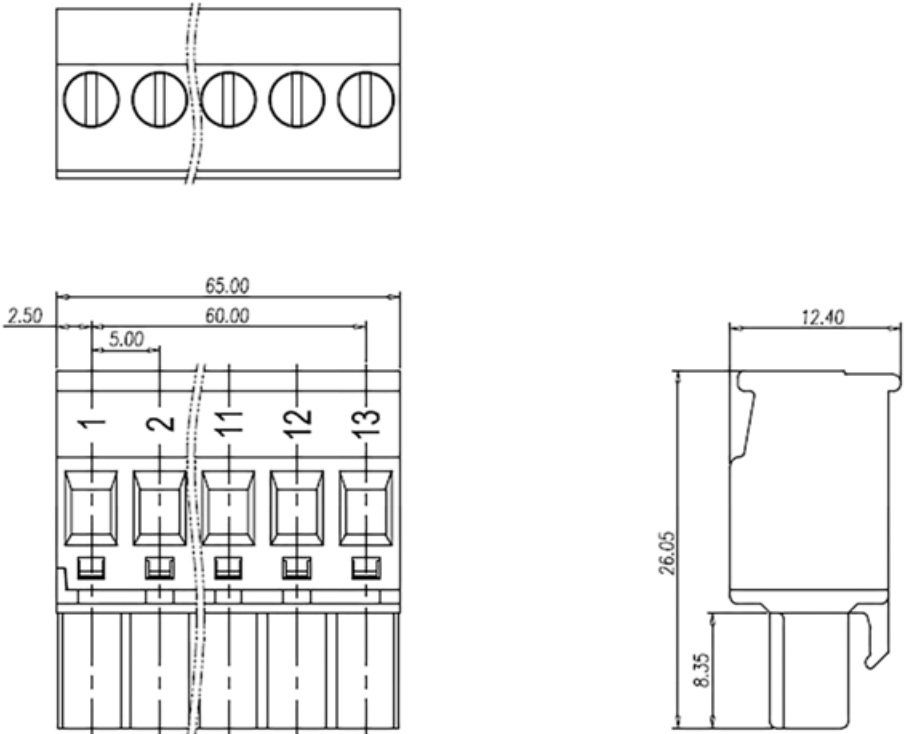
Screw terminal
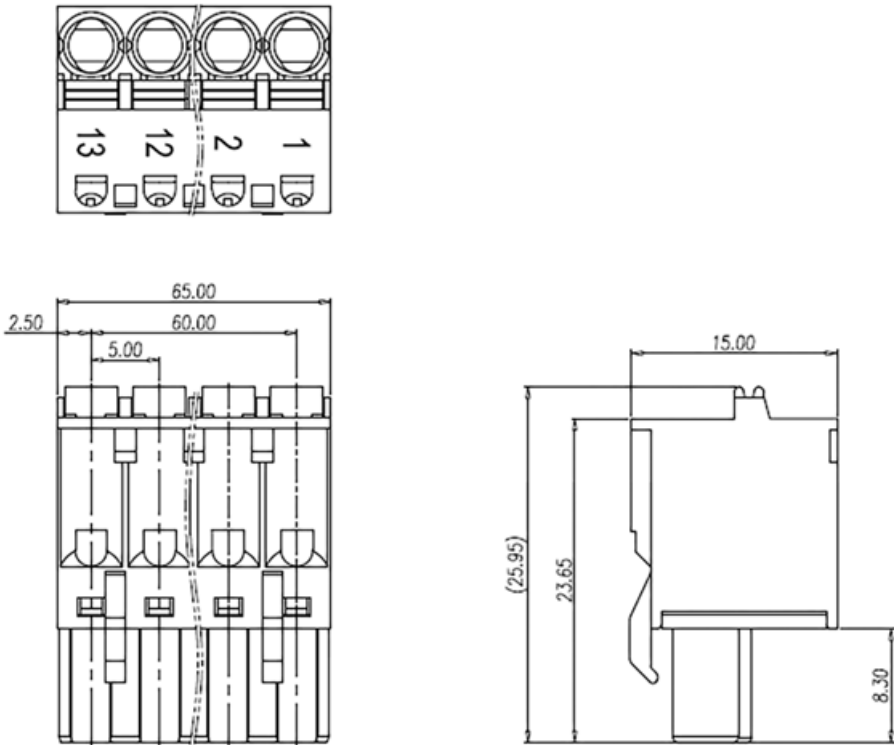
Spring terminal

103.3.3   12-pin terminal block for I/O connectors

Screw terminal
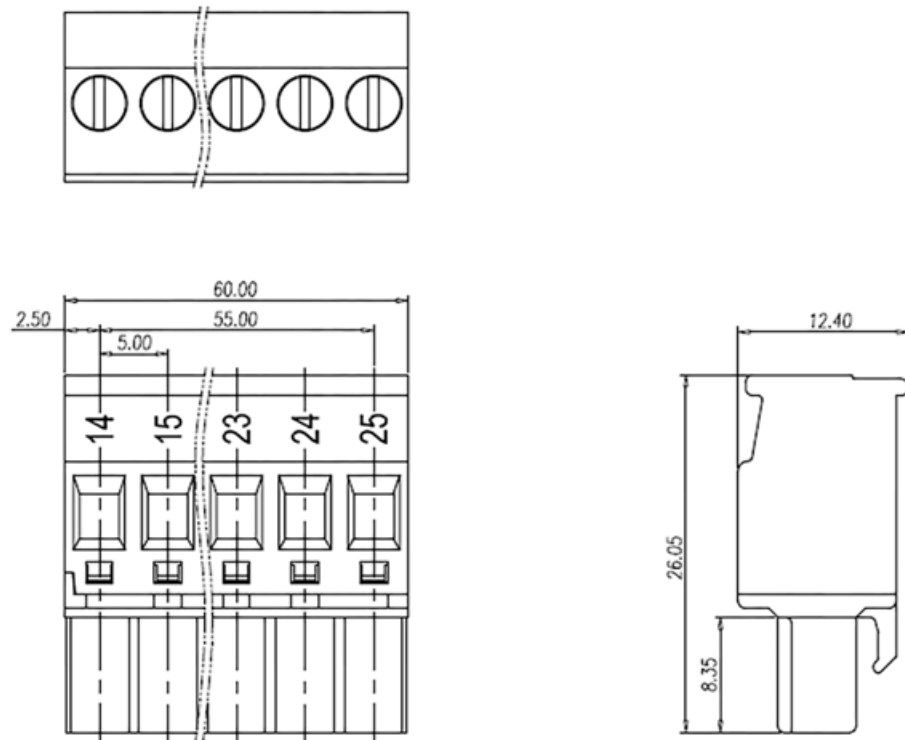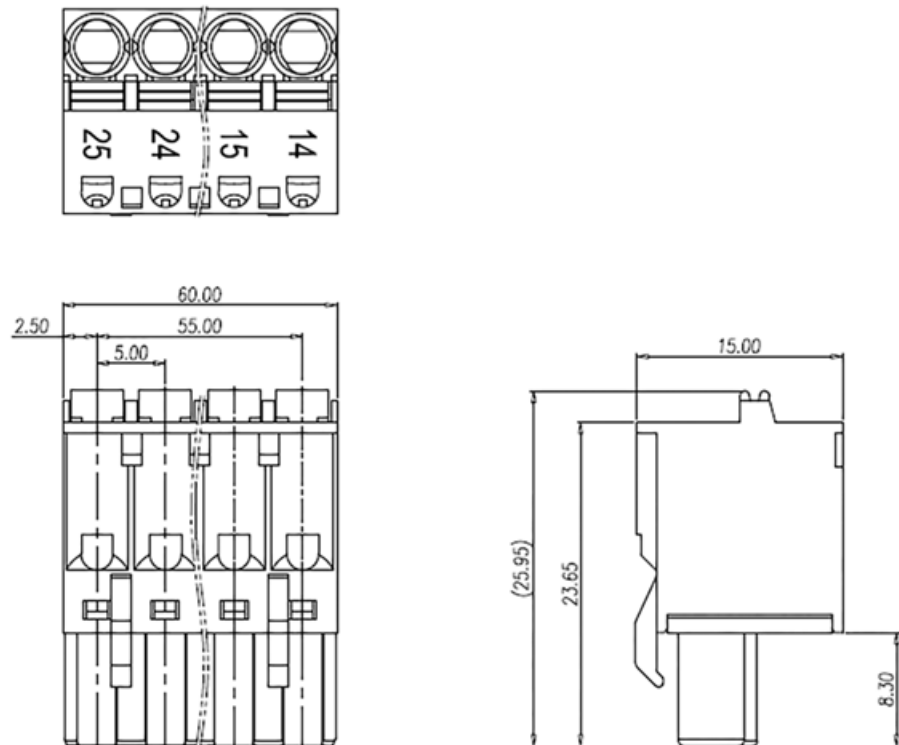
Spring terminal

103.3.4   x-pin terminal blocks for option boards

> *Only these x-pin terminal blocks are available for the option boards.*
>
> *TA5220-SPFx, with x = 5 ... 8*

A = 3.5 × (P - 1)

B = 3.5 × (P - 1) + 4.2
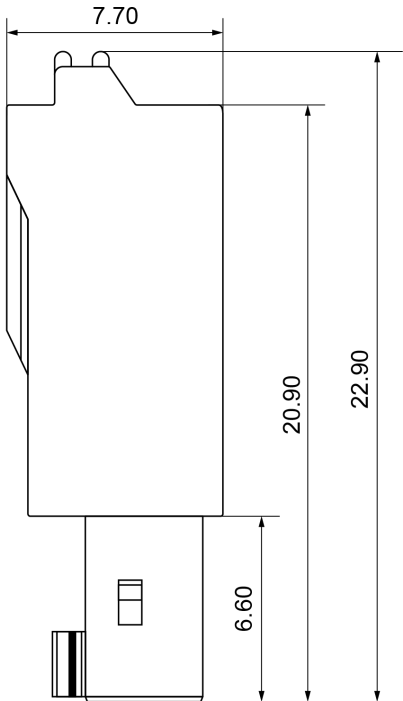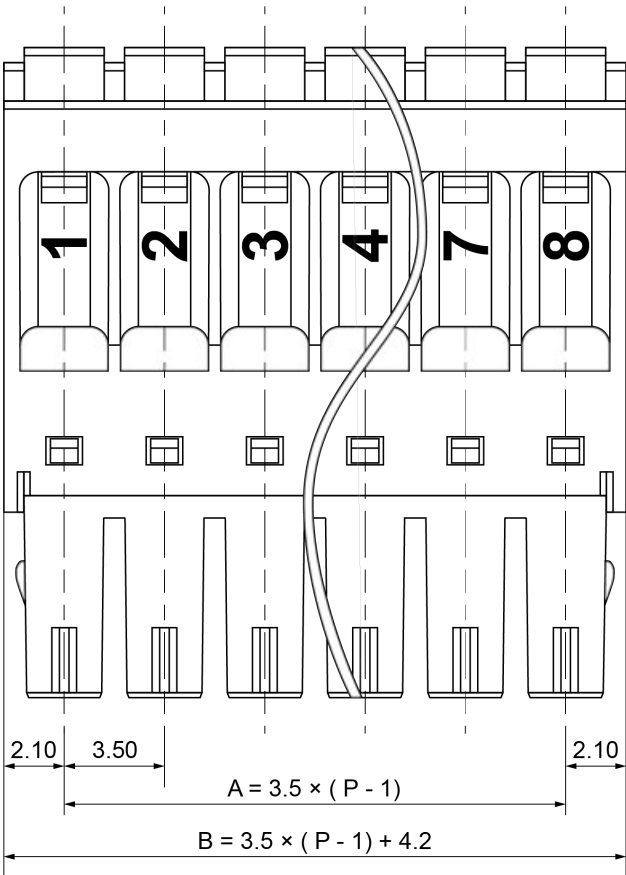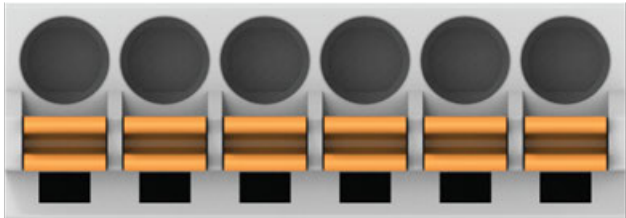
This results in these dimensions for the available spring terminal blocks.

Description	Pin	Length [mm]	Wide [mm]	Height [mm]
TA5220-SPF5	5	18.2	7.7	22.9
TA5220-SPF6	6	21.7	7.7	22.9
TA5220-SPF7	7	25.2	7.7	22.9
TA5220-SPF8	8	28.7	7.7	22.9

103.4   Connections

> ⓘ   *The connections are described in the PM50x2 processor module or in the TA51xx option boards.*

103.5   Cleaning

> ⓘ   **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

103.6   Certification

	en	Devices with KCC sign on product sticker and packaging
KC	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기
MSIP-REI-Abb-AC500		

		Note	
	en	These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
	ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

103.7   Recycling

> ⓘ   **Disposal and recycling information**
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*
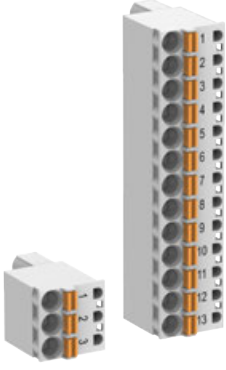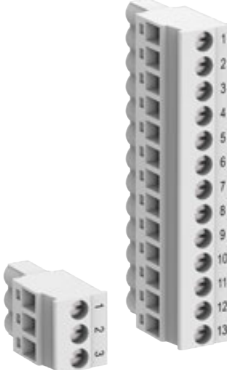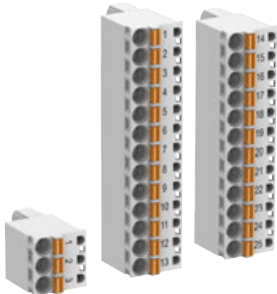
104 TA5300-CVR - Option board slot cover

- TA5300-CVR

	CAUTION!
⚠	**Risk of injury and damaging the product!**
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

	CAUTION!
⚠	**Risk of damaging the product!**
	Option boards are sensitive electronic devices. Wrong handling can damage the product.
	– ESD (electrostatic discharge) protection measures are required when handling the option board.
	– Do not touch contacts and circuit board.

	CAUTION!
⚠	**Risk of injury and damaging the product!**
	Always plug in the option board slot cover when the option board is not inserted.
	If the option board slot cover is lost, please order the replacement TA5300-CVR (1SAP187500R0001).
	Never power up the CPU with uncovered option board slot, otherwise it may cause serious injury and/or damage the product.

> The AC500-eCo V3 processor modules are delivered with option board slot cover(s).
>
> The option board slot cover has to be removed before inserting an option board.
>
> The TA5300-CVR option board slot covers are available as spare parts.

104.1 Assembly
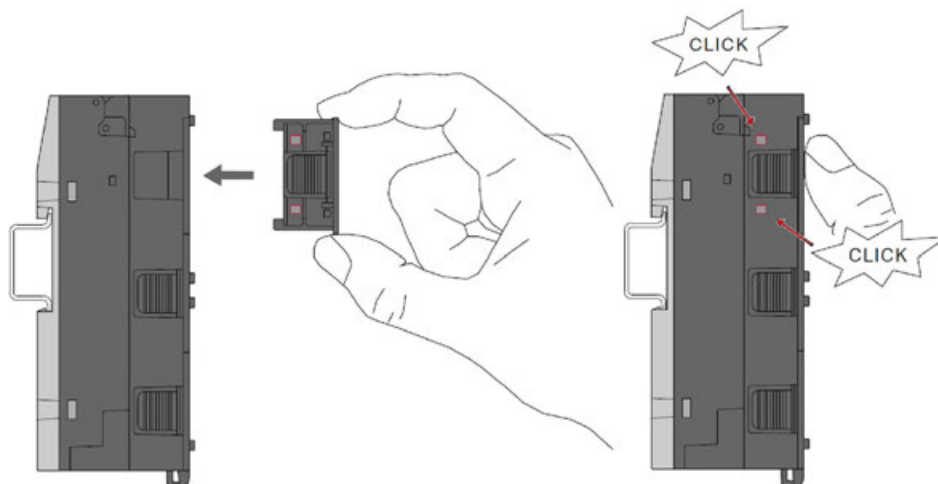
> ⚠️ **CAUTION!**
>
> **Risk of injury and damaging the product!**
>
> Always plug in the option board slot cover when the option board is not inserted.
>
> If the option board slot cover is lost, please order the replacement TA5300-CVR (1SAP187500R0001).
>
> Never power up the CPU with uncovered option board slot, otherwise it may cause serious injury and/or damage the product.

104.2 Disassembly
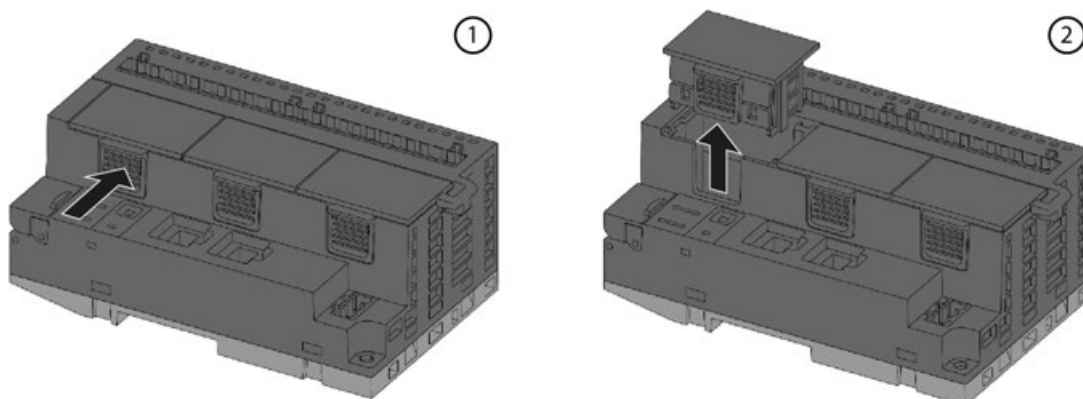
104.3   Dimensions
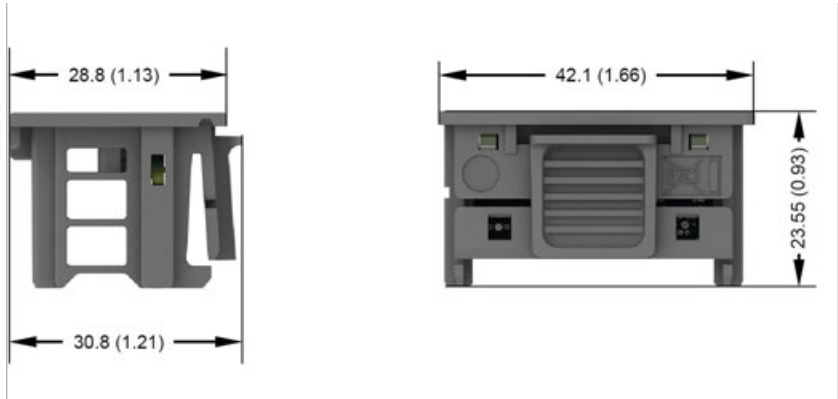
ℹ️ *The dimensions are in mm and in brackets in inch.*

104.4   Cleaning

ℹ️ ***Cleaning instructions***
Do not use cleaning agent for cleaning the device.

Use a damp cloth instead.

104.5   Certification

| | en | Devices with KCC sign on product sticker and packaging |
| | ko | 제품 스티커 및 포장에 **KCC** 표시가 된 기기 |

MSIP-REI-Abb-AC500

| en | **Note**
These devices correspond to: | **KN61000-6-2** "Immunity for industrial environments",
KN61000-6-4 "Emission standard for industrial environments" |
| ko | 참고
이러한 기기는 | **KN61000-6-2** "산업 환경에 대한 내성",
KN61000-6-4 "산업 환경 누출 기준"에 적합함 |

104.6   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

105 TA5400-SIM - Input simulator

- TA5400-SIM

	CAUTION!
⚠️	**Risk of injury and damaging the product!**

Improper installation and maintenance may result in injury and can damage the product!

- Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
- Only by qualified personnel.

105.1 Assembly

**Insertion of the
input simulator**

1. Make sure that the power supply of the processor module is turned off.

> **CAUTION!**
> **Risk of damaging the PLC modules!**
> The PLC modules can be damaged by overvoltages and short circuits.
>
> Make sure, that all voltage sources (supply and process voltage) are switched off before you start working on the system.
>
> Never connect voltages > 24 V DC to the terminal block of the TA5400-SIM input simulator.

> **CAUTION!**
> **Risk of damaging the input simulator and/or PLC modules!**
> The TA5400-SIM input simulator may only be used with AC500-eCo V3 processor modules PM50x2.
>
> Never use the input simulator with other devices.
>
> The input simulator may only be used with screw-type terminal blocks.
>
> The input simulator is only intended for testing and training purposes. Never use it within productive sytems.

2. Make sure that all clamps of the onboard I/Os are totally open.

3. Insert the TA5400-SIM input simulator into the screw terminal block as shown in the figure.
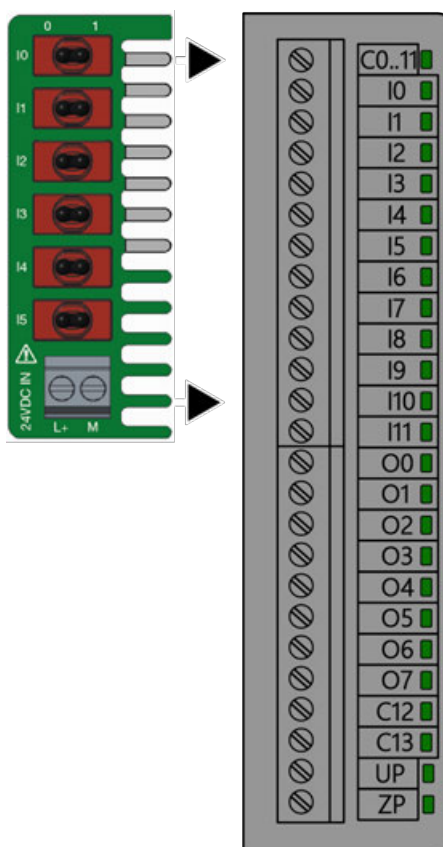
4. Tighten all screws of the onboard I/O clamps.

5. Make sure all switches are in OFF state (0).

6. Connect 24 V DC to the power supply of the TA5400-SIM (L+ and M). Tighten the screws.

7. Connect the processor module power supply wires (24 V DC) ↳ *"Pin assignment" on page 579*.

105.2 Disassembly

Removal of the input simulator

1. Make sure that the power supply of the processor module is turned off.

> ⚠️ **CAUTION!**
>
> **Risk of damaging the PLC modules!**
>
> The PLC modules can be damaged by overvoltages and short circuits.
>
> Make sure that all voltage sources (supply and process voltage) are switched off before you start working on the system.

2. Disconnect the TA5400-SIM power supply wires (24 V DC) with a flat-blade screwdriver from the terminal block for power supply (L+ and M).

3. Loosen all screws of the onboard I/Os.

4. Remove the input simulator by pulling it to the left side.

105.3 Dimensions
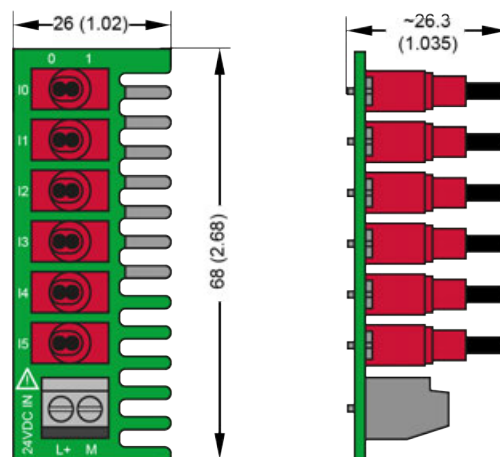
> ℹ️ *The dimensions are in mm and in brackets in inch.*

105.4 Connections
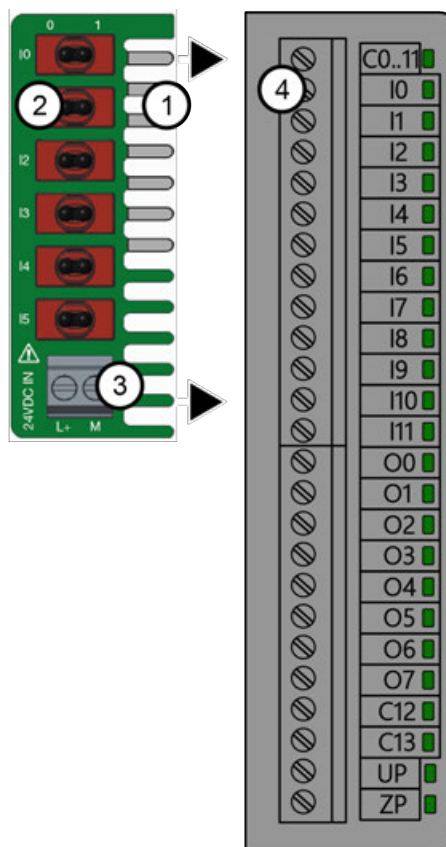
1   Contacts for connecting the input simulator to the terminal block for I/O connectors
2   6 switches for the digital inputs DI0 ... DI5 (0 means opened switch, 1 means closed switch)
3   Screw terminal block for power supply
4   Screw terminal block(s) for I/O connectors

The diagram below shows the connection of the TA5400-SIM input simulator.
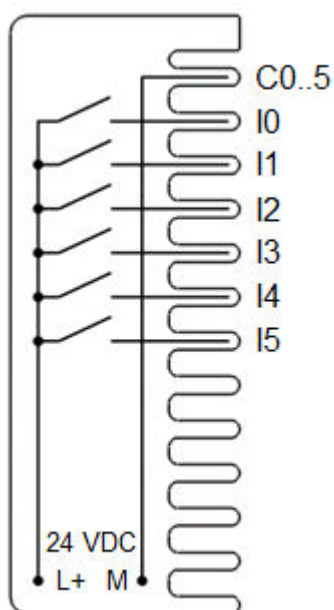
> **!** **NOTICE!**
> **Risk of damage to the TA5400-SIM input simulator!**
> Do not remove the terminal block while the TA5400-SIM input simulator is connected.
>
> Do not apply mechanical forces to the input simulator when it is connected to the terminal block.
>
> In both cases the input simulator could be damaged.

The TA5400-SIM input simulator can simulate 6 digital 24 V DC input signals to the digital inputs I0...I5 of the onboard I/Os.

With the TA5400-SIMinput simulator, the digital 24 V DC inputs I0...I5 can be turned OFF and ON separately:

● If the lever of the switch is on the right side (1), the input is ON.
● If the lever of the switch is on the left side (0), the input is OFF.

105.5 Cleaning

> **ⓘ** **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
> *Use a damp cloth instead.*

105.6 Certification

KC MSIP-REI-Abb-AC500	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	Note These devices correspond to:		KN61000-6-2 "Immunity for industrial environments", KN61000-6-4 "Emission standard for industrial environments"
ko	참고 이러한 기기는		KN61000-6-2 "산업 환경에 대한 내성", KN61000-6-4 "산업 환경 누출 기준"에 적합함

105.7   Recycling

Disposal and recycling information

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The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

106 TA541 - Battery

- TA541

⚠	**CAUTION!** **Risk of injury and damaging the product!** Improper installation and maintenance may result in injury and can damage the product! – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1. – Only by qualified personnel.

⚠	**CAUTION!** This Lithium Battery is the only one which can be used with AC500 CPUs. – Replace battery only with activated supply voltage. – Don't use a battery older than 3 years for replacement (e.g. battery kept to long in stock). – Lithium batteries must not be re-charged, not be disassembled and not be disposed of in fire. – They must be stored in a dry place. – Exhausted batteries must be recycled to respect the environment.

106.1 Assembly

ⓘ	*The TA541 lithium battery is the only applicable battery for processor modules PM595.*

1. Remove the front cover / display by pressing the marked areas with your fingers and pull it to the front.
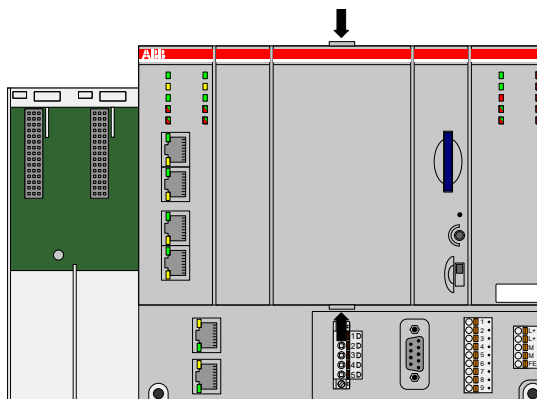
2. Remove the old battery from the battery compartment by pulling it by the small cable. Remove then the small connector from the socket.
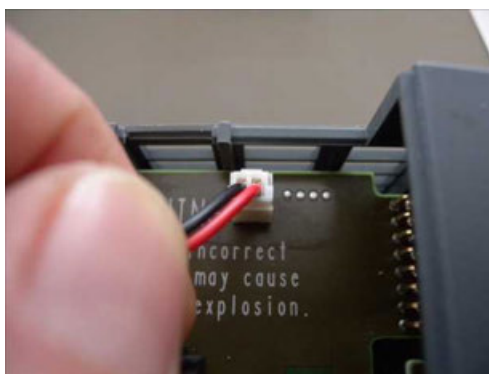
3. Remove the battery from its package and hold it by the small cable.

4. Insert the battery connector into the connector port of the PCB. The connector is keyed to find the correct polarity (red = positive pole = right side).
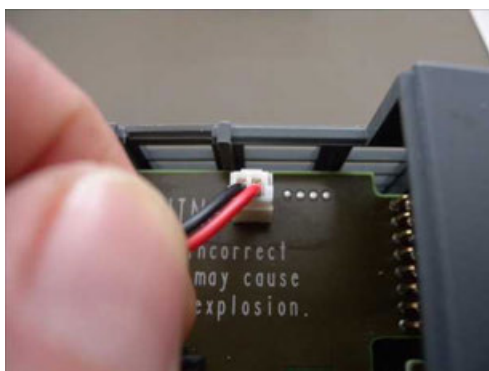
5. Insert the battery into the battery compartment on the left side as shown in the figure.

6. Re-assemble the front cover / display by pressing it straight from the front until it snaps in.

In order to prevent data losses or problems, the battery should be replaced after 3 years of utilisation or at least as soon as possible after receiving the "low battery warning" indication.

Do not use a battery older than 3 years for replacement, do not keep batteries too long in stock.

106.2 Certification

| | en | Devices with KCC sign on product sticker and packaging |
| | ko | 제품 스티커 및 포장에 **KCC** 표시가 된 기기 |

MSIP-REI-Abb-AC500

en **Note**
These devices correspond to: **KN61000-6-2** "Immunity for industrial environments",
KN61000-6-4 "Emission standard for industrial environments"

ko 참고
이러한 기기는   **KN61000-6-2** "산업 환경에 대한 내성",
KN61000-6-4 "산업 환경 누출 기준"에 적합함

106.3   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

107 TA563-TA565 - Terminal block sets

- TA563-9
- TA563-11
- TA564-9
- TA564-11
- TA565-9
- TA564-11

The TA563-TA565 terminal blocks are used to connect process signals and process voltages to AC500-eCo I/O modules and AC500-eCo processor modules (with -P extension inside their type designator only).

Screw terminals with cable insertion on the side	Screw terminals with cable insertion on the front	Spring terminals with cable insertion on the front
TA563-9	TA564-9	TA565-9
TA563-11	TA564-11	TA565-11

> ⚠ **WARNING!**
> **For screw terminals only: Danger of death by electric shock!**
> The IP 20 protection degree is only provided if all terminal screws are tightened.
>
> Tighten all screws of unused load terminals of relay outputs if voltages > 24 V are connected to the relay group.

> ⚠️ **CAUTION!**
>
> **Risk of injury and damaging the product!**
>
> Improper installation and maintenance may result in injury and can damage the product!
>
> – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
> – Read product documentation carefully before wiring. Improper wiring or wrong terminal block from other devices can damage the product!
> – Only by qualified personnel.

> ⚠️ **CAUTION!**
>
> **Risk of injury and damaging the module when using unapproved terminal blocks!**
>
> Only use terminal blocks approved by ABB to avoid injury and damage to the module.

107.1 Assembly
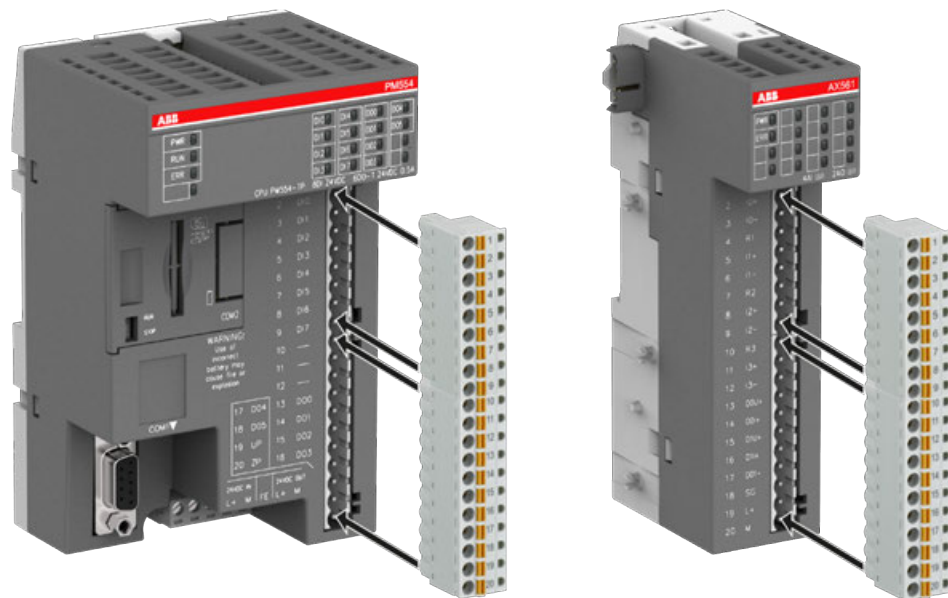
107.2   Disassembly
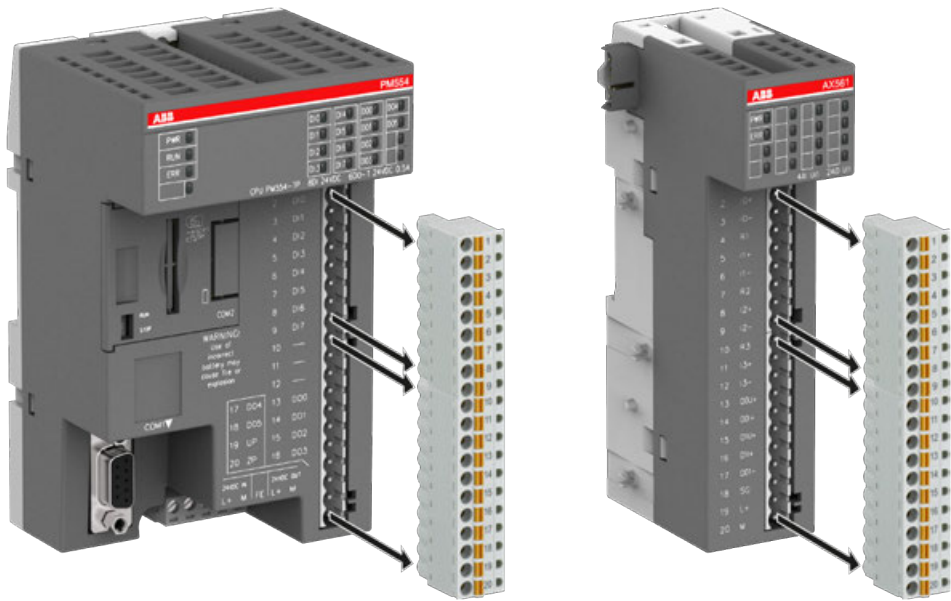
107.3   Dimensions

TA563-9
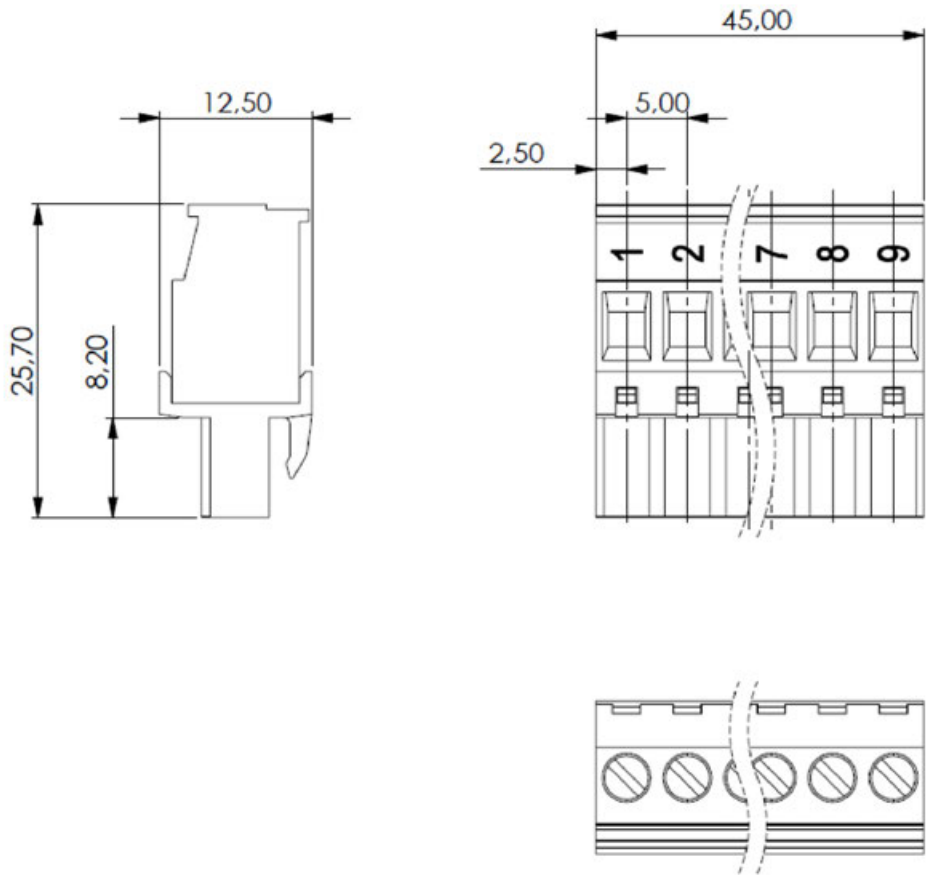
TA563-11
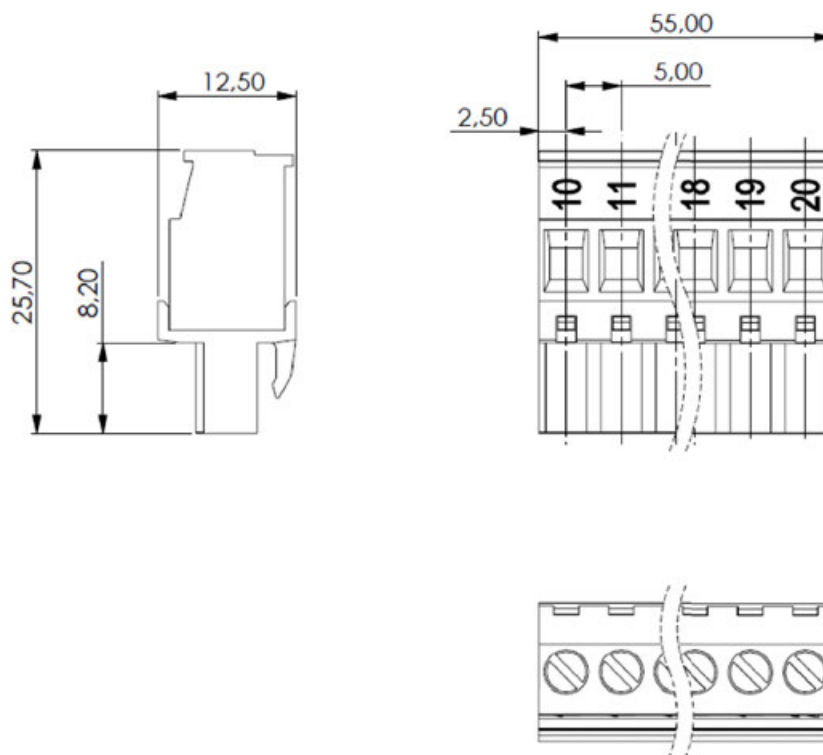
TA564-9
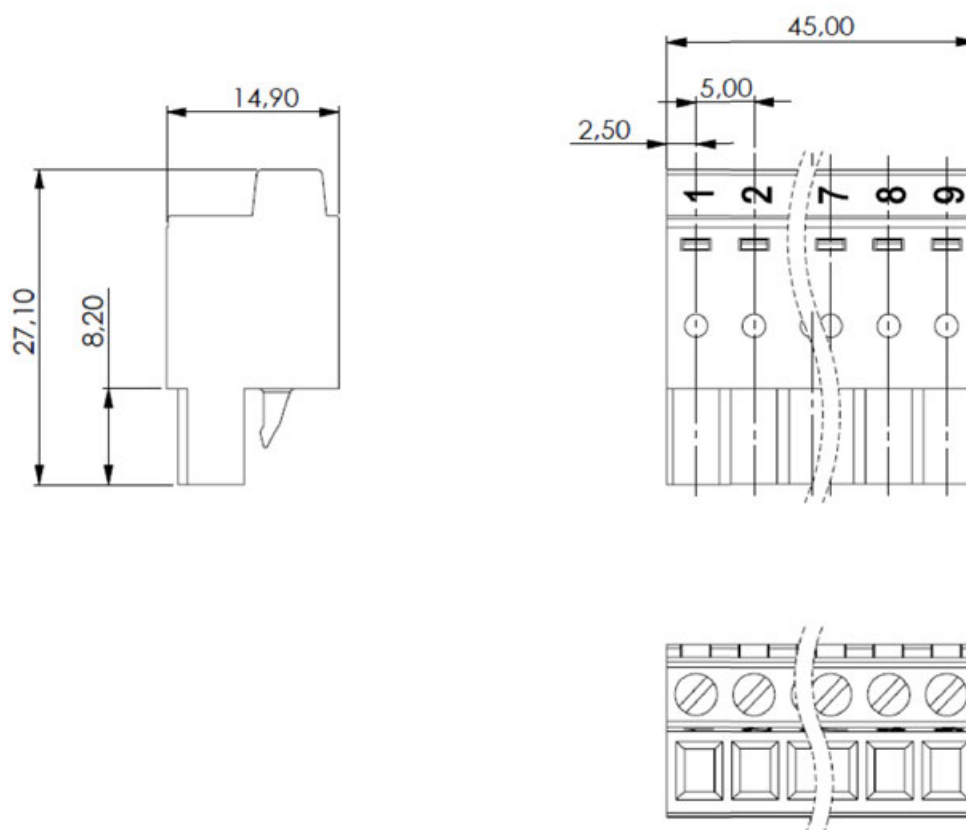
TA564-11
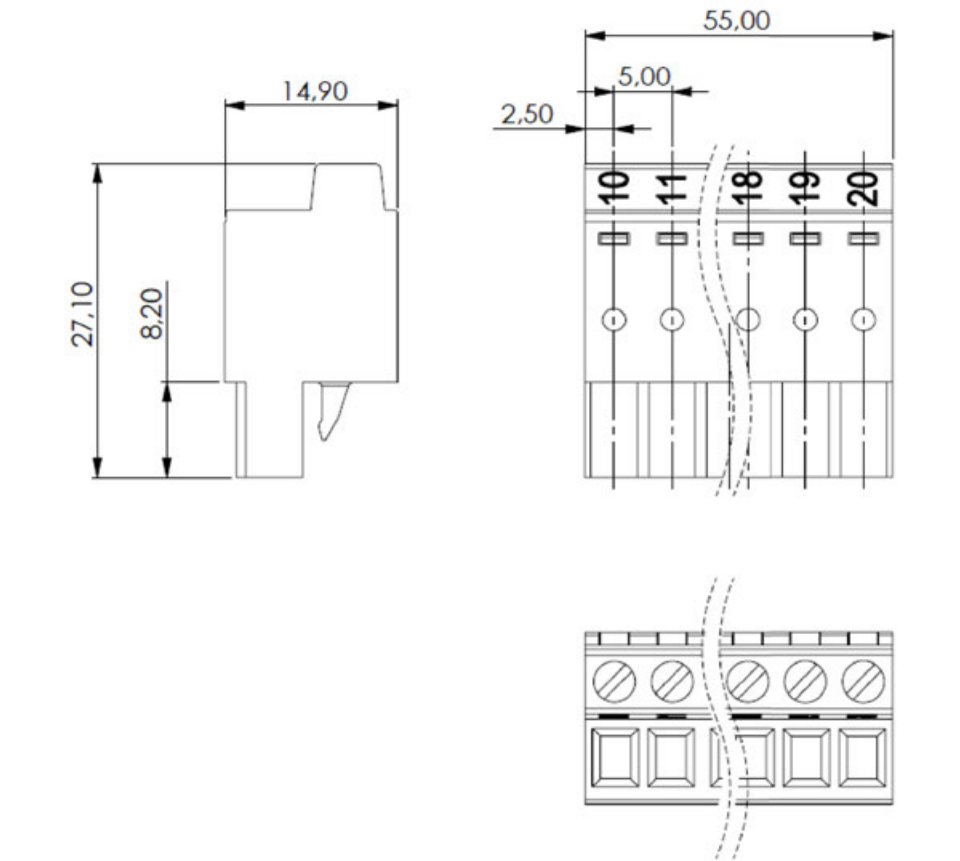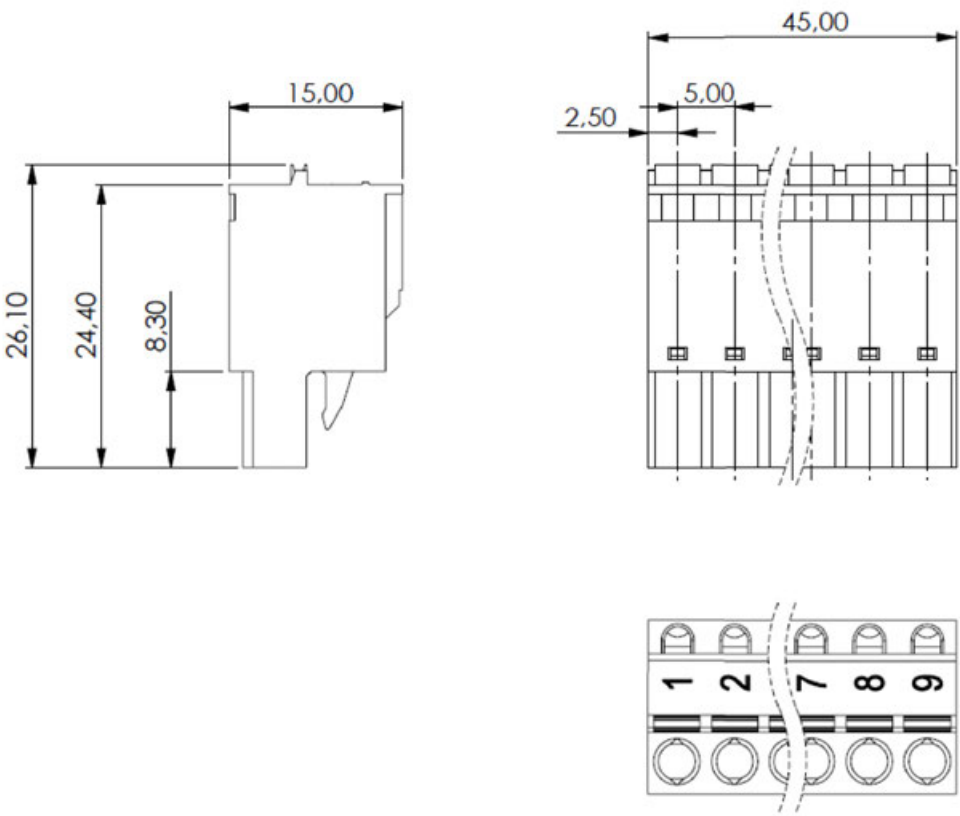
TA565-9

TA565-11
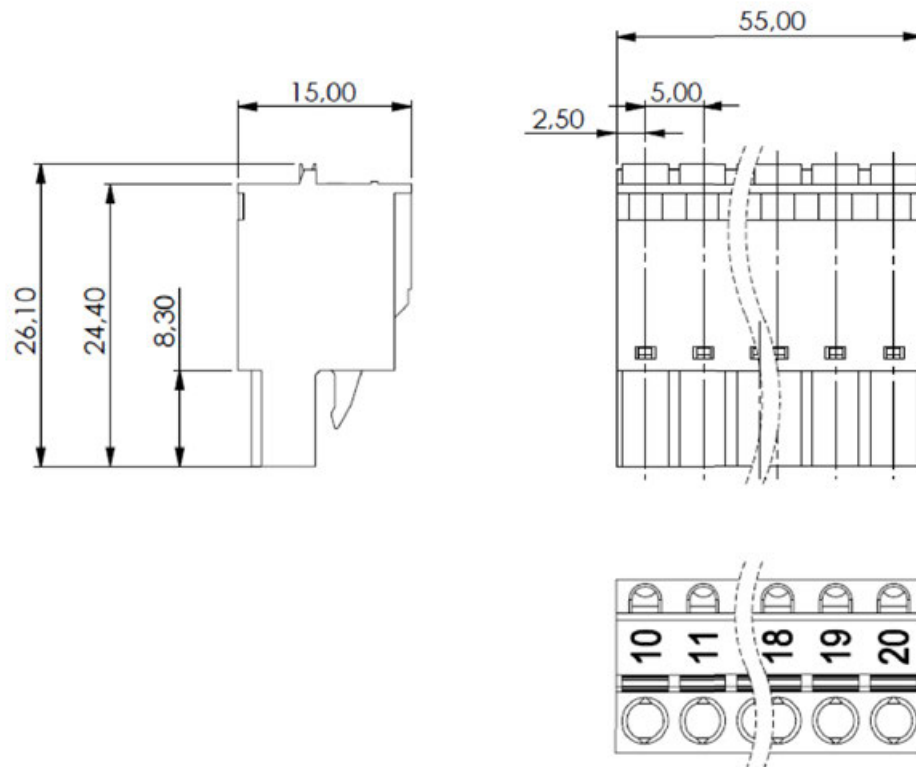
107.4 Connections

> ℹ️ The connections are described in the AC500-eCo V2 processor modules
> *(PM55x-xP and PM56x-xP) or in the AC500-eCo V2 I/O modules.*

107.5 Cleaning

> ℹ️ **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

107.6   Certification

	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

MSIP-REI-Abb-AC500

en	**Note** These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

107.7   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

—
108 TB511-x(-XC)

- TB511-ARCNET
- TB511-ETH
- TB511-ETH-XC

⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.
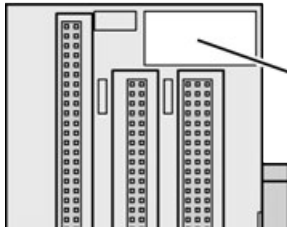
XC version   **XC** = e**X**treme **C**onditions

ⓘ	**Extreme conditions**
	Terminal bases for use in extreme ambient conditions have no ❄ sign for XC version.
	*The figure **3** in the Part no. 1SAP3... (label) identifies the XC version.*

108.1 Assembly

108.2 Disassembly
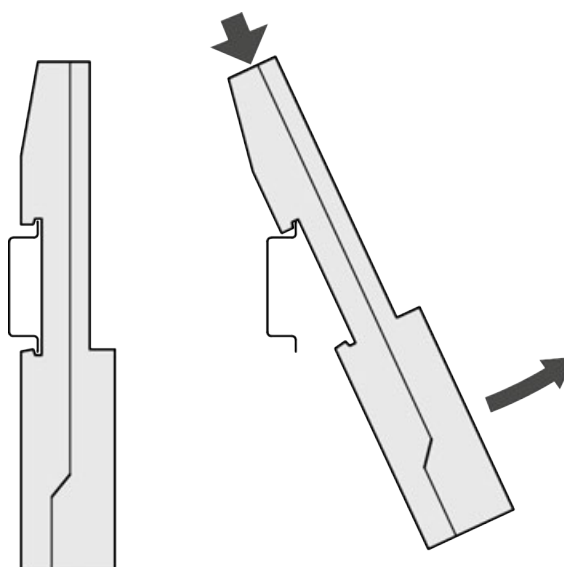
108.3 Assembly with screws
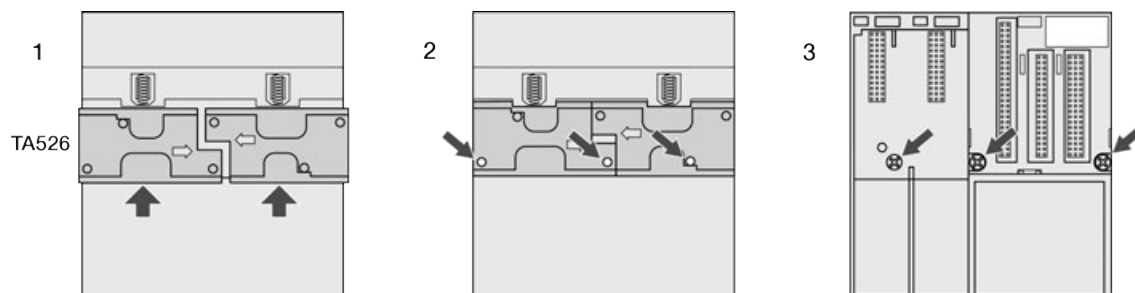
> **NOTICE!**
>
> **Use screw mounting accessory to avoid damage!**
>
> For screw mounting, the use of the TA526 screw mounting accessory (1SAP180800R0001) is mandatory to prevent bending and damage to the module.

1. TA526 are snapped on the rear side of the module like DIN rails. One TA526 is turned by 180°.

2. Fasten module with screws (M4, max 1.2 Nm) from the front side.

108.4 Dimensions
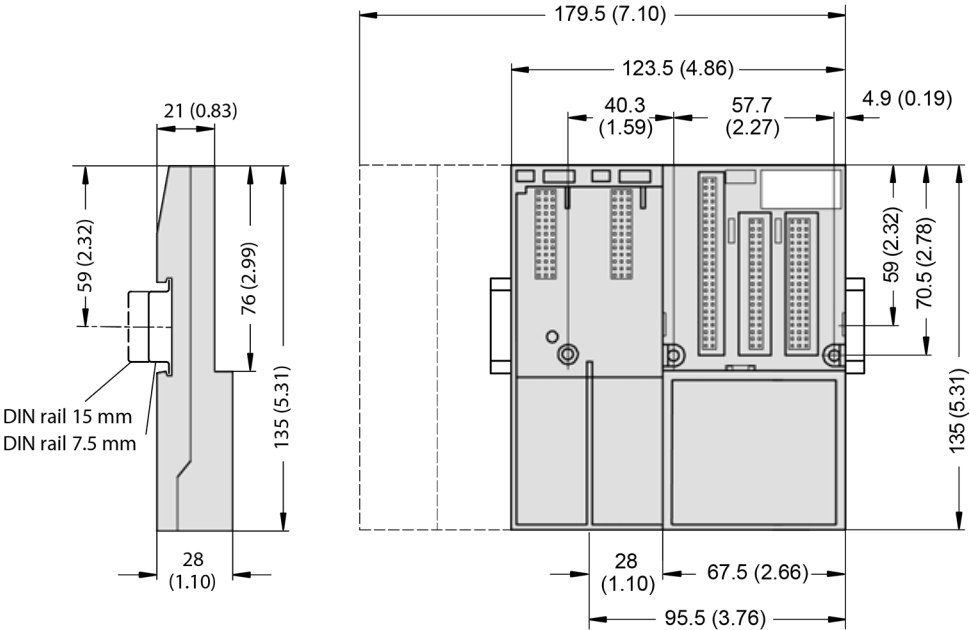
1 Din rail 15 mm
2 Din rail 7.5 mm

> *The dimensions are in mm and in brackets in inch.*

108.5 Connections
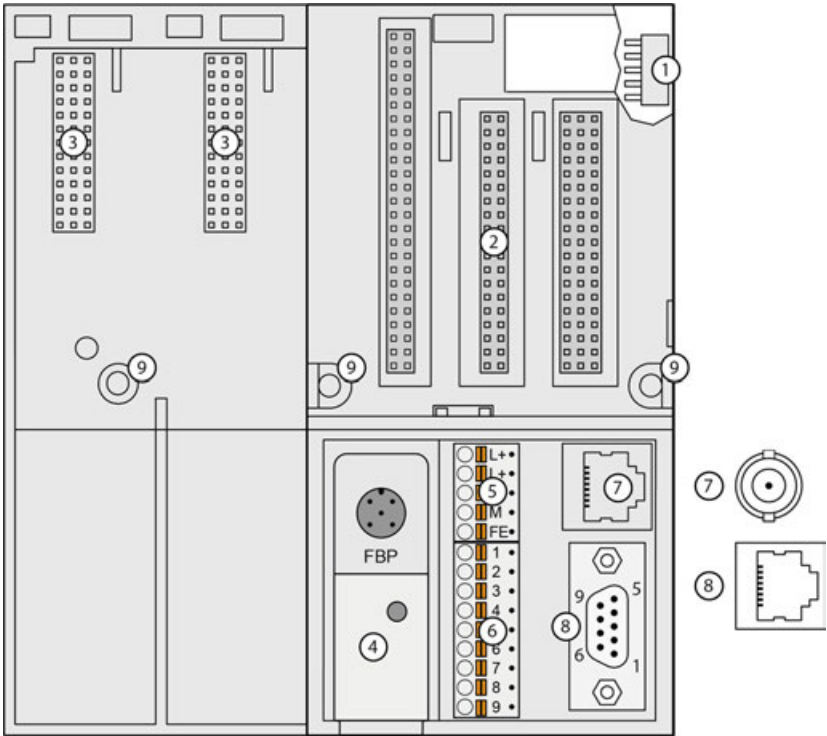
1   I/O bus (10-pin, female) to connect the I/O terminal units
2   One available slot for the processor module
3   Slots for communication modules (TB511-xxx: 1 slot, TB521-xxx: 2 slots, TB541-xx: 4 slots)
4   Interface for FieldBusPlug, not for terminal base TB523-2ETH
5   Power supply (5-pin terminal block, removable)
6   Serial interface COM1 (9-pin terminal block, removable)
7   Network interfaces: TB5xx-ETH: Ethernet, TB5xx-ARCNET: ARCNET
8   TB5x1: Serial interface COM2 (D-sub 9, female), TB523-2ETH: second Ethernet network interface
9   Holes for screw mounting

108.5.1 Power supply

Pin assignment

Pin Assignment		Label	Function	Description
Terminal block removed	Terminal block inserted	L+	+24 V DC	Positive pin of the power supply voltage
		L+	+24 V DC	Positive pin of the power supply voltage
		M	0 V	Negative pin of the power supply voltage
		M	0 V	Negative pin of the power supply voltage
		⏚	FE	Functional earth

108.5.2   Serial interface COM1

Pin assignment (RS-485 / RS-232)

COM1

COM1

Terminal block removed

Terminal block inserted

		Pin	Signal	Interface	Description
		1	Terminator P	RS-485	Terminator P
		2	RxD/TxD-P	RS-485	Receive/Transmit, positive
		3	RxD/TxD-N	RS-485	Receive/Transmit, negative
		4	Terminator N	RS-485	Terminator N
		5	RTS	RS-232	Request to send (output)
		6	TxD	RS-232	Transmit data (output)
		7	SGND	Signal Ground	Signal Ground
		8	RxD	RS-232	Receive data (input)
		9	CTS	RS-232	Clear to send (input)

!   **NOTICE!**
Unused connector!
Make sure that the terminal block is always connected to the terminal base or communication module, even if you do not use the interface.

108.5.3   Serial interface COM2

Pin assignment

Serial Interface	Pin	Signal	Interface	Description	
	1	FE	-	Functional earth	
	2	TxD	RS-232	Transmit data	Output
	3	RxD/TxD-P	RS-485	Receive/Transmit	Positive
	4	RTS	RS-232	Request to send	Output
	5	SGND	Signal ground	0 V supply out	
	6	+5 V	-	5 V supply out	
	7	RxD	RS-232	Receive data	Input
	8	RxD/TxD-N	RS-485	Receive/Transmit	Negative
	9	CTS	RS-232	Clear to send	Input
	Shield	FE	-	Functional earth	

!   **NOTICE!**
Risk of corrosion!
Unused connectors and slots may corrode if XC devices are used in salt-mist environments.

Protect unused connectors and slots with TA535 protective caps for XC devices.

108.5.4 ARCNET network interface

108.5.5 Ethernet network interface

Pin assignment

	PIN	Signal	Description
	1	TxD+	Transmit data +
	2	TxD-	Transmit data -
	3	RxD+	Receive data +
	4	NU	Not used
	5	NU	Not used
	6	RxD-	Receive data -
	7	NU	Not used
	8	NU	Not used
	Shield	Cable shield	Functional earth

NOTICE!

Risk of corrosion!

Unused connectors and slots may corrode if XC devices are used in salt-mist environments.

Protect unused connectors and slots with TA535 protective caps for XC devices.

108.5.6 Neutral FBP interface

Pin assignment in serial mode

FieldBusPlug	Pin	Signal	Description
	1	+24 V	Standard power supply
	2	Diagnosis pin	
	3	0 V	Standard power supply
	4	Serial data	
	5	Serial data	

NOTICE!

Risk of corrosion!

Unused connectors and slots may corrode if XC devices are used in salt-mist environments.

Protect unused connectors and slots with TA535 protective caps for XC devices.

108.6 Cleaning

⊙ⓘ **Cleaning instructions**

Do not use cleaning agent for cleaning the device.

Use a damp cloth instead.

108.7 Certification

KC

MSIP-REI-Abb-AC500

en		Devices with KCC sign on product sticker and packaging
ko		제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	**Note** These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

108.8 Recycling

⊙ⓘ **Disposal and recycling information**

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

—
109   TB521-x(-XC)

- TB521-ARCNET
- TB521-ETH
- TB521-ETH-XC

| ⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.
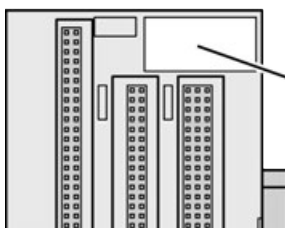
XC version   **XC** = e**X**treme **C**onditions


| ⓘ	*Extreme conditions*
	Terminal bases for use in extreme ambient conditions have no ❄ sign for XC version.
	*The figure **3** in the Part no. 1SAP3... (label) identifies the XC version.*

109.1   Assembly
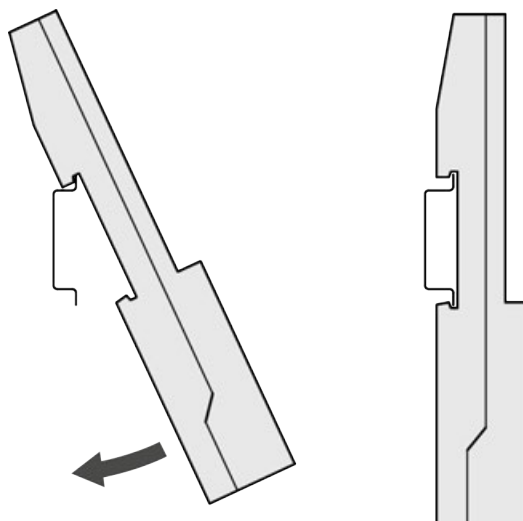
## 109.2   Disassembly
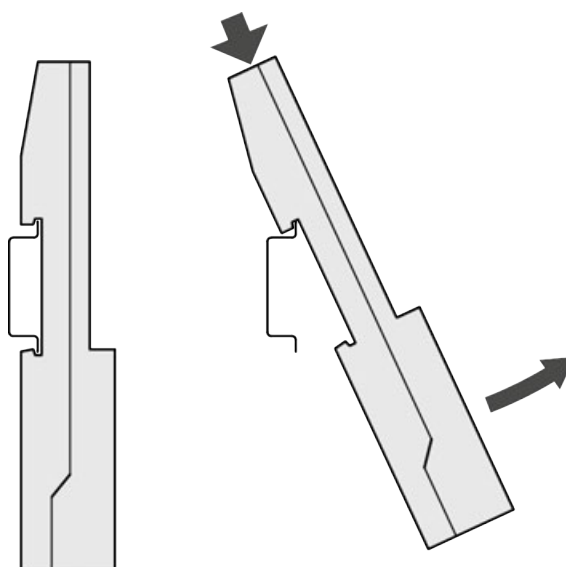
109.3   Assembly with screws
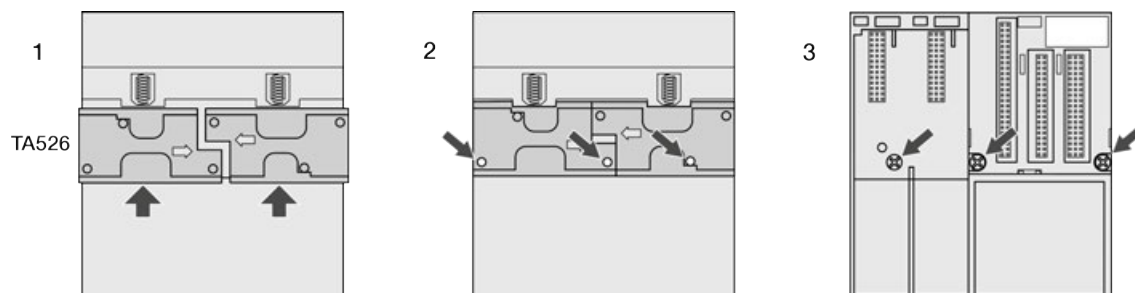
> **NOTICE!**
>
> **Use screw mounting accessory to avoid damage!**
>
> For screw mounting, the use of the TA526 screw mounting accessory (1SAP180800R0001) is mandatory to prevent bending and damage to the module.

1.   TA526 are snapped on the rear side of the module like DIN rails. One TA526 is turned by 180°.

2.   Fasten module with screws (M4, max 1.2 Nm) from the front side.

109.4   Dimensions
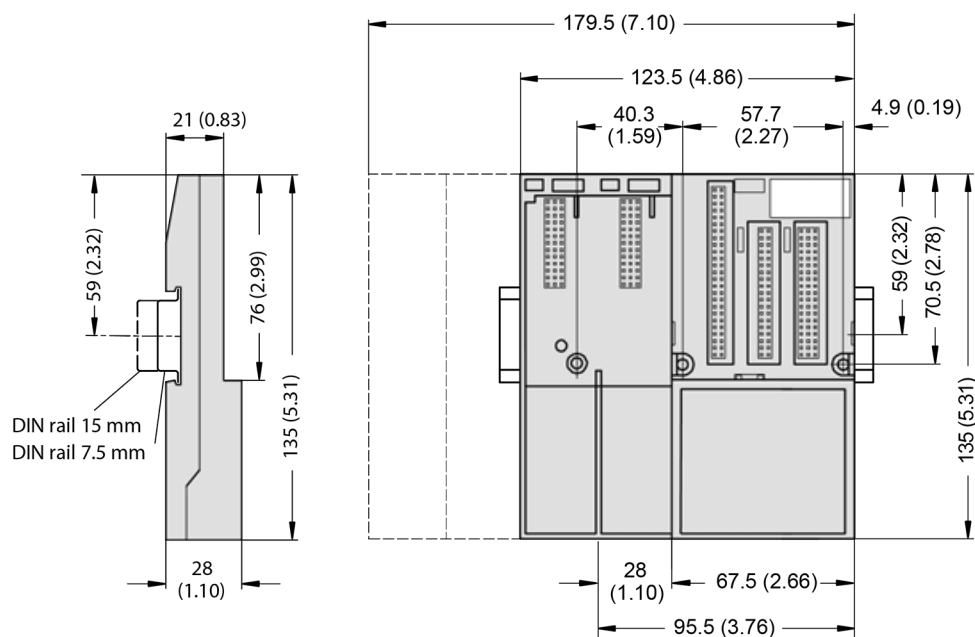
1   Din rail 15 mm
2   Din rail 7.5 mm

> ⓘ   *The dimensions are in mm and in brackets in inch.*

109.5   Connections
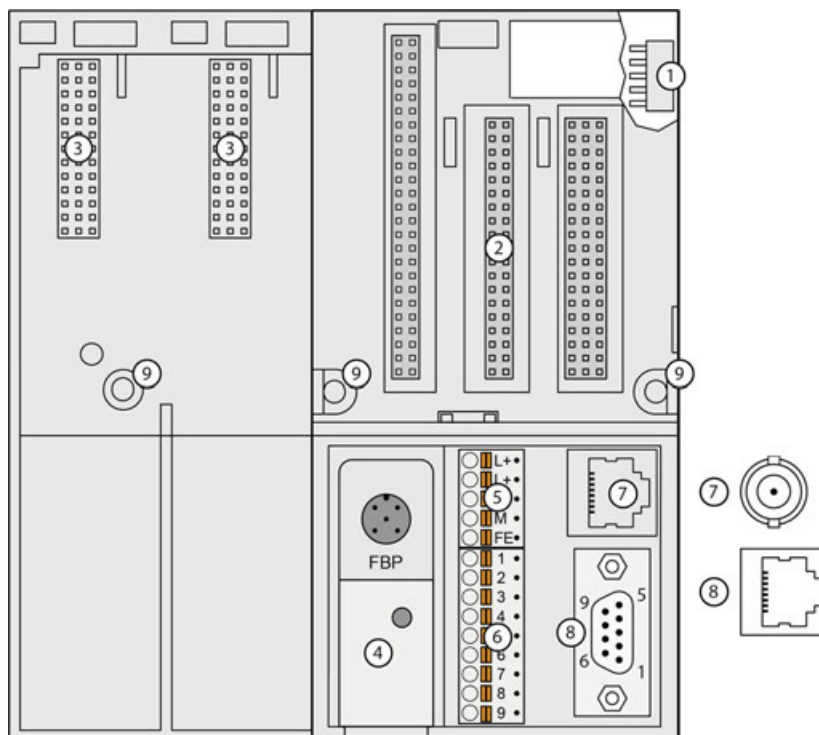
1   I/O bus (10-pin, female) to connect the I/O terminal units
2   One available slot for the processor module
3   Slots for communication modules (TB511-xxx: 1 slot, TB521-xxx: 2 slots, TB541-xx: 4 slots)
4   Interface for FieldBusPlug, not for terminal base TB523-2ETH
5   Power supply (5-pin terminal block, removable)
6   Serial interface COM1 (9-pin terminal block, removable)
7   Network interfaces: TB5xx-ETH: Ethernet, TB5xx-ARCNET: ARCNET
8   TB5x1: Serial interface COM2 (D-sub 9, female), TB523-2ETH: second Ethernet network interface
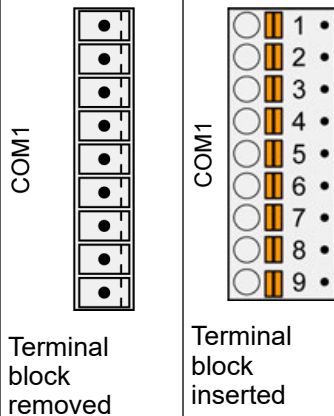9   Holes for screw mounting
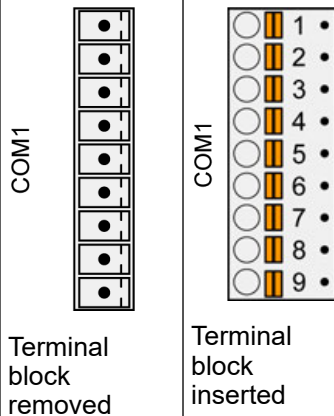
109.5.1   Power supply

Pin assignment

Pin Assignment		Label	Function	Description
Terminal block removed	Terminal block inserted	L+	+24 V DC	Positive pin of the power supply voltage
		L+	+24 V DC	Positive pin of the power supply voltage
		M	0 V	Negative pin of the power supply voltage
		M	0 V	Negative pin of the power supply voltage
		⏚	FE	Functional earth

109.5.2   Serial interface COM1

Pin assignment (RS-485 / RS-232)

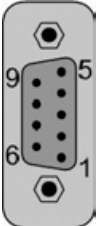|		Pin	Signal	Interface	Description
COM1 (Terminal block removed)	COM1 (Terminal block inserted)	1	Terminator P	RS-485	Terminator P
		2	RxD/TxD-P	RS-485	Receive/Transmit, positive
		3	RxD/TxD-N	RS-485	Receive/Transmit, negative
		4	Terminator N	RS-485	Terminator N
		5	RTS	RS-232	Request to send (output)
		6	TxD	RS-232	Transmit data (output)
		7	SGND	Signal Ground	Signal Ground
		8	RxD	RS-232	Receive data (input)
		9	CTS	RS-232	Clear to send (input)

> **! NOTICE!**
> **Unused connector!**
> Make sure that the terminal block is always connected to the terminal base or communication module, even if you do not use the interface.

109.5.3   Serial interface COM2

Pin assignment

Serial Interface	Pin	Signal	Interface	Description	
	1	FE	-	Functional earth	
	2	TxD	RS-232	Transmit data	Output
	3	RxD/TxD-P	RS-485	Receive/Transmit	Positive
	4	RTS	RS-232	Request to send	Output
	5	SGND	Signal ground	0 V supply out	
	6	+5 V	-	5 V supply out	
	7	RxD	RS-232	Receive data	Input
	8	RxD/TxD-N	RS-485	Receive/Transmit	Negative
	9	CTS	RS-232	Clear to send	Input
	Shield	FE	-	Functional earth	

> **! NOTICE!**
> **Risk of corrosion!**
> Unused connectors and slots may corrode if XC devices are used in salt-mist environments.
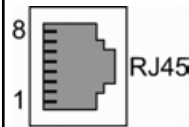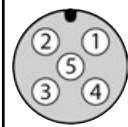>
> Protect unused connectors and slots with TA535 protective caps for XC devices.

109.5.4 ARCNET network interface

109.5.5 Ethernet network interface

Pin assignment

	PIN	Signal	Description
RJ45 8-1	1	TxD+	Transmit data +
	2	TxD-	Transmit data -
	3	RxD+	Receive data +
	4	NU	Not used
	5	NU	Not used
	6	RxD-	Receive data -
	7	NU	Not used
	8	NU	Not used
	Shield	Cable shield	Functional earth

NOTICE!
Risk of corrosion!
Unused connectors and slots may corrode if XC devices are used in salt-mist environments.

Protect unused connectors and slots with TA535 protective caps for XC devices.

109.5.6 Neutral FBP interface

Pin assignment in serial mode

FieldBusPlug	Pin	Signal	Description
	1	+24 V	Standard power supply
	2	Diagnosis pin	
	3	0 V	Standard power supply
	4	Serial data	
	5	Serial data	

NOTICE!
Risk of corrosion!
Unused connectors and slots may corrode if XC devices are used in salt-mist environments.

Protect unused connectors and slots with TA535 protective caps for XC devices.

109.6 Cleaning

> **Cleaning instructions**
>
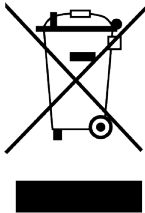> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

109.7 Certification

KC		
MSIP-REI-Abb-AC500	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	Note These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

109.8 Recycling

> **Disposal and recycling information**
>
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

— 110 TB523-2ETH

- TB523-2ETH

| ⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.
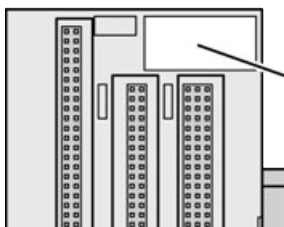
XC version   **XC** = e**X**treme **C**onditions

| ⓘ	*Extreme conditions*
	Terminal bases for use in extreme ambient conditions have no ❄ sign for XC version.
	The figure 3 in the Part no. 1SAP3... (label) identifies the XC version.

110.1   Assembly

110.2   Disassembly
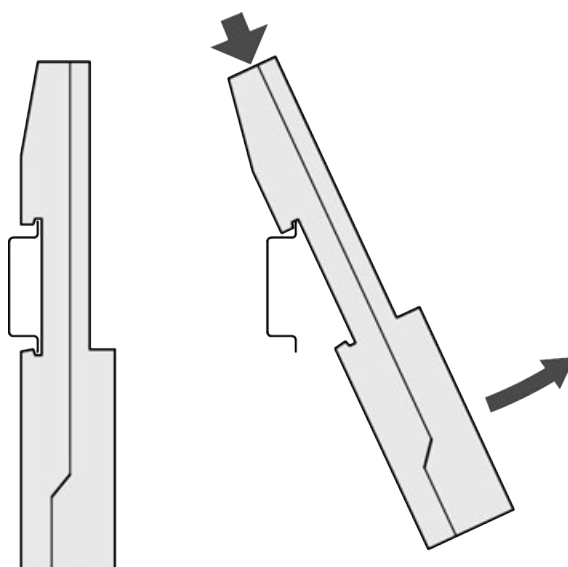
110.3   Assembly with screws
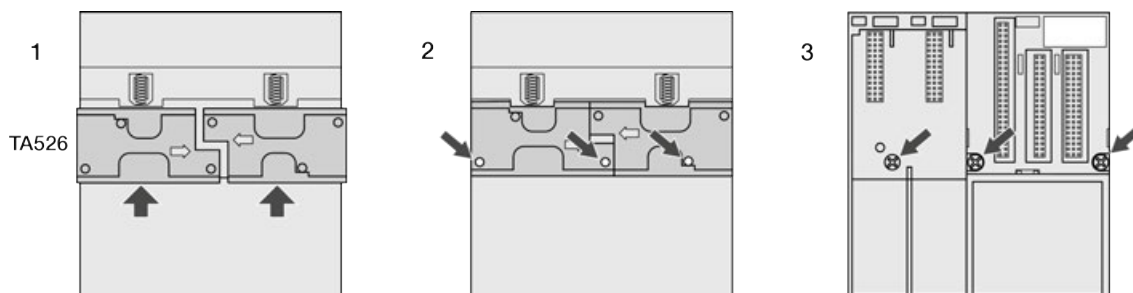
TA526

1

2

3

> **!**
>
> **NOTICE!**
>
> **Use screw mounting accessory to avoid damage!**
>
> For screw mounting, the use of the TA526 screw mounting accessory (1SAP180800R0001) is mandatory to prevent bending and damage to the module.

1. TA526 are snapped on the rear side of the module like DIN rails. One TA526 is turned by 180°.

2. Fasten module with screws (M4, max 1.2 Nm) from the front side.

110.4   Dimensions
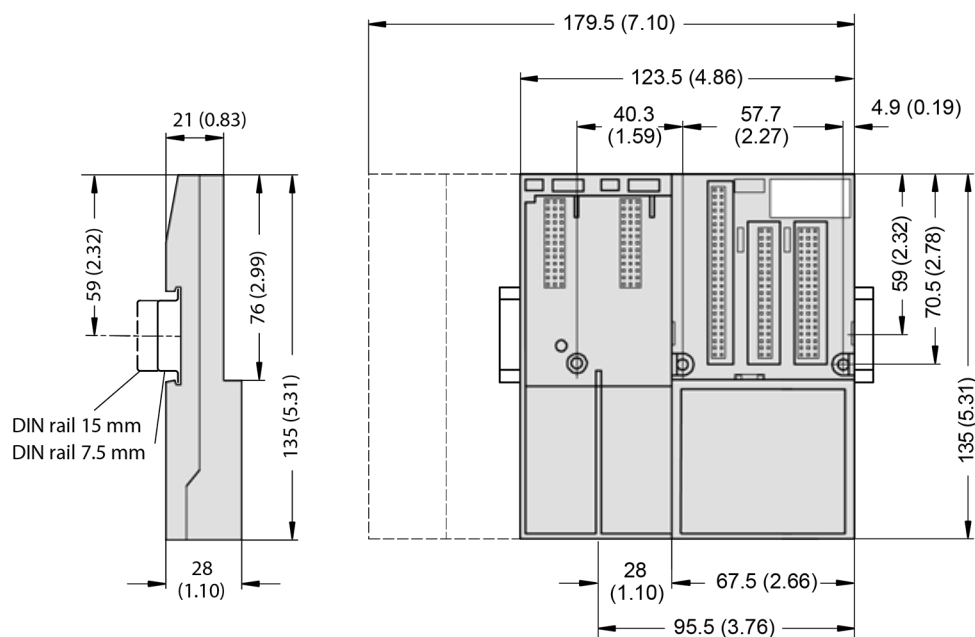
1   Din rail 15 mm
2   Din rail 7.5 mm

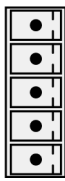> *(i)*   *The dimensions are in mm and in brackets in inch.*
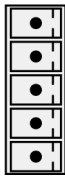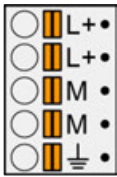
110.5   Connections
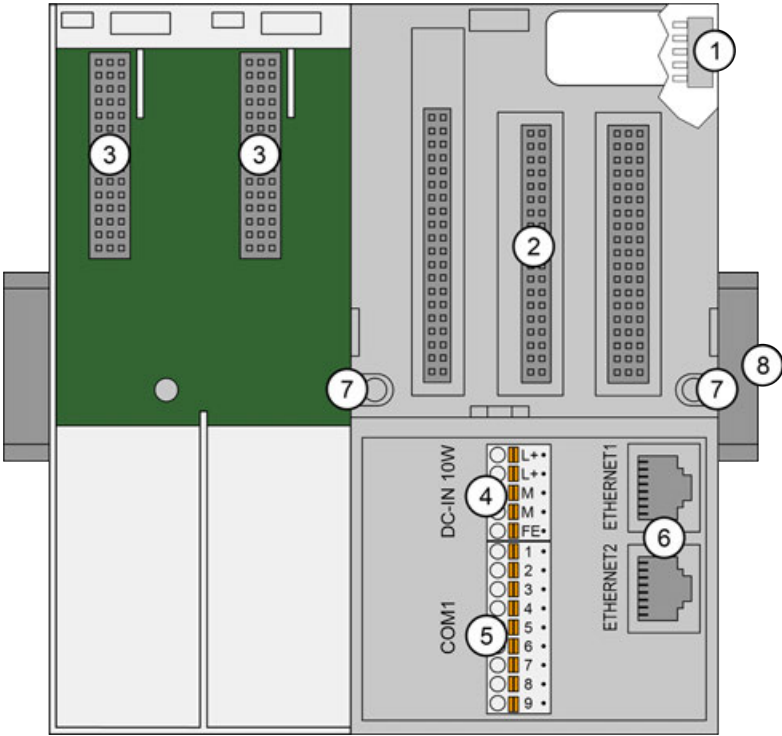
1   I/O bus (10-pin, female) to connect the I/O terminal units
2   One available slot for the processor module
3   Slots for communication modules
4   Power supply (5-pin terminal block, removable)
5   Serial interface COM1 (9-pin terminal block, removable)
6   Ethernet network interfaces
7   Holes for wall mounting with screws
8   DIN rail
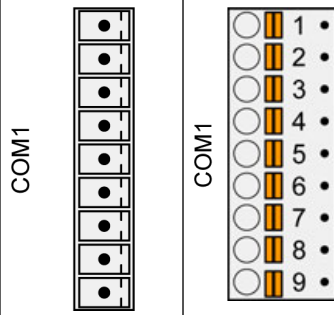
110.5.1   Power supply

Pin assignment

Pin Assignment		Label	Function	Description
Terminal block removed	Terminal block inserted	L+	+24 V DC	Positive pin of the power supply voltage
		L+	+24 V DC	Positive pin of the power supply voltage
		M	0 V	Negative pin of the power supply voltage
		M	0 V	Negative pin of the power supply voltage
		⏚	FE	Functional earth

110.5.2 Serial interface COM1

Pin assignment (RS-485 / RS-232)

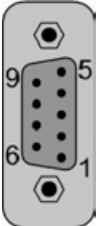|		Pin	Signal	Interface	Description
		1	Terminator P	RS-485	Terminator P
		2	RxD/TxD-P	RS-485	Receive/Transmit, positive
		3	RxD/TxD-N	RS-485	Receive/Transmit, negative
		4	Terminator N	RS-485	Terminator N
		5	RTS	RS-232	Request to send (output)
Terminal block removed	Terminal block inserted	6	TxD	RS-232	Transmit data (output)
		7	SGND	Signal Ground	Signal Ground
		8	RxD	RS-232	Receive data (input)
		9	CTS	RS-232	Clear to send (input)

> **!** **NOTICE!**
> **Unused connector!**
> Make sure that the terminal block is always connected to the terminal base or communication module, even if you do not use the interface.

110.5.3 Ethernet network interface

Pin assignment

	PIN	Signal	Description
	1	TxD+	Transmit data +
	2	TxD-	Transmit data -
	3	RxD+	Receive data +
RJ45	4	NU	Not used
	5	NU	Not used
	6	RxD-	Receive data -
	7	NU	Not used
	8	NU	Not used
	Shield	Cable shield	Functional earth

> **!** **NOTICE!**
> **Risk of corrosion!**
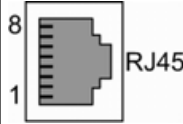> Unused connectors and slots may corrode if XC devices are used in salt-mist environments.
>
> Protect unused connectors and slots with TA535 protective caps for XC devices.

110.6   Cleaning

> *Cleaning instructions*
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

110.7   Certification

	en	Devices with KCC sign on product sticker and packaging
KC	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

MSIP-REI-Abb-AC500

en	**Note** These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

110.8   Recycling

> *Disposal and recycling information*
>
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

111 TB541-ETH(-XC)

- TB541-ETH
- TB541-ETH-XC

⚠️ **CAUTION!**

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.

– Only by qualified personnel.
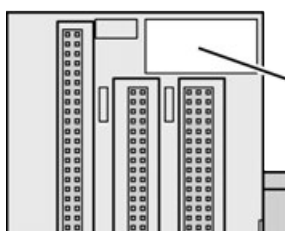
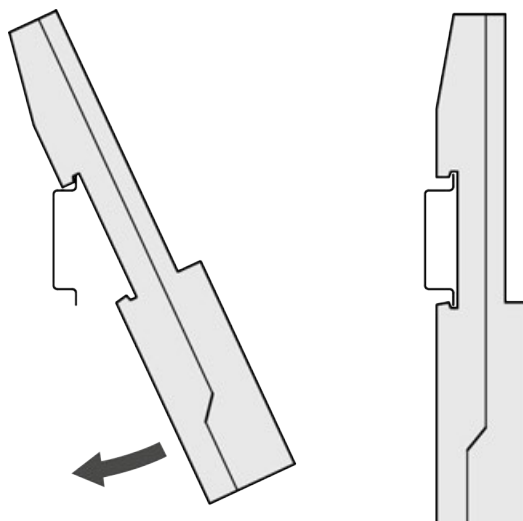**XC version**   **XC** = e**X**treme **C**onditions


ℹ️ *Extreme conditions*

Terminal bases for use in extreme ambient conditions have no ❄ sign for XC version.

The figure 3 in the Part no. 1SAP3... (label) identifies the XC version.

111.1 Assembly

111.2 Disassembly
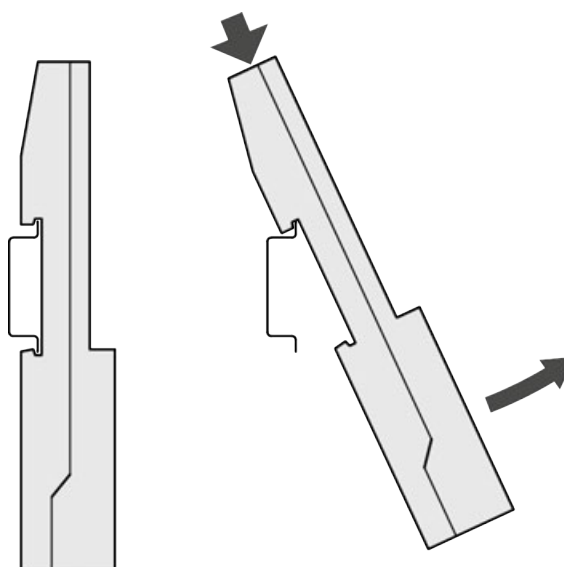
111.3 Assembly with screws
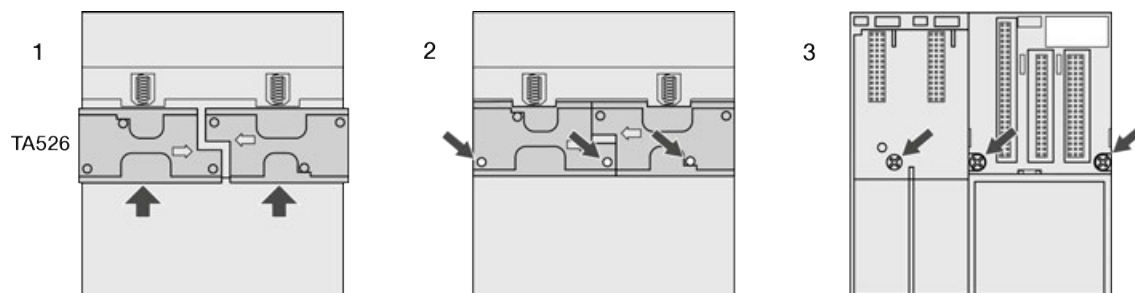
> **NOTICE!**
>
> **Use screw mounting accessory to avoid damage!**
>
> For screw mounting, the use of the TA526 screw mounting accessory (1SAP180800R0001) is mandatory to prevent bending and damage to the module.

1. TA526 are snapped on the rear side of the module like DIN rails. One TA526 is turned by 180°.

2. Fasten module with screws (M4, max 1.2 Nm) from the front side.

111.4 Dimensions
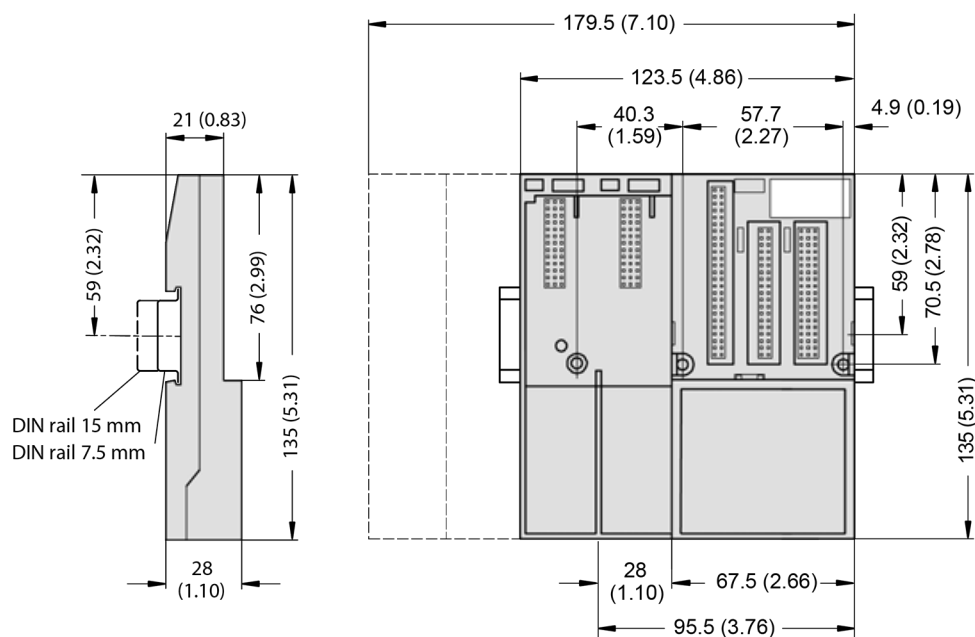
1 Din rail 15 mm
2 Din rail 7.5 mm

> *The dimensions are in mm and in brackets in inch.*
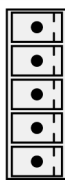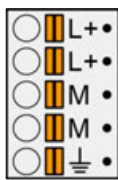
111.5 Connections
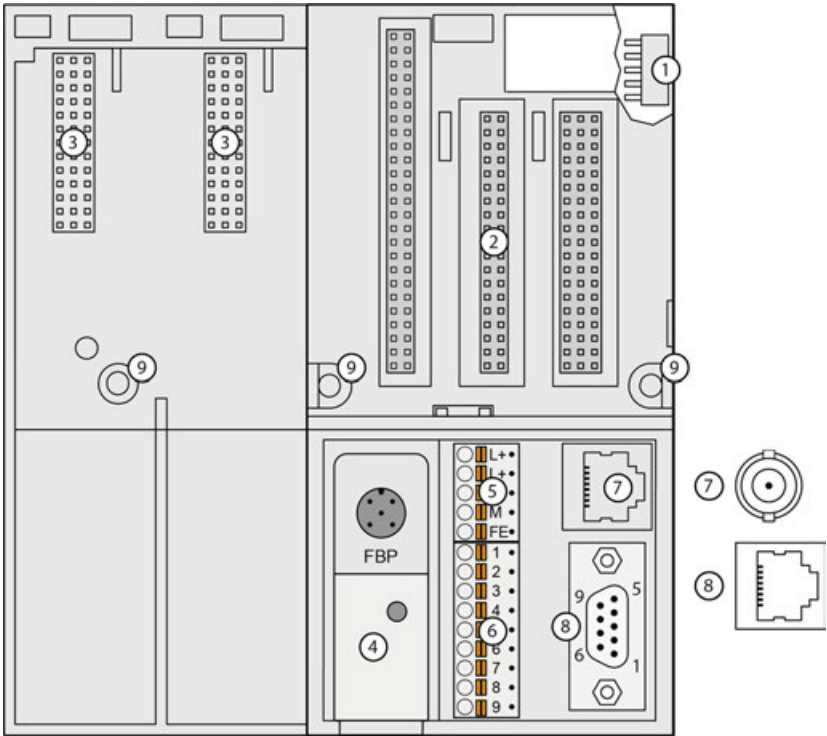
1   I/O bus (10-pin, female) to connect the I/O terminal units
2   One available slot for the processor module
3   Slots for communication modules (TB511-xxx: 1 slot, TB521-xxx: 2 slots, TB541-xx: 4 slots)
4   Interface for FieldBusPlug, not for terminal base TB523-2ETH
5   Power supply (5-pin terminal block, removable)
6   Serial interface COM1 (9-pin terminal block, removable)
7   Network interfaces: TB5xx-ETH: Ethernet, TB5xx-ARCNET: ARCNET
8   TB5x1: Serial interface COM2 (D-sub 9, female), TB523-2ETH: second Ethernet network interface
9   Holes for screw mounting

111.5.1 Power supply
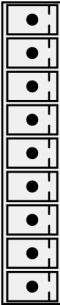
Pin assignment

Pin Assignment		Label	Function	Description
Terminal block removed	Terminal block inserted	L+	+24 V DC	Positive pin of the power supply voltage
		L+	+24 V DC	Positive pin of the power supply voltage
		M	0 V	Negative pin of the power supply voltage
		M	0 V	Negative pin of the power supply voltage
		⏚	FE	Functional earth

111.5.2 Serial interface COM1

Pin assignment (RS-485 / RS-232)

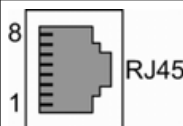|		Pin	Signal	Interface	Description
COM1 (Terminal block removed)	COM1 1 2 3 4 5 6 7 8 9 (Terminal block inserted)	1	Terminator P	RS-485	Terminator P
		2	RxD/TxD-P	RS-485	Receive/Transmit, positive
		3	RxD/TxD-N	RS-485	Receive/Transmit, negative
		4	Terminator N	RS-485	Terminator N
		5	RTS	RS-232	Request to send (output)
		6	TxD	RS-232	Transmit data (output)
		7	SGND	Signal Ground	Signal Ground
		8	RxD	RS-232	Receive data (input)
		9	CTS	RS-232	Clear to send (input)

> **!**
>
> **NOTICE!**
> **Unused connector!**
> Make sure that the terminal block is always connected to the terminal base or communication module, even if you do not use the interface.

111.5.3 Serial interface COM2

Pin assignment

Serial Interface	Pin	Signal	Interface	Description	
COM2 9 5 6 1	1	FE	-	Functional earth	
	2	TxD	RS-232	Transmit data	Output
	3	RxD/TxD-P	RS-485	Receive/Transmit	Positive
	4	RTS	RS-232	Request to send	Output
	5	SGND	Signal ground	0 V supply out	
	6	+5 V	-	5 V supply out	
	7	RxD	RS-232	Receive data	Input
	8	RxD/TxD-N	RS-485	Receive/Transmit	Negative
	9	CTS	RS-232	Clear to send	Input
	Shield	FE	-	Functional earth	
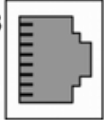
> **!**
>
> **NOTICE!**
> **Risk of corrosion!**
> Unused connectors and slots may corrode if XC devices are used in salt-mist environments.
>
> Protect unused connectors and slots with TA535 protective caps for XC devices.

111.5.4 ARCNET network interface

111.5.5 Ethernet network interface

Pin assignment

	PIN	Signal	Description
	1	TxD+	Transmit data +
	2	TxD-	Transmit data -
	3	RxD+	Receive data +
	4	NU	Not used
	5	NU	Not used
	6	RxD-	Receive data -
	7	NU	Not used
	8	NU	Not used
	Shield	Cable shield	Functional earth

> **!** **NOTICE!**
> **Risk of corrosion!**
> Unused connectors and slots may corrode if XC devices are used in salt-mist environments.
>
> Protect unused connectors and slots with TA535 protective caps for XC devices.

111.5.6 Neutral FBP interface

Pin assignment in serial mode

FieldBusPlug	Pin	Signal	Description
	1	+24 V	Standard power supply
	2	Diagnosis pin	
	3	0 V	Standard power supply
	4	Serial data	
	5	Serial data	

> **!** **NOTICE!**
> **Risk of corrosion!**
> Unused connectors and slots may corrode if XC devices are used in salt-mist environments.
>
> Protect unused connectors and slots with TA535 protective caps for XC devices.

111.6 Cleaning

> *Cleaning instructions*
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

111.7 Certification

KC	en	Devices with KCC sign on product sticker and packaging
MSIP-REI-Abb-AC500	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	**Note** These devices correspond to:	KN61000-6-2 "Immunity for industrial environments", KN61000-6-4 "Emission standard for industrial environments"
ko	참고 이러한 기기는	KN61000-6-2 "산업 환경에 대한 내성", KN61000-6-4 "산업 환경 누출 기준"에 적합함

111.8 Recycling

> *Disposal and recycling information*
>
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

112   TB56xx-2ETH(-XC)

- TB5600-2ETH
- TB5600-2ETH-XC
- TB5610-2ETH
- TB5610-2ETH-XC
- TB5620-2ETH
- TB5620-2ETH-XC
- TB5640-2ETH
- TB5640-2ETH-XC
- TB5660-2ETH
- TB5660-2ETH-XC
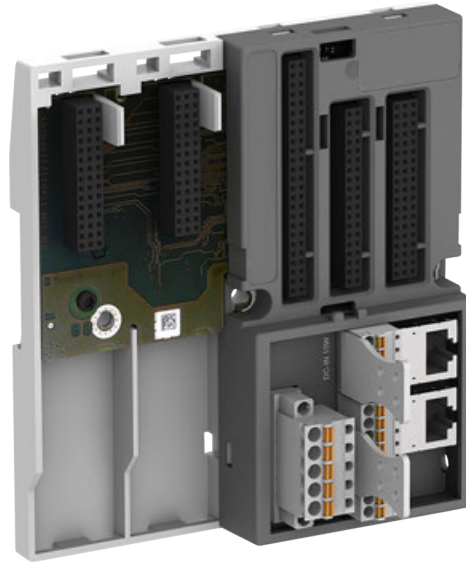
> ⚠️ **CAUTION!**
> **Risk of injury and damaging the product!**
> Improper installation and maintenance may result in injury and can damage the product!
>
> – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
> – Only by qualified personnel.

> ⓘ *Processor modules PM56xx-2ETH can only be used with TB56xx-2ETH terminal bases.*

Table 87: Combination of TB56xx-2ETH(-XC) and PM56xx(-XC)

Processor module	PM5630	PM5650	PM5670	PM5675
TB5600-2ETH	0 slot	0 slot	0 slot	0 slot
TB5610-2ETH	1 slot	1 slot	1 slot	1 slot
TB5620-2ETH	2 slots	2 slots	2 slots	2 slots
TB5640-2ETH	-	4 slots	4 slots	4 slots
TB5660-2ETH	-	-	6 slots [1])	6 slots [1])
Remarks:				
The slots can be used for connecting communication modules or AC500-S modules. Note that only one AC500-S module can be connected at one terminal base.				
[1]) PM567x must have an index $\geq$ C0.				

XC version   **XC** = e**X**treme **C**onditions
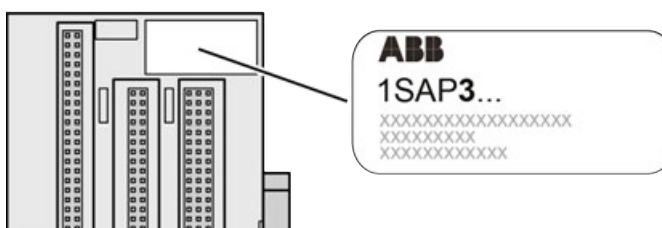
> **Extreme conditions**
>
> *Terminal bases for use in extreme ambient conditions have no ❄ sign for XC version.*
>
> *The figure **3** in the Part no. 1SAP**3**... (label) identifies the XC version.*

112.1   Assembly
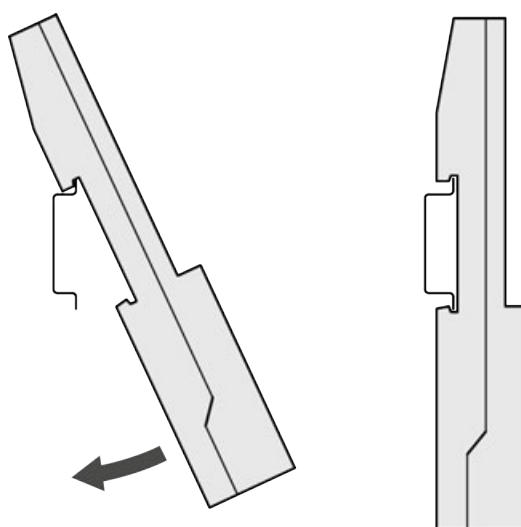
112.2   Disassembly
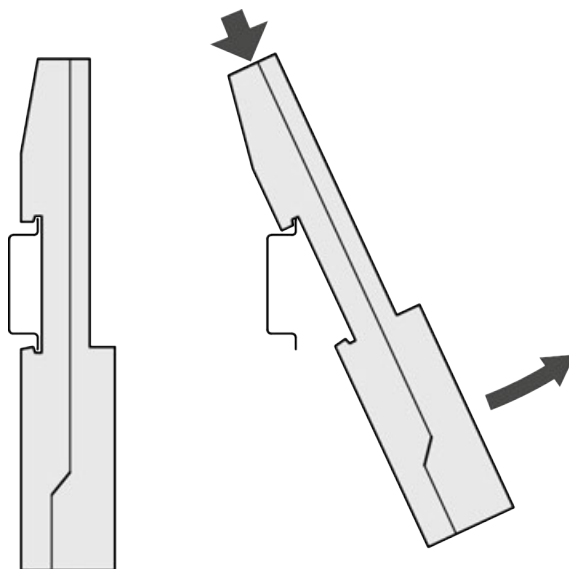
112.3   Assembly with screws
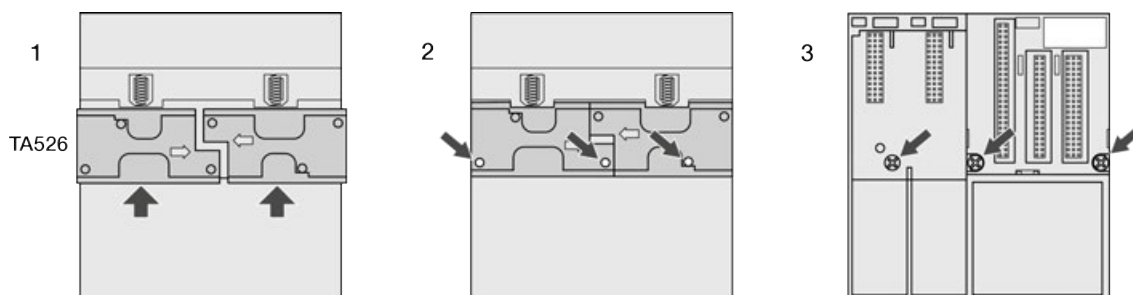
!   **NOTICE!**

Use screw mounting accessory to avoid damage!

For screw mounting, the use of the TA526 screw mounting accessory (1SAP180800R0001) is mandatory to prevent bending and damage to the module.

1.   TA526 are snapped on the rear side of the module like DIN rails. One TA526 is turned by 180°.

2.   Fasten module with screws (M4, max 1.2 Nm) from the front side.

112.4   Dimensions
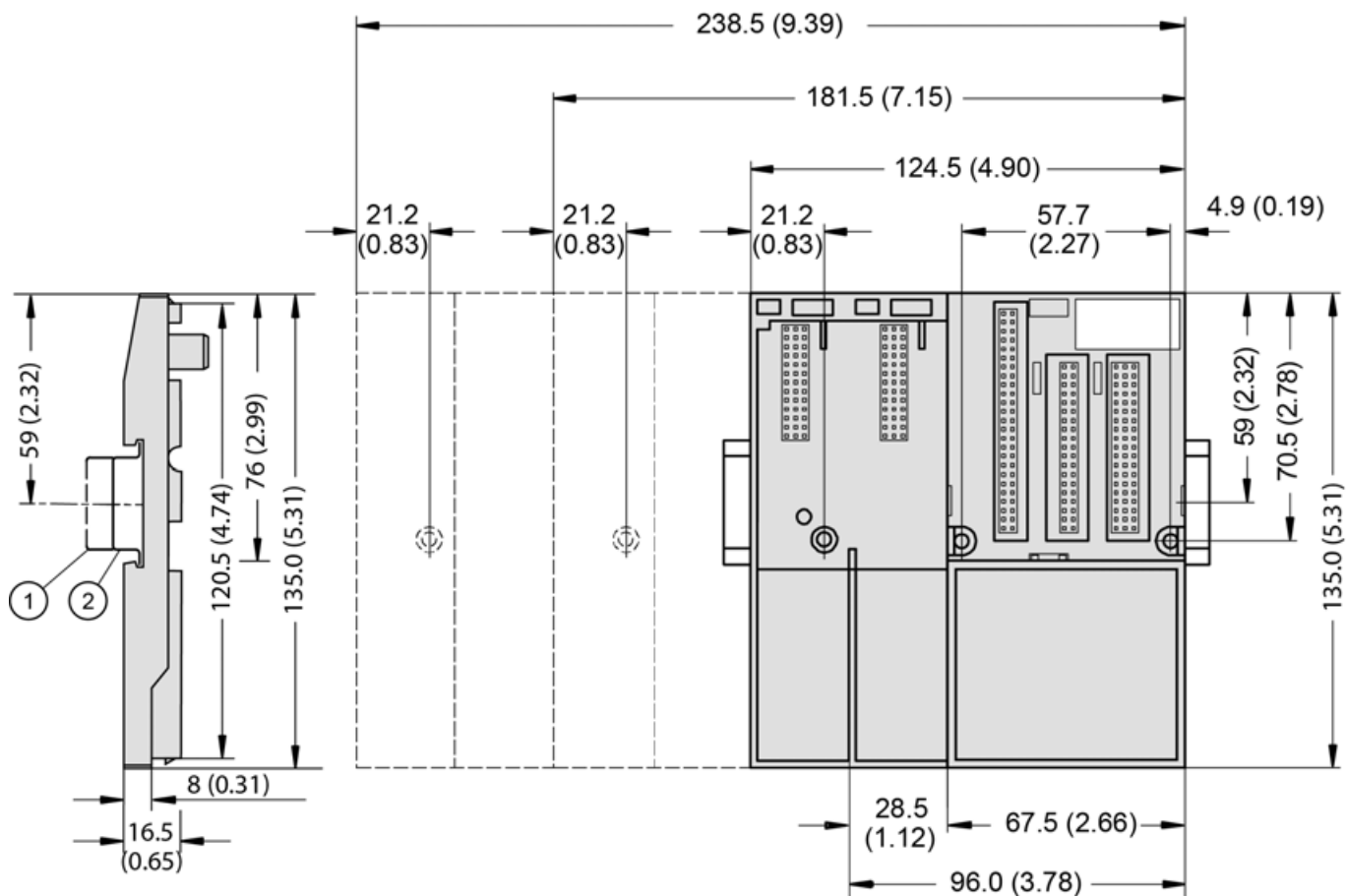
1   Din rail 15 mm
2   Din rail 7.5 mm

The dimensions are in mm and in brackets in inch.
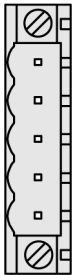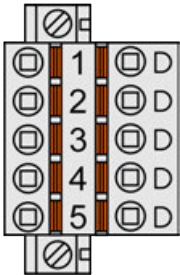
112.5 Connections
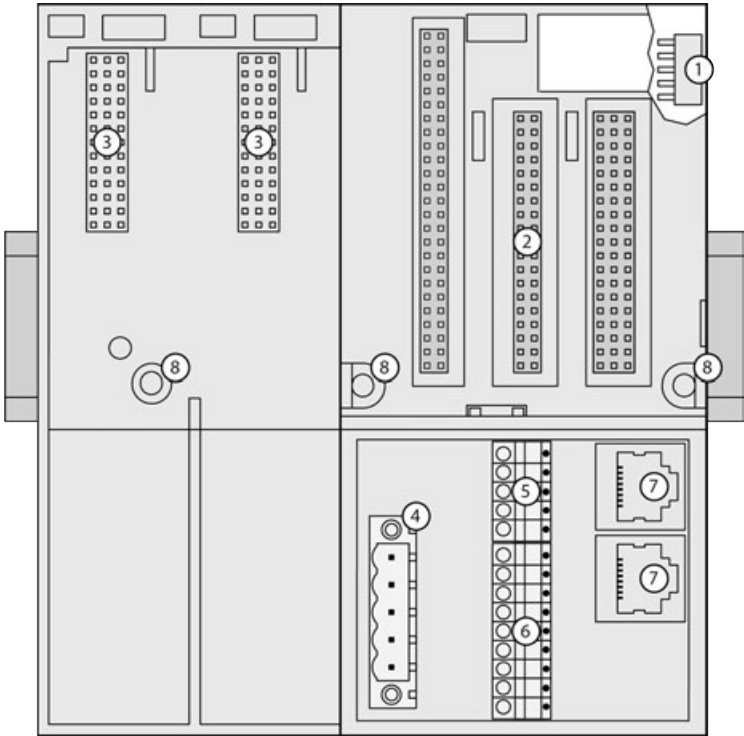
1   I/O bus (10-pin, female) to connect the I/O terminal units
2   One available slot for the processor module
3   Slots for communication modules
4   Interface for CAN (5-pin terminal block, removable)
5   Power supply (5-pin terminal block, removable)
6   Serial interface COM1 (9-pin terminal block, removable)
7   RJ45 female connector for Ethernet connection
8   Holes for screw mounting

112.5.1   CAN interface

Pin assignment   *Table 88: Pin assignment of the CANopen connector*

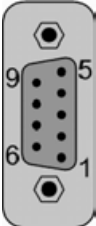| Interface			PIN	Signal	Description
			1	CAN_GND	CAN reference potential
	CAN		2	CAN_L	Bus line, receive/transmit line, LOW
			3	CAN_SHLD	Shield of the bus line
			4	CAN_H	Bus line, receive/transmit line, HIGH
			5	NC	Not connected
Terminal block removed	Terminal block inserted				
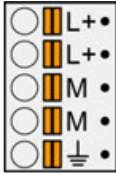
> **!** **NOTICE!**
> **Unused connector!**
> Make sure that the terminal block is always connected to the terminal base or communication module, even if you do not use the interface.
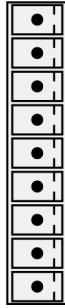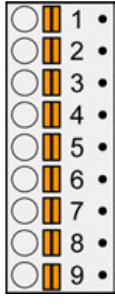
112.5.2 Power supply

Pin assignment

Pin Assignment		Label	Function	Description
Terminal block removed	Terminal block inserted	L+	+24 V DC	Positive pin of the power supply voltage
		L+	+24 V DC	Positive pin of the power supply voltage
		M	0 V	Negative pin of the power supply voltage
		M	0 V	Negative pin of the power supply voltage
		⏚	FE	Functional earth

112.5.3 Serial interface COM1

Pin assignment (RS-485 / RS-232)

Pin Assignment		Pin	Signal	Interface	Description
Terminal block removed	Terminal block inserted	1	Terminator P	RS-485	Terminator P
		2	RxD/TxD-P	RS-485	Receive/Transmit, positive
		3	RxD/TxD-N	RS-485	Receive/Transmit, negative
		4	Terminator N	RS-485	Terminator N
		5	RTS	RS-232	Request to send (output)
		6	TxD	RS-232	Transmit data (output)
		7	SGND	Signal Ground	Signal Ground
		8	RxD	RS-232	Receive data (input)
		9	CTS	RS-232	Clear to send (input)
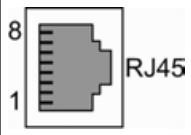
> **!** **NOTICE!**
> **Unused connector!**
> Make sure that the terminal block is always connected to the terminal base or communication module, even if you do not use the interface.

112.5.4 Ethernet network interface

Pin assignment

Pin	Signal	Description
1	TxD+	Transmit data +
2	TxD-	Transmit data -
3	RxD+	Receive data +
4	NU	Not used
5	NU	Not used
6	RxD-	Receive data -
7	NU	Not used
8	NU	Not used
Shield	Cable shield	Functional earth

> **!**
>
> **NOTICE!**
>
> **Risk of corrosion!**
>
> Unused connectors and slots may corrode if XC devices are used in salt-mist environments.
>
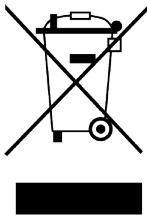> Protect unused connectors and slots with TA535 protective caps for XC devices.

112.6 Cleaning

> **i**
>
> *Cleaning instructions*
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

112.7 Certification

KC MSIP-REI-Abb-AC500	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

|		
en	Note These devices correspond to:	KN61000-6-2 "Immunity for industrial environments", KN61000-6-4 "Emission standard for industrial environments"
ko	참고 이러한 기기는	KN61000-6-2 "산업 환경에 대한 내성", KN61000-6-4 "산업 환경 누출 기준"에 적합함

112.8   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

113 TF501-CMS(-XC)

- TF501-CMS
- TF501-CMS-XC
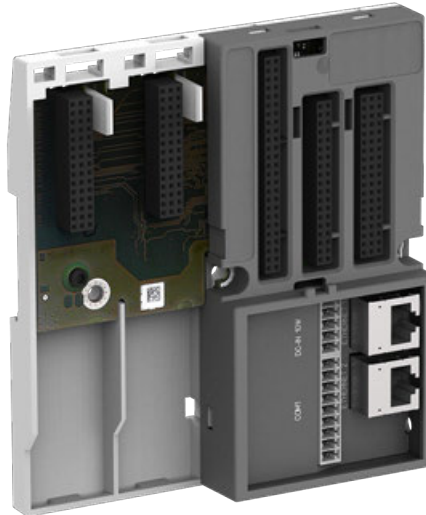
	CAUTION!
⚠️	**Risk of injury and damaging the product!**

Improper installation and maintenance may result in injury and can damage the product!

– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
– Only by qualified personnel.

113.1 Assembly
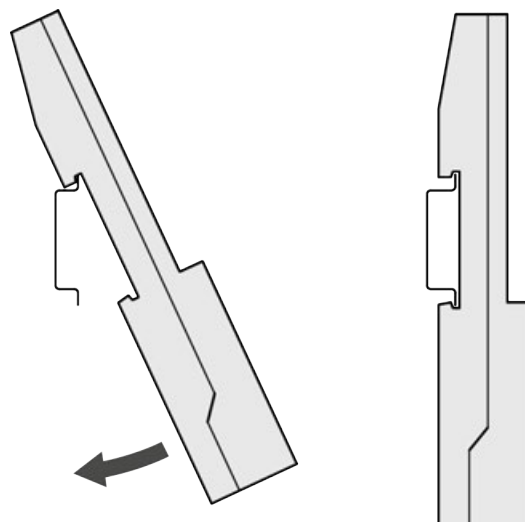
113.2   Disassembly
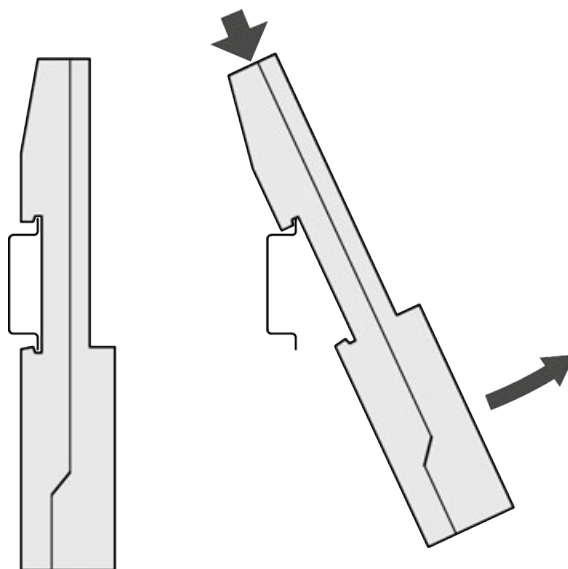
113.3   Assembly with screws
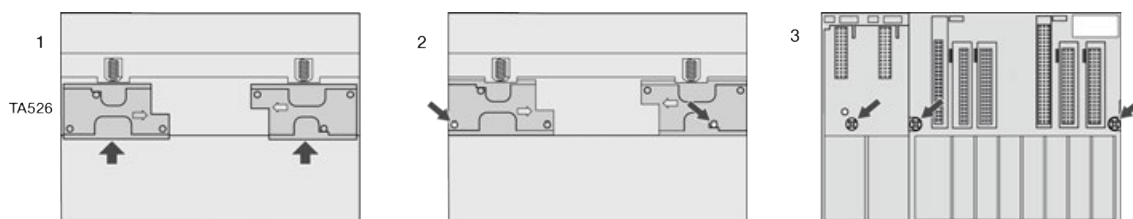
> **❗ NOTICE!**
> **Use screw mounting accessory to avoid damage!**
> For screw mounting, the use of the TA526 screw mounting accessory (1SAP180800R0001) is mandatory to prevent bending and damage to the module.

1.   TA526 are snapped on the rear side of the module like DIN rails. One TA526 is turned by 180°.

2.   Fasten module with screws (M4, max 1.2 Nm) from the front side.

113.4   Dimensions

21 (0.83)

40.3 (1.59)

125.2 (4.92)

59 (2.32)

76 (2.99)

135 (5.31)

DIN rail 15 mm
DIN rail 7.5 mm

28 (1.10)

59 (2.32)

70.5 (2.78)

135 (5.31)

TF50x 135 (5.31)

TF52x 192 (7.55)
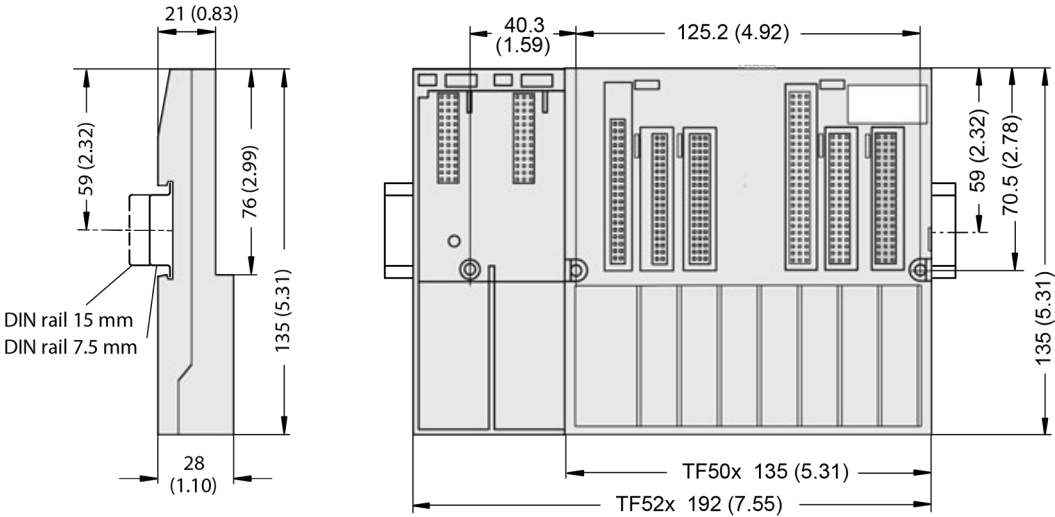
> *The dimensions are in mm and in brackets in inch.*

113.5   Connections

1   Slots for PM592-ETH
2   Slots for FM502-CMS
3   I/O bus to galvanically connect the terminal units
4   Terminal blocks for analog/digital inputs/outputs
5   Serial interface COM1
6   Ethernet network interface

> ⓘ *All I/O channels (digital and analog) are protected against reverse polarity,*
>   *reverse supply and temporary overvoltage up to 30 VDC.*

Table 89: Function module terminal base - pin assignment

1.0 FE	2.0 AI0-	3.0 AI0+	4.0 SH	5.0 AI8-	6.0 AI8+	7.0 SH
1.1 A+	2.1 AI1-	3.1 AI1+	4.1 SH	5.1 AI9-	6.1 AI9+	7.1 SH
1.2 A-	2.2 AI2-	3.2 AI2+	4.2 SH	5.2 AI10-	6.2 AI10+	7.2 SH
1.3 B+	2.3 AI3-	3.3 AI3+	4.3 SH	5.3 AI11-	6.3 AI11+	7.3 SH
1.4 B-	2.4 AI4-	3.4 AI4+	4.4 SH	5.4 AI12-	6.4 AI12+	7.4 SH
1.5 Z+	2.5 AI5-	3.5 AI5+	4.5 SH	5.5 AI13-	6.5 AI13+	7.5 SH
1.6 Z-	2.6 AI6-	3.6 AI6+	4.6 SH	5.6 AI14-	6.6 AI14+	7.6 SH
1.7 5V	2.7 AI7-	3.7 AI7+	4.7 SH	5.7 AI15-	6.7 AI15+	7.7 SH

| 1.8 L+ | 2.8 DI0 | 3.8 DC2 | 4.8 L+ | 5.8 L+ | 6.8 L+ | 7.8 L+ |
| 1.9 M | 2.9 DI1 | 3.9 DC3 | 4.9 M | 5.9 M | 6.9 M | 7.9 M |

113.5.1 Process supply voltage
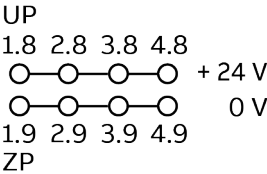
UP
1.8 2.8 3.8 4.8
○─○─○─○ + 24 V
○─○─○─○   0 V
1.9 2.9 3.9 4.9
ZP

⚠ **CAUTION!**

The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

113.5.2 Ethernet network interface

Pin assignment

PIN	Signal	Description
1	TxD+	Transmit data +
2	TxD-	Transmit data -
3	RxD+	Receive data +
4	NU	Not used
5	NU	Not used
6	RxD-	Receive data -
7	NU	Not used
8	NU	Not used
Shield	Cable shield	Functional earth

❗ **NOTICE!**

Risk of corrosion!

Unused connectors and slots may corrode if XC devices are used in salt-mist environments.

Protect unused connectors and slots with TA535 protective caps for XC devices.

113.5.3   Serial interface COM1

Pin assignment

Serial Interface	Pin	Signal	Interface	Description	
	1	FE	-	Functional earth	
	2	TxD	RS-232	Transmit data	Output
	3	RxD/TxD-P	RS-485	Receive/Transmit	Positive
	4	RTS	RS-232	Request to send	Output
	5	SGND	Signal ground	0 V supply out	
	6	+5 V	-	5 V supply out	
	7	RxD	RS-232	Receive data	Input
	8	RxD/TxD-N	RS-485	Receive/Transmit	Negative
	9	CTS	RS-232	Clear to send	Input
	Shield	FE	-	Functional earth	

> **!**
> **NOTICE!**
> **Risk of corrosion!**
> Unused connectors and slots may corrode if XC devices are used in salt-mist environments.
>
> Protect unused connectors and slots with TA535 protective caps for XC devices.

113.6   Cleaning

> **ⓘ**
> *Cleaning instructions*
> *Do not use cleaning agent for cleaning the device.*
> *Use a damp cloth instead.*

113.7   Certification

KC

MSIP-REI-Abb-AC500

en		Devices with KCC sign on product sticker and packaging
ko		제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	Note These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

113.8 Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

114 TF521-CMS(-XC)

- TF521-CMS
- TF521-CMS-XC

⚠️	**CAUTION!** **Risk of injury and damaging the product!** Improper installation and maintenance may result in injury and can damage the product! – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1. – Only by qualified personnel.

114.1 Assembly
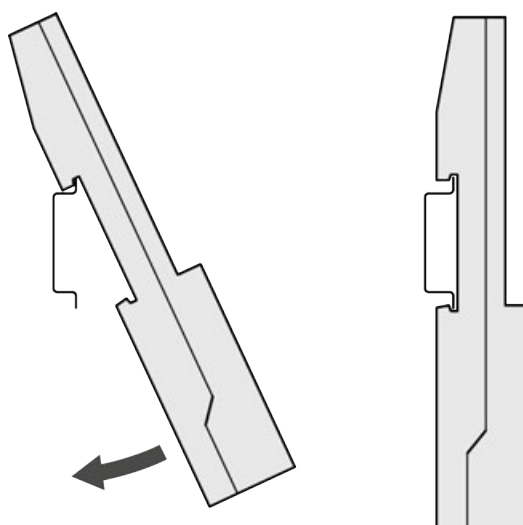
114.2 Disassembly
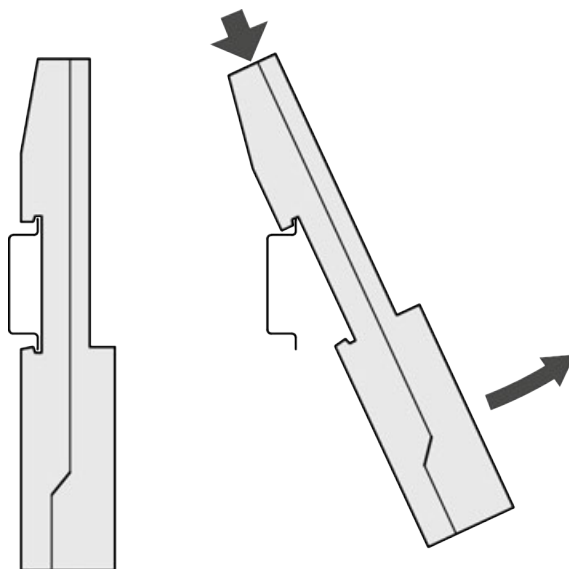
114.3 Assembly with screws
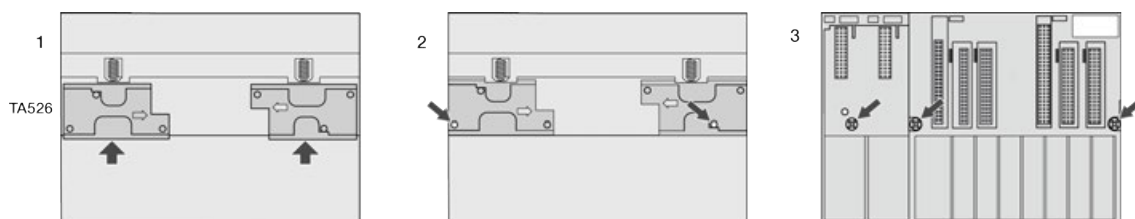
! **NOTICE!**

Use screw mounting accessory to avoid damage!

For screw mounting, the use of the TA526 screw mounting accessory (1SAP180800R0001) is mandatory to prevent bending and damage to the module.

---

1. TA526 are snapped on the rear side of the module like DIN rails. One TA526 is turned by 180°.

2. Fasten module with screws (M4, max 1.2 Nm) from the front side.

114.4   Dimensions

21 (0.83)

59 (2.32)

76 (2.99)

135 (5.31)

DIN rail 15 mm
DIN rail 7.5 mm

28
(1.10)

40.3
(1.59)

125.2 (4.92)

59 (2.32)

70.5 (2.78)

135 (5.31)

TF50x 135 (5.31)

TF52x 192 (7.55)

The dimensions are in mm and in brackets in inch.

114.5 Connections

1   Slots for PM592-ETH
2   Slots for FM502-CMS
3   I/O bus to galvanically connect the terminal units
4   Terminal blocks for analog/digital inputs/outputs
5   Serial interface COM1
6   Ethernet network interface

> *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

Table 90: Function module terminal base - pin assignment

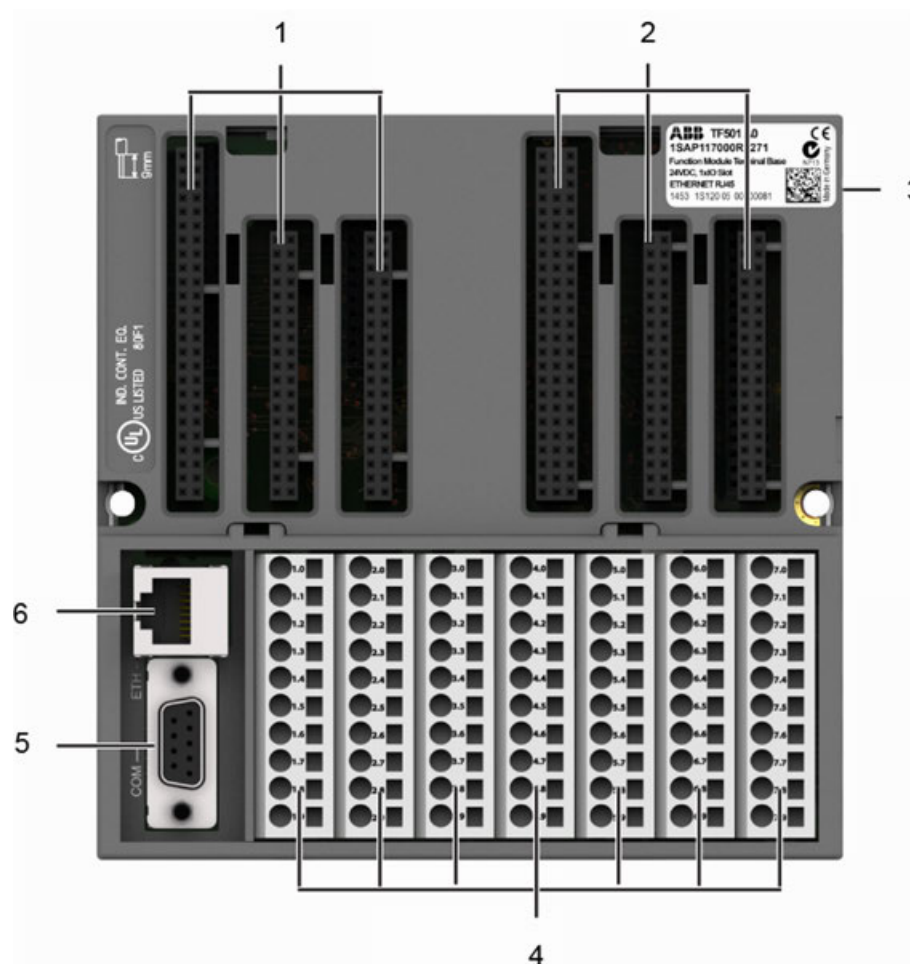| 1.0 FE	2.0 AI0-	3.0 AI0+	4.0 SH	5.0 AI8-	6.0 AI8+	7.0 SH
1.1 A+	2.1 AI1-	3.1 AI1+	4.1 SH	5.1 AI9-	6.1 AI9+	7.1 SH
1.2 A-	2.2 AI2-	3.2 AI2+	4.2 SH	5.2 AI10-	6.2 AI10+	7.2 SH
1.3 B+	2.3 AI3-	3.3 AI3+	4.3 SH	5.3 AI11-	6.3 AI11+	7.3 SH
1.4 B-	2.4 AI4-	3.4 AI4+	4.4 SH	5.4 AI12-	6.4 AI12+	7.4 SH
1.5 Z+	2.5 AI5-	3.5 AI5+	4.5 SH	5.5 AI13-	6.5 AI13+	7.5 SH
1.6 Z-	2.6 AI6-	3.6 AI6+	4.6 SH	5.6 AI14-	6.6 AI14+	7.6 SH
1.7 5V	2.7 AI7-	3.7 AI7+	4.7 SH	5.7 AI15-	6.7 AI15+	7.7 SH

1.8 L+	2.8 DI0	3.8 DC2	4.8 L+	5.8 L+	6.8 L+	7.8 L+
1.9 M	2.9 DI1	3.9 DC3	4.9 M	5.9 M	6.9 M	7.9 M

114.5.1   Process supply voltage
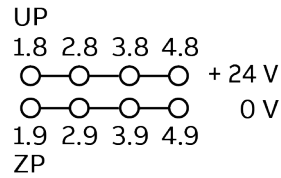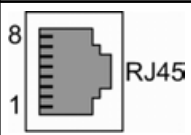
```
UP
1.8  2.8  3.8  4.8
 O———O———O———O    + 24 V
 O———O———O———O      0 V
1.9  2.9  3.9  4.9
ZP
```

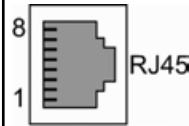> ⚠️ **CAUTION!**
>
> The process supply voltage must be included in the grounding concept (e. g. grounding of the negative terminal).

114.5.2   Ethernet network interface

Pin assignment

	PIN	Signal	Description
RJ45	1	TxD+	Transmit data +
	2	TxD-	Transmit data -
	3	RxD+	Receive data +
	4	NU	Not used
	5	NU	Not used
	6	RxD-	Receive data -
	7	NU	Not used
	8	NU	Not used
	Shield	Cable shield	Functional earth
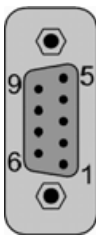
> ❗ **NOTICE!**
>
> **Risk of corrosion!**
>
> Unused connectors and slots may corrode if XC devices are used in salt-mist environments.
>
> Protect unused connectors and slots with TA535 protective caps for XC devices.

114.5.3   Serial interface COM1

Pin assignment

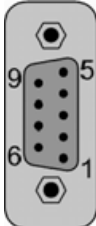| Serial Interface	Pin	Signal	Interface	Description	
	1	FE	-	Functional earth	
	2	TxD	RS-232	Transmit data	Output
	3	RxD/TxD-P	RS-485	Receive/Transmit	Positive
	4	RTS	RS-232	Request to send	Output
	5	SGND	Signal ground	0 V supply out	
	6	+5 V	-	5 V supply out	
	7	RxD	RS-232	Receive data	Input
	8	RxD/TxD-N	RS-485	Receive/Transmit	Negative
	9	CTS	RS-232	Clear to send	Input
	Shield	FE	-	Functional earth	

> **!**
> **NOTICE!**
> **Risk of corrosion!**
> Unused connectors and slots may corrode if XC devices are used in salt-mist environments.
>
> Protect unused connectors and slots with TA535 protective caps for XC devices.

114.6   Cleaning

> **ⓘ**
> ***Cleaning instructions***
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

114.7   Certification

en	Devices with KCC sign on product sticker and packaging	
ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기	

MSIP-REI-Abb-AC500

en	Note These devices correspond to:	KN61000-6-2 "Immunity for industrial environments", KN61000-6-4 "Emission standard for industrial environments"
ko	참고 이러한 기기는	KN61000-6-2 "산업 환경에 대한 내성", KN61000-6-4 "산업 환경 누출 기준"에 적합함

114.8   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

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For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

115 TU507-ETH

- TU507-ETH
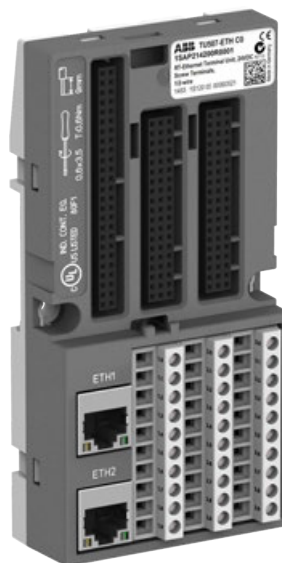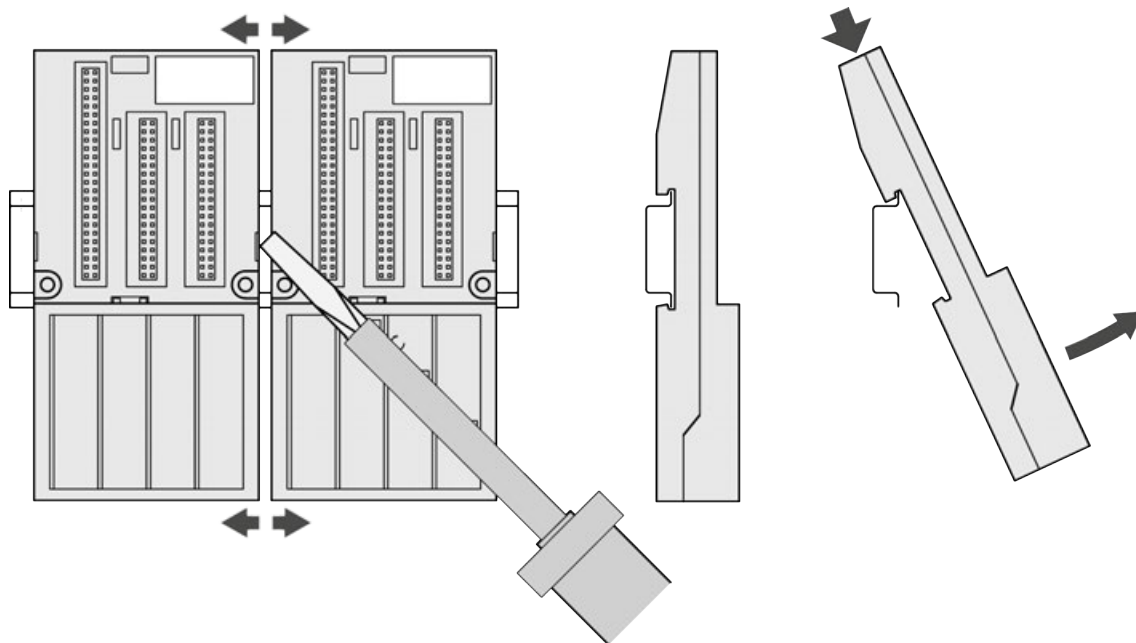
| ⚠	**CAUTION!** **Risk of injury and damaging the product!** Improper installation and maintenance may result in injury and can damage the product! – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1. – Only by qualified personnel.
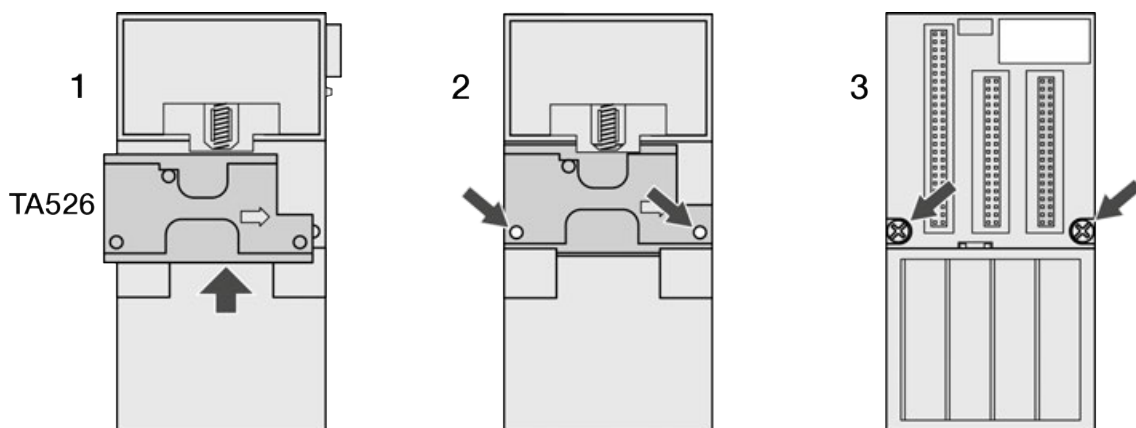
115.1 Assembly
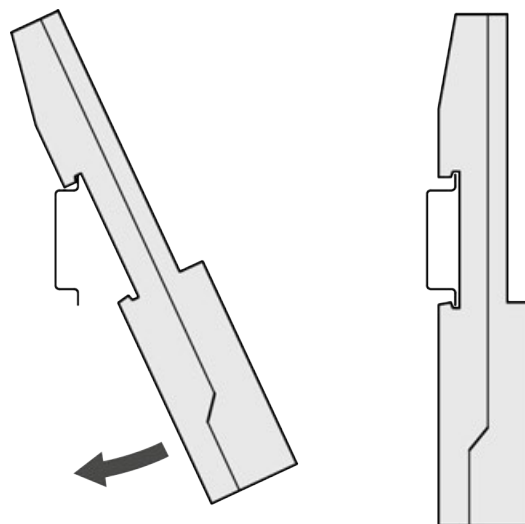
115.2 Disassembly

115.3 Assembly with screws
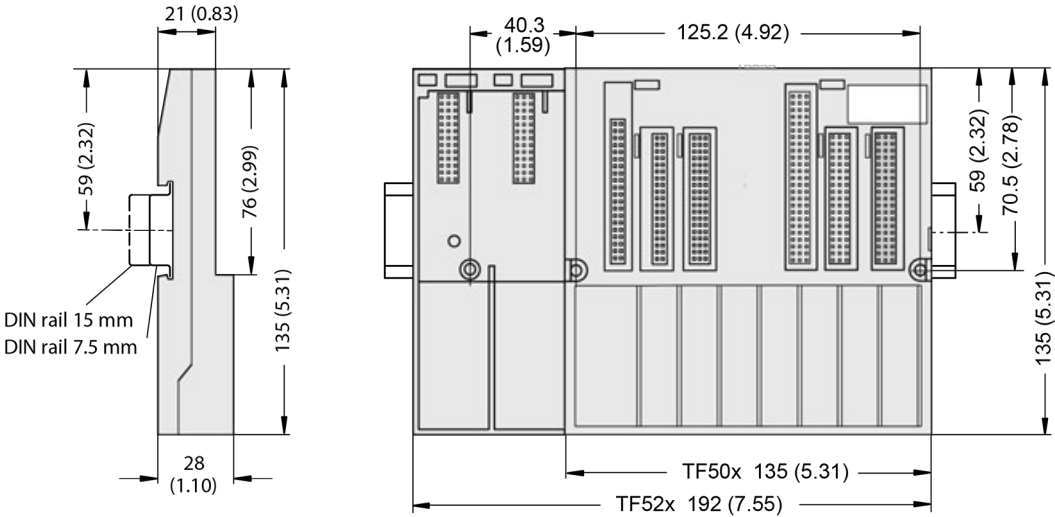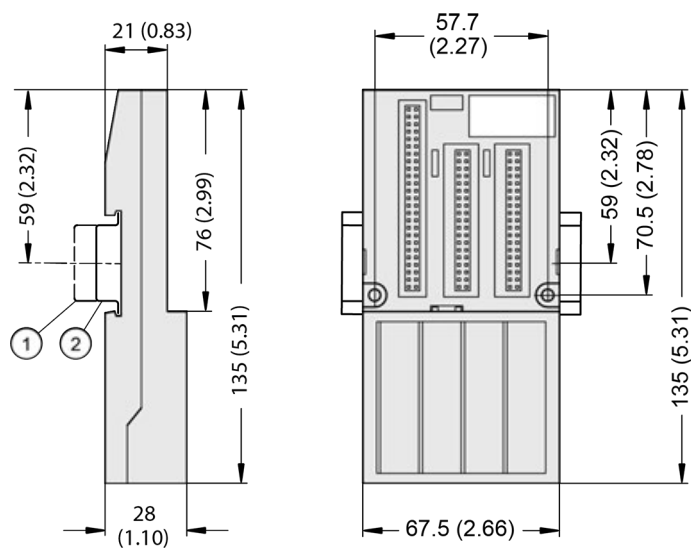
NOTICE!		

> ### NOTICE!
> **Use screw mounting accessory to avoid damage!**
> For screw mounting, the use of the TA526 screw mounting accessory (1SAP180800R0001) is mandatory to prevent bending and damage to the module.

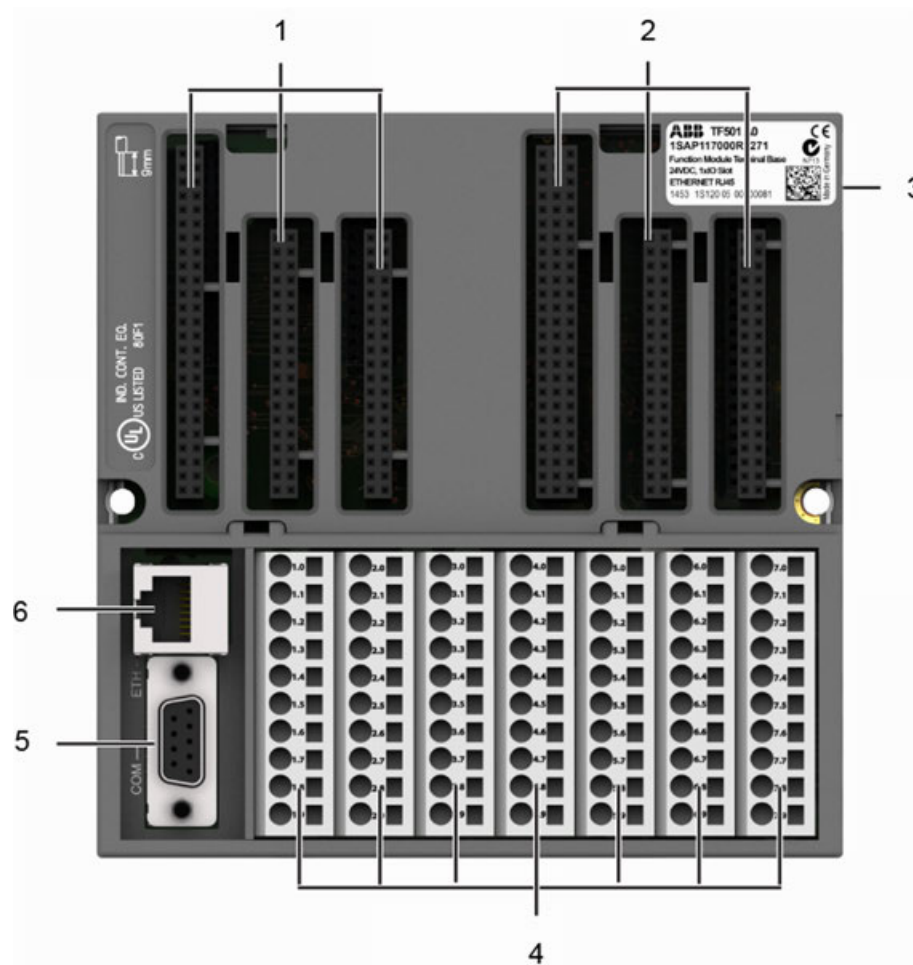1. TA526 is snapped on the rear side of the module like DIN rails.
2. Fasten module with screws (M4, max 1.2 Nm) from the front side.

115.4   Dimensions

1   Din rail 15 mm
2   Din rail 7.5 mm

> ⓘ   *The dimensions are in mm and in brackets in inch.*

115.5 Connections

1   I/O bus (10 pins, female) to connect the first terminal unit
2a Plug (2x 25 pins) to connect the inserted Ethernet communication interface module
2b Plug (3x 19 pins) to connect the inserted Ethernet communication interface module
3   With a screwdriver, inserted in this place, the terminal unit and the adjacent terminal unit can
    be shoved from each other
4   2 holes for wall mounting
5   2 RJ45 interfaces with indication LEDs for connection with the Ethernet network
6   30 terminals for signals and process supply voltages (UP and UP3)
7   DIN rail

> All I/O channels (digital and analog) are protected against reverse polarity,
> reverse supply and temporary overvoltage up to 30 VDC.

115.5.1   Ethernet network interface

Pin assignment

Interface	Pin	Signal	Description
Ethernet RJ45	1	TxD+	Transmit data +
	2	TxD-	Transmit data -
	3	RxD+	Receive data +
	4	NC	Not connected
	5	NC	Not connected
	6	RxD-	Receive data -
	7	NC	Not connected
	8	NC	Not connected
	Shield	Cable shield	Functional earth

> *In corrosive environment, please protect unused connectors using the TA535 accessory.*
>
> *Not supplied with this device.*

115.6   Cleaning

> ***Cleaning instructions***
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

115.7   Certification

	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

MSIP-REI-Abb-AC500

en	Note	These devices correspond to:	KN61000-6-2 "Immunity for industrial environments",
			KN61000-6-4 "Emission standard for industrial environments"
ko	참고	이러한 기기는	KN61000-6-2 "산업 환경에 대한 내성",
			KN61000-6-4 "산업 환경 누출 기준"에 적합함

115.8   Recycling

	Disposal and recycling information
	This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.
	The symbol indicates that this product must be recycled/disposed of separately from other household waste.
	It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.
	The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.
	For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

116 TU508-ETH(-XC)

- TU508-ETH
- TU508-ETH-XC
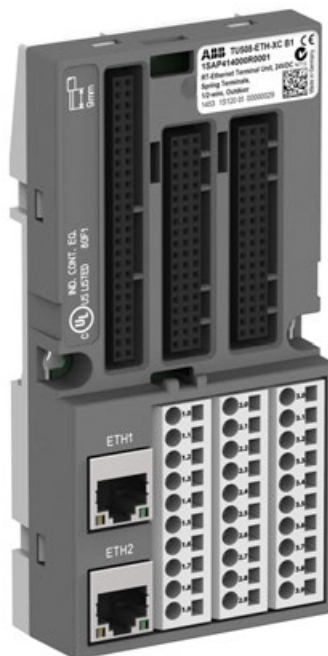
⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

116.1   Assembly
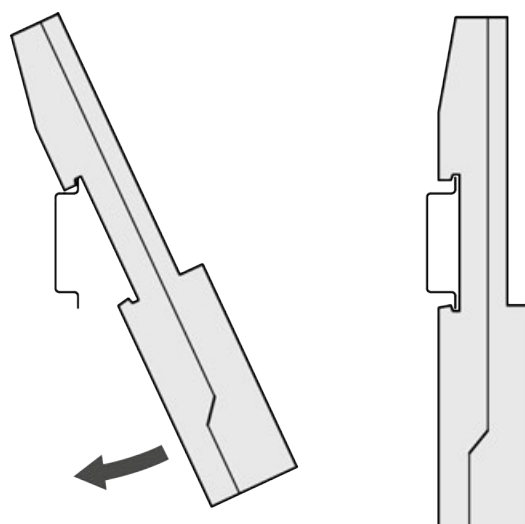
116.2   Disassembly
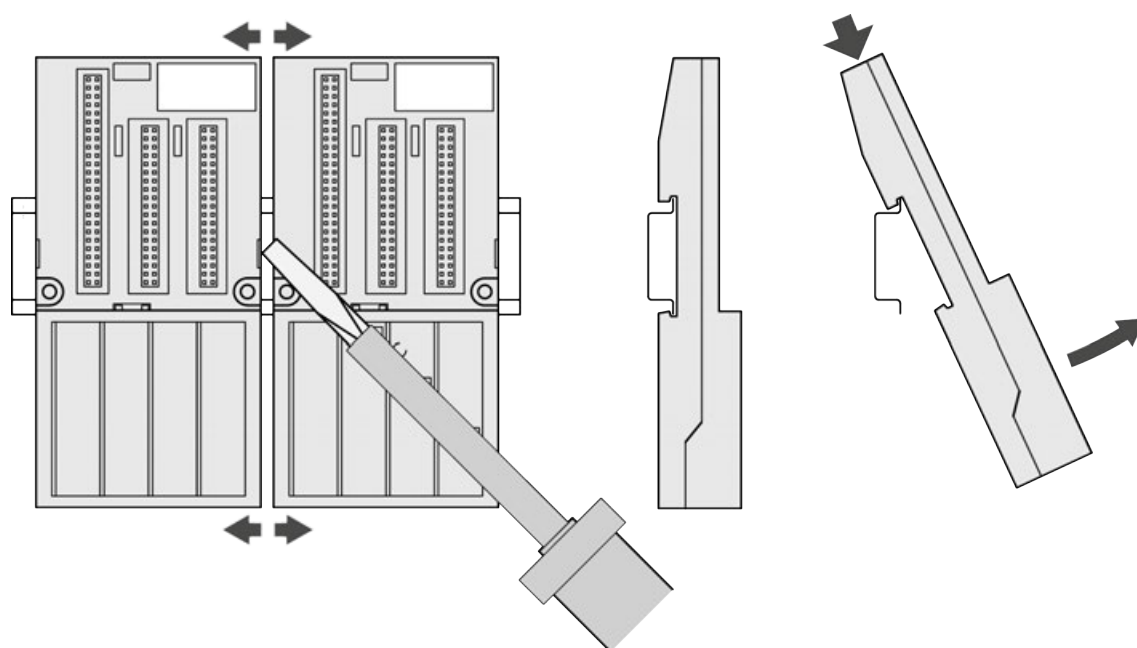
116.3 Assembly with screws
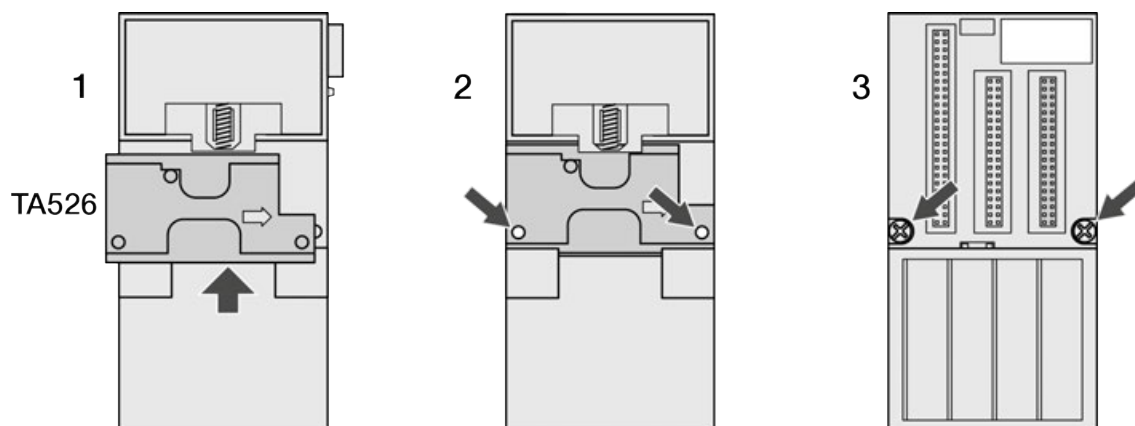
> **!** **NOTICE!**
> **Use screw mounting accessory to avoid damage!**
> For screw mounting, the use of the TA526 screw mounting accessory
> (1SAP180800R0001) is mandatory to prevent bending and damage to the
> module.

1. TA526 is snapped on the rear side of the module like DIN rails.

2. Fasten module with screws (M4, max 1.2 Nm) from the front side.

116.4 Dimensions
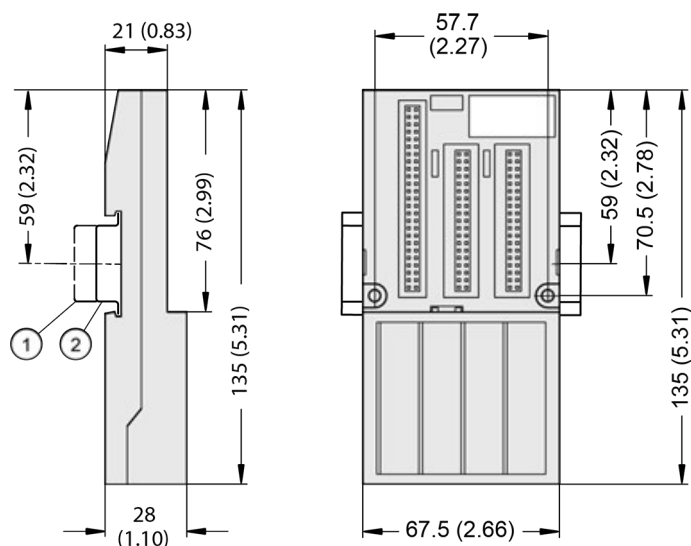
1 Din rail 15 mm
2 Din rail 7.5 mm

> ℹ *The dimensions are in mm and in brackets in inch.*

116.5   Connections

1   I/O bus (10 pins, female) to connect the first terminal unit
2a Plug (2x 25 pins) to connect the inserted Ethernet communication interface module
2b Plug (3x 19 pins) to connect the inserted Ethernet communication interface module
3   With a screwdriver, inserted in this place, the terminal unit and the adjacent terminal unit can be shoved from each other
4   2 holes for wall mounting
5   2 RJ45 interfaces with indication LEDs for connection with the Ethernet network
6   30 terminals for signals and process supply voltages (UP and UP3)
7   DIN rail

> *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

116.5.1   Ethernet network interface

Pin assignment

Interface	Pin	Signal	Description
Ethernet RJ45	1	TxD+	Transmit data +
	2	TxD-	Transmit data -
	3	RxD+	Receive data +
	4	NC	Not connected
	5	NC	Not connected
	6	RxD-	Receive data -
	7	NC	Not connected
	8	NC	Not connected
	Shield	Cable shield	Functional earth

> *In corrosive environment, please protect unused connectors using the TA535 accessory.*
>
> *Not supplied with this device.*

116.6   Cleaning

> **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

116.7   Certification

KC

MSIP-REI-Abb-AC500

en   Devices with KCC sign on product sticker and packaging

ko   제품 스티커 및 포장에 **KCC** 표시가 된 기기

en   Note
These devices correspond to:

ko   참고
이러한 기기는

KN61000-6-2 "Immunity for industrial environments",
KN61000-6-4 "Emission standard for industrial environments"

KN61000-6-2 "산업 환경에 대한 내성",
KN61000-6-4 "산업 환경 누출 기준"에 적합함

116.8   Recycling

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For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

—
117 TU509

- TU509
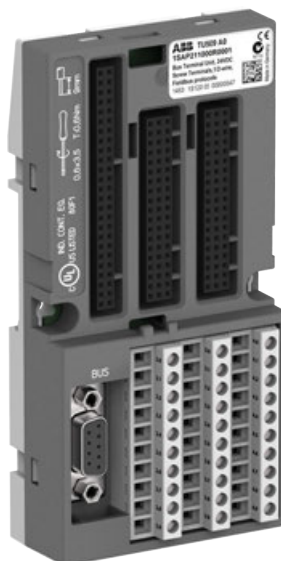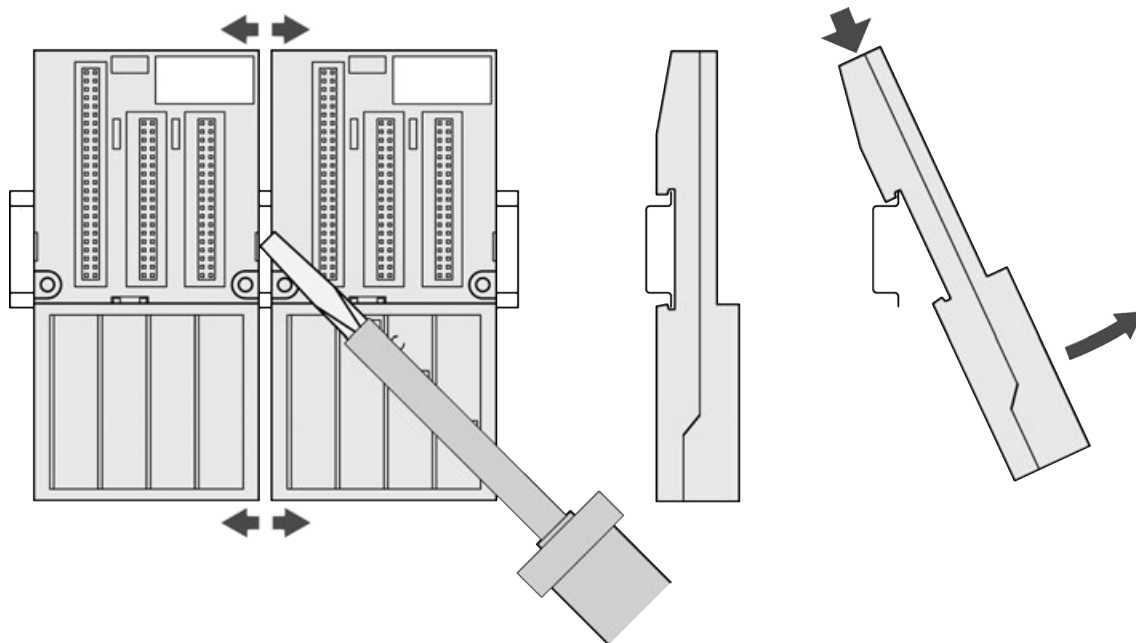
	CAUTION!
⚠	**Risk of injury and damaging the product!** Improper installation and maintenance may result in injury and can damage the product! – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1. – Only by qualified personnel.
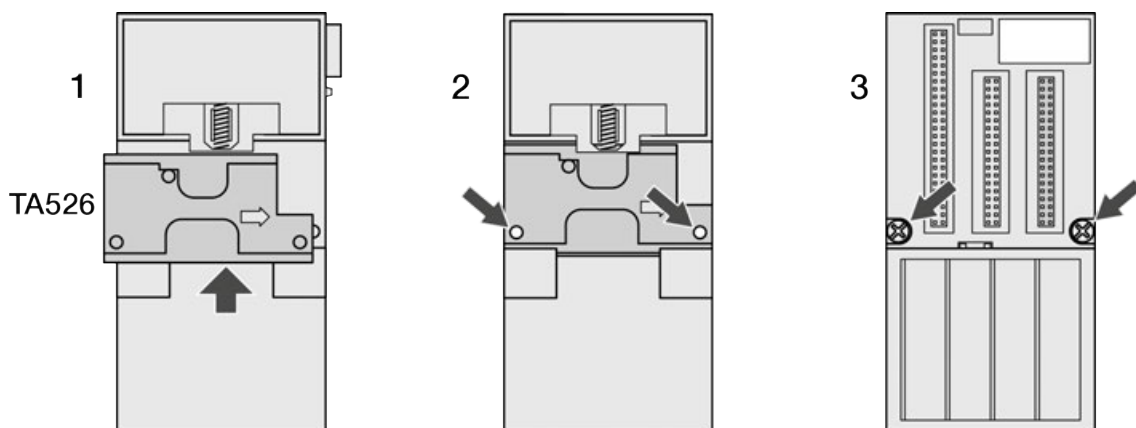
117.1 Assembly
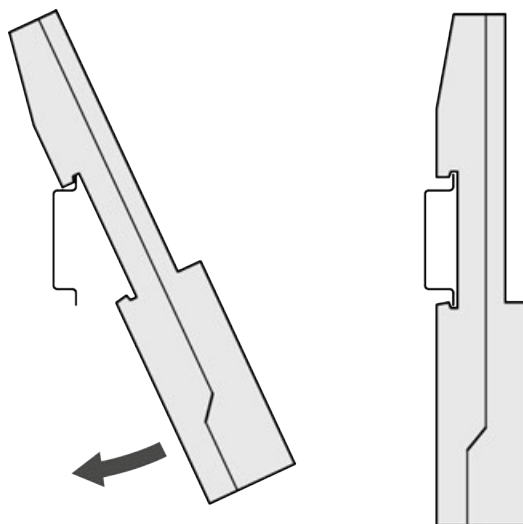
117.2 Disassembly

117.3 Assembly with screws
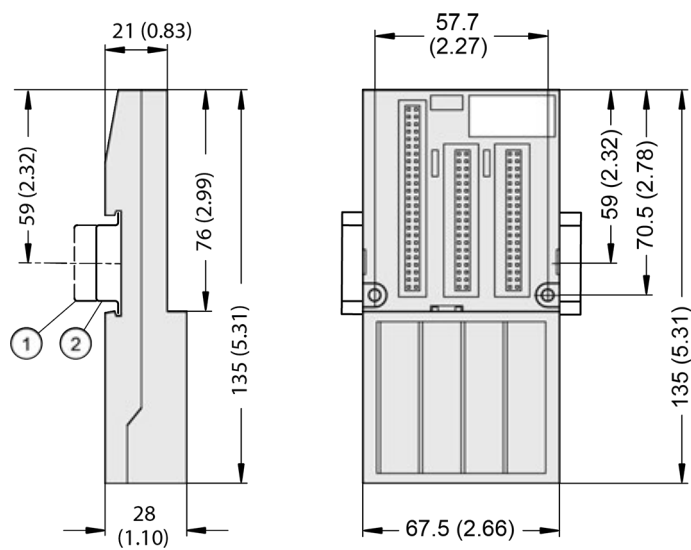
> **!**
>
> **NOTICE!**
>
> **Use screw mounting accessory to avoid damage!**
>
> For screw mounting, the use of the TA526 screw mounting accessory (1SAP180800R0001) is mandatory to prevent bending and damage to the module.

1. TA526 is snapped on the rear side of the module like DIN rails.
2. Fasten module with screws (M4, max 1.2 Nm) from the front side.

117.4   Dimensions

1   Din rail 15 mm
2   Din rail 7.5 mm

> *The dimensions are in mm and in brackets in inch.*

117.5 Connections
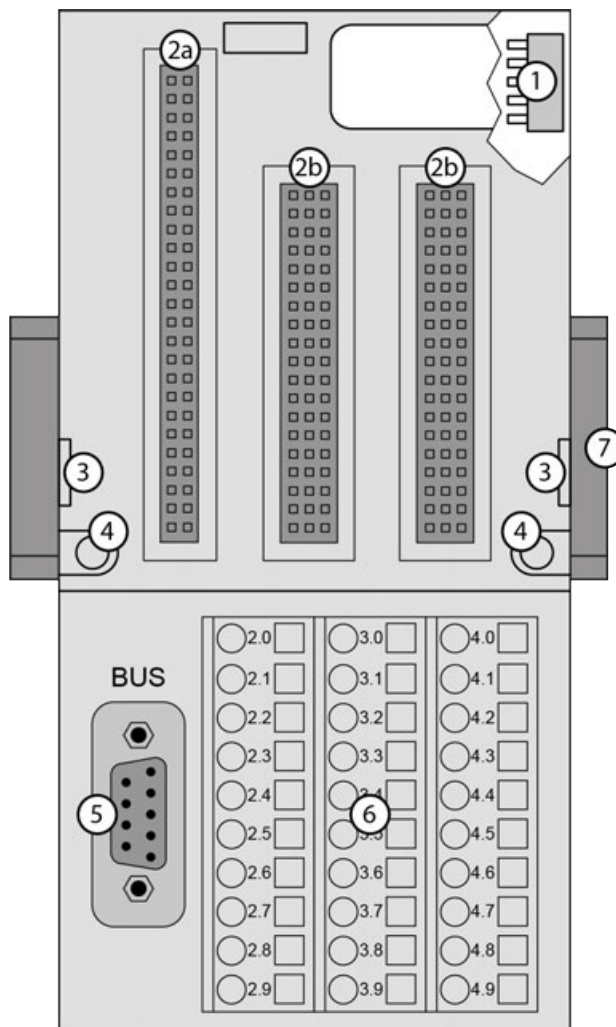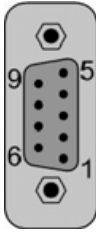
1 I/O bus (10 pins, female) to connect the first terminal unit
2a Plug (2 25 pins) to connect the inserted communication interface module
2b Plug (3 19 pins) to connect the inserted communication interface module
3 With a screwdriver, inserted in this place, the terminal unit and the adjacent terminal unit can be shoved from each other
4 2 holes for wall mounting
5 D-sub 9 (female) for connection with the PROFIBUS network
6 30 terminals for signals and process supply voltages (UP and UP3)
7 DIN rail

> *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

117.5.1 Bus interface

Pin assignment

Interface	PIN	DP (PROFIBUS)	CN (CANopen)
	1	-	-
	2	-	CAN-
	3	B	CAN_GND
	4	-	-
	5	DGND	-
	6	VP (5V)	-
	7	-	CAN+
	8	A	-
	9	-	-

> *In corrosive environment, please protect unused connectors using the TA535 accessory.*
>
> *Not supplied with this device.*

117.6 Cleaning

> **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

117.7 Certification

	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

MSIP-REI-Abb-AC500

en	**Note** These devices correspond to:	KN61000-6-2 "Immunity for industrial environments", KN61000-6-4 "Emission standard for industrial environments"
ko	참고 이러한 기기는	KN61000-6-2 "산업 환경에 대한 내성", KN61000-6-4 "산업 환경 누출 기준"에 적합함

117.8   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

—
118   TU510(-XC)

- TU510
- TU510-XC
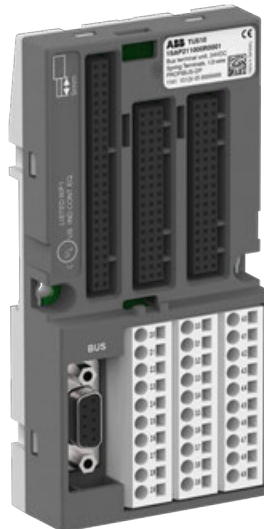
!	**CAUTION!** **Risk of injury and damaging the product!** Improper installation and maintenance may result in injury and can damage the product! – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1. – Only by qualified personnel.

118.1   Assembly
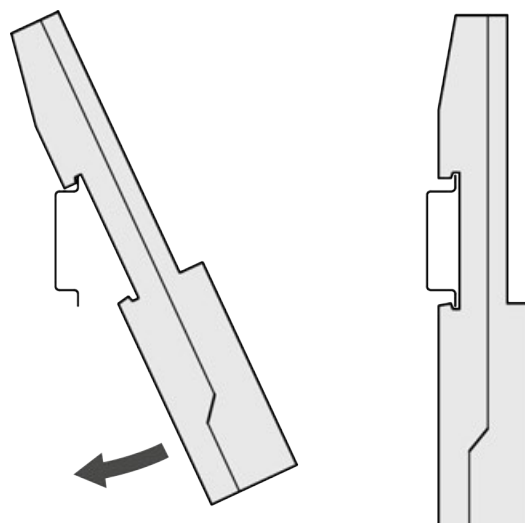
118.2 Disassembly
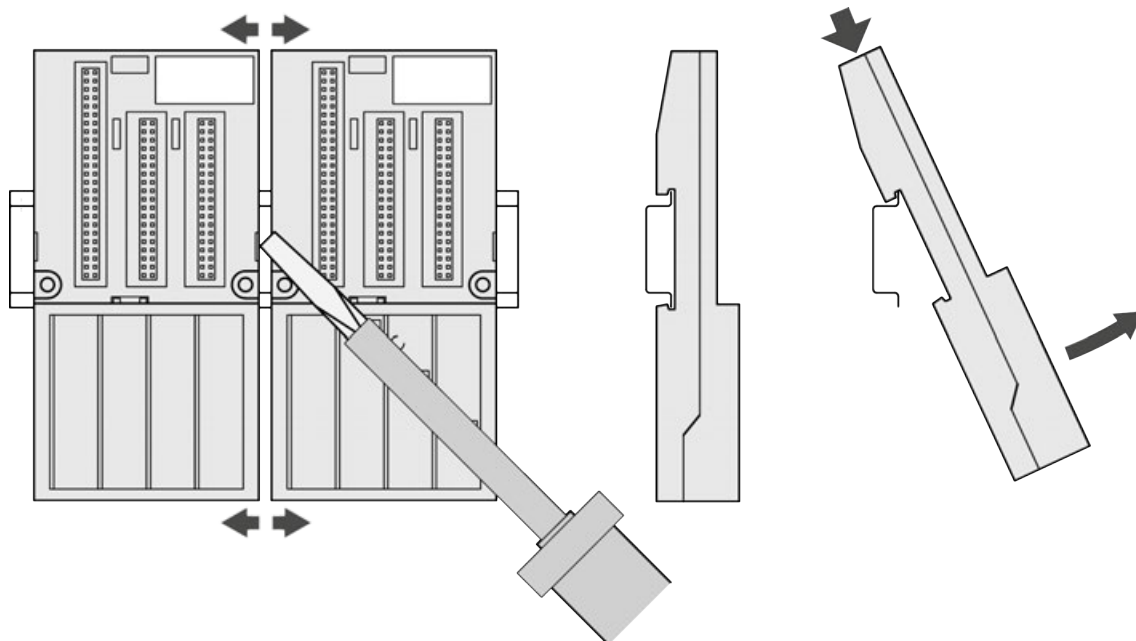
118.3 Assembly with screws
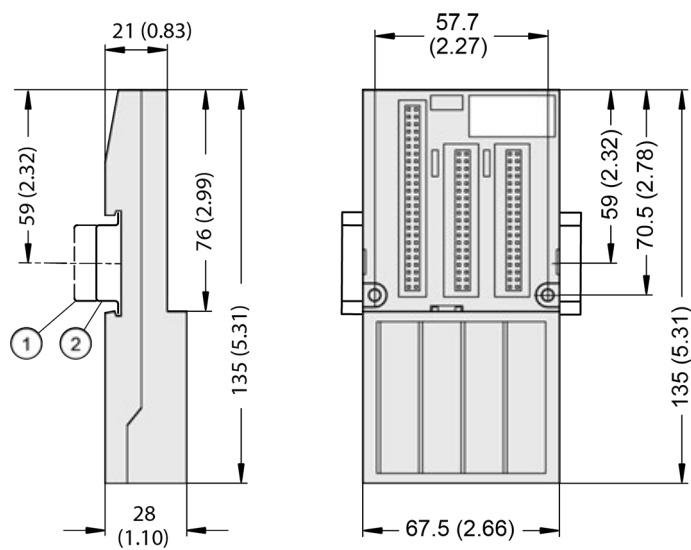
> **!**
>
> **NOTICE!**
>
> **Use screw mounting accessory to avoid damage!**
>
> For screw mounting, the use of the TA526 screw mounting accessory (1SAP180800R0001) is mandatory to prevent bending and damage to the module.

1. TA526 is snapped on the rear side of the module like DIN rails.
2. Fasten module with screws (M4, max 1.2 Nm) from the front side.

118.4   Dimensions

1   Din rail 15 mm
2   Din rail 7.5 mm

The dimensions are in mm and in brackets in inch.

118.5 Connections
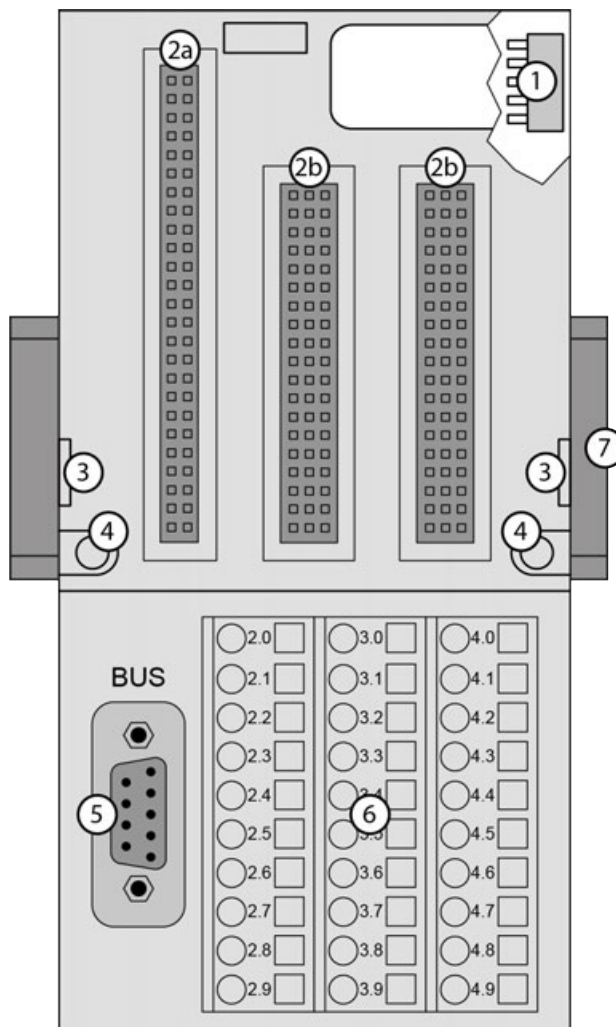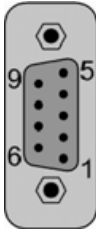
1   I/O bus (10 pins, female) to connect the first terminal unit
2a Plug (2 25 pins) to connect the inserted communication interface module
2b Plug (3 19 pins) to connect the inserted communication interface module
3   With a screwdriver, inserted in this place, the terminal unit and the adjacent terminal unit can be shoved from each other
4   2 holes for wall mounting
5   D-sub 9 (female) for connection with the PROFIBUS network
6   30 terminals for signals and process supply voltages (UP and UP3)
7   DIN rail

> ⓘ *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

118.5.1   Bus interface

Pin assignment

Interface	PIN	DP (PROFIBUS)	CN (CANopen)
	1		
	2		CAN-
	3	B	CAN_GND
	4		
	5	DGND	
	6	VP (5V)	
	7		CAN+
	8	A	
	9		

> ⓘ *In corrosive environment, please protect unused connectors using the TA535 accessory.*
>
> *Not supplied with this device.*

118.6   Cleaning

> ⓘ **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

118.7   Certification

	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

MSIP-REI-Abb-AC500

en	**Note** These devices correspond to:	KN61000-6-2 "Immunity for industrial environments", KN61000-6-4 "Emission standard for industrial environments"
ko	참고 이러한 기기는	KN61000-6-2 "산업 환경에 대한 내성", KN61000-6-4 "산업 환경 누출 기준"에 적합함

118.8   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

119 TU515 24 V DC

- TU515 24 V DC

⚠	**CAUTION!**
	Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
– Only by qualified personnel.

Hot swap

⚠	**WARNING!**
	Risk of explosion or fire in hazardous environments during hot swapping!

Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

⚠	**WARNING!**
	Electric shock due to negligent behavior during hot swapping!

To avoid electric shock

– make sure the following conditions apply:
  – Digital outputs are not under load.
  – Input/output voltages above safety extra low voltage/ protective extra low voltage (SELV/PELV) are switched off.
  – Modules are fully interlocked with the terminal unit with both snap-fits engaged before switching on loads or input/output voltage.
– Never touch exposed contacts (dangerous voltages).
– Stay away from electrical contacts to avoid arc discharge.
– Do not operate a mechanical installation improperly.

> **!**
>
> **NOTICE!**
>
> **Risk of damage to I/O modules!**
>
> Hot swapping is only allowed for I/O modules.
>
> Processor modules and communication interface modules must not be removed or inserted during operation.

H = **H**ot swap

> _Hot swap_
>
> _System requirements for hot swapping of I/O modules:_
>
> – _Types of terminal units that support hot swapping of I/O modules have the appendix TU5xx-**H**._
> – _I/O modules as of index F0._
>
> _The following I/O bus masters support hot swapping of attached I/O modules:_
>
> – _Communication interface modules CI5xx as of index F0._
> – _Processor modules PM56xx-2ETH with firmware version as of V3.2.0._

> _Hot swap is not supported by AC500-eCo V3 CPU!_

> _The index of the module is in the right corner of the label._

> **!**
>
> **NOTICE!**
>
> **Risk of damage to I/O modules!**
>
> Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

> **!**
>
> **NOTICE!**
>
> **Risk of damage to I/O modules!**
>
> Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.
>
> For min. required device index see table below.

Device	Min. required device index for I/O module as of FW Version 3.0.14
AC522(-XC)	F0
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DA502 (-XC)	F0
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3
DO572	B2
DO573	A1
DX522 (-XC)	D2

Device	Min. required device index for I/O module as of FW Version 3.0.14
DX531	D2
DX561	B2
DX571	B3
FM562	A1

XC version   **XC** = e**X**treme **C**onditions

ℹ️ ***Extreme conditions***

Terminal units for use in extreme ambient conditions have no ❄ sign for XC version.

*The figure **4** in the Part no. 1SAP**4**... (label) identifies the XC version.*

119.1   Assembly
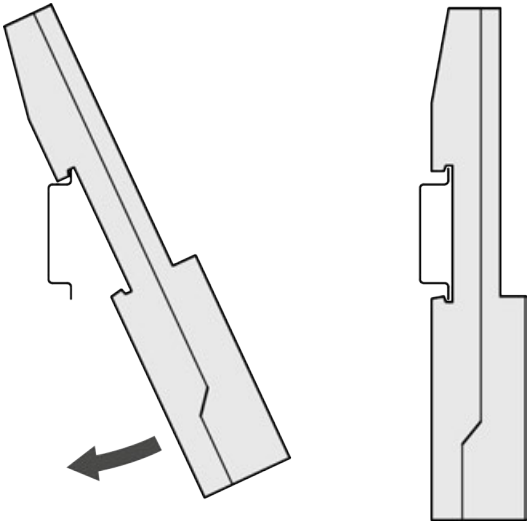
119.2 Disassembly
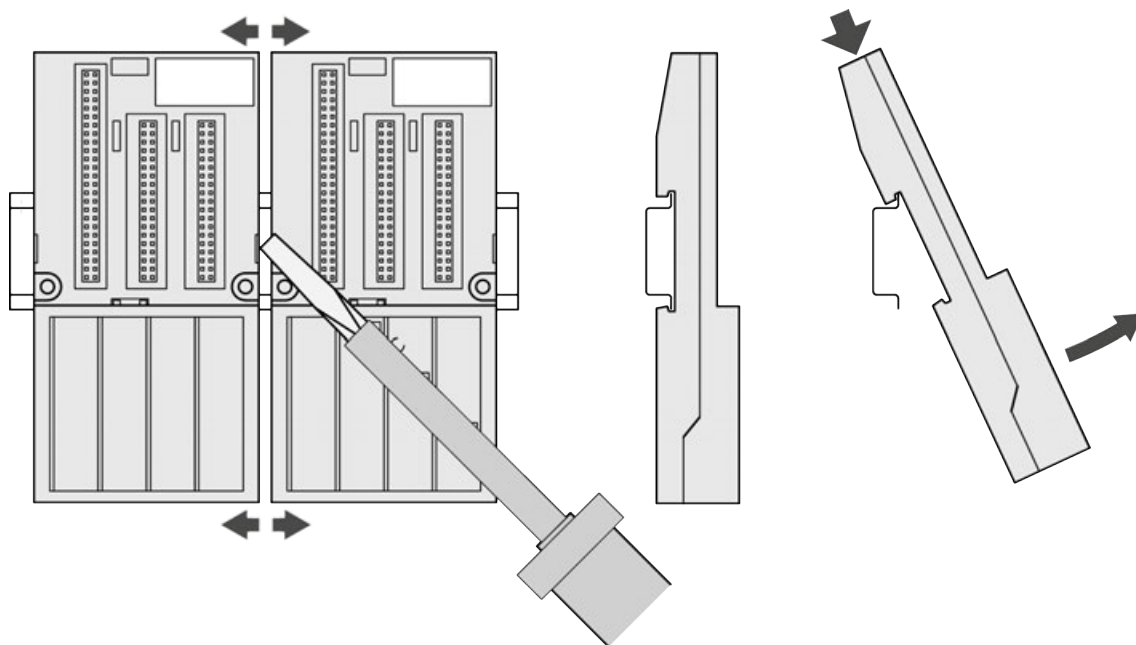
119.3 Assembly with screws
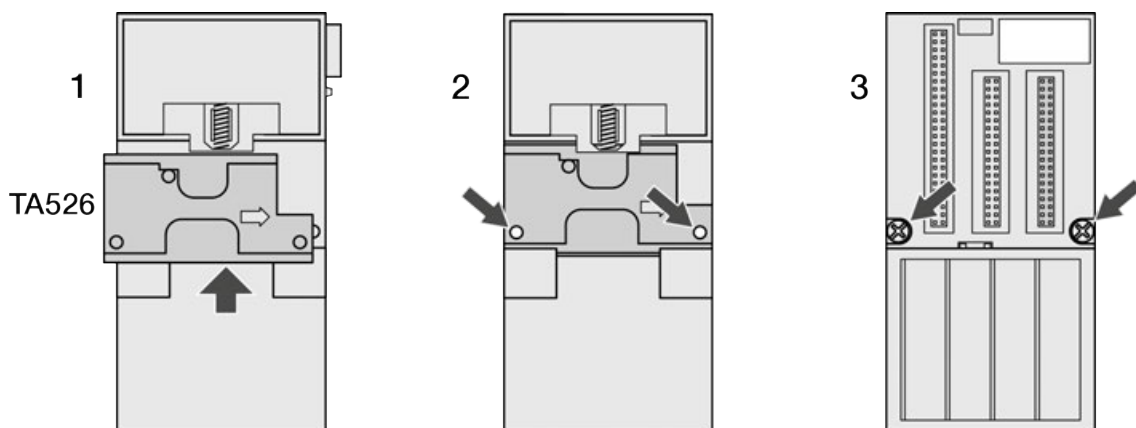
> **❗ NOTICE!**
> **Use screw mounting accessory to avoid damage!**
> For screw mounting, the use of the TA526 screw mounting accessory (1SAP180800R0001) is mandatory to prevent bending and damage to the module.

1. TA526 is snapped on the rear side of the module like DIN rails.
2. Fasten module with screws (M4, max 1.2 Nm) from the front side.

119.4 Dimensions
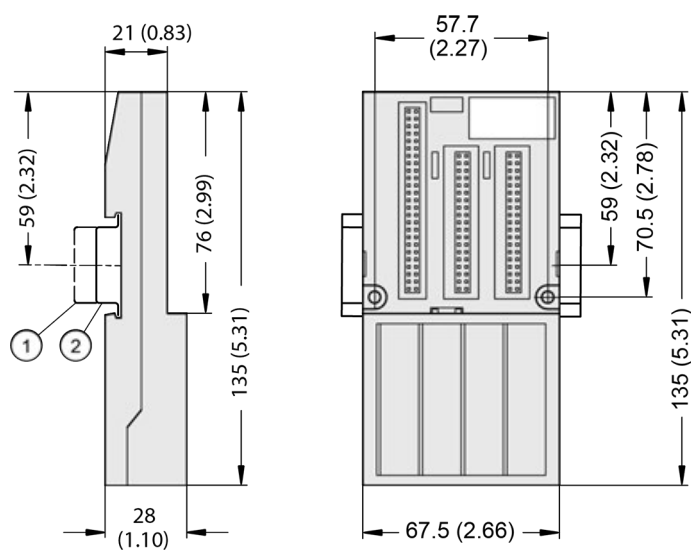
1 Din rail 15 mm
2 Din rail 7.5 mm

The dimensions are in mm and in brackets in inch.

119.5   Connections
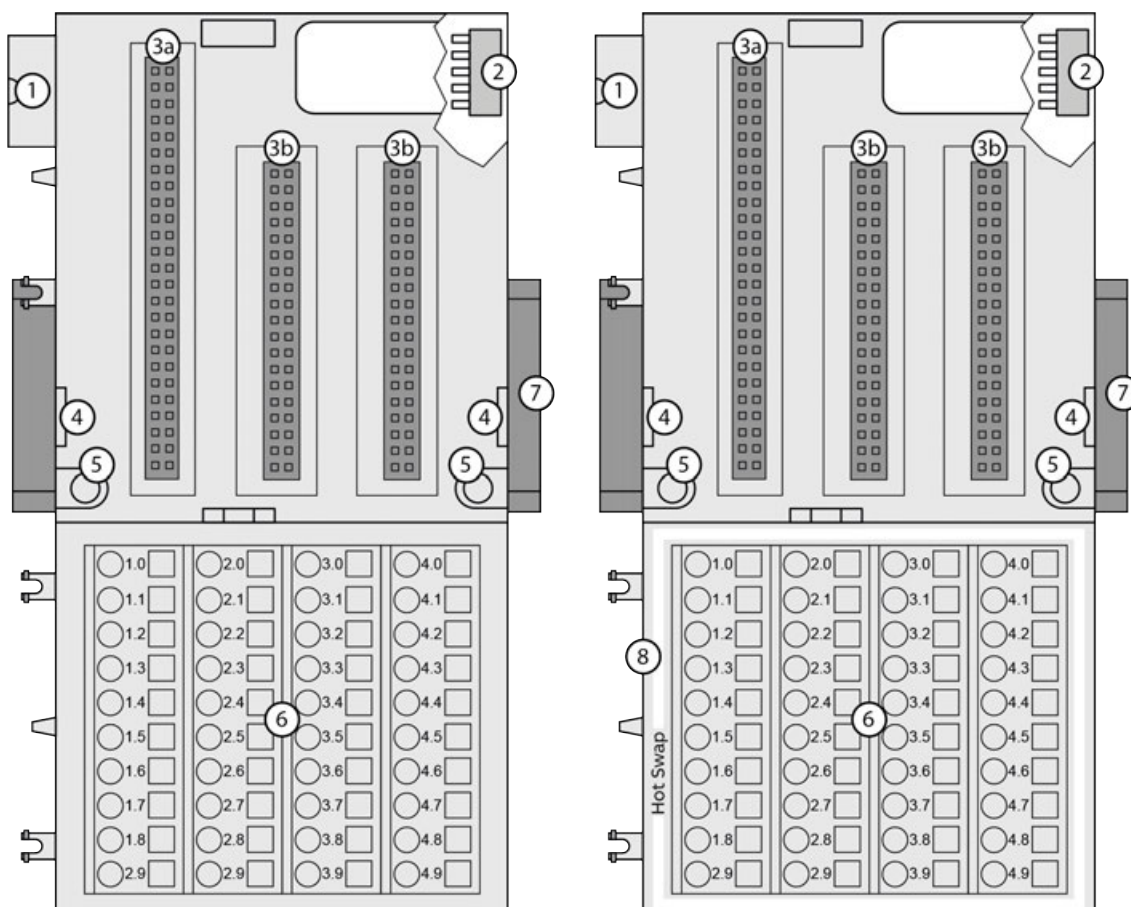
1   I/O bus (10 pins, male) to connect the previous terminal unit, the CPU terminal base or the communication interface module to the terminal unit
2   I/O bus (10 pins, female) to connect other terminal units
3a   Plug (2 x 25 pins) to connect the inserted I/O modules
3b   Plug (2 x 19 pins) to connect the inserted I/O modules
4   With a screwdriver inserted in this place, the terminal unit and the adjacent terminal unit can be shoved from each other
5   Holes for screw mounting
6   40 terminals for signals and process supply voltage
7   DIN rail
8   White border signifies hot swap capability of the terminal unit

119.6   Cleaning

> **Cleaning instructions**
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

119.7   Certification

| | en | Devices with KCC sign on product sticker and packaging |
| | ko | 제품 스티커 및 포장에 **KCC** 표시가 된 기기 |

MSIP-REI-Abb-AC500

| en | **Note**
These devices correspond to: | **KN61000-6-2** "Immunity for industrial environments",
KN61000-6-4 "Emission standard for industrial environments" |
| ko | **참고**
이러한 기기는 | **KN61000-6-2** "산업 환경에 대한 내성",
KN61000-6-4 "산업 환경 누출 기준"에 적합함 |

119.8   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

120 TU516(-H)(-XC) 24 V DC

- TU516 24 V DC
- TU516-XC 24 V DC
- TU516-H 24 V DC
- TU516-H-XC 24 V DC

⚠	**CAUTION!** **Risk of injury and damaging the product!** Improper installation and maintenance may result in injury and can damage the product! – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1. – Only by qualified personnel.

Hot swap

⚠	**WARNING!** **Risk of explosion or fire in hazardous environments during hot swapping!** Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

> ⚠️ **WARNING!**
>
> **Electric shock due to negligent behavior during hot swapping!**
>
> To avoid electric shock
>
> – make sure the following conditions apply:
>   – Digital outputs are not under load.
>   – Input/output voltages above safety extra low voltage/ protective extra low voltage (SELV/PELV) are switched off.
>   – Modules are fully interlocked with the terminal unit with both snap-fits engaged before switching on loads or input/output voltage.
> – Never touch exposed contacts (dangerous voltages).
> – Stay away from electrical contacts to avoid arc discharge.
> – Do not operate a mechanical installation improperly.

> ❗ **NOTICE!**
>
> **Risk of damage to I/O modules!**
>
> Hot swapping is only allowed for I/O modules.
>
> Processor modules and communication interface modules must not be removed or inserted during operation.

H = **H**ot swap

> ℹ️ *Hot swap*
>
> *System requirements for hot swapping of I/O modules:*
>
> – *Types of terminal units that support hot swapping of I/O modules have the appendix TU5xx-**H**.*
> – *I/O modules as of index F0.*
>
> *The following I/O bus masters support hot swapping of attached I/O modules:*
>
> – *Communication interface modules CI5xx as of index F0.*
> – *Processor modules PM56xx-2ETH with firmware version as of V3.2.0.*

> ℹ️ *Hot swap is not supported by AC500-eCo V3 CPU!*

> ⓘ *The index of the module is in the right corner of the label.*

> ❗ **NOTICE!**
> **Risk of damage to I/O modules!**
> Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

> ❗ **NOTICE!**
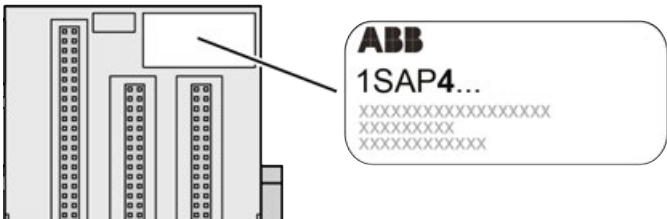> **Risk of damage to I/O modules!**
> Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.
>
> For min. required device index see table below.

Device	Min. required device index for I/O module as of FW Version 3.0.14
AC522(-XC)	F0
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DA502 (-XC)	F0
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

XC version   **XC** = e**X**treme **C**onditions

> **Extreme conditions**
>
> *Terminal units for use in extreme ambient conditions have no ❄ sign for XC version.*
>
> *The figure **4** in the Part no. 1SAP**4**... (label) identifies the XC version.*

120.1   Assembly

120.2   Disassembly
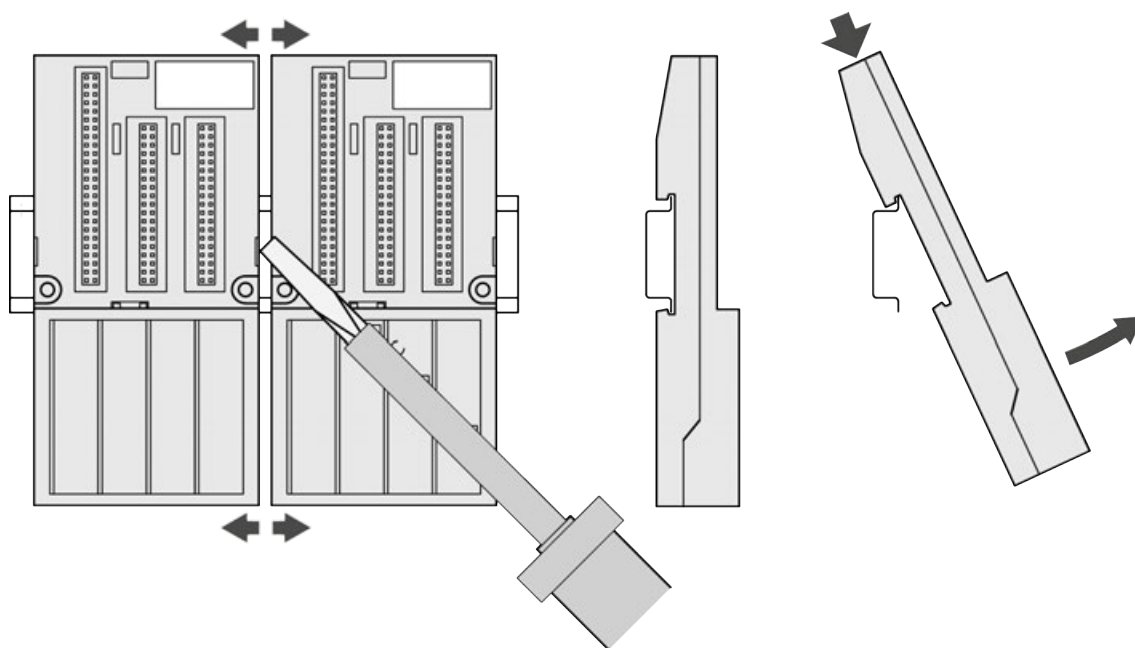
120.3 Assembly with screws
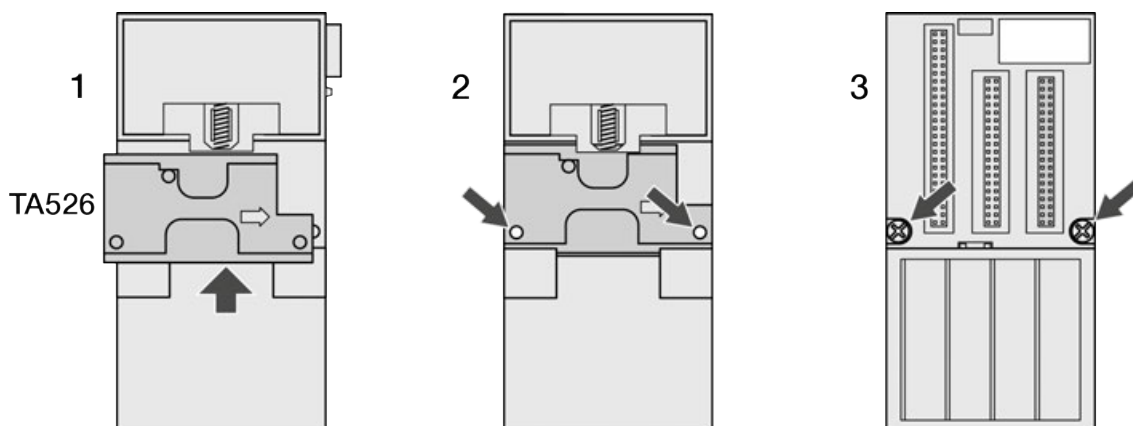
> **NOTICE!**
> **Use screw mounting accessory to avoid damage!**
> For screw mounting, the use of the TA526 screw mounting accessory (1SAP180800R0001) is mandatory to prevent bending and damage to the module.

1. TA526 is snapped on the rear side of the module like DIN rails.
2. Fasten module with screws (M4, max 1.2 Nm) from the front side.

120.4 Dimensions
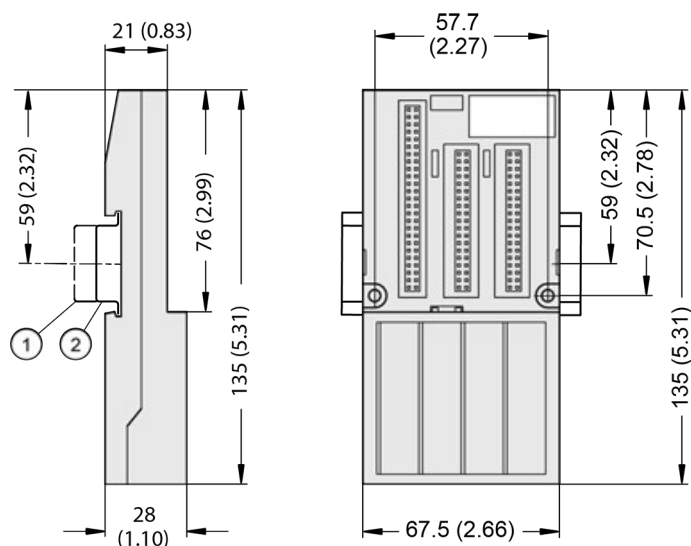
1 Din rail 15 mm
2 Din rail 7.5 mm

> ⃝ *The dimensions are in mm and in brackets in inch.*

120.5   Connections

1   I/O bus (10 pins, male) to connect the previous terminal unit, the CPU terminal base or the communication interface module to the terminal unit
2   I/O bus (10 pins, female) to connect other terminal units
3a Plug (2 x 25 pins) to connect the inserted I/O modules
3b Plug (2 x 19 pins) to connect the inserted I/O modules
4   With a screwdriver inserted in this place, the terminal unit and the adjacent terminal unit can be shoved from each other
5   Holes for screw mounting
6   40 terminals for signals and process supply voltage
7   DIN rail
8   White border signifies hot swap capability of the terminal unit

---

> ⓘ *In corrosive environment, please protect unused connectors using the TA535 accessory.*
>
> *Not supplied with this device.*

120.6   Cleaning

> ⓘ **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

120.7   Certification

	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

MSIP-REI-Abb-AC500

en	Note These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

120.8   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

—
121 TU517

- TU517
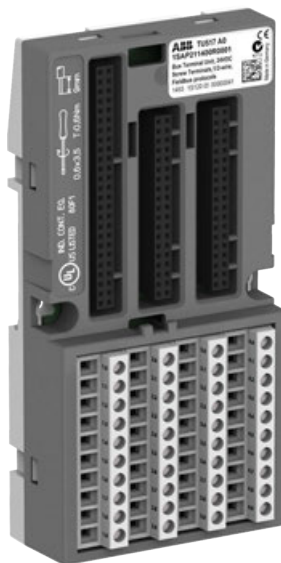
⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

121.1 Assembly
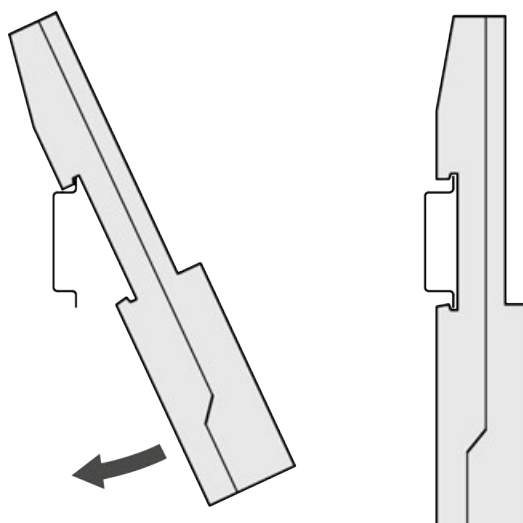
121.2 Disassembly

121.3 Assembly with screws

> **!**
> **NOTICE!**
> **Use screw mounting accessory to avoid damage!**
> For screw mounting, the use of the TA526 screw mounting accessory
> (1SAP180800R0001) is mandatory to prevent bending and damage to the
> module.

1. TA526 is snapped on the rear side of the module like DIN rails.
2. Fasten module with screws (M4, max 1.2 Nm) from the front side.

121.4 Dimensions

1   Din rail 15 mm
2   Din rail 7.5 mm

The dimensions are in mm and in brackets in inch.

121.5   Connections
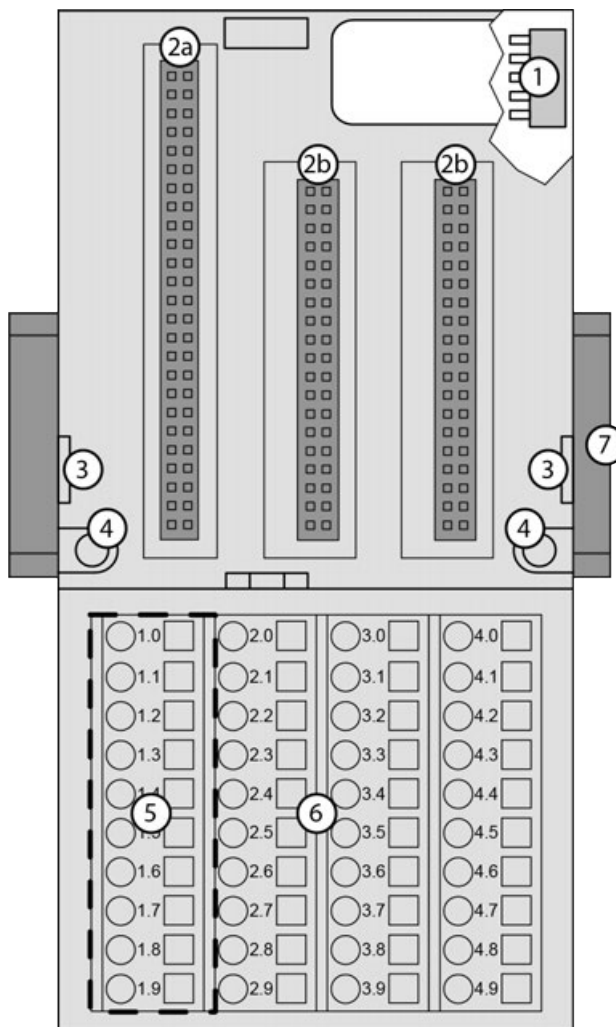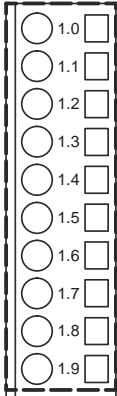
1   I/O bus (10 pins, female) to connect the first terminal unit
2a Plug (2 25 pins) to connect the inserted communication interface module
2b Plug (2 19 pins) to connect the inserted communication interface module
3   With a screwdriver, inserted in this place, the terminal unit and the adjacent I/O terminal unit can be shoved from each other
4   2 holes for wall mounting
5   10 terminals for connection with the bus system
6   30 terminals for signals and process supply voltages (UP and UP3)
7   DIN rail

All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.

121.5.1 Bus interface

Pin assignment

Interface	PIN	DP (PROFIBUS)	CN (CANopen)
1.0	1.0	B	CAN+
1.1	1.1	B	CAN+
1.2	1.2	A	CAN-
1.3	1.3	A	CAN-
1.4	1.4	TermB	Term+
1.5	1.5	TermB	Term+
1.6	1.6	TermA	Term-
1.7	1.7	TermA	Term-
1.8	1.8	DGND	CAN_GND
1.9	1.9	DGND	CAN_GND

> *In corrosive environment, please protect unused connectors using the TA535 accessory.*
>
> *Not supplied with this device.*

121.6 Cleaning

> **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

121.7 Certification

KC
MSIP-REI-Abb-AC500

en   Devices with KCC sign on product sticker and packaging

ko   제품 스티커 및 포장에 **KCC** 표시가 된 기기

en   **Note**
These devices correspond to: **KN61000-6-2** "Immunity for industrial environments",
KN61000-6-4 "Emission standard for industrial environments"

ko   참고
이러한 기기는   **KN61000-6-2** "산업 환경에 대한 내성",
KN61000-6-4 "산업 환경 누출 기준"에 적합함

121.8   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

122 TU518(-XC)

- TU518
- TU518-XC
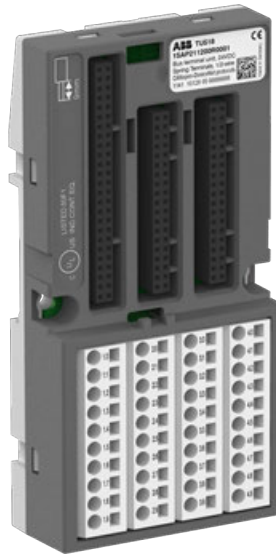
⚠️	**CAUTION!** **Risk of injury and damaging the product!** Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

122.1 Assembly
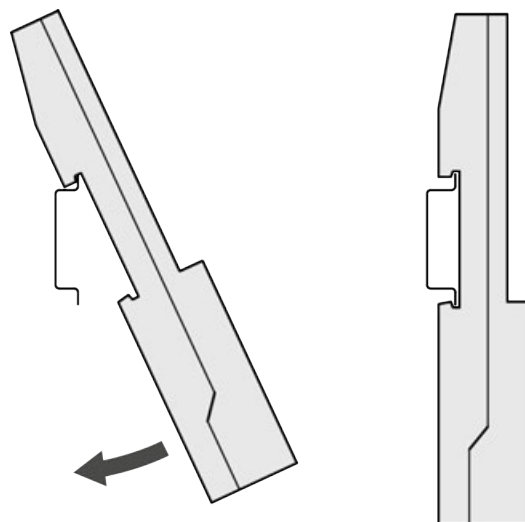
122.2 Disassembly
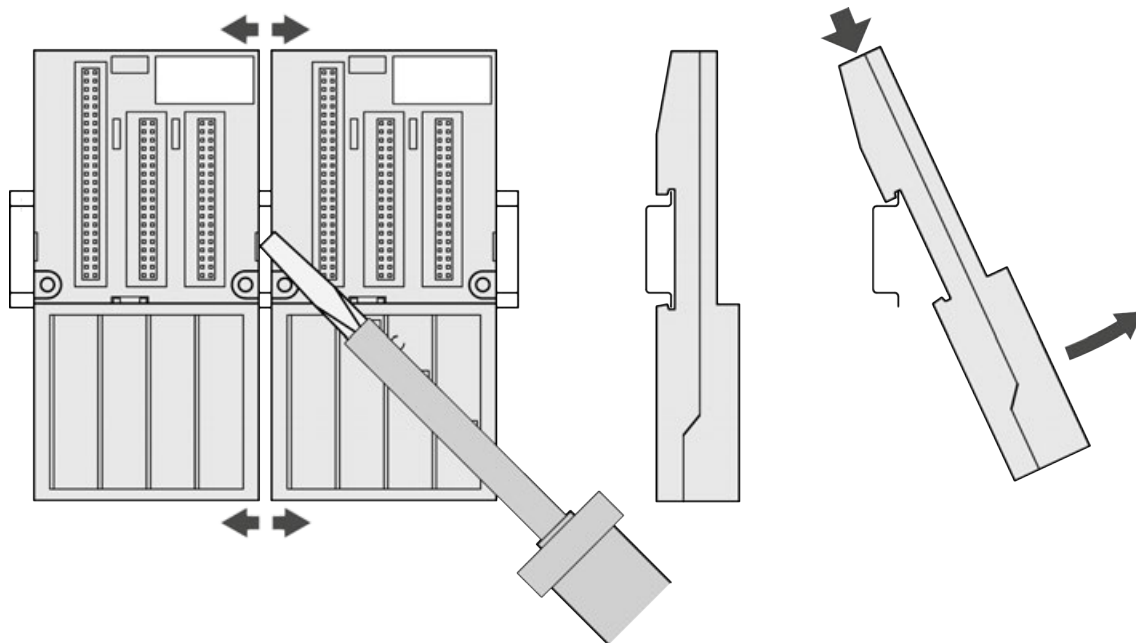
122.3 Assembly with screws
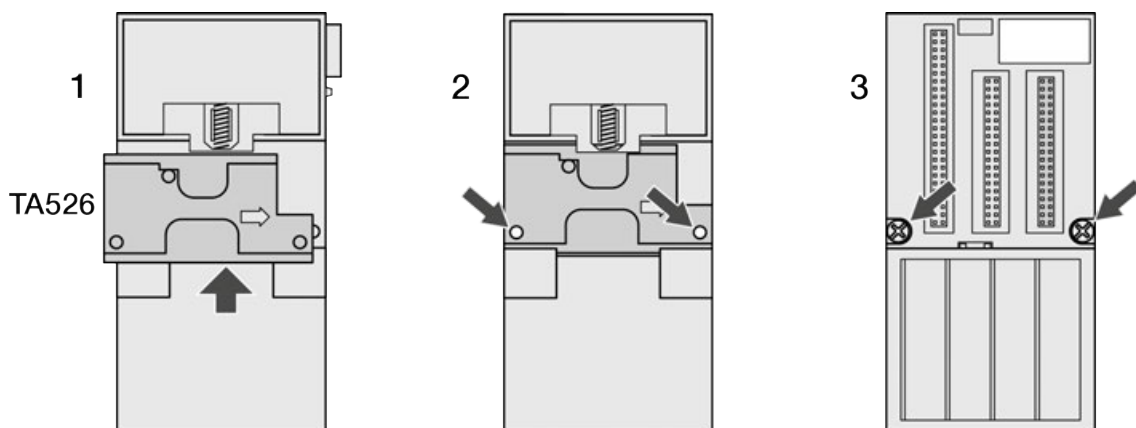
> **!**
> **NOTICE!**
> **Use screw mounting accessory to avoid damage!**
> For screw mounting, the use of the TA526 screw mounting accessory (1SAP180800R0001) is mandatory to prevent bending and damage to the module.

1.   TA526 is snapped on the rear side of the module like DIN rails.

2.   Fasten module with screws (M4, max 1.2 Nm) from the front side.

122.4 Dimensions
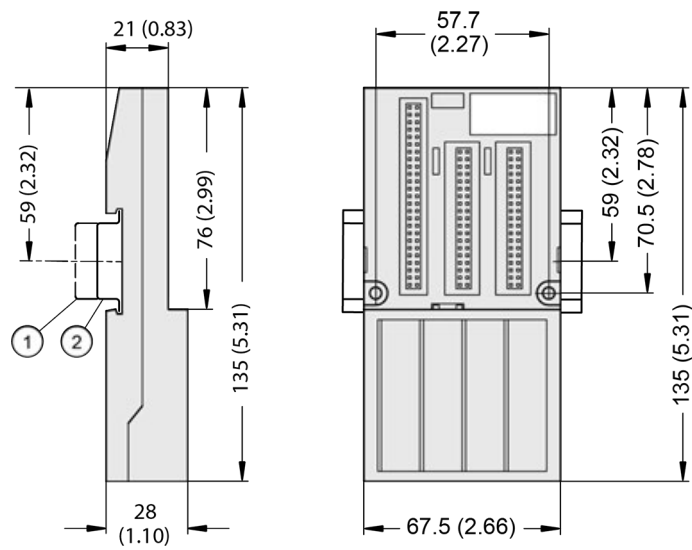
1   Din rail 15 mm
2   Din rail 7.5 mm

The dimensions are in mm and in brackets in inch.

122.5   Connections
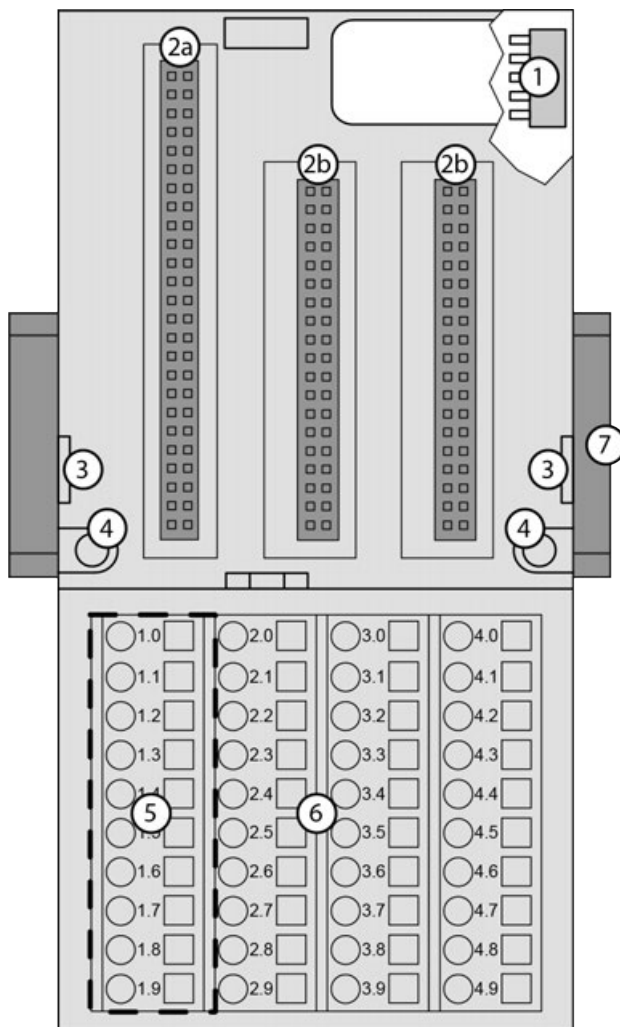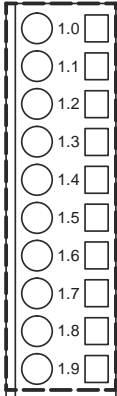
1   I/O bus (10 pins, female) to connect the first terminal unit
2a Plug (2 25 pins) to connect the inserted communication interface module
2b Plug (2 19 pins) to connect the inserted communication interface module
3   With a screwdriver, inserted in this place, the terminal unit and the adjacent I/O terminal unit
    can be shoved from each other
4   2 holes for wall mounting
5   10 terminals for connection with the bus system
6   30 terminals for signals and process supply voltages (UP and UP3)
7   DIN rail

*All I/O channels (digital and analog) are protected against reverse polarity,
reverse supply and temporary overvoltage up to 30 VDC.*

122.5.1 Bus interface

Pin assignment

Interface	PIN	DP (PROFIBUS)	CN (CANopen)
	1.0	B	CAN+
	1.1	B	CAN+
	1.2	A	CAN-
	1.3	A	CAN-
	1.4	TermB	Term+
	1.5	TermB	Term+
	1.6	TermA	Term-
	1.7	TermA	Term-
	1.8	DGND	CAN_GND
	1.9	DGND	CAN_GND

> *In corrosive environment, please protect unused connectors using the TA535 accessory.*
>
> *Not supplied with this device.*

122.6 Cleaning

> **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

122.7 Certification

KC MSIP-REI-Abb-AC500

en	Devices with KCC sign on product sticker and packaging
ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	**Note** These devices correspond to:	KN1000-6-2 "Immunity for industrial environments", KN61000-6-4 "Emission standard for industrial environments"
ko	참고 이러한 기기는	KN61000-6-2 "산업 환경에 대한 내성", KN61000-6-4 "산업 환경 누출 기준"에 적합함

122.8   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

—
123   TU520-ETH(-XC)

- TU520-ETH
- TU520-ETH-XC

⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

123.1   Assembly
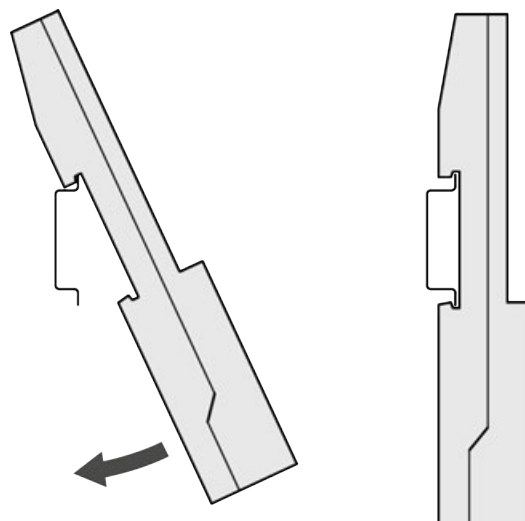
123.2 Disassembly

123.3 Assembly with screws

> **!** **NOTICE!**
> **Use screw mounting accessory to avoid damage!**
> For screw mounting, the use of the TA526 screw mounting accessory (1SAP180800R0001) is mandatory to prevent bending and damage to the module.

1. TA526 is snapped on the rear side of the module like DIN rails.
2. Fasten module with screws (M4, max 1.2 Nm) from the front side.

123.4 Dimensions

1   Din rail 15 mm
2   Din rail 7.5 mm

> ⓘ   *The dimensions are in mm and in brackets in inch.*

123.5 Connections
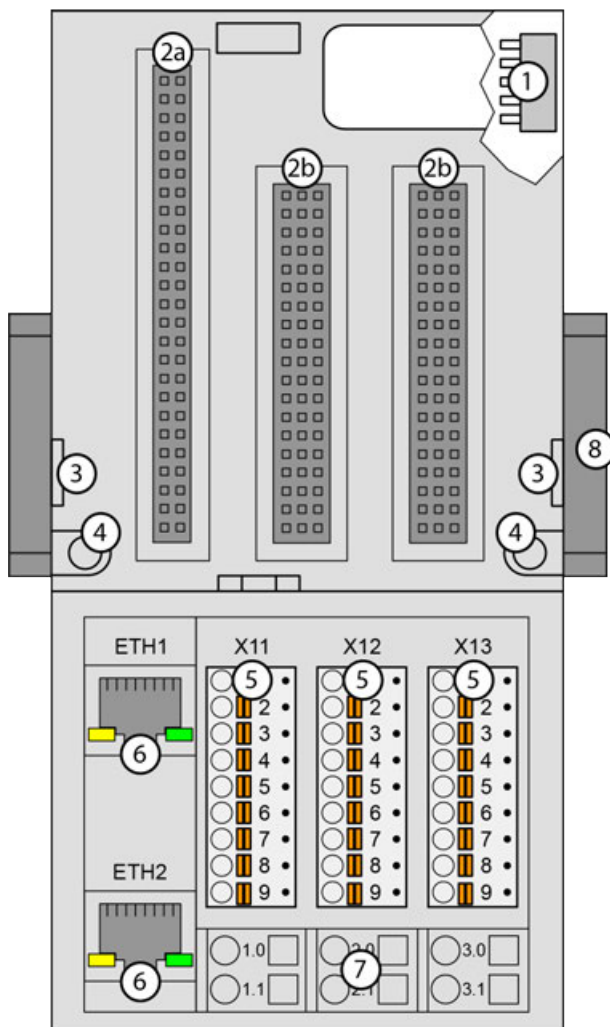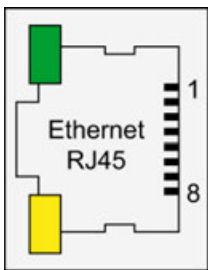
1   I/O bus (10 pins, female) to connect the first terminal unit
2a Plug (2 25 pins) to connect the inserted PROFINET communication interface module
2b Plug (3 19 pins) to connect the inserted PROFINET communication interface module
3   With a screwdriver, inserted in this place, the PROFINET I/O terminal unit and the adjacent
    I/O terminal unit can be shoved from each other
4   2 holes for wall mounting
5   3 removable connectors to connect the subordinated bus systems
6   2 RJ45 interfaces with indication LEDs for connection with the PROFINET network
7   6 spring terminals for process supply voltage (UP)
8   DIN rail

> ⓘ   *All I/O channels (digital and analog) are protected against reverse polarity,*
> *reverse supply and temporary overvoltage up to 30 VDC.*

123.5.1 Ethernet network interface

Pin assignment

Interface	Pin	Signal	Description
Ethernet RJ45	1	TxD+	Transmit data +
	2	TxD-	Transmit data -
	3	RxD+	Receive data +
	4	NC	Not connected
	5	NC	Not connected
	6	RxD-	Receive data -
	7	NC	Not connected
	8	NC	Not connected
	Shield	Cable shield	Functional earth

> *In corrosive environment, please protect unused connectors using the TA535 accessory.*
>
> *Not supplied with this device.*

123.6 Cleaning

> **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

123.7 Certification

MSIP-REI-Abb-AC500

en		Devices with KCC sign on product sticker and packaging
ko		제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	**Note** These devices correspond to:	KN61000-6-2 "Immunity for industrial environments", KN61000-6-4 "Emission standard for industrial environments"
ko	참고 이러한 기기는	KN61000-6-2 "산업 환경에 대한 내성", KN61000-6-4 "산업 환경 누출 기준"에 적합함

123.8   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

—
124 TU531 230 V AC

- TU531 230 V AC

⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

Hot swap

⚠	**WARNING!**
	Risk of explosion or fire in hazardous environments during hot swapping!
	Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

⚠	**WARNING!**
	Electric shock due to negligent behavior during hot swapping!
	To avoid electric shock
	– make sure the following conditions apply:
	– Digital outputs are not under load.
	– Input/output voltages above safety extra low voltage/ protective extra low voltage (SELV/PELV) are switched off.
	– Modules are fully interlocked with the terminal unit with both snap-fits engaged before switching on loads or input/output voltage.
	– Never touch exposed contacts (dangerous voltages).
	– Stay away from electrical contacts to avoid arc discharge.
	– Do not operate a mechanical installation improperly.

> **!**
>
> **NOTICE!**
> **Risk of damage to I/O modules!**
> Hot swapping is only allowed for I/O modules.
>
> Processor modules and communication interface modules must not be removed or inserted during operation.

H = **H**ot swap

> **ⓘ**
>
> *Hot swap*
> *System requirements for hot swapping of I/O modules:*
>
> – *Types of terminal units that support hot swapping of I/O modules have the appendix TU5xx-H.*
> – *I/O modules as of index F0.*
>
> *The following I/O bus masters support hot swapping of attached I/O modules:*
>
> – *Communication interface modules CI5xx as of index F0.*
> – *Processor modules PM56xx-2ETH with firmware version as of V3.2.0.*

> **ⓘ**
>
> *Hot swap is not supported by AC500-eCo V3 CPU!*

> **ⓘ**
>
> *The index of the module is in the right corner of the label.*

> **!**
>
> **NOTICE!**
> **Risk of damage to I/O modules!**
> Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

> **!**
>
> **NOTICE!**
>
> **Risk of damage to I/O modules!**
>
> Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.
>
> For min. required device index see table below.

Device	Min. required device index for I/O module as of FW Version 3.0.14
AC522(-XC)	F0
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DA502 (-XC)	F0
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3
DO572	B2
DO573	A1
DX522 (-XC)	D2

Device	Min. required device index for I/O module as of FW Version 3.0.14
DX531	D2
DX561	B2
DX571	B3
FM562	A1

XC version   **XC** = e**X**treme **C**onditions

> **ⓘ** **Extreme conditions**
>
> *Terminal units for use in extreme ambient conditions have no ❄ sign for XC version.*
>
> *The figure **4** in the Part no. 1SAP**4**... (label) identifies the XC version.*

124.1 Assembly
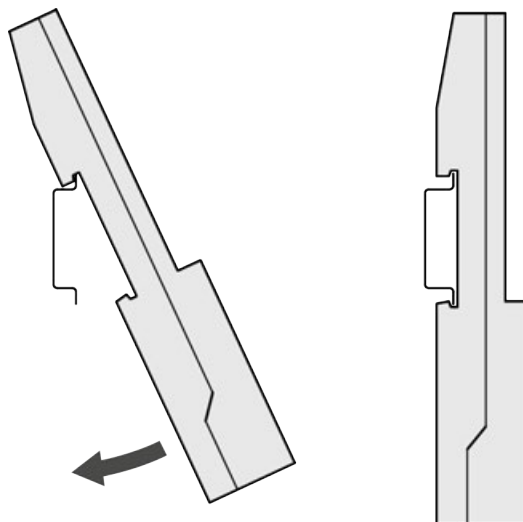
124.2 Disassembly

124.3 Assembly with screws

TA526

!	**NOTICE!**
	Use screw mounting accessory to avoid damage!
	For screw mounting, the use of the TA526 screw mounting accessory (1SAP180800R0001) is mandatory to prevent bending and damage to the module.

1. TA526 is snapped on the rear side of the module like DIN rails.

2. Fasten module with screws (M4, max 1.2 Nm) from the front side.

124.4   Dimensions
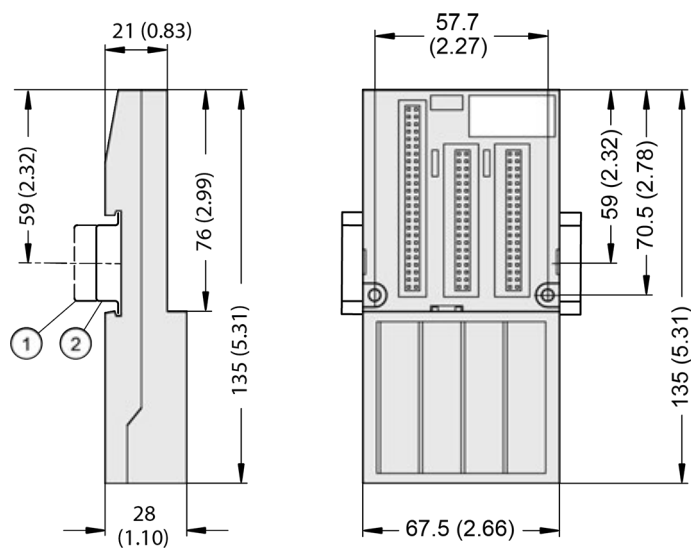
1   Din rail 15 mm
2   Din rail 7.5 mm

The dimensions are in mm and in brackets in inch.

124.5   Connections
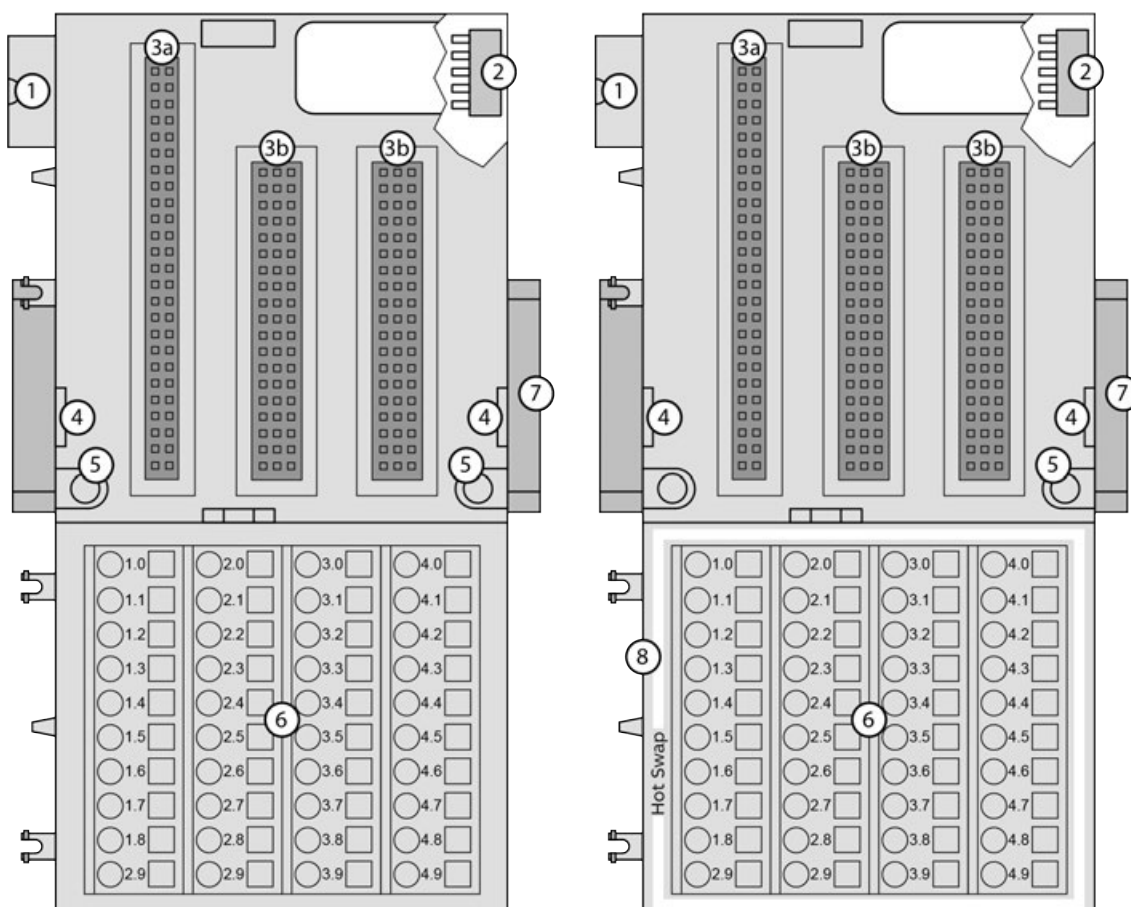
1   I/O bus (10 pins, male) to connect the previous terminal unit, the CPU terminal base or the communication interface module to the terminal unit
2   I/O bus (10 pins, female) to connect other terminal units
3a Plug (2 x 25 pins) to connect the inserted I/O modules
3b Plug (3 x 19 pins) to connect the inserted I/O modules
4   With a screwdriver inserted in this place, the terminal unit and the adjacent I/O terminal unit can be shoved from each other
5   Holes for screw mounting
6   40 terminals for signals and process supply voltage
7   DIN rail
8   White border signifies hot swap capability of the terminal unit

124.6   Cleaning

> **Cleaning instructions**
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

124.7   Certification

MSIP-REI-Abb-AC500

en		Devices with KCC sign on product sticker and packaging
ko		제품 스티커 및 포장에 **KCC** 표시가 된 기기

en Note
These devices correspond to:

KN61000-6-2 "Immunity for industrial environments",
KN61000-6-4 "Emission standard for industrial environments"

ko 참고
이러한 기기는

KN61000-6-2 "산업 환경에 대한 내성",
KN61000-6-4 "산업 환경 누출 기준"에 적합함

124.8   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

—

125   TU532(-H)(-XC) 230 V AC

- TU532 230 V AC
- TU532-XC 230 V AC
- TU532-H 230 V AC
- TU532-H-XC 230 V AC

<table>
<tr><td>⚠</td><td>

CAUTION!

Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
– Only by qualified personnel.

</td></tr>
</table>

Hot swap

<table>
<tr><td>⚠</td><td>

WARNING!

Risk of explosion or fire in hazardous environments during hot swapping!

Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

</td></tr>
</table>

⚠️ **WARNING!**

Electric shock due to negligent behavior during hot swapping!

To avoid electric shock

- make sure the following conditions apply:
  - Digital outputs are not under load.
  - Input/output voltages above safety extra low voltage/ protective extra low voltage (SELV/PELV) are switched off.
  - Modules are fully interlocked with the terminal unit with both snap-fits engaged before switching on loads or input/output voltage.
- Never touch exposed contacts (dangerous voltages).
- Stay away from electrical contacts to avoid arc discharge.
- Do not operate a mechanical installation improperly.

❗ **NOTICE!**

Risk of damage to I/O modules!

Hot swapping is only allowed for I/O modules.

Processor modules and communication interface modules must not be removed or inserted during operation.

H = **H**ot swap

ℹ️ *Hot swap*

System requirements for hot swapping of I/O modules:

- *Types of terminal units that support hot swapping of I/O modules have the appendix TU5xx-**H**.*
- *I/O modules as of index F0.*

The following I/O bus masters support hot swapping of attached I/O modules:

- *Communication interface modules CI5xx as of index F0.*
- *Processor modules PM56xx-2ETH with firmware version as of V3.2.0.*

ℹ️ *Hot swap is not supported by AC500-eCo V3 CPU!*

> ⓘ *The index of the module is in the right corner of the label.*

! NOTICE!

Risk of damage to I/O modules!

Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

! NOTICE!

Risk of damage to I/O modules!

Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.

For min. required device index see table below.

Device	Min. required device index for I/O module as of FW Version 3.0.14
AC522(-XC)	F0
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DA502 (-XC)	F0
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

XC version   **XC** = e**X**treme **C**onditions

> ### *Extreme conditions*
> *Terminal units for use in extreme ambient conditions have no ❄ sign for XC version.*
>
> *The figure **4** in the Part no. 1SAP**4**... (label) identifies the XC version.*

125.1   Assembly
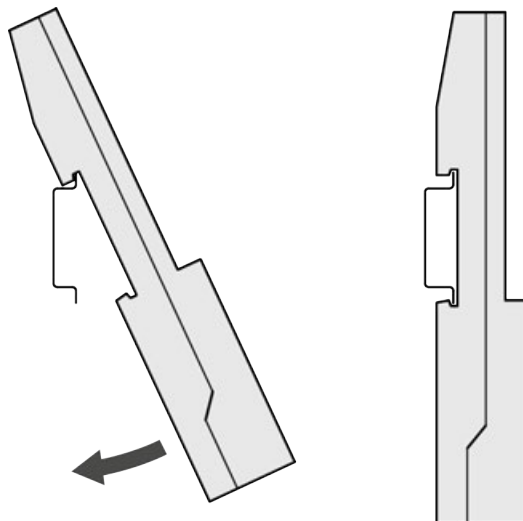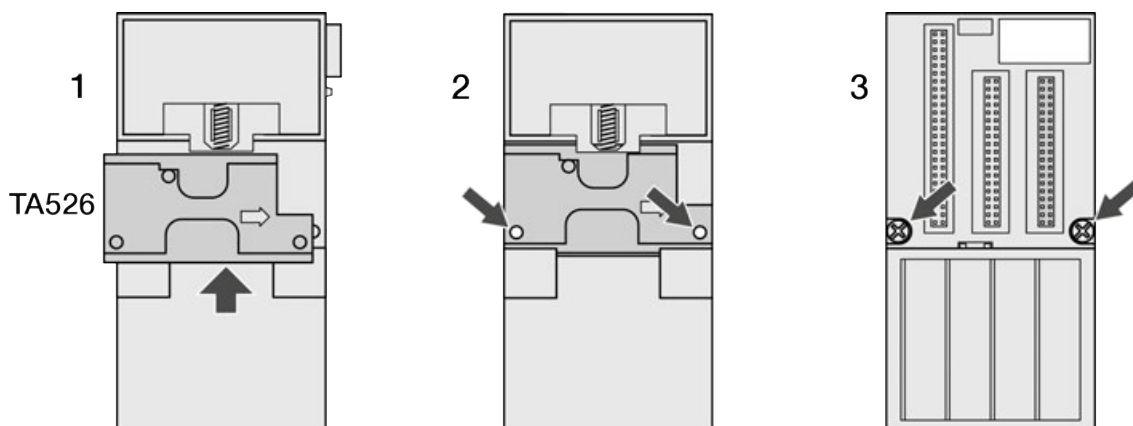
125.2   Disassembly
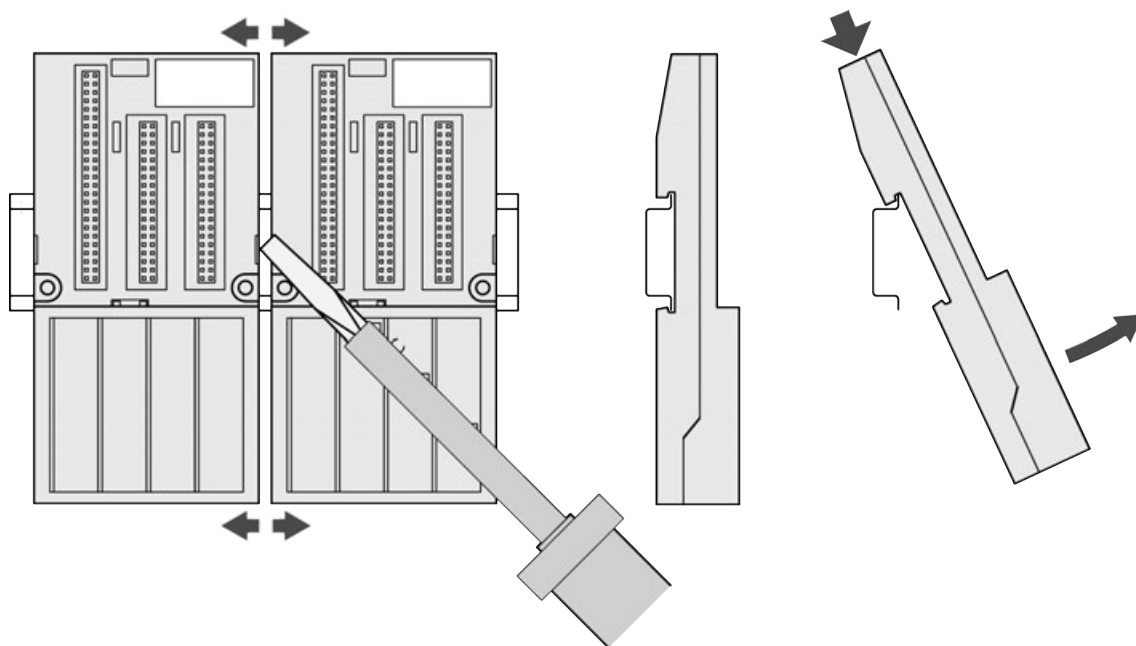
125.3   Assembly with screws

> **!** **NOTICE!**
> **Use screw mounting accessory to avoid damage!**
> For screw mounting, the use of the TA526 screw mounting accessory (1SAP180800R0001) is mandatory to prevent bending and damage to the module.

1.   TA526 is snapped on the rear side of the module like DIN rails.

2.   Fasten module with screws (M4, max 1.2 Nm) from the front side.

125.4   Dimensions

1   Din rail 15 mm
2   Din rail 7.5 mm

> ⓘ *The dimensions are in mm and in brackets in inch.*

125.5   Connections

1   I/O bus (10 pins, male) to connect the previous terminal unit, the CPU terminal base or the communication interface module to the terminal unit
2   I/O bus (10 pins, female) to connect other terminal units
3a   Plug (2 x 25 pins) to connect the inserted I/O modules
3b   Plug (3 x 19 pins) to connect the inserted I/O modules
4   With a screwdriver inserted in this place, the terminal unit and the adjacent I/O terminal unit can be shoved from each other
5   Holes for screw mounting
6   40 terminals for signals and process supply voltage
7   DIN rail
8   White border signifies hot swap capability of the terminal unit

> ℹ️ *In corrosive environment, please protect unused connectors using the TA535 accessory.*
>
> *Not supplied with this device.*

125.6   Cleaning

> ℹ️ **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

125.7   Certification

	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

MSIP-REI-Abb-AC500

en	Note These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

125.8   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

—
126   TU541 24 V DC

- TU541 24 V DC

	CAUTION!
⚠	**Risk of injury and damaging the product!** Improper installation and maintenance may result in injury and can damage the product! – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1. – Only by qualified personnel.

Hot swap

	WARNING!
⚠	**Risk of explosion or fire in hazardous environments during hot swapping!** Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

	WARNING!

⚠	**Electric shock due to negligent behavior during hot swapping!**
	To avoid electric shock
	
	– make sure the following conditions apply:
	  – Digital outputs are not under load.
	  – Input/output voltages above safety extra low voltage/ protective extra low voltage (SELV/PELV) are switched off.
	  – Modules are fully interlocked with the terminal unit with both snap-fits engaged before switching on loads or input/output voltage.
	– Never touch exposed contacts (dangerous voltages).
	– Stay away from electrical contacts to avoid arc discharge.
	– Do not operate a mechanical installation improperly.

!

NOTICE!

Risk of damage to I/O modules!

Hot swapping is only allowed for I/O modules.

Processor modules and communication interface modules must not be removed or inserted during operation.

H = **H**ot swap

Hot swap

System requirements for hot swapping of I/O modules:

– *Types of terminal units that support hot swapping of I/O modules have the appendix TU5xx-**H**.*
– *I/O modules as of index F0.*

The following I/O bus masters support hot swapping of attached I/O modules:

– *Communication interface modules CI5xx as of index F0.*
– *Processor modules PM56xx-2ETH with firmware version as of V3.2.0.*

Hot swap is not supported by AC500-eCo V3 CPU!

The index of the module is in the right corner of the label.

!

NOTICE!

Risk of damage to I/O modules!

Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

> **!**
>
> **NOTICE!**
>
> **Risk of damage to I/O modules!**
>
> Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.
>
> For min. required device index see table below.

Device	Min. required device index for I/O module as of FW Version 3.0.14
AC522(-XC)	F0
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DA502 (-XC)	F0
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3
DO572	B2
DO573	A1
DX522 (-XC)	D2

Device	Min. required device index for I/O module as of FW Version 3.0.14
DX531	D2
DX561	B2
DX571	B3
FM562	A1

XC version   **XC** = e**X**treme **C**onditions

> ### *Extreme conditions*
> *Terminal units for use in extreme ambient conditions have no ❄ sign for XC version.*
>
> *The figure **4** in the Part no. 1SAP**4**... (label) identifies the XC version.*

126.1 Assembly
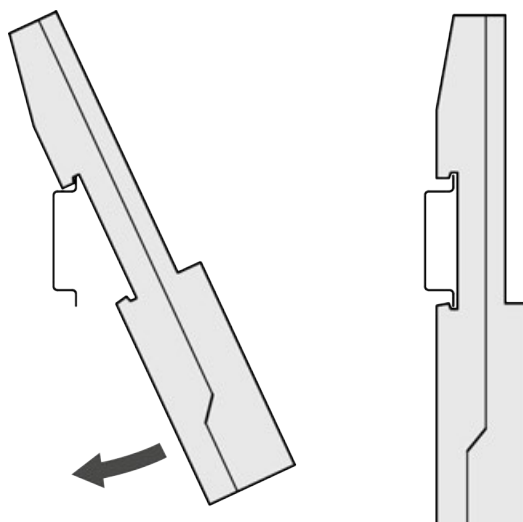
126.2 Disassembly

126.3 Assembly with screws

> **!** **NOTICE!**
>
> **Use screw mounting accessory to avoid damage!**
>
> For screw mounting, the use of the TA526 screw mounting accessory (1SAP180800R0001) is mandatory to prevent bending and damage to the module.

1. TA526 is snapped on the rear side of the module like DIN rails.

2. Fasten module with screws (M4, max 1.2 Nm) from the front side.

126.4   Dimensions
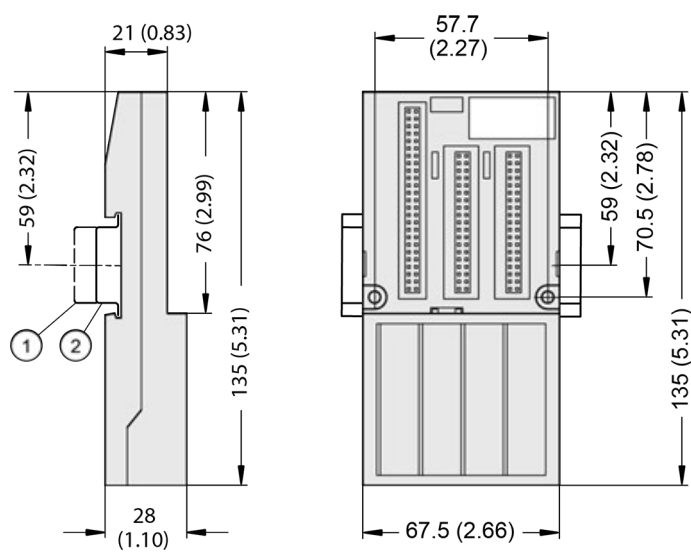
1   Din rail 15 mm
2   Din rail 7.5 mm

> *The dimensions are in mm and in brackets in inch.*

126.5 Connections
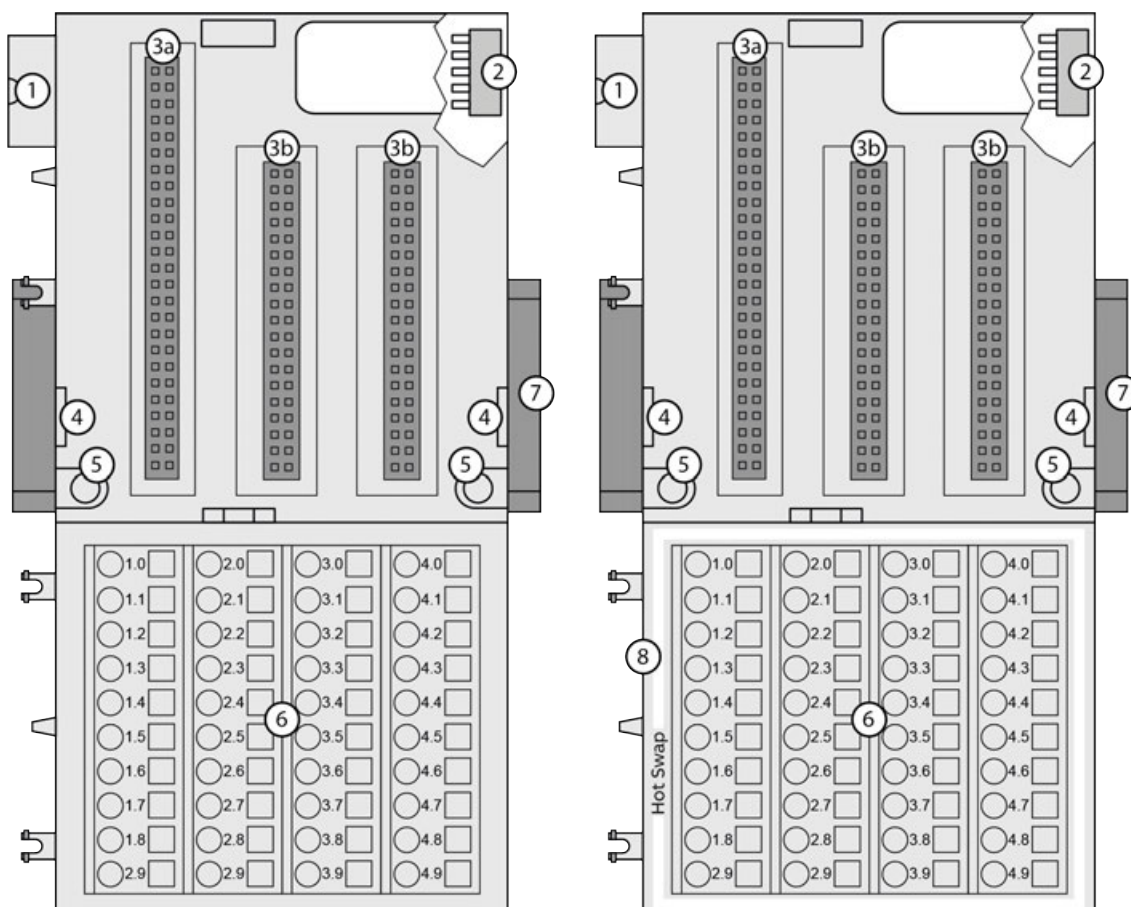
1 I/O bus (10 pins, male) to connect the previous terminal unit, the CPU terminal base or the communication interface module to the terminal unit
2 I/O bus (10 pins, female) to connect other terminal units
3a Plug (2 x 25 pins) to connect the inserted I/O modules
3b Plug (2 x 19 pins) to connect the inserted I/O modules
4 With a screwdriver inserted in this place, the terminal unit and the adjacent terminal unit can be shoved from each other
5 Holes for screw mounting
6 40 terminals for signals and process supply voltage
7 DIN rail
8 White border signifies hot swap capability of the terminal unit

126.6 Cleaning

> ⭘ **Cleaning instructions**
> ⫿ *Do not use cleaning agent for cleaning the device.*
> *Use a damp cloth instead.*

126.7   Certification

KC

MSIP-REI-Abb-AC500

en	Devices with KCC sign on product sticker and packaging
ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	Note These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

126.8   Recycling

ℹ️ *Disposal and recycling information*

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

—

127 TU542(-H)(-XC) 24 V DC

- TU542 24 V DC
- TU542-XC 24 V DC
- TU542-H 24 V DC
- TU542-H-XC 24 V DC

⚠	**CAUTION!** **Risk of injury and damaging the product!** Improper installation and maintenance may result in injury and can damage the product! – Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1. – Only by qualified personnel.

Hot swap

⚠	**WARNING!** **Risk of explosion or fire in hazardous environments during hot swapping!** Hot swap must not be performed in flammable environments to avoid life-threatening injury and property damage resulting from fire or explosion.

> ⚠️ **WARNING!**
>
> **Electric shock due to negligent behavior during hot swapping!**
>
> To avoid electric shock
>
> – make sure the following conditions apply:
>   – Digital outputs are not under load.
>   – Input/output voltages above safety extra low voltage/ protective extra low voltage (SELV/PELV) are switched off.
>   – Modules are fully interlocked with the terminal unit with both snap-fits engaged before switching on loads or input/output voltage.
> – Never touch exposed contacts (dangerous voltages).
> – Stay away from electrical contacts to avoid arc discharge.
> – Do not operate a mechanical installation improperly.

> ❗ **NOTICE!**
>
> **Risk of damage to I/O modules!**
>
> Hot swapping is only allowed for I/O modules.
>
> Processor modules and communication interface modules must not be removed or inserted during operation.

H = **H**ot swap

> ℹ️ *Hot swap*
>
> *System requirements for hot swapping of I/O modules:*
>
> – *Types of terminal units that support hot swapping of I/O modules have the appendix TU5xx-**H**.*
> – *I/O modules as of index F0.*
>
> *The following I/O bus masters support hot swapping of attached I/O modules:*
>
> – *Communication interface modules CI5xx as of index F0.*
> – *Processor modules PM56xx-2ETH with firmware version as of V3.2.0.*

> ℹ️ *Hot swap is not supported by AC500-eCo V3 CPU!*

> ⓘ *The index of the module is in the right corner of the label.*

> ❗ **NOTICE!**
> **Risk of damage to I/O modules!**
> Modules with index below F0 can be damaged when inserted or removed from the terminal unit in a powered system.

> ❗ **NOTICE!**
> **Risk of damage to I/O modules!**
> Do not perform hot swapping if any I/O module with firmware version lower than 3.0.14 is part of the I/O configuration.
>
> For min. required device index see table below.

Device	Min. required device index for I/O module as of FW Version 3.0.14
AC522(-XC)	F0
AI523 (-XC)	D2
AI531	D4
AI531-XC	D2
AI561	B2
AI562	B2
AI563	B3
AO523 (-XC)	D2
AO561	B2
AX521 (-XC)	D2
AX522 (-XC)	D2
AX561	B2
CD522 (-XC)	D1
DA501 (-XC)	D2
DA502 (-XC)	F0
DC522 (-XC)	D2
DC523 (-XC)	D2
DC532 (-XC)	D2
DC562	A2
DI524 (-XC)	D2
DI561	B2
DI562	B2
DI571	B2
DI572	A1

Device	Min. required device index for I/O module as of FW Version 3.0.14
DO524 (-XC)	A3
DO526	A2
DO526-XC	A0
DO561	B2
DO562	A2
DO571	B3
DO572	B2
DO573	A1
DX522 (-XC)	D2
DX531	D2
DX561	B2
DX571	B3
FM562	A1

XC version   **XC** = e**X**treme **C**onditions

> **Extreme conditions**
>
> *Terminal units for use in extreme ambient conditions have no ❄ sign for XC version.*
>
> *The figure **4** in the Part no. 1SAP**4**... (label) identifies the XC version.*

127.1   Assembly

127.2   Disassembly

127.3 Assembly with screws

> ❗ **NOTICE!**
> **Use screw mounting accessory to avoid damage!**
> For screw mounting, the use of the TA526 screw mounting accessory (1SAP180800R0001) is mandatory to prevent bending and damage to the module.

1. TA526 is snapped on the rear side of the module like DIN rails.
2. Fasten module with screws (M4, max 1.2 Nm) from the front side.

127.4 Dimensions

1 Din rail 15 mm
2 Din rail 7.5 mm

> ⓘ *The dimensions are in mm and in brackets in inch.*

127.5   Connections

1   I/O bus (10 pins, male) to connect the previous terminal unit, the CPU terminal base or the communication interface module to the terminal unit
2   I/O bus (10 pins, female) to connect other terminal units
3a Plug (2 x 25 pins) to connect the inserted I/O modules
3b Plug (2 x 19 pins) to connect the inserted I/O modules
4   With a screwdriver inserted in this place, the terminal unit and the adjacent terminal unit can be shoved from each other
5   Holes for screw mounting
6   40 terminals for signals and process supply voltage
7   DIN rail
8   White border signifies hot swap capability of the terminal unit

> *In corrosive environment, please protect unused connectors using the TA535 accessory.*
>
> *Not supplied with this device.*

127.6   Cleaning

> **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

127.7   Certification

KC MSIP-REI-Abb-AC500	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	Note	These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고	이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

127.8   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

—
128 TU551-CS31

- TU551-CS31
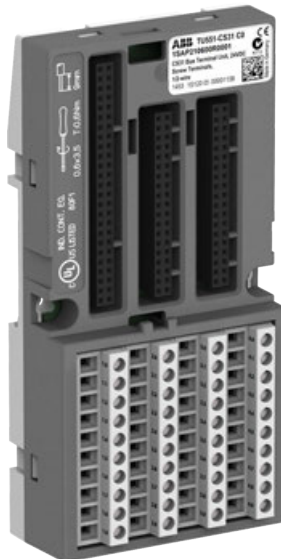
⚠	**CAUTION!**
	Risk of injury and damaging the product!

Improper installation and maintenance may result in injury and can damage the product!

– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
– Only by qualified personnel.

128.1 Assembly
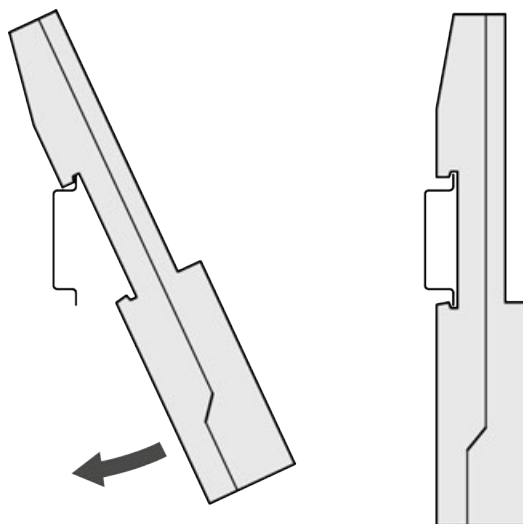
128.2 Disassembly
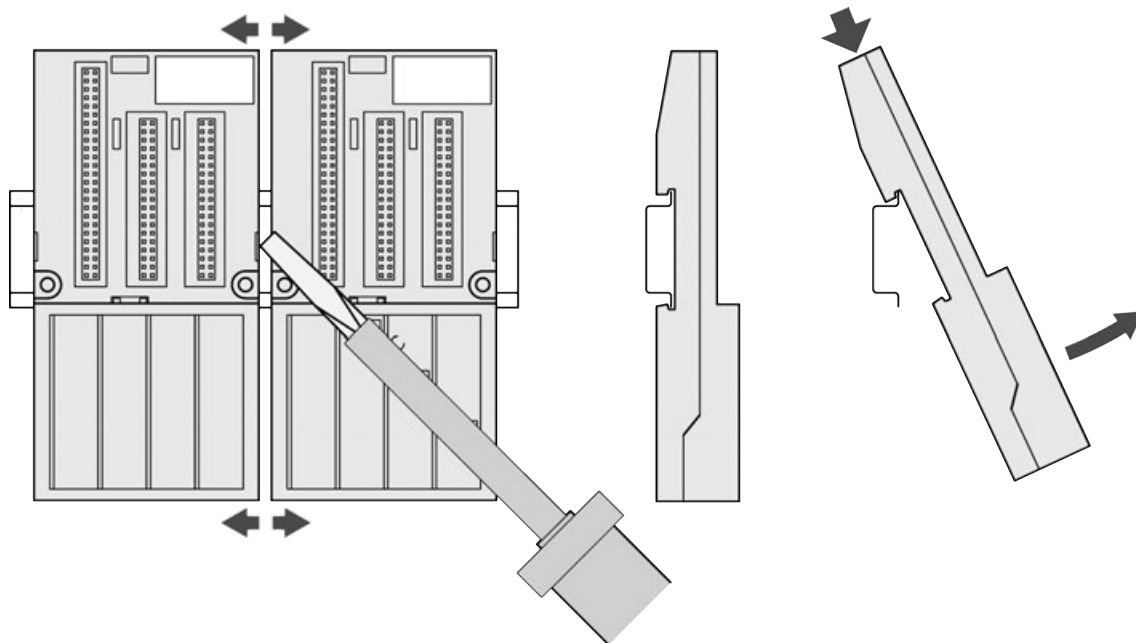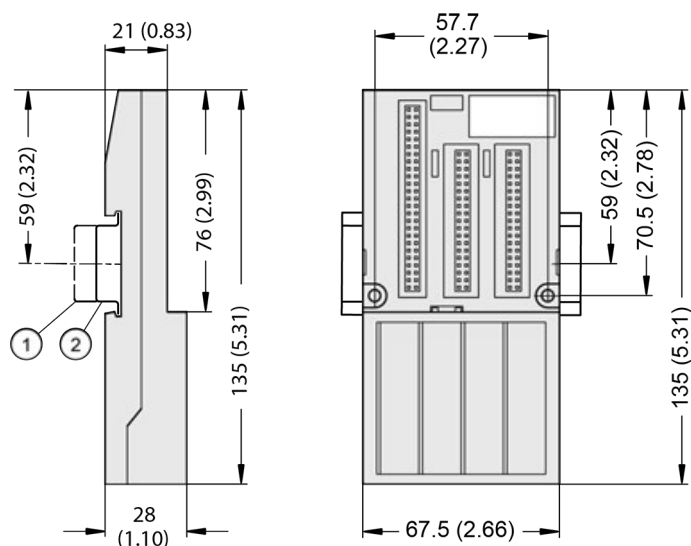

128.3 Assembly with screws

> **!**
>
> **NOTICE!**
> **Use screw mounting accessory to avoid damage!**
> For screw mounting, the use of the TA526 screw mounting accessory (1SAP180800R0001) is mandatory to prevent bending and damage to the module.

1. TA526 is snapped on the rear side of the module like DIN rails.

2. Fasten module with screws (M4, max 1.2 Nm) from the front side.
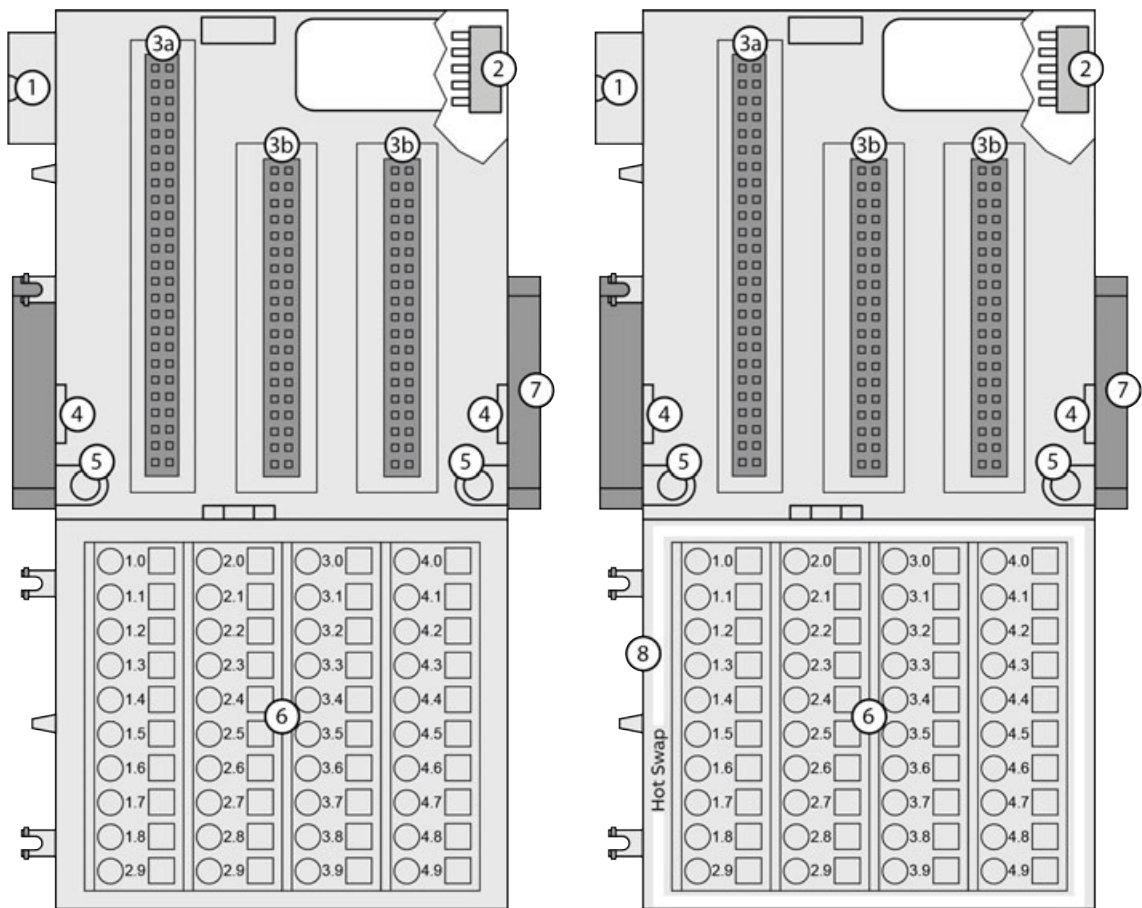
128.4   Dimensions

1   Din rail 15 mm
2   Din rail 7.5 mm

> ⓘ   *The dimensions are in mm and in brackets in inch.*

128.5   Connections
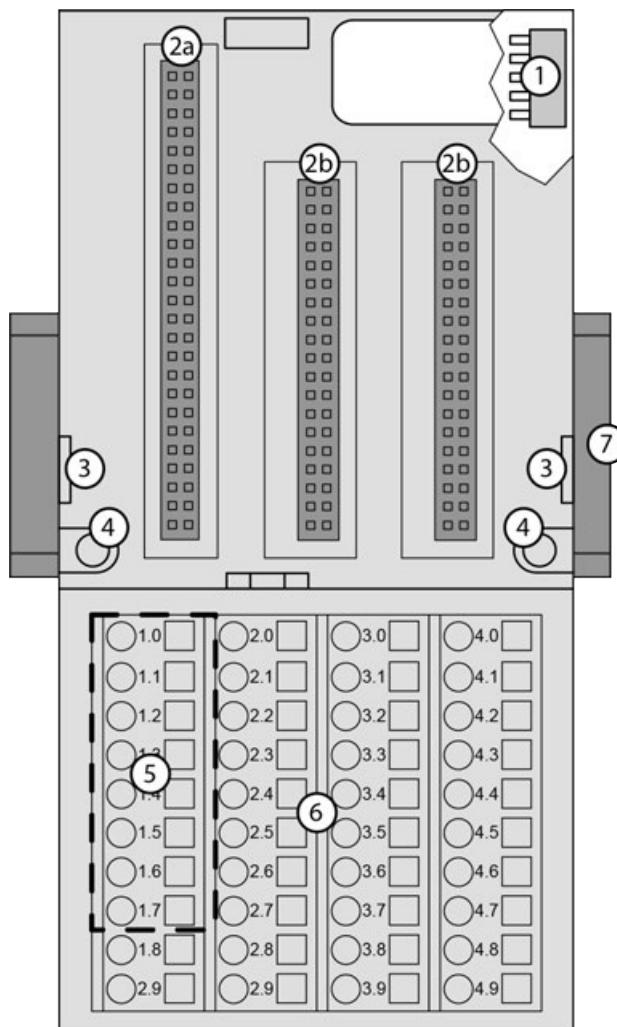
1   I/O bus (10 pins, female) to connect other terminal units
2a Plug (2 25 pins) to connect the inserted I/O modules
2b Plug (2 19 pins) to connect the inserted I/O modules
3   With a screwdriver inserted in this place, the terminal unit and the adjacent terminal unit can be shoved from each other
4   2 holes for wall mounting
5   CS31 bus interface
6   30 terminals for signals and process supply voltage
7   DIN rail

All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.

128.6 Cleaning

> ⓘ **Cleaning instructions**
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

128.7 Certification
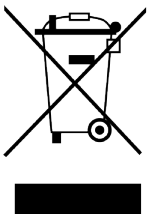
KC MSIP-REI-Abb-AC500	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	**Note** These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

128.8 Recycling

> ⓘ **Disposal and recycling information**
>
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

129 TU552-CS31(-XC)

- TU552-CS31
- TU552-CS31-XC
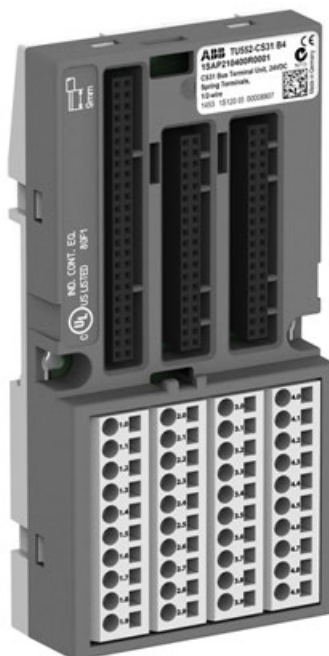
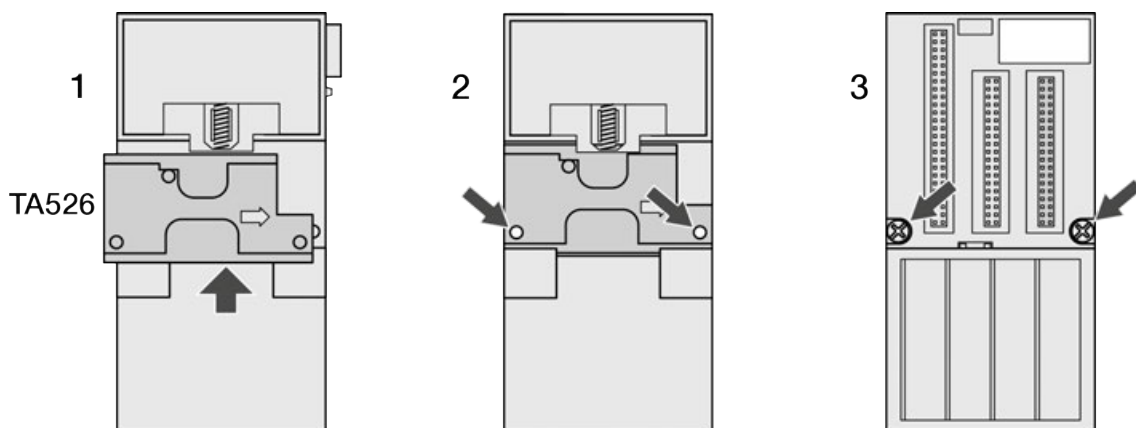| ⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

129.1   Assembly

129.2   Disassembly
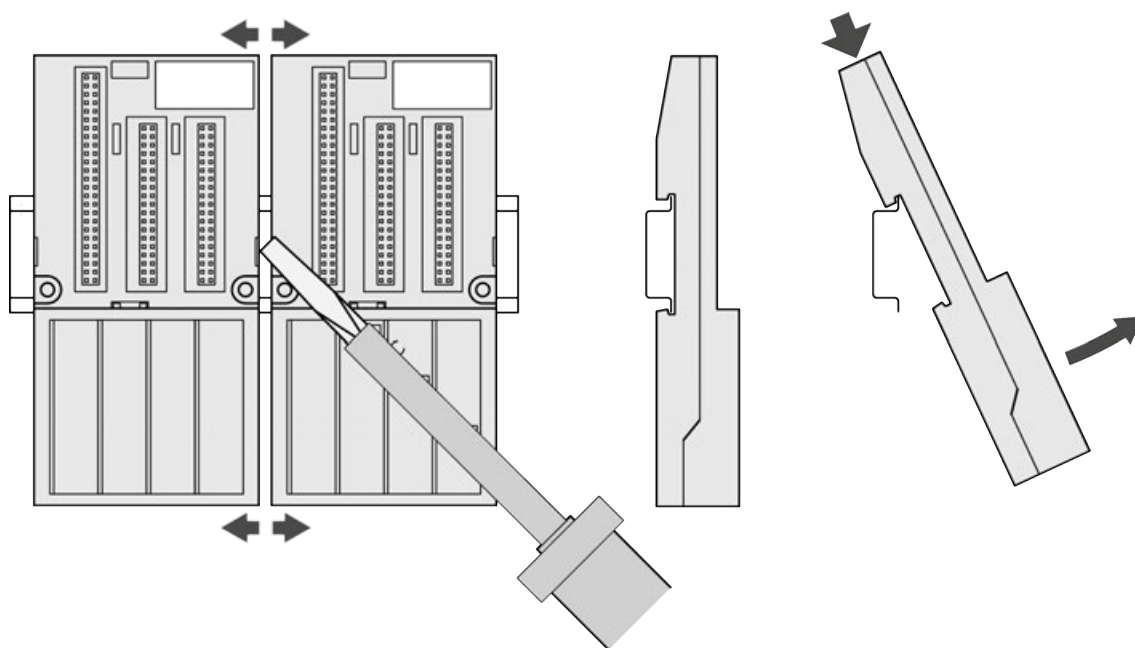
129.3 Assembly with screws
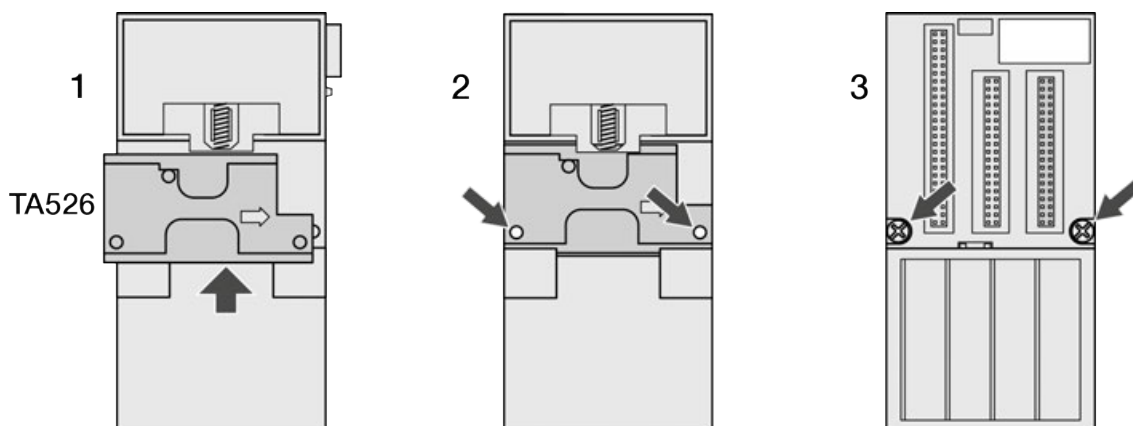
TA526

> **NOTICE!**
> **Use screw mounting accessory to avoid damage!**
> For screw mounting, the use of the TA526 screw mounting accessory (1SAP180800R0001) is mandatory to prevent bending and damage to the module.

1. TA526 is snapped on the rear side of the module like DIN rails.

2. Fasten module with screws (M4, max 1.2 Nm) from the front side.

129.4 Dimensions
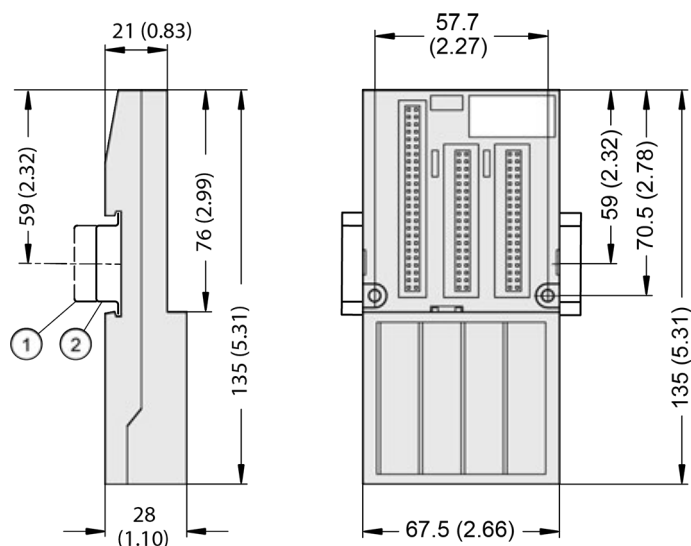
1 Din rail 15 mm
2 Din rail 7.5 mm

> *The dimensions are in mm and in brackets in inch.*

129.5 Connections
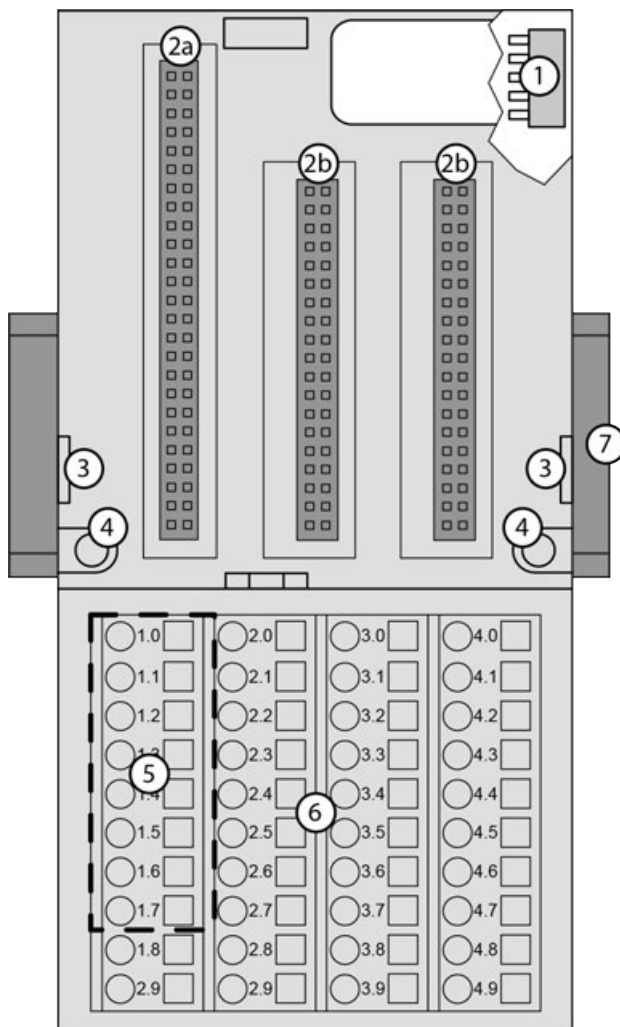
1 I/O bus (10 pins, female) to connect other terminal units
2a Plug (2 25 pins) to connect the inserted I/O modules
2b Plug (2 19 pins) to connect the inserted I/O modules
3 With a screwdriver inserted in this place, the terminal unit and the adjacent terminal unit can be shoved from each other
4 2 holes for wall mounting
5 CS31 bus interface
6 30 terminals for signals and process supply voltage
7 DIN rail

> *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

129.5.1 Bus interface

Pin assignment

R1	Resistor + (end-of-line)
R2	Resistor - (end-of-line)
B1	CS31 bus +
B2	CS31 bus -
FE	Functional earth
B1	CS31 bus +
B2	CS31 bus -
FE	Functional earth
UP	24 V DC process voltage
ZP	0 V process voltage

> ℹ️ *In corrosive environment, please protect unused connectors using the TA535 accessory.*
>
> *Not supplied with this device.*

129.6 Cleaning

> ℹ️ **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

129.7 Certification

KC

MSIP-REI-Abb-AC500

en		Devices with KCC sign on product sticker and packaging
ko		제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	**Note** These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

129.8   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

130 TU582-S(-XC) 24 V DC

- TU582-S 24 V DC
- TU582-S-XC 24 V DC

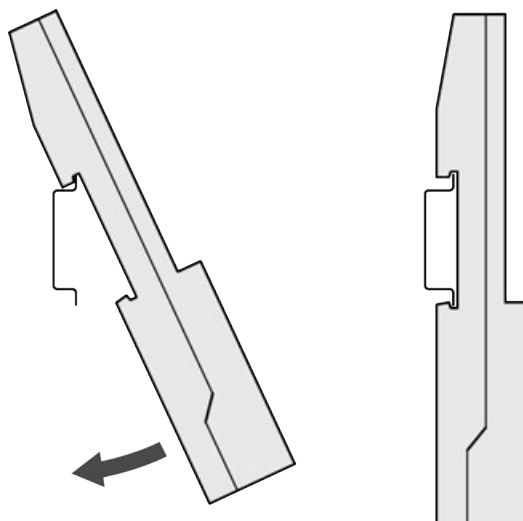| ⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.
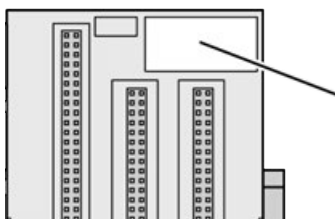
XC version   **XC** = e**X**treme **C**onditions

ⓘ	**Extreme conditions**
	Terminal units for use in extreme ambient conditions have no ❄ sign for XC version.
	*The figure **4** in the Part no. 1SAP**4**... (label) identifies the XC version.*

130.1 Assembly

130.2 Disassembly

130.3   Assembly with screws

> **!** **NOTICE!**
> **Use screw mounting accessory to avoid damage!**
> For screw mounting, the use of the TA526 screw mounting accessory
> (1SAP180800R0001) is mandatory to prevent bending and damage to the
> module.

1.   TA526 is snapped on the rear side of the module like DIN rails.

2.   Fasten module with screws (M4, max 1.2 Nm) from the front side.

130.4   Dimensions

1   Din rail 15 mm
2   Din rail 7.5 mm

> **i**   *The dimensions are in mm and in brackets in inch.*

130.5 Connections
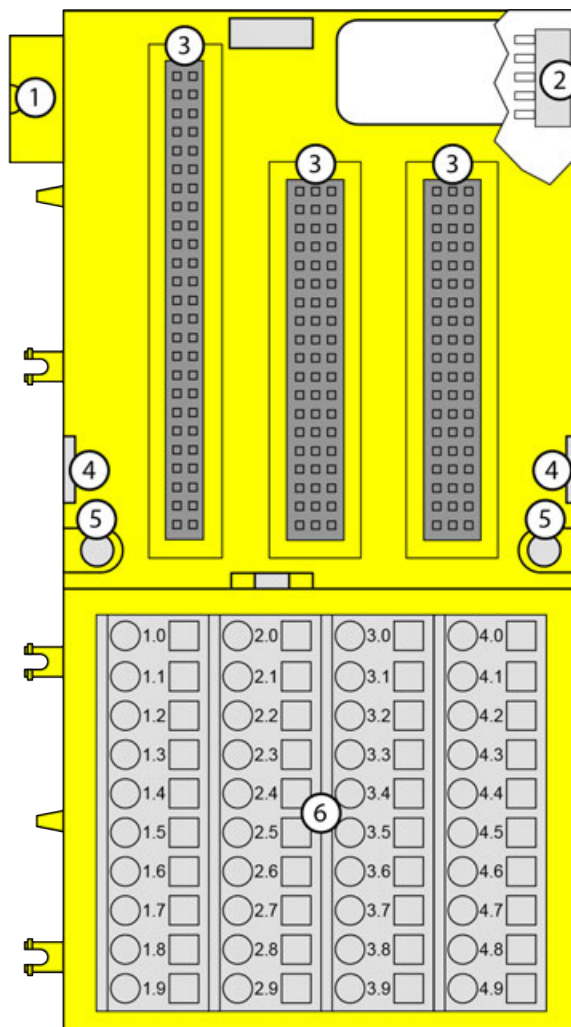
1   I/O bus (10 pins, male) to connect the previous terminal unit, the CPU terminal base or the communication interface module to the terminal unit
2   I/O bus (10 pins, female) to connect other terminal units
3   Plug (1x 50 pins and 2x 57 pins) to connect the inserted I/O modules
4   With a screwdriver inserted in this place, the terminal unit and the adjacent terminal unit can be shoved from each other
5   Holes for screw mounting
6   40 spring terminals for signals and process supply voltage

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AC500-S safety user manual

For a detailed description of the connection of the module, please refer to the "AC500-S safety user manual".

In corrosive environment, please protect unused connectors using the TA535 accessory.

Not supplied with this device.

130.6 Cleaning

> ⓘ **Cleaning instructions**
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

130.7 Certification

KC MSIP-REI-Abb-AC500	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	Note These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

130.8 Recycling

> ⓘ **Disposal and recycling information**
>
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*

131 07AC91-AD

- 07AC91-AD
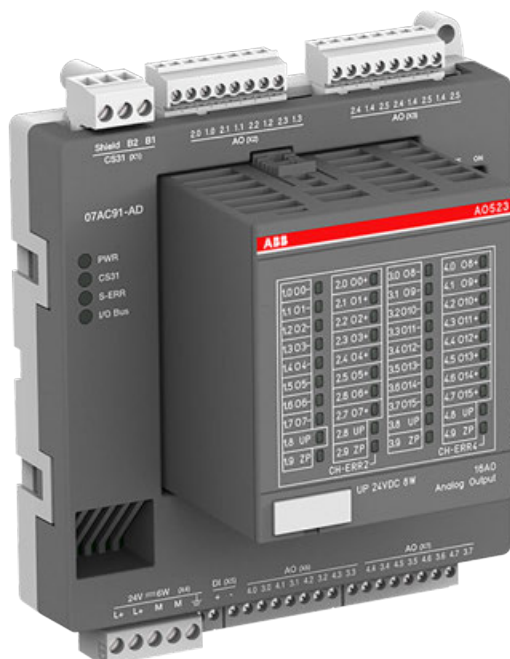
⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

131.1 Dimensions
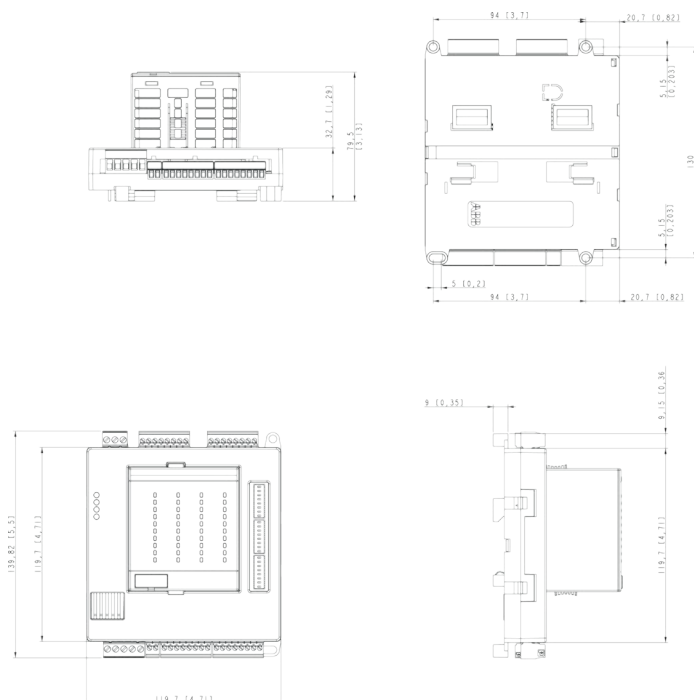
> ℹ️ *The dimensions are in mm and in brackets in inch.*

131.2 Connections
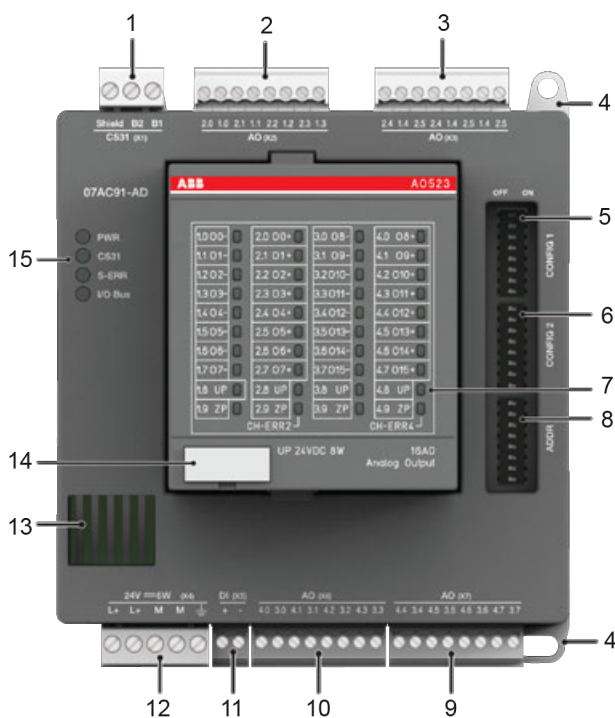
1   Connection for CS31 bus (X1)
2   Analog outputs (X2): 0 ... 10 V, 0 ... 20 mA
3   Analog outputs (X3): 0 ... 10 V

4   Hole for screw mounting (screw diameter 4 mm, extension torque 1.2 Nm)
5   DIP switch for CONFIG1
6   DIP switch for CONFIG2
7   Status LEDs for AO523
8   DIP switch for ADDR
9   Analog outputs (X7): 0 ... 10 V
10 Analog outputs (X6): 0 ... 10 V, 0 ... 20 mA
11 Enabling input for analog outputs (X5)
12 Supply 24 V DC (incl. AO523)
13 Ventilation
14 TA525: Label
15 4 Status LEDs

> *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

131.2.1   DIP switch for CONFIG1

	Switcher number	ON	OFF
	S1	S1 + S2: AO	see 1)
	S2	0...20 mA	0...+10V
	S3	S3 + S4: AO	see 1)
	S4	0...20 mA	0...+10V
	S5	S5 + S6: AO	see 1)
	S6	NC	0...+10V
	S7	S7 + S8: AO	see 1)
	S8	NC	0...+10V

1) Switch must be set to ON in order to initialize the device.

2) Switch must be set to OFF.
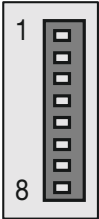
131.2.2   DIP switch for CONFIG2

	Switcher number	ON	OFF
	S1	S1 + S2: AO	see 1)
	S2	0...20 mA	0...+10V
	S3	S3 + S4: AO	see 1)
	S4	0...20 mA	0...+10V
	S5	S5 + S6: AO	see 1)
	S6	NC	0...+10V
	S7	S7 + S8: AO	see 1)
	S8	NC	0...+10V

1) Switch must be set to ON in order to initialize the device.

2) Switch must be set to OFF.

131.2.3 DIP switch for ADDR

	Switcher number	ON	OFF
1 ... 8	S1	8-bit	see 1)
	S2	NC	NC
	S3	No monitoring range limits	0
	S4	ADDR: 8	0
	S5	ADDR: 4	0
	S6	ADDR: 2	0
	S7	ADDR: 1	0
	S8	see 2)	NC

1) Switch must be set to ON in order to initialize the device.

2) Switch must be set to OFF.

131.2.4 Plug connection
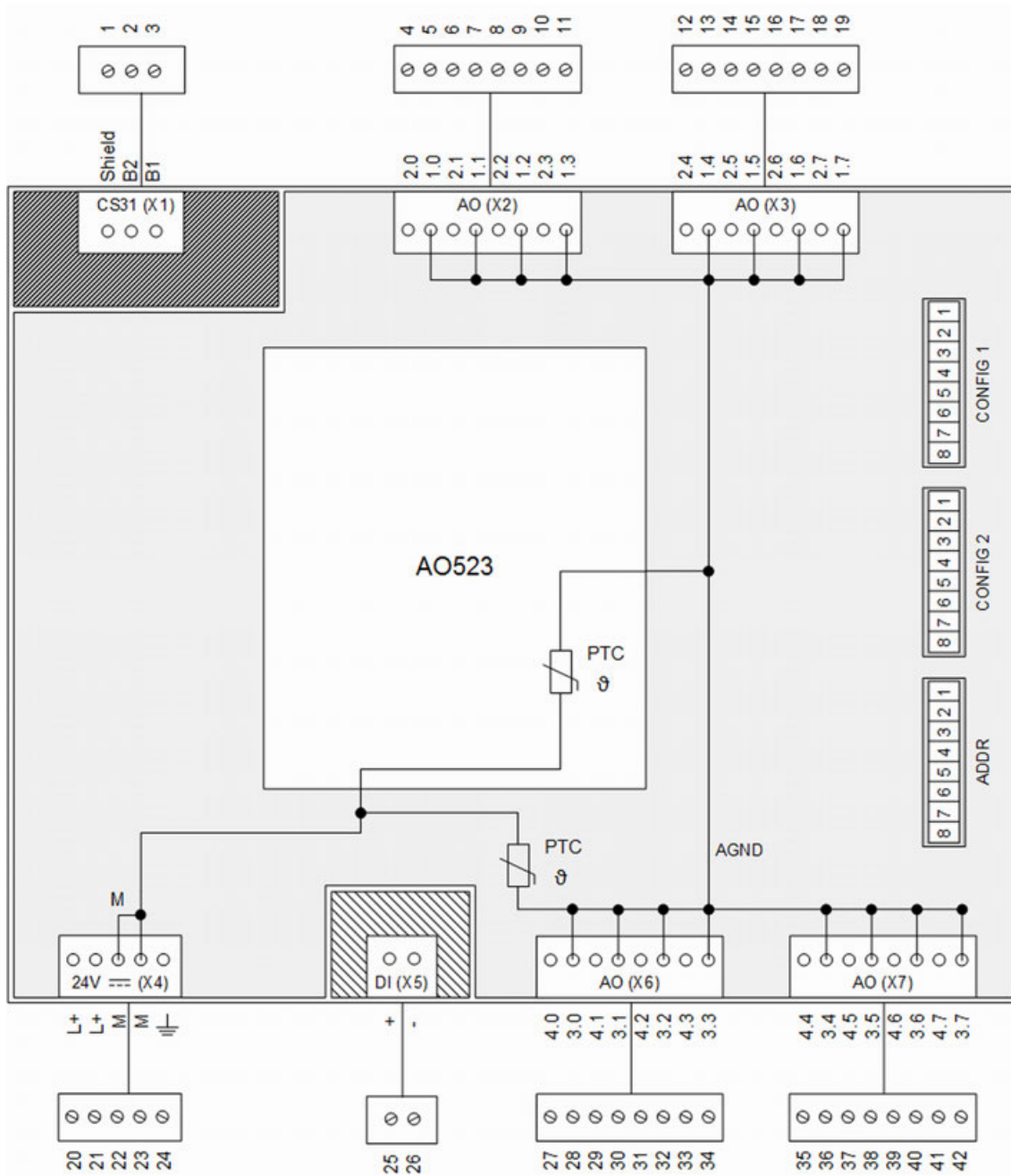
Table 91: Pin assignment CS31 bus (X1)

Connector / Terminal	Pin	Assignment / Signal
X1 / Shield	1	No internal connection
X1 / B2	2	BUS 2
X1 / B1	3	BUS 1

Table 92: Pin assignment AO (X2)

Connector / Terminal	Pin	Assignment / Signal
X2 / 2.0	4	AO523 / O0+
X2 / 1.0	5	AO523 / O0- (AGND)

Connector / Terminal	Pin	Assignment / Signal
X2 / 2.1	6	AO523 / O1+
X2 / 1.1	7	AO523 / O1- (AGND)
X2 / 2.2	8	AO523 / O2+
X2 / 1.2	9	AO523 / O2- (AGND)
X2 / 2.3	10	AO523 / O3+
X2 / 1.3	11	AO523 / O3- (AGND)

Table 93: Pin assignment AO (X3)

Connector / Terminal	Pin	Assignment / Signal
X3 / 2.4	12	AO523 / -
X3 / 1.4	13	AO523 / O4- (AGND)
X3 / 2.5	14	AO523 / -
X3 / 1.5	15	AO523 / O5- (AGND)
X3 / 2.6	16	AO523 / -
X3 / 1.6	17	AO523 / O6- (AGND)
X3 / 2.7	18	AO523 / -
X3 / 1.7	19	AO523 / O7- (AGND)

Table 94: Pin assignment 24 V DC 9W (X4)

Connector / Terminal	Pin	Assignment / Signal
X4 / L+	20	L+
X4 / L+	21	L+
X4 / M	22	M
X4 / M	23	M
X4 / FE	24	FE

Table 95: Pin assignment DI (X5)

Connector / Terminal	Pin	Assignment / Signal
X5 / +	25	IN+
X5 / -	26	IN- (galvanic isolated ground)

Table 96: Pin assignment AO (X6)

Connector / Terminal	Pin	Assignment / Signal
X6 / 4.0	27	AO523 / O8+
X6 / 3.0	28	AO523 / O8- (AGND)
X6 / 4.1	29	AO523 / O9+
X6 / 3.1	30	AO523 / O9- (AGND)
X6 / 4.2	31	AO523 / O10+
X6 / 3.2	32	AO523 / O10- (AGND)
X6 / 4.3	33	AO523 / O11+
X6 / 3.3	34	AO523 / O11- (AGND)

Table 97: Pin assignment AO (X7)

Connector / Terminal	Pin	Assignment / Signal
X7 / 4.4	35	AO523 / O12+
X7 / 3.4	36	AO523 / O12- (AGND)
X7 / 4.5	37	AO523 / O13+
X7 / 3.5	38	AO523 / O13- (AGND)
X7 / 4.6	39	AO523 / O14+
X7 / 3.6	40	AO523 / O14- (AGND)
X7 / 4.7	41	AO523 / O15+
X7 / 3.7	42	AO523 / O15- (AGND)

131.3   Cleaning

> **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

131.4   Certification

	en	Devices with KCC sign on product sticker and packaging
	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

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en	Note	
	These devices correspond to:	KN61000-6-2 "Immunity for industrial environments", KN61000-6-4 "Emission standard for industrial environments"
ko	참고 이러한 기기는	KN61000-6-2 "산업 환경에 대한 내성", KN61000-6-4 "산업 환경 누출 기준"에 적합함

131.5   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

— 132 07AC91-AD2

- 07AC91-AD2
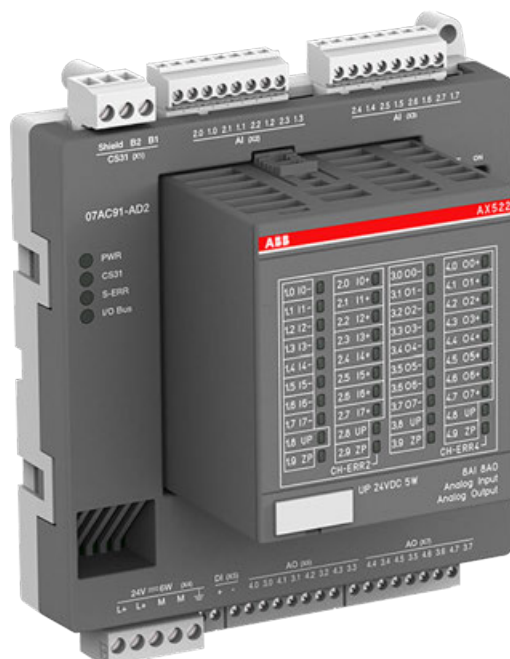
| ⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

132.1 Dimensions
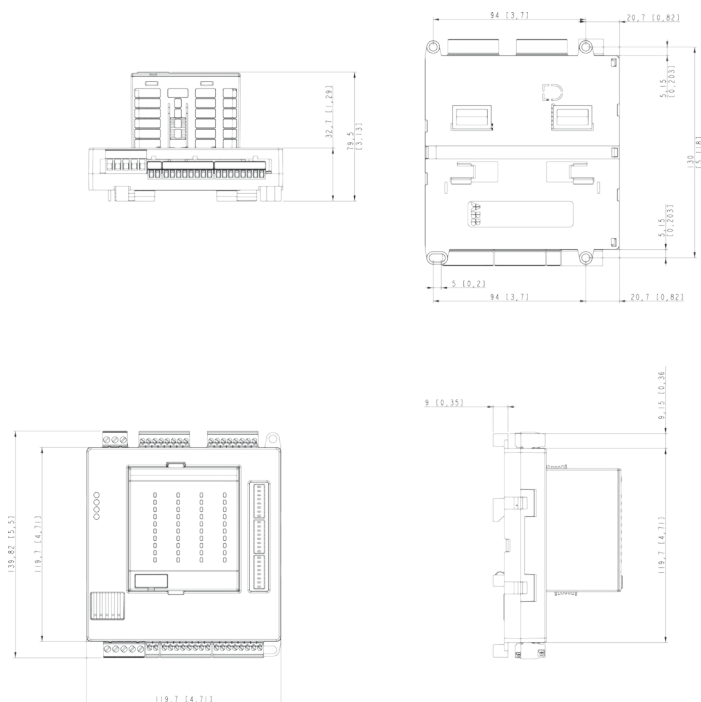
> ℹ *The dimensions are in mm and in brackets in inch.*

132.2 Connections
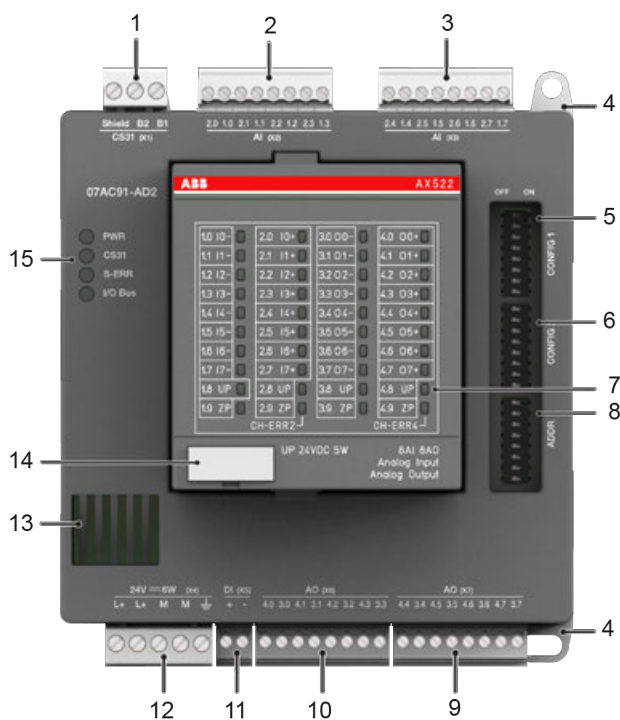
1 Connection for CS31 bus (X1)
2 Analog inputs (X2): -10 V…+10 V, 0…20 mA
3 Analog inputs (X3): -10 V…+10 V, 0…20 mA

4   Hole for screw mounting (screw diameter 4 mm, extension torque 1.2 Nm)
5   DIP switch for CONFIG1
6   DIP switch for CONFIG2
7   Status LEDs for AX522
8   DIP switch for ADDR
9   Analog outputs (X7): -10 V…+10 V
10 Analog outputs (X6): -10 V…+10 V, 0…20 mA
11 Enabling input for analog outputs (X5)
12 Supply 24 V DC (incl. AX522)
13 Ventilation
14 TA525: Label
15 4 Status LEDs

> *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

132.2.1   DIP switch for CONFIG1

	Switcher number	ON	OFF
1 ⬚⬚⬚⬚⬚⬚⬚⬚ 8	S1	0...20 mA	-10V...+10V
	S2	0...20 mA	-10V...+10V
	S3	0...20 mA	-10V...+10V
	S4	0...20 mA	-10V...+10V
	S5	0...20 mA	-10V...+10V
	S6	0...20 mA	-10V...+10V
	S7	0...20 mA	-10V...+10V
	S8	0...20 mA	-10V...+10V

1) Switch must be set to OFF.

2) Switch must be set to ON in order to initialize the device.
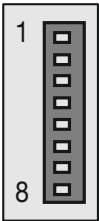
132.2.2   DIP switch for CONFIG2

	Switcher number	ON	OFF
1 ⬚⬚⬚⬚⬚⬚⬚⬚ 8	S1	0...20 mA	-10V...+10V
	S2	0...20 mA	-10V...+10V
	S3	0...20 mA	-10V...+10V
	S4	0...20 mA	-10V...+10V
	S5	see 1)	-10V...+10V
	S6	see 1)	-10V...+10V
	S7	see 1)	-10V...+10V
	S8	see 1)	-10V...+10V

1) Switch must be set to OFF.

2) Switch must be set to ON in order to initialize the device.

132.2.3 DIP switch for ADDR

	Switcher number	ON	OFF
	S1	8-bit	see 2)
	S2	NC	NC
	S3	monitoring range limits	0
	S4	ADDR: 8	0
	S5	ADDR: 4	0
	S6	ADDR: 2	0
	S7	ADDR: 1	0
	S8	NC	NC

1) Switch must be set to OFF.

2) Switch must be set to ON in order to initialize the device.

132.2.4 Plug connection
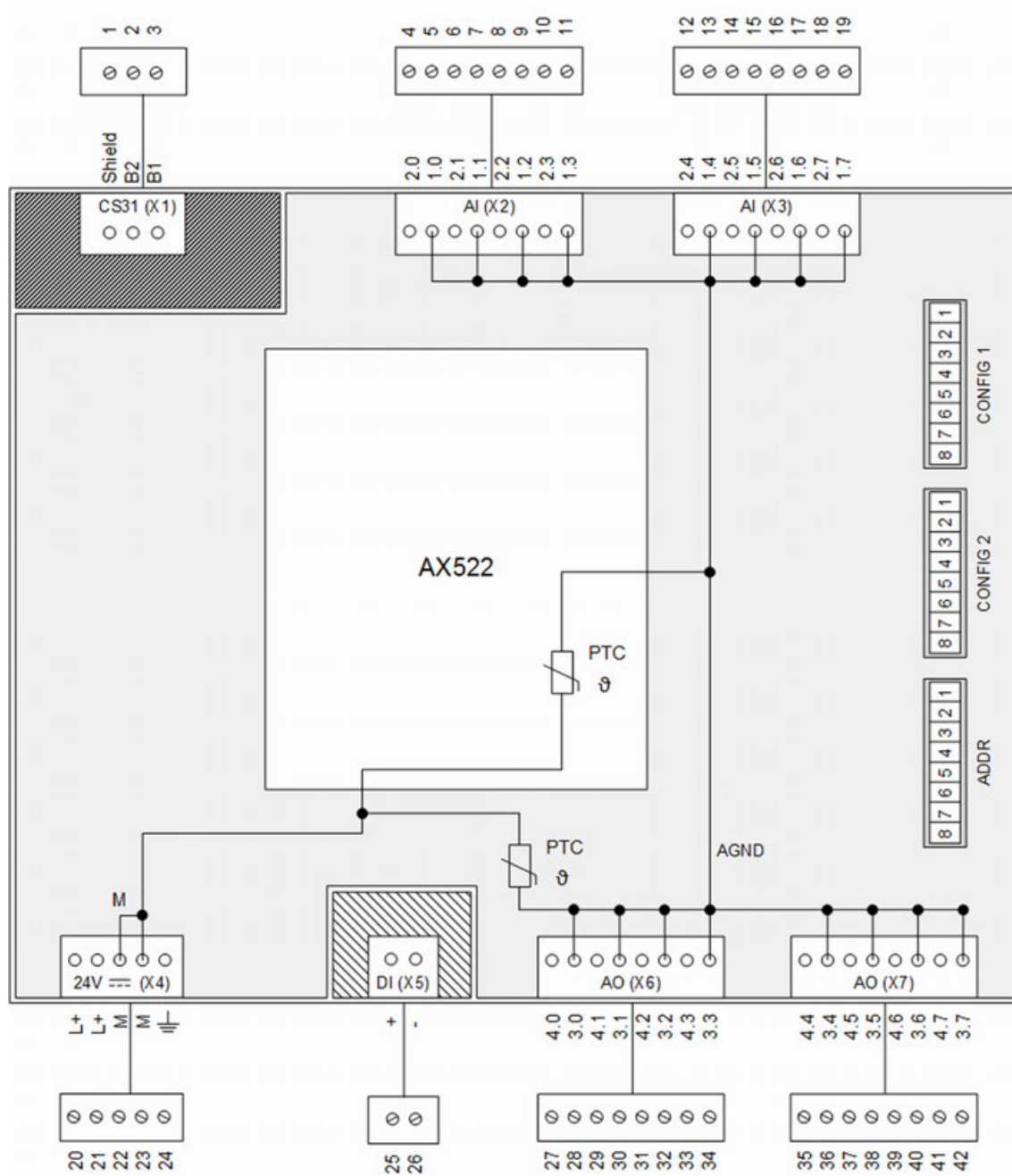
Table 98: Pin assignment CS31 bus (X1)

Connector / Terminal	Pin	Assignment / Signal
X1 / Shield	1	No internal connection
X1 / B2	2	BUS 2
X1 / B1	3	BUS 1

Table 99: Pin assignment AI (X2)

Connector / Terminal	Pin	Assignment / Signal
X2 / 2.0	4	AX522 / I0+
X2 / 1.0	5	AX522 / I0- (AGND)

Connector / Terminal	Pin	Assignment / Signal
X2 / 2.1	6	AX522 / I1+
X2 / 1.1	7	AX522 / I1- (AGND)
X2 / 2.2	8	AX522 / I2+
X2 / 1.2	9	AX522 / I2- (AGND)
X2 / 2.3	10	AX522 / I3+
X2 / 1.3	11	AX522 / I3- (AGND)

Table 100: Pin assignment AI (X3)

Connector / Terminal	Pin	Assignment / Signal
X3 / 2.4	12	AX522 / I4+
X3 / 1.4	13	AX522 / I4- (AGND)
X3 / 2.5	14	AX522 / I5+
X3 / 1.5	15	AX522 / I5- (AGND)
X3 / 2.6	16	AX522 / I6+
X3 / 1.6	17	AX522 / I6- (AGND)
X3 / 2.7	18	AX522 / I7+
X3 / 1.7	19	AX522 / I7- (AGND)

Table 101: Pin assignment 24 V DC 6W (X4)

Connector / Terminal	Pin	Assignment / Signal
X4 / L+	20	L+
X4 / L+	21	L+
X4 / M	22	M
X4 / M	23	M
X4 / FE	24	FE

Table 102: Pin assignment DI (X5)

Connector / Terminal	Pin	Assignment / Signal
X5 / +	25	IN+
X5 / -	26	IN- (galvanic isolated ground)

Table 103: Pin assignment AO (X6)

Connector / Terminal	Pin	Assignment / Signal
X6 / 4.0	27	AX522 / O0+
X6 / 3.0	28	AX522 / O0- (AGND)
X6 / 4.1	29	AX522 / O1+
X6 / 3.1	30	AX522 / O1- (AGND)
X6 / 4.2	31	AX522 / O2+
X6 / 3.2	32	AX522 / O2- (AGND)
X6 / 4.3	33	AX522 / O3+
X6 / 3.3	34	AX522 / O3- (AGND)

Table 104: Pin assignment AO (X7)

Connector / Terminal	Pin	Assignment / Signal
X7 / 4.4	35	AX522 / O4+
X7 / 3.4	36	AX522 / O4- (AGND)
X7 / 4.5	37	AX522 / O5+
X7 / 3.5	38	AX522 / O5- (AGND)
X7 / 4.6	39	AX522 / O6+
X7 / 3.6	40	AX522 / O6- (AGND)
X7 / 4.7	41	AX522 / O7+
X7 / 3.7	42	AX522 / O7- (AGND)

> *The outputs on connector X7 cannot be configured as current outputs.*

132.3 Cleaning

> **Cleaning instructions**
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

132.4 Certification

MSIP-REI-Abb-AC500

en	Devices with KCC sign on product sticker and packaging
ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	**Note** These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

132.5   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

133 07AI91-AD

- 07AI91-AD
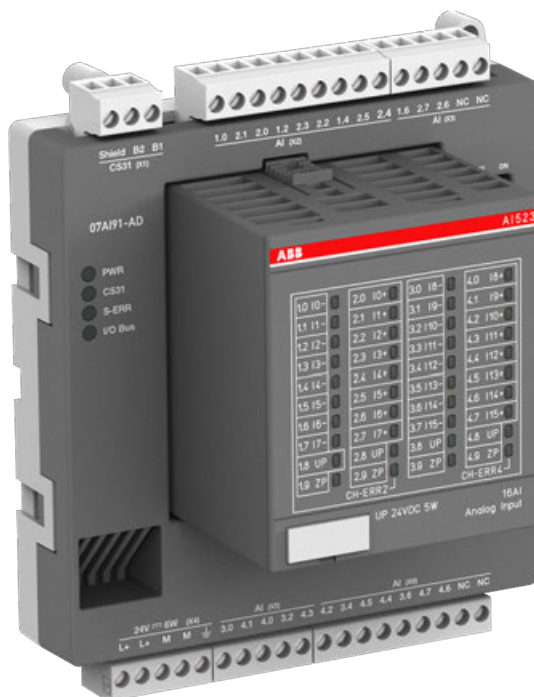
| ⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

133.1   Dimensions
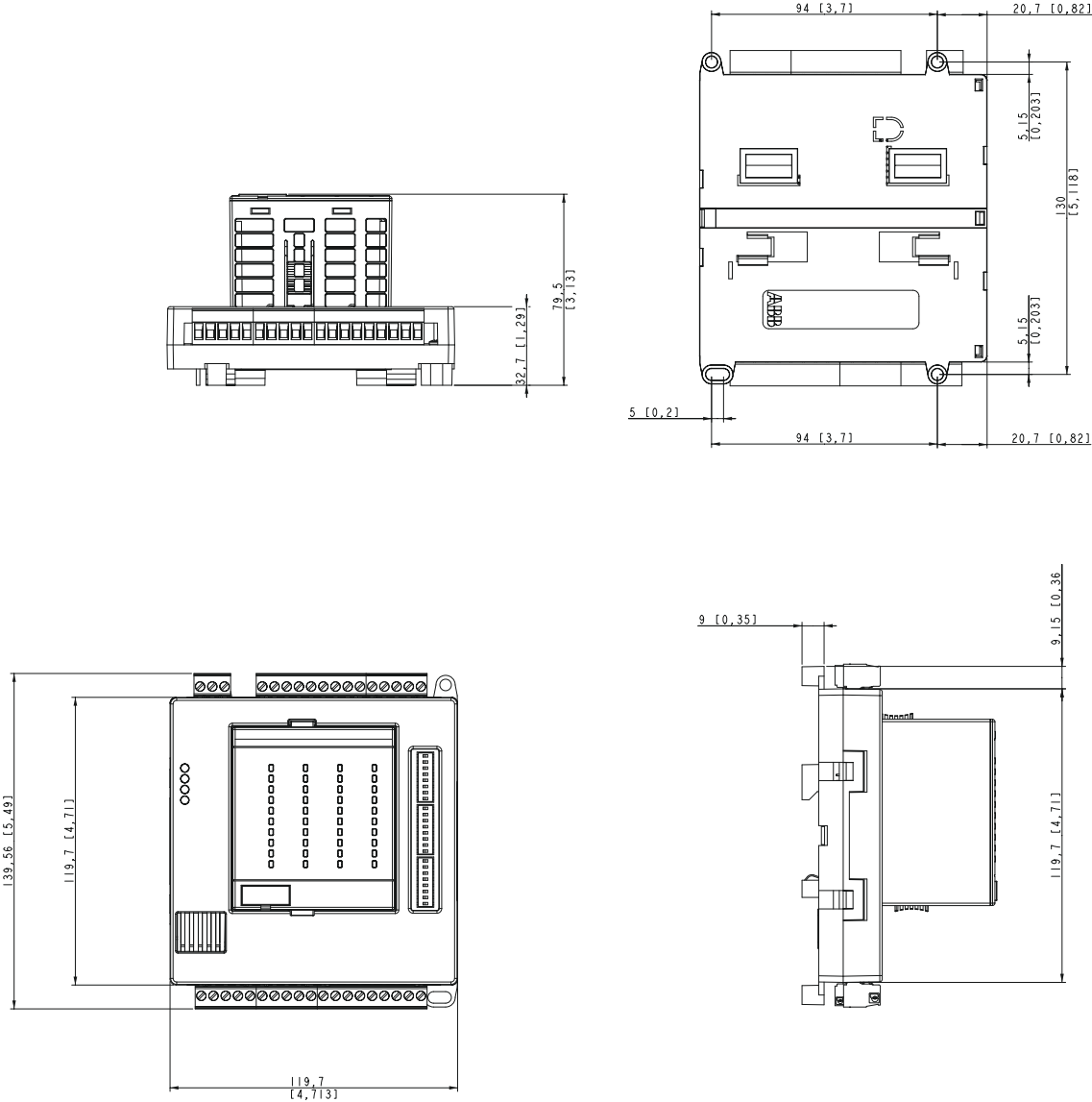
The dimensions are in mm and in brackets in inch.

133.2 Connections
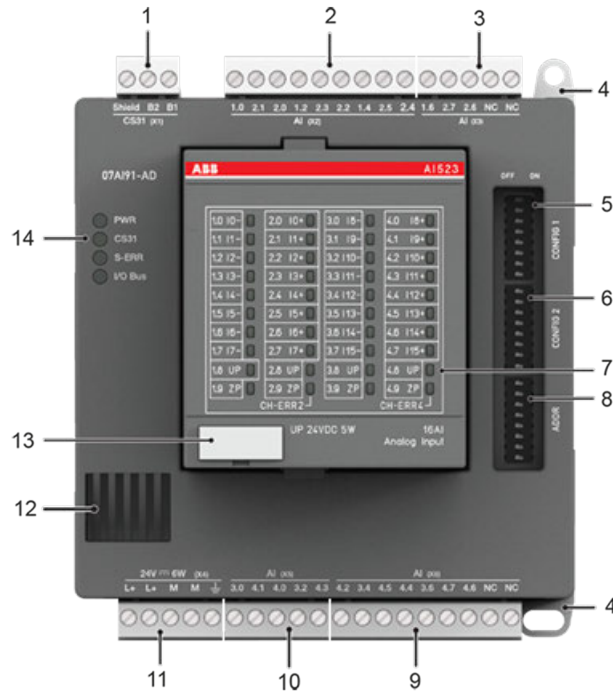
1   Connection for CS31 bus (X1)
2   Analog inputs (X2). 2.5 AI ($\pm$ 10 V differential, $\pm$ 5 V differential, temperature measurement PT100 / PT1000, 4…20 mA and 0…20 mA with external resistor)
3   Analog inputs (X3). 1.5 AI ($\pm$ 10 V differential, $\pm$ 5 V differential, temperature measurement PT100 / PT1000, 4…20 mA and 0…20 mA with external resistor)
4   Hole for screw mounting (screw diameter 4 mm, extension torque 1.2 Nm)
5   DIP switch for CONFIG1
6   DIP switch for CONFIG2
7   Status LEDs for AI523
8   DIP switch for ADDR
9   Analog inputs (X6). 2.5 AI ($\pm$ 10 V differential, $\pm$ 5 V differential, temperature measurement PT100 / PT1000, 4…20 mA and 0…20 mA with external resistor)
10 Analog inputs (X5). 1.5 AI ($\pm$ 10 V differential, $\pm$ 5 V differential, temperature measurement PT100 / PT1000, 4…20 mA and 0…20 mA with external resistor)
11 Supply 24 V DC (incl. AI523)
12 Ventilation
13 TA525: Label
14 4 Status LEDs of complete device

> *In contrast to the existing device, the following measuring ranges are not available in the replacement device: $\pm$ 500 mV, $\pm$ 50 mV. Temperature measurement with thermocouples is also not possible.*
>
> *The replacement device does not perform a self-calibration.*

> *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

133.2.1   DIP switch for CONFIG1 / CONFIG2
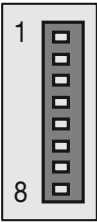
Configuration options for DIP switches CONFIG1 and CONFIG2. Configuration in blocks of 4 switches.

+/- 10V	NC
+/- 5V (with 250 Ohm measuring resistor)	NC
NC	NC
NC	NC
PT100, -50...400°C, 3-wire	NC
PT1000, -50...400°C, 3-wire	NC
NC	0...10V
NC	NC

133.2.2   DIP switch for ADDR

	Switcher number	ON	OFF
	S1	NC	NC
	S2	NC	NC
	S3	CS31	see 1)
	S4	ADDR: 8	0
	S5	ADDR: 4	0
	S6	ADDR: 2	0
	S7	ADDR: 1	0
	S8	NC	NC

1) Switch must be set to ON in order to initialize the device.

133.2.3 Plug connection
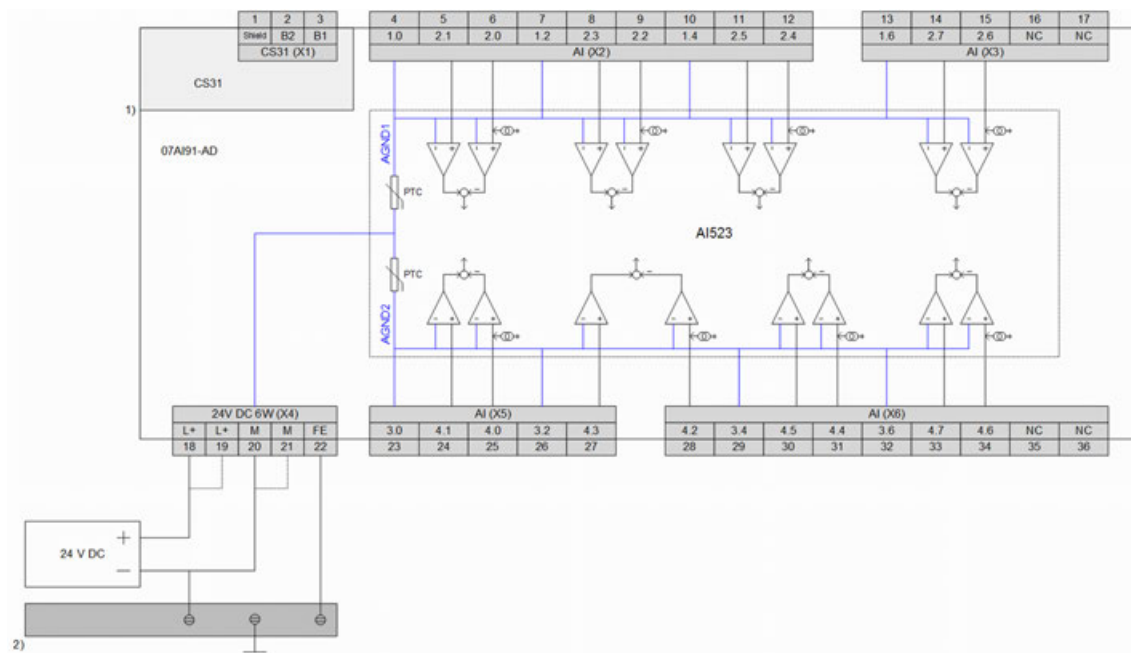
1) Galvanic isolation
2) Control cabinet grounding

Table 105: Pin assignment CS31 bus (X1)

Connector / Terminal	Pin	Assignment / Signal
X1 / Shield	1	No internal connection
X1 / B2	2	BUS 2
X1 / B1	3	BUS 1

Table 106: Pin assignment AI (X2)

Connector / Terminal	Pin	Assignment / Signal
X2 / 1.0	4	AI523 / I0- (AGND1)
X2 / 2.1	5	AI523 / I1+
X2 / 2.0	6	AI523 / I0+
X2 / 1.2	7	AI523 / I2- (AGND1)
X2 / 2.3	8	AI523 / I3+
X2 / 2.2	9	AI523 / I2+
X2 / 1.4	10	AI523 / I4- (AGND1)
X2 / 2.5	11	AI523 / I5+
X2 / 2.4	12	AI523 / I4+

Table 107: Pin assignment AI (X3)

Connector / Terminal	Pin	Assignment / Signal
X3 / 1.6	13	AI523 / I6- (AGND1)
X3 / 2.7	14	AI523 / I7+
X3 / 2.6	15	AI523 / I6+

Connector / Terminal	Pin	Assignment / Signal
X3 / NC	16	Not connected
X3 / NC	17	Not connected

Table 108: Pin assignment 24 V DC 6W (X4)

Connector / Terminal	Pin	Assignment / Signal
X4 / L+	18	L+
X4 / L+	19	L+
X4 / M	20	M
X4 / M	21	M
X4 / FE	22	FE

Table 109: Pin assignment AI (X5)

Connector / Terminal	Pin	Assignment / Signal
X5 / 3.0	23	AI523 / I8- (AGND2)
X5 / 4.1	24	AI523 / I9+
X5 / 4.0	25	AI523 / I8+
X5 / 3.2	26	AI523 / I10- (AGND2)
X5 / 4.3	27	AI523 / I11+

Table 110: Pin assignment AI (X6)

Connector / Terminal	Pin	Assignment / Signal
X6 / 4.2	28	AI523 / I10+
X6 / 3.4	29	AI523 / I12- (AGND2)
X6 / 4.5	30	AI523 / I13+
X6 / 4.4	31	AI523 / I12+
X6 / 3.6	32	AI523 / I14- (AGND2)
X6 / 4.7	33	AI523 / I15+
X6 / 4.6	34	AI523 / I14+
X6 / NC	35	Not connected
X6 / NC	36	Not connected

133.3 Cleaning

> **Cleaning instructions**
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

133.4   Certification

| | en | Devices with KCC sign on product sticker and packaging |
| | ko | 제품 스티커 및 포장에 **KCC** 표시가 된 기기 |

MSIP-REI-Abb-AC500

en	**Note**	
	These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments",
		KN61000-6-4 "Emission standard for industrial environments"
ko	참고	
	이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성",
		KN61000-6-4 "산업 환경 누출 기준"에 적합함

133.5   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

— 134 07DC91-AD

- 07DC91-AD
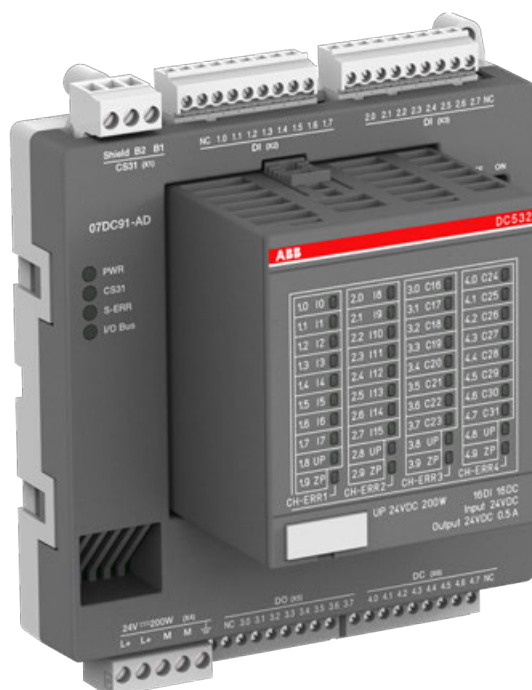
	CAUTION!
⚠️	**Risk of injury and damaging the product!**

Improper installation and maintenance may result in injury and can damage the product!

– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.

– Only by qualified personnel.

134.1   Dimensions
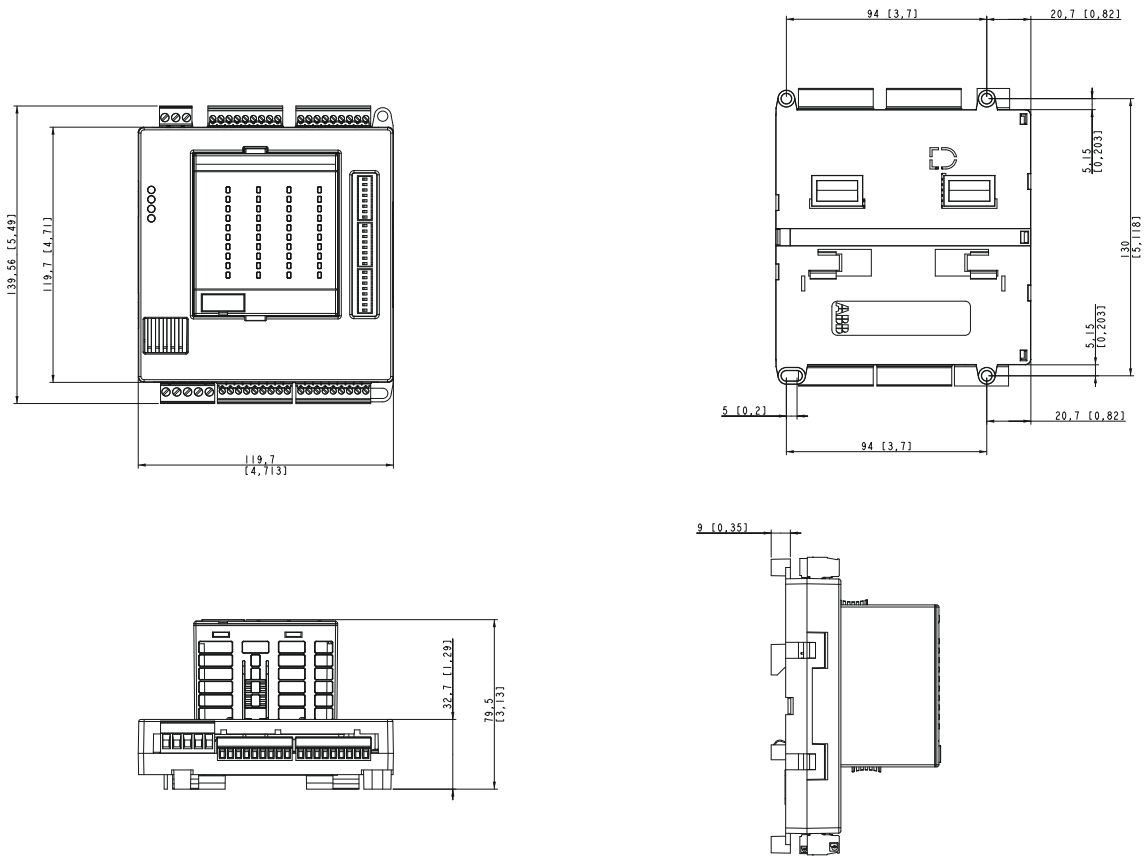
> *The dimensions are in mm and in brackets in inch.*

134.2   Connections
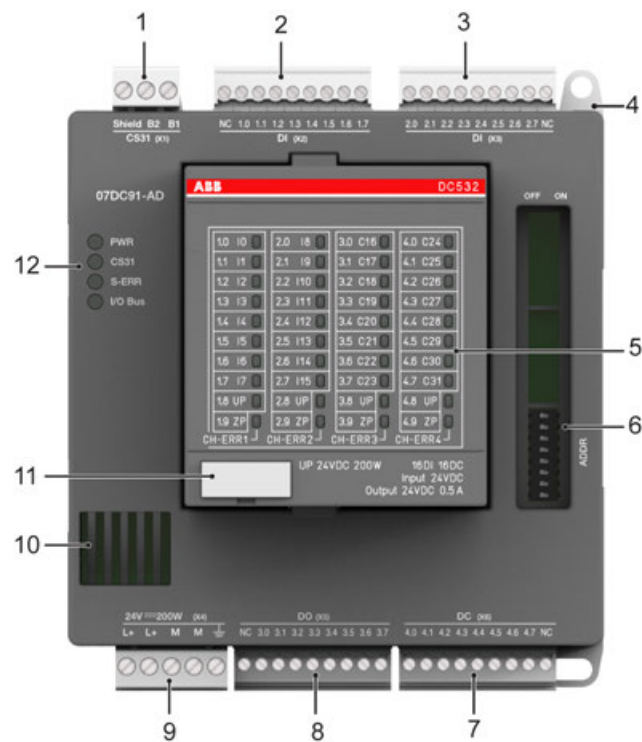
1   Connection for CS31 bus (X1)
2   8 digital inputs 24 V DC (X2)
3   8 digital inputs 24 V DC (X3)
4   Hole for screw mounting (screw diameter 4 mm, extension torque 1.2 Nm)
5   Status LEDs for DC532
6   DIP switch for address setting (ADDR)
7   8 digital inputs/outputs 24 V DC / 0.5 A (X6)
8   8 digital outputs (X5)
9   Supply 24 V DC (X4)
10 Ventilation
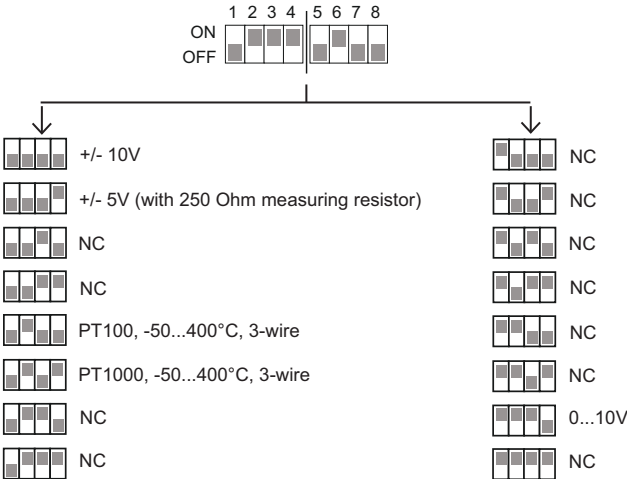11 TA525: Label
12 4 Status LEDs

> *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

134.2.1   DIP switch for ADDR

	Switcher number	ON	OFF
	S1	16 I/ 16 O	16 I/ 8 O / 8 DC
	S2	ADDR: 32	0
	S3	ADDR: 16	0
	S4	ADDR: 8	0
	S5	ADDR: 4	0

	Switcher number	ON	OFF
	S6	ADDR: 2	0
	S7	ADDR: 1	0
	S8	NC	NC

134.2.2 Plug connection
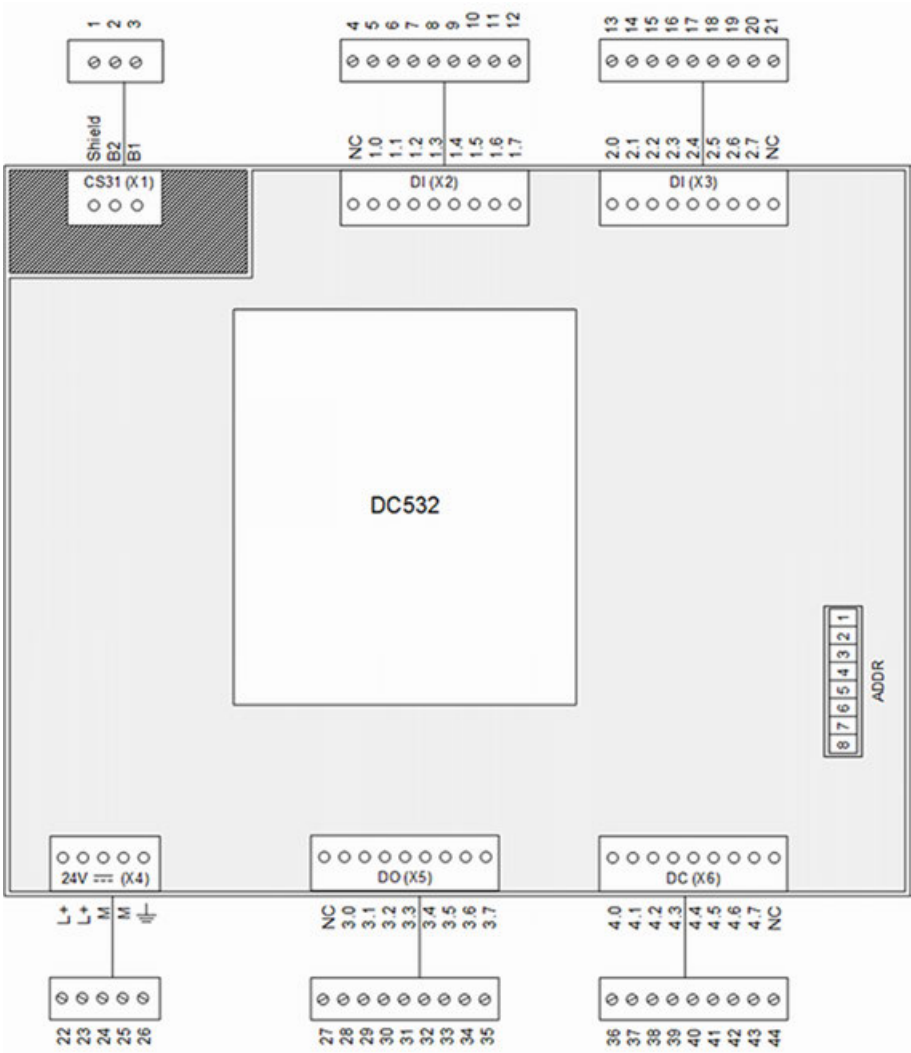
Table 111: Pin assignment CS31 bus (X1)

Connector / Terminal	Pin	Assignment / Signal
X1 / Shield	1	No internal connection
X1 / B2	2	BUS 2
X1 / B1	3	BUS 1

Table 112: Pin assignment DI (X2)

Connector / Terminal	Pin	Assignment / Signal
X2 / NC	4	No internal connection
X2 / 1.0	5	DC532 / I0
X2 / 1.1	6	DC532 / I1
X2 / 1.2	7	DC532 / I2
X2 / 1.3	8	DC532 / I3
X2 / 1.4	9	DC532 / I4
X2 / 1.5	10	DC532 / I5
X2 / 1.6	11	DC532 / I6
X2 / 1.7	12	DC532 / I7

Table 113: Pin assignment DI (X3)

Connector / Terminal	Pin	Assignment / Signal
X3 / 2.0	13	DC532 / I8
X3 / 2.1	14	DC532 / I9
X3 / 2.2	15	DC532 / I10
X3 / 2.3	16	DC532 / I11
X3 / 2.4	17	DC532 / I12
X3 / 2.5	18	DC532 / I13
X3 / 2.6	19	DC532 / I14
X3 / 2.7	20	DC532 / I15
X3 / NC	21	No internal connection

Table 114: Pin assignment 24 V DC 200 W (X4)

Connector / Terminal	Pin	Assignment / Signal
X4 / L+	22	L+
X4 / L+	23	L+
X4 / M	24	M
X4 / M	25	M
X4 / FE	26	FE

Table 115: Pin assignment DO (X5)

Connector / Terminal	Pin	Assignment / Signal
X5 / NC	27	No internal connection
X5 / 3.0	28	DC532 / C16
X5 / 3.1	29	DC532 / C17
X5 / 3.2	30	DC532 / C18
X5 / 3.3	31	DC532 / C19
X5 / 3.4	32	DC532 / C20
X5 / 3.5	33	DC532 / C21
X5 / 3.6	34	DC532 / C22
X5 / 3.7	35	DC532 / C23

Table 116: Pin assignment DC (X6)

Connector / Terminal	Pin	Assignment / Signal
X6 / 4.0	36	DC532 / C24
X6 / 4.1	37	DC532 / C25
X6 / 4.2	38	DC532 / C26
X6 / 4.3	39	DC532 / C27
X6 / 4.4	40	DC532 / C28
X6 / 4.5	41	DC532 / C29
X6 / 4.6	42	DC532 / C30
X6 / 4.7	43	DC532 / C31
X6 / NC	44	No internal connection

134.3   Cleaning

> *Cleaning instructions*
>
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

134.4   Certification

	en	Devices with KCC sign on product sticker and packaging
MSIP-REI-Abb-AC500	ko	제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	**Note** These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

134.5   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

135 07DC92-AD

- 07DC92-AD
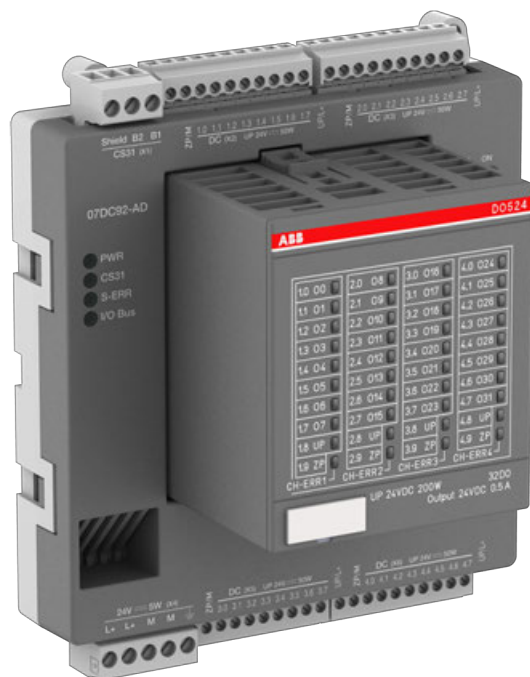
| ⚠	**CAUTION!**
	Risk of injury and damaging the product!
	Improper installation and maintenance may result in injury and can damage the product!
	– Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
	– Only by qualified personnel.

135.1 Dimensions
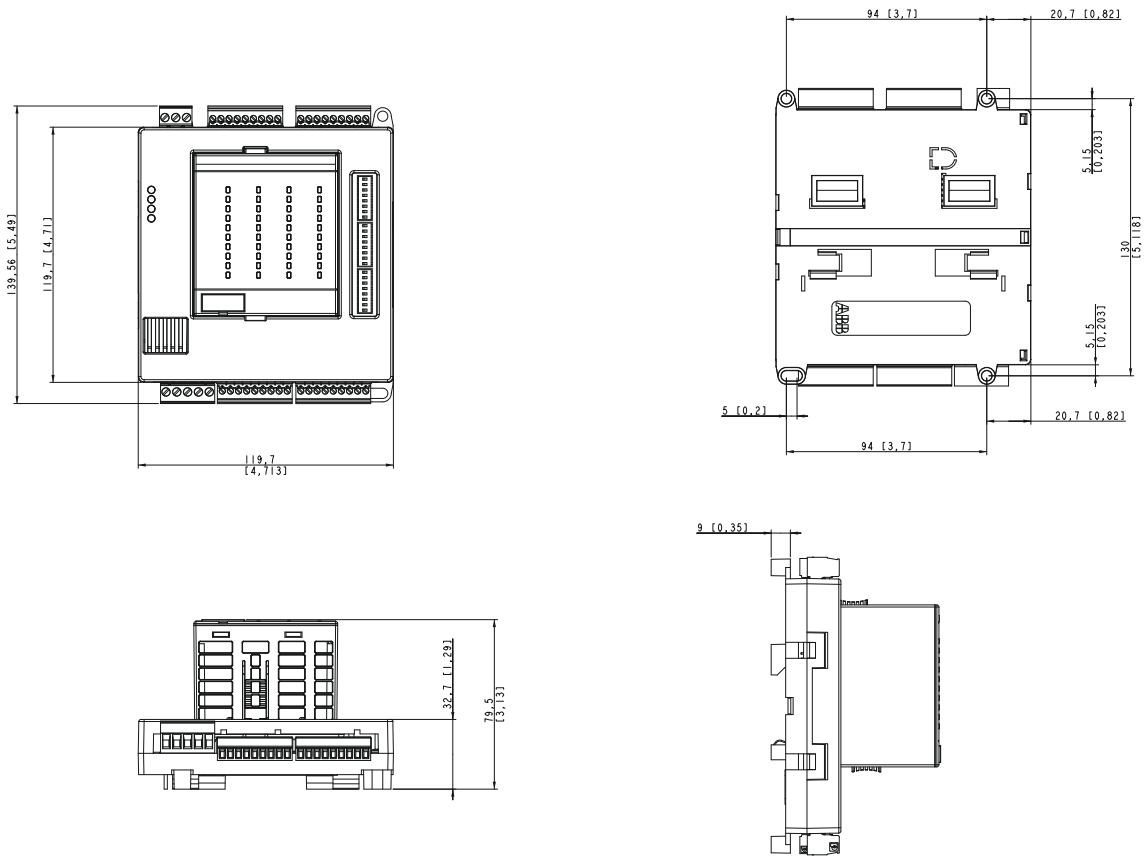
> The dimensions are in mm and in brackets in inch.

135.2   Connections
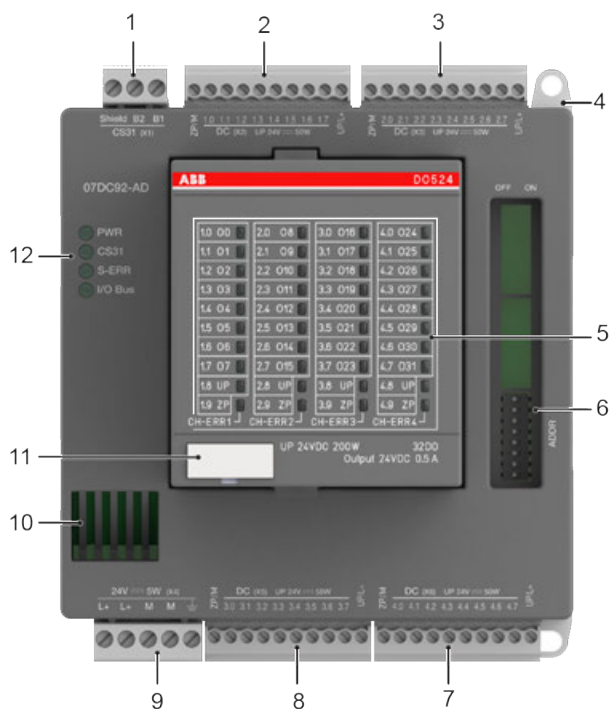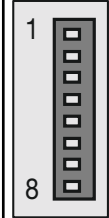
1   Connector X1: CS31 bus
2   Connector X2: 8 DC + voltage supply (incl. DO524)
3   Connector X3: 8 DC + voltage supply (incl. DO524)
4   Hole for screw mounting (screw diameter 4 mm, extension torque 1.2 Nm)
5   Status LEDs for DO524
6   DIP switch for address setting (ADDR)
7   Connector X6: 8 DC + voltage supply (incl. DO524)
8   Connector X5: 8 DC + voltage supply (incl. DO524)
9   Connector X4: Voltage supply (incl. DO524)
10 Ventilation
11 TA525: Label
12 4 LEDs to display the status of the complete 07DC92-AD device

> All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.

135.2.1   DIP switch for ADDR

	Switcher number	ON	OFF
	S1	32 DO	32 DC
	S2	ADDR: 32	0
	S3	ADDR: 16	0
	S4	ADDR: 8	0
	S5	ADDR: 4	0
	S6	ADDR: 2	0

	Switcher number	ON	OFF
	S7	ADDR: 1	0
	S8	NC	NC

135.2.2 Plug connection
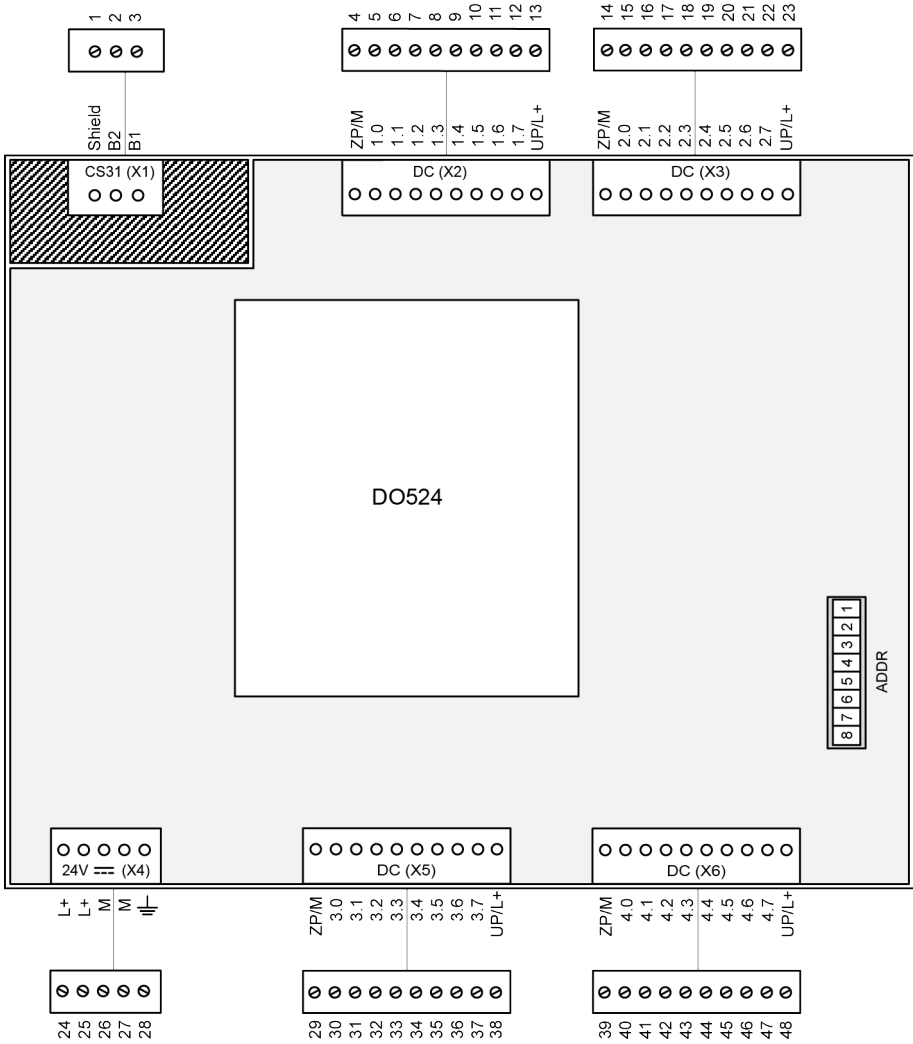
Table 117: Pin assignment CS31 bus (X1)

Connector / Terminal	Pin	Assignment / Signal
X1 / Shield	1	No internal connection
X1 / B2	2	BUS 2
X1 / B1	3	BUS 1

Table 118: Pin assignment DC (X2)

Connector / Terminal	Pin	Assignment / Signal
X2 / ZP/M	4	ZP/M
X2 / 1.0	5	DO524 / O0

Connector / Terminal	Pin	Assignment / Signal
X2 / 1.1	6	DO524 / O1
X2 / 1.2	7	DO524 / O2
X2 / 1.3	8	DO524 / O3
X2 / 1.4	9	DO524 / O4
X2 / 1.5	10	DO524 / O5
X2 / 1.6	11	DO524 / O6
X2 / 1.7	12	DO524 / O7
X2 / UP/L+	13	UP/L+

Table 119: Pin assignment DC (X3)

Connector / Terminal	Pin	Assignment / Signal
X3 / ZP/M	14	ZP/M
X3 / 2.0	15	DO524 / O8
X3 / 2.1	16	DO524 / O9
X3 / 2.2	17	DO524 / O10
X3 / 2.3	18	DO524 / O11
X3 / 2.4	19	DO524 / O12
X3 / 2.5	20	DO524 / O13
X3 / 2.6	21	DO524 / O14
X3 / 2.7	22	DO524 / O15
X3 / UP/L+	23	UP/L+

Table 120: Pin assignment 24 V DC (X4)

Connector / Terminal	Pin	Assignment / Signal
X4 / L+	24	L+
X4 / L+	25	L+
X4 / M	26	M
X4 / M	27	M
X4 / FE	28	FE

Table 121: Pin assignment DC (X5)

Connector / Terminal	Pin	Assignment / Signal
X5 / ZP/M	29	ZP/M
X5 / 3.0	30	DO524 / O16
X5 / 3.1	31	DO524 / O17
X5 / 3.2	32	DO524 / O18
X5 / 3.3	33	DO524 / O19
X5 / 3.4	34	DO524 / O20
X5 / 3.5	35	DO524 / O21
X5 / 3.6	36	DO524 / O22
X5 / 3.7	37	DO524 / O23
X5 / UP/L+	38	UP/L+

Table 122: Pin assignment DC (X6)

Connector / Terminal	Pin	Assignment / Signal
X6 / ZP/M	39	ZP/M
X6 / 4.0	40	DO524 / O24
X6 / 4.1	41	DO524 / O25
X6 / 4.2	42	DO524 / O26
X6 / 4.3	43	DO524 / O27
X6 / 4.4	44	DO524 / O28
X6 / 4.5	45	DO524 / O29
X6 / 4.6	46	DO524 / O30
X6 / 4.7	47	DO524 / O31
X6 / UP/L+	48	UP/L+

135.3 Cleaning

> ⓘ ***Cleaning instructions***
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

135.4 Certification

KC

MSIP-REI-Abb-AC500

| en | | Devices with KCC sign on product sticker and packaging |
| ko | | 제품 스티커 및 포장에 **KCC** 표시가 된 기기 |

en	Note	
	These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고	
	이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

135.5   Recycling

Disposal and recycling information

This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.

The symbol indicates that this product must be recycled/disposed of separately from other household waste.

It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.

The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.

For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.

136 07KT9x-AD

- 07KT9x-AD
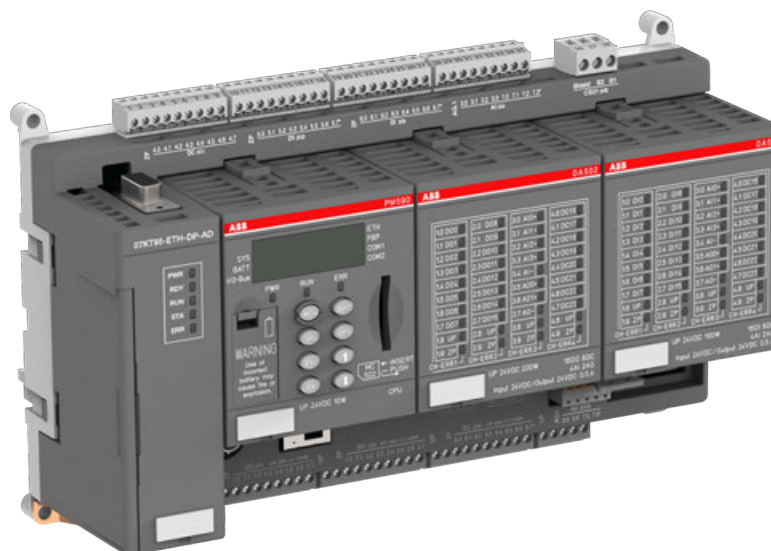
⚠️ **CAUTION!**
Risk of injury and damaging the product!
Improper installation and maintenance may result in injury and can damage the product!

- Installation and maintenance have to be performed according to the technical rules, codes and relevant standards, e.g. EN 60204-1.
- Only by qualified personnel.

136.1   Dimensions
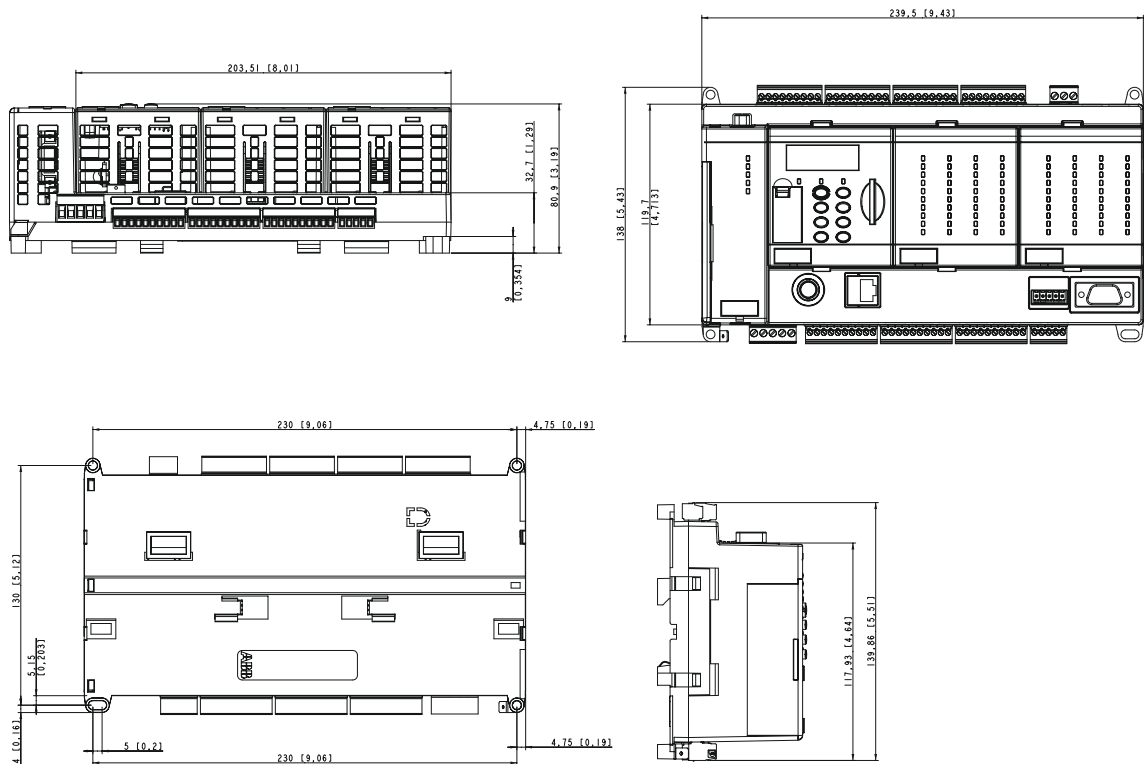
> *The dimensions are in mm and in brackets in inch.*

136.2   Connections
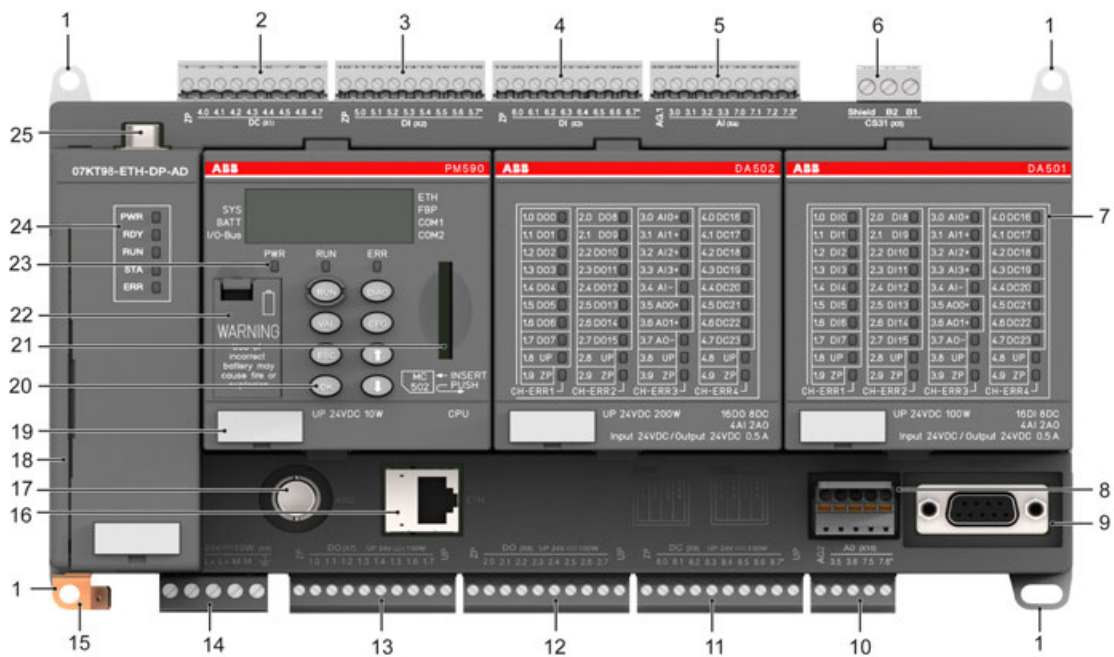
1   Hole for screw mounting (screw diameter 4 mm, extension torque 1.2 Nm)
2   Digital inputs/outputs for DA502

3   Digital inputs for DA501
4   Digital inputs for DA501
5   Analog inputs for DA501/DA502
6   CS31 bus Interface
7   Status LEDs for DA501/DA502
8   DIAG: Serial interface (diagnosis)
9   COM2: Serial interface (thread UNC 4-40)
10 Analog outputs for DA501/DA502. ± 10 V, 0 mA ... 20 mA, 4 mA ... 20 mA in one group
11 Digital inputs/outputs for DA501
12 Digital outputs for DA502
13 Digital outputs for DA502
14 Supply voltage connection 24 V DC (CPU and communication module)
15 Ground connection (FE). Connection for 6.3 mm Faston.
16 Ethernet: Network interface (function depends on device version)
17 Interface for ARCNET (BNC)
18 External network interface
19 TA525: Label
20 8 operating buttons
21 Memory card
22 Battery compartment for lithium battery TA521
23 3 system LEDs
24 5 status LEDs (only for PROFIBUS)
25 Connection for PROFIBUS (optional) (function depends on device version)

> *All I/O channels (digital and analog) are protected against reverse polarity, reverse supply and temporary overvoltage up to 30 VDC.*

136.2.1   Diagnosis connector

PIN	Signal	Description
1	NC	Not connected
2	TX	Transmit data
3	M	M
4	RX	Receive data
5	FE	FE
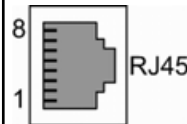
136.2.2   Serial interface COM2

PIN	Signal	Description
G	Housing	FE
1	FE	FE (shield)
2	TxD	Transmit data (output)
3	RxD	Receive data (input)
4	RTS	Request to send (output)
5	CTS	Clear to send (input)
6	NC	-

	PIN	Signal	Description
	7	SGND	Signal ground (SGND)
	8	0 V out	-
	9	+5 V out	Reserved

136.2.3 Ethernet network interface

Pin assignment

	PIN	Signal	Description
RJ45	1	TxD+	Transmit data +
	2	TxD-	Transmit data -
	3	RxD+	Receive data +
	4	NU	Not used
	5	NU	Not used
	6	RxD-	Receive data -
	7	NU	Not used
	8	NU	Not used
	Shield	Cable shield	Functional earth

NOTICE!

Risk of corrosion!

Unused connectors and slots may corrode if XC devices are used in salt-mist environments.

Protect unused connectors and slots with TA535 protective caps for XC devices.
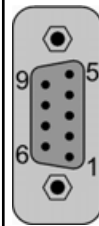
136.2.4 ARCNET

ARCNET BNC

136.2.5 PROFIBUS interface

Pin Assignment

	Pin	Signal	Description
	1	NC	Not connected
	2	NC	Not connected
	3	RxD/TxD-P	Receive/Transmit positive
	4	CNTR-P	Control signal for repeater, positive
	5	DGND	Reference potential for data exchange and +5 V

	Pin	Signal	Description
	6	VP	+5 V (power supply for the bus terminating resistors)
	7	NC	Not connected
	8	RxD/TxD-N	Receive/Transmit negative
	9	NC	Not connected

> *In corrosive environment, please protect unused connectors using the TA535 accessory.*
>
> *Not supplied with this device.*

136.2.6 Plug connection
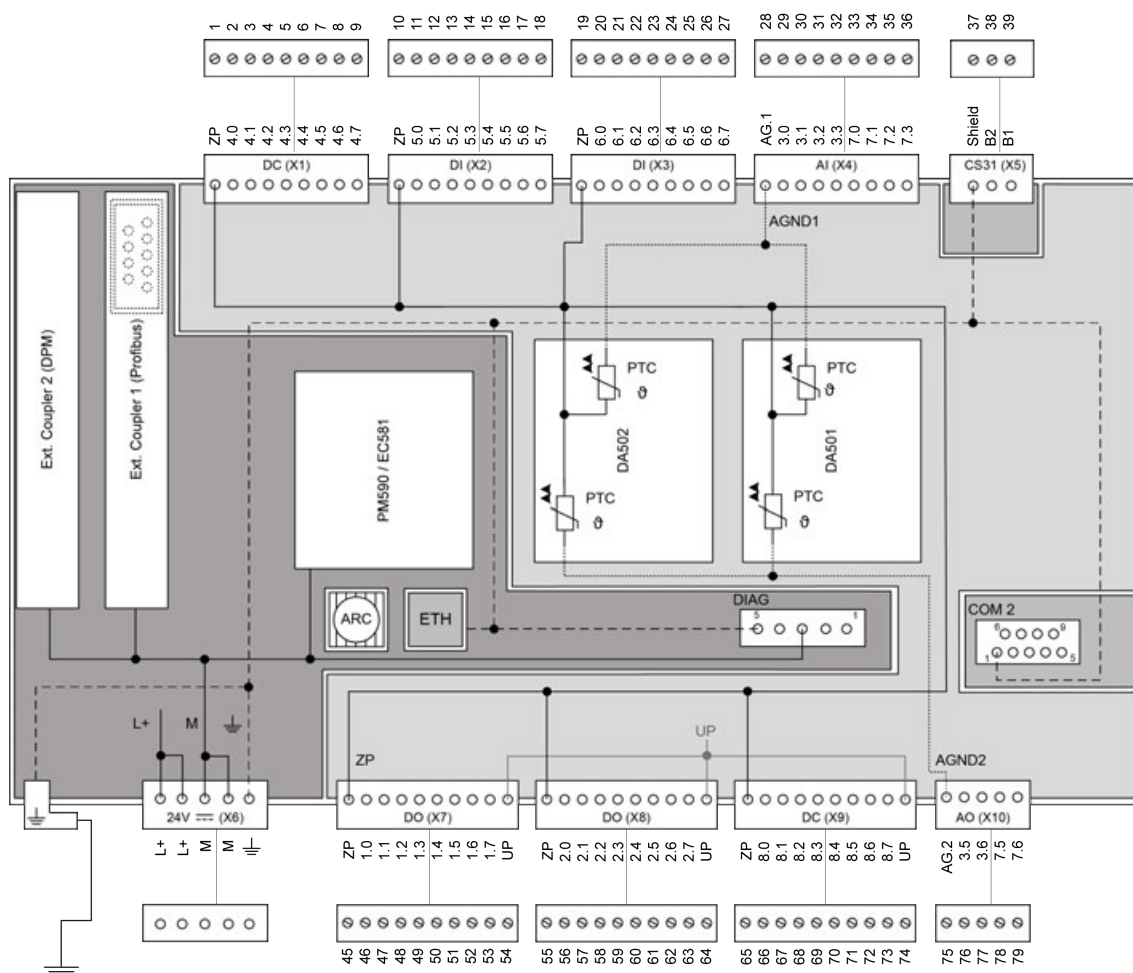
Table 123: Connector (X1)

Connector / Terminal	Pin	Assignment / Signal
X1 / ZP	1	ZP
X1 / 4.0	2	DA502 / DC16
X1 / 4.1	3	DA502 / DC17
X1 / 4.2	4	DA502 / DC18

Connector / Terminal	Pin	Assignment / Signal
X1 / 4.3	5	DA502 / DC19
X1 / 4.4	6	DA502 / DC20
X1 / 4.5	7	DA502 / DC21
X1 / 4.6	8	DA502 / DC22
X1 / 4.7	9	DA502 / DC23

Table 124: Connector X2

Connector / Terminal	Pin	Assignment / Signal
X2 / ZP	10	ZP
X2 / 5.0	11	DA501 / DI0
X2 / 5.1	12	DA501 / DI1
X2 / 5.2	13	DA501 / DI2
X2 / 5.3	14	DA501 / DI3
X2 / 5.4	15	DA501 / DI4
X2 / 5.5	16	DA501 / DI5
X2 / 5.6	17	DA501 / DI6
X2 / 5.7	18	DA501 / DI7

Table 125: Connector (X3)

Connector / Terminal	Pin	Assignment / Signal
X3 / ZP	19	ZP
X3 / 6.0	20	DA501 / DI8
X3 / 6.1	21	DA501 / DI9
X3 / 6.2	22	DA501 / DI10
X3 / 6.3	23	DA501 / DI11
X3 / 6.4	24	DA501 / DI12
X3 / 6.5	25	DA501 / DI13
X3 / 6.6	26	DA501 / DI14
X3 / 6.7	27	DA501 / DI15

Table 126: Connector (X4)

Connector / Terminal	Pin	Assignment / Signal
X4 / AG.1	28	AGND1
X4 / 3.0	29	DA502 / AI0+
X4 / 3.1	30	DA502 / AI1+
X4 / 3.2	31	DA502 / AI2+
X4 / 3.3	32	DA502 / AI3+
X4 / 7.0	33	DA501 / AI0+
X4 / 7.1	34	DA501 / AI1+

Connector / Terminal	Pin	Assignment / Signal
X4 / 7.2	35	DA501 / AI2+
X4 / 7.3	36	DA501 / AI3+

To be able to use the analog inputs, UP must be connected. L+/M and UP/ZP must always be supplied with voltage.

Table 127: Connector (X5)

Connector / Terminal	Pin	Assignment / Signal
X5 / shield	37	Shield (functional earth)
X5 / B2	38	BUS2
X5 / B1	39	BUS1

> *Terminal "Shield" is internally connected to FE. The previous grounding measures, e.g. with clip at the control cabinet, are still required.*

If 07KT9x-AD is connected to one of the bus ends, a 120 Ω resistor must be connected for bus termination. The device 07KT9x-AD always functions as master. Slave operation is not possible. Further information on CS31 bus.

Table 128: Connector (X6)

Connector / Terminal	Pin	Assignment / Signal
X6 / L+	40	Supply voltage +24 V DC
X6 / L+	41	Supply voltage +24 V DC
X6 / M	42	Ground connection (0 V)
X6 / M	43	Ground connection (0 V)
X6 / functional earth	44	The functional earth (FE) is connected to the Faston terminal inside the device. Ensure that no ground loops are created and that FE and Faston are connected to the same ground potential.

> **NOTICE!**
> – In addition to connecting the supply voltage (L+/M) to X6, the supply voltage (UP/ZP) must be connected to all connectors.
> – ZP must be connected to all connectors (X1, X2, X3, X7, X8, X9).
> – UP must be connected to all connectors (X7, X8, X9).
> – L+/M and UP/ZP must always be supplied with voltage.

Table 129: Connector (X7)

Connector / Terminal	Pin	Assignment / Signal
X7 / ZP	45	ZP
X7 / 1.0	46	DA502 / DO0

Connector / Terminal	Pin	Assignment / Signal
X7 / 1.1	47	DA502 / DO1
X7 / 1.2	48	DA502 / DO2
X7 / 1.3	49	DA502 / DO3
X7 / 1.4	50	DA502 / DO4
X7 / 1.5	51	DA502 / DO5
X7 / 1.6	52	DA502 / DO6
X7 / 1.7	53	DA502 / DO7
X7 / UP	54	UP

Table 130: Connector (X8)

Connector / Terminal	Pin	Assignment / Signal
X8 / ZP	55	ZP
X8 / 2.0	56	DA502 / DO8
X8 / 2.1	57	DA502 / DO9
X8 / 2.2	58	DA502 / DO10
X8 / 2.3	59	DA502 / DO11
X8 / 2.4	60	DA502 / DO12
X8 / 2.5	61	DA502 / DO13
X8 / 2.6	62	DA502 / DO14
X8 / 2.7	63	DA502 / DO15
X8 / UP	64	UP

Table 131: Connector (X9)

Connector / Terminal	Pin	Assignment / Signal
X9 / ZP	65	ZP
X9 / 8.0	66	DA501 / DC16
X9 / 8.1	67	DA501 / DC17
X9 / 8.2	68	DA501 / DC18
X9 / 8.3	69	DA501 / DC19
X9 / 8.4	70	DA501 / DC20
X9 / 8.5	71	DA501 / DC21
X9 / 8.6	72	DA501 / DC22
X9 / 8.7	73	DA501 / DC23
X9 / UP	74	UP

Connector / Terminal	Pin	Assignment / Signal
X10 / AG.2	75	AGND2
X10 / 3.5	76	DA502 / AO0+
X10 / 3.6	77	DA502 / AO1+

Connector / Terminal	Pin	Assignment / Signal
X10 / 7.5	78	DA501 / AO0+
X10 / 7.6	79	DA501 / AO1+

> ⓘ *UP must be connected to connectors X7, X8 and X9. The internal voltage supply to the ADC channels is no longer provided by L+ but by UP in the modules DA501 and DA502.*

136.3 Cleaning

> ⓘ ***Cleaning instructions***
> *Do not use cleaning agent for cleaning the device.*
>
> *Use a damp cloth instead.*

136.4 Certification

KC

MSIP-REI-Abb-AC500

en		Devices with KCC sign on product sticker and packaging
ko		제품 스티커 및 포장에 **KCC** 표시가 된 기기

en	**Note** These devices correspond to:	**KN61000-6-2** "Immunity for industrial environments", **KN61000-6-4** "Emission standard for industrial environments"
ko	참고 이러한 기기는	**KN61000-6-2** "산업 환경에 대한 내성", **KN61000-6-4** "산업 환경 누출 기준"에 적합함

136.5 Recycling

> ⓘ ***Disposal and recycling information***
> *This symbol on the product (and on its packaging) is in accordance with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive.*
>
> *The symbol indicates that this product must be recycled/disposed of separately from other household waste.*
>
> *It is the end user's responsibility to dispose of this product by taking it to a designated WEEE collection facility for the proper collection and recycling of the waste equipment.*
>
> *The separate collection and recycling of waste equipment will help to conserve natural resources and protect human health and the environment.*
>
> *For more information about recycling, please contact your local environmental office, an electrical/electronic waste disposal company or the store where you purchased the product.*