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# Relay Retrofit Program for REX 521

## Installation Manual







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## Conformity

This product complies with the directive of the Council of the European Communities on the approximation of the laws of the Member States relating to electromagnetic compatibility (EMC Directive 2014/30/EU) and concerning electrical equipment for use within specified voltage limits (Low-voltage directive 2014/35/EU). This conformity is the result of tests conducted by ABB in accordance with the product standard EN 60255-26 for the EMC directive, and with the product standards EN 60255-1 and EN 60255-27 for the low voltage directive. The product is designed in accordance with the international standards of the IEC 60255 series.

## Safety information



Dangerous voltages can occur on the connectors, even though the auxiliary voltage has been disconnected.



Non-observance can result in death, personal injury or substantial property damage.



Only trained and qualified persons are allowed to assemble and operate the cutting tool.



National and local electrical safety regulations must always be followed.



The necessary and required earthing connections must be made according to the product guidelines and regulations..



When the plug-in unit has been detached from the case, do not touch the inside of the case. The relay case internals may contain high voltage potential and touching these may cause personal injury.



The protection relay contains components which are sensitive to electrostatic discharge. Unnecessary touching of electronic components must therefore be avoided.



Whenever changes are made in the protection relay, measures should be taken to avoid inadvertent tripping.



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# Section 1      Introduction

## 1.1      This manual

The installation manual contains instructions on how to install the mounting assembly with pre-wired terminals. The manual provides procedures for mechanical and electrical installation. The chapters are organized in chronological order in which REX521RRP should be installed.

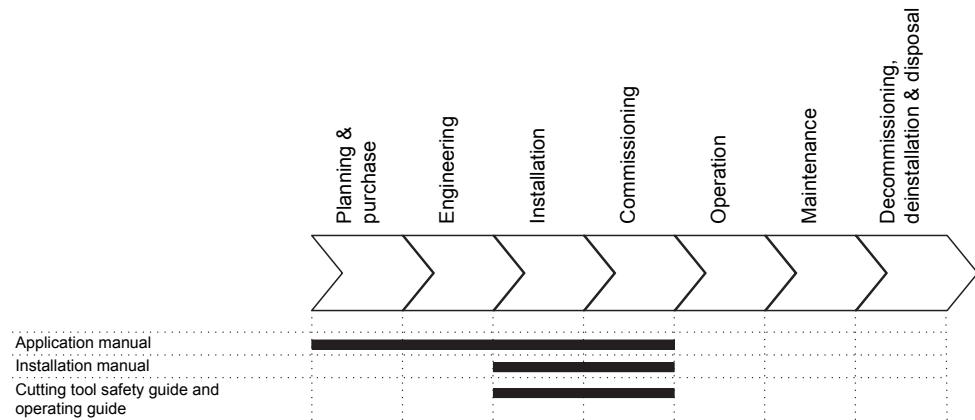
## 1.2      Intended audience

This manual addresses the personnel responsible for installing the product hardware.

The installation personnel must have basic knowledge and certification on handling electronic equipment.

## 1.3      Product documentation

### 1.3.1      Product documentation set



*Figure 1:      The intended use of documents during the product life cycle*

The application manual contains an overview of Relay Retrofit Program for REX 521 and the application description. The manual describes how the program deliverables can be used in the relay retrofit application. The manual also provides information on the retrofit process and the recommendations for the supported relay types.

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The configuration migration support guidelines provided in the application manual show the steps composing the process of migrating the existing REX 521 relay configuration and parameters to the replacement relay.

The installation manual contains instructions on how to install the mounting assembly with pre-wired terminals. The manual provides procedures for mechanical and electrical installation. The chapters are organized in chronological order in which REX521RRP should be installed.

Cutting tool safety guide contains safety recommendations to the user.

Cutting tool operating guide illustrates how the cutting tool is prepared for operation. The guide contains instructions on how to operate the tool during relay retrofit.

### 1.3.2

#### Document revision history

Document revision/date	History
A/2018-05-02	First release



Download the latest documents from the ABB Web site  
<http://www.abb.com/mediumvoltage>.

### 1.3.3

#### Related documentation



See the REX 521 and 615 series documentation for detailed technical information on the relays. Product series- and product-specific manuals can be downloaded from the ABB Website  
<http://www.abb.com/mediumvoltage>.

## 1.4

### Symbols and conventions

#### 1.4.1

#### Symbols



The electrical warning icon indicates the presence of a hazard which could result in electrical shock.



The warning icon indicates the presence of a hazard which could result in personal injury.



The caution icon indicates important information or warning related to the concept discussed in the text. It might indicate the presence of a hazard which could result in corruption of software or damage to equipment or property.



The information icon alerts the reader of important facts and conditions.



The tip icon indicates advice on, for example, how to design your project or how to use a certain function.

Although warning hazards are related to personal injury, it is necessary to understand that under certain operational conditions, operation of damaged equipment may result in degraded process performance leading to personal injury or death. Therefore, comply fully with all warning and caution notices.

## 1.4.2 Document conventions

A particular convention may not be used in this manual.

- Abbreviations and acronyms are spelled out in the glossary. The glossary also contains definitions of important terms.
- Parameter names are shown in italics.  
The function can be enabled and disabled with the *Operation* setting.
- Parameter values are indicated with quotation marks.  
The corresponding parameter values are "On" and "Off".
- Input/output messages and monitored data names are shown in Courier font.  
When the function starts, the START output is set to TRUE.



## Section 2      Environmental aspects

### 2.1

### Sustainable development

Sustainability has been taken into account from the beginning of the product design including the pro-environmental manufacturing process, long life time, operation reliability and disposing of the protection relay.

The choice of materials and the suppliers have been made according to the EU RoHS directive (2002/95/EC). This directive limits the use of hazardous substances which are the following:

*Table 1: Maximum concentration values by weight per homogeneous material*

Substance	Proposed maximum concentration
Lead - Pb	0.1%
Mercury - Hg	0.1%
Cadmium - Cd	0.01%
Hexavalent Chromium Cr (VI)	0.1%
Polybrominated biphenyls - PBB	0.1%
Polybrominated diphenyl ethers - PBDE	0.1%

Operational reliability and long life time have been assured with extensive testing during the design and manufacturing processes. Moreover, long life time is supported by maintenance and repair services as well as by the availability of spare parts.

Design and manufacturing have been done under a certified environmental system. The effectiveness of the environmental system is constantly evaluated by an external auditing body. We follow environmental rules and regulations systematically to evaluate their effect on our products and processes.

### 2.2

### Disposal of a protection relay

Definitions and regulations of hazardous materials are country-specific and change when the knowledge of materials increases. The materials used in this product are typical for electric and electronic devices.

All parts used in this product are recyclable. When disposing of a protection relay or its parts contact a local waste handler who is authorized and specialized in disposing of electronic waste. These handlers can sort the material by using dedicated sorting processes and dispose of the product according to the local requirements.

## Section 2 Environmental aspects

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**Table 2:** *Materials of the protection relay parts*

Protection relay	Parts	Material
Protection relay case / Kit	Metallic plates, parts and screws	Steel
	Plastic parts	PC <sup>1)</sup> , LCP <sup>2)</sup>
	Electronics plug in module	Various
Plug-in unit of the protection relay	Electronics plug in modules	Various
	Electronics LHMI module	Various
	Plastic parts	PC, PBT <sup>3)</sup> , LCP, PA <sup>4)</sup>
	Metallic parts	Aluminium
Package	Box	Cardboard
	Filling	PE <sup>5)</sup>
Attached material	Manuals	Paper

- 1) Polycarbonate
- 2) Liquid crystal polymer
- 3) Polybutylene terephthalate
- 4) Polyamide
- 5) Polyethylene

**Section 3****Unpacking, inspecting and storing****3.1****Removing transport packaging**

The REX521RRP deliverables require careful handling

1. Examine the delivered products to ensure that they have not been damaged during the transport.
2. Remove the transport packaging carefully without force.

**3.2****Inspecting product and delivery items****3.2.1****Identifying product**

1. Locate the protection relay's order number from the label on top of the plug-in unit.
2. Compare the protection relay's order number with the ordering information to verify that the received product is correct.

**3.2.2****Checking delivery items**

Check that all items are included in the delivery in accordance with the delivery documents.

**3.2.3****Inspecting product**

Products require careful handling before installation on site.

- Check the products to see if any damage occurred during transportation.

If the product has been damaged during transportation, make a claim against the transport contractor, and notify the local ABB representative.

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### **3.2.4**

### **Returning a product damaged in transit**

If damage has occurred during transport, appropriate actions must be taken against the latest carrier. Please inform the nearest ABB office or representative. Notify ABB immediately if there are any discrepancies in relation to the delivery documents.

## **3.3**

### **Storing**

If the product is stored before installation, it must be done in the original transport packaging in a dry and dust free place.

Observe the environmental requirements stated in the technical manual.

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## Section 4      Mounting

### 4.1

### Checking environmental conditions and mounting space

The mechanical and electrical environmental conditions at the installation site must be within the limits described in the 615 series technical manual.

- Avoid installation in dusty, damp places.  
Avoid places susceptible to rapid temperature variations, powerful vibrations and shocks, surge voltages of high amplitude and fast rise time, strong induced magnetic fields or similar extreme conditions.
- Check that sufficient space is available.  
Sufficient space is needed at the front and rear of the protection relay to allow access to wires and optical fibers, to provide sufficient ventilation of the protection relay and to enable maintenance and future modifications.

### 4.2

### Required tools

- T25 Torx screwdriver for mounting
- T20 Torx screwdriver for connecting the protective earthing
- Cutting tool



Only use adjustable torque screwdrivers.

### 4.3

### Preparing cutout for REX521RRP

REX521RRP can be mounted on the switchgear door using the existing panel cutout left by the REX 521 relay. As the width of the existing cutout is smaller than the width of the new required cutout, an additional cutout needs to be made by using the dedicated cutting tool.

The deliverables of Relay Retrofit Program for REX 521 comprise a new 615 series replacement relay provided with pre-wired terminals. The pre-wired terminals are marked on the top based on the existing REX 521 relay terminal numbers. Thus, the

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BIO terminals' secondary wiring set can be removed from the existing REX 521 relay and reused on the corresponding pre-wired terminals. The instrument transformers (CTs and VTs) must be manually wired to the corresponding terminals of the replacement relay.



Mark the terminals to avoid confusion while reinstalling them back to REX521RRP.

1. Remove the existing BIO secondary wiring terminal set from the existing REX 521 relay.



*Figure 2: Removing the existing BIO secondary wiring terminal set*

2. Remove the instrument transformers' (CTs and VTs) secondary wiring from the existing REX 521 relay.

These wires must be manually connected to the corresponding terminals of the REF615 or REM615 replacement relay.



*Figure 3: Removing the existing CT and VT secondary wiring from the REX 521 relay terminal*

3. Dismantle the other existing mounting brackets and take the existing REX 521 relay out of the cutout.  
Store the existing relay according to the environmental requirements stated in the technical reference manual. It is advisable to put a label on each removed relay to be able to later identify them.



*Figure 4: Taking the existing REX521 out by using the appropriate tools*



*Figure 5: Detaching the fixing parts of the existing REX 521*



*Figure 6: Taking the existing REX 521 out of the panel cutout*

4. Widen the existing REX 521 relay panel cutout.  
Use the cutting tool with a dedicated cutting head for REX 521 to get the appropriate cutout on the switchgear door hosting the REX521RRP device.



See the cutting tool safety and operating guides.



Figure 7: Cutting tool with dedicated cutting head for REX521RRP



Figure 8: Making the cutout for REX521RRP

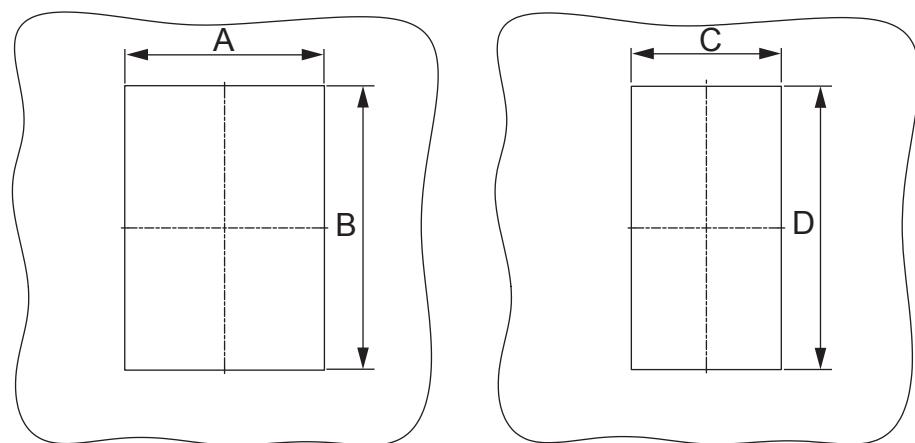


Figure 9: REX521RRP (left) and REX 521 (right) cutouts

A	179 mm
B	255 mm
C	135 mm
D	255 mm

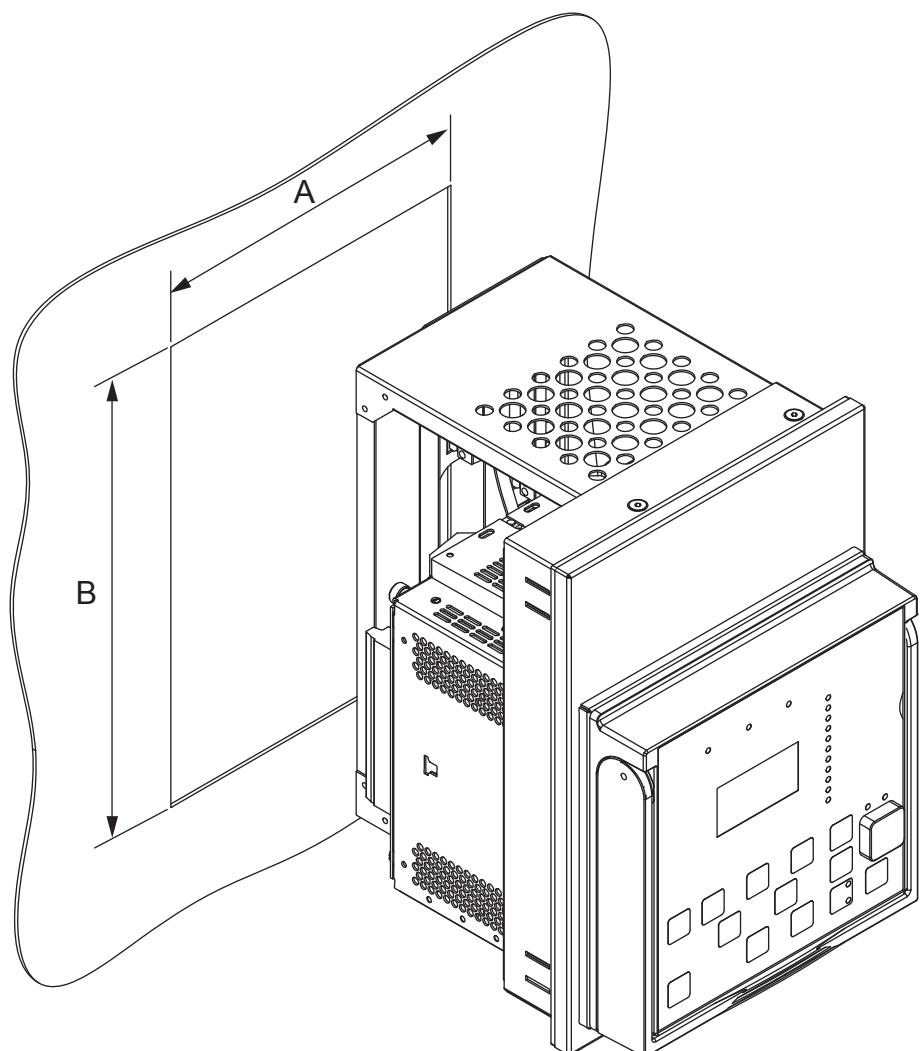


Figure 10: Inserting REX521RRP into the cutout

A	179 mm
B	255 mm

## 4.4

## Flush mounting REX521RRP

All the mounting elements are delivered together with REX521RRP in a small plastic bag.

- Fixing brackets with four M5 screws

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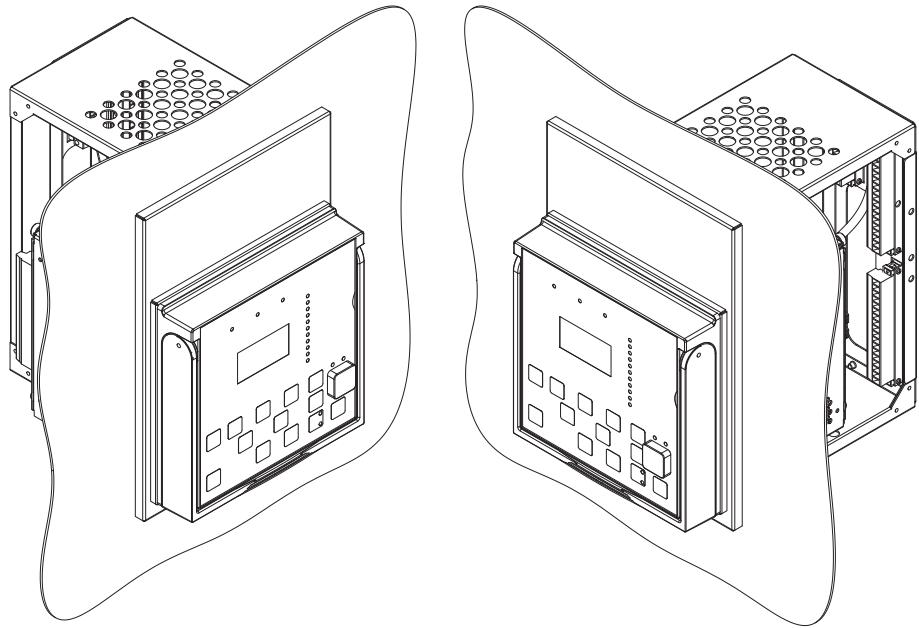
Requirements for installation:

- Panel cutout of 179 × 255 mm
- Depth behind the panel of 246 mm

1. Mount the REX521RRP to the enlarged panel cutout.

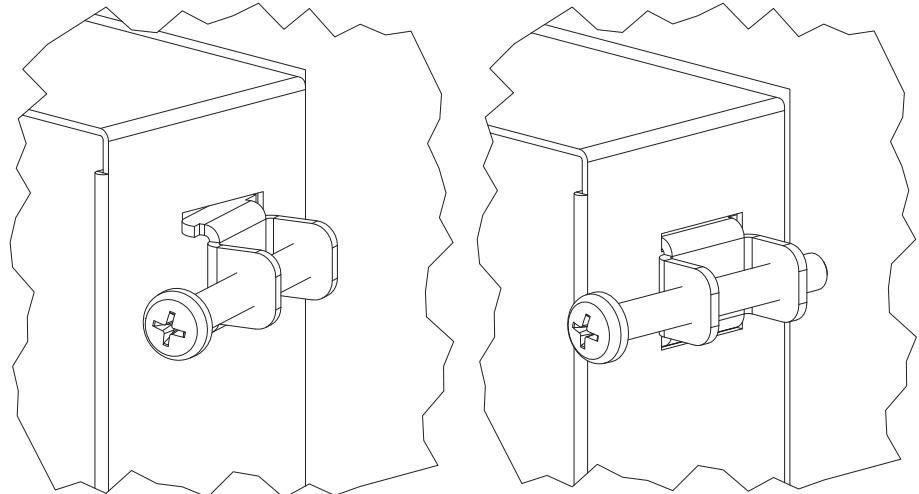


*Figure 11: Mounting REX521RRP into the enlarged panel cutout*



*Figure 12: Flush mounting REX521RRP into a panel cutout*

2. Set all four fixing brackets with M5 screws.



*Figure 13: Fixing bracket with M5 screw*



Figure 14: Setting the fixing bracket with the M5 screw

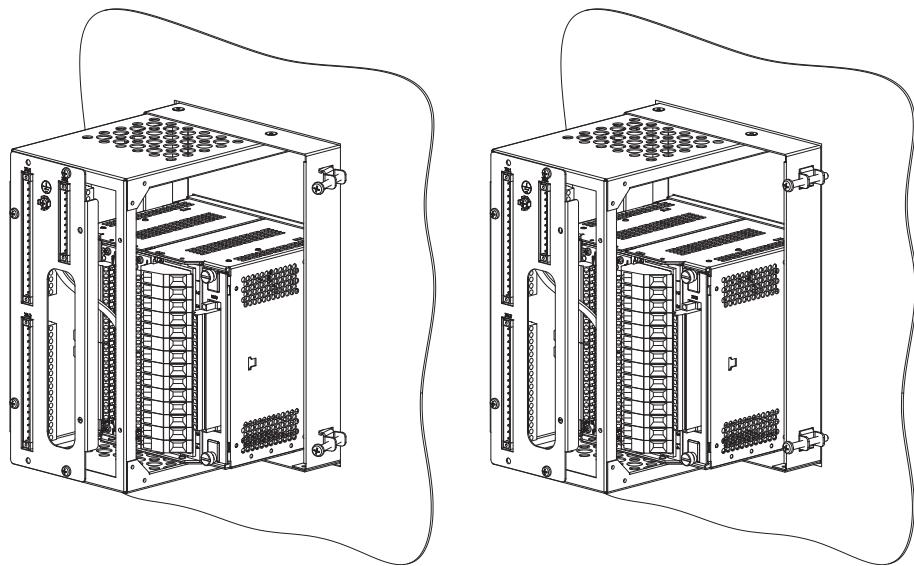


Figure 15: Flush mounted REX521RRP with M5 screws

3. Tighten the M5 screws.



Use tightening torque of 1.3...1.7 Nm.



*Figure 16: Tightening the M5 screw*

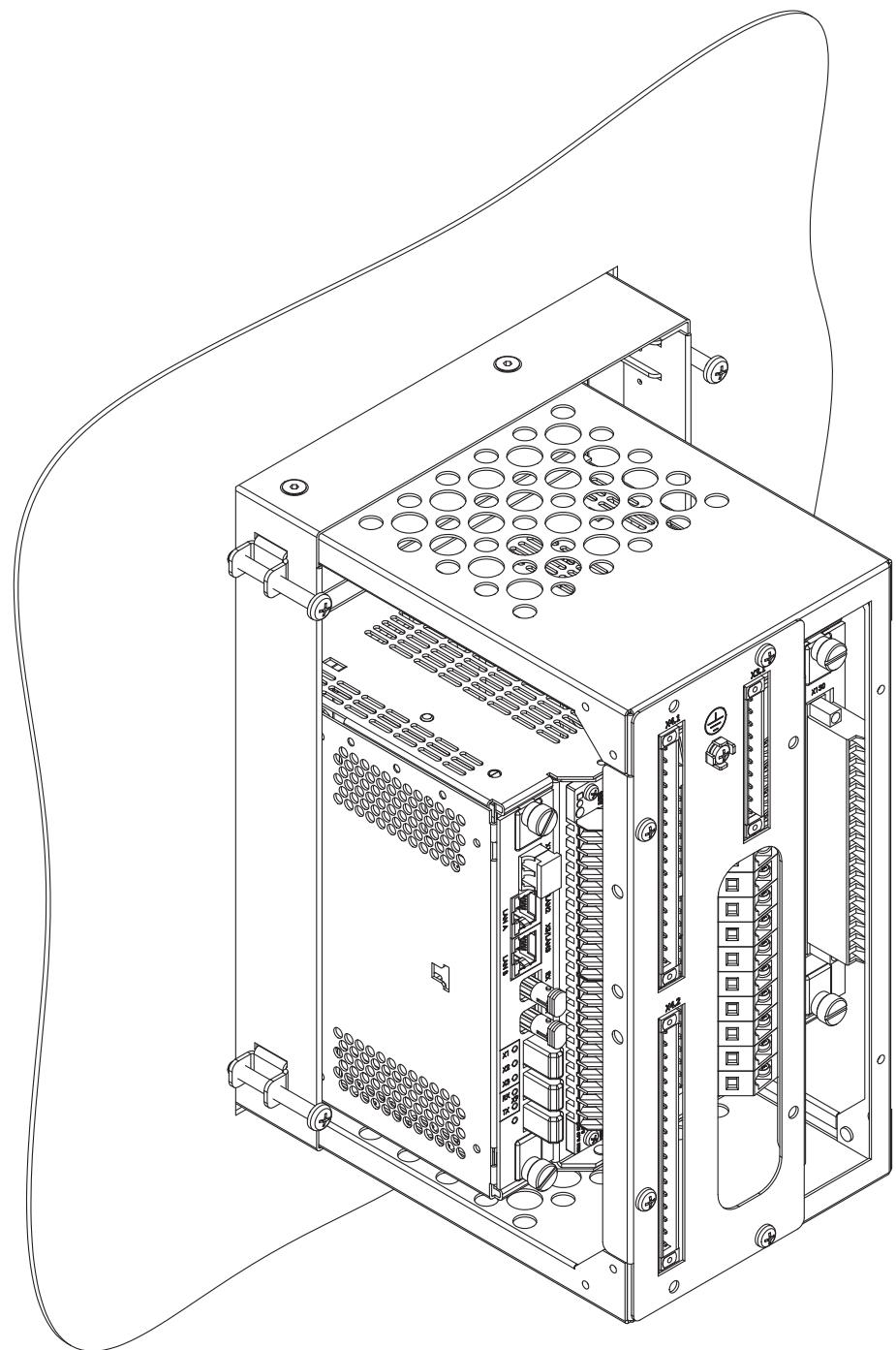
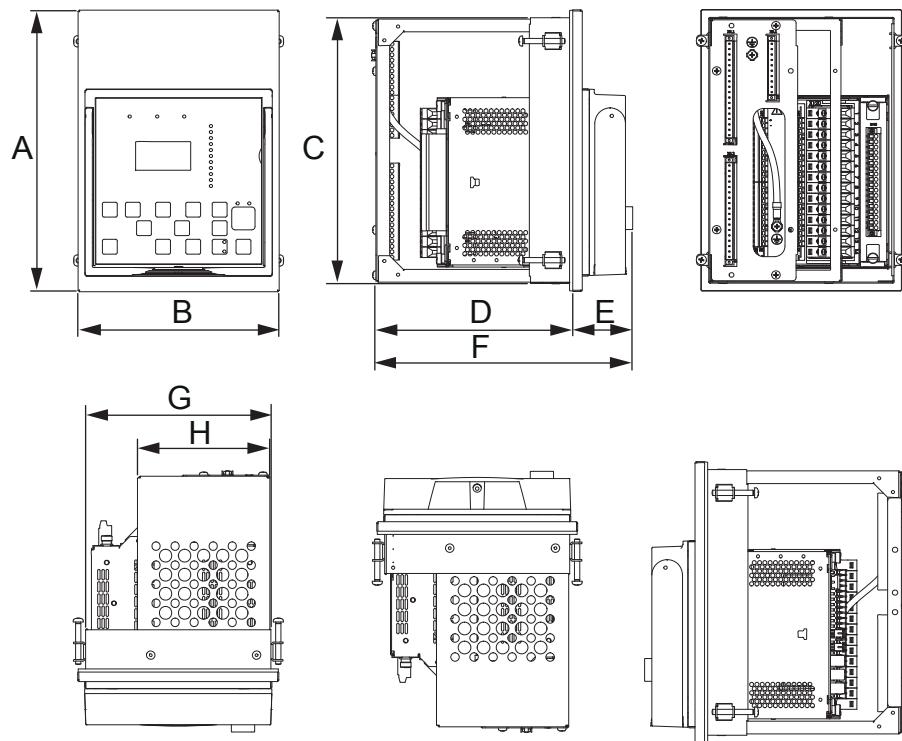


Figure 17: Flush mounted REX521RRP with tightened M5 screws



Figure 18: Flush mounted REX521RRP from the front side



*Figure 19: Flush mounted REX521RRP*

A	268 mm
B	192 mm
C	251 mm
D	186 mm
E	57 mm
F	243 mm
G	175 mm
H	125 mm

### 4.5

### Sealing plug-in unit

The front panel of the protection relay has an integrated sealing screw. By default the screw is screwed all the way in and is not used when installing or detaching the plug-in unit.

1. Open the sealing screw about nine turns.
2. Thread a sealing wire through the holes in the sealing screw and the handle.

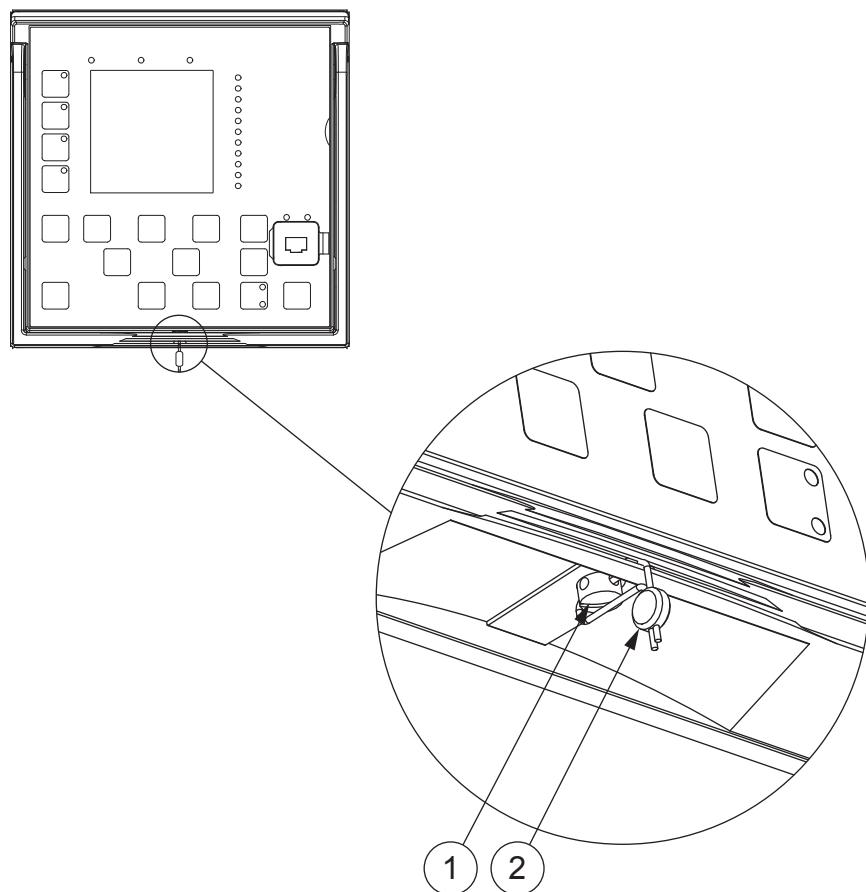


Figure 20: Sealing screw

- 1 Sealing screw
- 2 Sealing wire and seal

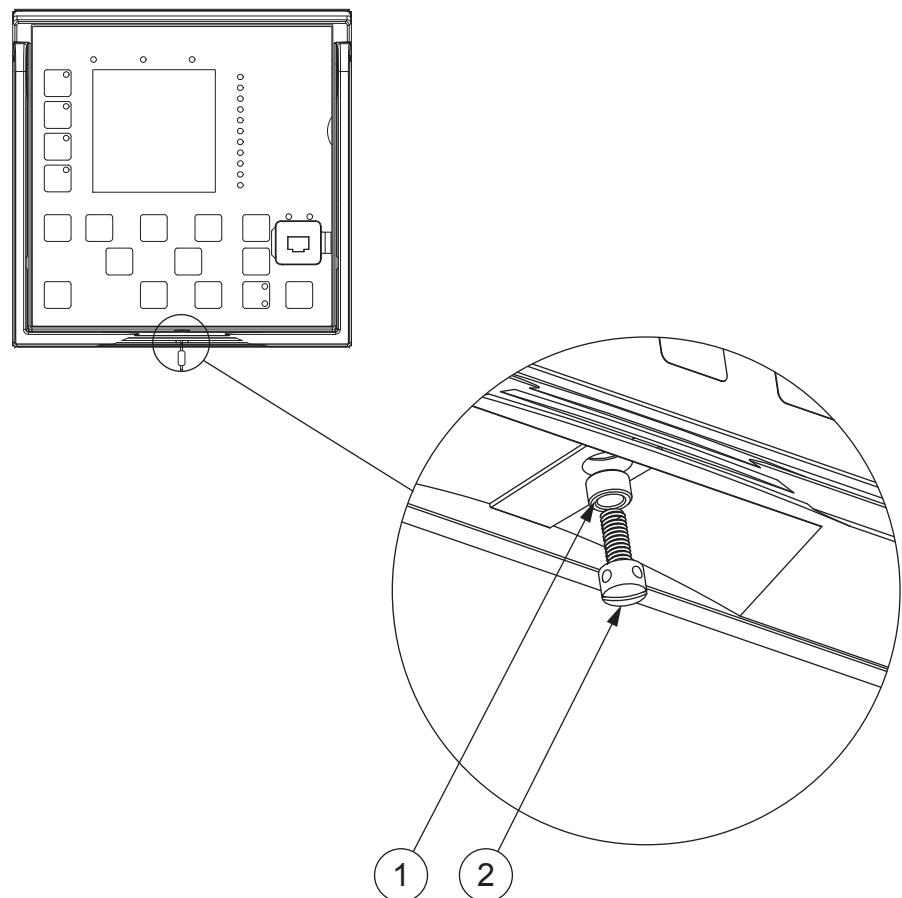
## 4.6 Securing handle

The front panel of the protection relay has an integrated sealing screw. By default, the screw is screwed all the way in and not used when installing or detaching the plug-in unit. Instead of sealing the plug-in unit, the sealing screw and the spacer supplied with the protection relay can be used for securing the handle in place.

1. Fully open the sealing screw and remove it.
2. Re-insert the sealing screw with the spacer.



The protection relay packaging includes a plastic bag containing loose parts such as the spacer.



*Figure 21: Sealing screw with spacer*

- 1 Spacer
- 2 Sealing screw

# Section 5 Connecting

## 5.1 Terminal layouts and connection diagrams

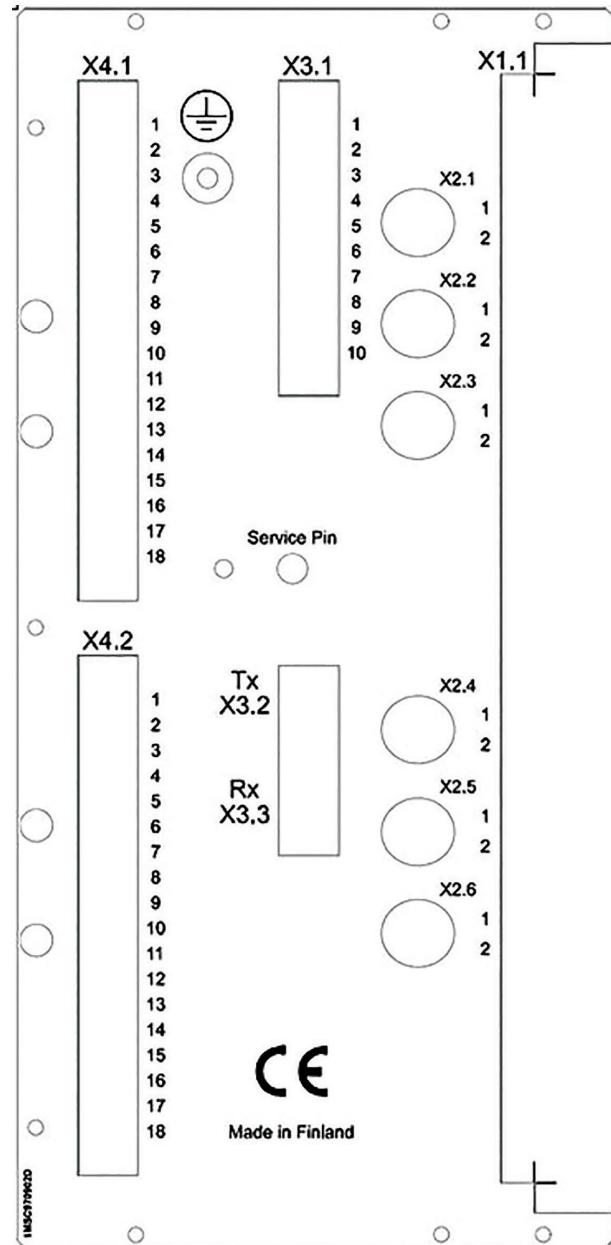


Figure 22: Terminal layout for REX 521

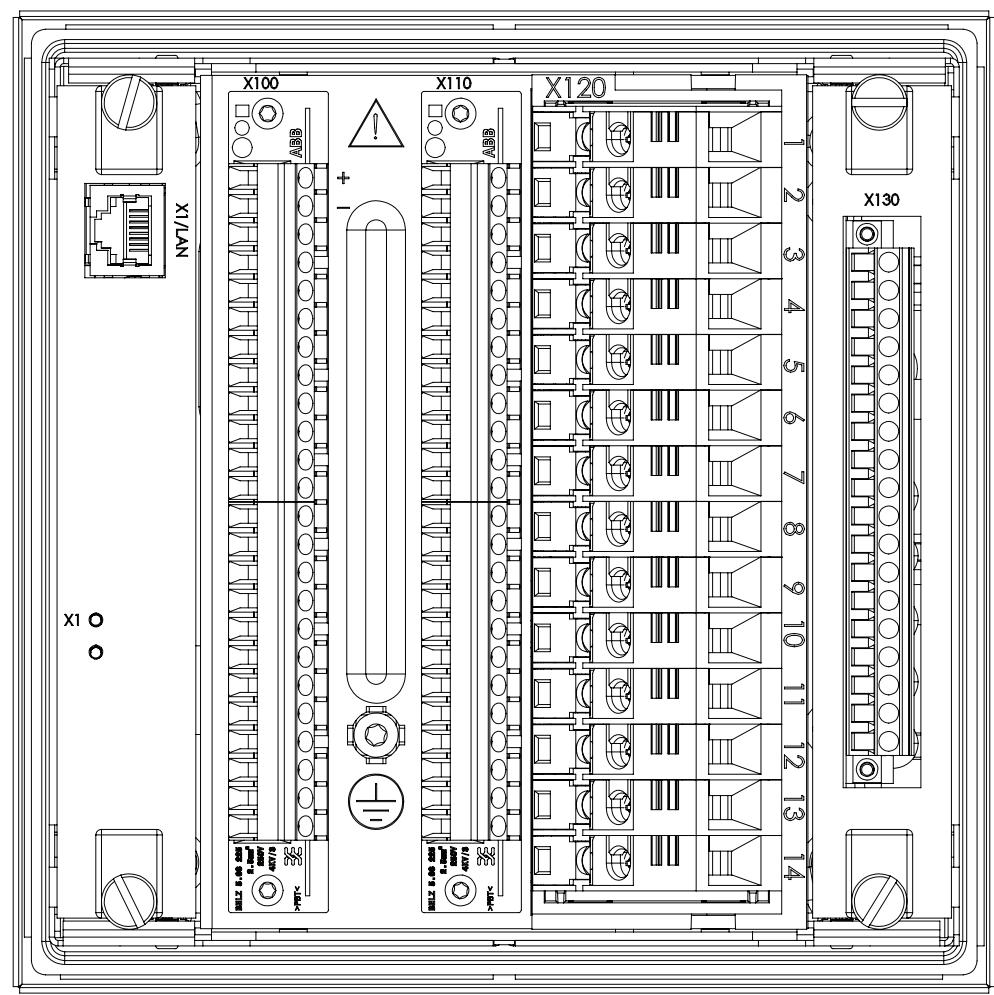


Figure 23: Terminal layout for the 615 series relay

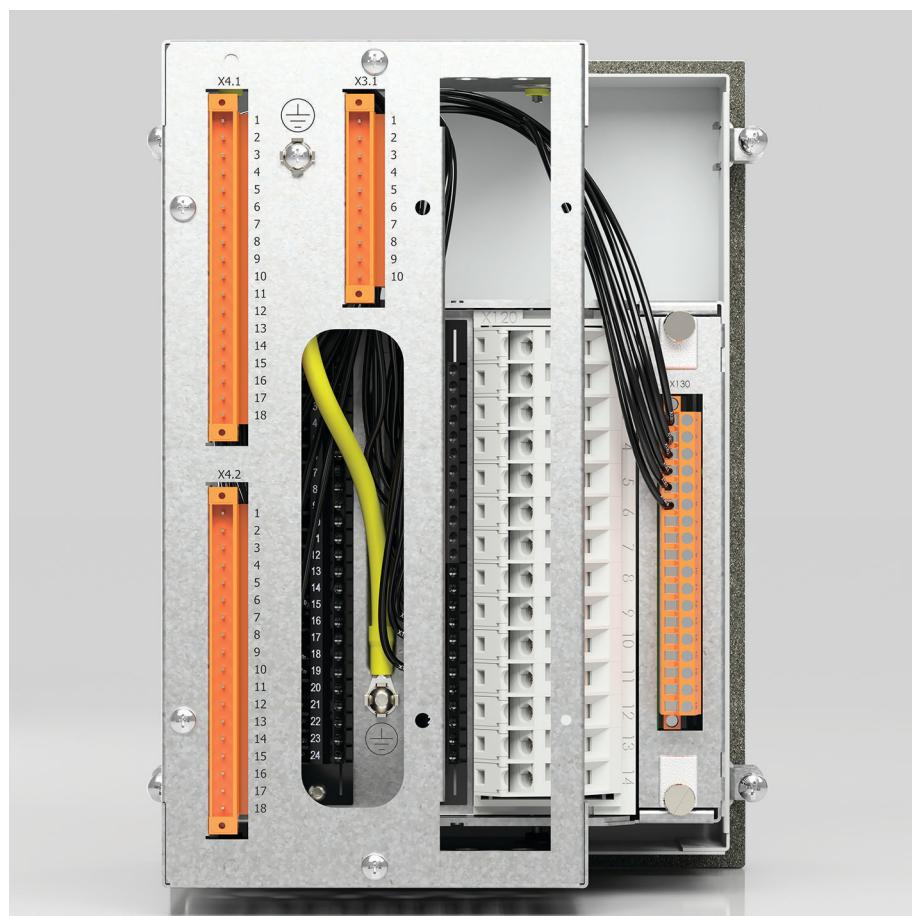


Figure 24: Terminal layout for REX521RRP

## Section 5 Connecting

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Existing wiring of REX521  
to be reconnected to REF615 by the customer.

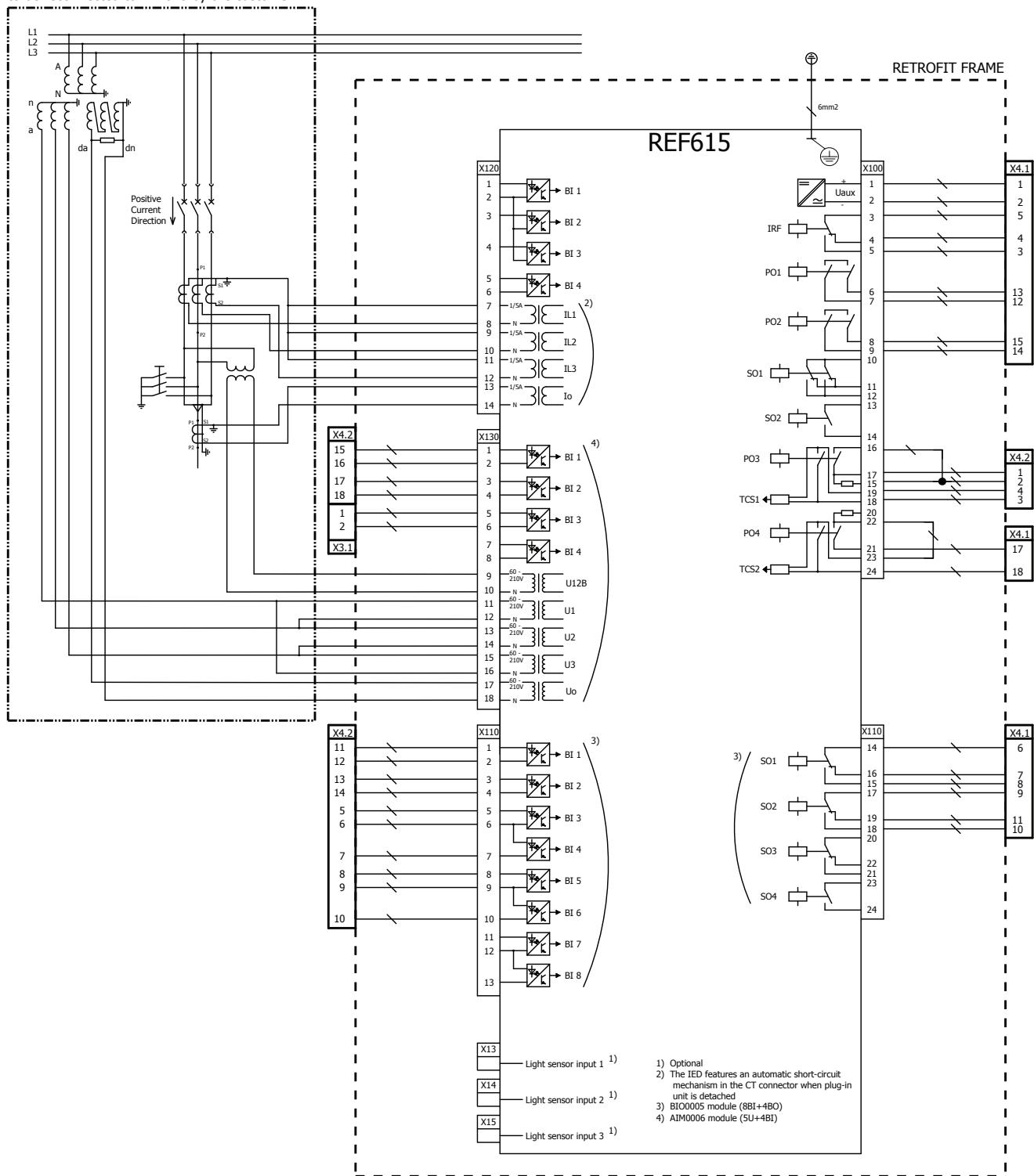


Figure 25: Connection diagram for REX521RRP with REF615 including AIM0016

Existing wiring of REX521  
to be reconnected to REM615 by the customer.

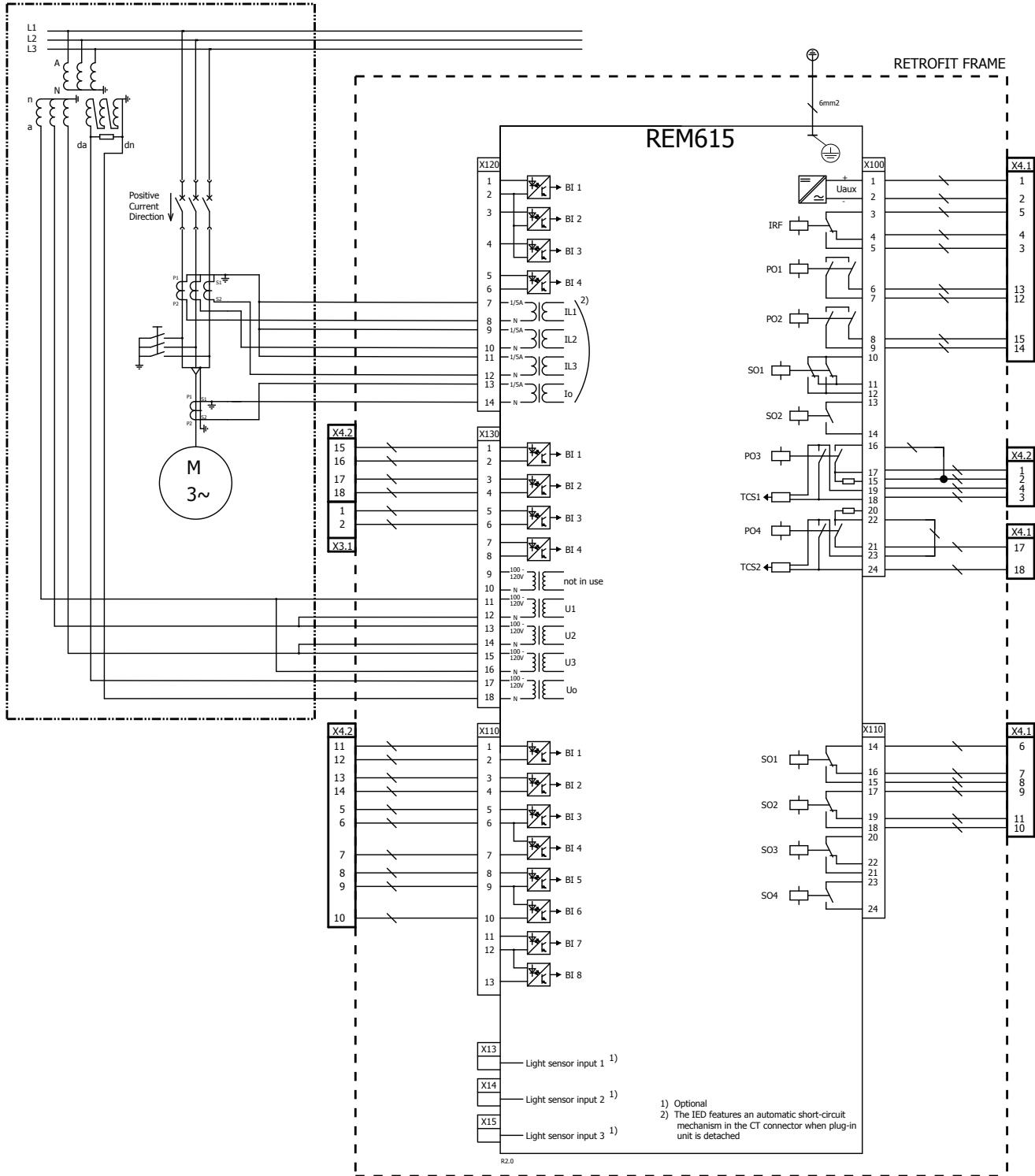


Figure 26: Connection diagram for REX521RRP with REM615 including AIM0016

## 5.2

## Connecting protective earthing



The earth lead must be at least 6.0 mm<sup>2</sup>. If the earth lead is long, the cross section of the wire must be increased.



Use fine copper wire as the earth lead.

1. Loosen the protective earth screw between connectors X4.1 and X3.1 (T20) to connect a separate earth protection lead.

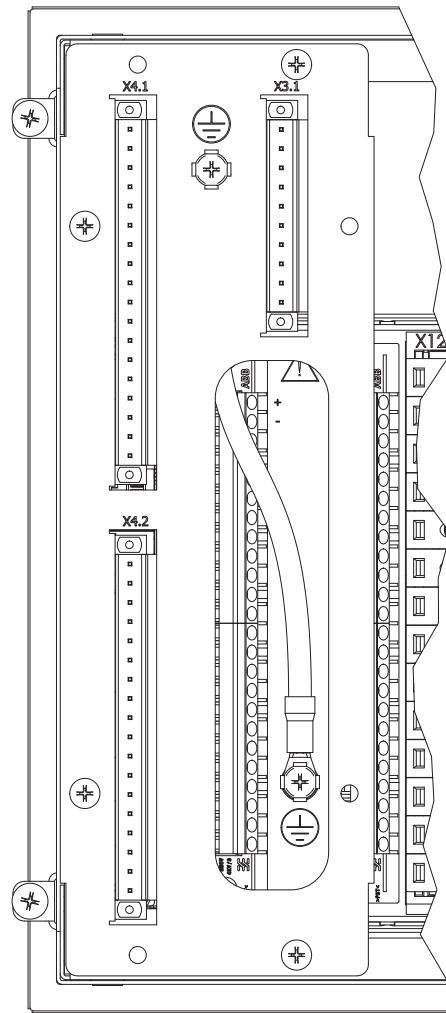


Figure 27: The protective earth screw between connectors X4.1 and X3.1



The earth lead should be as short as possible but extra length is required for door mounting.



Each protection relay must have its own earth lead connected to the earth circuit connector.

2. Connect the earth lead to the earth bar in one of the alternative ways.
  - Use stripped wire screwed between a washer cup and the protective earth screw.
  - Use a ring lug.



Select a suitable ring lug to fit under the M4 screw.

3. Tighten the protective earth screw.



*Figure 28: Tightening the protective earth screw*

4. Support the earth lead so that it cannot break or weaken.



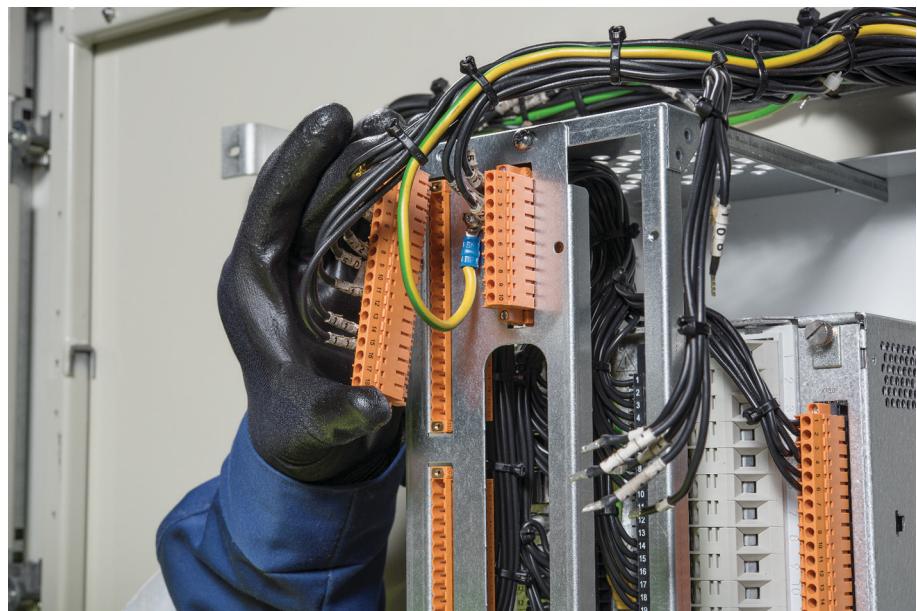
Be aware of the mechanical, chemical and electrochemical environment.

### 5.3

### Connecting the pre-wired terminals

The deliverables of Relay Retrofit Program for REX 521 comprise a new 615 series replacement relay provided with pre-wired terminals. The pre-wired terminals are marked on the top based on the existing REX 521 relay terminal numbers.

1. Remove the BIO terminals' secondary wiring set from the existing REX 521 relay and reuse it on the corresponding pre-wired terminals.



*Figure 29: Reusing the existing BIO terminals' secondary wiring set*

2. The instrument transformers (CTs and VTs) must be manually wired to the corresponding terminals of the replacement relay.

*Table 3: Pre-wired terminals for connector X4.1*

REX 521		REF615 or REM615	
Terminal	Description	Terminal	Description
X4.1:1	Uaux +	X100:1	Uaux +
X4.1:2	Uaux -	X100:2	Uaux -
X4.1:3	IRF (NO)	X100:5	IRF (NO)
X4.1:4	IRF (NC)	X100:4	IRF (NC)
X4.1:5	IRF (common)	X100:3	IRF (common)
X4.1:6	SO1 (common)	X110:14	SO1 (common)
X4.1:7	SO1 (NC)	X110:16	SO1 (NC)
X4.1:8	SO1 (NO)	X110:15	SO1 (NO)
X4.1:9	SO2 (common)	X110:17	SO2 (common)

Table continues on next page

REX 521		REF615 or REM615	
Terminal	Description	Terminal	Description
X4.1:10	SO2 (NO)	X110:18	SO2 (NO)
X4.1:11	SO2 (NC)	X110:19	SO2 (NC)
X4.1:12	PO1	X100:7	PO1
X4.1:13	PO1	X100:6	PO1
X4.1:14	PO2	X100:9	PO2
X4.1:15	PO2	X100:8	PO2
X4.1:16		-	-
		X100:20	TCS2 (PODP2) (TCS resistor) <sup>1)</sup>
X4.1:17	PO3	X100:21	TCS2 (PODP2) (NO-1) <sup>2)</sup>
		X100:22	TCS2 (PODP2) (NO-1, TCS resistor) <sup>3)</sup>
		X100:23	TCS2 (PODP2) (NO-2, TCS input) <sup>4)</sup>
X4.1:18	PO3	X100:24	TCS2 (PODP2) (NO-2, TCS input)

- 1) Resistor unused
- 2) REX 521 PO3 -> 615 PO4
- 3) Link X100: 22 - X100: 23 is necessary
- 4) Should be in place

**Table 4:** Pre-wired terminals for connector X4.2

REX 521		REF615 or REM615	
Terminal	Description	Terminal	Description
X4.2:1	HSPO1	X100:17	TCS1 (PODP1) (NO-1, TCS resistor)
X4.2:2	HSPO1	X100:15	TCS1 (PODP1) <sup>1)</sup> (TCS resistor)
	HSPO1	X100:16	TCS1 (PODP1) (NO-1)
X4.2:3	HSPO1	X100:18	TCS1 (PODP1) (NO-2, TCS input)
X4.2:4	HSPO1	X100:19	TCS1 (PODP1) (NO-2, TCS input)
X4.2:5	BI1	X110:5	BI3
X4.2:6	BI1/BI2(common)	X110:6	BI3/BI4
X4.2:7	BI2	X110:7	BI4
X4.2:8	BI3	X110:8	BI5
X4.2:9	BI3/BI4 common)	X110:9	BI5/BI6
X4.2:10	BI4	X110:10	BI6
X4.2:11	BI5	X110:1	BI1

Table continues on next page

REX 521		REF615 or REM615	
Terminal	Description	Terminal	Description
X4.2:12	BI5	X110:2	BI1
X4.2:13	BI6	X110:3	BI2
X4.2:14	BI6	X110:4	BI2
X4.2:15	BI7	X130:1	BI1
X4.2:16	BI7	X130:2	BI1
X4.2:17	BI8	X130:3	BI2
X4.2:18	BI8	X130:4	BI2

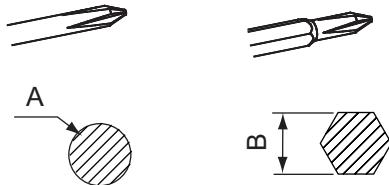
- 1) Link X100: 15 - X100: 16

*Table 5: Pre-wired terminals for connector X3.1*

REX 521		REF615 or REM615	
Terminal	Description	Terminal	Description
X3.1:1	BI9	X130:5	BI3
X3.1:2	BI9	X130:6	BI3

## 5.4 Required tools

Only use a screwdriver and insert bits for Phillips (PH 1) cross-recessed head screws (M3.5) when handling CT/VT terminals (X120) of screw-compression type.



*Figure 30: Screwdriver for CT/VT terminals of screw-compression type*

A Max. Ø5.5 mm

B Max. Ø5 mm

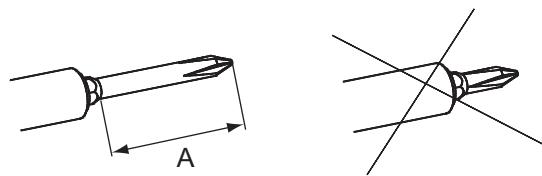


Figure 31: Insert bits for CT/VT terminals of screw-compression type

A Min. 15 mm

## 5.5 Connecting analog signals

A connection diagram is needed to connect the analog signals.

### 5.5.1 Connecting current and voltage inputs

1. If the existing CT or VT wiring is in good condition and still usable, use the dedicated marking set.
2. Open the screw-compression type terminals before inserting any wires.  
By default the terminals are closed at the time of delivery.
3. Connect the wires from the CTs or VTs to the correct device according to the phase order and the connection diagram.



Use tightening torque of 0.8...1.2 Nm.

Each terminal for CTs or VTs is dimensioned for one 0.5...6.0 mm<sup>2</sup> wire or for two wires of maximum 2.5 mm<sup>2</sup>.



*Figure 32: Connecting the current wires*

4. When connecting the secondary instrument transformer (CT and VT) wirings, see the available example table.

*Table 6: Example for secondary transformer (CT and VT) wirings*

REX 521		REF615 or REM615	
Terminal	Description	Terminal	Description
X1.1:1	IL1	X120:7	IL1 (1 / 5 A)
X1.1:2	IL1 (5A)	X120:8	IL1 (1 / 5 A) <sup>1)</sup>
X1.1:3	IL1 (1 A)		
X1.1:4	IL2	X120:9	IL2 (1 / 5 A)
X1.1:5	IL2 (5A)	X120:10	IL2 (1 / 5 A) <sup>2)</sup>
X1.1:6	IL2 (1 A)		
X1.1:7	IL3	X120:11	IL3 (1 / 5 A)
X1.1:8	IL3 (5A)	X120:12	IL3 (1 / 5 A) <sup>3)</sup>
X1.1:9	IL3 (1 A)		
X1.1:10	Io		4)
X1.1:11	Io (5A)		5)
X1.1:12	Io (1A)		6)
X1.1:13	Iob	X120:13	Io (0.2 / 1 A)
X1.1:14	Iob (1 A)	X120:14	Io (0.2 / 1 A)
X1.1:15	Iob (0.2 A)		
X1.1:16	Uo (da)	X130:17	
X1.1:18	Uo (dn)	X130:18	

Table continues on next page

REX 521		REF615 or REM615	
Terminal	Description	Terminal	Description
X1.1:19	U12 / (a)	X130:11	UL1
X1.1:21	U12 / (n)	X130:12	UL1
X1.1:22	U21 / (a)	X130:13	UL2
X1.1:24	U21 / (n)	X130:14	UL2
X1.1:25	U31 / (a)	X130:15	UL3
X1.1:27	U31 / (n)	X130:16	UL3
		X130:9	UL1b (a)
		X130:10	UL1b (n)

- 1) Link X1.1:2 -X1.1:3 necessary. 2.5 mm<sup>2</sup>
- 2) Link X1.1:5 -X1.1:6 necessary. 2.5 mm<sup>2</sup>
- 3) Link X1.1:8 -X1.1:9 necessary. 2.5 mm<sup>2</sup>
- 4) Link X1.1:10 -X1.1:13 necessary. 2.5 mm<sup>2</sup>
- 5) Link X1.1:11 - X1.1:12 - X1.1:14 - X1.1:15 necessary. 2.5 mm<sup>2</sup>
- 6) REX 521 CT4 and CT5 linked together, because it is not known which one is in use.  
615 has only one lo CT input.



See the 615 series application manuals for standard-configuration specific current and voltage inputs.

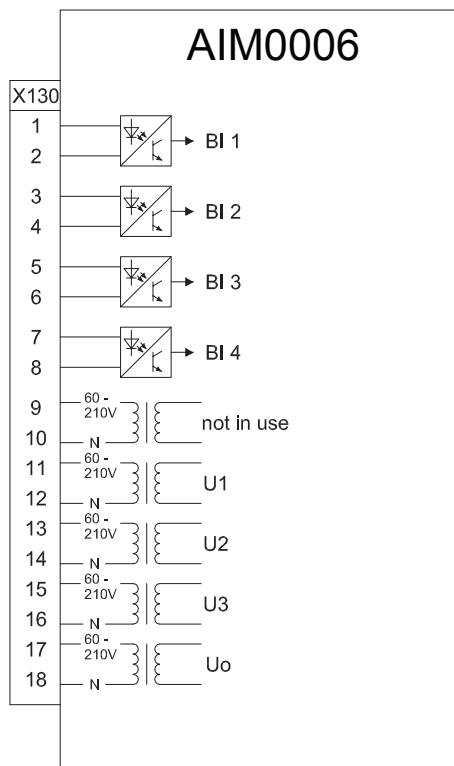


Figure 33: Example of AIM0006 card (X130) variant (5 U)

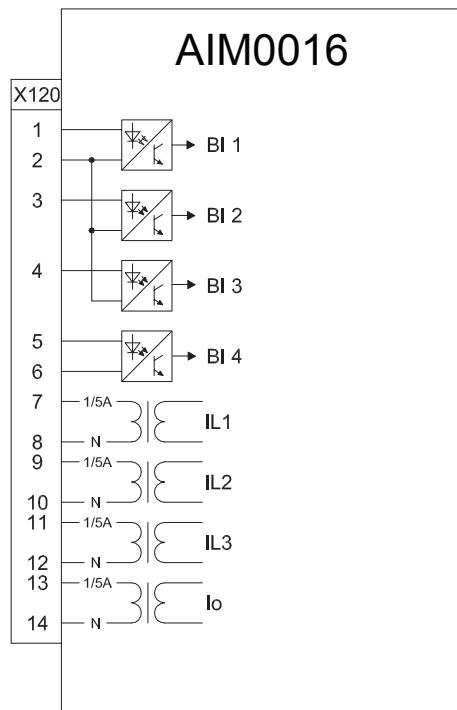


Figure 34: Example of AIM0016 card (X120) variant (4 I with 1/5 A Io channel)

## 5.6

### Connecting non pre-wired binary signals

- Connect the wires for the binary signals that are not yet pre-wired to the correct device according to the connection diagram. Each terminal for binary input and output signal is dimensioned for one 1.5 mm<sup>2</sup> wire or for two 0.5...1.0 mm<sup>2</sup> wires.



In addition to the specific BIO005 card, BI/O signals are available also with AIM0017, AIM0016 and AIM0006 cards.

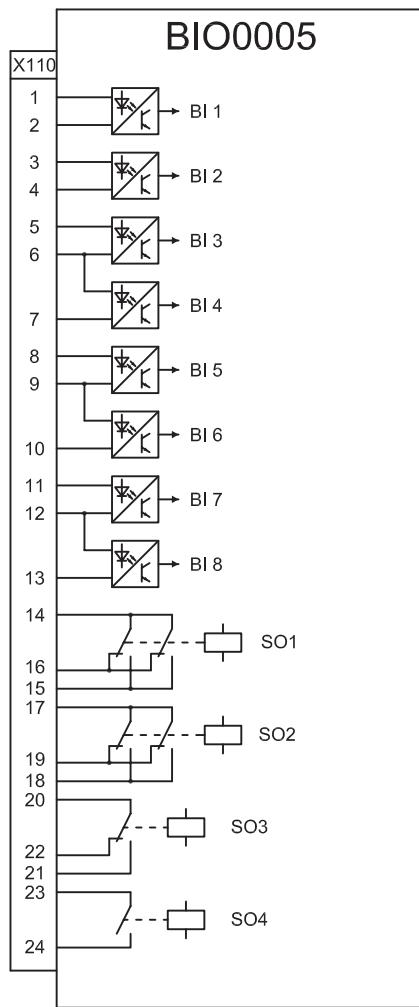


Figure 35: Example of BIO0005 card variant (8 BI + 4 BO)

## 5.7 Connecting communication

1. Check that the HW module has the correct communication interfaces.  
The communication module is located on the left side of the protection relay when viewing the case from the rear.
2. See the 615 series technical manual for the product-specific communication interfaces.



As communication configuration is not part of the Relay Retrofit Program for REX 521, consider engineering and later commissioning of the communication, if needed.

## **5.8**

## **Energizing REX521RRP**

Before connecting the auxiliary power, check that the terminal strip is wired and placed correctly.

During the start-up, indications and self-test procedures are shown in a certain order.

1. Green Ready LED starts to flash.
2. LCD lights up and the ABB logo is displayed.
3. LCD test patterns are displayed and all the LEDs are lit for a short period.
4. The measurements view is displayed. A steady green Ready LED indicates a successful start-up.

If the protection relay detects a diagnostic error during start-up, the green Ready LED flashes and the internal fault code is displayed on the LCD.

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## Section 6

# Removing, repairing and exchanging

### 6.1

## Product lifecycle

At some point of the product lifecycle, the protection relay is upgraded to a next generation unit. When selecting the original product, already consider the upgrading and extension possibilities that the specific product offers for its whole lifecycle.

Protection relay specific options can be found from Retrofit Solutions Database on the Internet [www.abb.com](http://www.abb.com) by following the links within ABB Service Guide or via ABB Product Guide from the product specific Service & Support sheet.

### 6.2

## Checking protection relay information

The protection relay information includes detailed information about the device, such as version and serial number. The protection relay information is shown on the display for a few seconds when the device starts up. The same information is found also in the protection relay menu.

1. Select **Main Menu/Information**.
2. Select a submenu with and .
3. Enter the selected submenu with .
4. Browse the information with and .

The **Product identifiers** submenu contains product related information like product type, serial number, order number, production date, configuration name, SW version, SW date and HW revision.

The **Site identifiers** submenu contains information about the site where the protection relay has been installed.

The **System identifiers** submenu contains the Technical key and IEC 61850 version. The Technical key is unique and cannot be changed.

The **HW modules** submenu contains information about the HW modules.

## 6.3

## Removing REX521RRP

1. Turn off the power.
2. Disconnect the wiring.
3. Loosen the four M5 screws.

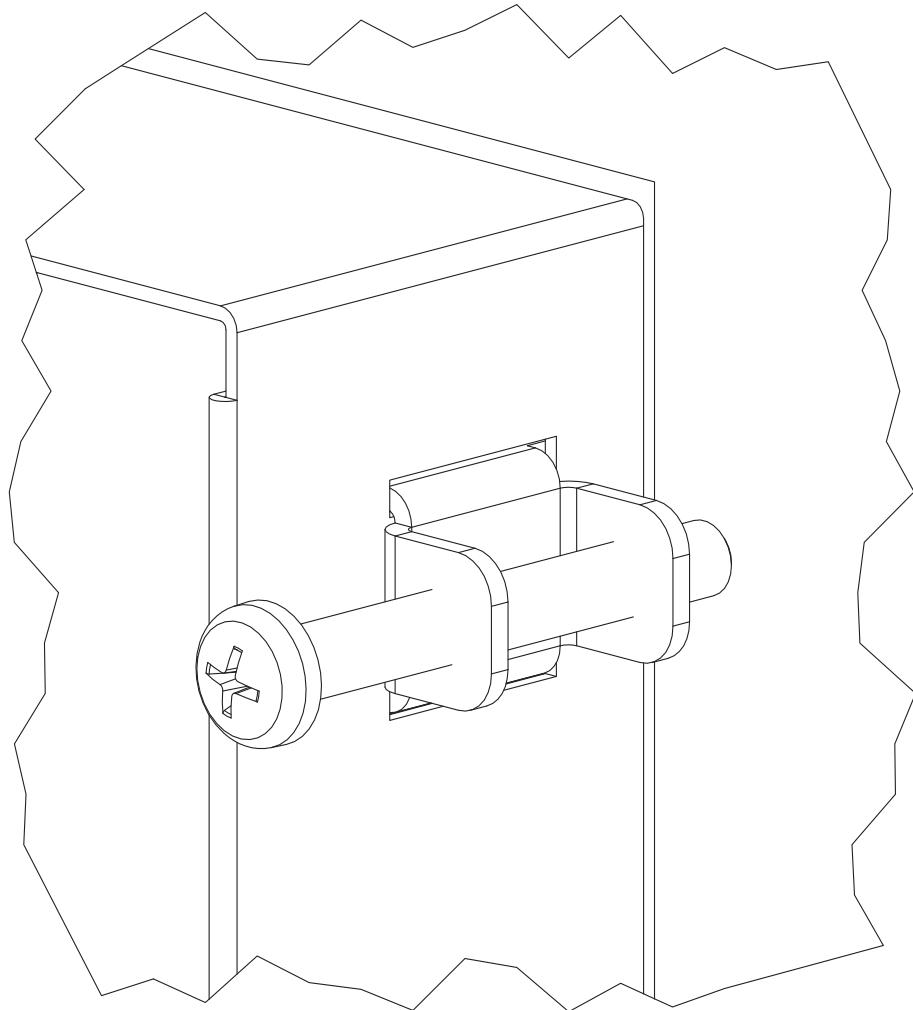


Figure 36: Fixing bracket with an M5 screw

4. Detach the case from the panel cutout.  
If it is necessary to remove only the plug-in unit, detach the plug-in unit from the case.

## 6.4

## Sending REX521RRP for repair

- In case of product problems, contact the nearest ABB office or representative for consultation and instructions.

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## 6.5

## Exchanging REX521RRP

- To exchange the protection relay for another identical unit, remove the protection relay and install the new one.
- To exchange a protection relay for a different unit, change the case and connect the wires.
- When replacing only the plug-in unit for maximum system availability, check that the order number of the case and the spare plug-in unit are equal to ensure type compatibility.

The serial numbers of the original case and the spare plug-in unit are temporarily mismatched. To have matching serial numbers, replace also the case of the spare unit as soon as possible, for example, during the next scheduled maintenance break.



# Section 7      Technical data

## 7.1

### Front side of the device



See the 615 series installation manual for all LHMI variants.



Figure 37:      Front side of REX521RRP

## 7.2

### Rear side of the device



Figure 38: Rear side of REX521RRP

### 7.3 Dimensions

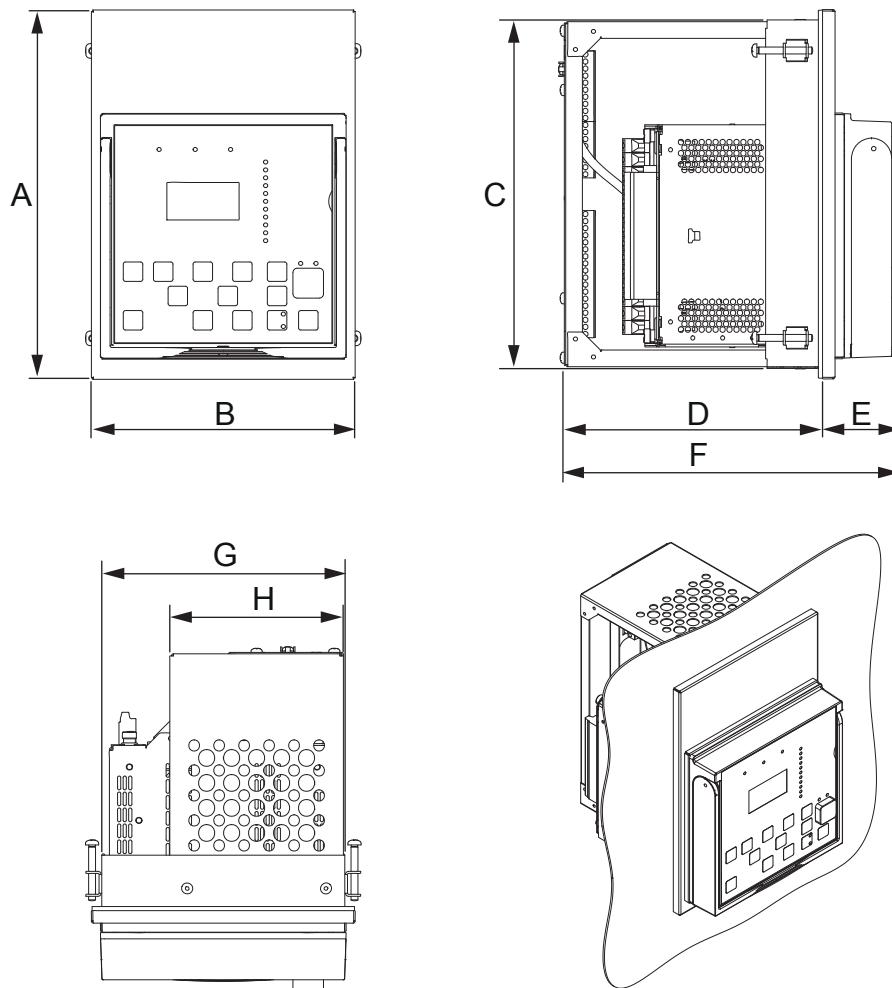


Figure 39: REX521RRP main dimensions

A	268 mm
B	192 mm
C	251 mm
D	186 mm
E	57 mm
F	243 mm
G	175 mm
H	125 mm

**Table 7:** Dimensions

Description	Value
Width	Frame 192 mm
	Case 175 mm
Height	Frame 268 mm
	Case 251 mm
Depth	243 mm (186+ 57 mm)
Weight	Complete device 5.7 kg
	615 protection relay only 4.1 kg
	Plug-in unit only 2.1 kg

## 7.4 Enclosure class

**Table 8:** Degree of protection of the flush-mounted protection relay

Description	Value
Front side	IP 54
Rear side, connection terminals	IP 20

## Section 8      Glossary

<b>CT</b>	Current transformer
<b>EMC</b>	Electromagnetic compatibility
<b>HW</b>	Hardware
<b>IEC</b>	International Electrotechnical Commission
<b>LCP</b>	Liquid crystal polymer
<b>LHMI</b>	Local human-machine interface
<b>PA</b>	Polyamide
<b>PBT</b>	Polybutylene terephthalate
<b>PC</b>	1. Personal computer 2. Polycarbonate
<b>PE</b>	1. Polyethylene 2. Protective earth
<b>REX521RRP</b>	Relion 615 series replacement relay with pre-wired terminals and mounting assembly delivered under Relay Retrofit Program for REX 521
<b>RoHS</b>	Restriction of the use of certain hazardous substances in electrical and electronic equipment
<b>SW</b>	Software
<b>VT</b>	Voltage transformer









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