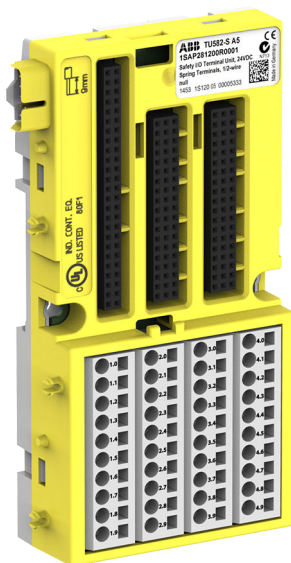


DATA SHEET

TU582-S

Safety I/O terminal unit



1 Ordering data

Type	Description	Part no.
TU582-S	Safety I/O terminal unit, 24V DC	1SAP 281 200 R0001
TU582-S-XC	Safety I/O terminal unit, 24V DC, extreme conditions	1SAP 481 200 R0001

2 Dimensions

Dimensions

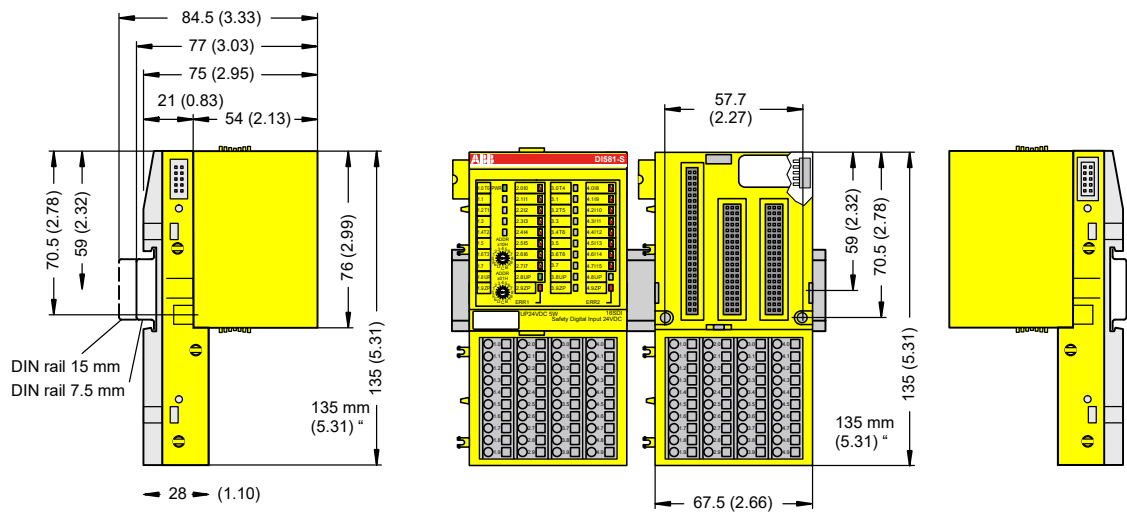


Fig. 1: Dimensions of TU582-S safety I/O terminal unit

3 Technical data



NOTICE!
TU582-S-XC version is available for usage in extreme environmental conditions
➤ Appendix A "System data for AC500-S-XC" on page 5.

Additional technical data is available in ABB PLC catalog at www.abb.com/plc.

Type Front terminal, conductor connection vertically with respect to the printed circuit board.

Data	Value	Unit
Number of channels per module	32	
Rated voltage	24	V DC
Max. permitted total current (between the terminals 1.8 ... 4.8 and 1.9 ... 4.9)	10	A

Distribution of channels into groups 4 groups of 8 channels each (1.0 ... 1.7, 2.0 ... 2.7, 3.0 ... 3.7, 4.0 ... 4.7), the allocation of the channels is given by the inserted I/O expansion module.

Mounting position Horizontal or vertical.

Earthing Direct connection to the earthed DIN rail or via the screws with wall mounting.

Data	Value	Unit
Conductor cross section, solid	0.08 ... 2.5	mm ²

Data	Value	Unit
Conductor cross section, flexible	0.08 ... 2.5	mm ²
Conductor cross section, with wire-end ferrule	0.25 ... 1.5	mm ²
Stripped conductor end, minimum	5	mm
Stripped conductor end	7	mm

Mechanical properties

Data	Value	Unit
Degree of protection	IP 20	
MTBF	2757	years
Weight	~ 200	g

Appendix

A System data for AC500-S-XC

A.1 Environmental conditions

Process and supply voltages

Data	Value	Unit
Process and supply voltage (-25 %, +30 % inclusive ripple)	24	V DC
Absolute limits inclusive ripple	18 ... 31.2	V
Ripple	< 10	%
Protection against reverse polarity	yes	
Allowed interruptions of DC power supply	< 10	ms
Time between 2 interruptions, PS2	> 1	s



DANGER!

Exceeding the permitted process or supply voltage range (< -35 V DC or > +35 V DC) could lead to unrecoverable damage of the system.



DANGER!

For the supply of the modules, power supply units according to PELV or SELV specifications must be used.



NOTICE!

The creepage distances and clearances meet the requirements of the overvoltage category II, pollution degree 2.

Temperature

Data	Value	Unit
Operating temperature*	-40 ... +70	°C
Operating temperature (vertical mounting of module output load limited to 50 % per group)	-40 ... +40	°C
Storage temperature	-40 ... +85	°C
Transport temperature	-40 ... +85	°C

* +60 ... +70 °C with the following deratings:

- Terminal bases: Maximum 2 communication modules allowed
- Digital inputs: Maximum number of simultaneously switched on input channels limited to 50 % per group (e.g. 8 channels => 4 channels)
- Digital outputs: Output current maximum value (all channels together) limited to 50 % per group (e.g. 4 A => 2 A)
- Analog inputs: No limitations



DANGER!

The average temperature (MTBF calculation base) for both the extended temperature range (-40 ... +70 °C) as well as for normal temperature range (0 ... +60 °C) is defined to +40 °C.

Ensure that average operating temperature for used AC500-S-XC modules does not exceed +40 °C.

Humidity

Data	Value	Unit
Relative humidity with condensation (operating/storage)	100	%

Air pressure

Data	Value	Unit
Operating air pressure	1080 ... 620	hPa
Operating altitude	-1000 ... 4000	m
Reduction of operating temperature at an air pressure of < 795 hPa (or > 2000 m above sea level)	10 (e.g. +70 °C to +60 °C)	K

Immunity to corrosive gases

Data	Value
Operating: according to ISA S71.04.1985 harsh group A, G3/GX IEC 60721-3-3 3C2 / 3C3	yes

Immunity to salt mist

Data	Value
Operating: horizontal mounting only, according to IEC 60068-2-52 severity level 1	yes

Electromagnetic compatibility

Data	Value
Radiated emission (radio disturbance) according to CISPR 16-2-3	yes
Conducted emission (radio disturbance) according to CISPR 16-2-1, CISPR 16-1-2	yes
Electrostatic discharge (ESD) according to IEC 61000-4-2, zone B, criterion B	yes
Fast transient interference voltages (burst) according to IEC 61000-4-4, zone B, criterion B	yes
High energy transient interference voltages (surge) according to IEC 61000-4-5, zone B, criterion B	yes
Influence of radiated disturbances according to IEC 61000-4-3, zone B, criterion A	yes
Influence of line-conducted interferences according to IEC 61000-4-6, zone B, criterion A	yes
Influence of power frequency magnetic fields according to IEC 61000-4-8, zone B, criterion A	yes

**NOTICE!**

In order to prevent malfunctions, it is recommended that the operating personnel discharge themselves prior to touching communication connectors or perform other suitable measures to reduce effects of electrostatic discharges.

**NOTICE!**

Unused sockets for communication modules on terminal bases must be covered with TA524 dummy communication module. I/O bus connectors must not be touched during operation.

Radiation

Data	Value
Radio disturbance according to IEC 55011, group 1, class A	yes

A.2 Mechanical data

Data	Value
Wiring method	spring terminals
Degree of protection	IP 20
Vibration resistance according to IEC 61131-2, IEC 60068-2-6, IEC 60068-2-64	yes
Shock resistance according to IEC 60068-2-27	yes
Horizontal assembly position	yes
Vertical assembly position (no application in salt mist environment)	yes

Assembly on DIN rail according to IEC 60715

Data	Value	Unit
DIN rail type	35	mm
DIN rail type depth	7.5 or 15	mm

Assembly with screws

Data	Value	Unit
Screw diameter	4	mm
Fastening torque	1.2	Nm

A.3 Environmental tests

Storage	IEC 60068-2-1 test Ab: cold withstand test -40 °C / 16 h IEC 60068-2-2 test Bb: dry heat withstand test +85 °C / 16 h
Humidity	IEC 60068-2-30 test Dd: Cyclic (12 h / 12 h) damp-heat test +55 °C, 93 % relative humidity / +25 °C, 95 % relative humidity, 6 cycles IEC 60068-2-78, stationary humidity test: +40 °C, 93 % relative humidity, 240 h
Insulation test	IEC 61131-2
Vibration resistance	IEC 61131-2 / IEC 60068-2-6: 5 Hz ... 500 Hz, 2 g (with SD memory card inserted in non-safety CPU) IEC 60068-2-64: 5 Hz ... 500 Hz, 4 g rms
Shock resistance	IEC 60068-2-27: all 3 axes 15 g, 11 ms, half-sinusoidal

EMC immunity

Electrostatic discharge (ESD)

Data	Value	Unit
Electrostatic voltage in case of air discharge	8	kV
Electrostatic voltage in case of contact discharge	6	kV

Fast transient interference voltages (burst)

Data	Value	Unit
Supply voltage units (DC)	4	kV
Digital inputs/outputs (24 V DC)	2	kV
Analog inputs/outputs	2	kV
Communication lines, shielded	2	kV
I/O supply (DC-out)	2	kV

High energy transient interference voltages (surge) - common mode (CM)

Data	Value	Unit
Supply voltage units (DC)	1	kV
Digital inputs/outputs (24 V DC)	1	kV
Analog inputs/outputs	1	kV
Communication lines, shielded	1	kV
I/O supply (DC-out)	0.5	kV

High energy transient interference voltages (surge) - differential mode (DM)

Data	Value	Unit
Supply voltage units (DC)	0.5	kV
Digital inputs/outputs (24 V DC)	0.5	kV
Analog inputs/outputs	0.5	kV
I/O supply (DC-out)	0.5	kV

Data	Value	Unit
Influence of radiated disturbances: test field strength	10	V/m
Influence of line-conducted interferences: test voltage	10	V

Data	Value	Unit
Power frequency magnetic fields at 30 A/m	50 and 60	Hz



NOTICE!

Extreme environmental conditions and relevant requirements for used non-safety CPUs and I/O modules from AC500-XC family shall be taken into account.