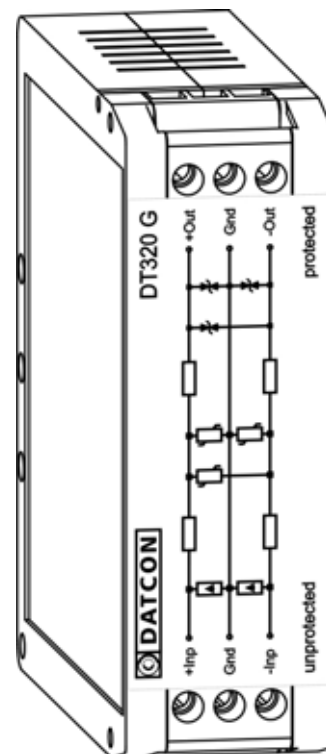


DT320 x

Over-voltage protector

Operating Instructions



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1. About this document

1.1. Function

This operating instructions manual has all the information you need for quick set-up and safe operation of DT320 x. Please read this manual before you start setup.

1.2. Target group

This operating instructions manual is directed to trained personnel. The contents of this manual should be made available to these personnel and put into practice by them.

1.3. Symbolism used



Information, tip, note

This symbol indicates helpful additional information.



Caution, warning, danger

This symbol informs you of a dangerous situation that could occur. Ignoring this cautionary note can impair the person and/or the instrument.

List



The dot set in front indicates a list with no implied sequence.

Action



This arrow indicates a single action.

Sequence



Numbers set in front indicate successive steps in a procedure.

2. For your safety

2.1. Authorized personnel



All operations described in this operating instructions manual must be carried out only by trained and authorized specialist personnel. For safety and warranty reasons, any internal work on the instruments must be carried out only by DATCON personnel.

2.2. Appropriate use

The DT320 x is an Over-voltage protector. Detailed information on the application range is available in chapter 3. **Product description.**

2.3. Warning about misuse



Inappropriate or incorrect use of the instrument can give rise to application-specific hazards, or damage to system components through incorrect mounting or adjustment.

2.4. General safety instructions



The DT320 x is requiring the strict observance of standard regulations and guidelines.

The user must take note of the safety instructions in this operating instructions manual, the country-specific installation standards as well as all prevailing safety regulations and accident prevention rules.

2.5. CE conformity

The DT320 x is in conformity with the provisions of the following standards:

EN 61010-1:2001 (safety)

EN 61326:2007 (EMC)

2.6. Environmental instructions

Protection of the environment is one of our most important duties.

Please take note of the instructions written in the following chapters:

- Chapter 3.5. **Storage and transport**
- Chapter 7.2. **Disposal**

3. Product description

3.1. Delivery configuration

Delivered items

The scope of delivery encompasses:

- DT320 x
- documentation:
 - this operating instructions manual
 - certification
 - warranty

3.2. Type designation

DT320 G type with grounded symmetric output

DT320 F type with floating (not grounded) symmetric output.

3.3. Operating principle

Area of application

The DT320 x instruments are 2 pole symmetric overvoltage protection units used to limit high voltage surges. For application in 4-20 mA current loop cables, they protect the inputs of processing units.

Principle of operation

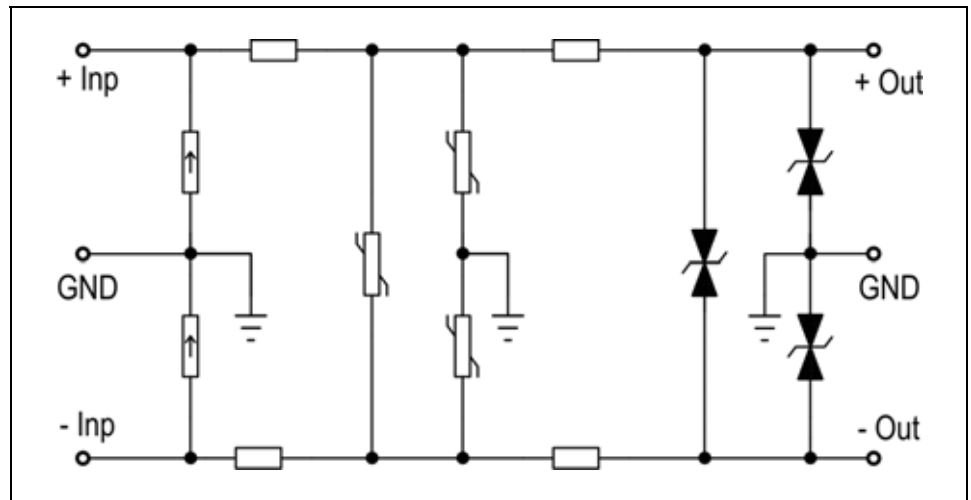


The current loop protection consists of three stages:

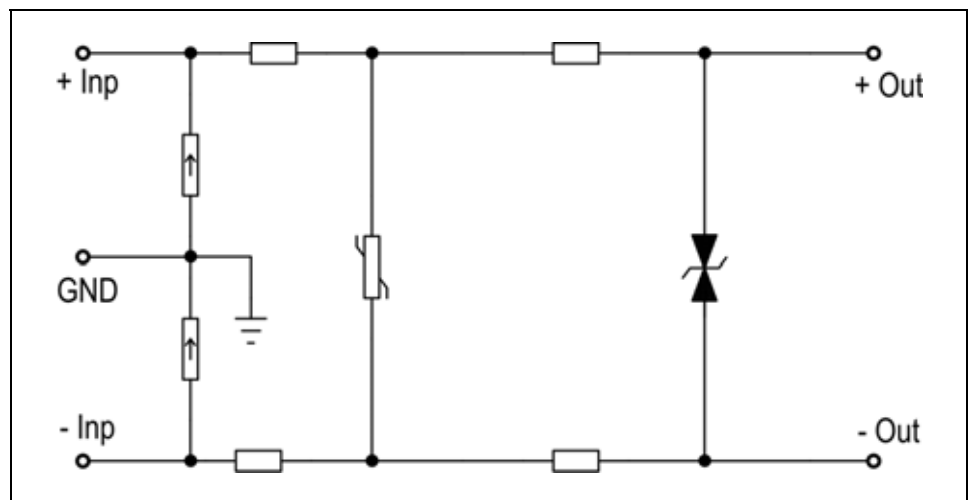
1. high surge current arrester gas discharge tube,
2. high speed varistor (through limiting resistor),
3. high speed transient-voltage-suppression (TVS) diode (through limiting resistor).

The following figure shows the type of “G” grounded, and type of “F” floating (not grounded):

The DT320 G type is grounded symmetric



the DT320 F type is floating (not grounded) symmetric.



Power supply

The instrument does not require power.

3.5. Storage and transport

This instrument should be stored and transport in places whose climatic conditions are in accordance with chapter **8.1. Technical specification**, as described under the title: Environmental conditions.



The packaging of DT320 x consist of environment-friendly, recyclable cardboard is used to protect the instrument against the impacts of normal stresses occurring during transportation. The corrugated cardboard box is made from environment-friendly, recyclable paper. The inner protective material is polyfoam and nylon, which should be disposed of via specialized recycling companies.

4. Mounting

4.1. General instructions



The instrument should be installed in the safe area in a cabinet with sufficient IP protection, where the operating conditions are in accordance with chapter **8.1. Technical specification**, as described under the title: Operating conditions.

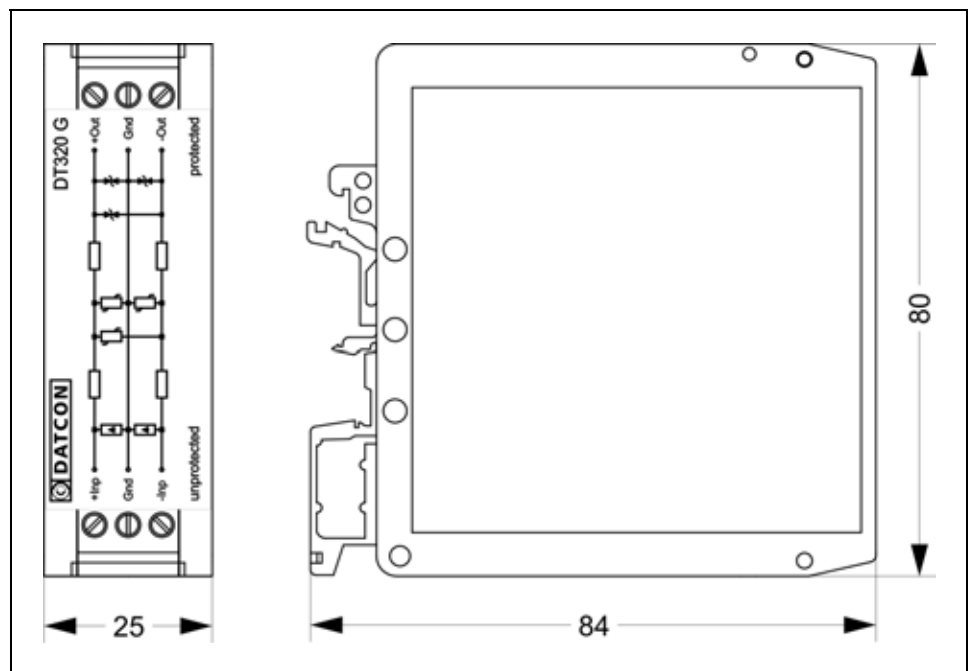
Mounting position

The DT320 x is built in a plastic housing, for mounting on TS-35 and TS-32 rail.

The instrument can be mounted in vertical or horizontal position.

4.2. Main dimensions of the instrument

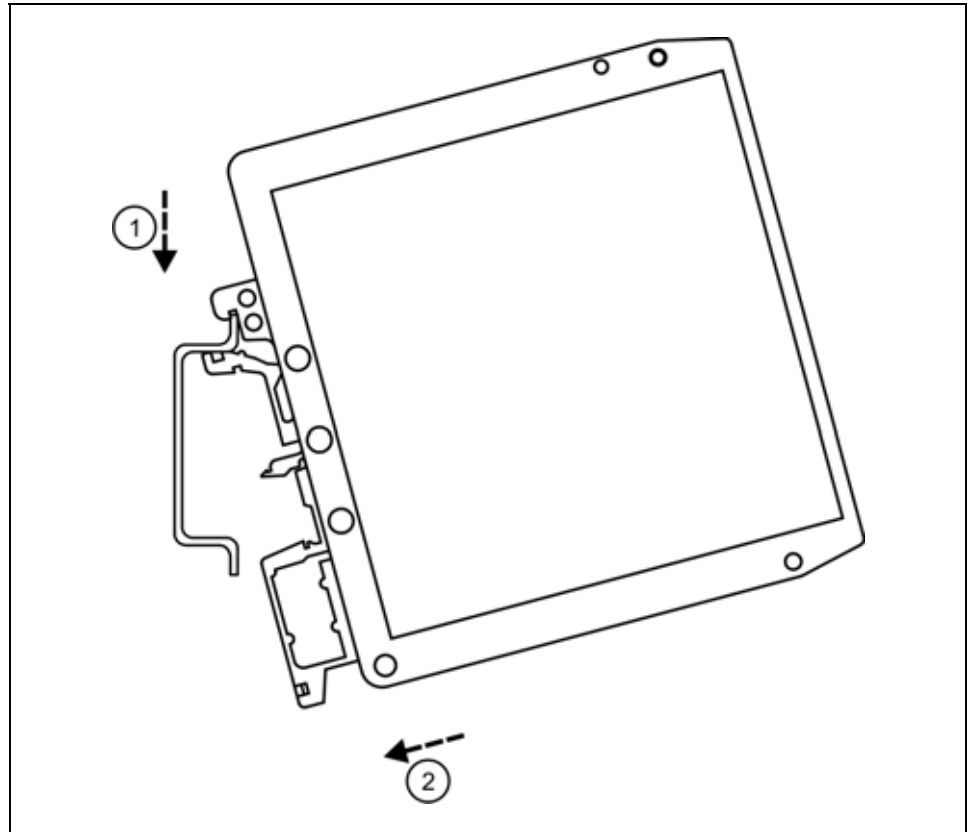
The following figure shows the main dimension of the instrument



5.3. Mounting procedure

The following figure shows the mounting procedures (fixing on the rail):

Mounting on the rail



The mounting doesn't need any tools.

1. Tilt the instrument according to the figure; put the instrument's mounting hole onto the upper edge of the rail (figure step 1.).
2. Push the instrument's bottom onto the bottom edge of the rail (figure step 2.), you will hear the fixing assembly closing.
3. Check the hold of the fixing by moving the instrument firmly.

5. Connecting

5.1. Preparing the connection

Always observe the following safety instructions:

- The connection must be carried out by trained and authorized personnel only!
- Connect only in the complete absence of supply voltage
- Use only a screwdriver with appropriate head



Select and prepare connection cable

Take note the suitability of the connecting cable (wire cross-section, insulation, etc.).

The wire cross-section should be 0.25-1.5 mm².

You may use either solid conductor or flexible conductor. In case of using flexible conductor use crimped wire end. Strip approx. 8 mm insulation.



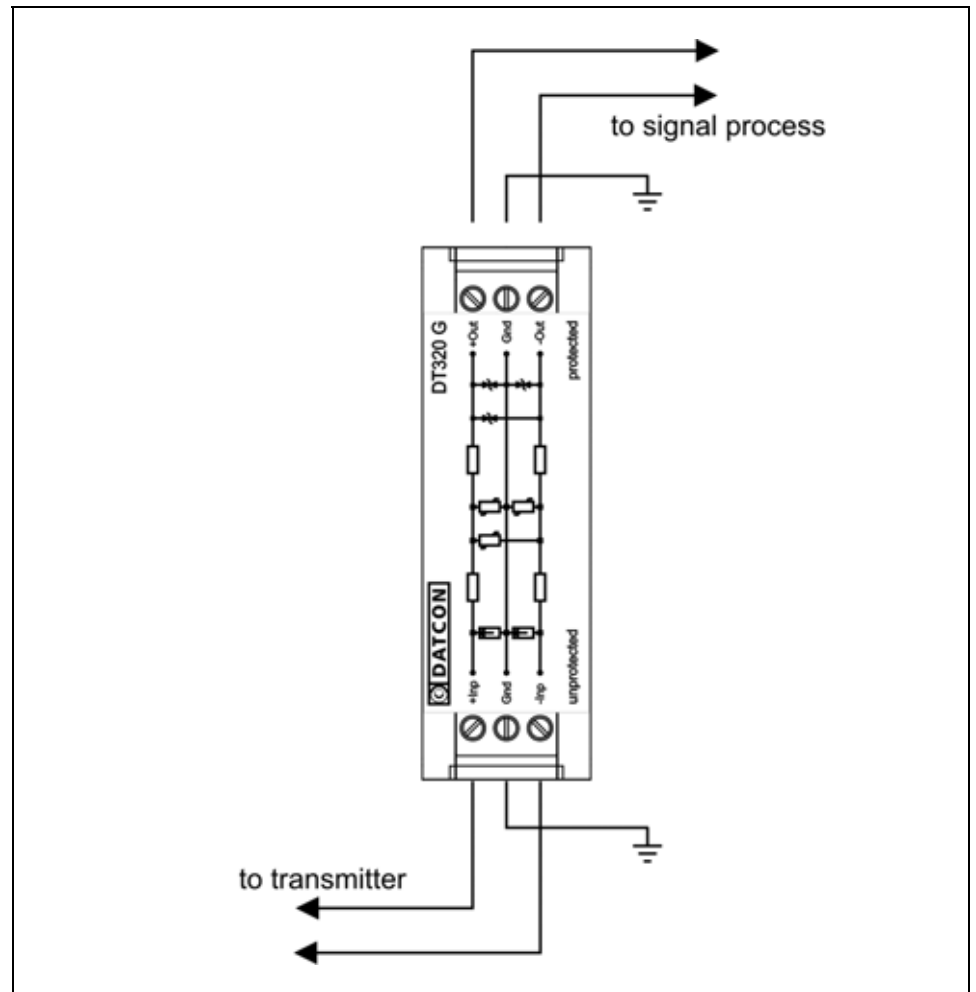
It's an important rule that the power cables and signal cables should lead on a separate way.

Install the device closer to the field cable insertion site. In case of installing type "G" use the thickest and shortest ground wire.

5.2. Connecting the DT320 G into current loop

The following figure shows the wiring plan, connecting the DT320 G to transmitter and signal processing unit:

Wiring plan, connecting the DT320 G to transmitter and signal processing unit
(see also “Application example”)

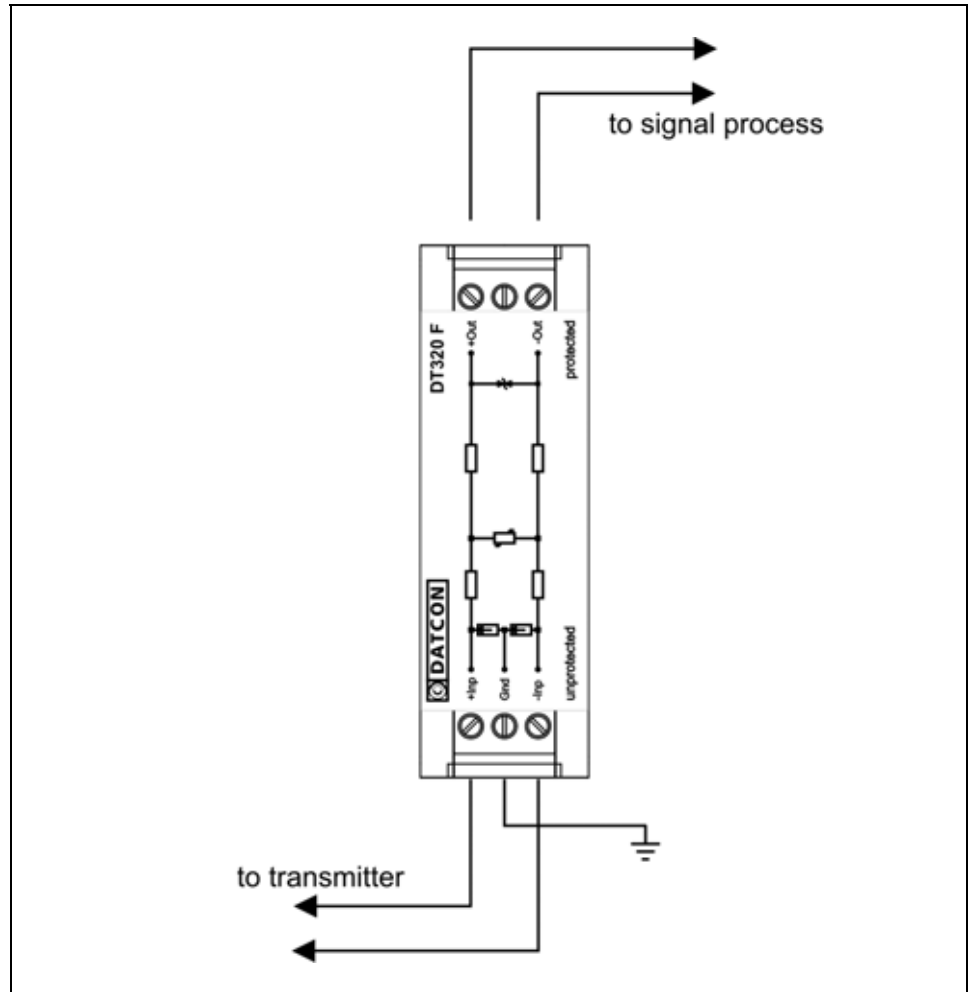


1. Loosen terminal screws.
2. Insert the wire ends into the open terminals according to the wiring plan.
3. Screw the terminal in.
4. Check the hold of the wires in terminals by pulling on them firmly.

5.3. Connecting the DT320 F into current loop

The following figure shows the wiring plan, connecting the DT320 F to transmitter and signal processing unit:

Wiring plan, connecting the DT320 F to transmitter and signal processing unit
(see also "Application example")



1. Loosen terminal screws.
2. Insert the wire ends into the open terminals according to the wiring plan.
3. Screw the terminal in.
4. Check the hold of the wires in terminals by pulling on them firmly.

6. Fault rectification

6.1. Fault finding

The over-voltage protector is maintenance-free.



When the result of fault finding is that the instrument is defective call the manufacturer service department. The failures resulting from incorrect handling, the manufacturer shall not be liable.

6.2. Repairing

There is no user repairable part inside the instrument. In accordance with Point 2.1.: **For safety and warranty reasons, any internal work on the instrument must be carried out by DATCON personnel.**

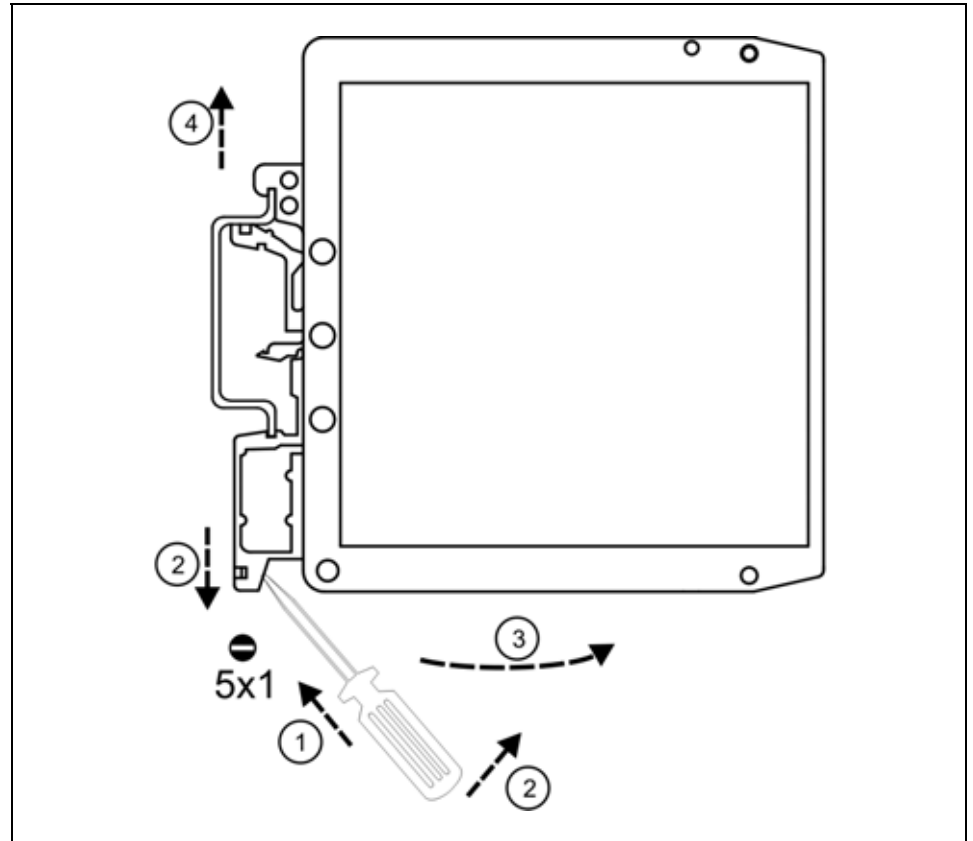


7. Dismounting

7.1. Dismounting procedure

The following figure shows the dismounting procedures:

Dismounting from the rail



The dismounting procedure needs a screwdriver for slotted screws.

Pull out all the terminals:

1. Put the screwdriver into the slot between the terminal and the housing (figure step 1.).
2. Lift (lower terminals) or push down (upper terminals) the screwdriver handle as far as the terminals will be free (figure step 2.).

Dismount the instrument:

3. Put the screwdriver end into the fixing assembly's hole (figure step 3.).
4. Lift the screwdriver handle until it possible to open the fixing assembly (figure step 4.).
5. Keeping the screwdriver in this position lift the instrument bottom from the bottom edge of the rail (figure step 5.).
6. Lift the whole instrument (you may put out the screwdriver) (figure step 6), the instrument will be free.

7.2. Disposal



According with the concerning EU directive, the manufacturer undertakes the disposal of the instrument that are manufactured by it and intended to be destroyed. Please deliver it in contamination-free condition to the site of the Manufacturer or to a specialized recycling company.

8. Appendix

8.1. Technical specification

Safety data:

Input and output of the instrument are not galvanically isolated.

Pollution level:	2
Overvoltage group:	I
Overcurrent protection in installation:	500 mA

Parameters:

Nominal voltage:	24 VDC
Maximum voltage:	39 VDC
Nominal current:	20 mA
Maximum current:	120 mA
End-to-end resistance:	30 Ω (between input and output / wire)
Maximum surge:	5 kA
Way of protection:	three stages (gas discharge tube, transient-voltage-suppression (TVS) diode)

Ambient conditions:

Operating temperature range:	0-60 °C
Storage temperature range:	0-70 °C
Relative air humidity:	90 % (maximum, non condensing)
Place of installation:	cabinet

Electromagnetic compatibility (EMC):

Immunity: Accordance with the standard EN 61326-1:2007 (Table 2)

ESD:	4 kV/8 kV surface / air	-A- criterion
BURST:	2 kV	-A- criterion
SURGE:	2 kV	-B- criterion

Data in general:

Housing:	TS-35, TS-32 rail-mounting housing material: polyamide PA6.6
Connection:	screw-fixed type connection
Connecting cable:	1.5 mm ² (maximum)
Dimensions:	25 x 80 x 84 mm (width x height x depth)
Weight:	0.08 kg
Protection:	IP 20

The Manufacturer maintains the right to change technical data.

8.2. Application example

