

Combined coarse and fine surge protection for M-Bus networks SP-MBUS-40V-L



Instructions manual

Version: 2017/1.1-EN



Surge Protection SP-MBUS-40V-L

The surge protection is designed to protect a two wire communication line of an M-Bus network against impulse overvoltage. The two stage protection protects M-Bus devices against overvoltage between the wires and between the ground and each wire.

The surge protection is suitable for M-Bus slave and master devices regardless of type.

Maximum operating voltage between the wires is 40V and the maximum current load is equivalent to 255 M-Bus slave devices.

Technical parameters

Electrical properties	
Operating voltage A-B	40V
Maximum operating voltage A-B	44V
Maximum operating current A,B	0.4A - 255 M-Bus slaves
Maximum operating voltage A,B to PG	90V
Peak surge current I_n (8 / 20 μ s)	10 kA
Response time	< 1ns
Maximum clamping voltage A-B at I_n	< 74V
Maximum clamping voltage A,B to ground at I_n	< 300V
Serial resistance per line	2,2 Ω
Connectors	connectors for wires of up to 2.5 mm ² cross-section area
Temperature	
Operating range	-40°C to 80°C
Mechanical construction	
Mechanical design	plastic box
Mounting	35mm DIN rail (EN 50022 top hat rail)
Dimensions: height x width x length	56.5 x 17.5 x 97.5mm
Protection classification	IP20
Weight	40g

Layout of terminals



Protected

- A, B
Terminals for connecting the surge protected M-Bus line. Connection to the protected M-Bus device.

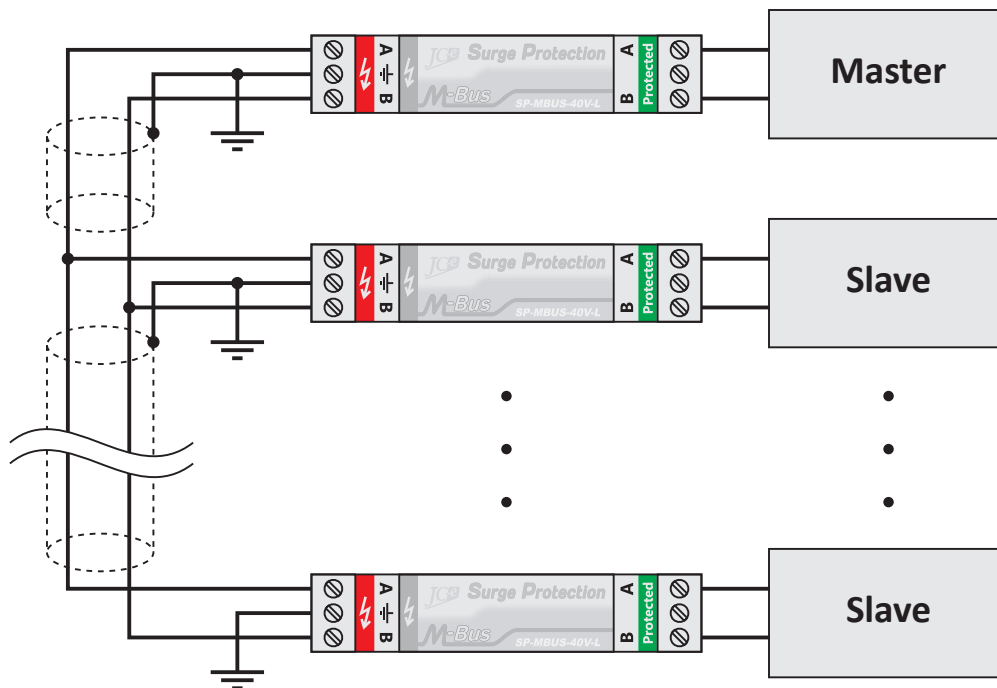


Line

- A, B
Terminals for connecting the M-Bus line where surges can occur.
- PG (PG)
Terminal for connecting the ground. Connect to the ground of the electrical installation. Use the shortest possible wire with a cross-section of 2,5mm².

Note: Wires connected to the *Protected* terminals must not be routed near the *Line* and *PG* wires! Surge transfer could occur in such case.

Recommended wiring of the surge protection

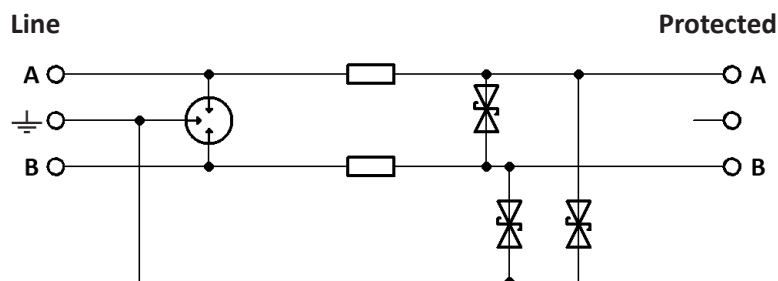


Recommended wiring.

The role of surge protectors is to protect M-Bus devices against overvoltage created by atmospheric discharges (lightning) and other electromagnetic phenomena which could induce voltage into the M-Bus line.

A suitable location for a surge protector is in a place with available electrical grounding. The best locations are where the wiring enters the electrical switchgear cabinet and near the ground mounting point. Wiring rules that must be followed:

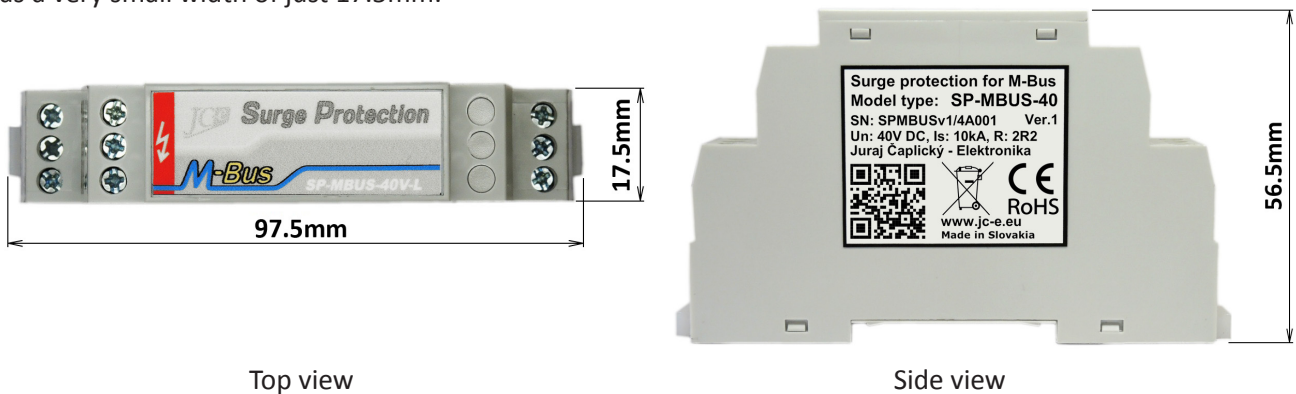
- A wire with a 2.5mm² cross-section must be used for connecting the *PG* terminal with the ground and the connection must be as short as possible.
- The *PG* wire and the wires on the *Line* side must not be close to, cross with, or run parallel to the wires from the *Protected* side.
- If there is a possibility of a permanent voltage exceeding the permitted operating range occurring on the line, it is necessary to connect fuses to the A,B wires before the surge protector to protect the line and the surge protector. In case of a lasting overvoltage the protector will switch to a zero resistance (short circuit) state.



Simplified circuit diagram of the protection.

Mechanical parameters

The surge protection is built in a standard plastic box designed for mounting on a 35 mm DIN rail. The box has a very small width of just 17.5mm.



Top view

Side view

Handling of electronic waste

- A non-functional, discarded electronic device must be handed to a proper collection authority.
- The electronic device must be separated from unsorted communal waste.
- Failure to handle the scrapped electronic device according to the mentioned guidelines may cause negative impact on the environment and human health.
- Handing the old device to a proper collection authority will warrant the recovery of useful materials with which you contribute to their repeated use after recycling.
- All information in this paragraph is represented by the following symbol present on every electronic device.
- The purpose of this symbol is to guarantee the retrieval and separate collection of e-waste. These types of devices cannot be disposed into unsorted communal waste.



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