Potential protection unit Type 8901

with low voltage limiter, surge arrester current monitoring and remote clearing function

8901

Description

There are special problems with railways operating with DC power concerning contact and anti-corrosion protection and overvoltage protection (e.g. lightning). On the one hand, an attempt is made to prevent the DC currents from connecting to earth as far as possible so as to avoid corrosion, while on the other hand there is the problem that dangerous voltage potentials can arise between the two areas if a strict electrical separation is made.

Dangerous contact voltages can arise if these areas are spatially close to one another. This problem can be solved by using open earthing.

Low-voltage limiting units such as voltage-limiting devices connect the various power supply networks with one another when the trigger value is exceeded.

This thus ensures that no higher contact voltages than those planned can arise and lead to short circuits when connecting the various power supply networks for triggering. (See DIN EN 50122-1 and DIN EN 50123-5 – VDE 0115 Part 3 and Part 300-5 for further details.)

The following describes a complete solution with voltage-limiting devices. The monitoring of the voltage-limiting device is done via the flow of current through the voltage-limiting device (see brochure sheet 8900 for a complete solution with monitoring of the voltage-limiting device via the voltage differences at the voltage-limiting device).

The arrangement consists of 4 core items

1. type 8961 voltage-limiting unit
2. type 8546 current sensor
3. MO-surge arrester
4. inductance

The voltage-limiting device involves a fuse whose action is based on a spark gap (see brochure sheet 8961).

The voltage-limiting device is designed for a value of 120V.

Monitoring of the voltage-limiting device via the flow of current through the voltage-limiting device is always recommended if a message is required without a delay and if sufficiently large currents (more than 15 A) flow through the voltage-limiting device.

As opposed to voltage monitoring, the current monitoring device reacts at once. It is recommended that you store the message, since it only exists while the current is flowing. The current sensor type 8546 store the output until the reset input will be connected with 24VDC.

When testing the voltage-limiting device to determine its current actual state, we recommend the use of the tester type 8201.

See the »Technical data« and the details in the individual brochures for the type 8546 current sensor and the type 8961 voltage-limiting device for further information on this unit. Complete solutions in a wide variety of different configurations are available (please enquire).

Technical data

Dimensions	WxHxD see figure
Housing	Polyester / Makrolon HxWxD: 302x186x181mm
Attachment	Wall fastening brackets Mast attachment (as accessory, Part No. 240110)
Type of protection	IP 55
Ambient temperature	-20°C to +70°C
Low-Voltage-Limiter	type 8961
Trigger value	120V (bidirectional)
Shock loading	≤ 60kA (8/20 µs standard puls)
Resistance to short-circuits	≤ 5 kA for max. 250ms
Current sensor	type 8546
Trigger value	≤ 15 A (polarity-independent)
Supply voltage	DC 24 V (18 - 30VDC)
Load-Output	1 electronic output voltage: 24VDC load current: max. 200mA output will be clamped until reset
Function display	two light emitting diodes (LED's) green LED: power on orange LED: switched on
Reset Input	24VDC, reset output
Connections	
Supply voltage	≤ 1,5 mm²
Load-Output	≤ 1,5 mm²
Reset Input	≤ 1,5 mm²
Earthing potentials	Threaded bolt M16

Ordering information

Type	Part No.
type 8901, with low voltage limiter, surge arrester and current sensor	**240130**

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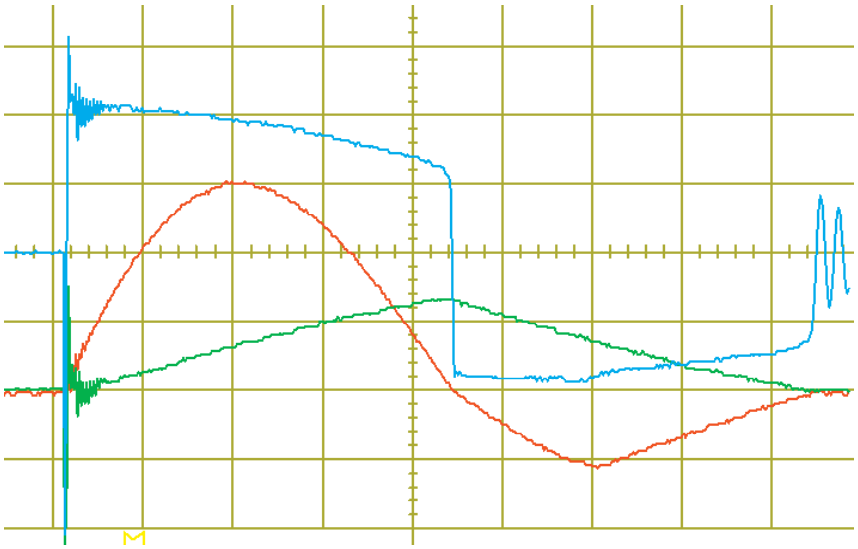
Voltage- and Current-Curve on Surge Arrester, LVL and Inductance (8/20µs)



red: Current through surge arrester 2,5kA/div
green: Current through low voltage limiter (LVL) 4,0kA/div
blue: Voltage on LVL/surge arrester 200V/div

mechanical design