Potential Protection Device
Type 8901 for floating grounds with current control

8901

Description

Protection from contact voltage and corrosion present a particular problem in the case of DC powered railway vehicles. On the one hand, direct electrical currents should not be connected to ground in order to prevent corrosion, but on the other hand, strict electrical separation can result in hazardous voltage potentials between the two areas.

Dangerous contact voltages can occur if these areas are close together. Floating grounds are used to resolve this problem.

Low-voltage limiters - like voltage fuses - connect the different grounds when a threshold is exceeded.

This guarantees that no dangerous contact voltages can occur and that short circuits cannot trigger when different grounds are connected (for detailed information, please refer to DIN EN 50122-1 and DIN EN 50123-5 – VDE 0115 Part 3 and Part 300-5).

A complete solution with voltage fuse is described below. The voltage fuse is controlled over the current flowing through the fuse (for a complete solution including control of the voltage fuse over the potential differences on the fuse, see Brochure 8900).

The arrangement consists of 2 core elements:

1. Voltage fuse type 8961
2. Current relay type 8546.

The voltage fuse operates on he principle of a spark cap (see Brochure 8961).

The voltage fuse is set to a value that is sufficiently below the permissible contact voltage (per DIN EN 50122-1, Section 7.3.3 DC 120 V – VDE 0115 Part 3) for personnal protection or on higher levels (Un: DC 200V, 230V, 300V, 350V, 600V) for equipment protection.

Control of the voltage fuse over the flow of current through the fuse is always recommended when an immediate signal is desired and sufficient current (larger than 15 A) flows through the fuse.

In contrast to voltage control, current control triggers immediately. Since the signal is only available while the current flows, it should be saved. The memory module including test and acknowledge elements is a part of this complete solution.

A voltage fuse that has failed in the conductive state cannot demonstrate a potential difference between its connections because the continuity resistance is nearly zero.

For more information on this system, see “Technical Data” and information in the brochures for current relay type 8546 and voltage fuse type 8961.

For testing 120V-voltage fuses we offer a test equipment type 8204 part no. 250207 (personnal protection).

Complete solutions are available in many different designs (send us your requirements).

Technical Data

Dimensions	WxHxD see illustration
Housing	Polyester / Makrolon
Mounting	Wall mounting tabs Strap mounting
Protection class	IP 55
Ambient temperature	-20ºC to +70ºC
Voltage fuse	type 8961 (part-no. 250150)
Threshold	120V ±20% (bi-directional) other threshold voltages available
Impulse current	60kA (8/20µs)
Short-circuit capability	5kA (≤ 250ms)
Current relay	type 8546
Threshold	> 15 A (polarity independent)
Supply voltage	AC 230 V , DC 24V
Output contact	1 change-over contact (potential free) Voltage / Current AC 230 V / 4.0 A DC 110 V / 0.5 A
Function display	LED
Functions	1 x button button not pushed: memory button fixed pushed: no memory button pushed: reset memory
Connections	
Supply voltage	4 mm²
Signal contact	4 mm²
Ground potential	M16 threaded bolt

Ordering Information

Type	Order No.
8901	**240123 - AC 230V version**
	240124 - DC 24V version
	240125 - AC + remote reset
	240126 - DC + remote reset
	Voltage fuse (VLD) separately:
	240198 - DC 24V without VLD
	240199 - AC 230V without VLD

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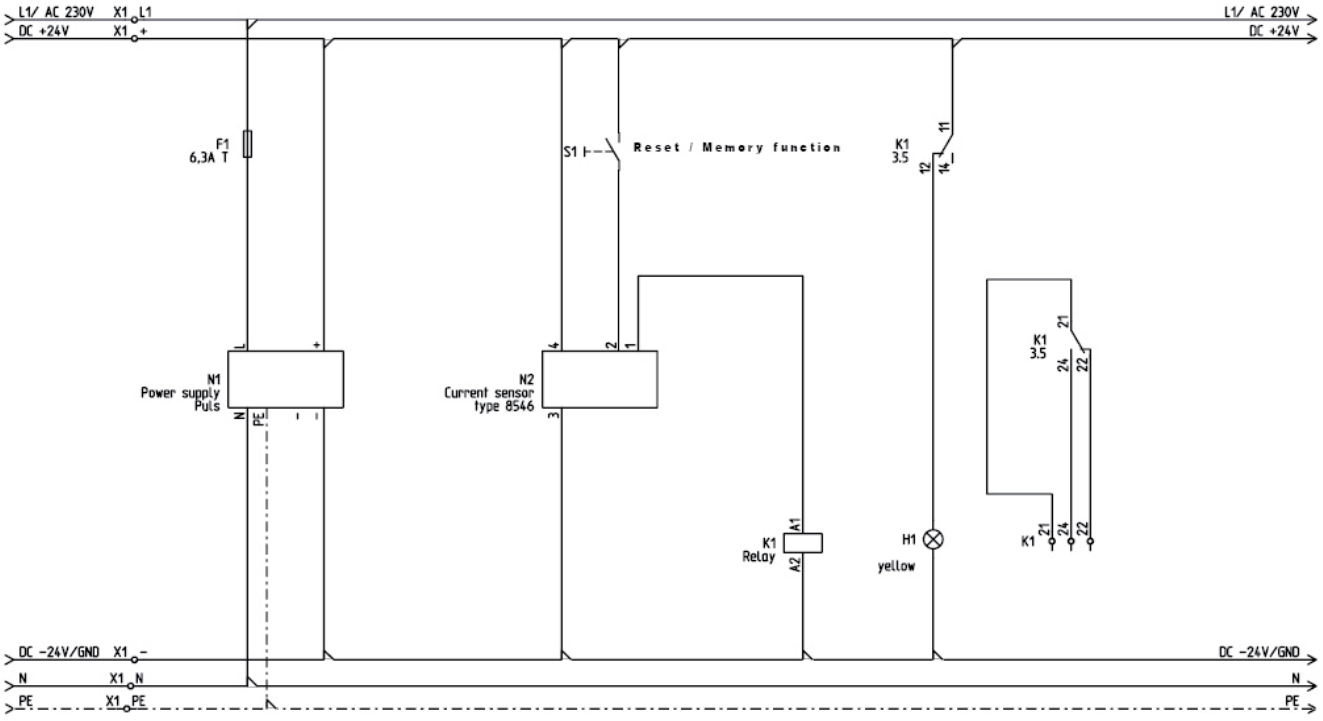
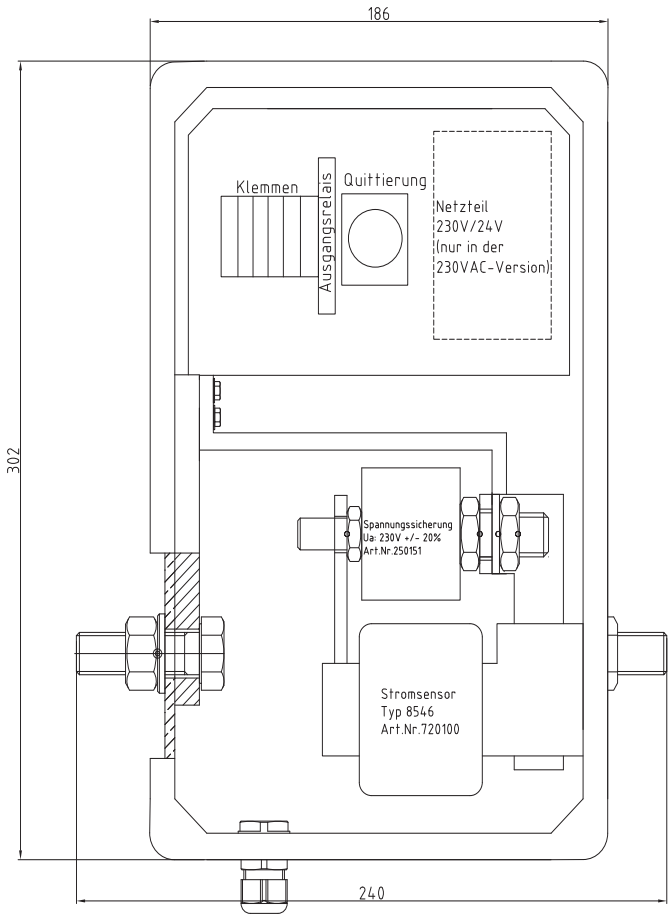
AC-Version part no. 240123 (for example):



Mechanical drawing part no. 240123



High: 181mm