

Railway voltage detectors VD range Electronic technology for rolling stock and infrastructure

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Maintenance personnel warning: an PETERCEM innovation.

Faced with a current offering with insufficient reliability that doesn't meet the market standards, PETERCEM has innovated with the VD Railway voltage detector. This 100% electronic product allows your maintenance operatives to be aware of the presence of a continuous voltage, before carrying out operations on equipment. When the diode flashes, the voltage is greater than 50 V and when it is extinguished, the voltage is

below this limit. Provided with a double internal function and independent LEDs, the VD Railway voltage detector offers redundant function and a lifetime greater than 1 million hours. Guaranteed for 2 years, it allows reliable decisions to carry out operations to be made and warns personnel from dangerous high voltages.



An answer adapted to market requirements

Guaranteeing optimum reliability, the VD Railway voltage detector meets the requirements for difficult environments and is adaptable to the most demanding applications such as:

— rolling stock: main converters, auxiliary converters. Based on the SNCF CF60-100 specification, the whole French railway market imposes the presence of a voltage detector within built redundancy, to meet the drastic requirements of this sector.

— electronic power systems integrating capacitors banks: backups, wind generators, variable speed drives, electrolysis require voltage detectors of robust design and offer high reliability.

A considered and measured integrated design

Thanks to a 100% electronic technology, PETERCEM has reduced the size of the VD Railway voltage sensor to a minimum. The ultra-compact dimensions allow for simplified installation. Additionally, its self-sufficiency in energy means that it can work without an external power supply.



Quality that goes beyond standards

The new product complies with the standard EN 50155 (high technology electronic design and testing) and EMC EN 50121-3-2 (electromagnetic compatibility: resistance to electromagnetic interference) and follows a very rigorous manufacturing process.

Certified ISO 9001 and CE labeled, the VD Railway voltage detector complies with the most rigorous standards and requirements.

The VD Railway voltage detector is the only product on the market that complies with rolling stock security standards such as: EN 50124-1 (electrical isolation), EN 50163 (standardized voltage 1500 V DC).

Because your security is essential



100% electronic

At the forefront of technological innovation at PETERCEM, the VD Railway voltage detector is 100% electronic. Other than the assurance of providing unbeatable performance, it has reduced dimensions:

smaller and more compact, it offers greater installation flexibility. Its 100% electronic technology also provides it with an excellent immunity to surrounding magnetic fields: a guarantee for accurate detection of a given voltage.

Double lifetime to avoid taking any risks

The VD Railway voltage detector is a voltage detection system with built in redundancy. It is equipped with two electronic circuits each connected to a light emitting diode (LED). These two parallel and independent systems guarantee a high level of functioning and improve the reliability of the detector.

Double lifetime to avoid taking any risks

Reduction of the number of components, low energy manufacturing processes, use of recyclable packing, reduced energy consumption... The VD Railway voltage detector complies with all the requirements of the ISO 14001 environmental standard, in place at PETERCEM since 1998.



VD1500, VD3000 railway voltage detectors

For rolling stock and infrastructure

Technical data

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Utilisation

Electronic detectors for direct voltages. This device signals the presence of dangerous voltages via the independent flashing of two LEDs (Light emitting diodes). A secondary supply voltage is not necessary.



		VD1500-48	VD3000-25
Order code		1SBT900000R0007	1SBT903000R2501
Nominal voltage (U_N)		V DC 1500	3000
Maximum voltage permanent U_{MAX1}		V DC 1800	3600
Maximum voltage long duration U_{MAX2}	5 min	V DC 1950	3900
Maximum voltage overload	20 msec/h	V DC 2540	4200
Insulation voltage rating (1) (U_{NM})	50 Hz, 1 min	kV 6.5	12
Average current consumption (LED flashing)		mA ≤ 1.5	≤ 1.5
LED flashing frequency		Hz 2	2
Activating voltage (U_{ON})		V DC > 49	> 25.5
Activating voltage (U_{OFF})		V DC < 38	< 16.5
Mass		kg ≤ 0.5	≤ 1.5
Starting temperature		$^{\circ}\text{C}$ -40 ... +70	-40 ... +70
Operating temperature		$^{\circ}\text{C}$ -25 ... +70	-25 ... +70
Storage temperature		$^{\circ}\text{C}$ -40 ... +85	-40 ... +85
Light Emitting Diode (LED) colour		red	red
Light Emitting Diode (LED) angle of vision		$\geq 15^{\circ}$	$\geq 15^{\circ}$

(1) Defined acc. to overload category: 3 (OV3), pollution degree: 2 (PD2)

General data

- Plastic case and insulating resin are self-extinguishing.
- The casing temperature must not exceed 105 $^{\circ}\text{C}$.
- Fixing holes in the case moulding for horizontal mounting.
- Product mounting according to the document: *VD range Mounting Instructions*.

- Product Use and Maintenance instructions according to the document: *Use of the Voltage Detector - Preventive and Curative Maintenance VD range*.
- Tightening torque: 2 Nm.

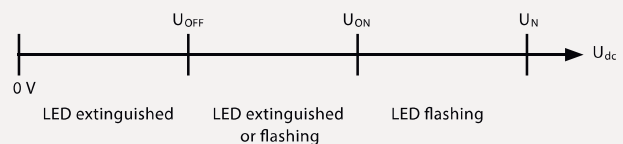
Security

Only qualified and authorised personnel may carry out any operation on the detector; without voltage applied to the terminals of the voltage detector and with the equipment (power converter) electrically isolated.

Primary connection

- Insert M5x7 for terminals.

General operation



U_{OFF} : Low limit at which the LEDs extinguish when the equipment is electrically isolated.

U_{ON} : High limit at which the LEDs illuminate (flashing frequency approximately 2 Hz) when the equipment power is switched on.

Between these two limits the LEDs maybe extinguished or flashing.

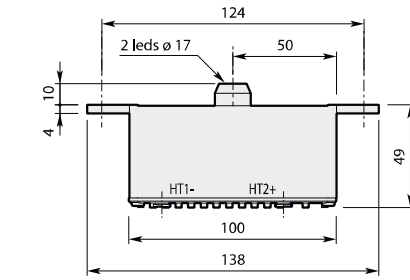
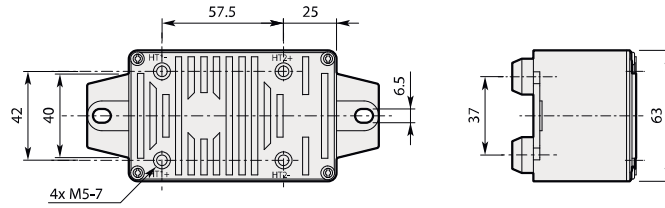
Conformity

EN 50155, EN 50124-1, EN 50121-3-2, EN 50163

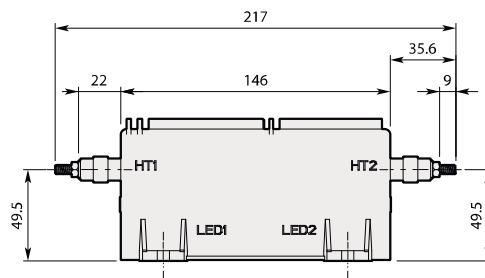
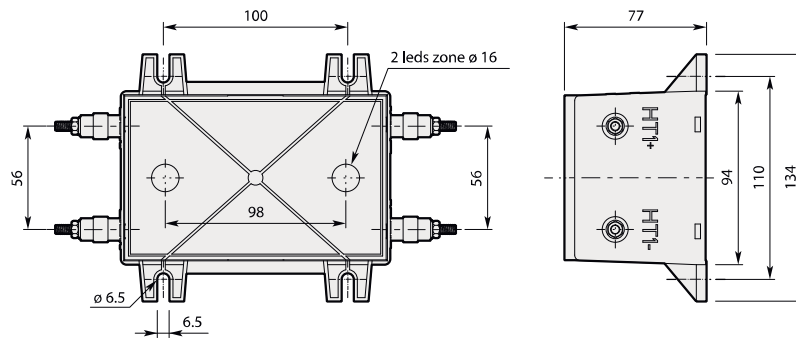
VD railway voltage detectors

For rolling stock and infrastructure

Dimensions (mm)



VD1500-48



VD3000-25

General tolerance: ±1 mm

Wiring diagram

