



*Catalog*

**CRE**

**Resistive  
Epoxi Sensor**

Voltage Detectors  
for DC Catenary

# ! CRE + RL

## Epoxy Resistive Voltage Sensor + Reed Relay Output

- ✓ Catenary Voltage Detector **V<sub>DC</sub>**
- ✓ Models from **750 V<sub>DC</sub>** to **4.000 V<sub>DC</sub>**
- ✓ **Brass** terminals and **Epoxy** construction
- ✓ Outdoor models made with **Cycloaliphatic Epoxy** resin
- ✓ Leakage Line of **305mm**
- ✓ **Self-powered** from the catenary voltage itself
- ✓ **Vertical mounting** adaptable to any installation

### ! Reed Relay

✓ **Reed Relay** housed inside a cylindrical die-cast aluminum box with epoxy resin with potential-free switching contact output:

- Activation at **>40%** of nominal voltage
- Deactivation at **<30%** of the nominal voltage
- Response time: **15 ms**
- Consumption: **3mA** a 4000 V<sub>DC</sub>



### ! Applications

Detection of **DC voltage** presence in railway installations:

- Conventional trains
- Subways
- Trams



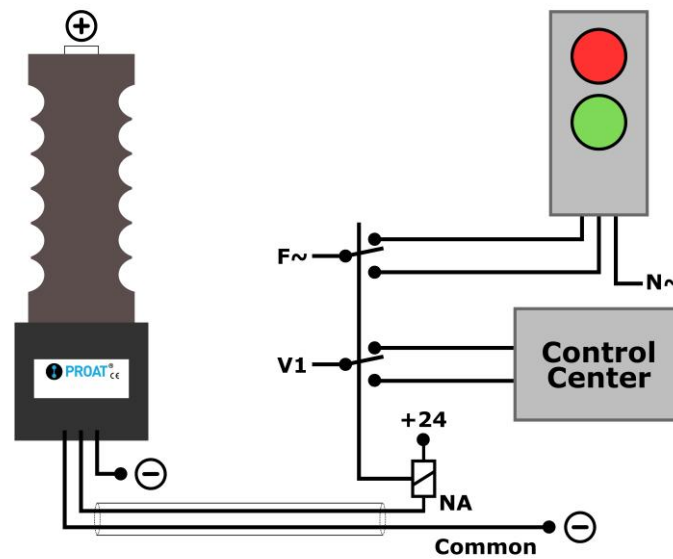
## Models

Model	Material	Nominal Voltage $V_N$	Mechanical Charge	Leakage Line	Test Voltage 10s	Weight
CRE-750 + RL	Epoxy	750 V <sub>DC</sub>	4000 N	305 mm	2 * V <sub>N</sub>	1,5 kg
CRE-750-EXT + RL	Cycloaliphatic Epoxy	750 V <sub>DC</sub>	4000 N	305 mm	2 * V <sub>N</sub>	1,5 kg
CRE-1500 + RL	Epoxy	1500 V <sub>DC</sub>	4000 N	305 mm	2 * V <sub>N</sub>	1,5 kg
CRE-1500-EXT + RL	Cycloaliphatic Epoxy	1500 V <sub>DC</sub>	4000 N	305 mm	2 * V <sub>N</sub>	1,5 kg
CRE-4000 + RL	Epoxy	4000 V <sub>DC</sub>	4000 N	305 mm	2 * V <sub>N</sub>	1,5 kg
CRE-4000-EXT + RL	Cycloaliphatic Epoxy	4000 V <sub>DC</sub>	4000 N	305 mm	2 * V <sub>N</sub>	1,5 kg

## Connection

Four output terminals for external connection:

- Negative from catenary
- Three reed relay switching contacts



Example of connection with semaphore

## Technical data - RL

### Reed Relay

Specifications	
Contact Type	SPDT
Switching Capacity:	<60 VA
Switching Voltage:	<400 V <sub>AC</sub> / V <sub>DC</sub>
Switching Current:	<1.0 A
Transport/Carrying Current:	<2.0 A
Insulation Resistance:	>10 <sup>9</sup> Ω
Operating Temperature:	-40° a +125°

# CRE + PTC-M1

## Epoxy Resistive Sensor

+

## Direct Current Voltage Presence Detector

- ✓ Catenary Voltage Presence Detector **V<sub>DC</sub>**
- ✓ Models from **750 V<sub>DC</sub>** to **4.000 V<sub>DC</sub>**
- ✓ **Brass** terminals and **Epoxy** construction
- ✓ Outdoor models made with cycloaliphatic Epoxy resin
- ✓ Leakage line of **305mm**
- ✓ **Vertical mounting** adaptable to any installation



### PTC-M1 – Direct Current Voltage Presence Detector

- ✓ **PTC-M1** amplifies the signal from a Resistive Sensor. Input **150 V<sub>DC</sub>**, activation at **>30%**
- ✓ Output: **potential-free switching contact**
- ✓ Voltage indication with **Red LED** diode
- ✓ Auxiliary voltage **120-230 V<sub>DC</sub>** | **120-230 V<sub>AC</sub>** or **48 V<sub>DC</sub>** depending on model
- ✓ Contacts on **11-pin** socket, **DIN rail** mounting

### Applications

Detection of **DC voltage presence** in railway installations:

- Conventional trains
- Subways
- Trams

Allows remote signaling in an electrical panel, for disconnectors or circuit breakers.



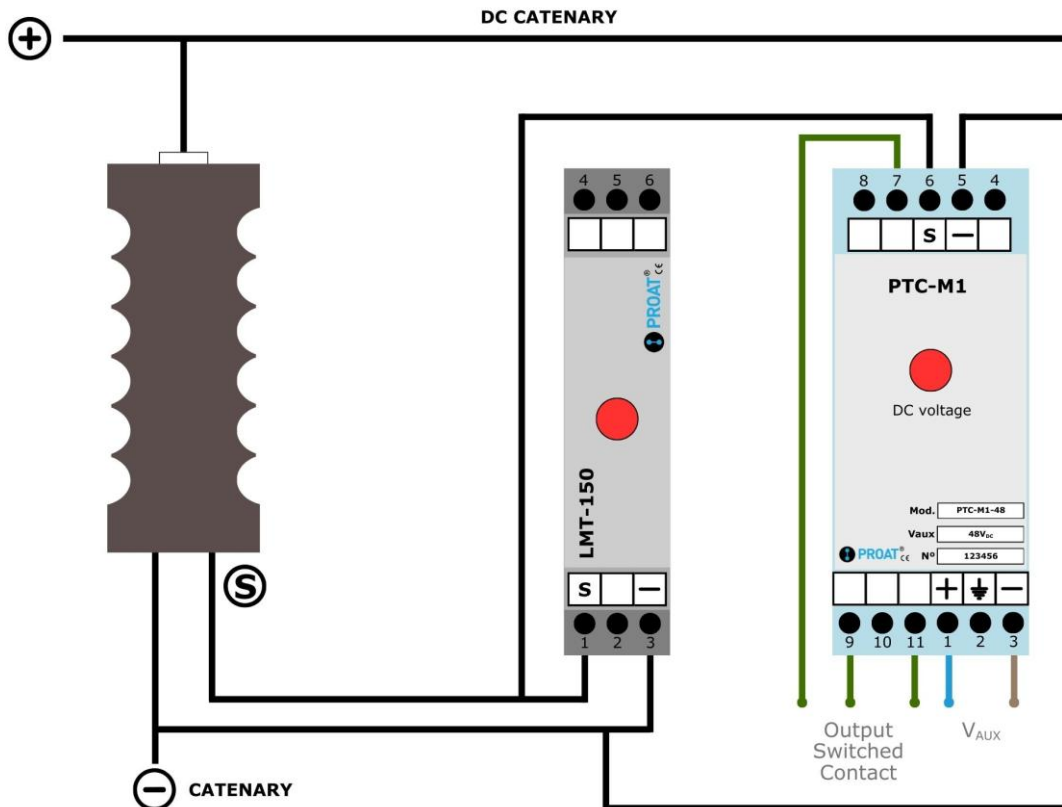
## Models

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CRE-750-EXT	Cycloaliphatic Epoxy	750 V <sub>DC</sub>	4000 N	305 mm	2 * V <sub>N</sub>	1,5 kg
CRE-1500	Epoxy	1500 V <sub>DC</sub>	4000 N	305 mm	2 * V <sub>N</sub>	1,5 kg
CRE-1500-EXT	Cycloaliphatic Epoxy	1500 V <sub>DC</sub>	4000 N	305 mm	2 * V <sub>N</sub>	1,5 kg
CRE-4000	Epoxy	4000 V <sub>DC</sub>	4000 N	305 mm	2 * V <sub>N</sub>	1,5 kg
CRE-4000-EXT	Cycloaliphatic Epoxy	4000 V <sub>DC</sub>	4000 N	305 mm	2 * V <sub>N</sub>	1,5 kg

Model	Auxiliary Voltage
PTC-M1	120-230 V <sub>DC</sub>   120-230 V <sub>AC</sub>
PTC-M1-48	48 V <sub>DC</sub>

Example of order: CRE-750 + PTC-M1

## Connection



## ❶ LMT-150 Limiter

The function of the LMT-150 limiter is to prevent the output voltage from remaining at non-hazardous levels (<150 V) when the PTC-M1 is disconnected from the base.

A red LED indicates the presence of voltage in the catenary.

Model	LED
LMT-150	No
LMT-150-L	Yes



## ❷ Constructive Characteristics– PTC-M1

- DIN rail installation
- UNDECAL base terminals
- Self-extinguishing plastic enclosure, class V0



## ❸ Technical data – PTC-M1

MODEL	PTC-M1
<b>Technical data</b>	
Input Voltage	0-150 V <sub>DC</sub>
Presence detection level	30%
Quiescent consumption	1 W
Fault consumption	<2 W
<b>Standards complied with</b>	
Insulation Test Voltage	
High-frequency disturbances	
Fast Transients	
Voltage Impulse	
<b>Relay Contact Characteristics</b>	
Continuous Current	5 A
Switching Voltage	<230 V <sub>AC</sub>
Switching Power	<2000 VA