



IMD-300-EV

IMD-300-EV, Residual current relay Type A

Code: P83031.

- > Poles: 4
- > In (A): 40 A
- > Sensitivity: 30 mA + 6 mAdc
- > Mounting: DIN rail

Description

The **IMD-300-EV** is an advanced insulation resistance monitoring relay designed to ensure safety and service continuity at electric vehicle (EV) fast charging points operating in IT isolated systems.

- **Continuous insulation monitoring:** Detects insulation faults in real time, reducing risks and ensuring uninterrupted service at the fast charging station. The device measures key parameters such as:
 - Insulation resistance (leakage detection)
 - System leakage capacitance (C_e)
 - Residual voltages between live conductors and earth
 - DC bus voltage
 - Loss of protective earth (PE) reference
- **Compatibility with CCS and CHAdeMO systems:** Specifically designed for charging stations operating under the main fast-charging standards, ensuring easy and safe integration.
- **Electric vehicle protection:** Minimises the risk of electrical faults that could compromise the safety of the vehicle connected to the charger.
- **Easy installation and maintenance:** The device features an RS-485 port (Modbus RTU) for communication with the charging station's control units.
- **Insulation fault detection and response:** The device includes a negative LCD display showing the relay status and has three output relays. These relays can be configured in NO/NC logic, with customisable start-up, response, and release delays to suit specific application needs.
 - Relay 1: Trip in case of insulation loss.
 - Relay 2: Alarm for electrical parameters out of range.
 - Relay 3: Performs a test trip to verify proper operation in accordance with applicable standards.
- **Regulatory compliance:** Complies with IEC 61557-8 product standard for fast charging stations, ensuring peace of mind for both operators and users.

Application

It is installed specifically in fast-charging infrastructure using Combo CCS or CHAdeMO systems (DC charging) to continuously monitor the insulation of the DC bus. This proactive monitoring enables early detection of insulation faults, a critical issue that can compromise both the safe operation of the charging station and the integrity of the electric vehicle. With the **IMD-300-EV**, safe charging and uninterrupted operation of the station are ensured, maximising service availability. The **IMD-300-EV** is designed in accordance with IEC 61851-23, Mode 4, for standard or combined (CCS) or CHAdeMO charging systems.



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Insulation Monitor for Electric Vehicle Fast Charging Stations.

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Specifications

DC power supply

Consumption	4.5 W
Nominal voltage	24 Vdc

Mechanical characteristics

Size (mm) width x height x depth	52.5 x 118 x 74 (mm)
Envelope	Self-extinguishing V0 plastic
Fastening	DIN rail (EN 60715, EN 50022)
Weight (kg)	0,234

Environmental characteristics

Protection class	IP 30 / Front: IP 40
Relative humidity (without condensation)	5 ... 95%
Storage temperature	-40 ... +80 °c
Operating temperature	-25 ... +70 °C

Measurement circuit with insulation monitoring

DC (Ri) internal resistance	$\geq 560 \text{ k}\Omega$
Maximum Im measured current (With RF = 0 Ω)	4.2 mA
Response value (Ran)	25 ... 500 k Ω
Hysteresis	25% (Ran)

Communication Network

Protocol	Modbus RTU
Technology / Interface	RS-485

Standards

Electrical safety, Maximum height (m)	3000
Electrical safety, Installation category	CAT III 1000V DC / CAT II 1000V DC — varies with altitude.
Electrical safety, Contamination level/class	2
Standards	IEC 61557-1; IEC 61557-8; IEC 61851-23; CHAdEMO 2.0; UNE-EN 61010-1; UNE-EN 60068-2-2; UNE-EN 60068-2-1; UNE-EN 60068-2-78; UNE-EN 61000-4-2; UNE-EN 61000-4-4; UNE-EN 61000-4-5; UNE-EN 61000-4-6; UNE-EN 61000-4-8; UNE-EN 61000-4-20; EN 55016-2-1; IEC 61010-2-030

User interface

LED	2
Keyboard	3 keys
Display type	LCD negative



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PE connection fault measurement

Fault detection	Open circuit ($> 500 \Omega$)
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Digital relay outputs

Maximum current	5 A
Electrical life	1×10^5
Mechanical life	2×10^7

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Dimensions



Connections

