Insulation monitoring device for undergrounded DC circuits used in charging of electric vehicles up to 1000V

DRC61

Installation instructions
Code 8022430 INSTRUCTION SHEET DRC61

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1. Getting started

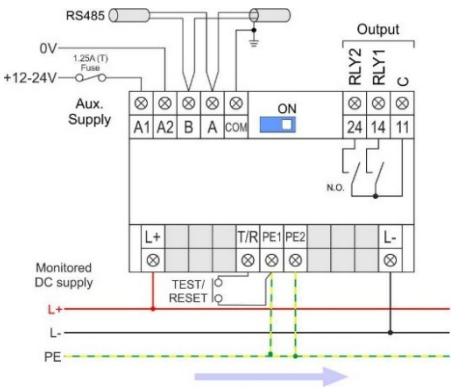
To get started, securely install the device, connect the power supply and monitored circuit as shown in the connection diagram below. Once powered, the device will initialize and begin monitoring insulation resistance. Adjustments to the setpoint values (R_{an}) can be made over Modbus if required. Your system is now protected with continuous insulation monitoring for enhanced safety and reliability.

2. Installation

Installation work must be carried out by qualified personnel.

- **WARNING:** Ensure all power supplies are disconnected before installing the device.
- Ensure the Auxiliary supply voltage to be connected to terminals A1 and A2 matches the rating of the product.
- If the device is intended to be connected to MODBUS and is last in the chain, the slide switch (shown on the right) that connects the internal 120Ω resistor should be set to “ON”.
- To ensure compliance with UL 2231, ensure the device is configured correctly. Scan the above QR-code for further information.

3. Connection diagram



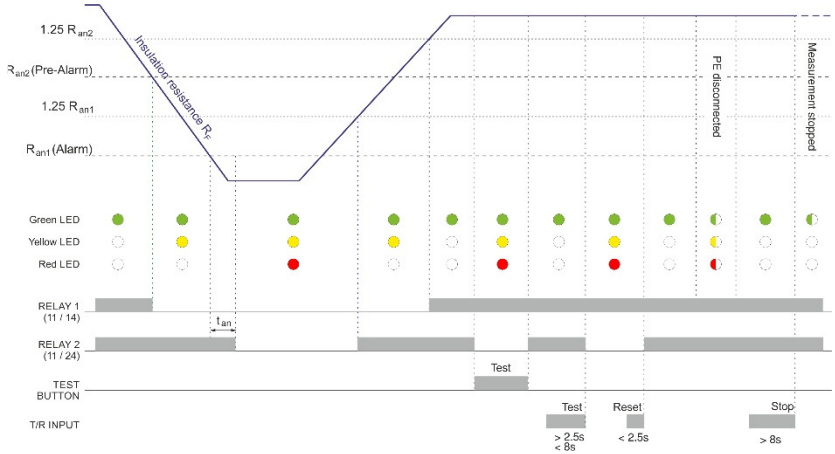
1.25A (T) rated fuse should be installed in line with terminal A1

4. Technical specification (basic)

Auxiliary power supply (A1, A2)	
Voltage rating (U_s):	12 - 24V DC
Power (max.):	2W
Monitored input (L+, L-, PE1, PE2)	
Principle:	Insulation between L+/L- and PE1/PE2
DC supply voltage (U_n):	50V - 1000V DC
Max. leakage capacitance (C_e):	25uF *(1.6uF per conductor in CHAdeMO mode)*
Default insulation resistance setpoints (R_{an})*:	R_{an1} = 100kΩ (Alarm) R_{an2} = 500kΩ (Pre-alarm)
Response level accuracy:	±15%, ±2kΩ
Alarm hysteresis level:	125% of R_{an1}
Pre-alarm hysteresis level:	125% of R_{an2}
Response time (t_{an}):	≤ 10s typ. *(≤1s in CHAdeMO 1 mode)*
PE1/PE2 disconnection response value:	> 500Ω
Relay outputs (11/14, 11/24)	
Rating:	5A 250V (AC1)

**Factory default values*

5. Function diagram



6. LED & relay status

System status	Green LED	Yellow LED	Red LED	Relay 1 (Pre-alarm)**	Relay 2 (Alarm)**
Normal operation ($R_F > R_{an2}$)	On	Off	Off	EN	EN
Pre-alarm condition ($R_{an2} > R_F > R_{an1}$)	On	On	Off	DE-EN	EN
Alarm condition ($R_F \leq R_{an1}$)	On	On	On	DE-EN	DE-EN
Waiting for user to reset after fault ($R_F \geq 1.25\ R_{an1}$) [1]	On	Off	On	DE-EN	DE-EN
Under voltage [2]	On	Flashing	Off	Set via Modbus	
Over voltage [2]	On	Off	Flashing		
PE disconnected [3]	Flashing simultaneously*			EN	EN
Measurement stopped	Flashing*	Off	Off	EN	EN
Test mode	On	On	On	EN	DE-EN

* Flash rate 2Hz
** Factory default assignment of relays
[1] this state only applies if automatic reset is disabled
[2] under/over voltage detection is disabled by default
[3] it is possible to assign the relays to respond to a PE disconnection

Key to relay abbreviations:
EN = Relay Energised
DE-EN = Relay De-Energised

7. UCS software

UCS Desktop https://www.gavazziautomation.com/fileadmin/images/PIM/OTHERSTUFF/ucs.zip