



Catalog

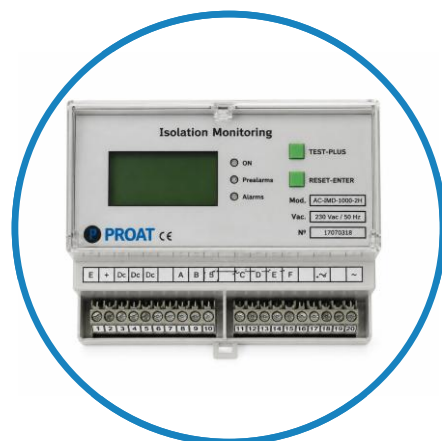
FACB

DC Isolation Monitor

FACB

DC Insulation Monitoring Device with Automatic Reset and Real-Time Display

- ✓ **Detects symmetrical and asymmetrical insulation faults** on the (+) and (-) conductors with respect to earth
- ✓ **2 independent potential-free** changeover output contacts, with programmable actuation levels and time delays: pre-alarm and alarm
- ✓ **Pre-alarm:** actuation level from 1 MΩ to 8 MΩ and actuation delay of 0-30 seconds
- ✓ **Alarm:** actuation level from 100 kΩ to 1 MΩ and actuation delay of 0-30 seconds
- ✓ **Automatic reset** configurable from 1 to 60 minutes
- ✓ **Real-time display** of the installation insulation level. Measurement range from 1 kΩ to 10 MΩ
- ✓ For IT systems from **38 V_{DC} – 1500 V_{DC}** depending on model
- ✓ **Modbus communications**



Applications

Monitoring of possible earth faults in unearthed DC IT systems:

- Unearthed electrical installations
- Photovoltaic installations
- Electric vehicle charging systems
- Battery systems
- Power conversion systems with rectifiers and inverters



Functional Features

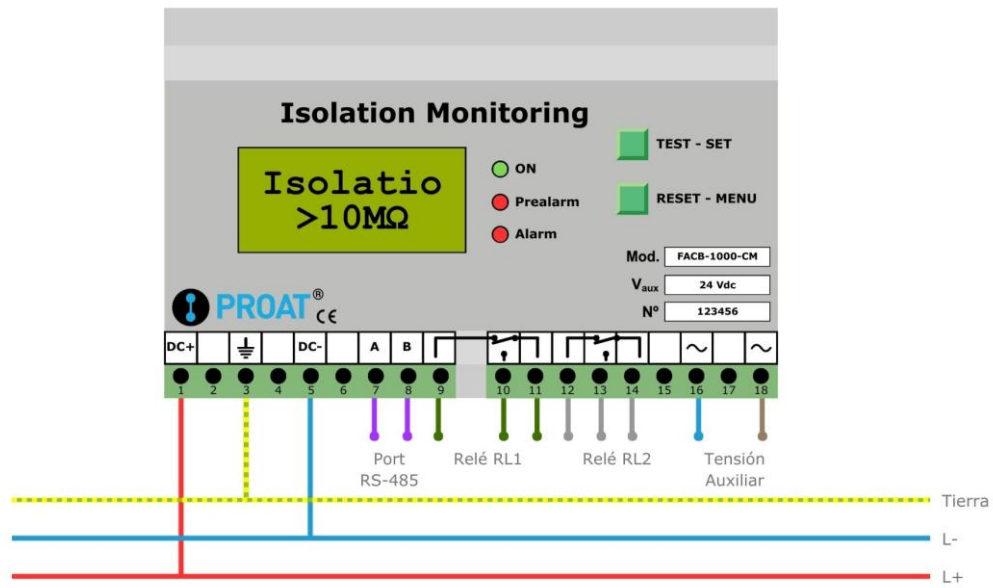
- 2 output relays with independent potential-free changeover contacts, with programmable actuation levels and time delays: pre-alarm and alarm
- Programming of setting values using the **SET-MENU** buttons on the front panel:
 - Pre-alarm actuation level
 - Alarm actuation level
 - Pre-alarm time delay
 - Alarm time delay
 - Automatic reset time
 - Alarm memory – Yes/No
 - Modbus ID
 - Language: Spanish/English
- Real-time display of insulation resistance
- 2 × 8-character front LCD display
- TEST button to simulate an earth fault on (+) and (-)
- RESET button to reset the device and clear the fault
- LEDs for pre-alarm and alarm fault indication
- Electrically isolated RS-485 interface with Modbus RTU protocol depending on model:
 - Instantaneous insulation measurement
 - Relay status
 - View Modbus map

Models

Model	Nominal Voltage U_N	Operating Range	Alarm Threshold	Auxiliary Supply	DIN Size	Communications
FACB-125-CM	125 V _{DC}	38-150 V _{DC}	100 kΩ - 1 MΩ	86-264 V _{AC} 96-370 V _{DC}	6M – 106 mm	Modbus RTU
FACB-125-CM-24	125 V _{DC}	38-150 V _{DC}	100 kΩ - 1 MΩ	24 V _{DC}	6M – 106 mm	Modbus RTU
FACB-600-CM	600 V _{DC}	180-600 V _{DC}	100 kΩ - 1 MΩ	86-264 V _{AC} 96-370 V _{DC}	6M – 106 mm	Modbus RTU
FACB-600-CM-24	600 V _{DC}	180-600 V _{DC}	100 kΩ - 1 MΩ	24 V _{DC}	6M – 106 mm	Modbus RTU
FACB-800-CM	800 V _{DC}	240-800 V _{DC}	100 kΩ - 1 MΩ	86-264 V _{AC} 96-370 V _{DC}	6M – 106 mm	Modbus RTU
FACB-800-CM-24	800 V _{DC}	240-800 V _{DC}	100 kΩ - 1 MΩ	24 V _{DC}	6M – 106 mm	Modbus RTU
FACB-1000-CM	1000 V _{DC}	300-1000 V _{DC}	100 kΩ - 1 MΩ	86-264 V _{AC} 96-370 V _{DC}	6M – 106 mm	Modbus RTU
FACB-1000-CM-24	1000 V _{DC}	300-1000 V _{DC}	100 kΩ - 1 MΩ	24 V _{DC}	6M – 106 mm	Modbus RTU
FACB-1500-CM	1500 V _{DC}	450-1500 V _{DC}	100 kΩ - 1 MΩ	86-264 V _{AC} 96-370 V _{DC}	9M – 160 mm	Modbus RTU
FACB-1500-CM-24	1500 V _{DC}	450-1500 V _{DC}	100 kΩ - 1 MΩ	24 V _{DC}	9M – 160 mm	Modbus RTU

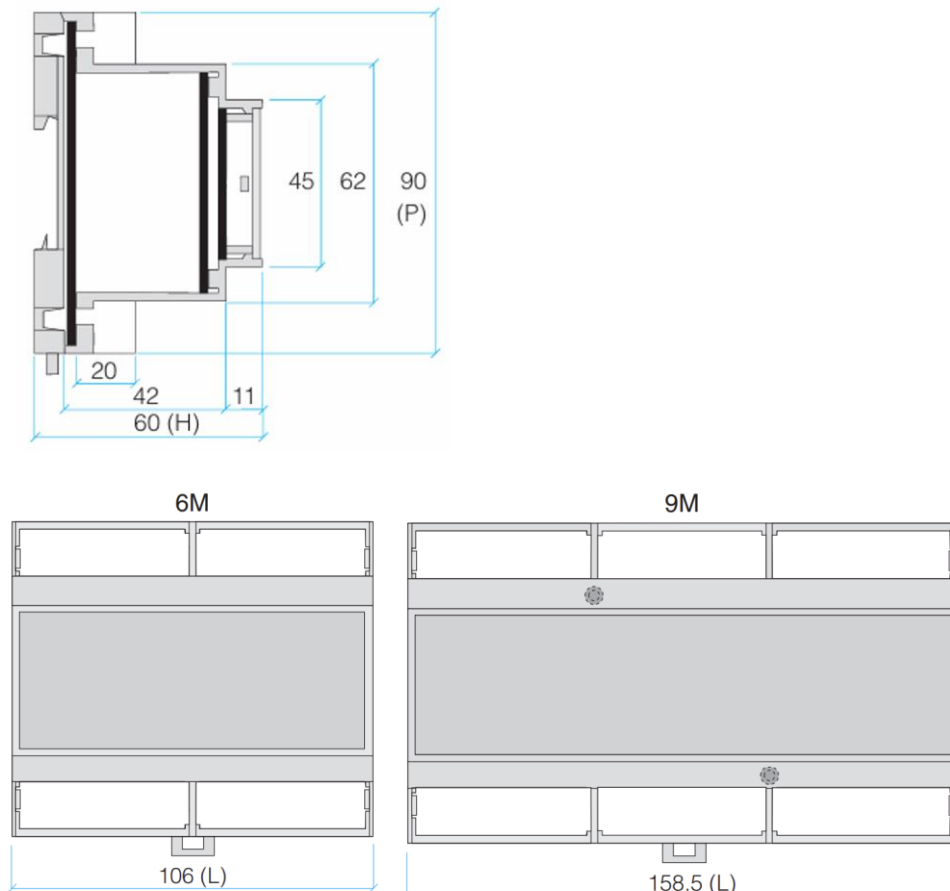
*Other models can be manufactured on request

Wiring



Construction Features

- DIN rail mounting
- Connection terminals accessible from the front
- Self-extinguishing plastic enclosure, UL 94 V-0 classification



Technical Data

MODEL

FACB

Voltage range

Monitoring voltage U_N	$0.3 \cdot U_N - U_N$
	86 – 264 V _{AC}
Auxiliary supply V_{AUX}	96 – 370 V _{DC}
	24 V _{DC}
Standby power consumption	≤ 1 W
Maximum power consumption	≤ 12 W

Response values

Pre-alarm level	1 - 8 MΩ
Alarm Threshold	100 kΩ - 1 MΩ
Measurement range	1 kΩ - 10 MΩ
Measurement error	±10 %
Pre-alarm time delay	0-30 s
Alarm time delay	0-30 s
Reset time	1-60 min

Factory settings

Pre-alarm level	1 MΩ
Alarm Threshold	150 kΩ
Pre-alarm time delay	10 s
Alarm time delay	5 s
Reset time	1 min
Modbus ID	1
Alarm memory	Yes

Measuring circuit

Maximum voltage U_N	$U_N + 10\%$
Internal resistance R+	2.1 MΩ
Internal resistance R-	2.1 MΩ
Earth impedance	> 750 kΩ
Parasitic capacitance	< 5 μF
Type of faults detected	Symmetrical and asymmetrical

Front Panel

ON	Green LED
Pre-alarm	Red LED
Alarm	Red LED
TEST button	Yes
RESET button	Yes
Display	LCD 2 × 8 characters
Displayed value	Insulation level

Dielectric test

V _{DC} input – V _{AUX}	3 kV _{RMS} – 1 min
V _{DC} input - Output contacts	3 kV _{RMS} – 1 min
V _{AUX} – Output contacts	3 kV _{RMS} – 1 min

Switching elements

Number of switching elements	2
Output type	Changeover contact
Outputs	Potential-free
Maximum AC load	250 V _{AC} 2 A
Maximum DC load	300 V _{DC} 0.1 A
Relay switching time	< 10 ms
Service life, number of cycles	20 000 000

General

Operating mode	Continuous
Mounting	DIN rail
Connection	M2.5 screw
Tightening torque	≤ 0.4 Nm
Degree of protection	IP20
Flammability	UL94V-0
Weight	350 g
Operating temperature	-5°C to +60°C
Storage temperature	-20°C to +80°C
Relative humidity (non-condensing)	< 95%
Setting method	Front selection

Standards

Electrical safety requirements	UNE-EN 61010-1 UNE-EN 61010-2-081
Electromagnetic compatibility (EMC)	UNE-EN 61000-6-1 UNE-EN 61000-6-3/A1
European Directives	2014/35/UE 2014/30/UE
Standard	IEC-61557-8

Communications

Interface	RS-485
Protocol	Modbus RTU
Port parameters	9600, 8, N, 1
Modbus ID	1-248
Available functions	3, 4
Operation	Server
Cable length (m)	<1200
Connection	A/B terminals