

FAC3

DC Isolation Monitor with Automatic Reset

- ✓ Detects isolation faults of the (+) and (-) conductors with respect to ground
- ✓ **2 output relays** with potential-free changeover contacts
- ✓ **Instant contact** in reverse logic
- ✓ **Delayed contact** configurable from 1 to 4 seconds
- ✓ Alarm level 10-80 k Ω configurable
- ✓ **Automatic reset** between 1-60 minutes configurable
- ✓ For IT systems of **200V_{DC} - 1500V_{DC}** depending on the model
- ✓ **Modbus** communications selected models



Applications

Monitoring for possible ground faults in IT DC systems isolated from ground:

- Electrical installations isolated from earth
- Photovoltaic Installations
- Battery systems
- Systems with power conversion for components with rectifiers or inverters



Function Features

- 2 output relays with potential-free changeover contacts
- Instant contact in reverse logic
- Delayed contact configurable from 1 to 4 seconds
- Automatic reset between 1-60 minutes configurable
- Alarm level configurable between 10-80 k Ω
- **TEST** button to simulate grounding of (+) and (-)
- **RESET** button to reset the equipment and clear the fault
- LEDs (+) and (-) signal the fault
- Electrically isolated RS-485 interface with Modbus-RTU protocol depending on the model:
 - Instantaneous insulation measurement
 - Relay status
 - View parameters

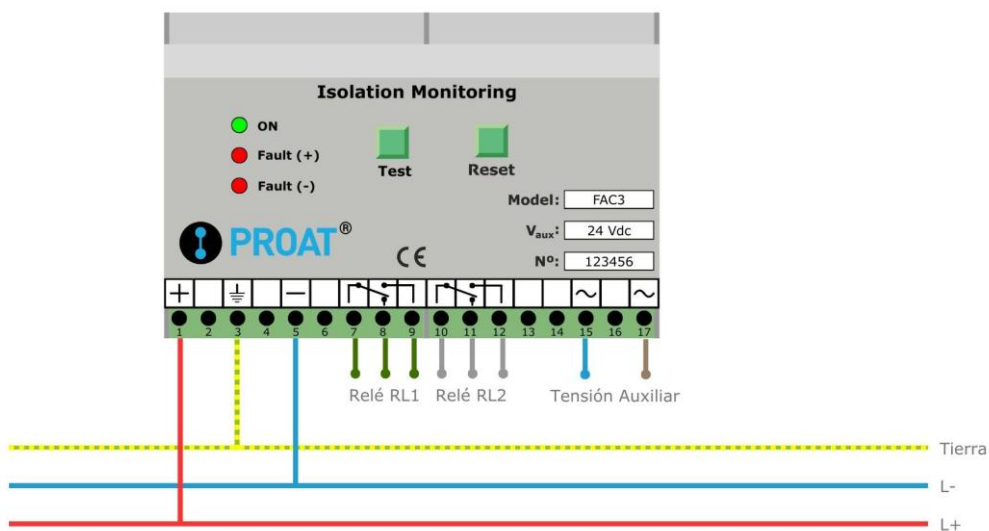


Models

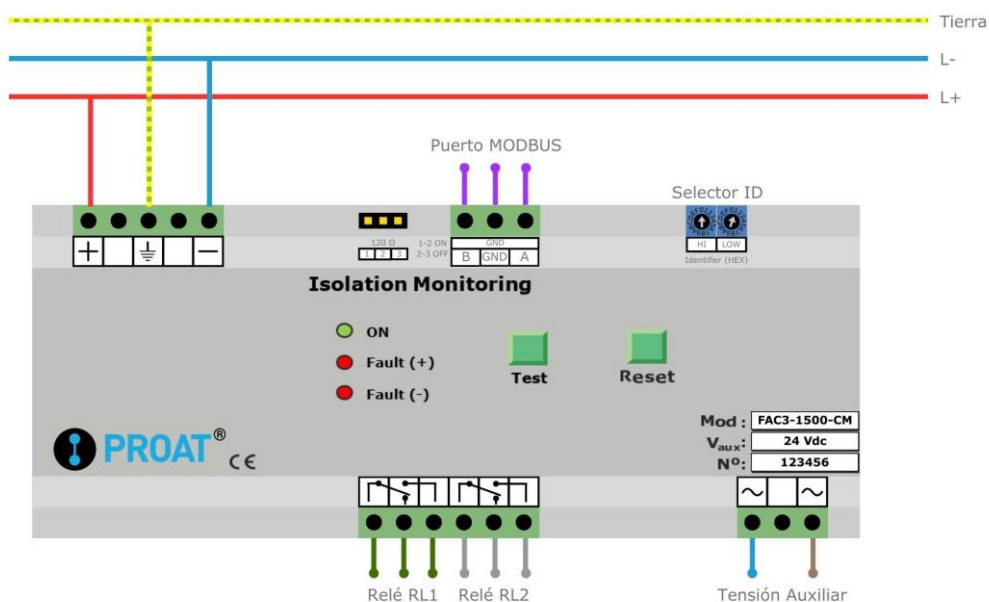
Model	Nominal Voltage U_N	Operating Range	Alarm level	Power Voltage	DIN size	Communications
FAC3-400-C	400 V _{DC}	200-400 V _{DC}	10-80 kΩ	230 V _{AC}	6M - 106mm	-
FAC3-400-C-24	400 V _{DC}	200-400 V _{DC}	10-80 kΩ	24 V _{DC}	6M - 106mm	-
FAC3-600-C	600 V _{DC}	300-600 V _{DC}	10-80 kΩ	230 V _{AC}	6M - 106mm	-
FAC3-600-C-24	600 V _{DC}	300-600 V _{DC}	10-80 kΩ	24 V _{DC}	6M - 106mm	-
FAC3-800-C	800 V _{DC}	400-800 V _{DC}	10-80 kΩ	230 V _{AC}	6M - 106mm	-
FAC3-800-C-24	800 V _{DC}	400-800 V _{DC}	10-80 kΩ	24 V _{DC}	6M - 106mm	-
FAC3-900-C	900 V _{DC}	450-900 V _{DC}	10-80 kΩ	230 V _{AC}	6M - 106mm	-
FAC3-900-C-24	900 V _{DC}	450-900 V _{DC}	10-80 kΩ	24 V _{DC}	6M - 106mm	-
FAC3-1000-C	1000 V _{DC}	500-1000 V _{DC}	10-80 kΩ	230 V _{AC}	6M - 106mm	-
FAC3-1000-C-24	1000 V _{DC}	500-1000 V _{DC}	10-80 kΩ	24 V _{DC}	6M - 106mm	-
FAC3-1500-CM	1500 V _{DC}	450-1500 V _{DC}	10-80 kΩ	230 V _{AC}	9M - 160mm	Modbus-RTU
FAC3-1500-CM-24	1500 V _{DC}	450-1500 V _{DC}	10-80 kΩ	24 V _{DC}	9M - 160mm	Modbus-RTU

* Other models can be manufactured upon request.

Wiring FAC3-400/600/800/900/1000

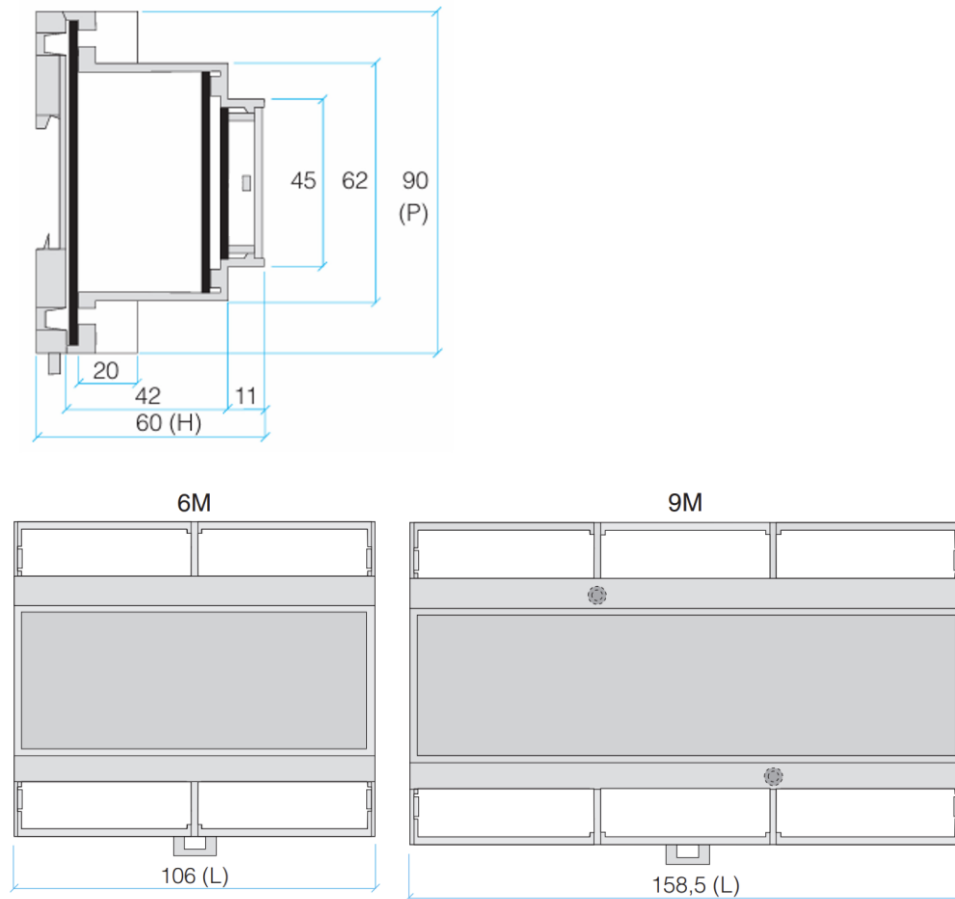


Wiring FAC3-1500-CM



Constructive Features

- DIN rail mounting
- Front plate terminals
- Class VO self-extinguishing plastic enclosure



Technical Data

MODEL	FAC3-400/1000	FAC3-1500
Voltage Range		
Voltage range U_N	$0.5 \cdot U_N - U_N$	$0.3 \cdot U_N - U_N$
Auxiliary voltage V_{AUX}	24 V _{DC} - 230 V _{AC}	24 V _{DC} - 230 V _{AC}
Consumption at rest	≤0,5W	≤0,5W
Maximum consumption	≤6W	≤12W
Response Values		
Alarm level	10 - 80 kΩ	20 - 80 kΩ
Measurement error	±10%	±10%
Response time T_R	< 1 s	< 1 s
RL1-RL2 Timing	1-4 s	1-2 s
Auto-Reset time	1-60 min	1-2 min
Factory settings		
Alarm level	80 kΩ	80 kΩ
Auto-Reset time	1 minute	1 minute
RL1-RL2 Timing	1 s	1 s
ID Modbus	-	1
Measuring Circuit		
Max voltage U_N	$U_N + 10\%$	$U_N + 10\%$
Internal resistance R+	1 MΩ	1 MΩ
Internal resistance R-	1 MΩ	1 MΩ
Ground impedance	>500 KΩ	>750 KΩ
Leakage capacity	<500uF	<500uF
Front View		
ON	Green Led	Green Led
Fault (+)	Red Led	Red Led
Fault (-)	Red Led	Red Led
Test button	Yes	Yes
Reset button	Yes	Yes
Dielectric Test		
V _{DC} Input - V _{AUX}	3k V _{RMS} - 1min	3k V _{RMS} - 1min
V _{DC} Input - Output Contacts	3k V _{RMS} - 1min	3k V _{RMS} - 1min
V _{AUX} - Output Contacts	3k V _{RMS} - 1min	3k V _{RMS} - 1min
Communications		
Interface	-	RS-485
Protocol	-	ModBus-RTU
Port parameters	-	19200,8,N,1
ID ModBus	-	1-240
Available features	-	3,4
Operation	-	Slave
Cable length (m)	-	<1200
Connection	-	Terminals A/B

Switching Elements	
Number of switching elements	2
Type of outputs	Switched contact
Voltage outputs	Voltage free
Max AC load	250V _{AC} 2A
Max DC load	300V _{DC} 0,1A
Switching time RL	< 10 ms
Number of cycles	20,000,000
General Data	
Operation mode	Continually
Mounting	DIN rail
Connection	Screw M2,5
Screw torque	≤0,4 Nm
Protection grade	IP20
Flammability class	UL94V-0
Weight	310 gr
Operating temperature	-20°C...+55°C
Storage temperature	-25°C...+80°C
Relative humidity (without condensation)	<95%
Setting values method	Front opening
Standards	
Electrical safety requirements	UNE-EN 61010-1
Electrical safety requirements	UNE-EN 61010-2-0081
Electromagnetic compatibility (EMC)	UNE-EN 61000-6-1
Electromagnetic compatibility (EMC)	UNE-EN 61000-6-3/A1
European directive	2006/95/CE
European directive	2004/108/CE
European directive	2006/95/CE