

FACDC-400 **Insulation Monitor AC+DC 440Vac/dc**

• Description

The FACDC monitors the insulation resistance in isolated electrical installations (IT systems), in which both AC and DC voltages are present.

The FACDC-400 model supports the following voltage levels: AC/DC 0... 440 VAC/ 0...440VDC.

The independent auxiliary power supply allows the system to be monitored without voltage on the line.

It has an external input to activate/deactivate the device.

The /M version has an RS-485 output (galvanically isolated), with ModBus-RTU protocol.



• Applications

In IT systems in the industries, in photovoltaic installations (inverters), in rectifier systems, lighting installations, AC/DC auxiliary current circuits, etc.

• Functional Features

- Screen is displayed resistance to ground. Can thus easily detect any change in the insulation.
- Permanently connects two outputs, one first level (warning) and the second level (alarm) after the programmed time has elapsed.
- Red LEDs, that indicate if the pre-alarm or alarm level has been exceeded.
- Test button that simulates the fault (pre-alarm and alarm), the LED's are ON and the output contacts are connected.
- Reset button: turns off the LEDs Prealarma and Alarm and off the output relays after a failure.
- Trip times adjustable.
- Scheduling adjustment values can be easily done using the buttons on the front panel. (levels of warning, alarm, timings and activation memorized, etc.).

• Constructive Features

- Plastic enclosure with DIN rail installation
- Frontal board terminals.
- Potential free output contact.
- External box on Polycarbonate.

• Technical Data

- Range from: 1 a 1000 kΩ.
- Leakage Capacity: <20μF
- Two action thresholds: Pre-Alarm and Alarm.

- Pre-alarm threshold: 50 to 150 kΩ.
- Alarm Threshold: 5 to 45 kΩ.
- Response time: ≤ 5sec.
- Adjust timing Prealarm: 10 to 30 sec
- Adjust timing Alarm: 1-10 s.
- Faulty Consumption: <20 VA
- Wide range of power supply:
- 86 ... 264 VAC (50/60Hz), 120 ... 370 VDC
- Measurement System: voltage pulses
- DC internal resistance $R_i \geq 206K\Omega$
- Factory default settings:
 - Pre-Alarm: 100 kΩ
 - Alarm: 10 kΩ
 - Temp- Pre-Alarm: 10 sec
 - Temp-Alarm.....: 5 sec
 - Memorization.: YES
- Standards:
 - Low Voltage Regulation,
 - Isolation Monitoring EN 61557-8
 - EMC EN 61000-1
 - Support impulse 4kV EN 61000-4-5
 - Insulation: Class II (Vac and Vdc)
- Properties of relay contacts:
 - Continuous current: 5 A.
 - Max. Switching.: 230 Vac

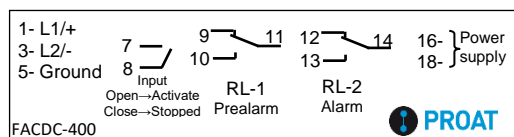
• Another Feature

- Optional input Activation/Deactivation.
- Weight: 350 gr. Approx.
- Protection degree: IP20.
- Temperature Range:
 - Operation: -10°C a +55°C
 - Humidity: < 95%
 - Storage: -20°C a +80°C

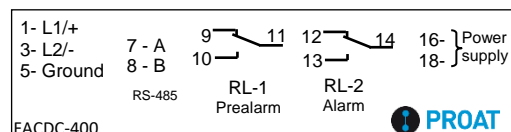
• Models

Reference	Voltage Range	Power Supply	Others
FACDC-250	0 ...250 Vac / 0...250 Vdc	86...264VAC/120-370VDC	External input
FACDC-400	0 ...440 Vac / 0...440 Vdc	86...264VAC/120-370VDC	External input
FACDC-250-24Vdc	0 ...250 Vac / 0...250 Vdc	24 Vdc	External input
FACDC-400-24Vdc	0 ...440 Vac / 0...440 Vdc	24 Vdc	External input
FACDC-250M	0 ...250 Vac / 0...250 Vdc	86...264VAC/120-370VDC	RS-485/ModBus
FACDC-400M	0 ...440 Vac / 0...440 Vdc	86...264VAC/120-370VDC	RS-485/ModBus
FACDC-250M-24Vdc	0 ...250 Vac / 0...250 Vdc	24 Vdc	RS-485/ModBus
FACDC-400M-24Vdc	0 ...440 Vac / 0...440 Vdc	24 Vdc	RS-485/ModBus

- **Connections label**

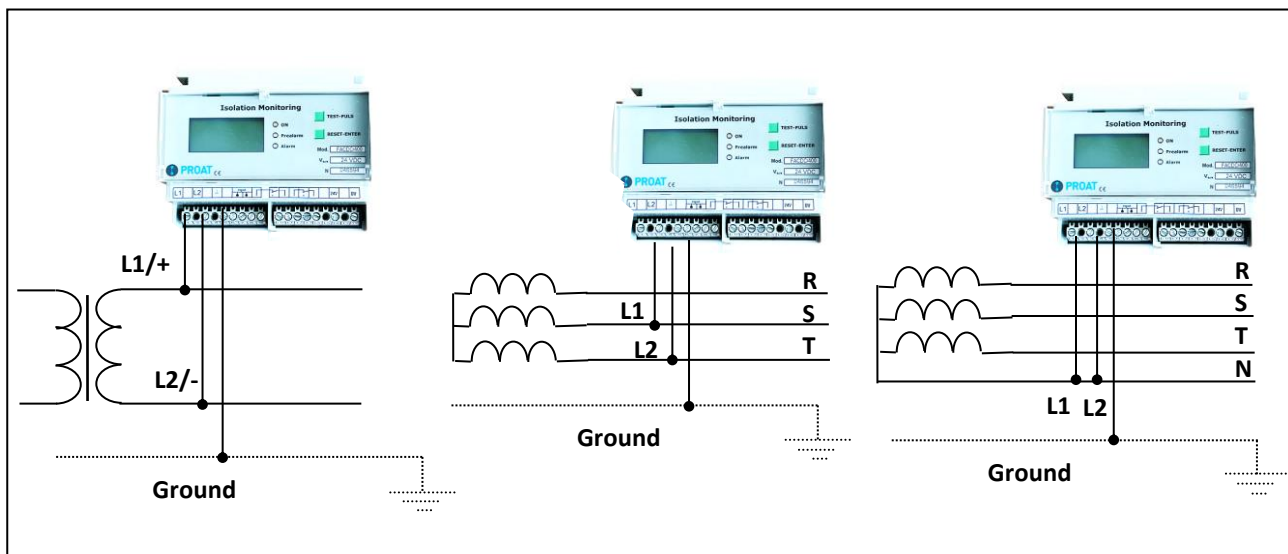


Model with locking entry



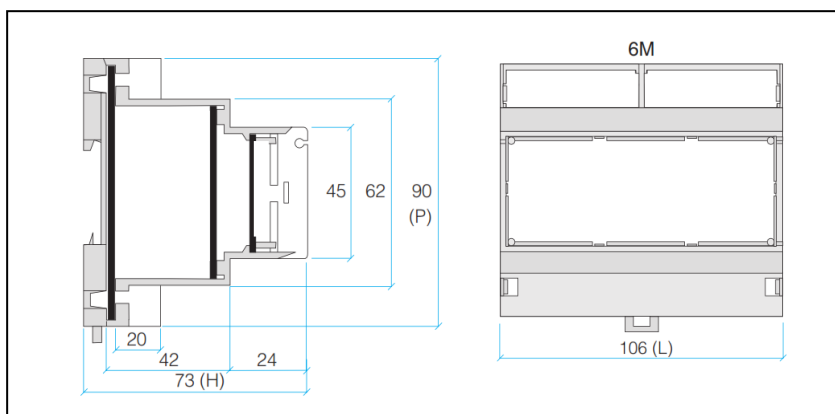
Model with ModBus output

- **Wiring Diagram**



- **Case dimensions (millimeters)**

Box for rail OMEGA DIN EN 50022. Plastic auto extinguishes, class UL94V0



• Technical Data (FACDC-400)

Dielectric test IEC 61010-1	
VDC input against power supply	3k VDC
VDC input against switching elements	3k VDC
Power supply against switching elements	3k VDC
System IT	
Monitoring Voltage UN (system IT)	AC 0...440 Vac DC 0...440 Vdc
Nominal Frequency f _N	DC, 15...300Hz
Power supply	
FACDC-300/24	24VDC, (20-32 Vdc)
FACDC-300	87-264VAC/90-370VDC
Power consumption	≤20 VA
Response Values	
Prealarm Isolation Level R _{pr}	50k...150kΩ
Alarm Isolation Level R _{al}	5k...45kΩ
Measure error 1...10 kΩ/10...200 kΩ	±1 kΩ/±10%
Hysteresis	25%
Timing	
Prealarm Timing	10...30 s
Alarm Timing	1...10 s
Response Time with RF=0,5 R _{al} , (C _p =1μF)	≤5 s
Response Time with RF=0,5 R _{al} , (C _p =10μF)	≤15 s
Measuring Circuit	
Measure Voltage	±15V
Measure Current (with RF=0)	≤2600μA
Internal Resistance	>206 kΩ
Impedance at 50Hz	>206 kΩ
Permissible system leakage capacitance	<20μF
Measure range	
Failure resistance measurement range	1kΩ...1MΩ
Measure error 1...10 kΩ/10...200 kΩ	±1 kΩ/±10%
Alarm memory	selectable
Languages to select	SPAIN/ENGLISH
External input	
Activation	Short circuit between terminals
Deactivation	Open circuit between terminals

Switching Elements	
Number of switching elements	2 elements
Type of outputs	commuted
Voltage outputs	voltage free
Rated contact voltage	250VAC/300VDC
making capacity	5A/0,1A 0,4-0,2 - DC220V
General Data	
Operating mode	continuously
Mounting	DIN rail
Connection	screw M2,5
Maximum torque	0,4 Nm
Protection grade	IP20
Flammability	UL94V-0
Weight	310g.aprox.
Operation temperature	-10°C...+55°C
Storage temperature	-20°C...+80°C
Relative humidity (without condensation)	<95%
Setting values method	frontal selection
Standards	
Safety requirements	EN50081
Safety requirements	EN50082-1
Electromagnetic Compatibility (CEM)	BT-Standard
Isolation Monitoring	UNE-EN 61557-8
Manufacture Levels	
Manufacture PreAlarm Level	100 KΩ
Manufacture Alarm Level	10 KΩ
Manufacture PreAlarm Timing	10 s
Manufacture Alarm Timing	5 s
Memory	SI
Leakage capacity	5μF
Language	English
Communications Port (/M versions)	
RS-485 Port Parameters	9600,8,N,1
Protocol	ModBus-RTU
ID programmable	2...240
Available Features	3,4
Functioning	slave



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