FACV-750M

Insulation Monitoring AC

- **Description**

The FACV-750M device is monitoring the insulation resistance in monophasic and three-phase AC, in IT systems. For three phase installations, FACV is connected between two phases and detects the faults to ground that can products in anywhere phase, or between the neutral and ground, if the neutral is accessible.
The power supply allowed independent monitoring system although this is no voltage.
It has an RS-485 communications port with ModBus-RTU protocol

- **Applications**

There are IT systems in the industries, in installations railway, elevators, automatisms, electric centrals, generators mobiles, illumination installations, etc.

- **Functional Characteristics**
  - 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 on 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).

- **Construction Specifications**
  - Polycarbonate.
  - Quick DIN rail mounting.
  - Screw terminals on front cover.
  - Output contacts potential free.

- **Applicable Installation Types**
  - Permanent service
    - IT systems: 0…750 VAC (FACV750M)
    - IT systems: 0…440 VAC (FACV440M)
    - IT systems: 0…230 VAC (FACV230M)
    - IT systems: 0…115 VAC (FACV115M)
  - Frequency: 30 a 400 Hz.

- **Electrical Characteristics**
  - Measure Range: 0 to 1000 kΩ.
  - Two action thresholds: PreAlarm and Alarm.
  - Prealarm threshold: 50 to 150 kΩ.
  - Alarm Threshold: 10 to 45 kΩ.
  - Response time: <1sec.
  - Adjust timing Prealarm: 10 to 30 sec.
  - Adjust timing Alarm: 1 to 10 sec.
  - Faulty Consumption: <6 VA
  - Supported capacitance: <5 µF
  - Wide range of power supply (see models):
  - 60...264 VAC/80...300VDC, 24 VDC
  - Measurement System: 12V DC
  - DC internal resistance Ri: 132 kΩ
  - Factory default settings:
    - PreAlarm …….. : 100 kΩ
    - Alarm …….. : 10 kΩ
    - Temp-Prealarm: 10 sec.
    - Temp-Alarm…..: 5 sec.
    - Memorization ..: YES
  - Standards:
    - Isolation devices: EN 616557-8
    - Impulse supported: 4kV EN 61000-4-5
    - EMC standards: EN 61000-1.
    - Isolation: Class II (Vac and Vdc).
  - Properties of relay contacts:
    - Continuous current: 5 A.
    - Max. Switching.: 230 Vac

- **Other Features**
  - Weight: 350 gr. Approx.
  - Protection degree: IP20
  - Temperature Range
    - Operation: -20 to +70 º C
    - Storage: -25 to +80 º C
    - Humidity: <95%

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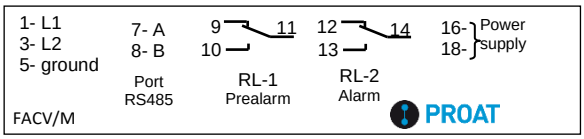
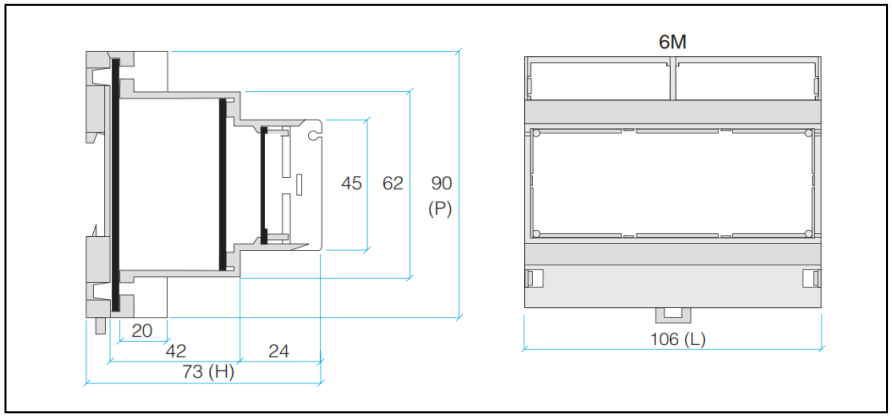
- **Connections**



- **Dimensions external box (millimeters)**

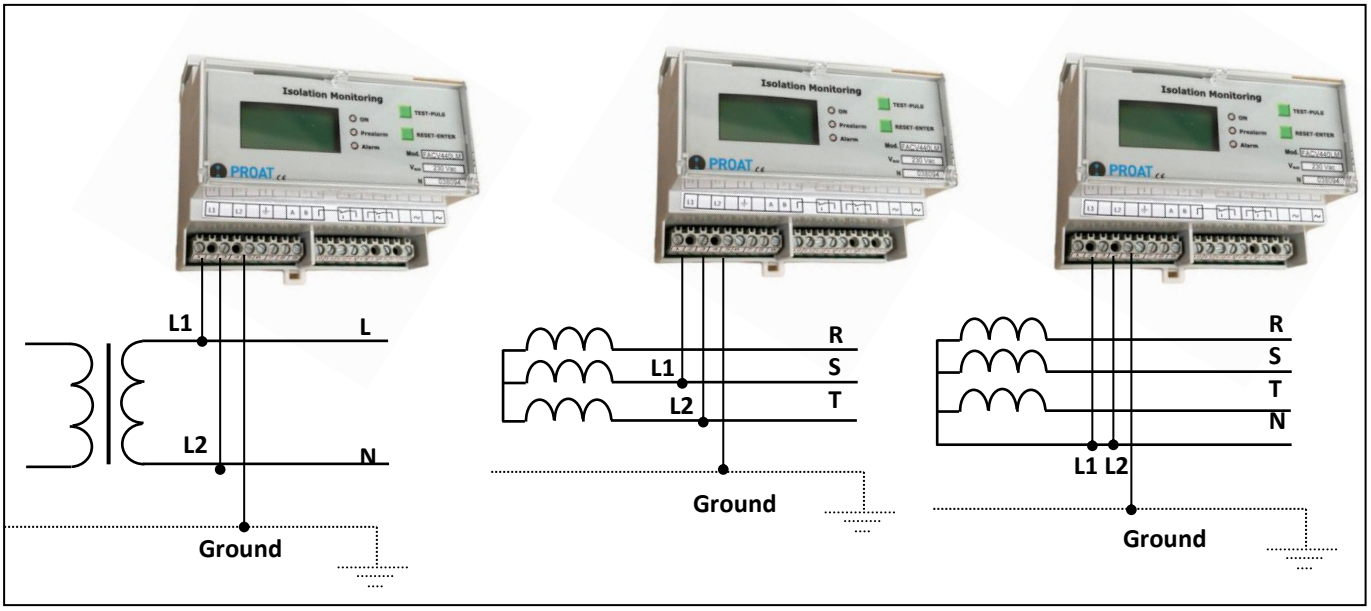
Box for rail OMEGA DIN EN 50022. Plastic auto extinguishing, class UL94VO



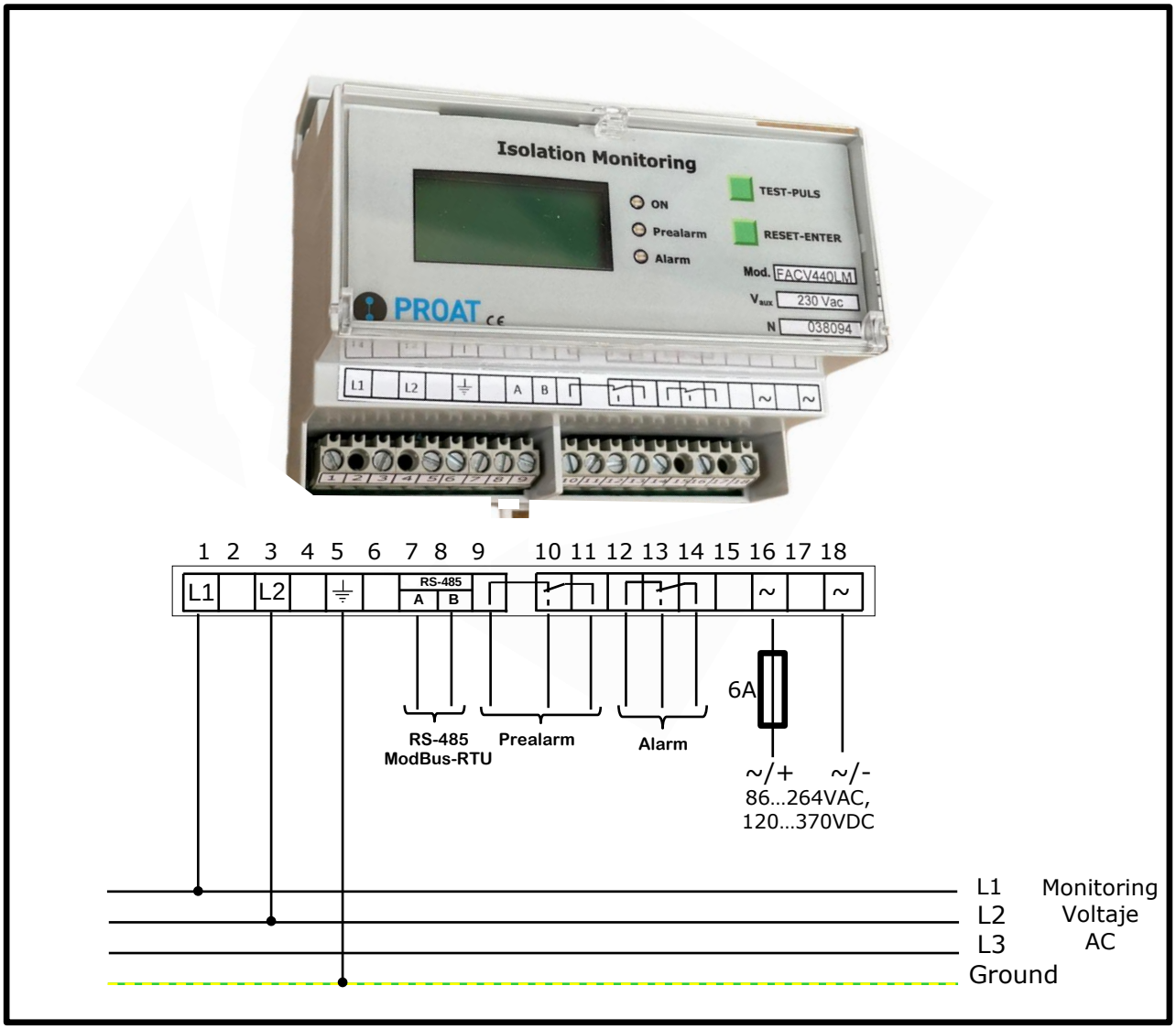
- **Models**

Reference	AC system	Power Supply
FACV-750M	0 ...750 VAC	110-230 Vac/Vdc
FACV-750M-24V	0 ...750 VAC	24 VDC
FACV-440M	0 ...440 VAC	110-230 Vac/Vdc
FACV-440M-24V	0 ...440 VAC	24 VDC
FACV-230M	0 ...230 VAC	110-230 Vac/Vdc
FACV-230M-24V	0 ...230 VAC	24 VDC
FACV-115M	0 ...120 VAC	110-230 Vac/Vdc
FACV-115M-24V	0 ...120 VAC	24 VDC

- **Connections**



- **Connection diagram FACV-LM**



• Technical data

Dielectric test	
VDC input against auxiliary voltage	3k VDC
VDC input against switching elements	3k VDC
Power supply against switching elements	3k VDC

System IT	
Nominal voltage U_N (system IT)	AC 0... U_N V
Nominal Frequency f_N	40...440 Hz
U_N dependent of model	

Power Supply	
Power supply 110/230 Vac/Vdc	AC 86...264/ DC120 ... 370
Power supply 24 Vdc	18... 32 Vdc
Frequency range Vaux	47..63 Hz

Response Values	
Response value	0...1000 kΩ
Measure error 1..10 kΩ/10.....1000 kΩ	±1 kΩ/±5%
Prealarm Isolation level (L-PR)	50...150 kΩ
Alarm Isolation level (L-AL)	10...45 kΩ

Timing	
Prealarm Timing (T-PR)	10..30 sec
Alarm Timing (T-AL)	1..10 sec
Re-connection time	1...60 min.

Measuring Circuit	
Measure Voltage	±12 VDC
Measure Current (with R_F=0)	≤300 µA
Internal Resistance	>68 kΩ
Impedance at 50Hz	>38 kΩ
Permissible system leakage capacitance	Not affected
Max monitoring voltage U_N	U_N + 10%

Frontal View	
Signal type	3 led's
ON	green led
Prealarm Fault	red led
Alarm Fault	red led
Test Bottom	Yes
Reset button	Yes
Display	LCD 2x8 char.
Information displayed	continuously

Switching Elements	
Number of switching elements	2 elements
Type of outputs	commuted
Voltage outputs	voltage free
Rated contact voltage	250VAC/300VDC
Making capacity	5A
Breaking capacity	2A-AC239 V 0,4-0,2A - DC220 V
Electrical service life, number cycles	20.000.000

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	-5ºC...+55ºC
Storage temperature	-20ºC...+80ºC
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	EN 616557-8

Manufacture Levels	
PreAlarm Level	100 kΩ
Alarm Level	10 kΩ
RL1 Action time (PreAlarm)	10 secs
RL2 Action time (Alarm)	5 secs
Fault Memorization	YES
Language	ENG
ID ModBus	**1**

Communications RS-485 Port	
Parameters	9600,8,N,1
Protocol	ModBus-RTU
Programable ID	1...247
Functions	3, 4, 6
Operation	Slave

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