10 | 2017

INSULATION MONITORING DEVICES

RI
INSULATION MONITORING DEVICES
Continuous monitoring of IT systems
from photovoltaic to industrial applications

HRI
MEDICAL INSULATION MONITORING DEVICES
Technology and safety in hospital segment

EMMIS
Transformer Manufacturers & Power Supplies

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INSULATION MONITORING DEVICE

Continuous monitoring of IT systems from photovoltaic to industrial applications

ENSURING OPERATIONAL CONTINUITY

To ensure the operational continuity of an electrical system, IEC 60364-4-41 Standard "Low-voltage electrical installations – **Protection for safety** – Protection against electric shock" requires the system protection from direct and indirect contacts, according to the methods shown in the table. Among all the protection methods identified by the Standard, only IT distribution systems can guarantee greater operational continuityin case of a first fault to earth: in these systems, the circuit-breaker will not trip because the fault current is limited by the high insulation impedance. The IT distribution systems shall avoid the loss of production and ill service that power supply interruption could cause. The first fault to earth should be immediately recovered, because a second fault to earth would cause the tripping of the protection devices (miniature circuit-breakers or residual current circuit-breakers), interrupting the power supply. The Standard requires the installation of an insulation monitoring device to signal the first fault, in order to avoid a second fault that could compromise the required operational continuity. RI range performs continuous monitoring of IT systems insulation, in order to prevent any faults that may reduce operational continuity and, as a result, the efficiency of the system.

PLENTY OF BENEFITS

OPERATIONAL CONTINUITY
When installed in an IT network, the insulation monitoring device continuously controls insulation. In case of first fault, it gives warning about the first fault in order to recover it before the miniature circuit breakers interrupt the power supply.

FAULT PREVENTION
RI gives warning when insulation drops below a set value, preventing greater damages to the network.

GREATER EFFICIENCY
Thanks to TRIP and ALARM thresholds the fault can be managed even before it actually occurs, therefore preventing service interruption. In addition, the unit can be tested and reset remotely by means of a pushbutton.

360° MONITORING
RI range controls a wide variety of IT systems, providing protection to photovoltaic installations, industrial installations, supervision systems, data centers and other applications.

CUTTING MAINTENANCE COSTS AND INEFFICIENCIES
Thanks to a continuous and timely monitoring of the system, scheduled maintenance operations can be reduced together with overhead costs.

IMMEDIATE INSTALLATION
Quick fixing thanks to 35 mm DIN rail mounting. The front microswitches are preset on the most commonly used settings.

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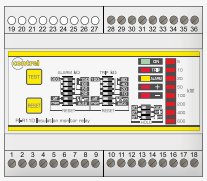
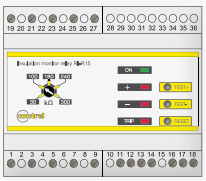
PRODUCTS PAGE

RI - INSULATION MONITORING DEVICES

RI range performs continuous of IT systems insulation, in order to prevent any faults that may reduce operational continuity and, as a result, the efficiency of the system.
Allows monitoring and protection in the most demanding application enviroments.

TYPE	AC NETWORKS			DC NETWORKS	
	RI-F48	RI-R48	RI-R48N	RI-R11 | RI-R11D	RI-R15
Technical Characteristics					
Controlled network voltage	24-48 VAC/DC	24-48 VAC/DC	24-48 VAC/DC	100-144 VDC version RI-R11 115 230 VDC version RI-R11 230	280-340 VDC version RI-R15 300 400-600 VDC version RI-R15 500 1000 VDC (1000 VCC with ADAPTER)
Power consumption	3 VA	3 VA	3 VA	4 VA	6 VA
ALARM threshold setting	-	-	-	30÷300 kΩ	-
TRIP threshold setting	10÷60 kΩ	10÷60 kΩ	10÷60 kΩ	10÷100 kΩ	30÷300 kΩ
Tripping delay	< 5 sec			< 5 sec	
Max measuring current	0.5 mA	0.5 mA	0.5 mA	1.8 mA	1.5 mA
Max measuring voltage	-	-	-	-	-
Internal impedance	50 kΩ	50 kΩ	50 kΩ	100 kΩ L/PE version RI-R11 115 200 kΩ L/PE version RI-R11 230	450 L/PE kΩ
TRIP Relay number NO-C-NC	1	1	1	2	1
ALARM Relay number NO-C-NC	-	-	-	2	-
Max relay contact capacity	250V - 5A			250V - 5A	
RS485 Serial Interface	-	-	-	-	-
Operating temperature	-10 ÷ 60 °C			-10 ÷ 60 °C	
Storage temperature	-20 ÷ 80 °C			-20 ÷ 80 °C	
Relative humidity	≤95%			≤95%	
Max terminal section	4 mm²	4 mm²	4 mm²	2.5 mm²	2.5 mm²
Protection degree	IP40 on front | IP20 housing			IP40 on front | IP20 housing	
Insulation test	2.5 kV 60 sec | 4 kV imp 1.2/50 µs			2.5 kV 60 sec | 4 kV imp 1.2/50 µs	
Modules	3	3	3	6	6
Weight	200 g	200 g	200 g	400 g	400 g
Standards	EN 61010-1, EN 61557-8, EN 61326-1				

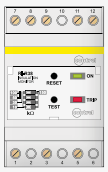
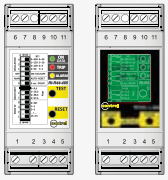
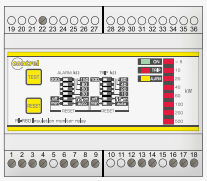
TECHNICAL FEATURES

PLANTY OF BENEFITS

- OPERATIONAL CONTINUITY
- FAULT PREVENTION
- GREATER EFFICIENCY
- 360° MONITORING
- CUTTING MAINTENANCE COSTS AND INEFFICIENCIES
- IMMEDIATE INSTALLATION

APPLICATIONS

- REFINERIES
- IRON, STEEL AND PETROCHEMICAL COMPANIES
- PHOTOVOLTAIC SYSTEMS
- DATA CENTERS, MOVIE SETS, TV OR RADIO INSTALLATIONS
- FIRE-FIGHTING PUMPS, SAFETY CIRCUITS, UPS
- ELEVATOR CONTROL SYSTEMS
- MOBILE GENERATORS

AC NETWORKS					VOLTAGE LESS NETWORKS	
RI-F22	**RI-R22**	**RI-R38**	**RI-R44 | RI-R44-V-485**	**RI-R60**	**RI-SM**	**RI-SM-485**
						
230 VAC	230 VAC	440 VAC	440 VAC	500-760 VAC 1000 VDC with ADAPTER	-	-
3 VA	3 VA	3 VA	2 VA	5 VA (1000 VCC with ADAPTER)	3 VA	2 VA
-	-	-	-	30÷300 kΩ	-	-
100 kΩ	100 kΩ	10÷150 kΩ	1÷300 kΩ	10÷100 kΩ	100÷10000 kΩ	100÷15000 kΩ
< 5 sec	< 5 sec	< 2.5 sec	< 3 sec	< 5 sec	< 2.5 sec	< 3 sec
0.1 mA	0.1 mA	0.1 mA	0.015 mA	0.240 mA	0.015 mA	0.015 mA
12 VAC	12 VAC	12 VAC	13 VAC	48 VAC	20 VDC	13 VDC
250 kΩ	250 kΩ	250 kΩ	1500 kΩ dc 1000 kΩ ac	200 kΩ	1500 kΩ dc 1000 kΩ ac	1500 kΩ dc 1000 kΩ ac
1	1	1	1	1	1	1
-	-	-	-	1	-	-
250V - 5A					250V - 5A	
-	-	-	Modbus RTU	-	-	Modbus RTU
-10 ÷ 60 °C					-10 ÷ 60 °C	
-20 ÷ 80 °C					-20 ÷ 80 °C	
≤95%					≤95%	
4 mm²	4 mm²	4 mm²	2.5 mm²	2.5 mm²	4 mm²	2.5 mm²
IP40 on front | IP20 housing					IP40 on front | IP20 housing	
2.5 kV 60 sec | 4 kV imp 1.2/50 µs				3 kV 60 sec 4 kV imp 1.2/50 µs	2.5 kV 60 sec | 4 kV imp 1.2/50 µs	
3	3	3	2	6	3	2
200 g	200 g	200 g	200 g	500 g	200 g	200 g
EN 61010-1, EN 61557-8, EN 61326-1						

RI-F48 | RI-R48 | RI-R48N

IT NETWORKS INSULATION CONTROL **24-48 VAC/DC**

General Characteristics

These devices allows the insulation monitoring to earth of electric networks in alternate and direct current 24-48 VAC/DC isolated (IT systems). These devices measure the potential variation of two polarity on earth reference, to signal when the insulation decreasing under a fixed value. Auxiliary supply is taken from under-control network. On the frontal panel there is the signaling of device ON, a TEST and a RESET (versions RI-R48 and RI-R48N) pushbuttons and LEDs to the signaling of tripping (TRIP) and to indicate the polarity (version RI-R48N) of the line under control that has low insulation. The TRIP threshold is regulated by micro-switches (versions RI-R48 and RI-R48N). It's available a changeover contact relay to use the low insulation signaling in a remote panel.

Features

- INSULATION MONITORING OF IT SYSTEMS 24-48 VAC/DC
- TRIP MANUAL RESET (VERSIONS RI-R48 AND RI-R48N)
- LOW INSULATION LED
- DAMAGED POLE LED (VERSION RI-R48N)
- TEST PUSHBUTTON
- TRIP THRESHOLD SETTING (VERSIONS RI-R48 AND RI-R48N)

Technical characteristics

Controlled network voltage	24-48 VAC/DC
Power consumption	3 VA
ALARM threshold setting	-
TRIP threshold setting	10÷60 kΩ (version RI-R48 and version RI-R48N) 100kΩ (version RI-F48)
Tripping delay	< 5 sec
Max measuring current	0.5 mA
Max measuring voltage	-
Internal impedance	50 kΩ
TRIP Relay number NO-C-NC	1
ALARM Relay number NO-C-NC	-

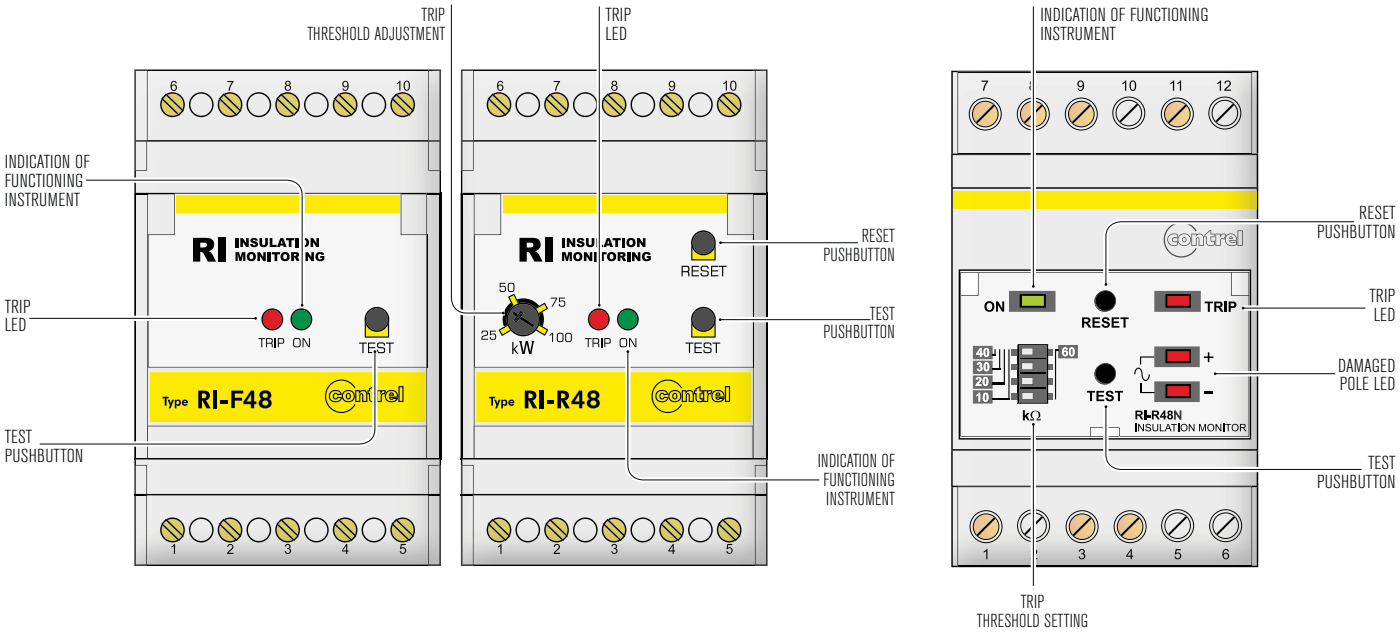
Max relay contact capacity	250V - 5A
Operating temperature	-10 ÷ 60 °C
Storage temperature	-20 ÷ 80 °C
Relative humidity	≤95%
Max terminal section	4 mm²
Protection degree	IP40 front | IP20 housing
Insulation test	2.5 kV 60 sec. / 4 kV imp 1.2/50 µs
Modules	3
Weight	200 g
Standards	EN 61010-1, EN 61557-8, EN 61326-1

ORDER CODE	VERSION	Vaux	DESCRIPTION	CONTROLLED NETWORK VOLTAGE	MODULES
RI-F48	TRIP threshold fixed 100kΩ	**24-48 VAC/DC**	IT networks insulation control 24-48 VAC/DC	**24-48 VAC/DC**	3
RI-R48	TRIP threshold adjustment	**24-48 VAC/DC**	IT networks insulation control 24-48 VAC/DC	**24-48 VAC/DC**	3
RI-R48N	TRIP threshold adjustment Damaged pole LED	**24-48 VAC/DC**	IT networks insulation control 24-48 VAC/DC	**24-48 VAC/DC**	3

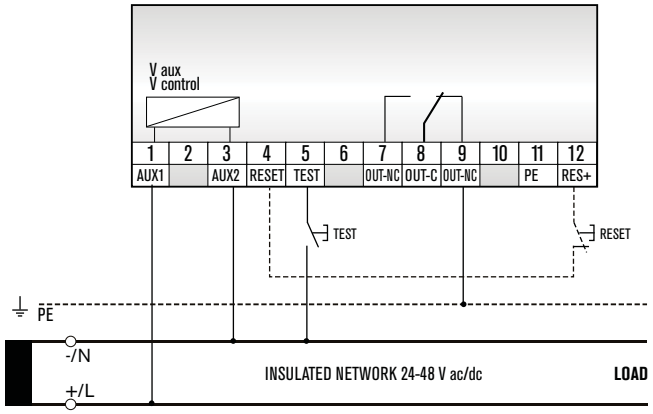
RI-F48 | RI-R48 | RI-R48N

IT NETWORKS INSULATION CONTROL **24-48 VAC/DC**

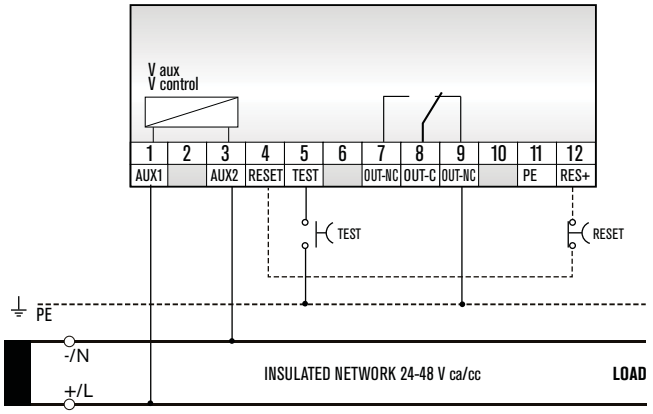
Operators



Wiring diagrams

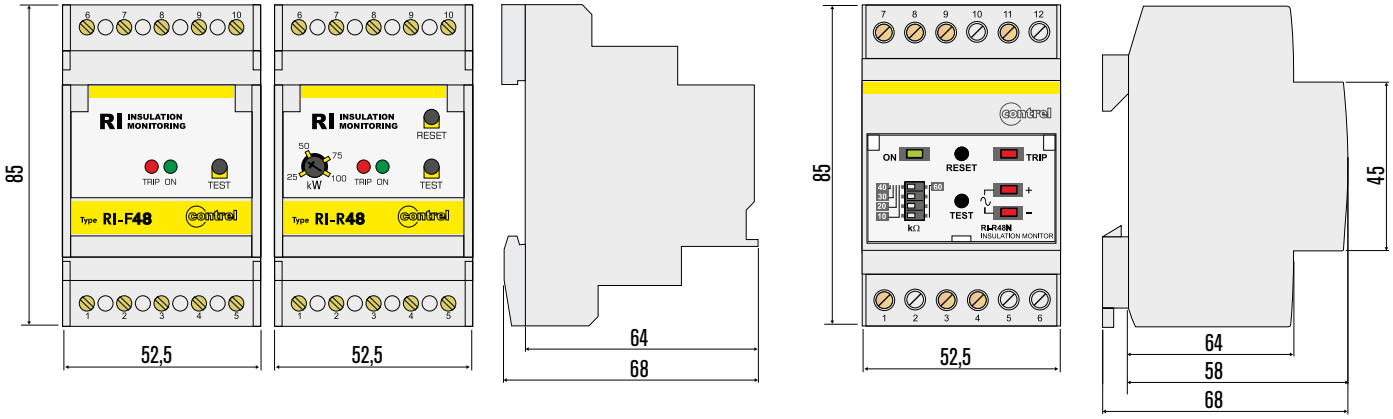


RI-F48 | RI-R48



RI-R48N

Mechanical dimensions (mm)



RI-R11 | RI-R11D

IT NETWORKS INSULATION CONTROL **110-230 VCC**

General Characteristics

The RI-R11-115 and RI-R11-230 devices allows the permanent insulation monitoring to earth of electric networks in direct current isolated (IT systems).
Insulation resistance monitoring is carried out measuring the potential variation of two polarity on ground reference. Auxiliary supply is taken from under-control network.
The threshold of trip is regulated by a series of micro-switches.
On the frontal panel there is the signaling of device ON, a TEST and a RESET push-buttons and three red LED to signal the tripping (TRIP) and to indicate the polarity of the line under control that has low insulation. It's available a changeover contact relay to use the low insulation signaling in a remote panel.

Features

- INSULATION MONITORING OF IT SYSTEMS UP TO 230 VDC
- TRIP AND ALARM LED
- INSULATION LEVEL
- DAMAGED POLE LED
- TRIP AND ALARM THRESHOLD SETTING
- TEST AND RESET PUSHBUTTON

Technical characteristics

Controlled network voltage	100-144 VDC (version RI-R11 115) 230 VDC (version RI-R11 230)
Power consumption	4 VA
ALARM threshold setting	30÷300 kΩ
TRIP threshold setting	10÷100 kΩ
Tripping delay	< 5 sec
Max measuring current	1.8 mA
Max measuring voltage	-
Internal impedance	100 kΩ L/PE | 200 kΩ L/PE
TRIP Relay number NO-C-NC	2
ALARM Relay number NO-C-NC	2

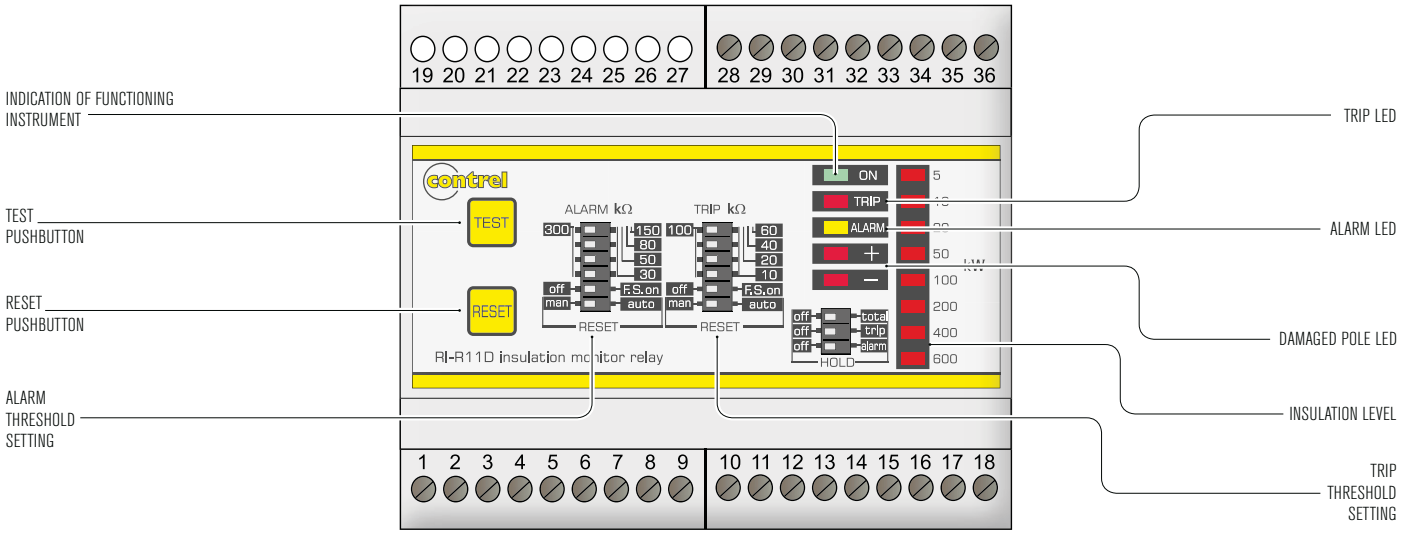
Max relay contact capacity	250V - 5A
Operating temperature	-10 ÷ 60 °C
Storage temperature	-20 ÷ 80 °C
Relative humidity	≤ 95%
Max terminal section	2.5 mm^2
Protection degree	IP40 front | IP20 housing
Insulation test	2.5 kV 60 sec. / 4 kV imp 1.2/50 µs
Modules	6
Weight	400 g
Standards	EN 61010-1, EN 61557-8, EN 61326-1

ORDER CODE	VERSION	Vaux	DESCRIPTION	CONTROLLED NETWORK VOLTAGE	MODULES
RI-R11 115	ALARM and TRIP threshold setting Damaged pole LED	80-180 VDC	IT networks insulation control 115 VDC	100-144 VDC	6
RI-R11D 115	ALARM and TRIP threshold setting, damaged pole LED, insulation level display	80-180 VDC	IT networks insulation control 115 VDC	100-144 VDC	6
RI-R11 230	ALARM and TRIP threshold setting Damaged pole LED	185-275 VDC	IT networks insulation control 230 VDC	230 VDC	6
RI-R11D 230	ALARM and TRIP threshold setting, damaged pole LED, insulation level display	185-275 VDC	IT networks insulation control 230 VDC	230 VDC	6

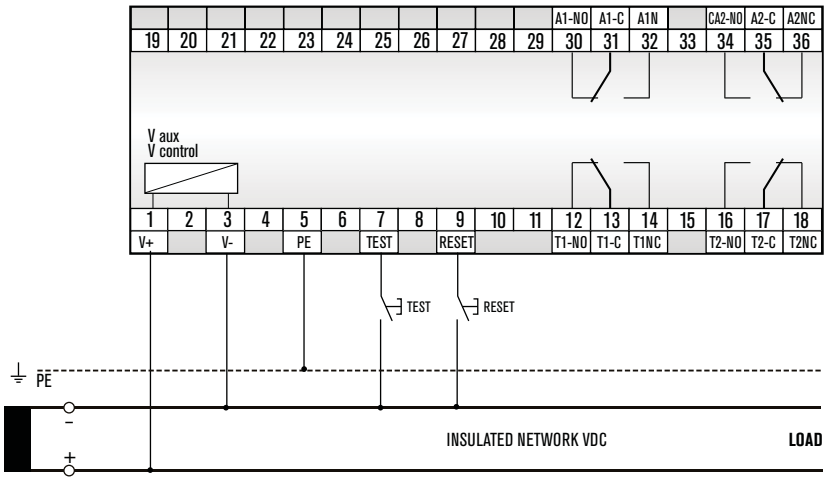
RI-R11 | RI-R11D

IT NETWORKS INSULATION CONTROL **110-230 VCC**

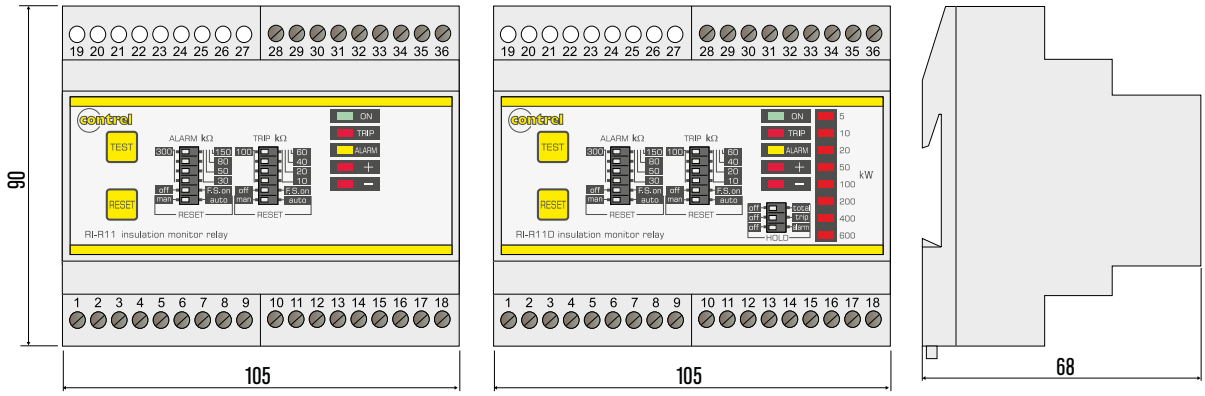
Operators



Wiring diagrams



Mechanical dimensions (mm)



RI-R15

IT NETWORKS INSULATION CONTROL **600 VDC**

General Characteristics

The RI-R15 device allows the permanent insulation monitoring to earth of electric networks in direct current isolated (IT systems). Insulation resistance monitoring is carried out measuring the potential variation of two polarity on ground reference. Auxiliary supply is taken from under-control network.

The threshold of trip is regulated by a frontal potentiometer. On the frontal panel there is the signaling of device ON, and three red LED to signal the tripping (TRIP) and to indicate the polarity of the line under control that has low insulation. It's available a changeover contact relay to use the low insulation signaling in a remote panel. The relay can be set as FAIL SAFE function. On front panel there are a TEST and a RESET push-buttons.

The test can be activated locally while the reset can be set in automatic or manual, with local or external push-button.

Features

- INSULATION MONITORING OF IT SYSTEMS UP TO 600 VDC
- WIDE TRIPPING THRESHOLD ADJUSTMENT
- FAIL SAFE RELAY FOR TIMELY MONITORING, EVEN IN CASE OF SUPPLY FAILURE
- TEST AND RESET CAN BE REMOTELY OPERATED BY A PUSHBUTTON
- VISUAL INDICATION OF THE NETWORK STATUS AND INDICATION OF THE FAULTY POLARITY

Technical characteristics

Controlled network voltage	280-340 VDC (version RI-R15 300) 400-600 VDC (version RI-R15 500)
Power consumption	6 VA
ALARM threshold setting	-
TRIP threshold setting	30÷300 **kΩ**
Tripping delay	< 5 sec
Max measuring current	1.5 mA
Max measuring voltage	-
Internal impedance	450 kΩ L/PE
TRIP Relay number NO-C-NC	1
ALARM Relay number NO-C-NC	-

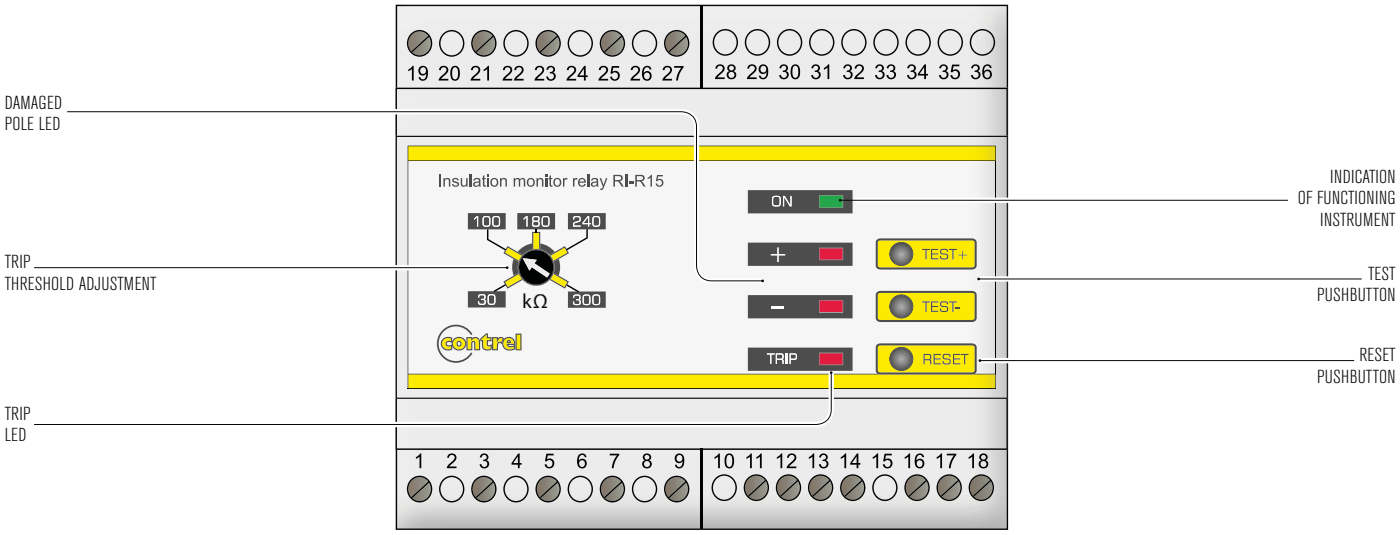
Max relay contact capacity	250V - 5A
Operating temperature	-10 ÷ 60 °C
Storage temperature	-20 ÷ 80 °C
Relative humidity	≤ 95%
Max terminal section	2.5 mm^2
Protection degree	IP40 front | IP20 housing
Insulation test	2.5 kV 60 sec. / 4 kV imp 1.2/50 µs
Modules	6
Weight	400 g
Standards	EN 61010-1, EN 61557-8, EN 61326-1

ORDER CODE	VERSION	Vaux	DESCRIPTION	CONTROLLED NETWORK VOLTAGE	MODULES
RI-R15 300	TRIP threshold adjustment, damaged pole LED	280-340 VDC	IT networks insulation control 340 VDC	280-340 VDC	6
RI-R15 500	TRIP threshold adjustment, damaged pole LED	400-600 VDC	IT networks insulation control 600 VDC	400-600 VDC	6
RI-R15 1000	TRIP threshold adjustment, damaged pole LED	600-1000 VDC	IT networks insulation control 1000 VDC (with ARI-R15 adapter)	600-1000 VDC	6

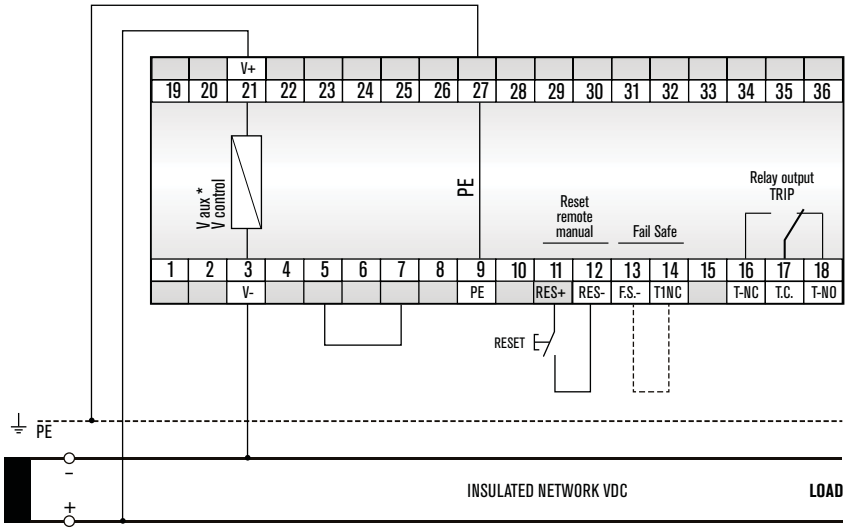
RI-R15

IT NETWORKS INSULATION CONTROL **600 VDC**

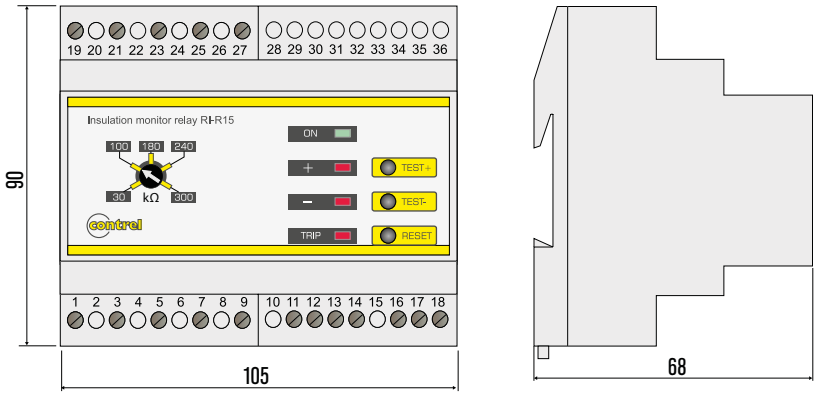
Operators



Wiring diagrams



Mechanical dimensions (mm)



RI-F22 | RI-R22

IT NETWORKS INSULATION CONTROL **230 VAC**

AC NETWORKS

General Characteristics

Features

- INSULATION MONITORING UP TO 230 VAC
- RESET PUSHBUTTON (ONLY FOR RI-R22)
- INDICATION OF FUNCTIONING INSTRUMENT
- LOW INSULATION LED
- TEST PUSHBUTTON
- TRIP THRESHOLD SETTING (ONLY FOR RI-R22)

These devices allow the insulation monitoring to earth of electric networks in alternate current up to 230 VAC isolated (IT systems). Insulation resistance monitoring is carried out applying a measure's signaling in direct-current between isolated network and heart. Surveying electric leakage set up on earth it's possible to measure insulation level. It's available a changeover contact relay to use the low insulation signaling in a remote panel. On frontal panel, devices have signal for activity ON, for TRIP (low insulation), a test button. The TRIP threshold is fixed to 100 kOhm (version RI-F22), or can be regulate by a frontal potentiometer (version RI-R22).

Technical characteristics

Controlled network voltage	230 VAC	**Max relay contact capacity**	250V - 5A
Power consumption	3 VA	**Operating temperature**	-10 ÷ 60 °C
ALARM threshold setting	-	**Storage temperature**	-20 ÷ 80 °C
TRIP threshold setting	100 kΩ (RI-F22) | 25÷100 kΩ (RI-R22)	**Relative humidity**	≤ 95%
Tripping delay	< 5 sec	**Max terminal section**	4 mm^2
Max measuring current	0.1 mA	**Protection degree**	IP40 front | IP20 housing
Max measuring voltage	12 VDC	**Insulation test**	2.5 kV 60 sec | 4 kV imp 1.2/50 µs
Internal impedance	250 kΩ	**Modules**	3
TRIP Relay number NO-C-NC	1	**Weight**	200 g
ALARM Relay number NO-C-NC	-	**Standards**	EN 61010-1, EN 61557-8, EN 61326-1

ORDER CODE	VERSION	Vaux	DESCRIPTION	CONTROLLED NETWORK VOLTAGE	MODULES
RI-F22 115	ALARM and TRIP threshold setting Damaged pole LED	115 VAC	IT networks insulation control 230 VAC	220-240 VAC	3
RI-F22 230	ALARM and TRIP threshold setting, damaged pole LED, insulation level display	230 VAC	IT networks insulation control 230 VAC	220-240 VAC	3
RI-R22 24	ALARM and TRIP threshold setting Damaged pole LED	24 VDC	IT networks insulation control 230 VAC	220-240 VAC	3
RI-R22 115	ALARM and TRIP threshold setting, damaged pole LED, insulation level display	115 VAC	IT networks insulation control 230 VAC	220-240 VAC	3
RI-R22 230	ALARM and TRIP threshold setting, damaged pole LED, insulation level display	230 VAC	IT networks insulation control 230 VAC	220-240 VAC	3
RI-R38 1000	ALARM and TRIP threshold setting, damaged pole LED, insulation level display	115 o 230 VCA	IT networks insulation control 1000 VAC (whith ADAPTER)	max 1000 VAC	3

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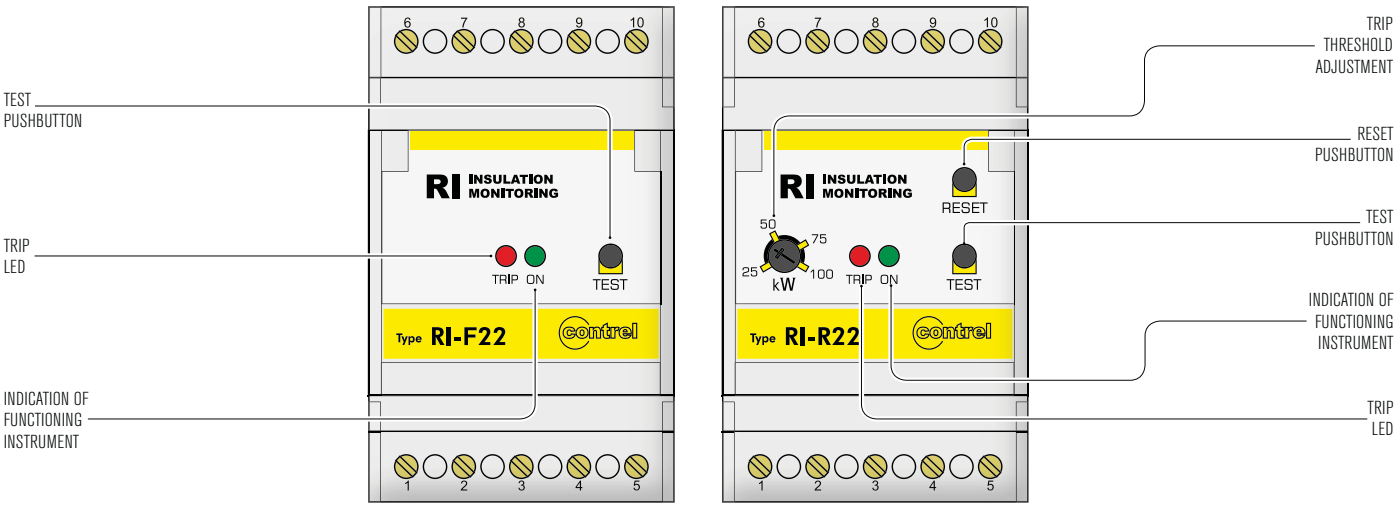
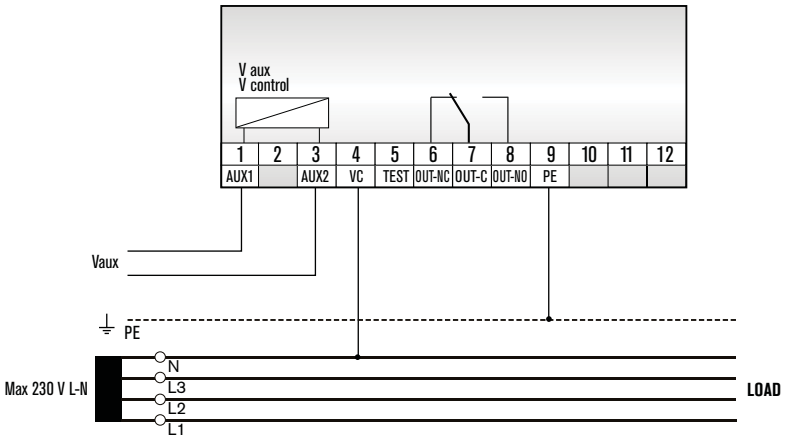
RI-F22 | RI-R22

IT NETWORKS INSULATION CONTROL **230 VAC**

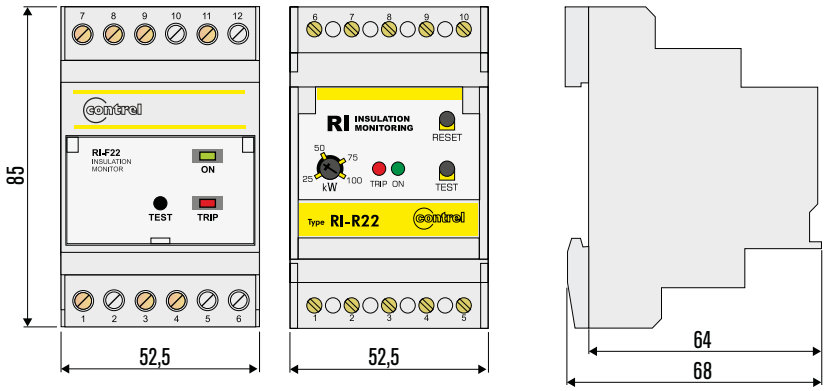
Operators



Wiring diagrams



Mechanical dimensions (mm)



RI-R38

IT NETWORKS INSULATION CONTROL **440 VAC**

General Characteristics

The RI-R38 is a device that allows to control the insulation to earth in alternating neutral networks up to 440 VAC (IT systems).
Putting a continuous component measure signal between the insulated line and earth it's possible to control the insulation resistance reading the dispersion current generated to earth.
On the frontal panel of RI-R38 there is the signaling of device ON, the signaling of tripping TRIP (low insulation), a test and a reset push-buttons and a series of micro-switches to regulated the threshold of trip.
It's available a changeover contact relay to use the low insulation signaling in a remote panel.

Features

- INSULATION MONITORING UP TO 440 VAC
- RESET PUSHBUTTON
- INDICATION OF FUNCTIONING INSTRUMENT
- LOW INSULATION LED
- TEST PUSHBUTTON
- TRIP THRESHOLD SETTING

Technical characteristics

Controlled network voltage	380-415 VAC
Power consumption	3 VA
ALARM threshold setting	-
TRIP threshold setting	10÷150 kΩ
Tripping delay	< 5 sec
Max measuring current	0.1 mA
Max measuring voltage	12 VDC
Internal impedance	250 kΩ
TRIP Relay number NO-C-NC	1
ALARM Relay number NO-C-NC	-

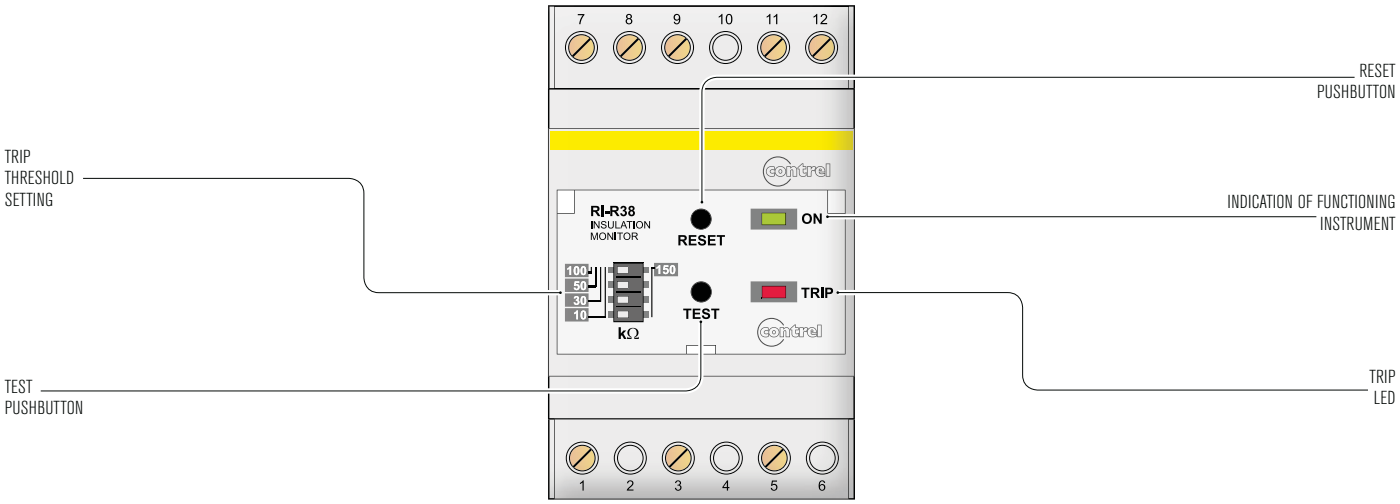
Max relay contact capacity	250V - 5A
Operating temperature	-10 ÷ 60 °C
Storage temperature	-20 ÷ 80 °C
Relative humidity	≤ 95%
Max terminal section	4 mm^2
Protection degree	IP40 front | IP20 housing
Insulation test	2.5 kV 60 sec | 4 kV imp 1.2/50 µs
Modules	3
Weight	200 g
Standards	EN 61010-1, EN 61557-8, EN 61326-1

ORDER CODE	VERSION	Vaux	DESCRIPTION	CONTROLLED NETWORK VOLTAGE	MODULES
RI-R38 115	TRIP threshold adjustment	115 VAC	IT networks insulation control 440 VAC	380-415 VAC	3
RI-R38 230	TRIP threshold adjustment	230 VAC	IT networks insulation control 440 VAC	380-415 VAC	3
RI-R38 1000	TRIP threshold adjustment	115 o 230 VCA	IT networks insulation control 1000 VAC (whith ADAPTER)	max 1000 VCA	3

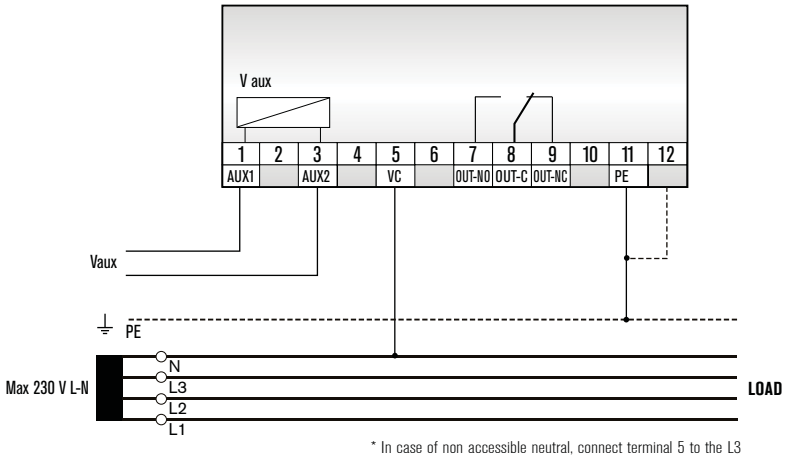
RI-R38

IT NETWORKS INSULATION CONTROL **440 VAC**

Operators

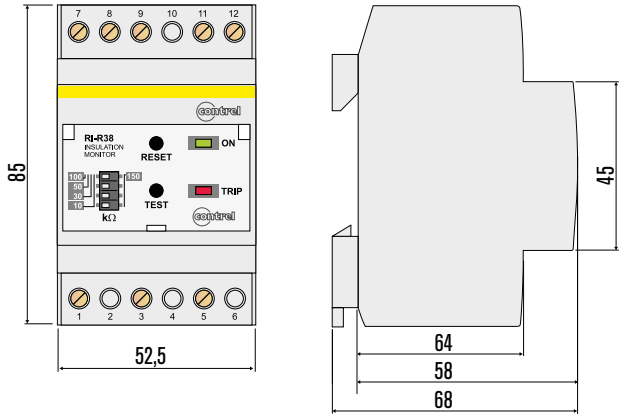


Wiring diagrams



* In case of non accessible neutral, connect terminal 5 to the L3

Mechanical dimensions (mm)



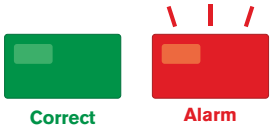
RI-R44

IT NETWORKS INSULATION CONTROL **440 VAC**
LCD DISPLAY, RS485

General Characteristics

RI-R44-485

RI-R44-V-485



Instantaneous display
LCD display that enables quick alarm viewing of the insulation value. Incorporates illuminated status change for instantaneous detection of the status of the installation.

RI-R44 is a device that allows the insulation monitoring to earth of AC networks up to 440V isolated (IT systems). By applying a DC component measure signal between the insulated line and earth it's possible to control the insulation resistance by detecting the generated leakage current.
Thanks to the LCD display, the device allows the visualization of the instantaneous insulation value. Configurable automatic or manual resetting. It has a TRIP changeover contact configurable normally de-energised or energised.
The RI-R44 is also provided with a RS-485 interface with Modbus protocol to consent the integration in supervision systems..

Features

- INSULATION MONITORING OF IT SYSTEMS UP TP 440 VAC
- LCD DISPLAY (Alarm or prealarm indicating events)
- LOW INSULATION LED
- CONFIGURABLE AUTOMATIC OR MANUAL RESETTING
- TEST PUSHBUTTON
- TRIP THRESHOLD SETTING
- TRIP OUTPUT RELAY
- RS485 SERIAL INTERFACE (MODBUS RTU)

Technical characteristics

Controlled network voltage	440 VAC
Power consumption	2 VA
ALARM threshold setting	-
TRIP threshold setting	1÷300 kΩ
Tripping delay	< 2.5 sec
Max measuring current	0.015 mA
Max measuring voltage	13 VDC
Internal impedance	1.5 MΩ for DC | 1 MΩ for AC
TRIP Relay number NO-C-NC	1
ALARM Relay number NO-C-NC	-

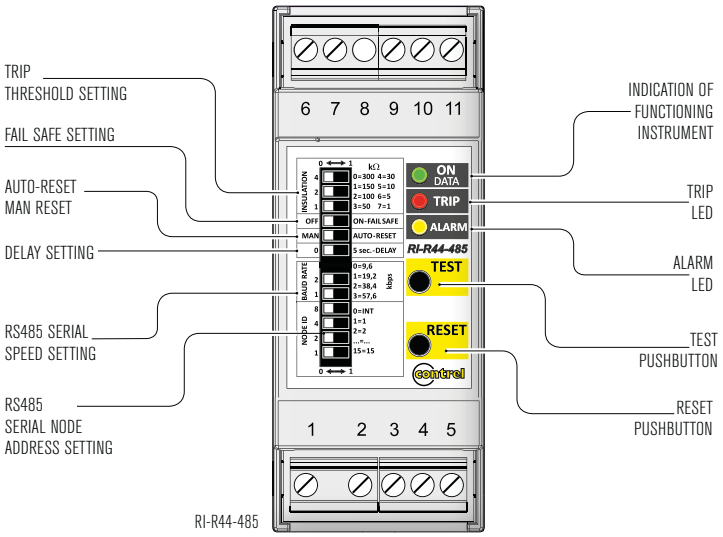
Max relay contact capacity	250V - 5A
Operating temperature	-10 ÷ 60 °C
Storage temperature	-20 ÷ 80 °C
Relative humidity	≤ 95%
Max terminal section	2.5 mm^2
Protection degree	IP40 front | IP20 housing
Insulation test	2.5 kV 60 sec | 4 kV imp 1.2/50 µs
Modules	2
Weight	200 g
Standards	EN 61010-1, EN 61557-8, EN 61326-1

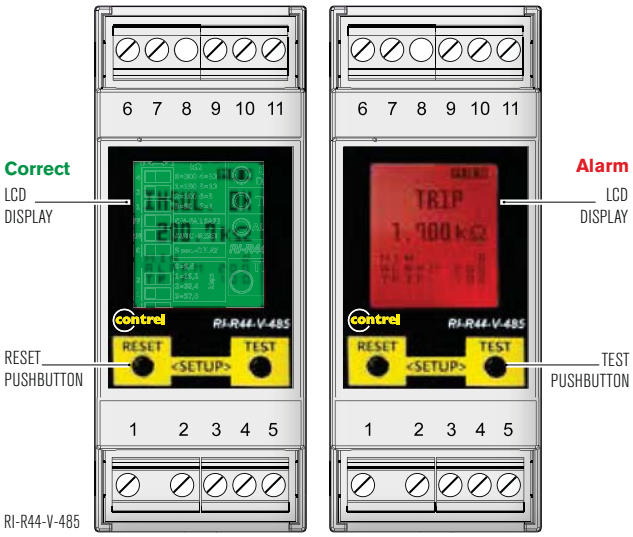
ORDER CODE	VERSION	Vaux	DESCRIPTION	CONTROLLED NETWORK VOLTAGE	MODULES
RI-R44	TRIP threshold adjustment	230 VAC	IT networks insulation control 440 VAC	440 VAC	2
RI-R44-485	TRIP threshold adjustment, RS845 serial interface	230 VAC	IT networks insulation control 440 VAC	440 VAC	2
RI-R44-V	TRIP threshold adjustment, LCD display	230 VAC	IT networks insulation control 440 VAC	440 VAC	2
RI-R44-V-485	TRIP threshold adjustment, LCD display, RS845 serial interface	230 VAC	IT networks insulation control 440 VAC	440 VAC	2

RI-R44

IT NETWORKS INSULATION CONTROL **440 VAC**
LCD DISPLAY, RS485

Operators

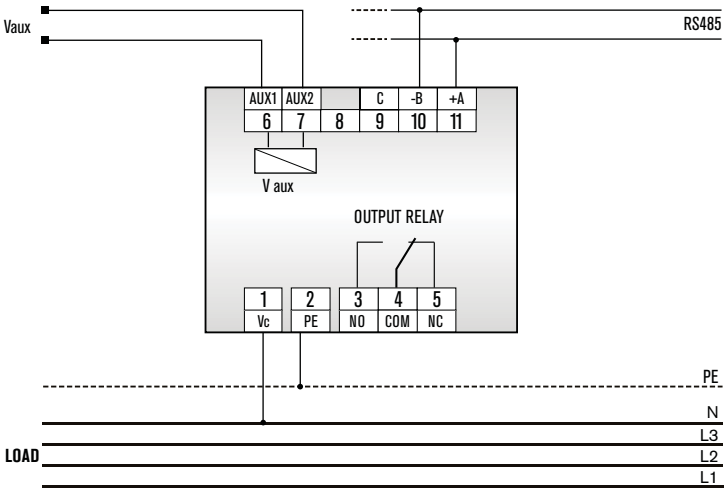




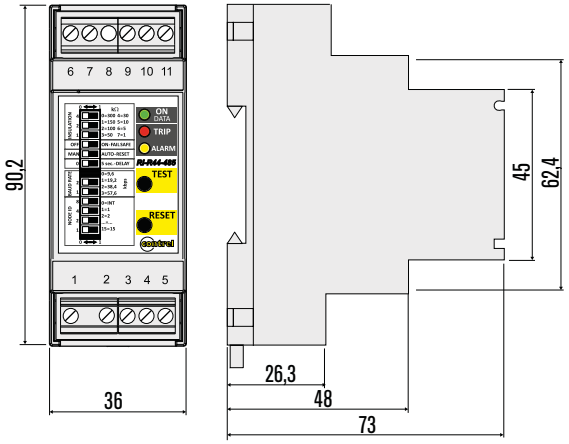
RI-R44-485

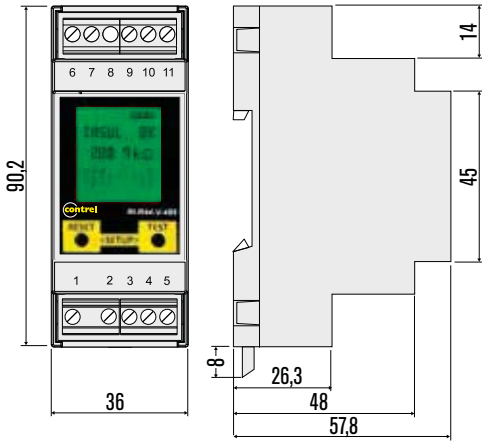
RI-R44-V-485

Wiring diagrams



Mechanical dimensions (mm)





RI-R60

IT NETWORKS INSULATION CONTROL **760 VAC**

General Characteristics

RI-R60 is a device that allows to control the insulation to earth in alternating neutral networks up to 760 V (IT systems).
Putting a continuous component measure signal between the insulated line and earth it's possible to control the insulation resistance reading the dispersion current generated to earth.
These devices have two trip thresholds (ALARM and TRIP) adjustable using the frontal micro-switches to signal when the insulation go under the threshold level.
The frontal LED signaling the trip. Two free voltage changeover contacts relays allow the remote trip signaling. The relays can be programmed with the fail safe (normally excited).
The device is supplied on the front panel of a TEST and a RESET push-buttons. The test can be activated thanks to the push-button on the device or to external push-button while the reset that can be set in manual or in automatic and activated, as the test, with the local or remote push-button.
The level of the insulation resistance is displayed on the bar LED on the front panel.

Features

- INSULATION MONITORING UP TO 1000 VAC
- DOUBLE MONITORING THRESHOLD FOR MORE EFFECTIVE FAULT PREVENTION
- FAIL SAFE DOUBLE RELAY FOR EFFECTIVE SYSTEM CONTROL AND TIMELY MONITORING, EVEN IN CASE OF SUPPLY FAILURE
- INSTANT DISPLAY OF INSULATION LEVEL
- TEST AND RESET CAN BE REMOTELY OPERATED BY A PUSHBUTTON
- VISUAL INDICATION OF THE NETWORK STATUS

Technical characteristics

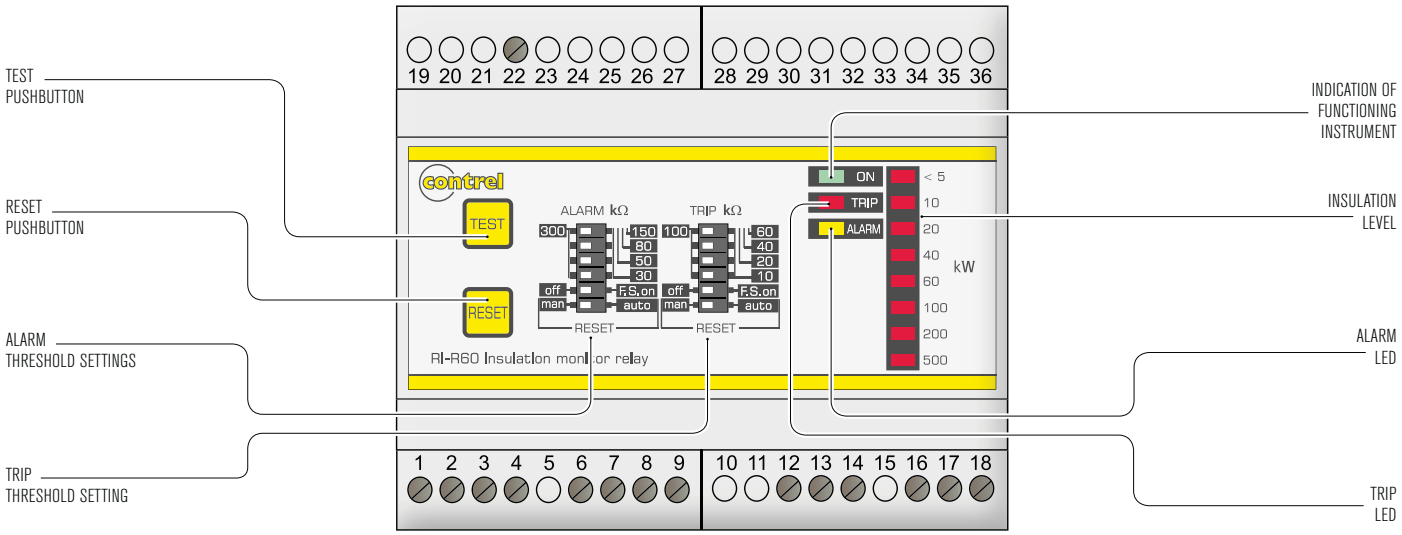
Controlled network voltage	500-760 VAC	**Max relay contact capacity**	250V - 5A
Power consumption	5	**Operating temperature**	-10 ÷ 60 °C
ALARM threshold setting	30÷300 **kΩ**	**Storage temperature**	-20 ÷ 80 °C
TRIP threshold setting	10÷100 **kΩ**	**Relative humidity**	≤ 95%
Tripping delay	< 5 sec	**Max terminal section**	2.5 mm^2
Max measuring current	0.240 mA	**Protection degree**	IP40 front | IP20 housing
Max measuring voltage	48 VDC	**Insulation test**	3 kV 60 sec. / 4 kV imp 1.2/50 µs
Internal impedance	200 kΩ	**Modules**	6
TRIP Relay number NO-C-NC	1	**Weight**	500 g
ALARM Relay number NO-C-NC	1	**Standards**	EN 61010-1, EN 61557-8, EN 61326-1

ORDER CODE	VERSION	Vaux	DESCRIPTION	CONTROLLED NETWORK VOLTAGE	MODULES
RI-R60	ALARM and TRIP threshold setting, insulation level display	110-230 VAC	IT networks insulation control up to 760 VAC	500-760 VAC	6
RI-R60 1000	ALARM and TRIP threshold setting, insulation level display	110-230 VAC	IT networks insulation control up to 1000 VAC (with ARI-R60 adapter)	1000 VAC	6

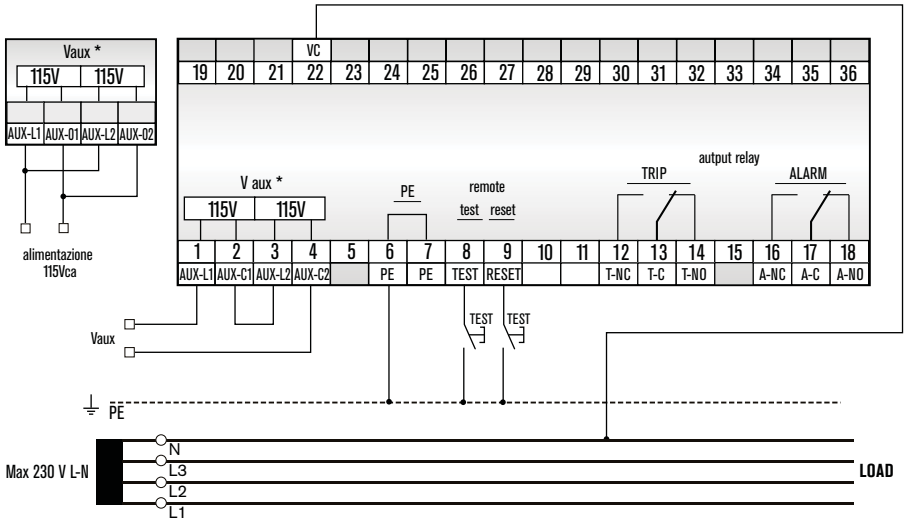
RI-R60

IT NETWORKS INSULATION CONTROL **760 VAC**

Operators

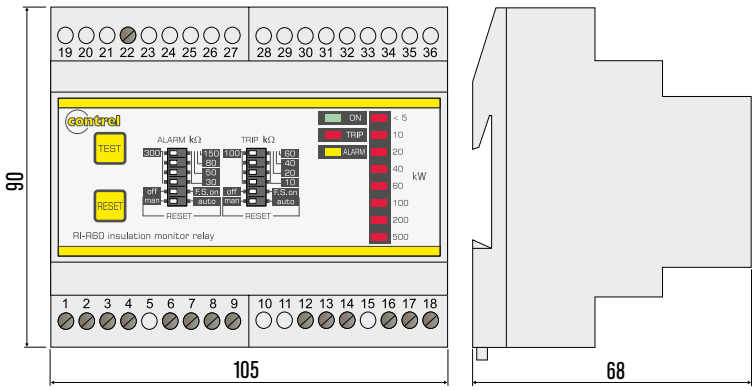


Wiring diagrams



* In case of non accessible neutral, connect terminal 22 to the L1

Mechanical dimensions (mm)



RI-SM

VOLTAGELESS NETWORK INSULATION CONTROL

VOLTAGE LESS NETWORKS

General Characteristics

Features

- INDICATION OF FUNCTIONING INSTRUMENT
- TEST PUSHBUTTON
- LOW INSULATION LED
- FAIL SAFE SETTING
- TRIP THRESHOLD SETTING

The RI-SM allows insulation monitoring to earth of out-voltage networks.
This device must carry-out a preventive check of the insulation level for out-voltage devices, not used permanently, in the way to avoid damage when they start to function (ex. fire-engines, lift, etc.).
Insulation resistance's monitoring is carried out applying a measure's signaling in direct current component between out-voltage isolated network and earth.
Surveying leakage current to earth it's possible to measure the insulation's level.
The instrument is useful for networks and devices from 20 to 700 VAC/DC.
A changeover contact relay is available to signal the low insulation to a remote panel.
On front panel there is the signaling of device ON, the signaling of TRIP for low insulation, the TEST push-button and the micro-switches to select the tripping threshold and FAIL SAFE function.
The RESET of the device is automatic when the condition of low insulation disappears.
The device must be connected to the network to survey using a normally closet contact in the way to disconnect from the network when it's turning on.
The output relay can be used to signal the alarm or to avoid the insertion of the load.

Technical characteristics

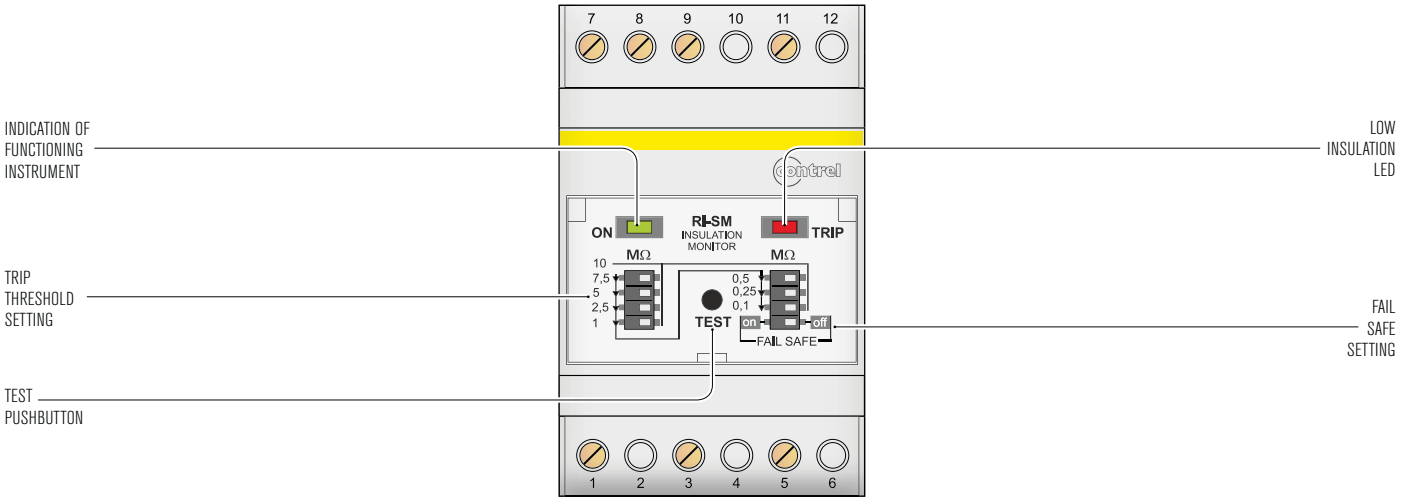
Power consumption	3 VA	**Operating temperature**	-10 ÷ 60 °C
ALARM threshold setting	-	**Storage temperature**	-20 ÷ 80 °C
TRIP threshold setting	0,1÷1000 kΩ	**Relative humidity**	≤ 95%
Tripping delay	< 5 sec	**Max terminal section**	4 mm²
Max measuring current	0.015 mA	**Protection degree**	IP40 front | IP20 housing
Max measuring voltage	20 VDC	**Insulation test**	2.5 kV 60 sec | 4 kV imp 1.2/50 µs
Internal impedance	1.5 MΩ DC | 1 MΩ AC	**Modules**	3
TRIP Relay number NO-C-NC	1	**Weight**	200 g
ALARM Relay number NO-C-NC	-	**Standards**	EN 61010-1, EN 61557-8, EN 61326-1
Max relay contact capacity	250V - 5A		

ORDER CODE	VERSION	Vaux	DESCRIPTION	MODULES
RI-SM 24	TRIP threshold setting, FAIL SAFE setting	24 VDC	Voltageless networks insulation control	3
RI-SM 115	TRIP threshold setting, FAIL SAFE setting	115 VAC	Voltageless networks insulation control	3
RI-SM 230	TRIP threshold setting, FAIL SAFE setting	230 VAC	Voltageless networks insulation control	3

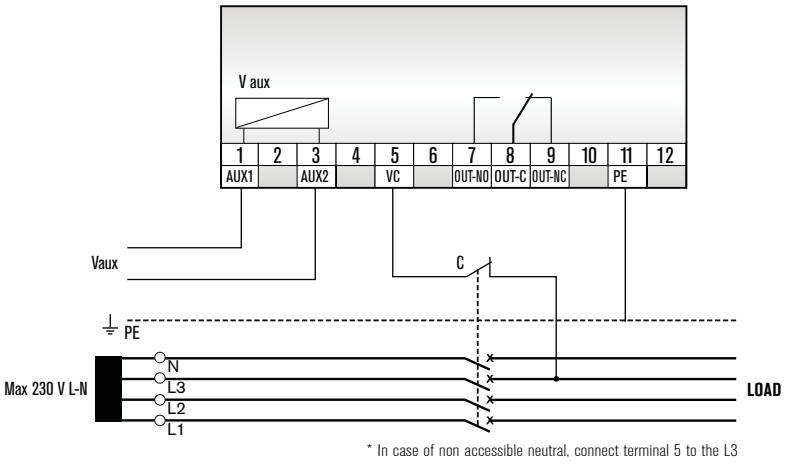
RI-SM

VOLTAGELESS NETWORK INSULATION CONTROL

Operators

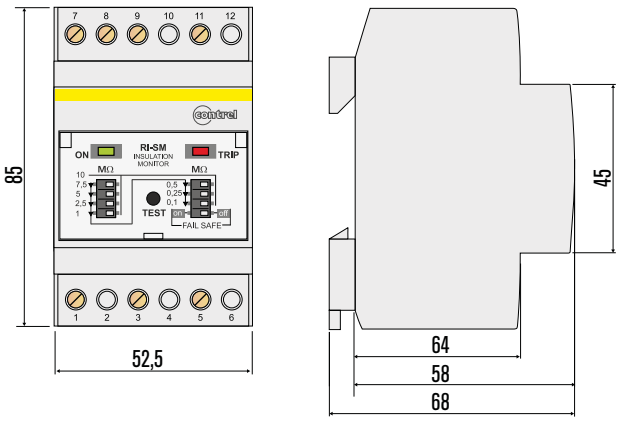


Wiring diagrams



* In case of non accessible neutral, connect terminal 5 to the L3

Mechanical dimensions (mm)



RI-SM485

VOLTAGELESS NETWORKS INSULATION CONTROL, **RS485**

VOLTAGE LESS NETWORKS

General Characteristics

The devices allow insulation monitoring to earth of out-voltage networks in order to carry out a preventive monitoring on insulation level of device.
Preventive monitoring is really important in case of applications which are not used permanently (for example: motors, fire-engines, and so on).
In these applications, humidity and condensate can cause a serious decrease in insulation's level and obstruct correct functioning at the moment of application's activation. Insulation resistance's monitoring is carried out applying a measure's signaling in direct-current component between isolated network and earth. Surveying leakage current to earth it's possible to measure insulation's level. A very compact housing allows you to place the RI-SM485 in small spaces, optimizing the layout of the installation.
The RI-SM485 is also provided with a RS-485 interface with Modbus protocol to consent the integration in supervision systems..

Features

- INDICATION OF FUNCTIONING INSTRUMENT
- TEST PUSHBUTTON
- LOW INSULATION LED
- FAIL SAFE SETTING
- TRIP THRESHOLD SETTING
- OUTPUT RELAY
- RS485 SERIAL INTERFACE (MODBUS RTU)

Technical characteristics

Power consumption	2 VA
ALARM threshold setting	-
TRIP threshold setting	0,1÷1500 kΩ
Tripping delay	< 2,5 sec
Max measuring current	0.015 mA
Max measuring voltage	13 VDC
Internal impedance	1.5 MΩ DC | 1 MΩ AC
TRIP Relay number NO-C-NC	1
ALARM Relay number NO-C-NC	-
Max relay contact capacity	250V - 5A

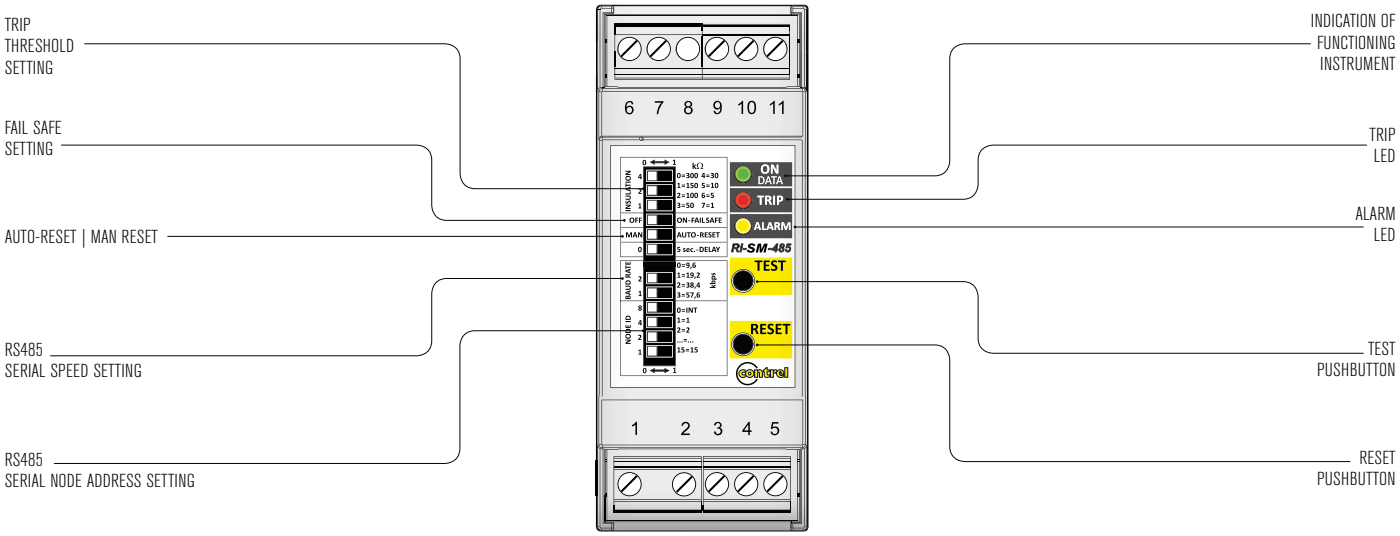
Operating temperature	-10 ÷ 60 °C
Storage temperature	-20 ÷ 80 °C
Relative humidity	≤ 95%
Max terminal section	2,5 mm^2
Protection degree	IP40 front | IP20 housing
Insulation test	2.5 kV 60 sec | 4 kV imp 1.2/50 µs
Modules	2
Weight	200 g
Standards	EN 61010-1, EN 61557-8, EN 61326-1

ORDER CODE	VERSION	Vaux	DESCRIPTION	MODULES
RI-SM-485	TRIP threshold setting, FAIL SAFE setting, RS485 serial interface	230 VAC	Voltageless networks insulation control	2

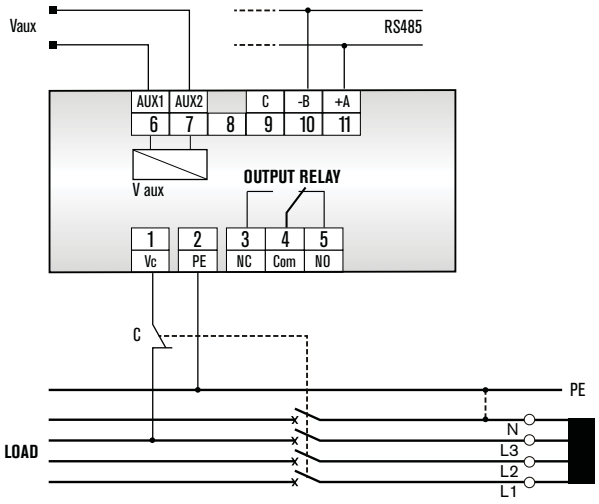
RI-SM485

VOLTAGELESS NETWORKS INSULATION CONTROL, **RS485**

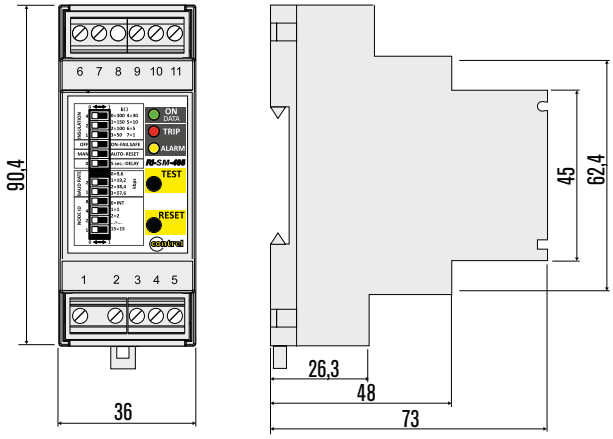
Operators



Wiring diagrams



Mechanical dimensions (mm)



ARI-R15 *ADAPTER*

IT NETWORKS INSULATION CONTROL **1000 VDC**

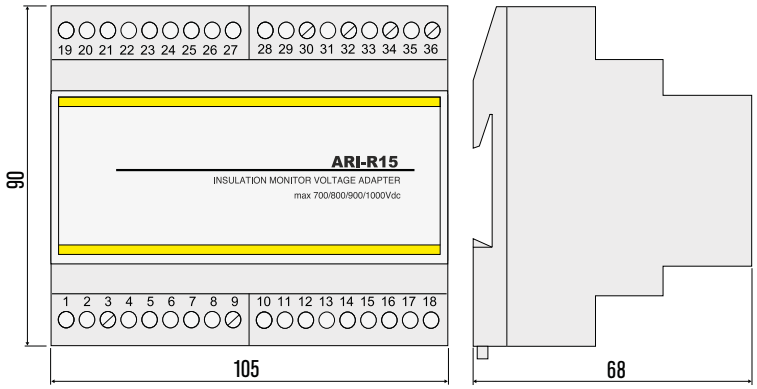
General Characteristics

ARI-R15 ALLOWS INSULATION MONITORING UP TO 1000 VDC.

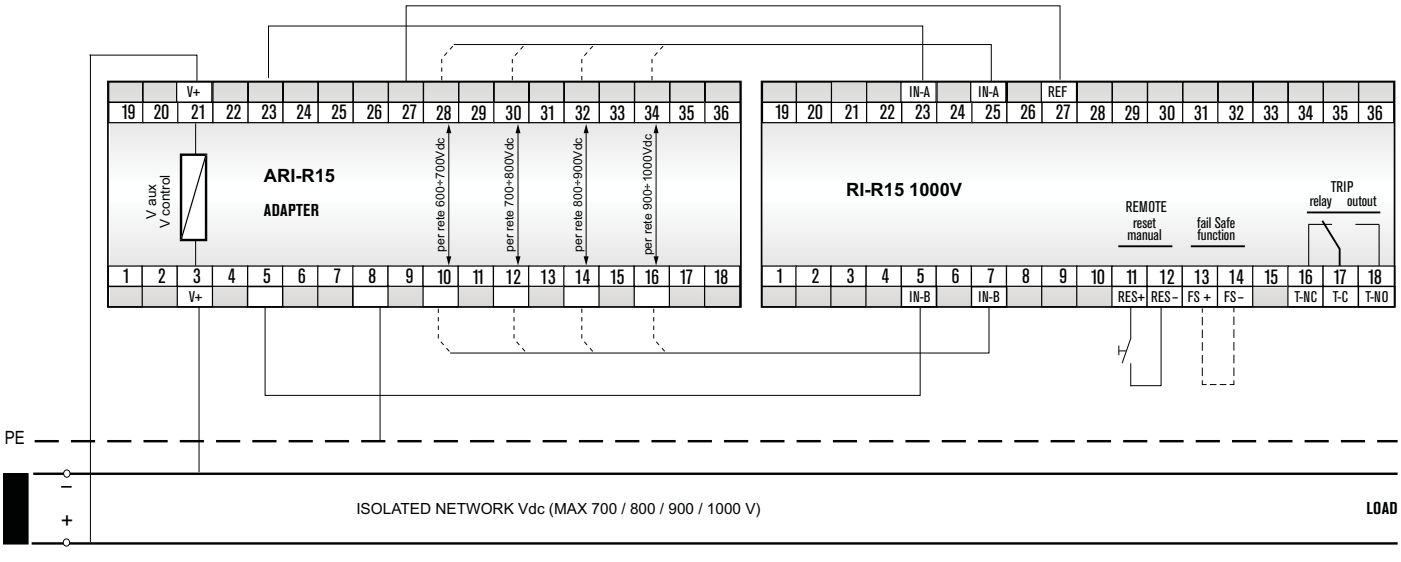
THE EXTERNAL ADAPTER ARI-R15 MUST BE USED ONLY WITH RI-R15 1000.

THIS ADAPTER MUST BE POSITIONED BETWEEN THE NETWORK
TO CONTROL AND THE DEVICE RI-R15 1000.

Mechanical dimensions (mm)



Wiring diagrams



ARI-R60 *ADAPTER*

IT NETWORKS INSULATION CONTROL **1000 VAC**

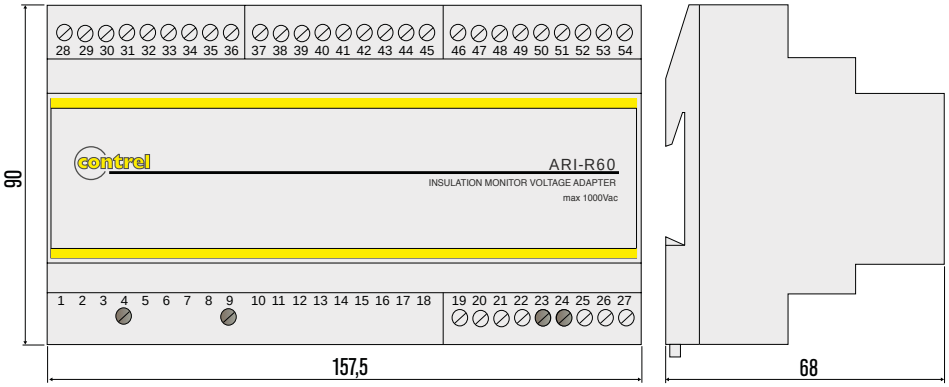
General Characteristics

ARI-R60 ALLOWS INSULATION MONITORING UP TO 1000 VAC.

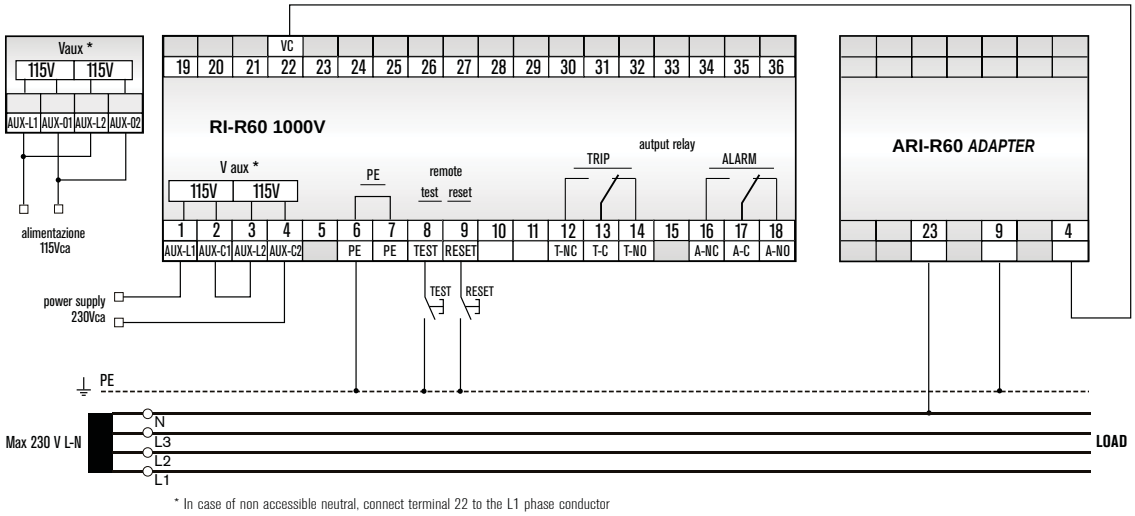
THE EXTERNAL ADAPTER ARI-R60 MUST BE USED ONLY WITH RI-R60.
THIS ADAPTER MUST BE POSITIONED BETWEEN

THE NETWORK TO CONTROL AND THE DEVICE RI-R60.

Mechanical dimensions (mm)



Wiring diagrams



* In case of non accessible neutral, connect terminal 22 to the L1 phase conductor