

RI-R60 Series

DEVICE FOR INSULATION PERMANENT CONTROL

VERSION FOR NEUTRAL NETWORKS (IT) UP TO 1000VAC

MICROENER

GENERAL



RI-R60 is a device that allows to control the insulation to earth in alternating neutral networks up to 760 V (IT systems) in direct insertion and in network up to 1000V with ARI-R60 adapter.

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 signalling the trip. Two free voltage changeover contacts relays allow the remote trip signalling. 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 with scale 5-500 kohm at 8 point.

MODELS

RI-R60-760 network voltage 760Vac max , Uaux 110-230V 50-60 Hz (100÷130 / 220÷240V ± 10%)

RI-R60-1000 network voltage 1000Vac max (with ARI-R60 adapter), Uaux 110-230V 50-60 Hz (100÷130 / 220÷240V ± 10%)

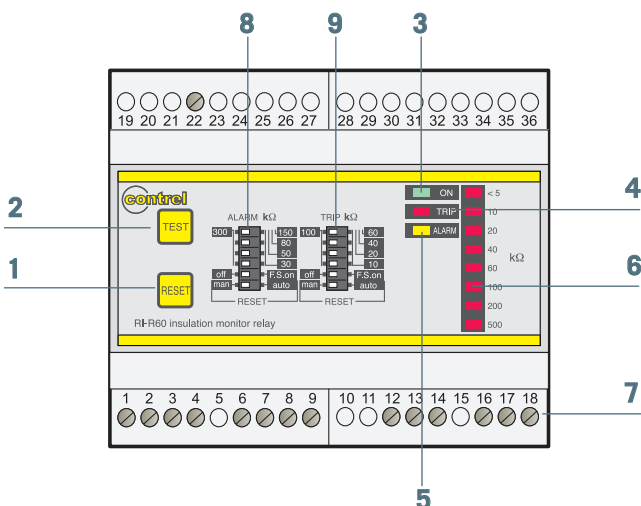
INSTALLATION

The installation must be carried out by qualified and authorized personnel and in absence of voltage. Make sure that the instrument is O.K. and it has not suffered any damage during transport. Make sure that the voltage supply are compatible with the operating voltage of instrument.

The device is a 6 modules (17.5mm) DIN version with snap on 35mm DIN rail. It has a sealable transparent frontal protection cover.

The green LED ON will bright after the connections are set and the instrument is power on.

FUNCTIONS AND OPERATORS - LEGEND

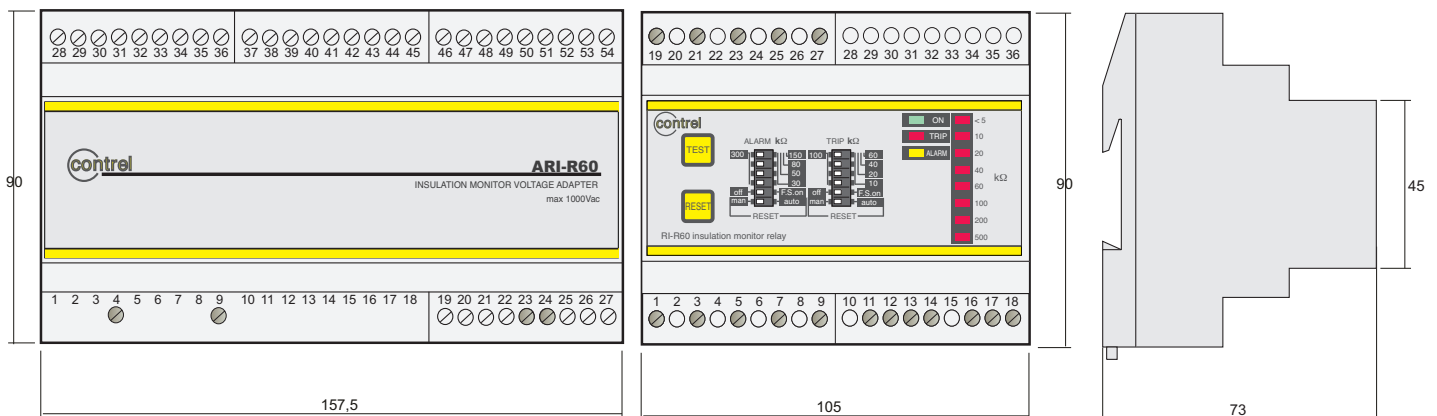


- 1 Pulsante di RESET. Questo pulsante ha effettiva funzionalità solo se impostato il funzionamento in RESET manuale.
- 2 RESET push-button. Only when it's set the manual reset functioning this push-button is enable.
- 3 TEST push-button. Pressing the TEST push-button cause the tripping of the ALARM and the TRIP and the output relay commute.
- 4 LED ON to signal the device turned ON.
- 5 LED TRIP for the signalling overcoming the TRIP threshold.
- 6 LED ALARM for the signalling overcoming the ALARM threshold.
- 7 LED bar to indicate the measured insulation resistance level. With all LED on the insulation level is lower than 5 kohm, with all led off the insulation level upper is than 500 kohm.
- 8 terminals board
- 9 micro-switches to set the alarm threshold
- 10 micro-switches to set the trip threshold

ELECTRIC CHARACTERISTICS

TYPE	RI-R60
Auxiliary power supply	110-230Vac (100÷130V / 220÷240V +-10%) 50-60Hz
Maximum consumption	max 5 VA
Network to control	50-760Vac (50÷1000Vac with ARI-R60 adapter)
Measure voltage	max 48Vdc
Measure current	max 240 µA dc
Internal impedance	200 kΩ
Tripping delay	max 5 seconds
Signalling	led ON, led ALARM, led TRIP, measuring LED bar 5-500kohm
Setting threshold tripping ALARM	300 ÷ 30 kohm (5 levels selectable with micro-switches)
Setting threshold tripping TRIP	100 ÷ 10 kohm (5 levels selectable with micro-switches)
Relay output	ALARM: changeover contact NA-C-NC TRIP: changeover contact NA-C-NC
Relay contacts functions	5 A 250Vac . Fail safe function for both outputs, manual or automatic reset, local and remote test and reset push-button
Working temperature	-10 ÷ 60°C
Storing temperature	-20 ÷ 70°C
Relative humidity	≤ 95 %
Insulation test	3 kV 60 sec. / 4 kV imp. 1,2/50µs
Mounting position	Any
Wiring type	Screw terminals / cross section cables 4 mm ²
Protection degree	Frontal with cover: IP 40 – Enclosure: IP 20
Mounting according DIN 50022	Snap on DIN rail 35mm / 6 modules 17,5 mm
Weight	About 0,5 kg
Standards	Safety CEI-EN 61010-1 / Product CEI-EN 61557-8 / Electromagnetic compatibility CEI-EN 61326-1 CEI-EN 61326-2-4 CEI 64-8

DIMENSIONS



WIRING CONNECTION LINE 760 Vca MAX - LEGEND

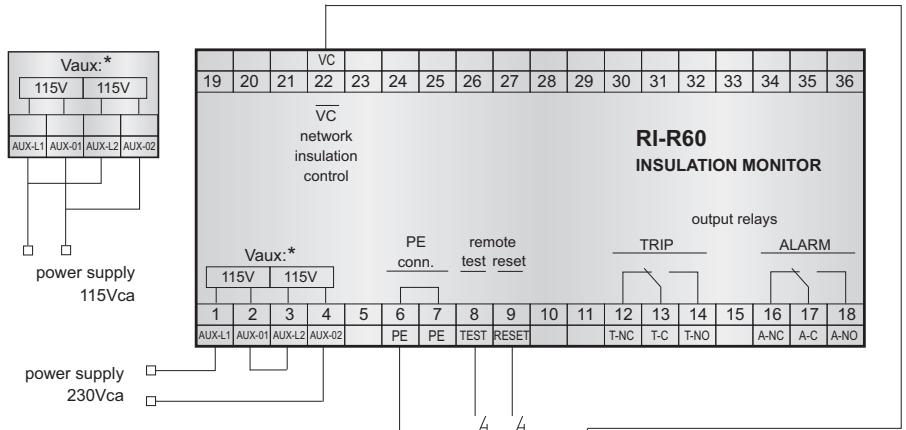
AUXILIARY POWER SUPPLY

Terminals 1-2-3-4

The supply section is a double input at 115V (100÷130V 50-60Hz).

To supply the instrument at 230V (220÷240V 50-60Hz) connect the two section in series.

To supply the instrument at 115V connect the two section in parallel.



INSULATION CONTROL

Terminals (6/7) -22

The two terminals must be connected between the line under control and the earth of measure reference. The double terminal 6/7 (connected internal) must be connected to the earth reference while the terminal 22 must be connected to the single-phase line to control or to the neutral conductor in a three-phase line. On this terminals is possible to connect voltage up to 760Vac. For this reason it's possible to use this device on single phase line up to 760V, on three-phase line at 3 wires without neutral up to 760V and on three-phase line at 4 wires with neutral up to 1100V.

ALARM RELAY OUTPUT CONNECTIONS (ALARM)

Terminals 16-17-18

Connections to remote signalling thanks to free voltage changeover contact, max 5A 250V on resistive load.

TRIP RELAY OUTPUT CONNECTIONS (TRIP)

Terminals 12-13-14

Connections to remote signalling thanks to free voltage changeover contact, max 5A 250V on resistive load.

REMOTE TEST CONNECTION

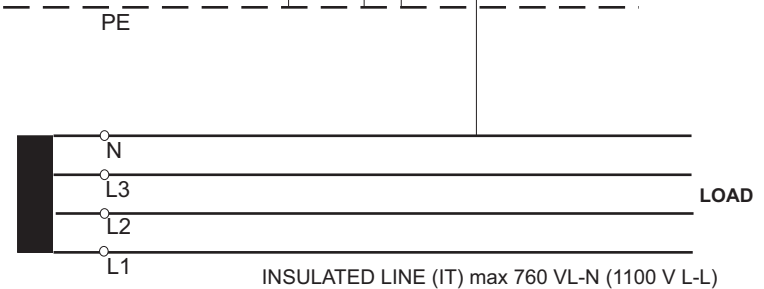
Terminal 8

It's possible to connect a remote push-button with a normally open contact between the control device and the earth reference.

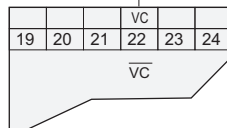
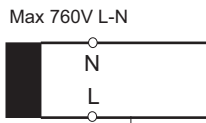
REMOTE RESET CONNECTION

Terminal 9

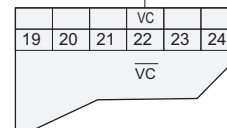
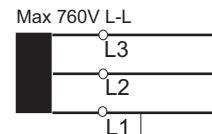
For the RESET function from external signal it's possible to connect a push-button with normally open contact on the connection between the control device and the earth reference.



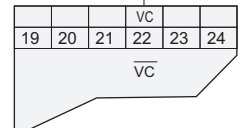
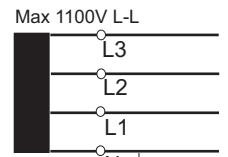
Single-phase line



Three phase line without neutral



Three phase line with neutral



WIRING CONNECTION LINE 1.000 Vca MAX - LEGEND

AUXILIARY POWER SUPPLY - TERMINALS 1-2-3-4

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INSULATION CONTROL - TERMINALS (6/7) -22

The two terminals must be connected between the line under control and the earth of measure reference.

The double terminal 6/7 (connected internal) must be connected to the earth reference while the terminal 22 must be connected to the ARI-R60 adapter

ALARM RELAY OUTPUT CONNECTIONS (ALARM) - TERMINALS 16-17-18

Connections to remote signalling thanks to free voltage changeover contact, max 5A 250V on resistive load.

TRIP RELAY OUTPUT CONNECTIONS (TRIP) - TERMINALS 12-13-14

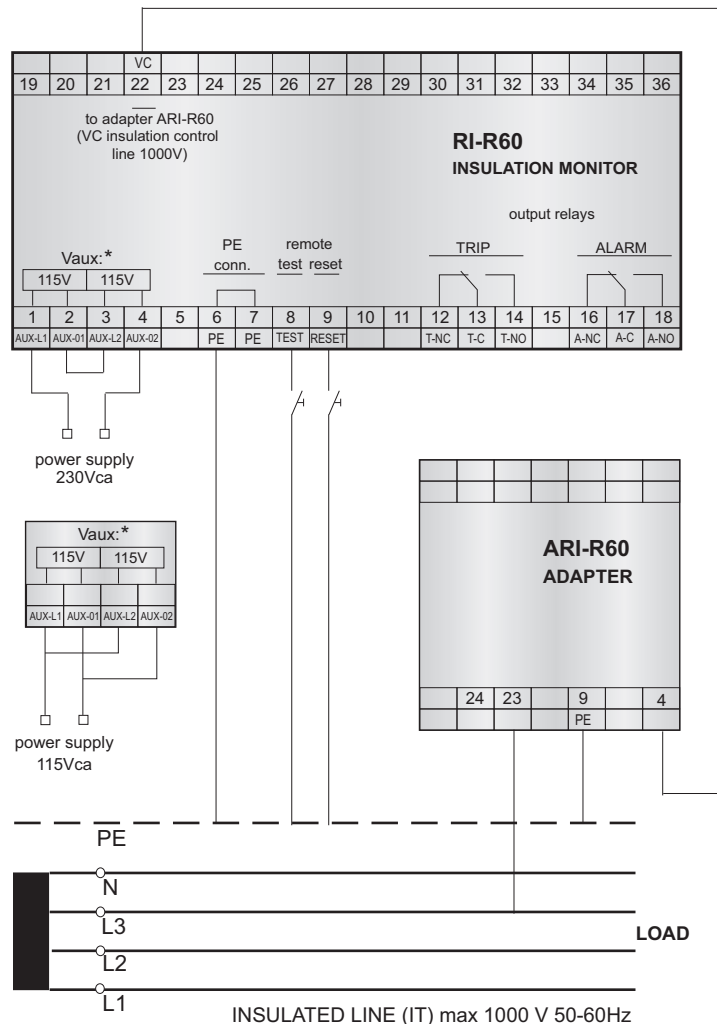
Connections to remote signalling thanks to free voltage changeover contact, max 5A 250V on resistive load.

REMOTE TEST CONNECTION - TERMINAL 8

It's possible to connect a remote push-button with a normally open contact between the control device and the earth reference.

REMOTE RESET CONNECTION - TERMINAL 9

For the RESET function from external signal it's possible to connect a push-button with normally open contact on the connection between the control device and the earth reference.



FUNZIONALITÀ

In normally condition with the insulation value upper than alarm and trip thresholds the green LED of the device is turned on and the status of the bar led depending of the insulation resistance level measured (with all led off the insulation value is upper than 500 kohm, with all LED on the measured LED lower than 5 kohm).

By pressing the TEST push-button at least 5 seconds (delay time) the alarm and trip signalling with relative LED will be activated, the output relays commute and the LED bar turn on (simulated value lower than 5 kohm).

NOTES - It's not possible to use more than one instrument on a line because the measure of the resistance could be not correct for the overlap of the signal.

The presence of strong continuous component on the network under control could create some problems for the correct functioning of the device.

Depending the set of the micro-switches the RESET can be automatic when the TEST push-button is released or manual with the local or remote RESET push-button.

In case of low insulation on the line (insulation resistance value lower than threshold set) the ALARM and possibly the TRIP signalling will be activated as the correspondent output relays. The Signalling will disappear only after that on the line come back an insulation level upper than the threshold set.