

INSTRUCTION MANUAL

ISL-C 600

INSULATION MONITORING DEVICE FOR ISOLATED IT (AC) NETWORKS

GENERAL

In IT electrical distribution networks with isolated neutral, the high insulation impedance prevents earth faults from generating currents that would dangerously elevate the potential of exposed conductive parts.

Therefore, in case of earth leakage in an IT network it is not necessary to interrupt the supply, but it is still essential to continually monitor the insulation level in order to detect faults and restore optimal functioning of the system.

The ISL-C 600 is an Insulation Monitoring Device for IT networks with voltages up to 760 Vac.

By putting a continuous component measure signal between the insulated line and earth, it's possible to control the insulation resistance by reading the dispersion current generated to earth.

These devices have two trip thresholds (ALARM and TRIP) adjustable using the front micro-switches to signal when the insulation falls below the threshold level.

The front LED signals the trip.

Two free voltage changeover contact relays allow the remote trip signalling. The relays can be programmed with the fail-safe (normally excited). The device is equipped on the front panel with a TEST and a RESET push-button.

The test can be activated either by the push-button on the device or an external push-button, while the reset, that can be set to manual or automatic, is activated, as is 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 a scale of 5-500 kΩ at 8 points.



MODEL

ISL-C600 network voltage and auxiliary supply 110-230V 50-60 Hz (100÷130 / 220÷240V ± 10%)

OPTIONS

Voltage of work different from standard (on request).

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.

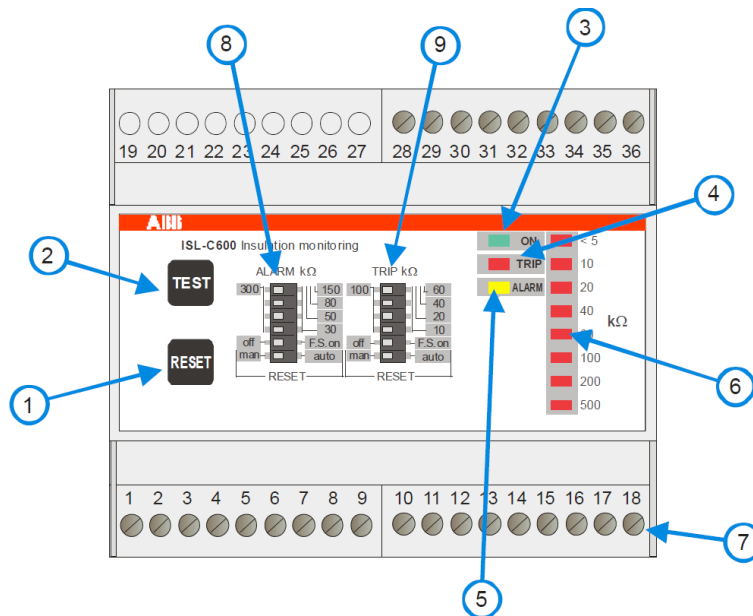
Make sure that the voltage supply is compatible with the operating voltage of the instrument.

The device is a 6 modules (17.5mm) DIN version with snap on 35mm DIN rail.

It has a sealable transparent front protection cover.

The green LED ON will light up after the connections are set and the instrument is powered on.

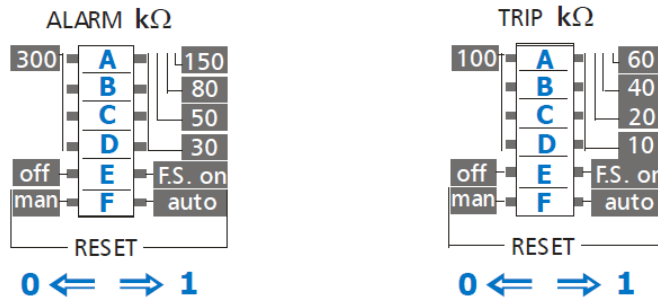
DESCRIPTION



1. **RESET push-button.** Only when it's set to manual reset functioning, this push-button is enabled.
2. **TEST push-button.** Pressing the TEST push-button causes the tripping of the ALARM and the TRIP, and the output relay to switch.
3. **LED ON** to signal the device is turned ON.
4. **LED TRIP** for the signal indicating overcoming the TRIP threshold.
5. **LED ALARM** for the signal indicating overcoming the ALARM threshold.
6. **LED bar** to indicate the measured insulation resistance level. With all LEDs on, the insulation level is lower than 5 kΩ; with all LEDs off, the insulation level is higher than 500 kΩ.
7. **Terminals board**
8. **Micro-switches** to set the alarm threshold.
9. **Micro-switches** to set the trip threshold.

MICRO-SWITCHES SETTING

The front micro-switches allow the setting of the insulation level tripping thresholds, the insertion of the fail-safe function and the reset mode for the alarm and trip thresholds.



Micro- switches A,B,C,D to set the tripping thresholds:

ALLARM	TRIP
300 kΩ : A=0, B=0, C=0, D=0	100 kΩ : A=0, B=0, C=0, D=0
150 kΩ : A=1, B=0, C=0, D=0	60 kΩ : A=1, B=0, C=0, D=0
80 kΩ: A=1, B=1, C=0, D=0	40 kΩ : A=1, B=1, C=0, D=0
50 kΩ: A=1, B=1, C=1, D=0	20 kΩ: A=1, B=1, C=1, D=0
30 kΩ: A=1, B=1, C=1, D=1	10 kΩ: A=1, B=1, C=1, D=1

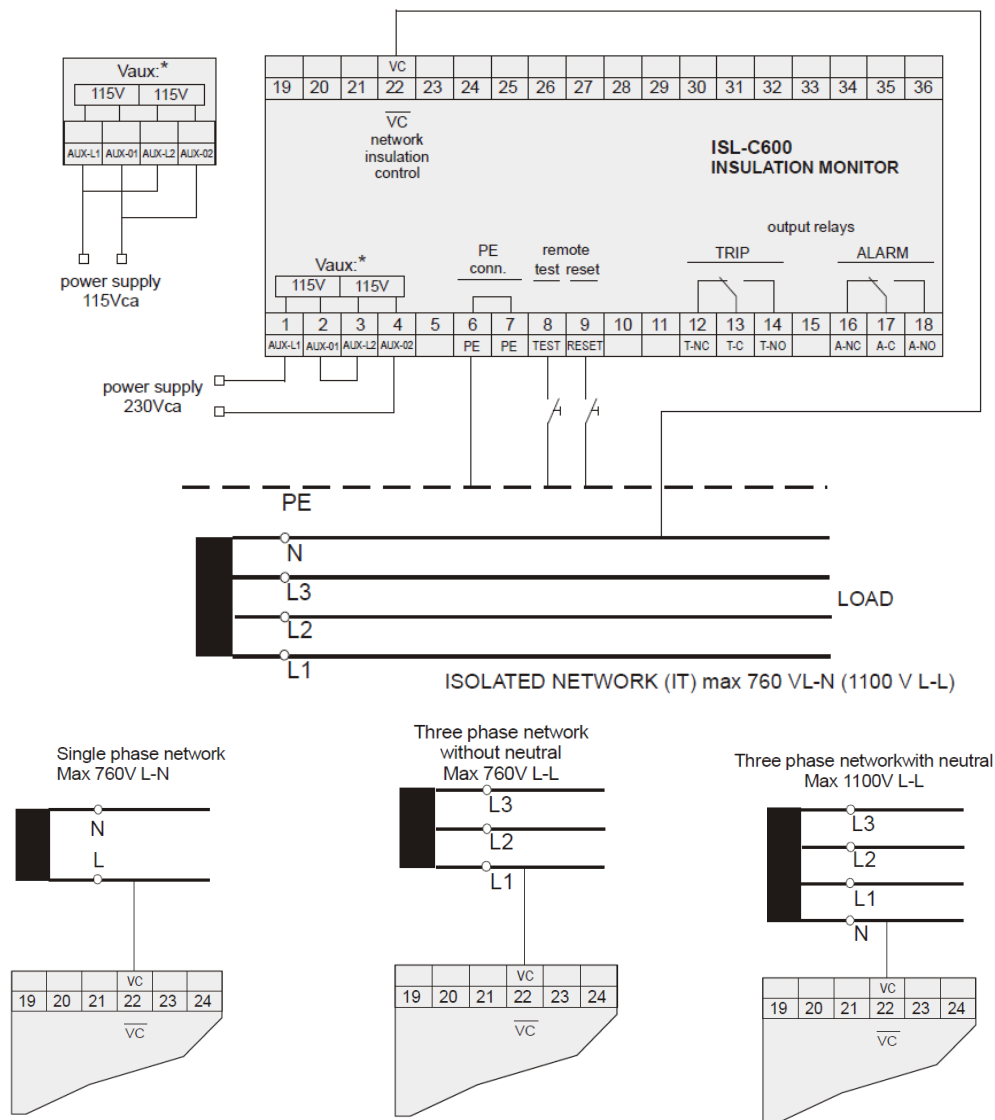
Micro-switch E to set the FAIL SAFE mode

E=0	Fail safe function disabled
E=1	Fail safe function enabled

Micro-switch F to set the RESET mode

F=0	Manual reset
F=1	Automatic reset

WIRING CONNECTION



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 sections in series. To supply the instrument at 115V connect the two sections 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. In a three wire three phase network, the terminal 22 must be connected to one phase.

With these terminals, it is possible to connect voltage up to 760Vac. For this reason, it's possible to use this device on a single-phase line up to 760V, on a three-phase line with 3 wires without neutral up to 760V, and on a three-phase line with 4 wires with neutral up to 1100V.

Alarm relay output connections (ALARM)

Terminals 16-17-18

Connections for remote signalling are made through a free voltage changeover contact, max 5A 250V on resistive load.

Trip relay output connections (TRIP)

Terminals 12-13-14

Connections for remote signalling are made through a free voltage changeover contact, max 5A 250V on resistive load.

Remote TEST connection

Terminal 8

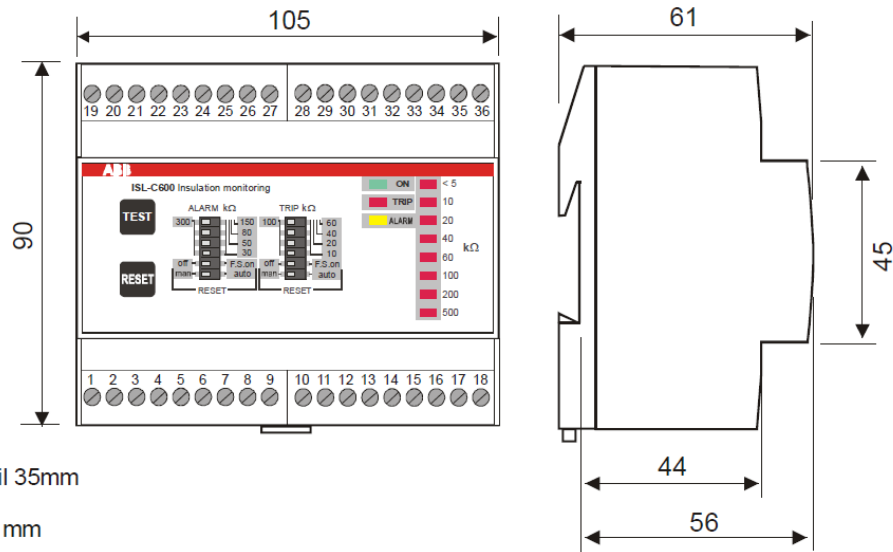
It's possible to connect a remote push-button with a normally open contact between the control device and the earth reference.

Remote RESET connection

Terminal 9

For the RESET function from an external signal, a push-button with a normally open contact can be connected between the control device and the earth reference.

DIMENSIONS



FUNCTIONALITY

In normal conditions, when the insulation value is higher than the alarm and trip thresholds, the device's green LED turns on, along with the LED bar which displays the measured insulation resistance level (all LEDs off indicates an insulation value higher than 500 kΩ, while all LEDs on indicate a value lower than 5 kΩ).

By pressing the TEST push-button for at least 5 seconds (delay time), the alarm and trip signals along with their respective LEDs will be activated, the output relays will engage, and the LED bar will turn on (indicating a simulated value lower than 5 kΩ).

Depending on the micro-switches setting, the RESET function can be automatic when the TEST push-button is released, or it can be manually activated using the local or remote RESET push-button.

In the case of low insulation on the line (insulation resistance value lower than the set threshold), the ALARM and possibly the TRIP signals will be activated, as well as the corresponding output relays.

The signals will only disappear after the insulation level rises above the set threshold again.

NOTE

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.

TECNICAL FEATURES

Auxiliary power supply	110-230Vac (100÷130V / 220÷240V +-10%) 50-60Hz
Maximum consumption	max 5 VA
Network to control	50-760Vac (1100V on three-phase line with neutral)
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 5-500 kΩ
Setting threshold tripping ALARM	300 ÷ 30 kΩ (5 levels settings via micro-switches)
Setting threshold tripping TRIP	100 ÷ 10 kΩ (5 levels settings via micro-switches)
Relay output	ALARM: changeover contact NA-C-NC TRIP: changeover contact NA-C-NC
Relay contacts	5 A 250Vac .
Functions	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	By screw terminals – wire section max 2.5 mm ²
Protection degree	IP 40 front cover - IP 20 case
Mounting according DIN 50022	Connection snap on DIN rail 35mm / 6 modules of 17,5 mm
Weight	0,5 kg
Standards	Safety IEC-EN 61010-1 / Product IEC-EN 61557-8 / Electromagnetic compatibility IEC-EN 61326-1 EN 61326-2-4

For application not described in this manual it's better to see specific document or to contact the technical service.

NOTE

At reason of the evolution of standards and products, the company reserves to modify in every time the features of the product described in this document, that it's necessary to verify preventively. The liability of the producer for damage caused by defect of the product "can be reduced or deleted (...) when the damage is caused joint by a defect of product or for blame of the damaged or a person of which the damaged is responsible" (Article 8, 85/374/CEE).