HRI-R40

MEDICAL INSULATION MONITORING DEVICE

General Characteristics

FUNCTIONING PRINCIPLE

Insulation resistance is measured by applying a direct current signal between insulated line and earth and determining the dispersion current generated. Effective measurement is granted thanks to a digital filter integrated in the device even if interferences and harmonic components occur.

PROGRAMMING

Through its LCD display and four selection keys, the device offers easy programming possibilities by setting intervention thresholds without making any mistakes.

COMPLETE MONITORING OF ALL ELECTRICAL PARAMETERS

HRI-R40 tests the thermal and electrical overload of the medical insulation transformer, managing two temperature thresholds coming from both PT100 and PTC probes. By controlling temperature, the overload of the transformer can be monitored and the automatic circuit-breaker downstream of the secondary can be avoided.
All faulty conditions are remotely controlled thanks to PR-5 remote signalling panels, granting a proper prompt technical supervision.

SELF-TESTING SYSTEM

Error-Link Fail system checks device proper functioning and controls wiring presence and properness at the end of the terminal blocks: it prevents the possibility to operate in group 2 medical locations when the insulation monitoring device is disconnected.

FOR HIGHER SAFETY

Thanks to a codified signal, the **HRI-R40** IT networks insulation monitoring device grants absolute reliability of measurement in any operational condition, even if high network interferences occur. Furthermore it is fitted with a RS485 serial port through which it can be perfectly integrated with communication systems such as PLC/PC by using ModbusRTU protocol. The measurement of network maximum and minimum values enables a wider monitoring and an easier plant checking in case of any fault. Finally, the programmable output relay allows to manage any warning condition signalled in a dedicated way.

Features

QUALITY	THE RECOGNIZED STANDARD IN HOSPITAL INSULATION CONTROL
SPECIALIZATION	PROPERLY DESIGNED FOR HOSPITALS
COMPLETENESS	ALL ELECTRICAL AND THERMAL PARAMETERS CONTROLLED BY A SINGLE DEVICE
FLEXIBILITY	ADJUSTABLE INTERVENTION THRESHOLDS ACCORDING TO ALL THE PARAMETERS MONITORED ALARMS SENT UP TO 4 MEDICAL LOCATIONS ATTENDED BY MEDICAL AND HEALTHY STAFF, THANKS TO REMOTE SIGNALLING PANELS
STRENGTH	HIGH RESISTANCE TO NETWORK INTERFERENCES
INTEGRATION	ABLE TO INTERACT WITH SUPERVISING SYSTEMS THROUGH MODBUS RTU PROTOCOL VIA RS485 SERIAL PORT
RELIABILITY	SAFE MONITORING UNDER ANY OPERATIONAL CONDITION, THANKS TO THE CODIFIED SIGNAL

HRI-R40 measures the insulation to earth in IT-M network and the thermal and electrical overload of the insulation transformer, in accordance with the international standards: EN 61557-8, IEC EN 64-8/7-710 and UNE 20615.

ORDER CODE	VERSION	Vaux	DESCRIPTION	CONTROLLED NETWORK VOLTAGE	MODULES
HRI-R40	TRIP threshold setting, 2 temperature sensors, digit display, output relay	110-230 VAC	-	24-230 VAC	6
HRI-R40-485	TRIP threshold setting, 2 temperature sensors, digit display, output relay, RS485 serial interface	110-230 VAC	-	24-230 VAC	6
HRI-R40W-485	TRIP threshold setting, 2 temperature sensors, digit display, output relay, RS485 serial interface	110-230 VAC	(*)	24-230 VAC	6

(*) Use a direct-current component control signal in order to reduce the problems generated by the presence of direct current components in the line. The device is fitted with a digital filter capable to identify the direct current component present in the line.

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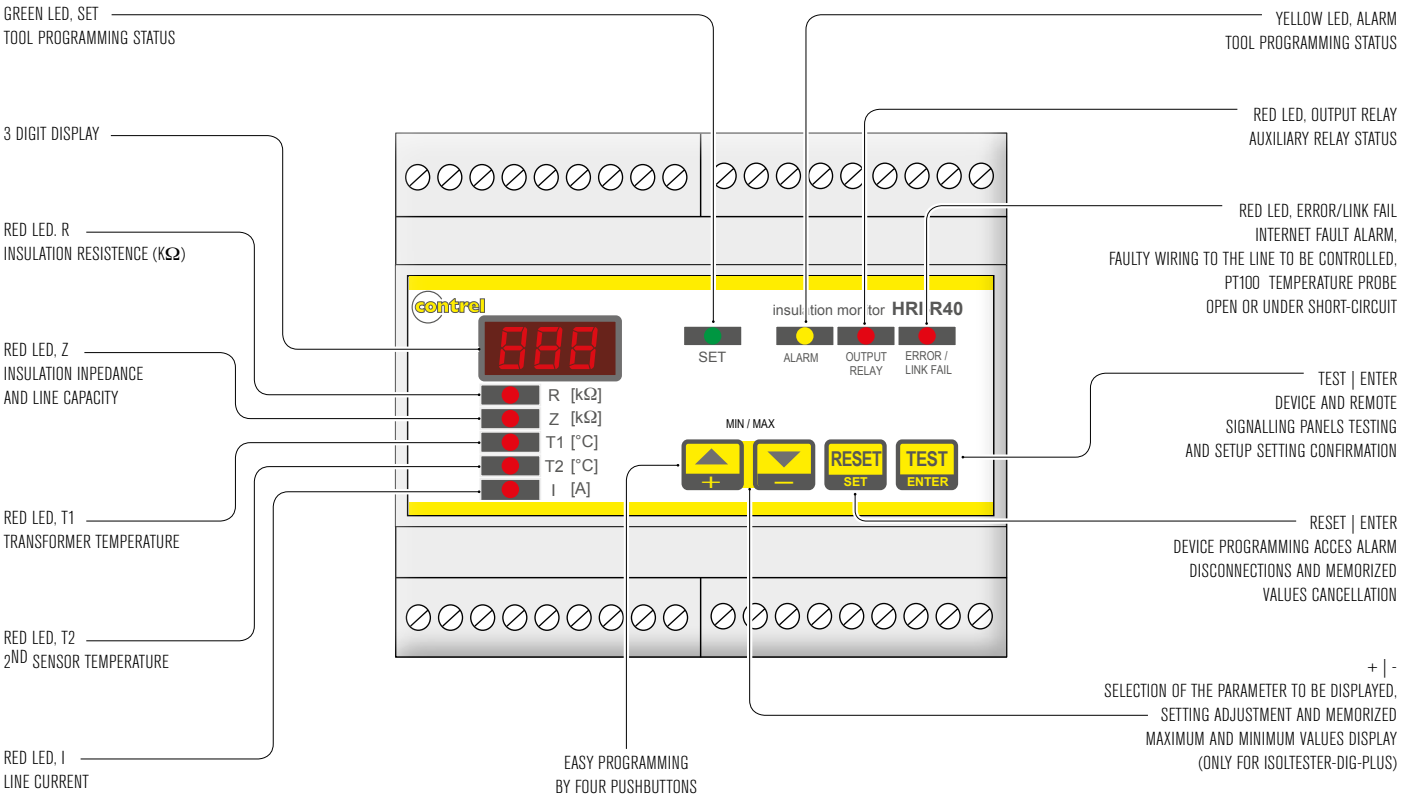
Frontal operators functioing

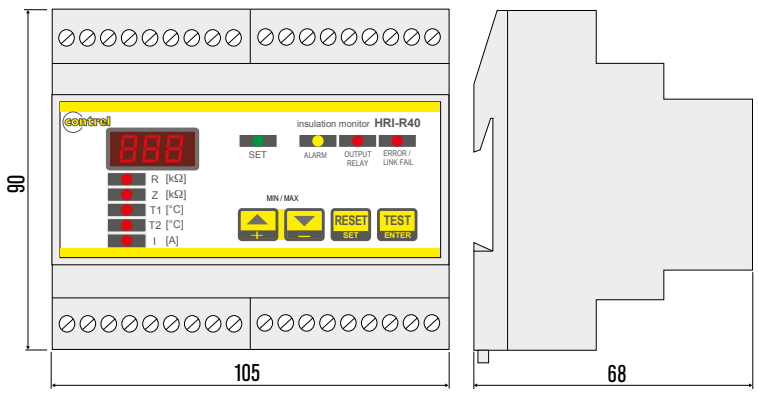


Wherever it is necessary to guarantee safety and operational continuity andprevent power supply interruptions, such as hospitals and other medical locations, insulation transformers and devices detecting and signalling any first fault to earth have to be used. Risks arising from the use of a traditional insulation monitor:

- **IMPOSSIBILITY TO DISTINGUISH BETWEEN INTERFERENCE AND REAL FAULT**
- **CARELESSNESS OF THE MEDICAL STAFF**
- **UNJUSTIFIED INTERVENTION OF SPECIALIZED TECHNICAL STAFF**

HRI-R40 is the device for insulation monitoring in IT-M networks. It ensures absolute reliability of measurement by means of a codified signal able to detect interferences generated by common equipment in operating theatres and avoid unwanted alarms signalling.

Mechanical dimensions (mm)



HRI-R40

MEDICAL INSULATION MONITORING DEVICE

Technical characteristics

Supply voltage	110 - 230 V/50-60 Hz
Network voltage to be controlled	24 ÷ 230 VAC
Maximum voltage measurement	24 V
Maximum current measurement	1 mA
Insulation voltage	2,5 kV/60 seconds
Control signal type	Continuous component with digital filter
Measures	Insulation measurement range 0÷999 kΩ/HIGH – resolution 1 kΩ
	Temperature measurement by Rd PT100 or 2/3-wire thermal-probe – 0÷250°C, accuracy 2%
	Impedance measurement 0÷999 kΩ/HIGH Resolution 1 kΩ (test signal 2500 Hz)
Intervention threshold	Low insulation 50÷500 kΩ, accuracy 5%, hysteresis 5%, settable delay
	Overtemperature 0 ÷ 200°C, accuracy 2%
	Current overload 1 ÷ 999 A, accuracy 2%
	Low impedance (deactivable)
	Device not connected to the line (Error/Link-Fail)
Available outputs	Up to maximum 4 PR-5 panels for remote signalling
	Programmable auxiliary relay output NA-C-NC, 5A, 250 VAC
	RS 485 serial output, standard ModbusRTU protocol

Displays	Insulation resistance value signalling over full scale and fault to earth
	Measured temperature value 0 ÷ 200°C for channel 1
	Measured temperature value 0 ÷ 200°C for channel 2
	Measured current value 0 ÷ 999 A
	Insulation impedance value
	Setting parameters
	Device failing connection to the line (Error/Link-Fail)
	Relay output status
	Line-to-earth capacity value
	Minimum insulation and maximum temperature and current values
Connections	Maximum linkable section 2,5 mm2
Operating temperature	-10...60 °C
Storage temperature	-25...70 °C, humidity < 90%
Overall dimensions	6 DIN modules
Weight	0,5 kg
Housing	Self-extinguishing plastic case to be assembled on 35 mm DIN rail, with transparent lead-sealable protective front cover
Degree of protection	IP20
Self-consumption	5 VA
Reference standards	IEC EN 60364-7-710, IEC EN 61557-8, EN 60255-6, UNE 20615

Wiring diagrams