# IT-DIN

Insulation monitoring device of IT system up to 440 VAC

**WARNING!**

- Carefully read the manual before the installation or use.
- This device is to be installed by qualified personnel, complying to current standards, to avoid damages.
- Before any maintenance operation on the device, remove supply inputs.
- The manufacturer cannot be held responsible for electrical safety in case of improper use of the equipment.
- Products illustrated herein are subject to alteration and changes without prior notice.

## Introduction

The IT-DIN is a device that allows the insulation monitoring to earth up to 440 Vac of networks (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 IT-DIN could be provided with a RS-485 interface with Modbus RTU protocol to consent the integration in supervision systems.

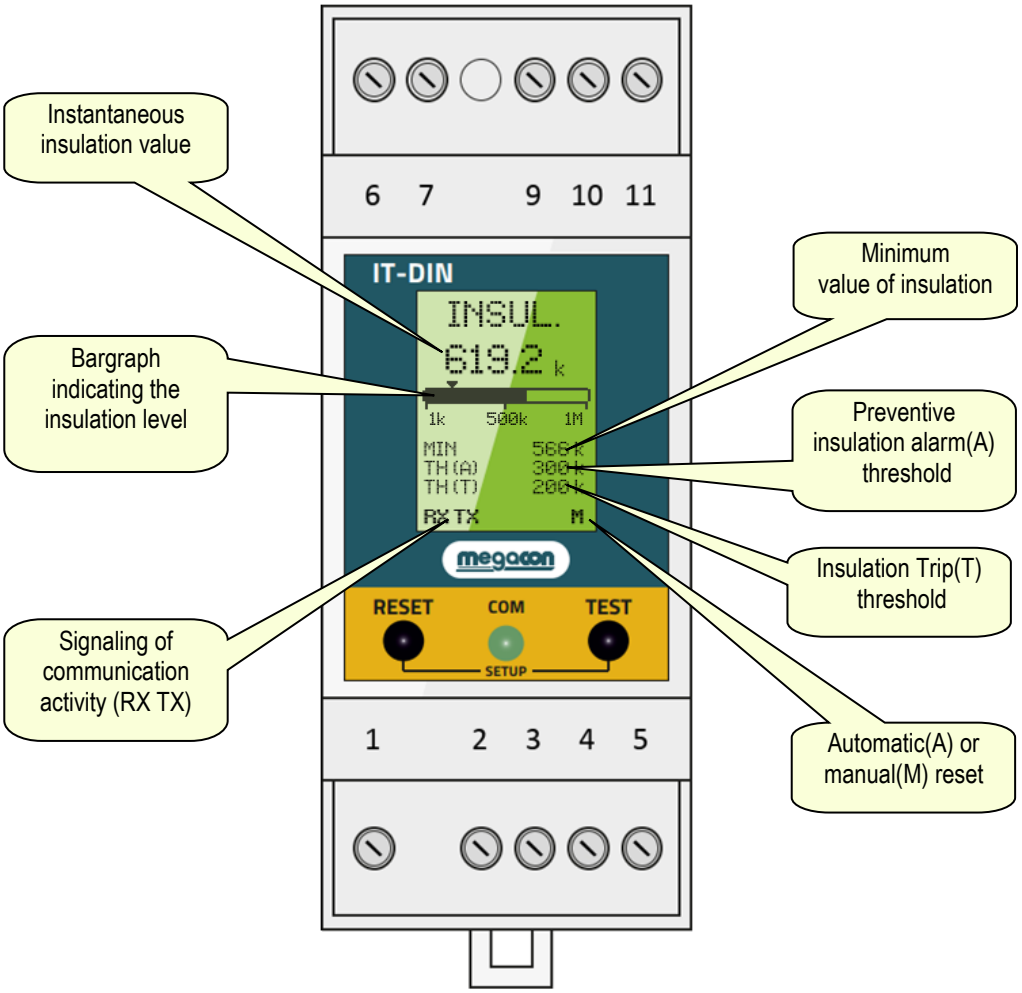
## Description

- Modular DIN-rail housing, 2 modules
- Insulation monitoring of IT system up to 440 VAC (up to 1000 VAC with ARI-R100 accessory)
- 1 green LED indicator for communication
- LCD display (change color according to the plant status: Green=Regular, Yellow=Preventive alarm, Red=TRIP)
- Configurable automatic or manual reset
- TEST pushbutton
- TRIP threshold setting
- Memory of the minimum absolute isolation value
- Output relay (TRIP)
- Built-in RS485 interface (Modbus RTU)

## Keyboard functions

**RESET** key – Used to select the possible choices presented on the display, to modify settings (increase / decrease) and to reset the relay after tripping.
**TEST** key – Used to confirm a choice made and to cause tripping of the relay.
**RESET** e **TEST** keys – Used to enter the setup menu.

## Display indications



## Parameters table

Below are listed all the programming parameters. For each parameter are indicated the possible setting range, the factory default, as well as a description of the function of the parameter.

| INSULATION | | Unit of measure | Default | Range |
|---|---|---|---|---|
| 1 | TRIP | kΩ | 100 | 1-999 |
| 2 | TRIP-R | kΩ | 110 | 1-999 |
| 3 | ALR | kΩ | 200 | 1-999 |
| 4 | ALR-R | kΩ | 220 | 1-999 |
| 5 | DELAY | s | 0 | 0-100000 |
| 6 | RESET | - | MAN | MAN-AUTO |
| 7 | FAILSAFE | - | OFF | OFF-ON |
| 8 | OUT RANGE | - | OFF | OFF-ON |

**1)** Tripping threshold value
**2)** Threshold value of return from TRIP condition
**3)** Alarm threshold value
**4)** Threshold value of return from alarm condition
**5)** Tripping delay time.
**6)** Automatic reset or manual reset through RESET key
**7)** If set to ON, positive safety activated on TRIP relay
**8)** If set to ON, visual indication (yellow LCD flashing) when the insulation value is above the operating limit

| COMMUNICATION OPTIONAL | | Unit of measure | Default | Range |
|---|---|---|---|---|
| 1 | NODE | - | 1 | 1-247 |
| 2 | BAUDRATE | bps | 38400 | 4800-115200 |
| 3 | STOP BIT | - | 1 | 1-2 |
| 4 | FORMAT | - | 8 bit - n | 8 bit, none / 8 bit, odd / 8 bit, even |
| 5 | MIN TX | ms | 10 | 0-100 |

**1)** Serial address (node number) for the communication protocol
**2)** Serial communication speed
**3)** Number of stop bits
**4)** Data format
**5)** Defines the response time delay

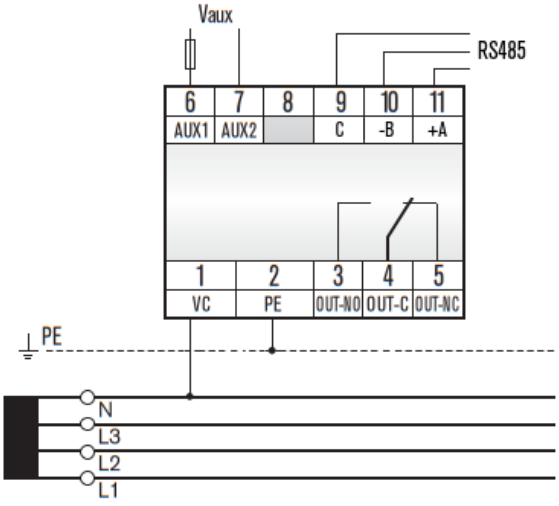
| UTILITY | | Unit of measure | Default | Range |
|---|---|---|---|---|
| 1 | LANGUAGE | - | English | English<br>Italian |

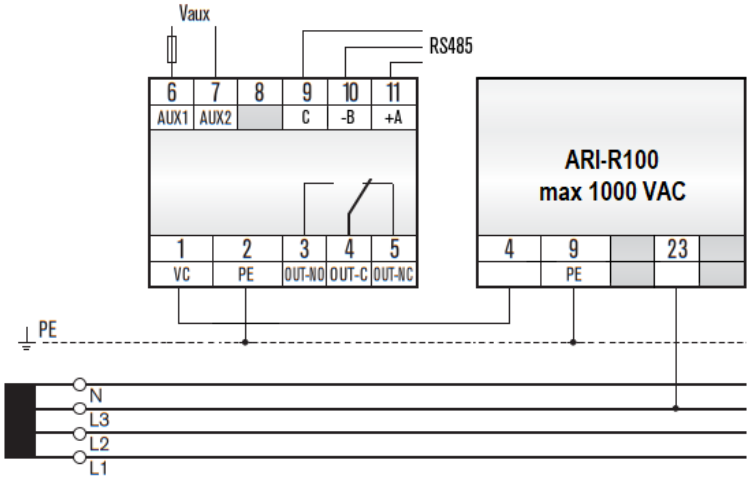
| PASSWORD | | Unit of measure | Default | Range |
|---|---|---|---|---|
| 1 | VALUE | - | 0 | 0-9999 |

**1)** If set to 0, password management is disabled and the access to setup parameters is allowed

| RESET | | |
|---|---|---|
| 1 | DEFAULT | All setup parameters are resetted to factory default value |
| 2 | MIN-ISO | Reset the absolute minimum insulation value |

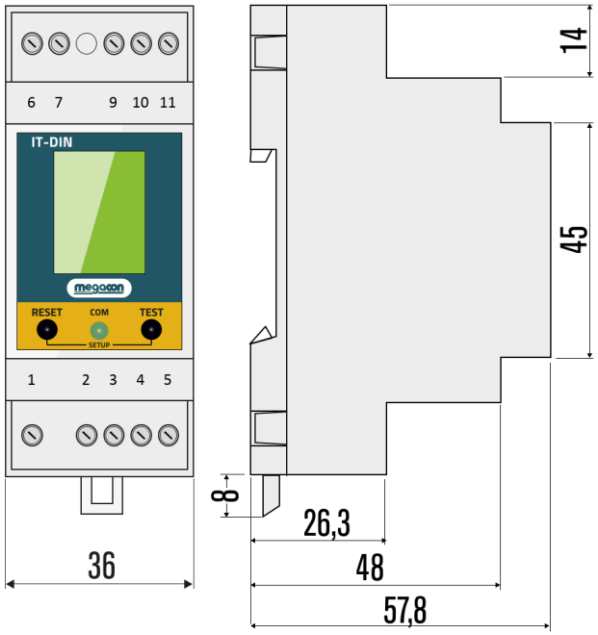
## Wiring diagrams




*Wiring connection with ARI-R100 accessory (max 1000 VAC)*

## Mechanical dimensions (mm)




## Technical characteristics

| | |
|---|---|
| **Auxiliary supply** | |
| Rated voltage | 230 Vac<br>115 Vac (optional)<br>18÷48 Vac 20÷60 Vdc (optional) |
| Frequency | 50 – 60 Hz |
| Power consumption | 2VA |
| **Controlled network** | |
| Controlled network voltage | 440 VAC / 1000 VAC (with ARI-R100 accessory) |
| Max measuring current | 0,015 mA |
| Max measuring voltage | 13 VDC |
| Internal impedance | 350 kΩ |
| **Output relays** | |
| Number of outputs | 1 |
| Type of output | 1 changeover contact |
| Rated operating voltage | 250 Vac |
| Rated current | 5A |
| Mechanical file | $20x10^6$ ops |
| **RS485 Serial interface (optional)** | |
| Serial node address | 1-247 |
| Baud-rate | Programmable 4800 – 115200 bps |
| Data format | 8 bit,no parity - 8 bit,odd - 8 bit,even |
| Stop bits | 1-2 |
| Protocol | Modbus RTU |
| **Insulation** | |
| Insulation voltage | 2.5kV for 1 minute |
| **Housing** | |
| Mouting | 2 modules DIN |
| Protection degree | IP40 on front \| IP20 terminals |
| Weight | 200g |
| **Ambient conditions** | |
| Operating temperature | -10…+60 °C |
| Storage temperature | -20…+80 °C |
| Relative humidity | 5…90% |
| **Compliance** | |
| Reference standards | EN 61010-1, EN 61557-8, EN 61326-1 |

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