



## **ISO-HUB DC**

Earth leakage relay Type B

## 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.

## Description

- **Type B** Earth leakage relay
- Measuring in true effective value (TRMS)
- Third harmonic filtering
- Modular DIN-rail housing, 3 modules
- External residual current transformer **CTB-2** series
- Visualization instant leakage values, AC component value and DC component value
- Backlighted LCD display (white, yellow, red)
- Green power LED indicator (ON)
- Red alarm LED indicator (ALARM)
- Yellow data communication LED indicator (DATA)
- TEST and RESET by front button or remote contact
- 2 output relays
- Fail safe function for each relays (settable)
- Log tripped residual current
- RS-485 communication

## Display and LED functions

Thanks to LCD display, the user can view very quickly the measurements (instant leakage values, AC and DC components, filter TRMS, MAX values, THD, harmonics), the Log trip events and can access to all settings.

- White: detected current lower than threshold
- Yellow: detected current higher than WARNING threshold but lower than ALARM threshold
- Red:
  - detected current higher than ALARM threshold and relay activation
  - current leakage read off scale
  - TEST, causes tripping of the relay
  - open residual current transformer circuit (or not right connected)

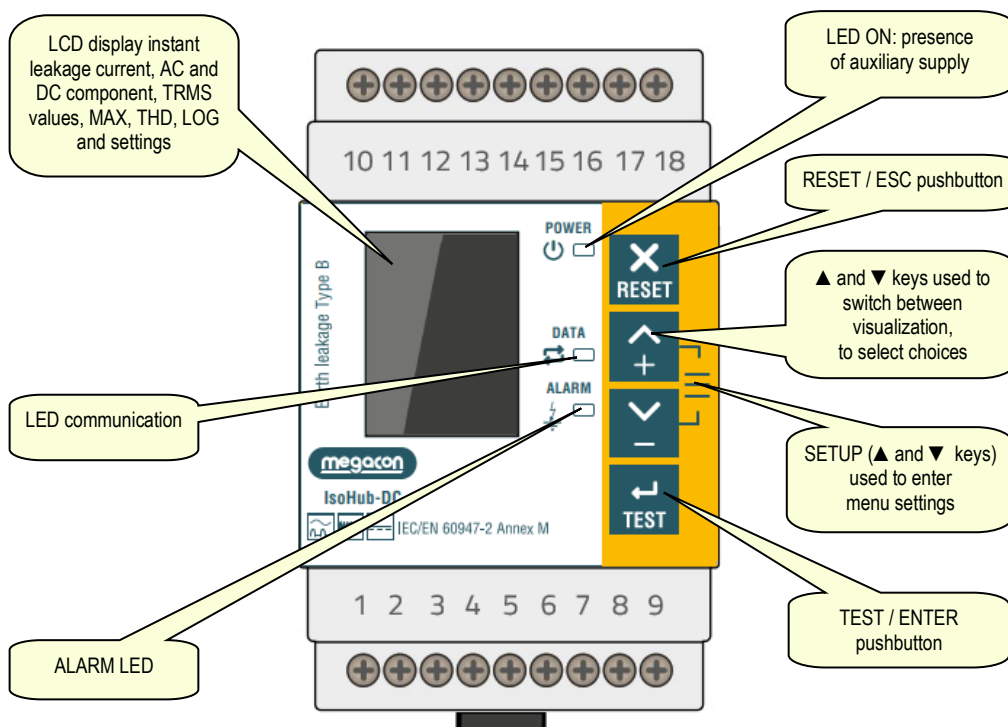
## Front keyboard

**RESET/ESC** key – To reset the relay after tripping, used to exit from settings menu.

**TEST/ENTER** key – Causes tripping of the relays, to confirm a choice.

**SETUP** keys – Used to enter into settings menu.

**▲** and **▼** keys – Used to switch between visualization modes, to select among possible choices and to modify settings (increment/decrement).

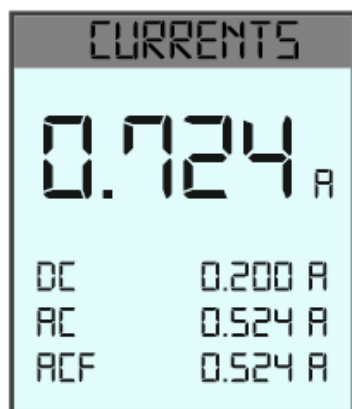


## Display indications

Correct display  
(White LCD)

Warning display  
(Yellow LCD)

Alarm display  
(Red LCD)



Cause of the alarm		Display message
Test		Red display / ALARM LED
Current leakage		Red display / ALARM LED
Others display messages		
Alarm		Yellow display
Current leakage over scale		OVR / Red display
Poor toroidal connection		OPEN / Red display

## 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.

Press ▲ and ▼ keys to select the required parameter. The selected parameter is highlighted with ►. Press TEST key to activated the selected parameter.

## Menu

MEASURE	Unit of measure	Default	Range
Frequency	-	50Hz	50-60Hz
AVG level	-	Medium	NO Low Medium High
Coupling	-	NO	YES-NO

**AVG level** - Selection of average reading calculation method. Allows showing measurements with slow variations.

**Coupling** - For better reading accuracy of the DC components, it's recommended to open the monitored lines and start the above procedure.

UTILITY	Unit of measure	Default	Range
Language	-	ENG	ENG SWE
TRIP memory	-	NO	YES-NO
LCD standby	min	NO	NO-15min

**TRIP memory** - If set YES, the TRIP condition reappears when turned on, if the device was turned off without TRIP reset.

COMMAND	Description
Parameters to default	All setup parameters are resetted to factory default value
Reset MAX & LOG	Clears the event list and max values
Reset MAX	Clears the max values
Reset LOG	Clears the event list

The commands menu allows executing some occasional operations like resetting, log events clearing. Once the required command has been selected, press TEST to execute it. To cancel the command execution press RESET key.

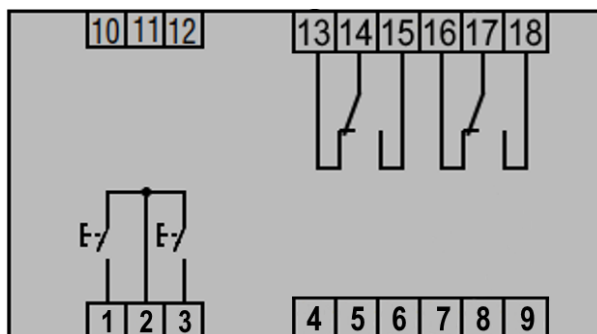
## PASSWORD menu

The password is used to enable or lock to setting menu and command menu (RESET). For new devices (factory default), the password management is disabled and the access is free. If instead the password has been enabled and defined (0-9999), then to get access, it's necessary to enter the password first, specifying the number code.

PASSWORD	Unit of measure	Default	Range
Value	-	0	0-9999

If set to 0, password management is disabled.

## Terminals connection



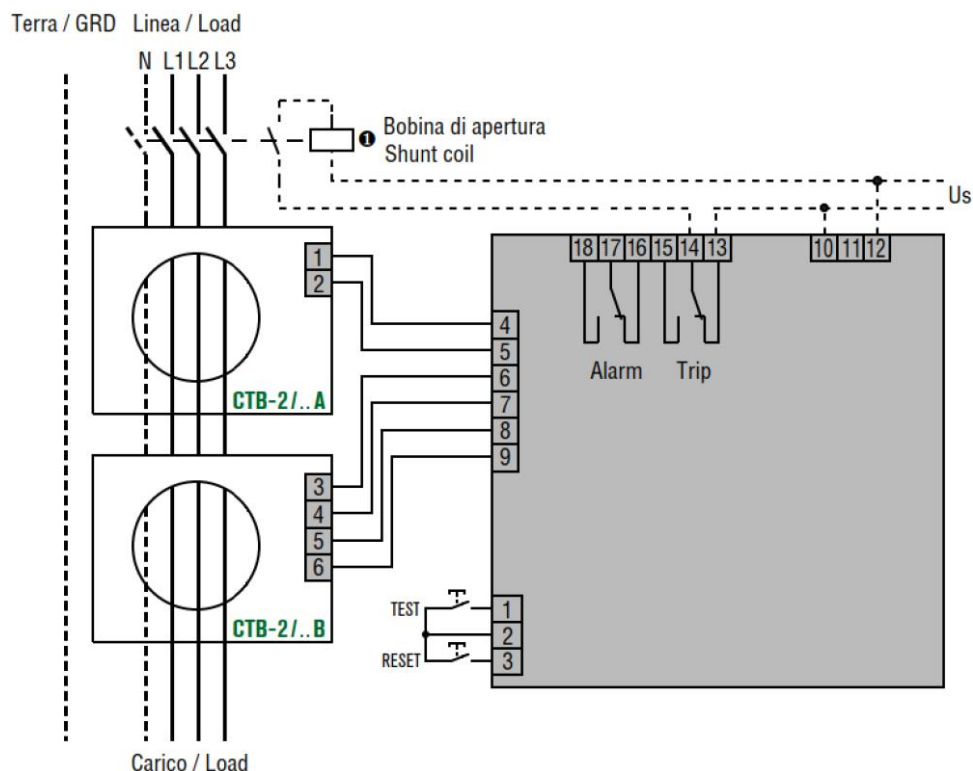
N°	Description
1	External TEST
2	Digital input (COMMON)
3	External RESET
4...9	Inputs toroidal current transformer
10	Auxiliary supply (neutral or phase)
11	Not used
12	Auxiliary supply (neutral or phase)
13	Output relay TRIP (NC)
14	Output relay TRIP (COMMON)
15	Output relay TRIP (NO)
16	Output relay ALARM (NC)
17	Output relay ALARM (COMMON)
18	Output relay ALARM (NO)

## Toroidal current transformer type according to current

Current	Toroidal trasformer
30mA	CTB-2/22A, CTB-2/22B, CTB-2/35, CTB-2/60
>= 100mA	CTB-2/80, CTB-2/110
>= 500mA	CTB-2/160, CTB-2/210, CTB-2/300

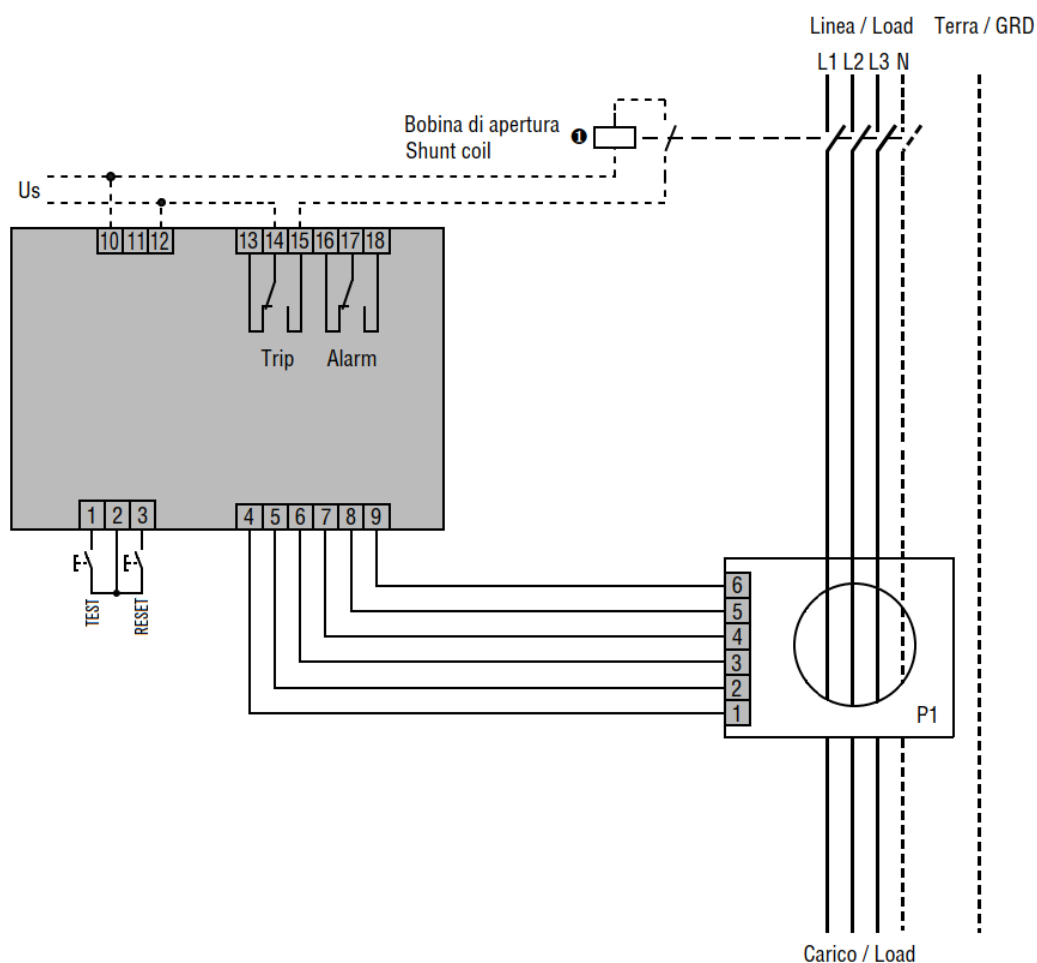
## Wiring diagrams example with:

Type	Code	Useful section
CTB-2/22A	601101	Ø 22 mm
CTB-2/22B	601102	Ø 22 mm



## Wiring diagrams example with:

Type	Code	Useful section
CTB-2/35	601103	Ø 35 mm
CTB-2/60	601104	Ø 60 mm
CTB-2/80	601105	Ø 80 mm
CTB-2/110	601106	Ø 110 mm
CTB-2/160	601107	Ø 160 mm
CTB-2/210	601108	Ø 210 mm
CTB-2/300	601109	Ø 300 mm



- ❶ The coil connection can vary depending on the connected type of device (contactor, breaker with shunt trip release or breaker with undervoltage trip release).

### RS485 connection

The RS-485 slave port enables you to integrate the ISO-Hub DC into a serial bus topology with ISO-Base, ISO-Hub, and ISO-Out devices. For this backbone configuration, employ a shielded communication cable such as Belden 9841 and utilize the 3-pin connector on the ISO-Hub DC's RS-485 port.

### Cable type

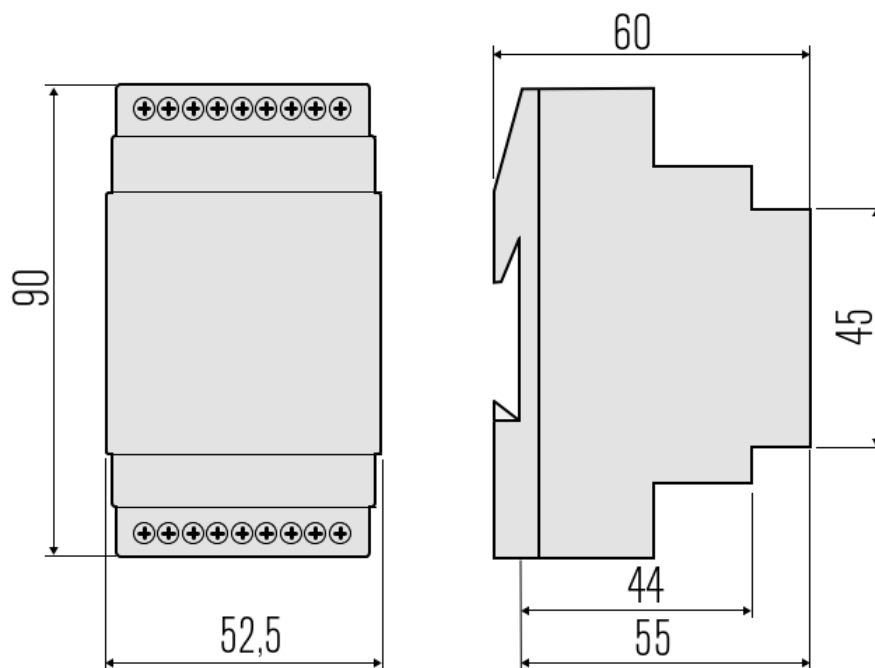
#### Recommended cable types:

Belden 9841 (or equivalent)

#### Maximum cable length :

1200m at a Baud rate of 38.4k

## Mechanical dimensions (mm)



## Front panel adapter accessory



The 72x72mm front adapter accessory is used to install the device on a panel. All connections must remain inside the electrical board. The front adapter accessory has a frame, two tabs and three screws.

## Order code:

Type	Code	Aux. supply
ISO-Hub DC	670429	85÷250 VAC   120÷250 VDC
	670428	24÷48 VAC/DC
	670430	110 VDC

Type	Code	Useful section
CTB-2/22A	601101	Ø 22 mm
CTB-2/22B	601102	Ø 22 mm
CTB-2/35	601103	Ø 35 mm
CTB-2/60	601104	Ø 60 mm
CTB-2/80	601105	Ø 80 mm
CTB-2/110	601106	Ø 110 mm
CTB-2/160	601107	Ø 160 mm
CTB-2/210	601108	Ø 210 mm
CTB-2/300	601109	Ø 300 mm

## Technical characteristics

<b>Control circuit</b>	
Toroidal transformer	External, CTB-2 series
Tripping type	Type B
Tripping set-point ( $I_{\Delta}$ )	0,03÷10A
Tripping time (t)	0,02÷10s
Resetting	Manual by pushbutton on front or remote
<b>Auxiliary supply</b>	
Auxiliary voltage	85÷250 VAC   120÷250 VDC 110 VDC (optional) 24÷48 VAC/DC (optional)
Rated frequency	50/60Hz
Max power consumption	4VA
<b>Output relay</b>	
Number of outputs	2
State	Configurable normally de-energised or energised
Rated operating voltage	250 VAC
Rated current	5A
Mechanical life	10 · 10 <sup>6</sup> cycles
<b>Digital inputs</b>	
Number of inputs	2 (TEST and RESET)
Input type	Free contact
<b>Display</b>	
Type	LCD
<b>RS485 serial interface (optional)</b>	
Protocol	Modbus-RTU
Baud-rate	Programmable 4800 – 115200 bps
<b>Connections</b>	
Type of terminal	Screw (fixed)
Number of terminals	18
Conductor cross section	0,127 - 2,082 mm <sup>2</sup>
Tightening torque	0.5 - 0.6 Nm
Length of cable to strip	7mm
<b>Ambient operating conditions</b>	
Operating temperature	-10÷60°C
Storage temperature	-20÷80°C
Relative humidity	5÷95%
<b>Housing</b>	
Version	3 module DIN
Degree of protection	IP20 terminals IP40 on front
Weight	200g
<b>Certifications and compliance</b>	
Reference standards	2014/35/UE,2014/30/UE,2015/863/UE EN 61326-1:2013-01 EN 61326-2-1:2013-01 EN 61326-2-2:2013-01 EN 61326-2-3:2013-01 EN 61326-2-4:2013-01 EN 61326-2-5:2013-01 EN 60947-2:2017-10 (Annex M) EN 61543/A2:2006-02 CEI EN 61543/A11 CEI EN 61543/A12

For further details please contact:

**Megacon AB (Socomec Group)**

Ranhammarsvägen 20

168 67 Bromma

Tel: 08-402 42 50

[www.megacon.se](http://www.megacon.se)

