

# DELTA D2-b

## Type B earth leakage relays with separated toroids

### MAIN FEATURES

- STANDARD REFERENCE: IEC 60947-2 ANNEX M
- 2 VERSIONS 230Vac/dc OR 24Vac/dc
- 2 RELAY OUTPUTS: PRE-ALARM AND ALARM
- SPECIFIC TOROIDS IN 4 SIZES (35-60-120-210mm)
- LCD DISPLAY AND PARAMETERS VISUALIZATIONS (RESIDUAL CURRENT  $I_{\Delta n}$ , TRIPPING TIME  $\Delta t$ ...)
- INDICATION BY 3 LED FOR: **ON** (VOLTAGE), **AL1** (PREALARM), **AL2** (ALARM)
- TRIPPING THRESHOLD SETTABLE  $I_{\Delta n}$ : 0,03 ... 3A

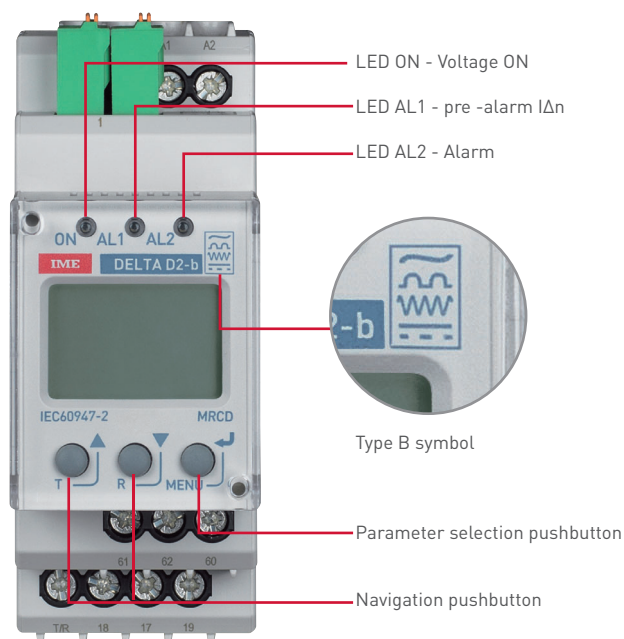
## APPLICATION FIELDS

Type B earth leakage relays can be used in circuits with frequency converters, medical devices (such as X-RAY or TAC machines), inverters for photovoltaic systems, lift electric lines, laboratory test equipment, industrial cranes, crafts and trade, mechanical workshop (arc welders, numerical control machines), three-phase charging station for electric cars, three-phase UPS.

## DESCRIPTION

The type B earth leakage relay is a device, compliant with the IEC 60947-2 annex M standard, capable of detecting unidirectional sinusoidal or direct component differential current pulses or continuous differential currents, which could be harmful or dangerous. The earth leakage relay is in turn connected to a toroid that detects the leakage currents in the plants.

The associated circuit breaker is tripped by an undervoltage release (UVR) or a current release (ST). The Delta D2-b relays with special TDB closed core toroid, available in 4 sizes, in combination with the BTicino Megatiker circuit-breakers and relative release coils have been certified for additional protection against direct contacts



### DELTA D2-b

| Item              | V <sub>n</sub> (Vac/dc) |
|-------------------|-------------------------|
| <b>RDBMRCD230</b> | 100...250Vac/dc         |
| <b>RDBMRCD24</b>  | 24...60Vac - 24...78Vdc |

### TYPE B EARTH LEAKAGE RELAYS

| Item                                     | RDBMRCD24                              | RDBMRCD230      |
|--|--|-----------------|
| Reference standard                       | IEC 60947-2 Annex M                    |                 |
| Insulating voltage, U <sub>i</sub>       | 100V                                   | 250V            |
| Installation category                    | III                                    |                 |
| Pollution degree                         | 2                                      |                 |
| Supply / Output                          | 2,2kV                                  |                 |
| Pulse withstand voltage U <sub>imp</sub> | 2,5kV                                  | 4kV             |
| Residual current I $\Delta$ n            | 0,03...3A                              |                 |
| Frequency                                | 0...2kHz                               |                 |
| Network voltage to be controlled         | ≤800V                                  |                 |
| Auxiliary supply U <sub>s</sub>          | 24...60Vac -<br>24...78Vdc             | 100...250Vac/dc |
| Power consumption                        | < 6,5VA                                |                 |
| Thermic power consumption                | 6,5W                                   |                 |
| Relay output                             | AL2 (alarm) - AL1 (pre-alarm)          |                 |
| Safety contact type                      | SPDT/positive (normally excited)       |                 |
| Output relay features (EN/IEC 60947-5-1) | 230 Vac 5A (AC-13) - 24 Vdc 1A (DC-12) |                 |

### VISUALIZATION

|                            |  |
|----------------------------|--|
| LCD display                | 3 digit (1000 points)  |
| Instantaneous I $\Delta$ n | yes  |
| Tripping threshold         | yes  |
| Tripping time delay        | yes  |
| LEDs signalling            | ON: Voltage ON U <sub>s</sub> - AL1: pre alarm I $\Delta$ n - AL2: alarm |

### PARAMETERS

|  |                                  |
|--|----------------------------------|
| Tripping threshold I $\Delta$ n            | 0,03...3A                        |
| Tripping time delay $\Delta$ t             | 0...10s                          |
| Pre-alarm threshold I $\Delta$ n           | vaule % of I $\Delta$ n settable |
| Tripping time delay $\Delta$ t (pre-alarm) | 0...10s                          |

### PROTECTION CLASS

|                                  |  |
|----------------------------------|--|
| Protection degree (IEC/EN 60529) | IP20 (terminals)<br>IP30 (internal components) |
|----------------------------------|--|

### MECHANICAL CHARACTERISTICS

|  |  |
|--|--|
| Dimension                                      | 2 DIN35 modules  |
| Nominal temperature range (functional/storage) | Min. = -25 °C Max. = +55 °C.<br>Min. = -25 °C Max. = +70 °C. |

### TOROIDS FOR DELTA D2-b

| Item          | Ø (mm) | Core   |
|---------------|--------|--------|
| <b>TDB35</b>  | 35     | Closed |
| <b>TDB60</b>  | 60     | Closed |
| <b>TDB120</b> | 120    | Closed |
| <b>TDB210</b> | 210    | Closed |