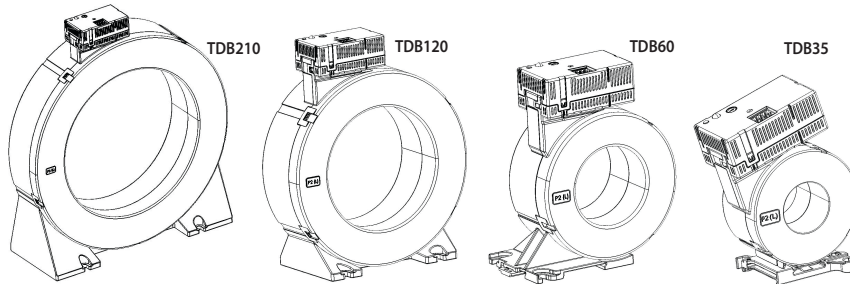


Type "B" differential toroids

Code: TDB35-TDB60-TDB120-TDB210

Model: Delta



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1. USE

The TDB series toroid, coupled with the MRCD, measures the dispersion currents to the ground as a B type wave shape pursuant to EN/IEC 60947-2 Annex M

The most common application fields are:

Frequency converters, medical devices such as X ray or CT scan machines, lift power supply line, lab testing equipment, site production equipment, photovoltaic system inverters, fork lift truck battery charging stations, mechanical workshop, metalworking machines.

2. RANGE

| Code Art. | Model |
|-----------|----------------|
| IM-TDB35 | Toroid Ø 35mm |
| IM-TDB60 | Toroid Ø 60mm |
| IM-TDB120 | Toroid Ø 120mm |
| IM-TDB210 | Toroid Ø 210mm |

3. INSTALLATION

Fixing:

TDB35 - TDB60: on EN/IEC 60715 symmetrical rail or DIN 35 rail

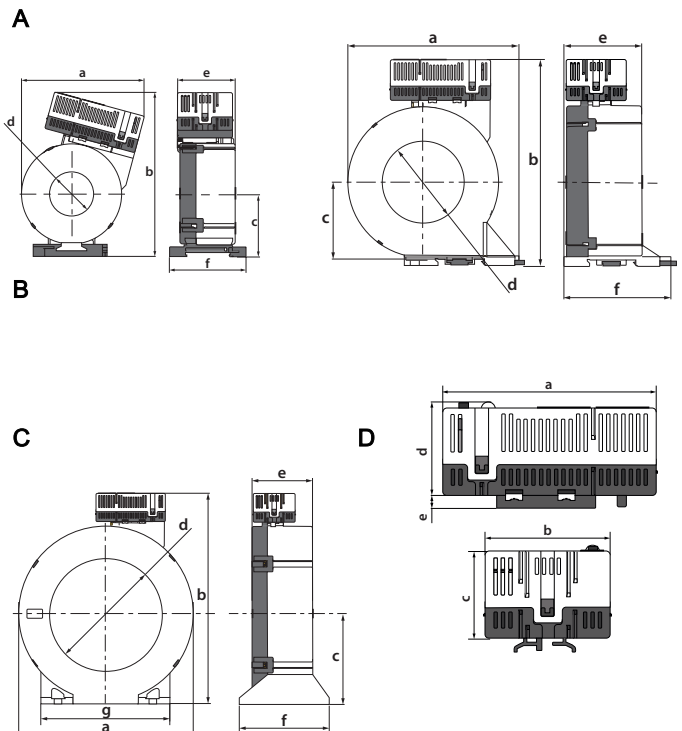
TDB120 - TDB210: screw type

Necessary tools:

For fastening the device on the DIN rail: 5.5 mm flat screwdriver (from 4 to 6 mm)

4. DIMENSIONIS

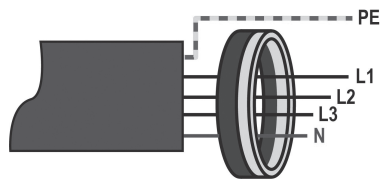
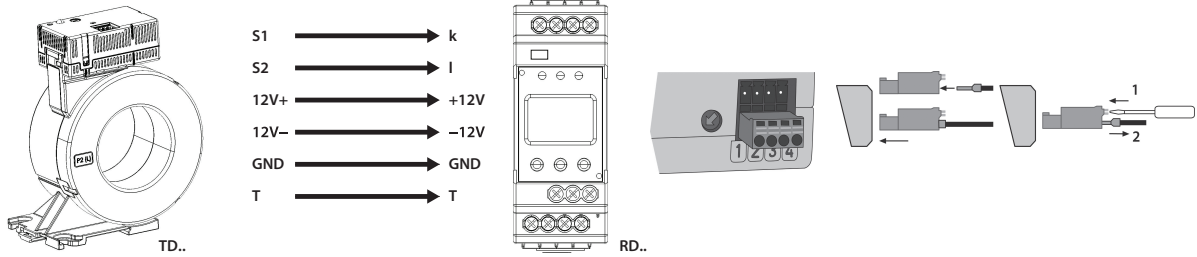
TDB.. Toroid Housing



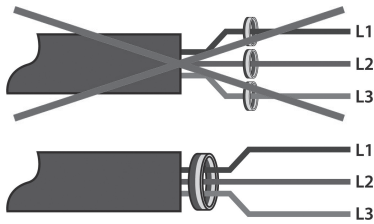
| | Article | a | b | c | d | e | f | g |
|---|---------|-----|-----|-----|------|-----|-----|-----|
| A | TDB35 | 97 | 130 | 47 | Ø35 | 46 | 61 | - |
| B | TDB60 | 126 | 151 | 57 | Ø60 | 56 | 78 | - |
| C | TDB120 | 188 | 255 | 96 | Ø120 | 65 | 96 | 139 |
| | TDB210 | 339 | 339 | 153 | Ø210 | 67 | 113 | 277 |
| D | TDB... | 74 | 44 | 30 | 32 | 4.6 | - | - |

5. COMMISSIONNING - CONNECTION

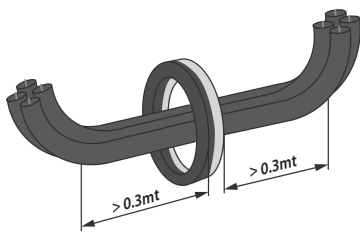
(The setup range of I_{Δn} on the toroid must be consistent with the release threshold programmed in MRCD)



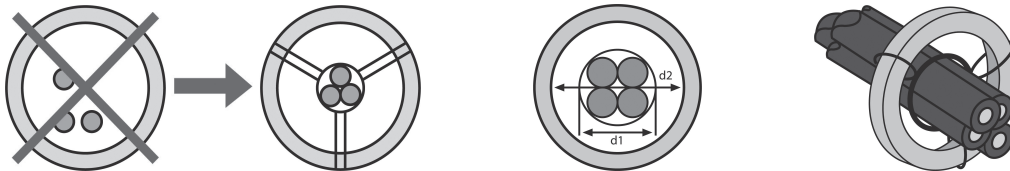
Do not pass the shielded cables through the measurement current transformer



Make sure that all the current cables go through the measurement current transformer



The cables may only be bent at distances > 0.3 from the measurement current transformer



6. OPERATING DATA





6.1 ELECTRIC DATA

Rated current:

| Code | Model | In @ IΔn min |
|-----------|----------------|----------------------------------|
| IM-TDB35 | Toroid Ø 35mm | 80 A @ 0,03A 125 A @ 0,30 A |
| IM-TDB60 | Toroid Ø 60mm | 160 A @ 0,03 A 250 A @ 0,30 A |
| IM-TDB120 | Toroid Ø 120mm | 330 A @ 0,10 A |
| IM-TDB210 | Toroid Ø 210mm | 630 A @ 0,30 A |

Connectable section:

- Copper wires.
- Removable terminal board for MRCD device connection:

| | | |
|---|---|---------------------------|
|  |  0,2...1,5 mm ² | WIRE CLASS AWG 24...16 |
| |  0,2...1,5 mm ² | AWG 24...16 |
| |  0,25...0,75 mm ² | AWG 24...19 |

Necessary tools:

- For the toroid connection terminal: screwdriver with 1 mm blade

6.2 MECHANICAL DATA

Pressure clamps

7. GENERAL FEATURES (continued)

Marking data:

IME
TDB35
Un= 800V CATIII Uimp= 8kV
In= 80A @ IΔn min= 0,03A
In= 125A @ IΔn min= 0,30A
0123456789 19W31
Bticino SpA Viale Borri, 231 - 21100 Varese - Italy Made in Germany

IME
TDB60
Un= 800V CATIII Uimp= 8kV
In= 160A @ IΔn min= 0,03A
In= 250A @ IΔn min= 0,30A
0123456789 19W31
Bticino SpA Viale Borri, 231 - 21100 Varese - Italy Made in Germany

IME
TDB120
Un= 800V CATIII Uimp= 8kV
In= 330A @ IΔn min= 0,10A
0123456789 19W31
Bticino SpA Viale Borri, 231 - 21100 Varese - Italy Made in Germany

IME
TDB210
Un= 800V CATIII Uimp= 8kV
In= 630A @ IΔn min= 0,30A
0123456789 19W31
Bticino SpA Viale Borri, 231 - 21100 Varese - Italy Made in Germany

IME
TDB35
RESIDUAL CURRENT SENSOR
0123456789 19W31
Us: DC +/-12 V / 2,5 W
Kn: 10 A / 4 V
0,1 A < IΔn ≤ 0,5 A
IΔn ≤ 0,1 A IΔn > 0,5 A
B78120012IME

IME
TDB60
RESIDUAL CURRENT SENSOR
0123456789 19W31
Us: DC +/-12 V / 2,5 W
Kn: 10 A / 4 V
0,1 A < IΔn ≤ 0,5 A
IΔn ≤ 0,1 A IΔn > 0,5 A
B78120014IME

IME
TDB120
RESIDUAL CURRENT SENSOR
0123456789 19W31
Us: DC +/-12 V / 2,5 W
Kn: 10 A / 4 V
0,1 A < IΔn ≤ 0,5 A
IΔn ≤ 0,1 A IΔn > 0,5 A
B78120016IME

IME
TDB210
RESIDUAL CURRENT SENSOR
0123456789 19W31
Us: DC +/-12 V / 2,5 W
Kn: 10 A / 4 V
0,1 A < IΔn ≤ 0,5 A
IΔn ≤ 0,1 A IΔn > 0,5 A
B78120018IME

Type "B" differential toroids

Code: TDB35-TDB60-TDB120-TDB210

Model: Delta

7. GENERAL FEATURES *(continued)*

Operating room temperatures:

- Min. = -25 °C Max. = +55 °C.

Room storage temperatures:

- Min. = -25 °C Max. = +70 °C.

Dynamic nominal current $I_{\Delta n}$:

- 6kA/40msec

Protection class:

- Terminal protection index against solid bodies and liquids: IP20 (IEC/EN 60529)
- Protection index of the internal components against solid bodies and liquids: IP30 IEC/EN 60529

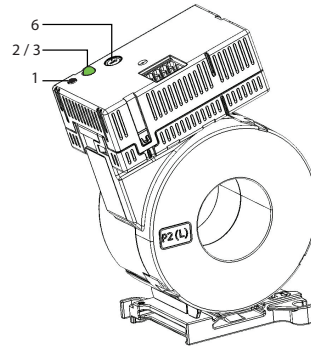
Housing material: >PC+ABS<

Volume and weight of packed Toroids:

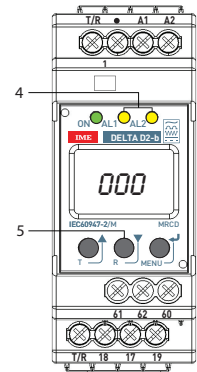
| Code Art. | Model | dm ³ | Kg |
|-----------|----------------|-----------------|------|
| IM-TDB35 | Toroid Ø 35mm | 2 | 0,4 |
| IM-TDB60 | Toroid Ø 60mm | 5 | 0,7 |
| IM-TDB120 | Toroid Ø 120mm | 13 | 1,65 |
| IM-TDB210 | Toroid Ø 210mm | 29 | 4,65 |

7. GENERAL FEATURES

TDB toroid manual TEST:



TDB...



MRCD

- 1) Press the key
- 2) "Green" LED flashing slowly, keep the button pressed
- 3) "Green" LED flashing quickly, release the button
- 4) TRIP alarm, switching on of "yellow" LEDs **AL1** and **AL2** of the MRCD
- 5) Alarm RESET, press **R** key on the MRCD
- 6) The setting RANGE of $I_{\Delta n}$ on the toroid must be congruous with the threshold configured in the MRCD

8. CONFORMITY AND CERTIFICATIONS

Insulation

- Insulation voltage, U_i : 800V
- Installation categories: III
- Level of pollution: 2

Impulse voltage:

- U_{imp} : 8kV

In compliance with the standards:

- EN/IEC 60947-2 Annex M

Respecting the environment – Conformity with the EU directives:

- Compliance with the 2100/65/EU Directive, as modified by the 2015/863 Directive (RoHS 2), on the restriction of the use of certain hazardous substances in electrical and electronic equipment.
- Conformity with the REACH Regulation (1907/ 2006): at the date of publication of this document no substance in the annex XIV is found in these products.
- RAEE Directive (2012/19/EU: the sale of this product includes a contribution to the appointed environmental bodies of each European country in charge of handling, at the end of their life, the products falling within the scope of the EU Directive on Electric and Electronic Equipment Waste.

Packaging:

- Packaging designed and produced in accordance with directive 94/62/CE

Plastic materials:

- Part marking according to standards ISO 11469 and ISO 1043.