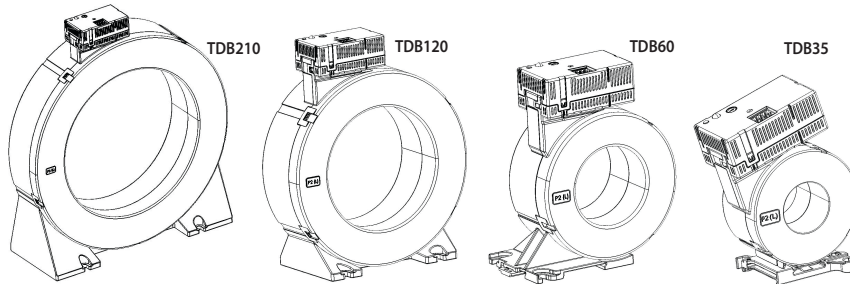


## Type "B" differential toroids

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

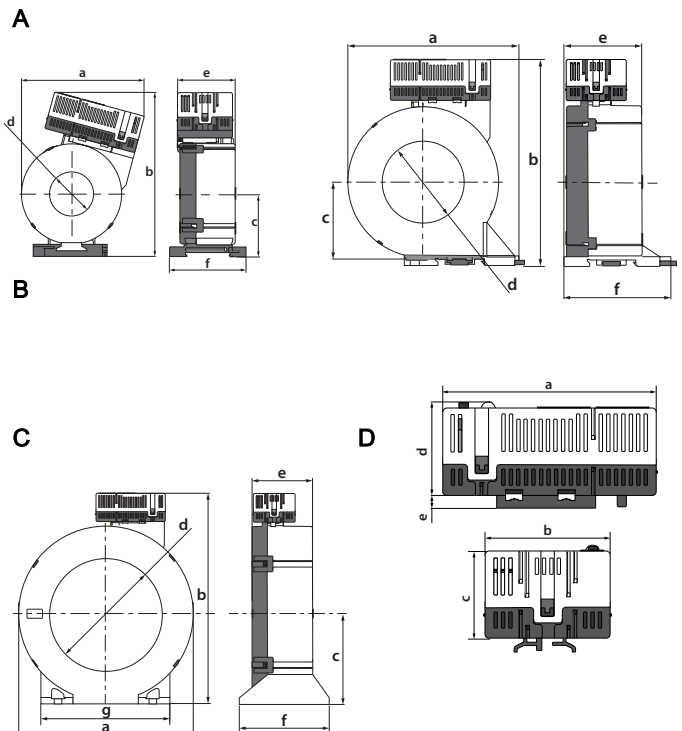
**TDB120 - TDB210:** screw type

#### Necessary tools:

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

### 4. DIMENSIONIS

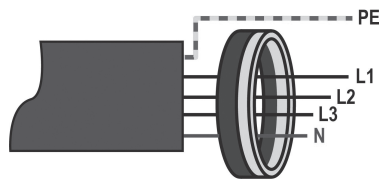
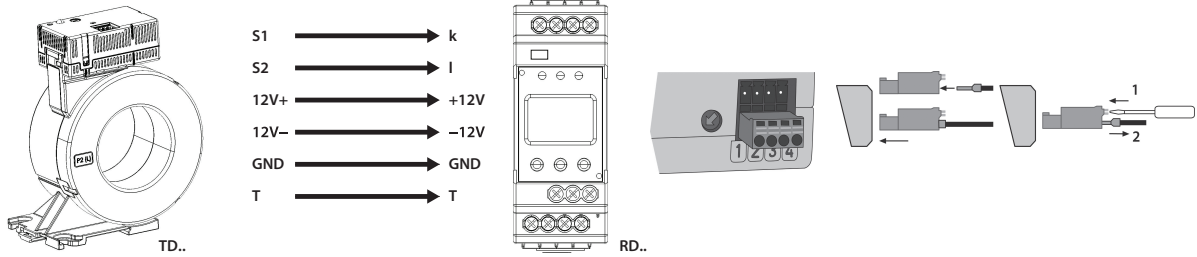
#### TDB.. Toroid Housing



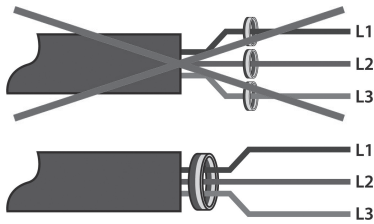
	Article	a	b	c	d	e	f	g
A	TDB35	97	130	47	Ø35	46	61	-
B	TDB60	126	151	57	Ø60	56	78	-
C	TDB120	188	255	96	Ø120	65	96	139
	TDB210	339	339	153	Ø210	67	113	277
D	TDB...	74	44	30	32	4.6	-	-

5. COMMISSIONNING - CONNECTION

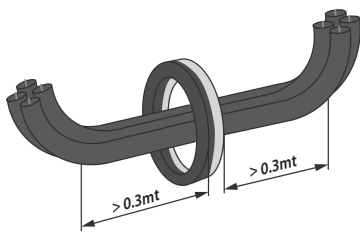
(The setup range of I<sub>Δn</sub> on the toroid must be consistent with the release threshold programmed in MRCD)



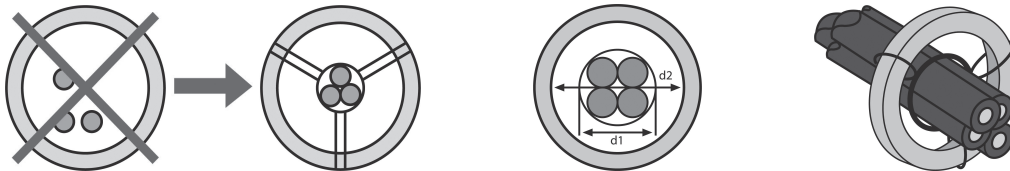
Do not pass the shielded cables through the measurement current transformer



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 <sup>2</sup>	WIRE CLASS AWG 24...16
	 0,2...1,5 mm <sup>2</sup>	AWG 24...16
	 0,25...0,75 mm <sup>2</sup>	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

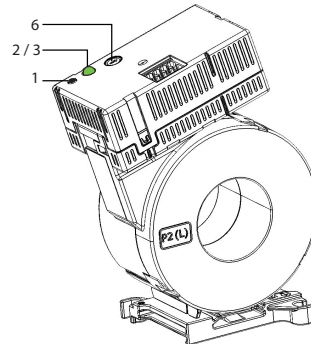
**Housing material:** >PC+ABS<

#### Volume and weight of packed Toroids:

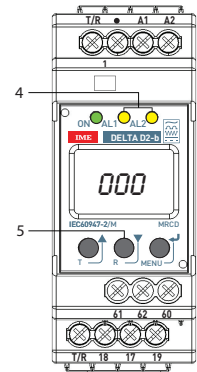
Code Art.	Model	dm <sup>3</sup>	Kg
IM-TDB35	Toroid Ø 35mm	2	0,4
IM-TDB60	Toroid Ø 60mm	5	0,7
IM-TDB120	Toroid Ø 120mm	13	1,65
IM-TDB210	Toroid Ø 210mm	29	4,65

### 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

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## 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.