



- Versions with type A and type B operating characteristics
- Modular, flush and internal panel mount version, with or without flag indicator, configurable pre-alarm indication and fail safe operation
- Versions with or without display
- Wide range of supply voltages
- Versions with automatic toroid connection control
- Type A and type B toroids
- Adjustable fault current  $I_{\Delta n}$
- Adjustment and choice of tripping range for both fault current and delay time.

**Type A**

|   |        |
|---|--------|
| Modular version with display, with 1 operation threshold .....  | 20 - 2 |
| Modular version with display, with 2 operation thresholds ..... | 20 - 2 |
| Modular version, with 1 operation threshold .....               | 20 - 2 |
| Flush-mount version with 1 operation threshold .....            | 20 - 3 |
| Flush-mount version with 2 operation thresholds .....           | 20 - 3 |
| Panel mount version with 1 operation threshold .....            | 20 - 3 |

**Type B**

|   |        |
|---|--------|
| Modular version with display, with 2 operation thresholds ..... | 20 - 4 |
|---|--------|

|  |               |
|--|---------------|
| <b>Toroidal current transformers</b> ..... | <b>20 - 5</b> |
|--|---------------|

|                                  |               |
|----------------------------------|---------------|
| <b>External multiplier</b> ..... | <b>20 - 5</b> |
|----------------------------------|---------------|

|                          |               |
|--------------------------|---------------|
| <b>Accessories</b> ..... | <b>20 - 5</b> |
|--------------------------|---------------|

|                         |               |
|-------------------------|---------------|
| <b>Dimensions</b> ..... | <b>20 - 6</b> |
|-------------------------|---------------|

|                              |               |
|------------------------------|---------------|
| <b>Wiring diagrams</b> ..... | <b>20 - 8</b> |
|------------------------------|---------------|

|  |                |
|--|----------------|
| <b>Technical characteristics</b> ..... | <b>20 - 10</b> |
|--|----------------|

**SEC. - PAGE**



Page 20-2

**MODULAR VERSION WITH DISPLAY TYPE A**  
RM1DA, RM2DA type

- Backlit LCD display
- Fault current measurement
- Version with 1 or 2 operation thresholds
- External toroidal transformer
- Adjustable tripping  $I_{\Delta n}$  and delay time
- Version with adjustable third harmonic filter.



Page 20-2

**MODULAR VERSION TYPE A**  
RM1 type

- 1 operation threshold
- External toroidal transformer
- Fixed tripping  $I_{\Delta n}$  and delay time.

RM type

- 1 operation threshold
- External toroidal transformer
- Adjustable tripping  $I_{\Delta n}$  and delay time.



Page 20-3

**FLUSH-MOUNT VERSION TYPE A**

- R1D, R2D, R3D and R4D type
- Version with 1 or 2 operation thresholds.
  - External toroidal transformer
  - Adjustable tripping  $I_{\Delta n}$  and delay time
  - Positive fail safe
  - Version with fault current measurement
  - Version with digital display
  - Version with flag indicator
  - Version with shunt tripping circuit.



Page 20-3

**COMPACT PANEL MOUNT VERSION TYPE A**  
RC type

- 1 operation threshold
- Incorporated toroidal transformer
- Adjustable tripping  $I_{\Delta n}$  and delay time
- 35mm to 110mm diameter.



Page 20-4

**MODULAR VERSION WITH DISPLAY TYPE B**  
RM2DB type

- Backlit LCD display
- Measure fault current in AC and DC components
- 2 operation thresholds
- External toroidal transformer
- Adjustable tripping  $I_{\Delta n}$  and delay time
- Harmonics analysis.



Page 20-5

**TOROIDAL CURRENT TRANSFORMERS**

- RT type
- Type A
  - Solid core
  - 35mm to 210mm diameter.

RTA type

- Type A
- Split core
- 110mm and 210mm diameter.

RTB type

- Type B
- Solid core
- 35mm to 210mm diameter.



Page 20-5

**EXTERNAL MULTIPLIER**

- RX10 type
- 10-fold multiplier.

### Modular version with display type A



RM1DA...



RM2DA...

**new**

| Order code | Rated auxiliary supply voltage | Output contacts | Qty per pkg | Wt   |
|------------|--------------------------------|-----------------|-------------|------|
|            | [V]                            | 4 SPDT          | n°          | [kg] |

1 OPERATION THRESHOLD.  
Modular, 35mm DIN (IEC/EN/BS 60715) rail mounting.  
External CT.

|                 |        |   |   |       |
|-----------------|--------|---|---|-------|
| <b>RM1DA230</b> | 230VAC | 1 | 1 | 0.300 |
|-----------------|--------|---|---|-------|

2 OPERATION THRESHOLDS.  
Modular, 35mm DIN (IEC/EN/BS 60715) rail mounting.  
External CT.

|                 |        |   |   |       |
|-----------------|--------|---|---|-------|
| <b>RM2DA230</b> | 230VAC | 2 | 1 | 0.200 |
|-----------------|--------|---|---|-------|

#### General characteristics

- Earth leakage relay type A
- True RMS measurements (TRMS)
- Adjustable third or twenty-first harmonic filter (only for RM2DA230)
- Modular DIN 43880 housing, 2 modules (RM1DA230) or 3 modules (RM2DA230), suitable for fixing on 35mm DIN rail (IEC/EN/BS 60715) execution
- 31RT... series external toroid
- Display of the differential current values
- Backlit LCD display with indication of the relay status via display color (green, yellow, red)
- Green power LED indicator (ON)
- Yellow pre-alarm LED indicator (only for RM2DA230)
- Red LED indicator for trip intervention (only for RM2DA230)
- TEST and RESET buttons on the front or remote contact closure (only for RM2DA230)
- 1 (RM1DA230) or 2 (RM2DA230) independent relay outputs, the second output can be set as a pre-alarm threshold
- Operation with positive safety for each relay (settable)
- Digital inputs for test function and remote reset (only for RM2DA230)
- Instantaneous trend graph of the current measurement (only for RM2DA230)
- Fault current intervention event log
- Possibility to protect settings via password
- IEC degree of protection: IP20 terminals, IP40 on front.

#### ADJUSTMENTS

- Configurable tripping set-point ( $I_{\Delta n}$ ): 0.030...30A
- Configurable tripping delay time (t): 0.2...10s.

#### Certification and compliance

Compliant with standards: RM1DA230: IEC/EN 61010, IEC/EN 61000-6-2 IEC/EN 61000-6-3, IEC/TR 60755, EN 60947-2 (Annex M). RM2DA230: 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, EN 61543/A11, EN 61543/A12.

### Modular version type A



RM1...



31RM...



31RMT...

| Order code | Rated auxiliary supply voltage | Output contacts | Qty per pkg | Wt   |
|------------|--------------------------------|-----------------|-------------|------|
|            | [V]                            | 4 SPDT          | n°          | [kg] |

1 OPERATION THRESHOLD.  
Modular, 35mm DIN (IEC/EN/BS 60715) rail mounting.  
External CT. Fixed tripping set point and time.

|               |              |   |   |       |
|---------------|--------------|---|---|-------|
| <b>RM1415</b> | 110-240-415V | 1 | 1 | 0.175 |
|---------------|--------------|---|---|-------|

1 OPERATION THRESHOLD.  
Modular, 35mm DIN (IEC/EN/BS 60715) rail mounting.  
External CT.

|               |             |   |   |       |
|---------------|-------------|---|---|-------|
| <b>31RM48</b> | 24-48VAC/DC | 1 | 1 | 0.190 |
|---------------|-------------|---|---|-------|

|                |              |   |   |       |
|----------------|--------------|---|---|-------|
| <b>31RM415</b> | 110-240-415V | 1 | 1 | 0.190 |
|----------------|--------------|---|---|-------|

1 OPERATION THRESHOLD.  
Modular, 35mm DIN (IEC/EN/BS 60715) rail mounting.  
 $\varnothing 28\text{mm}/\varnothing 1.1''$  incorporated CT. Configurable fail safe.

|                 |              |   |   |       |
|-----------------|--------------|---|---|-------|
| <b>31RMT415</b> | 110-240-415V | 2 | 1 | 0.375 |
|-----------------|--------------|---|---|-------|

- ⓘ Supply voltage:
- 110...125VAC (50/60Hz)/DC
  - 220...240VAC (50/60Hz)
  - 380...415VAC (50/60Hz).

#### General characteristics

- Earth leakage relay type A
- Configurable fail safe operation for RMT type only
- Green power LED indicator (ON)
- Red relay tripped LED indicator (TRIP)
- Front TEST and RESET buttons
- Configurable automatic or manual resetting
- Modular DIN 43880 housing, 2 modules, with transparent cover, suitable for fixing on 35mm DIN rail (IEC/EN/BS 60715)
- IEC degree of protection: IP20 terminals, IP40 on front with cover.

#### SETTINGS FOR RM1

- Selectable tripping set-point ( $I_{\Delta n}$ ): fixed 0.3A or 0.5A
- Selectable tripping time (t): fixed 0.02s or 0.5s.

#### ADJUSTMENTS FOR 31RM AND 31RMT

- Configurable tripping set-point ( $I_{\Delta n}$ ): 0.025...0.25A
- Configurable tripping set-point ( $I_{\Delta n}$ ): 2.5...25A
- Configurable tripping set-point ( $I_{\Delta n}$ ): 25...250A (with external multiplier 31RX10 for RM only)
- Configurable tripping delay time (t): 0.02...0.5s
- Configurable tripping delay time (t): 0.2...5s.

#### Certification and compliance

Certification obtained: EAC.  
Compliant with standards: IEC/EN/BS 60947-2.

### Flush-mount version type A



R1D...



R2D...



R3D...



R4D...

### Panel mount version type A



31RC60...



31RC110...

| Order code | Rated auxiliary supply voltage | Output contacts    | Qty per pkg | Wt   |
|------------|--------------------------------|--------------------|-------------|------|
|            | [V]                            | $\frac{1}{2}$ SPDT | n°          | [kg] |

1 OPERATION THRESHOLD.  
Flush mount. External CT.

|               |                   |   |   |       |
|---------------|-------------------|---|---|-------|
| <b>R1D415</b> | 110-240-415V<br>① | 1 | 1 | 0.280 |
|---------------|-------------------|---|---|-------|

2 OPERATION THRESHOLDS.  
Flush mount. External CT. Fail safe.

|               |                   |   |   |       |
|---------------|-------------------|---|---|-------|
| <b>R2D415</b> | 110-240-415V<br>① | 2 | 1 | 0.395 |
|---------------|-------------------|---|---|-------|

2 OPERATION THRESHOLDS.  
Flush mount. External CT.  
Fail safe. Flag Indicator.

|               |                   |   |   |       |
|---------------|-------------------|---|---|-------|
| <b>R3D415</b> | 110-240-415V<br>① | 2 | 1 | 0.405 |
|---------------|-------------------|---|---|-------|

2 OPERATION THRESHOLDS.  
Flush mount. External CT.  
Fault current measurement. Digital display.  
Fail safe. Flag indicator.

|               |                   |   |   |       |
|---------------|-------------------|---|---|-------|
| <b>R4D415</b> | 110-240-415V<br>① | 2 | 1 | 0.570 |
|---------------|-------------------|---|---|-------|

① Supply voltage:  
- 110...125VAC (50/60Hz)/DC  
- 220...240VAC (50/60Hz)  
- 380...415VAC (50/60Hz).

#### General characteristics

- R1D415**
- Earth leakage relay type A
  - Green power LED indicator (ON)
  - Red relay tripped LED indicator (TRIP)
  - Front TEST and RESET buttons
  - Configurable automatic or manual resetting
  - Flush mount 96x96mm/3.78"x3.78" housing with transparent cover
  - IEC degree of protection: IP20 terminals, IP40 on front with cover.

#### ADJUSTMENTS FOR R1D

- Configurable tripping set-point (I $\Delta$ n): 0.025...0.25A  
0.25...2.5A  
2.5...25A  
25...250A (with external multiplier 31RX10)
- Configurable tripping delay time (t): 0.02...0.5s

#### R2D415 - R3D415 - R4D415

- Earth leakage relay type A
- 2 output relays each with changeover contact, configurable as 2 tripping or 1 tripping and 1 alarm
- Configurable fail safe pre-alarm and operation
- Automatic toroid connection control
- Green power LED indicator (ON)
- Red relay tripped LED indicator (TRIP)
- Red tripping pre-alarm LED indicator (ALARM)
- Front TEST button
- Manual resetting by front RESET button or remote contact closing
- Automatic resetting by remote contact closing or rear jumper connection
- Flag indicator (TRIP MEMORY) (R3D-R4D only)
- Digital fault current measurement and display with configurable tripping value memory (R4D only)
- Shunt tripping circuit operating test (TCS) (R4D only)
- Flush mount 96x96mm/3.78"x3.78" housing with transparent cover
- IEC degree of protection: IP20 terminals, IP40 on front with cover.

#### ADJUSTMENTS FOR R2D and R3D

- Configurable tripping set-point (I $\Delta$ n): 0.025...0.25A  
0.25...2.5A  
2.5...25A  
25...250A (with external multiplier 31RX10)
- Pre-alarm set-point: fixed 70%
- Configurable tripping delay time (t): 0.02...0.5s  
0.2...5s.

#### ADJUSTMENTS FOR R4D

- Configurable tripping set-point (I $\Delta$ n): 0.03...0.3A  
0.3...3A  
3...30A  
30...300A (with external multiplier 31RX10)
- Pre-alarm set-point: fixed 70%
- Configurable tripping delay time (t): 0.03...0.5s  
0.3...5s.

#### Certification and compliance

Certification obtained: EAC.  
Compliant with standards: IEC/EN/BS 60947-2.

| Order code | Rated auxiliary supply voltage | Output contacts    | Qty per pkg | Wt   |
|------------|--------------------------------|--------------------|-------------|------|
|            | [V]                            | $\frac{1}{2}$ SPDT | n°          | [kg] |

1 OPERATION THRESHOLD.  
Compact panel mount. CT incorporated.

|                 |                   |   |   |       |
|-----------------|-------------------|---|---|-------|
| <b>31RC@48</b>  | 24-48VAC/DC       | 1 | 1 | 0.485 |
| <b>31RC@415</b> | 110-240-415V<br>① | 1 | 1 | 0.485 |

① Supply voltage:  
- 110...125VAC (50/60Hz)/DC  
- 220...240VAC (50/60Hz)  
- 380...415VAC (50/60Hz).  
② Replace with the digit of the required diameter (35-60-80-110mm/ 1.38-2.36-3.15-4.33").

#### General characteristics

- R1D415**
- Earth leakage relay type A
  - Green power LED indicator (ON)
  - Red relay tripped LED indicator (TRIP)
  - Front TEST and RESET buttons
  - Configurable automatic or manual resetting
  - Compact housing for fixing on panel mounting plate
  - IEC degree of protection: IP20 terminals.

#### ADJUSTMENTS FOR RC

- Configurable tripping set-point (I $\Delta$ n): 0.025...0.25A  
0.25...2.5A  
2.5...25A
- Configurable tripping delay time (t): 0.02...0.5s  
0.2...5s.

#### Certification and compliance

Certification obtained: EAC.  
Compliant with standards: IEC/EN/BS 60947-2.

### Modular version with display type B



RM2DB...

**new**

| Order code | Rated auxiliary supply voltage | Output contacts | Qty per pkg | Wt   |
|------------|--------------------------------|-----------------|-------------|------|
|            | [V]                            | $\text{C}$ SPDT | n°          | [kg] |

2 OPERATION THRESHOLDS.  
Modular, 35mm DIN (IEC/EN/BS 60715) rail mounting.  
External CT.

|                 |        |   |   |       |
|-----------------|--------|---|---|-------|
| <b>RM2DB230</b> | 230VAC | 2 | 1 | 0.200 |
|-----------------|--------|---|---|-------|

#### General characteristics

- Earth leakage relay type B
- True RMS measurements (TRMS)
- Adjustable third or twenty-first harmonic filter (only for RM2DA230)
- Modular DIN 43880 housing, 3 modules, suitable for fixing on 35mm DIN rail (IEC/EN/BS 60715) execution
- It can be used with just a single external toroid from the RTB series...
- Display of differential current values, both AC and DC components
- Backlit LCD display with indication of the relay status via display color (green, yellow, red)
- Green power LED indicator (ON)
- Yellow pre-alarm LED indicator
- Red LED indicator for trip intervention
- TEST and RESET buttons on the front or remote contact closure
- 2 independent relay outputs, the second output can be set as a pre-alarm threshold
- Operation with positive safety for each relay (settable)
- Digital inputs for test function and remote reset
- Self-test function to verify the correct connection of the toroidal current transformer
- Possibility to protect settings via password
- IEC degree of protection: IP20 terminals, IP40 on front.

#### ADJUSTMENTS

- Configurable tripping set-point ( $I_{\Delta n}$ ): 0.030...30A
- Configurable tripping delay time (t): 0.2...10s.

#### Certification and compliance

Compliant with standards: RM2DB230: 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, EN 61543/A11, EN 61543/A12.



## Toroidal current transformers



31RT... 31RT...



RTB...

**new**

| Order code | Diameter | Openable | Qty per pkg | Wt   |
|------------|----------|----------|-------------|------|
|            | [mm/in]  |          | n°          | [kg] |

Type A.

|                 |           |     |   |       |
|-----------------|-----------|-----|---|-------|
| <b>31RT35</b>   | 35/1.38"  | No  | 1 | 0.200 |
| <b>31RT60</b>   | 60/2.36"  | No  | 1 | 0.245 |
| <b>31RT80</b>   | 80/3.15"  | No  | 1 | 0.410 |
| <b>31RT110</b>  | 110/4.33" | No  | 1 | 0.400 |
| <b>31RT210</b>  | 210/8.27" | No  | 1 | 1.200 |
| <b>31RTA110</b> | 110/4.33" | Yes | 1 | 0.540 |
| <b>31RTA210</b> | 210/8.27" | Yes | 1 | 1.820 |

Type B.

|               |           |    |   |       |
|---------------|-----------|----|---|-------|
| <b>RTB35</b>  | 35/1.38"  | No | 1 | 0.322 |
| <b>RTB60</b>  | 60/2.36"  | No | 1 | 0.392 |
| <b>RTB80</b>  | 80/3.15"  | No | 1 | 0.602 |
| <b>RTB110</b> | 110/4.33" | No | 1 | 0.680 |
| <b>RTB210</b> | 210/8.27" | No | 1 | 0.955 |

### Certification and compliance

Certification obtained: EAC (only for 31RT...).  
Compliant with standards: IEC/EN/BS 60947-2.

## External multiplier



31RX10

| Order code    | Description  | Qty per pkg | Wt    |
|---------------|--|-------------|-------|
|               |  | n°          | [kg]  |
| <b>31RX10</b> | 10-fold multiplier suitable for R1D, RM, R2D, R3D and R4D types only | 1           | 0.300 |

### General characteristics

- To connect between toroid and relay.

### Certification and compliance

Certification obtained: EAC.  
Compliant with standards: IEC/EN/BS 60947-2.

## Accessories



DMXP03

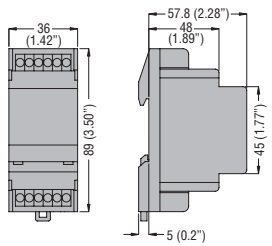
| Order code    | Description                          | Qty per pkg | Wt    |
|---------------|--------------------------------------|-------------|-------|
|               |                                      | n°          | [kg]  |
| <b>DMXP03</b> | Panel mounting for 3 modules devices | 1           | 0.052 |

# 20 Earth leakage relays

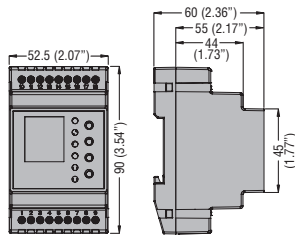
Dimensions [mm (in)]

## MODULAR VERSION EARTH LEAKAGE RELAYS

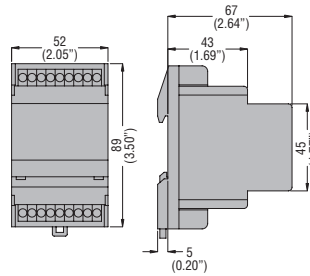
### RM1DA230



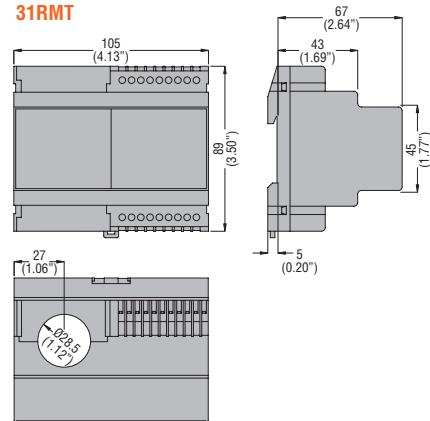
### RM2DA230 - RM2DB230



### RM1 - 31RM

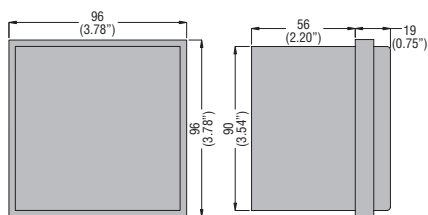


### 31RMT

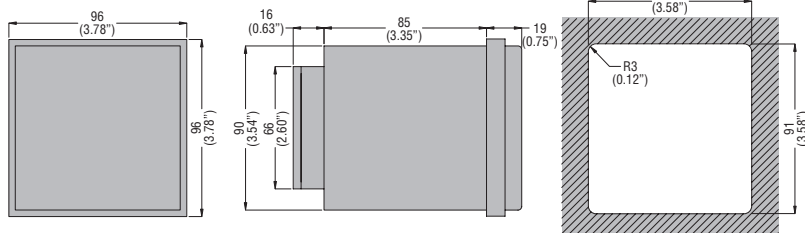


## FLUSH-MOUNT VERSION EARTH LEAKAGE RELAYS

### R1D - R2D - R3D

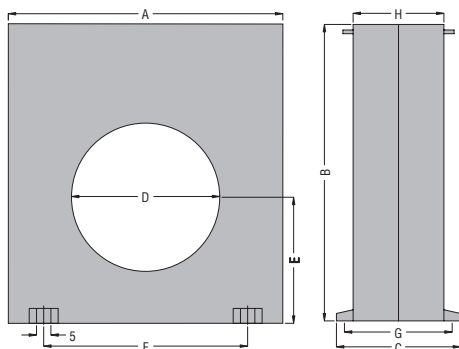


### R4D



## PANEL MOUNT VERSION EARTH LEAKAGE RELAYS

### 31RC...



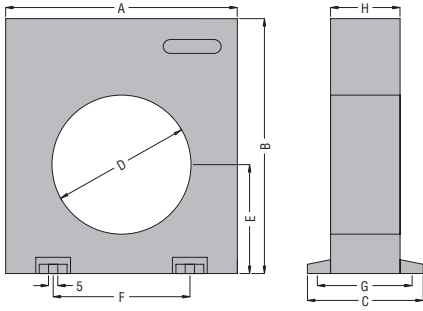
| TYPE    | A           | B           | C          | D           | E          | F           | G          | H          |
|---------|-------------|-------------|------------|-------------|------------|-------------|------------|------------|
| 31RC35  | 100 (3.94") | 110 (4.33") | 70 (2.75") | 35 (1.38")  | 47 (1.85") | 60 (2.36")  | 60 (2.36") | 50 (1.97") |
| 31RC60  | 100 (3.94") | 110 (4.33") | 70 (2.75") | 60 (2.36")  | 47 (1.85") | 60 (2.36")  | 60 (2.36") | 50 (1.97") |
| 31RC80  | 150 (5.90") | 160 (6.30") | 70 (2.75") | 80 (3.15")  | 70 (2.75") | 110 (4.33") | 60 (2.36") | 50 (1.97") |
| 31RC110 | 150 (5.90") | 160 (6.30") | 70 (2.75") | 110 (4.33") | 70 (2.75") | 110 (4.33") | 60 (2.36") | 50 (1.97") |

# 20 Earth leakage relays

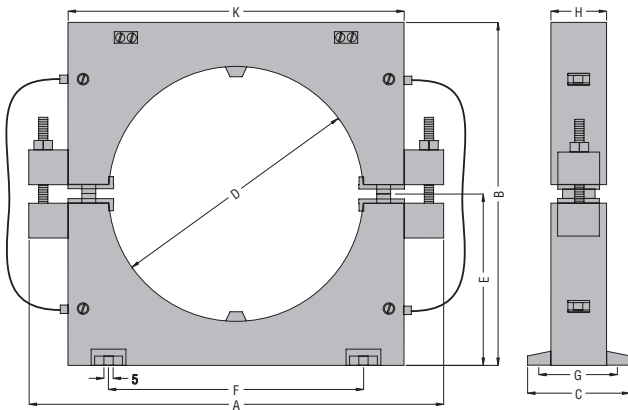
Dimensions [mm (in)]

## TOROIDAL CURRENT TRANSFORMERS AND EXTERNAL MULTIPLIER

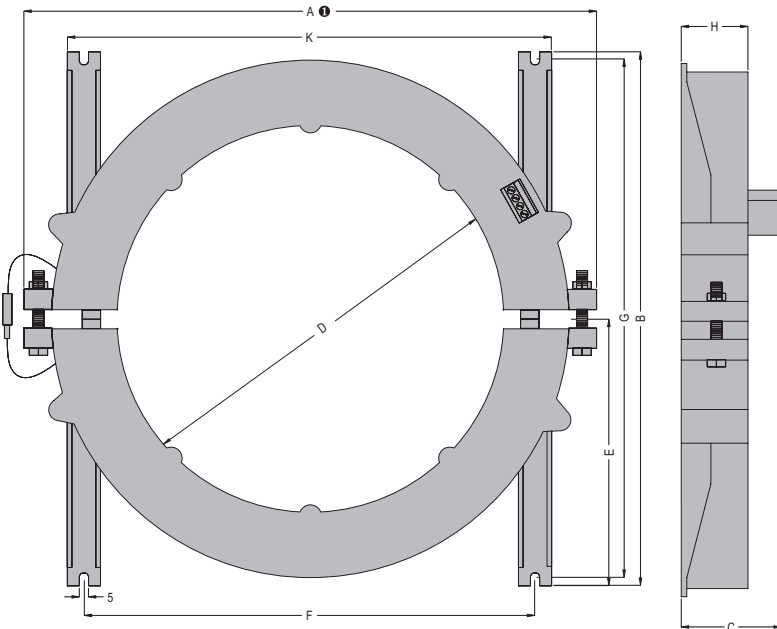
**31RT35 - 31RT60 - 31RT80 - 31RT110 - 31RX10**  
**RTB035 - RTB060 - RTB080 - RTB110**



### 31RTA110



### 31RT210 - 31RTA210 - RTB110



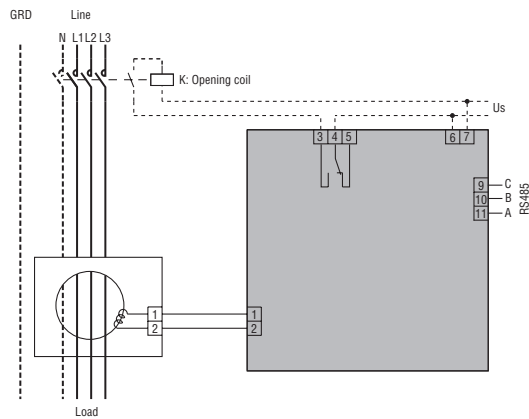
● With screws, for 31RTA210 split-core type; fixed structure, without screws, for 31RT210 type.

| TYPE             | A            | B            | C          | D           | E           | F           | G            | H          | K            |
|------------------|--------------|--------------|------------|-------------|-------------|-------------|--------------|------------|--------------|
| 31RT35 - RTB035  | 100 (3.94")  | 110 (4.33")  | 50 (1.97") | 35 (1.38")  | 47 (1.85")  | 60 (2.36")  | 43 (1.69")   | 30 (1.18") | —            |
| 31RT60 - RTB60   | 100 (3.94")  | 110 (4.33")  | 50 (1.97") | 60 (2.36")  | 47 (1.85")  | 60 (2.36")  | 43 (1.69")   | 30 (1.18") | —            |
| 31RT80 - RTB80   | 150 (5.90")  | 160 (6.30")  | 50 (1.97") | 80 (3.15")  | 70 (2.75")  | 110 (4.33") | 43 (1.69")   | 30 (1.18") | —            |
| 31RT110          | 150 (5.90")  | 160 (6.30")  | 50 (1.97") | 110 (4.33") | 70 (2.75")  | 110 (4.33") | 43 (1.69")   | 30 (1.18") | —            |
| 31RT210 - RTB110 | 310 (12.20") | 290 (11.41") | 54 (2.12") | 210 (8.27") | 145 (5.71") | 240 (9.45") | 280 (11.02") | 36 (1.42") | 258 (10.16") |
| 31RTA110         | 180 (7.09")  | 150 (5.90")  | 45 (1.77") | 110 (4.33") | 75 (2.95")  | 110 (4.33") | 38 (1.50")   | 25 (0.98") | 145 (5.71")  |
| 31RTA210         | 310 (12.20") | 290 (11.41") | 54 (2.12") | 210 (8.27") | 145 (5.71") | 240 (9.45") | 280 (11.02") | 36 (1.42") | 258 (10.16") |
| 31RX10           | 100 (3.94")  | 110 (4.33")  | 50 (1.97") | —           | —           | 60 (2.36")  | 43 (1.69")   | 30 (1.18") | —            |

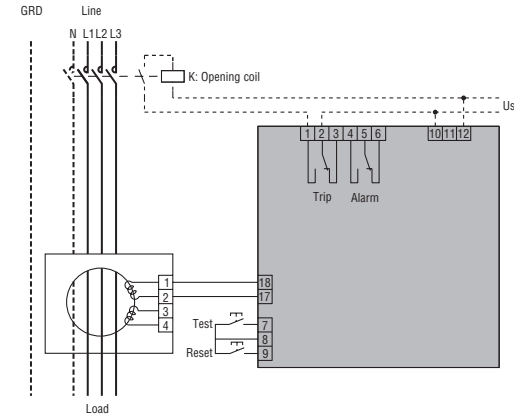


### EARTH LEAKAGE RELAYS

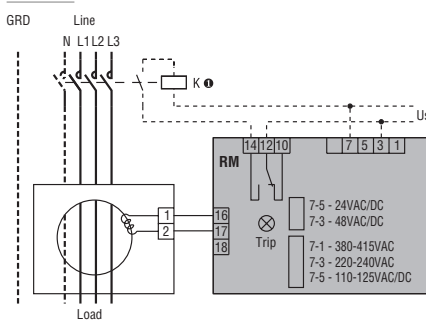
#### RM1DA230



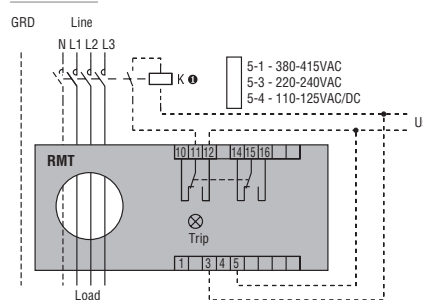
#### RM2DA230



#### RM1415 - 31RM...

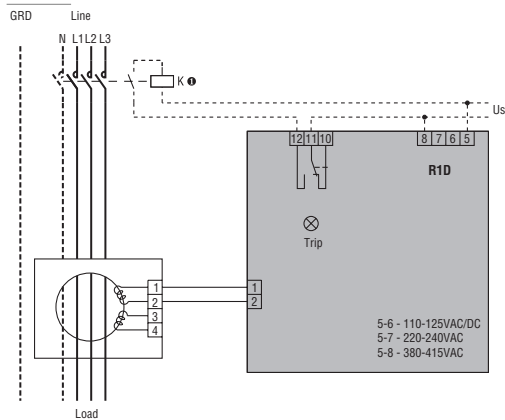


#### 31RMT415

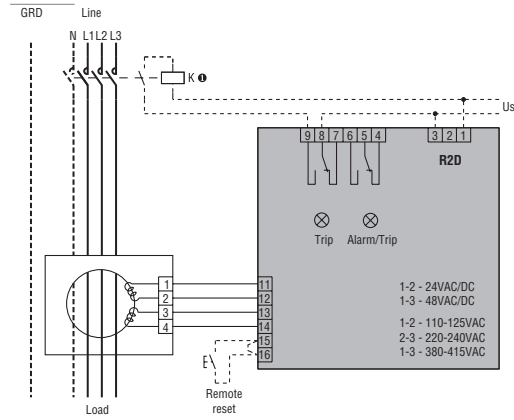


● The coil connection can vary depending on the connected type of device (contactor, breaker with shunt trip release or breaker with undervoltage trip release).

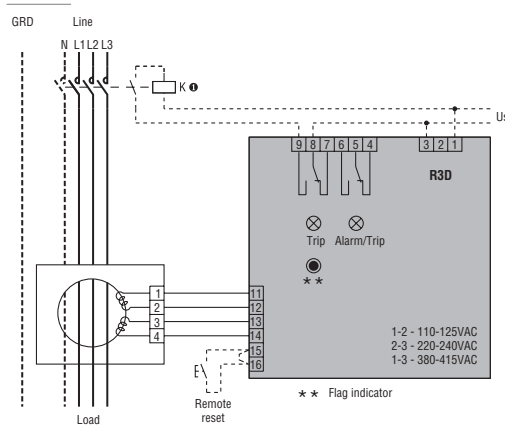
#### R1D415



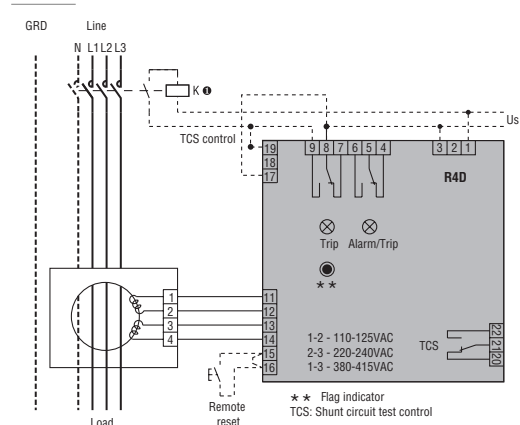
#### R2D415



#### R3D415



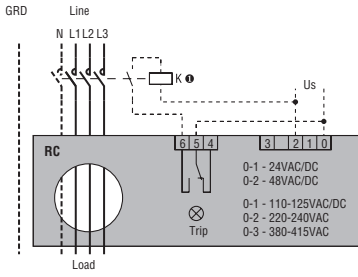
#### R4D415



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

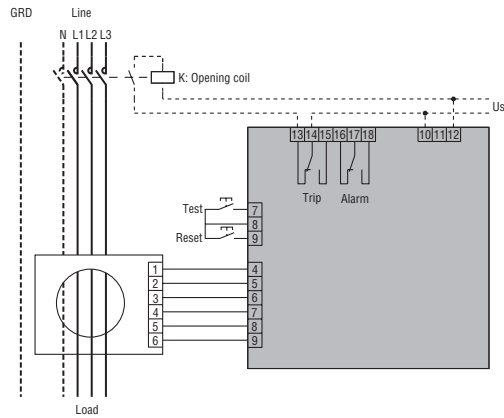
| Type   | Us         | Us wiring | TCS wiring |
|--------|------------|-----------|------------|
| R4D415 | 110-125VAC | 1-2       | 17-18      |
|        | 220-240VAC | 2-3       | 17-18      |
|        | 380-415VAC | 1-3       | 17-19      |

### 31RC...



① The coil connection can vary depending on the connected type of device (contactor, breaker with shunt trip release or breaker with undervoltage trip release).

### RM2DB230



| TYPE  | RM1DA230  | RM2DA230  | R1D <sup>①</sup>  | R2D <sup>①</sup>  | R3D <sup>①</sup>   |
|---|---|---|---|---|--|
| DESCRIPTION   | Modular,<br>1 operating threshold                         | Modular,<br>2 operating thresholds  | Flush mount with<br>transparent cover,<br>1 operating threshold                               | Flush mount with<br>transparent cover,<br>2 operating thresholds<br>constant toroid-relay circuit<br>control            | Flush mount with<br>transparent cover,<br>2 operating thresholds<br>constant toroid-relay circuit<br>control |
| CONTROL CIRCUIT   | External<br>(see types given on page 20-5)                |   |   |   |  |
| Toroidal transformer  |   |   |   |   |  |
| Adjustments   | 0.030...30A   |   | 0.025...0.25A (x0.1)<br>0.25...2.5A (x1)<br>2.5...25A (x10)<br>25...250A(external multiplier) |   |  |
| Tripping set-point (I $\Delta$ n)                                     | 0.030...30A   |   | 0.025...0.25A (x0.1)<br>0.25...2.5A (x1)<br>2.5...25A (x10)<br>25...250A(external multiplier) |   |  |
| Pre-alarm set-point   | Programmable  |   | —   | 70% I $\Delta$ n (fixed)  | 70% I $\Delta$ n (fixed)   |
| Tripping delay time (t)   | 0.02...10s  |   | 0.02...0.5s (tx1)<br>0.2...5s (tx10)  |   |  |
| Selection of multiplier for I $\Delta$ n and t                        | —   | —   | By dip-switches   |   |  |
| Resetting   | Configurable automatic<br>or manual by<br>button on front | Automatic by remote contact<br>closing or rear jumper<br>connection<br>Manual by button on front or<br>remote contact closing | Configurable automatic<br>or manual by<br>button on front <sup>②</sup>                        | Automatic by remote contact closing or rear jumper<br>connection<br>Manual by button on front or remote contact closing |  |
| Shunt circuit control   | —   | —   | —   | —   | —  |
| AUXILIARY SUPPLY  |   |   |   |   |  |
| Auxiliary voltage U <sub>s</sub><br>(0.85 - 1.1 U <sub>s</sub> limit) | —<br>220...240VAC   | —<br>90...250VAC<br>120...350VDC  | —<br>110...125VAC/DC<br>220...240/380...415VAC  | —<br>110...125/220...240/380...415VAC   | —  |
| Rated frequency   | 50...60Hz   |   |   |   |  |
| Power consumption (maximum)   | 2VA   | 6VA   | 4VA   |   |  |
| RELAY OUTPUTS   |   |   |   |   |  |
| State   | Configurable normally<br>de-energised or<br>energised     | Configurable normally<br>de-energised or<br>energised   | Normally de-energised   | Configurable normally<br>de-energised or<br>energised   | Configurable normally<br>de-energised or<br>energised  |
| Contact arrangement   | 1 changeover SPDT (trip)                                  | 2 changeover SPDT each<br>(configurable: 1 trip and<br>1 alarm)   | 1 changeover SPDT (trip)  | 2 changeover SPDT each<br>(configurable: 2 trip or 1 trip and 1 alarm)  |  |
| Rated contact capacity IEC I <sub>th</sub>                            | 5A 250VAC   |   |   |   |  |
| Mechanical life   | 20x10 <sup>6</sup> cycles                                 | 10x10 <sup>6</sup> cycles   | 50x10 <sup>6</sup> cycles   |   |  |
| Electrical life   | 3x10 <sup>5</sup> cycles                                  |   |   |   |  |
| INSULATION  |   |   |   |   |  |
| Power frequency withstand<br>voltage                                  | 2.5kV for 60s   |   |   |   |  |
| INDICATIONS   |   |   |   |   |  |
| Auxiliary voltage available (ON)                                      | Green LED   | Green LED and<br>green backlight  | Green LED   |   |  |
| Relay tripping (TRIP)   | Red backlight   | Red LED and<br>red backlight  | Red LED   |   |  |
| Trip prealarm (ALARM)   | Yellow backlight  | Yellow LED and<br>yellow backlight  | —   | Red LED   | Red LED  |
| Mechanical (TRIP MEMORY)  | —   | —   | —   | —   | Flag indicator   |
| Shunt circuit tripping (TCS)  | —   | —   | —   | —   | —  |
| CONNECTIONS   |   |   |   |   |  |
| Type of terminals   | Fixed   |   |   |   |  |
| Tightening torque maximum   | 0.5Nm (4.5lb.in)  |   |   |   |  |
| Conductor section min...max   | 0.2...2.5mm <sup>2</sup> (24...12AWG)                     |   |   |   |  |
| AMBIENT CONDITIONS  |   |   |   |   |  |
| Operating temperature   | -10...+60°C   |   |   |   |  |
| Storage temperature   | -20...+80°C   |   |   |   |  |
| Relative humidity   | ≤90%  | ≤95%  | ≤90%  |   |  |
| HOUSING   |   |   |   |   |  |
| Material  | Self-extinguishing polycarbonate                          |   |   |   |  |

① Type A, sensitive to residual sinusoidal AC and pulsating DC currents.

② Remote resetting by removing power for more than 1 second.

③ Digital display of fault current measurement and tripping value memory.

|  | R4D <sup>0</sup>   | RM1... <sup>0</sup>  | 31RM... <sup>0</sup>   | 31RMT... <sup>0</sup>                                       | 31RC... <sup>0</sup>   | RM2DB...   |
|--|--|--|--|---|--|--|
|  | Flush mount with display and cover,<br>2 operating thresholds - constant toroid-relay circuit control                | Modular with transparent cover,<br>1 operating threshold     | Modular with transparent cover,<br>1 operating threshold                                       | Modular with transparent cover,<br>1 operating threshold    | Compact,<br>1 operating threshold  | Modular,<br>1 operating thresholds   |
|  | External<br>(see types given on page 20-5)   |  |  | Incorporated Ø28mm/1.1"                                     | Incorporated<br>35-60-80-110mm/<br>1.38-2.36-3.15-4.33"<br>standard diameter | External<br>(see types given on page 20-5)   |
|  | 0.03...0.3A (x0.1)<br>0.3...3A (x1)<br>3...30A (x10)<br>30...300A (external multiplier)                              | 0.3A or 0.5A   | 0.025...0.25A (x0.1)<br>0.25...2.5A (x1)<br>2.5...25A (x10)<br>25...250A (external multiplier) | 0.025...0.25A (x0.1)<br>0.25...2.5A (x1)<br>2.5...25A (x10) | 0.025...0.25A (x0.1)<br>0.25...2.5A (x1)<br>2.5...25A (x10)                  | 0.030...30A  |
|  | 70% I <sub>Δn</sub> (fixed)  | —  | —  | —   | —  | Programmable   |
|  | 0.03...0.5s (tx1)<br>0.3...5s (tx10)   | 0.02s or 0.5s  | 0.02...0.5s (tx1)<br>0.2...5s (tx10)   | 0.02...0.5s (tx1)<br>0.2...5s (tx10)                        | 0.02...0.5s (tx1)<br>0.2...5s (tx10)   | 0.02...10s   |
|  | By dip-switches  |  |  |   |  | —  |
|  | Automatic by remote contact closing or rear jumper connection<br>Manual by button on front or remote contact closing | Configurable A: Automatic or<br>M: Manual by button on front |  |   |  | Automatic by remote contact closing or rear jumper connection<br>Manual by button on front or remote contact closing |
|  | Yes  | —  |  |   |  | —  |
|  | —  | —  | 24-48VAC/DC  | —   | 24-48VAC/DC  | —  |
|  | 110...125/220...240/<br>380...415VAC   | 110...125VAC/DC<br>220...240/380...415VAC                    |  |   | 90...250VAC<br>120...350VDC  |  |
|  | 50...60Hz  |  |  |   |  |  |
|  | 4VA  | 3VA  |  |   | 4VA  |  |
|  | Configurable normally de-energised or energised  | Normally de-energised  | Normally de-energised  | Configurable normally de-energised or energised             | Normally de-energised  | Configurable normally de-energised or energised  |
|  | 2 changeover SPDT each (configurable: 2 trip or 1 trip and 1 alarm)  | 1 changeover SPDT (trip)                                     | 1 changeover SPDT (trip)   | 2 changeover SPDT each (both trip)                          | 1 changeover SPDT (trip)   | 2 changeover SPDT each (configurable: 1 trip and 1 alarm)  |
|  | 5A 250VAC  |  |  |   |  |  |
|  | 50x10 <sup>6</sup> cycles  | 50x10 <sup>6</sup> cycles                                    |  |   | 10x10 <sup>6</sup> cycles  |  |
|  | 3x10 <sup>5</sup> cycles   |  |  |   |  |  |
|  | 2.5kV for 60s  |  |  |   |  |  |
|  | Green LED  | Green LED  |  |   |  | Green LED and green backlight  |
|  | Red LED  | Red LED  |  |   |  | Red LED and red backlight  |
|  | Red LED  | —  |  |   |  | Yellow LED and yellow backlight  |
|  | Flag indicator   | —  |  |   |  | —  |
|  | Red LED  | —  |  |   |  | —  |
|  | Removable, plug-in   | Fixed  |  |   |  |  |
|  | 0.5Nm (4.5lb.in)   |  |  |   |  |  |
|  | 0.2...2.5mm <sup>2</sup> (24...12AWG)  |  |  |   |  |  |
|  | -10...+60°C  |  |  |   |  |  |
|  | -20...+80°C  |  |  |   |  |  |
|  | ≤90%   |  |  |   |  | ≤95%   |
|  | Self-extinguishing polycarbonate   |  |  |   |  |  |