



- Modular, flush and internal panel mount version, with or without flag indicator, configurable prealarm indication and fail safe operation
- Versions with automatic toroid connection control
- Choice of supply voltage ranges
- Adjustable fault current  $I_{\Delta n}$
- Adjustment and choice of tripping range for both fault current and delay time.

**Earth leakage relays**

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**SEC. - PAGE**



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**FLUSH-MOUNT VERSION**

R1D type

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



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**FLUSH-MOUNT VERSION**

R2D type

- 2 operation thresholds
- External toroidal transformer
- Configurable fail safe operation
- Adjustable tripping  $I\Delta n$  and delay time.

R3D type

- 2 operation thresholds
- External toroidal transformer
- Configurable fail safe operation
- Flag indicator
- Adjustable tripping  $I\Delta n$  and delay time.



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**FLUSH-MOUNT VERSION**

R4D type

- 2 operation thresholds
- External toroidal transformer
- Configurable fail safe operation
- Fault current measurement
- Digital display
- Flag indicator
- Shunt tripping circuit
- Adjustable tripping  $I\Delta n$  and delay time.



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**MODULAR VERSION**

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.



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**MODULAR VERSION**

RMT type

- 1 operation threshold
- Incorporated toroidal transformer
- Adjustable tripping  $I\Delta n$  and delay time.



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**COMPACT INTERNAL PANEL VERSION**

RC type

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



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**TOROIDAL CURRENT TRANSFORMERS**

RT type

- Solid core
- 35mm to 210mm diameter.

RTA type

- Split core
- 110mm and 210mm diameter.



Page 16-3

**EXTERNAL MULTIPLIER**

RX10 type

- 10-fold multiplier.

## Relays with 1 operation threshold



R1D...

Order code	Rated auxiliary supply voltage	Output contacts	Qty per pkg	Wt
	[V]	4 <sup>1</sup> SPDT	n°	[kg]

1 OPERATION THRESHOLD.  
Flush mount. External CT.

<b>R1D 48</b>	24-48VAC/DC	1	1	0.280
<b>R1D 415</b>	110-240-415V ①	1	1	0.280

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

### General characteristics

- 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 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  
2.5...2.5A  
25...250A (with external multiplier RX10)
- Configurable tripping delay time (t): 0.02...0.5s  
0.2...5s.

### Certification and compliance

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



RM1...

Order code	Rated auxiliary supply voltage	Output contacts	Qty per pkg	Wt
	[V]	4 <sup>1</sup> SPDT	n°	[kg]

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

<b>RM1 48</b>	24-48VAC/DC	1	1	0.175
<b>RM1 415</b>	110-240-415V AC ①	1	1	0.175

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

<b>31 RM 48</b>	24-48VAC/DC	1	1	0.190
<b>31 RM 415</b>	110-240-415V ①	1	1	0.190

1 OPERATION THRESHOLD.  
Modular, 35mm DIN (IEC/EN 60715) rail mounting.  
Ø28mm/Ø1.1" incorporated CT. Configurable fail safe.

<b>31 RMT 415</b>	110-240-415V ①	2	1	0.375
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① 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 module, with transparent cover, suitable for fixing on 35mm DIN rail (IEC/EN 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 RM AND RMT

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

### Certification and compliance

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



31 RM...



31 RMT...



31 RC60...



31 RC110...

Order code	Rated auxiliary supply voltage	Output contacts	Qty per pkg	Wt
	[V]	4 <sup>1</sup> SPDT	n°	[kg]

1 OPERATION THRESHOLD.  
Compact panel mount. CT incorporated.

<b>31 RC<math>\phi</math> 48</b>	24-48VAC/DC	1	1	0.485
<b>31 RC<math>\phi</math> 415</b>	110-240-415V 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

- 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  
2.5...2.5A  
25...250A
- Configurable tripping delay time (t): 0.02...0.5s  
0.2...5s.

### Certification and compliance

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

## Relays with 2 operation thresholds



R2D...



R3D...



R4D...

Ordering code	Rated auxiliary supply voltage	Output contacts	Qty per pkg	Wt
	[V]	2 SPDT	n°	[kg]
2 OPERATION THRESHOLDS. Flush mount. External CT. Fail safe.				
<b>R2D 415</b>	110-240-415V <sup>①</sup>	2	1	0.395
2 OPERATION THRESHOLDS. Flush mount. External CT. Fail safe. Flag Indicator.				
<b>R3D 415</b>	110-240-415V <sup>①</sup>	2	1	0.405
2 OPERATION THRESHOLDS. Flush mount. External CT. Fault current measurement. Digital display. Fail safe. Flag indicator.				
<b>R4D 415</b>	110-240-415V <sup>①</sup>	2	1	0.570

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

### General characteristics

- Earth leakage relay type A
- 2 output relays each with changeover contact, configurable 2 tripping or 1 tripping and 1 alarm
- Configurable fail safe prealarm and operation
- Automatic toroid connection control
- Green power LED indicator (ON)
- Red relay tripped LED indicator (TRIP)
- Red tripping prealarm 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
- Constant toroid-relay circuit control
- 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 (IΔn): 0.025...0.25A  
0.25...2.5A  
2.5...25A  
25...250A (with external multiplier RX10)
- Prealarm set-point: fixed 70%
- Configurable tripping delay time (t): 0.02...0.5s  
0.2...5s.

### ADJUSTMENTS FOR R4D

- Configurable tripping set-point (IΔn): 0.03...0.3A  
0.3...3A  
3...30A  
30...300A (with external multiplier RX10)
- Prealarm 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 60947-2.

## Toroidal current transformers



31 RT...



31 RT...

Order code	Diameter	Openable	Qty per pkg	Wt.
	[mm/in]		n°	[kg]
<b>31 RT 35</b>	35/1.38"	No	1	0.200
<b>31 RT 60</b>	60/2.36"	No	1	0.245
<b>31 RT 80</b>	80/3.15"	No	1	0.410
<b>31 RT 110</b>	110/4.33"	No	1	0.400
<b>31 RT 210</b>	210/8.27"	No	1	1.200
<b>31 RTA 110</b>	110/4.33"	Yes	1	0.540
<b>31 RTA 210</b>	210/8.27"	Yes	1	1.820

### Certification and compliance

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

## External multiplier



31 RX 10

Order code	Description	Qty per pkg	Wt
		n°	[kg]
<b>31 RX 10</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

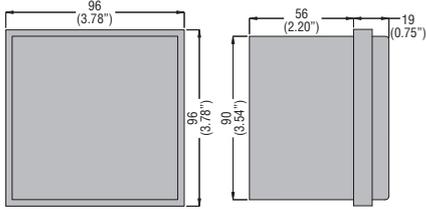
Certification obtained: EAC.  
Compliant with standards: IEC/EN 60947-2.

# 16 Earth leakage relays

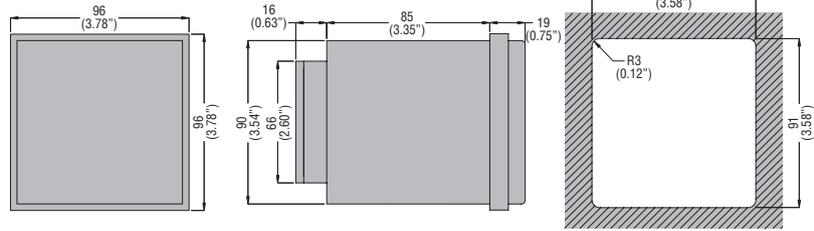
Dimensions [mm (in)]

## EARTH LEAKAGE RELAYS

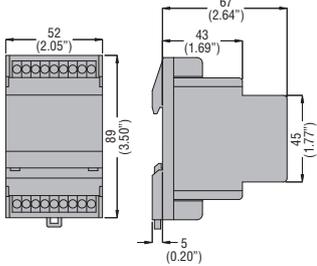
### R1D - R2D - R3D



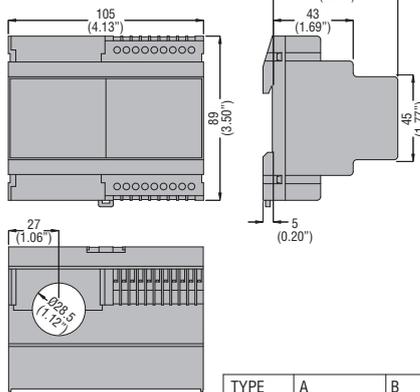
### R4D



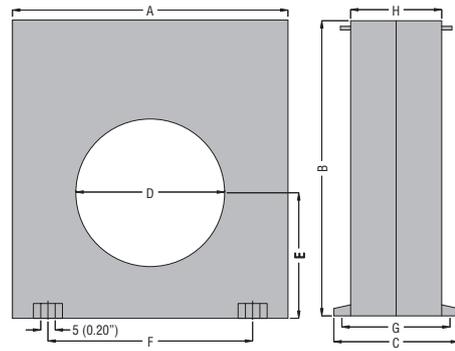
### RM1 - RM



### RMT



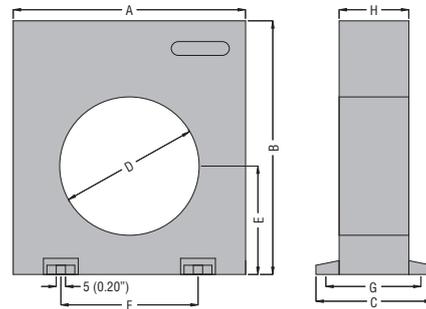
### RC



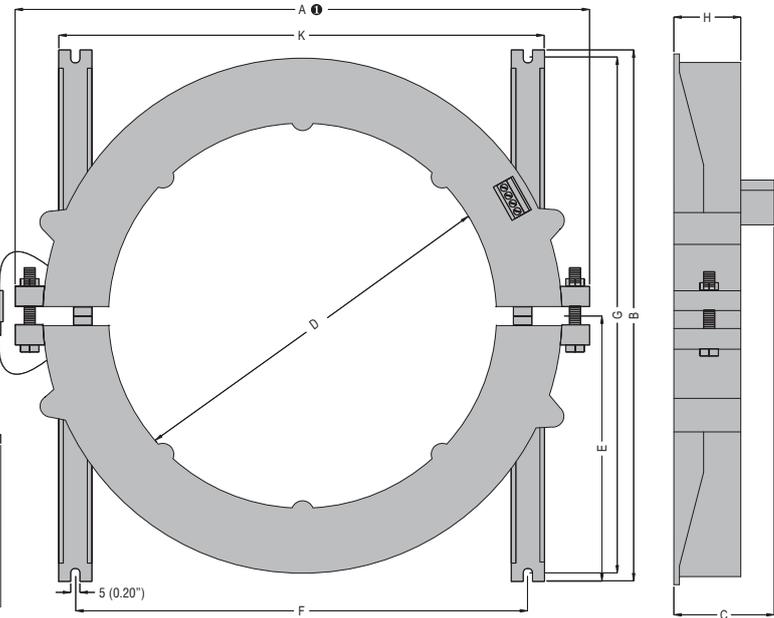
TYPE	A	B	C	D	E	F	G	H
RC35	100 (3.94")	110 (4.33")	70 (2.75")	35 (1.38")	47 (1.85")	60 (2.36")	60 (2.36")	50 (1.97")
RC60	100 (3.94")	110 (4.33")	70 (2.75")	60 (2.36")	47 (1.85")	60 (2.36")	60 (2.36")	50 (1.97")
RC80	150 (5.90")	160 (6.30")	70 (2.75")	80 (3.15")	70 (2.75")	110 (4.33")	60 (2.36")	50 (1.97")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

## TOROIDAL CURRENT TRANSFORMERS AND EXTERNAL MULTIPLIER

### RT35 - RT60 - RT80 - RT110 - RX10

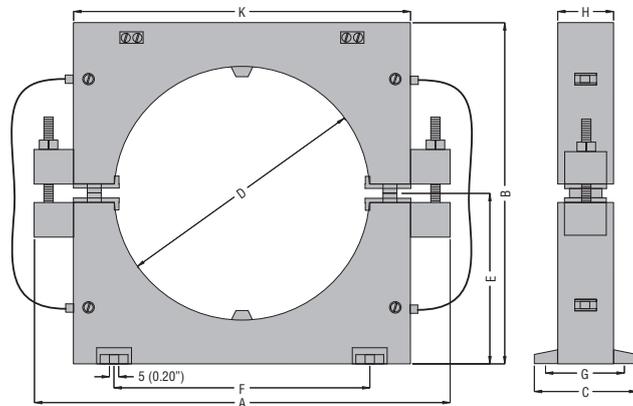


### RT210 - RTA210



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

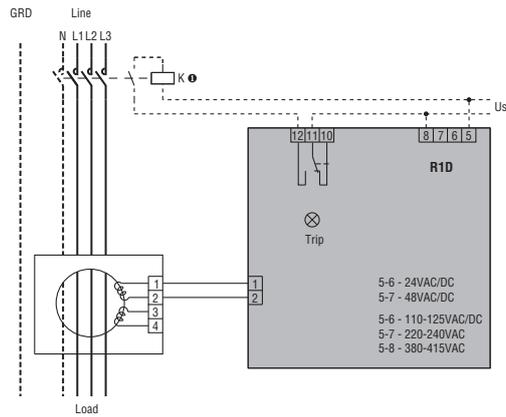
### RTA110



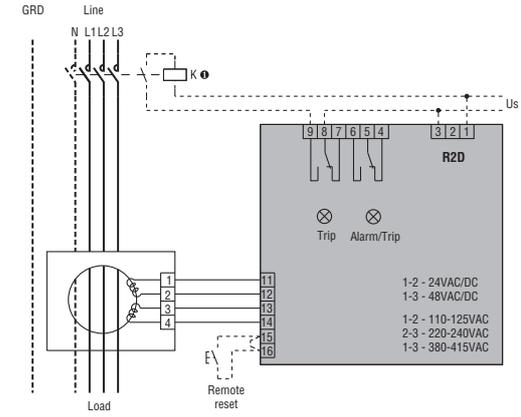
TYPE	A	B	C	D	E	F	G	H	K
RT35	100 (3.94")	110 (4.33")	50 (1.97")	35 (1.38")	47 (1.85")	60 (2.36")	43 (1.69")	30 (1.18")	—
RT60	100 (3.94")	110 (4.33")	50 (1.97")	60 (2.36")	47 (1.85")	60 (2.36")	43 (1.69")	30 (1.18")	—
RT80	150 (5.90")	160 (6.30")	50 (1.97")	80 (3.15")	70 (2.75")	110 (4.33")	43 (1.69")	30 (1.18")	—
RT110	150 (5.90")	160 (6.30")	50 (1.97")	110 (4.33")	70 (2.75")	110 (4.33")	43 (1.69")	30 (1.18")	—
RT210	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")
RTA110	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")
RTA210	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")
RX10	100 (3.94")	110 (4.33")	50 (1.97")	—	—	60 (2.36")	43 (1.69")	30 (1.18")	—

### EARTH LEAKAGE RELAYS

#### R1D

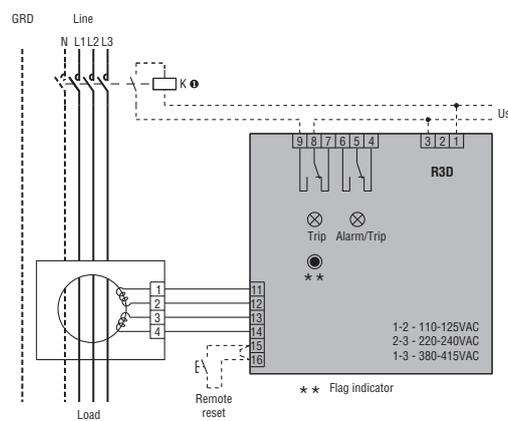


#### R2D



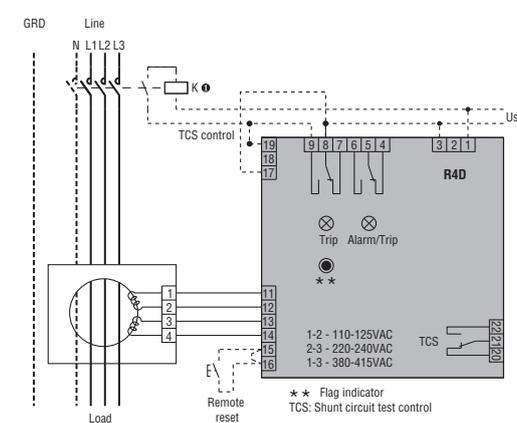
❶ The coil connection can vary depending on the connected type of device (contactor, breaker with shunt trip release or breaker with undervoltage trip release).

#### R3D



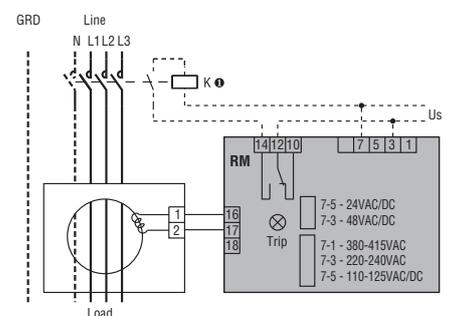
❶ The coil connection can vary depending on the connected type of device (contactor, breaker with shunt trip release or breaker with undervoltage trip release).

#### R4D



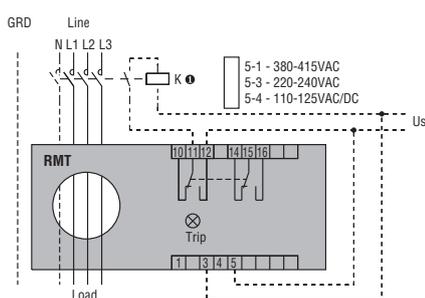
Type	Us	Us Wiring	TCS Wiring
R4D 415	110-125VAC	1-2	17-18
	220-240VAC	2-3	17-18
	380-415VAC	1-3	17-19

#### RM - RM1

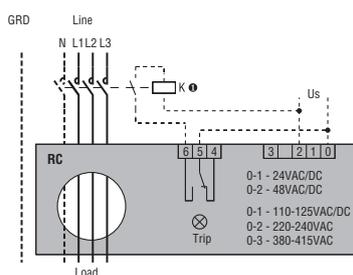


❶ The coil connection can vary depending on the connected type of device (contactor, breaker with shunt trip release or breaker with undervoltage trip release).

#### RMT



#### RC



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).

# 16 Earth leakage relays

## Technical characteristics



TYPE	R1D <sup>①</sup>	R2D <sup>①</sup>	R3D <sup>①</sup>	R4D <sup>①②③</sup>
DESCRIPTION	Flush mount with transparent cover, 1 operating threshold	Flush mount with transparent cover, 2 operating thresholds constant toroid-relay circuit control	Flush mount with transparent cover, 2 operating thresholds constant toroid-relay circuit control	Flush mount with display and cover, 2 operating thresholds - constant toroid-relay circuit control
CONTROL CIRCUIT	External (see types given on page 16-3)			
Toroidal transformer				
Adjustments				
Tripping set-point (I $\Delta$ n)		0.025...0.25A (x0.1) 0.25...2.5A (x1) 2.5...25A (x10) 25...250A (external multiplier)		0.03...0.3A (x0.1) 0.3...3A (x1) 3...30A (x10) 30...300A (external multiplier)
Prealarm set-point	—	70% I $\Delta$ n (fixed)	70% I $\Delta$ n (fixed)	70% I $\Delta$ n (fixed)
Tripping delay time (t)		0.02...0.5s (tx1) 0.2...5s (tx10)		0.03...0.5s (tx1) 0.3...5s (tx10)
Selection of multiplier for I $\Delta$ n and t	By dip switches			
Resetting	Configurable automatic or manual by button on front <sup>②</sup>	Automatic by remote contact closing or rear jumper connection Manual by button on front or remote contact closing		
Shunt circuit control	—	—	—	Yes
AUXILIARY SUPPLY				
Auxiliary voltage U <sub>s</sub> (0.85 - 1.1 U <sub>s</sub> limit)	24-48VAC/DC 110...125VAC/DC 220...240/380...415VAC	— 110...125/220...240/380...415VAC		
Rated frequency	50...60Hz			
Power consumption (maximum)	4VA			
RELAY OUTPUTS				
State	Normally de-energised	Configurable normally de-energised or energised	Configurable normally de-energised or energised	Configurable normally de-energised or energised
Contact arrangement	1 changeover SPDT (trip)	2 changeover SPDT each (configurable: 2 trip or 1 trip and 1 alarm)		
Rated contact capacity IEC I <sub>th</sub>	5A - 250VAC			
Electrical life	3 x 10 <sup>6</sup> cycles			
Mechanical life	50 x 10 <sup>6</sup> cycles			
INSULATION				
Power frequency withstand voltage	2.5kV for 60s			
INDICATIONS				
Auxiliary voltage available (ON)	Green LED			
Relay tripping (TRIP)	Red LED			
Trip prealarm (ALARM)	—	Red LED	Red LED	Red LED
Mechanical (TRIP MEMORY)	—	—	Flag indicator	Flag indicator
Shunt circuit tripping (TCS)	—	—	—	Red LED
CONNECTIONS				
Type of terminals	Fixed			Removable, plug-in
Tightening torque maximum	0.5Nm (4.5lbin)			
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%			
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.

# 16 Earth leakage relays

## Technical characteristics

	RM1... <sup>①</sup>	RM... <sup>①</sup>	RMT... <sup>①</sup>	RC... <sup>①</sup>
	Modular with transparent cover, 1 operating threshold	Modular with transparent cover, 1 operating threshold	Modular with transparent cover, 1 operating threshold	Compact, 1 operating threshold
	External (see types given on page 16-3)	External (see types given on page 16-3)	Incorporated Ø28mm/1.1"	Incorporated 35-60-80-110mm/ 1.38-2.36-3.15-4.33" standard diameter
	0.3A or 0.5A only	0.025...0.25A (x0.1) 0.25...2.5A (x1) 2.5...25A (x10) 25...250A (external multiplier)	0.025...0.25A (x0.1) 0.25...2.5A (x1) 2.5...25A (x10)	0.025...0.25A (x0.1) 0.25...2.5A (x1) 2.5...25A (x10)
	—	—	—	—
	0.02s or 0.5s only	0.02...0.5s (tx1) 0.2...5s (tx10)	0.02...0.5s (tx1) 0.2...5s (tx10)	0.02...0.5s (tx1) 0.2...5s (tx10)
	By dip switches			
	Configurable A: Automatic or M: Manual by button on front			
	—			
	24-48VAC/DC		—	24-48VAC/DC
	110...125VAC/DC 220...240/380...415VAC			
	50...60Hz			
	3VA			
	Normally de-energised	Normally de-energised	Configurable normally de-energised or energised	Normally de-energised
	1 changeover SPDT (trip)	1 changeover SPDT (trip)	2 changeover SPDT each (both trip)	1 changeover SPDT (trip)
	5A - 250VAC			
	3x10 <sup>5</sup> cycles			
	50x10 <sup>6</sup> cycles			
	2.5kV for 60s			
	Green LED			
	Red LED			
	—			
	—			
	—			
	Fixed			
	0.5Nm (4.5lbin)			
	0.2...2.5mm <sup>2</sup> (24...12AWG)			
	-10...+60°C			
	-20...+80°C			
	≤90%			
	Self-extinguishing polycarbonate			

<sup>①</sup> Type A, sensitive to residual sinusoidal AC and pulsating DC currents.