



PAGE 13-2

- 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.

- ◆ *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.*



PLANET - DIN



moduLo

PAGE 13-2

- 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.



PAGE 13-2

- COMPACT INTERNAL PANEL VERSION
RC TYPE**
- 1 operation threshold
 - Incorporated toroidal transformer
 - Adjustable tripping $I_{\Delta n}$ and delay time.

Earth leakage relays

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Toroidal current transformers	13-	3
External multiplier	13-	3



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- TOROIDAL CURRENT TRANSFORMERS
RT TYPE**
- Solid core
 - 35mm to 210mm diameter.
- RTA TYPE**
- Split core
 - 110mm and 210mm diameter.



PAGE 13-3

- 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]	$\frac{1}{1}$	n°	[kg]
1 OPERATION THRESHOLD. Flush mount. External CT.				
R1D 48	24-48VAC/DC	1	1	0.180
R1D 415	110-240-415V ①	1	1	0.180

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

General characteristics

- 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
- 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 RX10)
- Configurable tripping delay time (t): 0.02-0.5s
0.2-5s

Reference standards

Compliant with standards: IEC/EN 60947-2.



RM1...

moduLo

Order code	Rated auxiliary supply voltage	Output contacts	Qty per pkg	Wt
	[V]	$\frac{1}{1}$	n°	[kg]
1 OPERATION THRESHOLD. Modular, 35mm DIN (EN 50022) rail mounting. External CT. Fixed tripping set point and time.				
RM1 48	24-48VAC/DC	1	1	0.078
RM1 415	110-240-415V AC ①	1	1	0.078

1 OPERATION THRESHOLD.
Modular, 35mm DIN (EN 50022) rail mounting. External CT.

31 RM 48	24-48VAC/DC	1	1	0,078
31 RM 415	110-240-415V ①	1	1	0,078

1 OPERATION THRESHOLD.
Modular, 35 mm DIN rail (EN 50022) mounting.
Ø 28 mm incorporated CT. Configurable fail safe.

31 RMT 48	24-48VAC/DC	2 ②	1	0,259
31 RMT 415	110-240-415V ①	2 ②	1	0,259

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

② 2 output relays each with 1 changeover contact.

General characteristics

- 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, 2modules, with transparent cover, suitable for fixing on 35mm DIN rail (IEC/EN 60715)
- 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
0.25-2.5A
2.5-25A
25-250A (with external multiplier RX10 for RM only)
- Configurable tripping delay time (t): 0.02-0.5s
0.2-5s

Reference standards

Compliant with standards: IEC/EN 60947-2.



31 RM...

moduLo



31 RMT...

moduLo



31 RC60...

Order code	Rated auxiliary supply voltage	Output contacts	Qty per pkg	Wt
	[V]	$\frac{1}{1}$	n°	[kg]
1 OPERATION THRESHOLD. Compact panel mount. CT incorporated.				
31 RC 48	24-48VAC/DC	1	1	0.278
31 RC 415	110-240-415V ①	1	1	0.278

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).

General characteristics

- 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
- 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

Reference standards

Compliant with standards: IEC/EN 60947-2.



31 RC110...

Relays with 2 operation thresholds



R2D...



R3D...



R4D...

Ordering code	Rated auxiliary supply voltage	Output contacts	Qty per pkg	Wt
	[V]	4	n°	[kg]

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

R2D 48	24-48VAC/DC	2	1	0.350
R2D 415	110-240-415V	2	1	0.350

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

R3D 48	24-48VAC/DC	2	1	0.360
R3D 415	110-240-415V	2	1	0.360

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

R4D 48	24-48VAC/DC	2	1	0.440
R4D 415	110-240-415V	2	1	0.440

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

General characteristics

- 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 housing with transparent cover
- Degree of protection: IP20 terminals, IP40 on front with cover.

ADJUSTMENTS FOR R2D and R3D

- Configurable tripping set-point (I Δ n): 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 (I Δ n): 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

Reference standards

Compliant with standards: IEC/EN 60947-2.

Toroidal current transformers



31 RT...



31 RT...

Order code	Diameter	Openable	Qty per pkg	Wt.
	[mm]		n°	[kg]
31 RT 35	35	No	1	0.230
31 RT 60	60	No	1	0.280
31 RT 80	80	No	1	0.450
31 RT 110	110	No	1	0.410
31 RT 210	210	No	1	1.600
31 RTA 60	60	Yes	1	0.540
31 RTA 110	110	Yes	1	0.540
31 RTA 210	210	Yes	1	1.850

Reference standards

Compliant with standards: IEC/EN 60947-2.

External multiplier

Order code	Description	Qty per pkg	Wt
		n°	[kg]
31 RX 10	10-fold multiplier suitable for R1D, RM, R2D, R3D and R4D types only	1	0.183

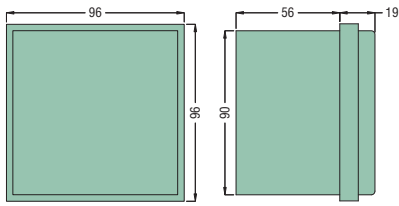
General characteristics

- Dimensions: refer to RT35 toroidal transformer on page D-48.
- To connect between toroid and relay.

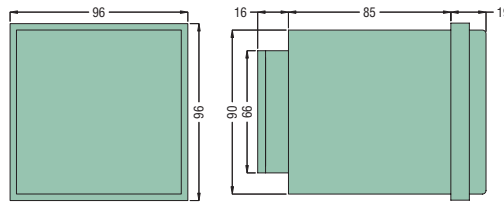
Reference standards

Compliant with standards: IEC/EN 60947-2.

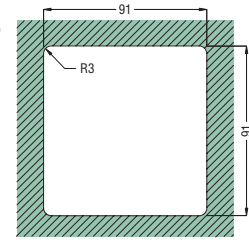
R1D - R2D - R3D



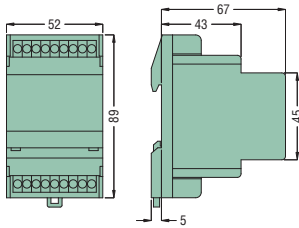
R4D



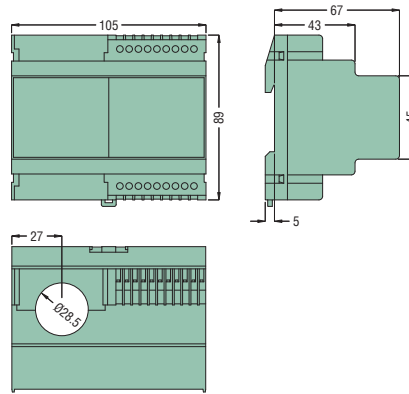
Cutout



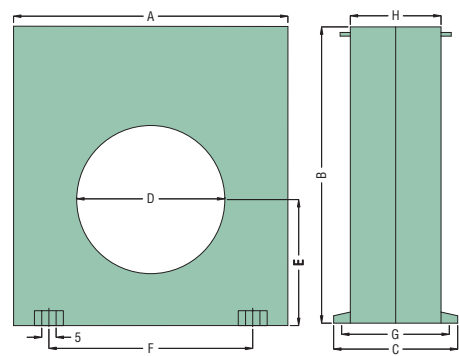
RM1 - RM



RMT

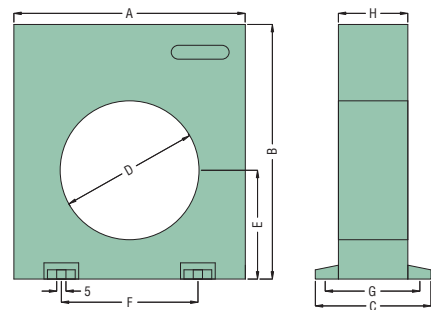


RC

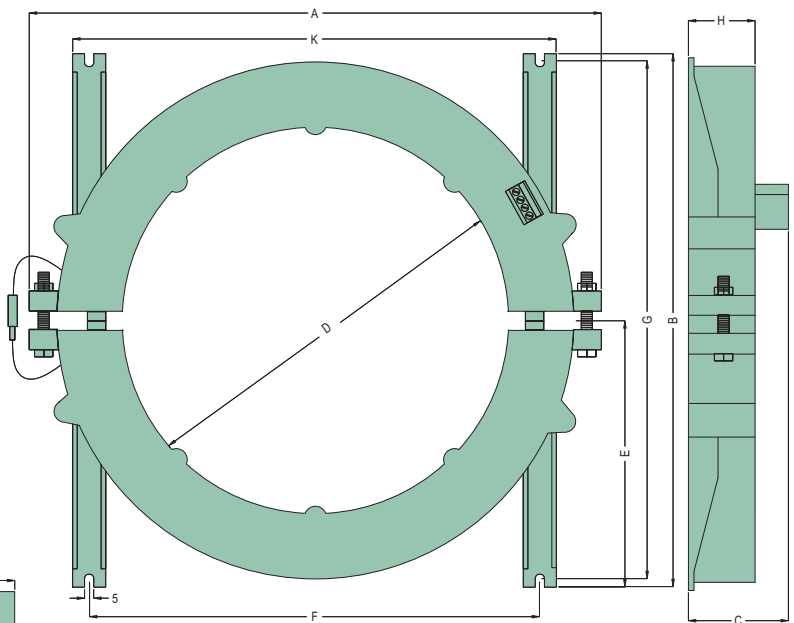


TYPE	A	B	C	D	E	F	G	H
RC35	100	110	70	35	47	60	60	50
RC60	100	110	70	60	47	60	60	50
RC80	150	160	70	80	70	110	60	50
RC110	150	160	70	110	70	110	60	50

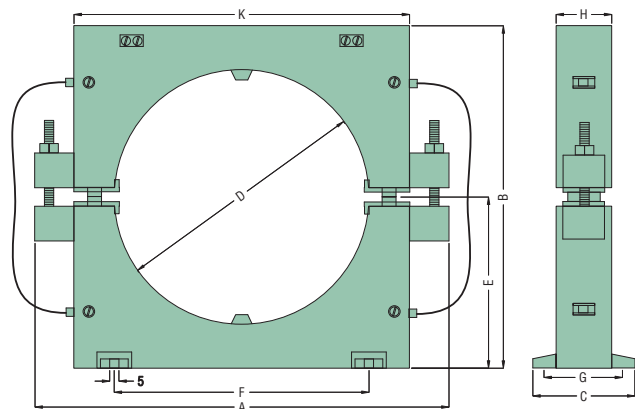
RT35 - RT60 - RT80 - RT110 - RX10



RT210 - RTA210

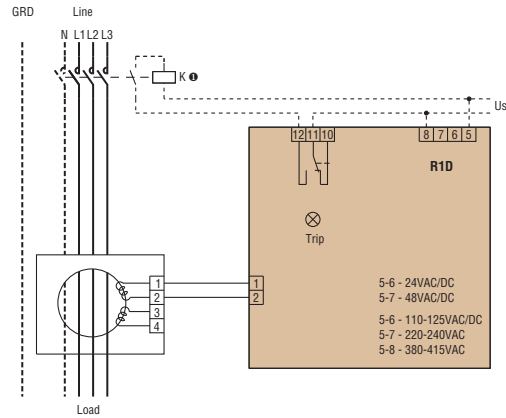


RTA60 - RTA110

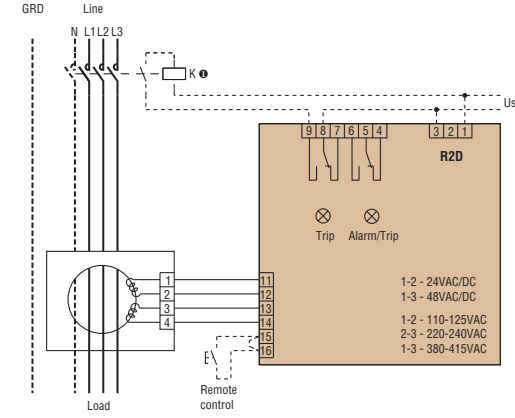


TYPE	A	B	C	D	E	F	G	H	K
RT35	100	110	50	35	47	60	43	30	—
RT60	100	110	50	60	47	60	43	30	—
RT80	150	160	50	80	70	110	43	30	—
RT110	150	160	50	100	70	110	43	30	—
RT210	310	290	54	210	145	240	280	36	258
RTA60	180	150	45	110	75	110	38	25	145
RTA110	180	150	45	110	75	110	38	25	145
RTA210	310	290	54	210	145	240	280	36	258
RX10	100	110	50	—	—	60	43	30	—

R1D

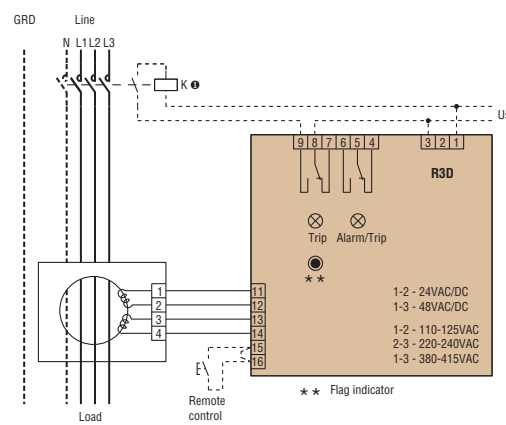


R2D



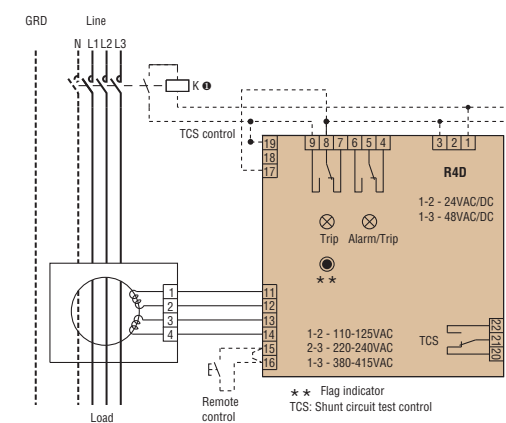
❶ The coil connection can vary depending on the connected type of device (contactor, breaker with shunt trip release or breaker with undervoltage trip release).

R3D



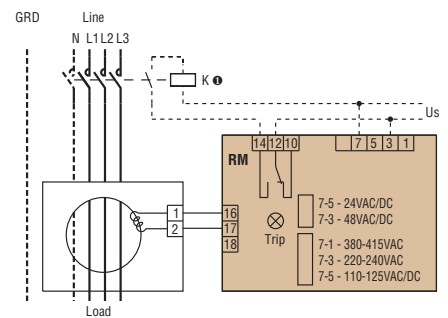
❶ The coil connection can vary depending on the connected type of device (contactor, breaker with shunt trip release or breaker with undervoltage trip release).

R4D



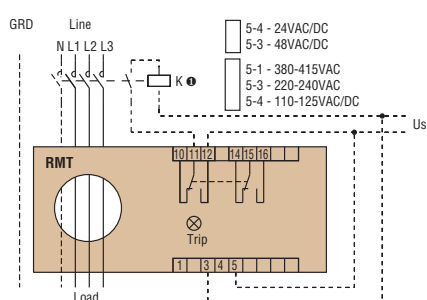
Type	Us	Us Wiring	TCS Wiring
R4D 48	24VAC/DC	1-2	17-18
	48VAC/DC	1-3	17-19
R4D 415	110-125VAC	1-2	17-18
	220-240VAC	2-3	17-18
	380-415VAC	1-3	17-19

RM - RM1

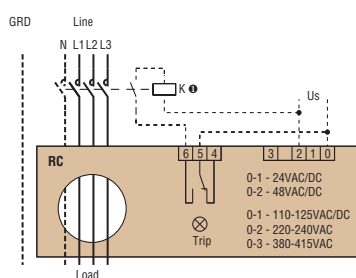


❶ The coil connection can vary depending on the connected type of device (contactor, breaker with shunt trip release or breaker with undervoltage trip release).

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).

Operational characteristics

TYPE	R1D ^①	R2D ^①	R3D ^①
DESCRIPTION			
	Flush mount with transparent cover 1 operating threshold	Flush mount with transparent cover 2 operating thresholds constant toroid-relay circuit control	
CONTROL CIRCUIT			
Toroidal transformer	External (see types given on page 13-3)	External (see types given on page 13-3)	External (see types given on page 13-3)
Adjustments			
Tripping set-point (I Δ n) (configurable)	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) 25-250A (external multiplier)	0.025-0.25A (x0.1) 0.25-2.5A (x1) 2.5-25A (x10) 25-250A (external multiplier)
Prealarm set-point	—	70% I Δ n (fixed)	70% I Δ n (fixed)
Tripping delay time (t)	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)
Selection of multiplier for I Δ n and t	By dip switches	By dip switches	By dip switches
Resetting	Configurable automatic or manual by button on front ^②	Automatic by remote contact closing or rear jumper connection Manual by button on front or remote contact closing	
Shunt circuit control	—	—	—
AUXILIARY SUPPLY			
Auxiliary voltage Us	24/48VAC/DC		
	110-125VAC/DC 220-240/380-415VAC	110-125/220-240/380-415VAC	
Operating voltage range	0.85 - 1.1 Us		
Rated frequency	50-60Hz	50-60Hz	50-60Hz
Power consumption (maximum)	5.5VA	4.5VA	4.5VA
OUTPUT RELAYS			
State	Normally de-energised	Configurable normally de-energised or energised	Configurable normally de-energised or energised
Contact arrangement	1 changeover (trip)	2 changeover (configurable: 2 trip or 1 trip and 1 alarm)	
Rated contact capacity I _{th}	5A - 250VAC	5A - 250VAC	5A - 250VAC
Electrical life	3 x 10 ⁵ cycles	3 x 10 ⁵ cycles	3 x 10 ⁵ cycles
Mechanical life	50 x 10 ⁶ cycles	50 x 10 ⁶ cycles	50 x 10 ⁶ cycles
INSULATION			
Power frequency withstand voltage	2.5kV	2.5kV	2.5kV
INDICATIONS			
Auxiliary voltage available (ON)	Green LED	Green LED	Green LED
Relay tripping (TRIP)	Red LED	Red LED	Red LED
Trip prealarm (ALARM)	—	Red LED	Red LED
Mechanical (TRIP MEMORY)	—	—	Flag indicator
Shunt circuit tripping	—	—	—
CONNECTIONS			
Type of terminals	Fixed		
Tightening torque maximum	0.5Nm (4.5lbin)		
Conductor section min-max	0.2-2.5mm ² (24-12AWG)		
AMBIENT CONDITIONS			
Operating temperature	-10...+60°C	-10...+60°C	-10...+60°C
Storage temperature	-20...+80°C	-20...+80°C	-20...+80°C
Relative humidity	≤90%	≤90%	≤90%
Housing material	Self-extinguishing polycarbonate	Self-extinguishing polycarbonate	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.

R4D ^②	RM1... ^①	RM... ^①	RMT... ^①	RC... ^①
Flush mount with display and cover 2 operating thresholds - constant toroid-relay circuit control	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 13-3)	External (see types given on page 13-3)	External (see types given on page 13-3)	Incorporated Ø 28 mm	Incorporated 35-60-80-110 mm standard diameter
0.03-0.3A (x0.1) 0.3-3A (x1) 3-30A (x10) 30-300A (external multiplier)	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)
70% I _{Δn} (fisso)	—	—	—	—
0.03-0.5s (tx1) 0.3-5s (tx10)	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	By dip switches	By dip switches	By dip switches	By dip switches
Automatic by remote contact closing or rear jumper. Manual by button on front or remote contact closing	Configurable A: Automatic or M: Manual by button on front	Configurable A: Automatic or M: Manual by button on front	Configurable A: Automatic or M: Manual by button on front	Configurable AUTO: Automatic or MAN: Manual by button on front
Yes	—	—	—	—
24/48VAC/DC	24/48VAC/DC			
110-125/220-240/380-415VAC	110-125VAC/DC 220-240/380-415VAC			
0.85-1.1 Us	0.85-1.1 Us			
50/60Hz	50/60Hz			
5.5VA	3VA			
Configurable normally de-energised or energised	Normally de-energised	Normally de-energised	Configurable normally de-energised or energised	Normally de-energised
2 changeover (configurable: 2 trip or 1 trip and 1 alarm)	1 changeover (trip)	1 changeover (trip)	2 changeover (both trip)	1 changeover (trip)
5A - 250VAC	5A - 250VAC	5A - 250VAC	5A - 250VAC	5A - 250VAC
3x10 ⁵ cycles	3x10 ⁵ cycles	3x10 ⁵ cycles	3x10 ⁵ cycles	3x10 ⁵ cycles
50x10 ⁶ cycles	50x10 ⁶ cycles	50x10 ⁶ cycles	50x10 ⁶ cycles	50x10 ⁶ cycles
2.5kV	2.5kV	2.5kV	2.5kV	2kV
Green LED	Green LED	Green LED	Green LED	Green LED
Red LED	Red LED	Red LED	Red LED	Red LED
Red LED	—	—	—	—
Flag indicator	—	—	—	—
Red LED	—	—	—	—
Fixed				
0.5Nm (4.5lbin)				
0.2-2.5mm ² (24-12AWG)				
-10...+60°C	-10...+60°C	-10...+60°C	-10...+60°C	-10...+60°C
-20...+80°C	-20...+80°C	-20...+80°C	-20...+80°C	-20...+80°C
≤90%	≤90%	≤90%	≤90%	≤90%
Self-extinguishing polycarbonate	Self-extinguishing polycarbonate			

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

② Digital display of fault current measurement and tripping value memory.