

Type A and B differential relays

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Due to continuous development, specifications and features are subject to change without prior notice.

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Differential protection

> Safety for property and personnel

An insulation fault in any electrical installation represents a potential risk both to users and equipment. The installation itself can be subject to a fire risk if there is a build up of heat caused by a fault current.

The installation standard for Low Voltage networks specifies the use of residual current differential devices. Specifically the protection requirements to be implemented for differing neutral points.

> Availability of installations

Rapid recognition of insulation faults ensures availability of distribution networks, avoids undesirable interruptions and minimises resultant production losses.

SOCOMEK HPL, a specialist in control and protection for low voltage networks

SOCOMEK HPL offers a complete range of devices for fault location and protection:



COMME 038 B

- Type A differential relays (sinusoidal alternating currents or alternating currents with a pulsed direct current component) **RESYS[®] M and P** range
- Type B differential relays (sinusoidal differential alternating currents or alternating currents with a pulsed direct current component or smooth direct differential currents): **RESYS[®] B470** range
- Fault location device: **ISOM DLRD 470** system
- Associated detection toroids.

For further information: www.socomec.com

EASY INSTALLATION

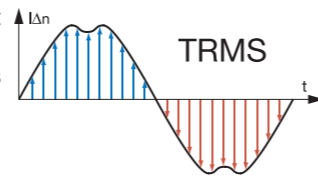
- Compact size (48 x 48 x 90 mm) with quick release terminal block can be flush-mounted
- Modular, 2.5 modules only (44 mm).



RESYS 048 A

MEASUREMENT

Efficient TRMS measurement provides improved performance against erroneous tripping.

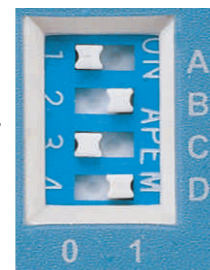


RESYS 049 A

FRONT PANEL CONFIGURATION

Dip switches for configuring:

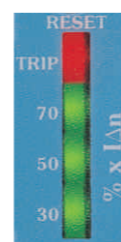
- operating mode for relays,
- storage mode,
- choice of transformer ratio for toroids.



RESYS 048 A

MONITORING DISPLAY

The bargraph displays leak currents so that insulation faults can be identified at an early stage.



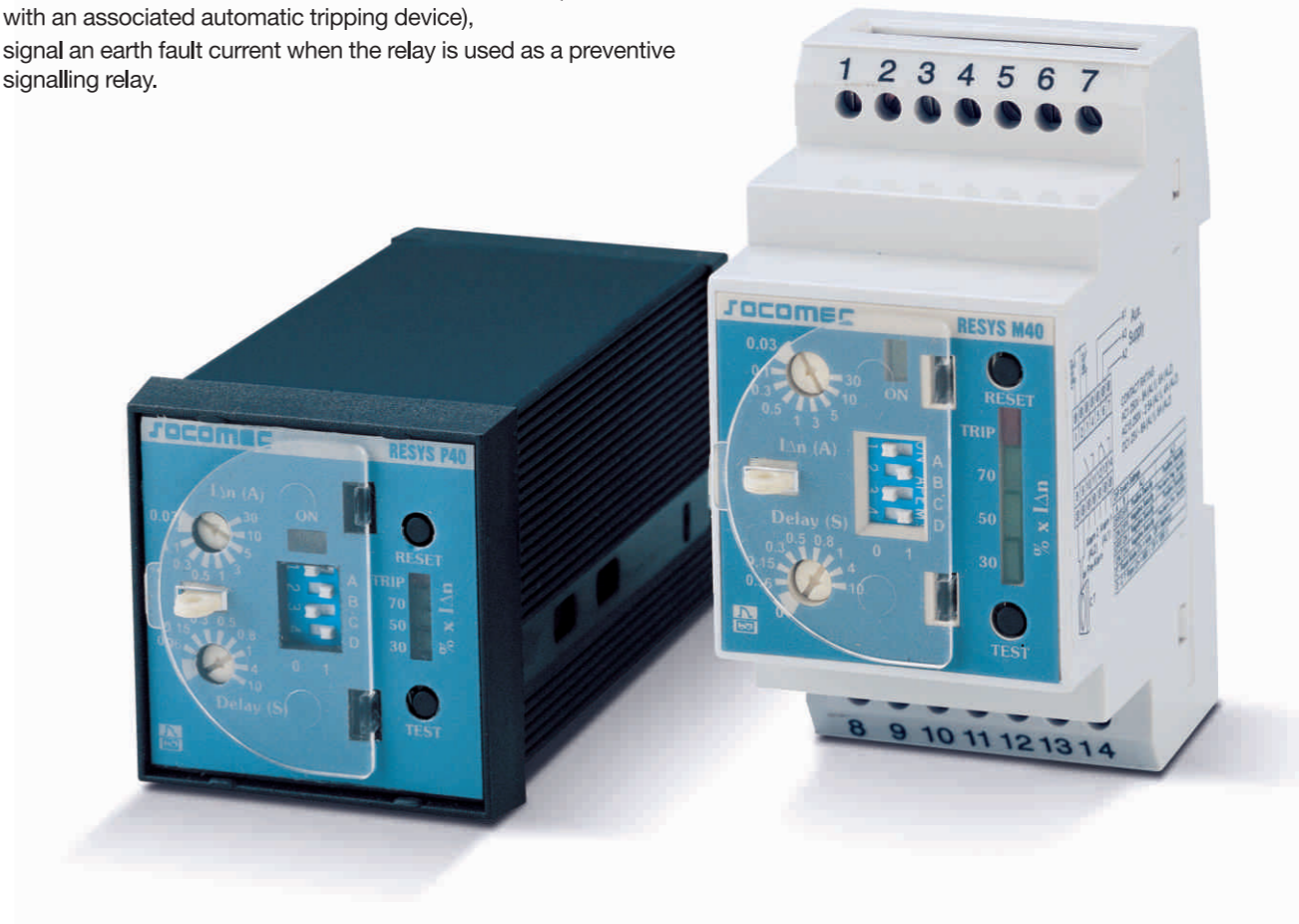
RESYS 046 A

RESYS[®] M and P

Protection which makes the difference

The differential relays in the **RESYS[®]** range provide optimised protection for electrical networks:

- cut off the installation when there is an insulation fault (when used with an associated automatic tripping device),
- signal an earth fault current when the relay is used as a preventive signalling relay.



PROTECTION OF PERSONNEL

- indirect contacts (TT arrangement)
- extended cables (TN or IT arrangement)
- exposed conductive parts not interconnected (IT arrangement)

PROTECTION OF INSTALLATIONS

- fire risk premises (BE2)
- premises or sites classified as at risk of explosion (BE3)

PROTECTION OF EQUIPMENT AND MACHINERY

- risk of perforation of electrical sheets (motors)
- risk of destruction due to resistance drop
- PLC inputs (relays)

PREVENTIVE MONITORING

- detection of progressive deterioration in the insulation
- remote supervision so that maintenance can be carried out before tripping occurs



PRINCIPAL FUNCTIONS



	RESYS® M20	RESYS® M40	RESYS® P40
TRMS measurement principle	●	●	●
Tripping threshold	set at 30 mA or 300 mA	30 mA to 30 A	30 mA to 30 A
Time delay	set at 0 or 60 ms	0 to 10 s	0 to 10 s
Instantaneous leak current indication (bargraph)		●	●
Pre-alarm signal		●	●
Sinusoidal residual current monitoring (class AC ~)	●	●	●
Pulsed residual current monitoring (class A ~)	●	●	●

REFERENCES

	RESYS® M20	RESYS® M40	RESYS® P40
12-125 V DC		4941 2602	4942 2602
115 V AC			4942 2711
230 V AC			4942 2723
115/230 V AC		4941 2723	
400 V AC		4941 2740	
30 mA - 0 s - 115/230 V AC	4941 4723		
300 mA - 0 s - 115/230 V AC	4941 5723		
300 mA - 60 ms - 115/230 V AC	4941 6723		

DIFFERENTIAL TOROIDS

Associated detection toroids: closed or open type, suitable for all cabling configurations



	CLOSED TOROIDS	RECTANGULAR CLOSED TOROIDS	OPENING TOROIDS
DIAMETER	REFERENCES	REFERENCES	REFERENCES
15	4793 2001		
35	4793 2003		
70	4793 2007		
105	4793 2010		
140	4793 2014		
210	4793 2020		
70 x 175		4795 0717	
115 x 305		4795 1130	
150 x 350		4795 1535	
200 x 500		4795 2050	
50 x 80			4795 0508
80 x 80			4795 0808
80 x 120			4795 0812
80 x 160			4795 0816

CHARACTERISTICS

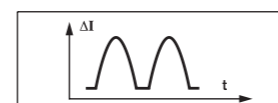


	RESYS® M20	RESYS® M40	RESYS® P40
SETTING RANGE			
Sensitivity	30 mA or 300 mA	0.03/0.1/0.3/0.5/1/3/5/10/30 A	
Time delay	0 or 60 ms	0/0.06/0.15/0.3/0.5/0.8/1/4/10 s	
MONITORED NETWORK			
Rated frequency		50/60 Hz	
AUXILIARY POWER SUPPLY			
Us DC	-	12-125 V DC (85 - 105%)	
Us AC	115/230 V AC	115, 230, 400 V AC ± 15%	
INPUTS			
External TEST/RESET		Push button until it latches	
Toroid	Transformer ratio 1/600	Transformer ratio 1/600 or 1/1000	
OUTPUTS			
Relay characteristics	1 changeover contact (250 V AC - 8 A - 2000 VA)	1 changeover contact (250 V AC - 8 A - 2000 VA) + 1 single contact (250 V - 6 A - 1500 VA)	
ENVIRONMENT			
Working temperature		-20 to +55 °C	
Storage temperature		-30 to +70 °C	
Relative humidity		95%	
BOX			
Type		2.5 modules	48 x 48 x 90 mm flush-mounted
Flush mounting cutout		-	45 x 45 mm
Front panel degree of protection		IP40	

THE RIGHT DIFFERENTIAL PROTECTION

> Type A differential relays: RESYS® M and P range

The device offers tripping with residual differential currents, alternating sinusoidal currents or pulsed continuous residual differential currents in which the direct current component remains below 6 mA for an interval of at least 150° at the rated frequency.



> Type B differential relays: RESYS® B470 range

The device offers tripping with differential currents identical to those in class A but also for differential currents originating from rectifier circuits:

- simple alternation with capacitive load producing a smooth continuous current,
- three-phase simple or double alternation,
- single-phase double alternation between phases,
- any which charges an accumulator bank.



> Fault locating device

The *DLRD 460* system monitors insulation fault currents and load currents: this innovative system prevents faults and provides control of TT or TN arrangement installations. This solution is suited to industrial environments or specific environments such as public lighting, water treatment, telecoms. etc.

