

RESYS M40

Type A differential relays for motor load break



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Function

RESYS M40 earth leakage relays associated with a remote trip breaking device (automatic power breaking), provide the following functions:

- protection against indirect contact,
- limitation of leakage currents.

They also preventively monitor electrical installations via their (configurable) pre-alarm function or when used as signalling relays.

Advantages

Fully configurable

- 2 relays with configurable function (alarm or pre-alarm at 50% IΔn).
- Adjustment of IΔn from 0.03 to 30 A.
- Time delay 0 to 10 s.
- Positive or negative security configurable by the user.
- Selection of toroid ratio.

Tripping accuracy by TRMS measurement

Improves immunity to nuisance tripping.

Instantaneous display of permanent leakage currents.

The LED bargraph provides a real-time display of fluctuations in leakage currents.

Compact modular design

44 mm in width, the unit allows easy integration into dedicated enclosures. The adjustment buttons are protected by a sealable cover, while the display of available alarms is displayed directly on the front face of the device.

Improved immunity to EMC interferences

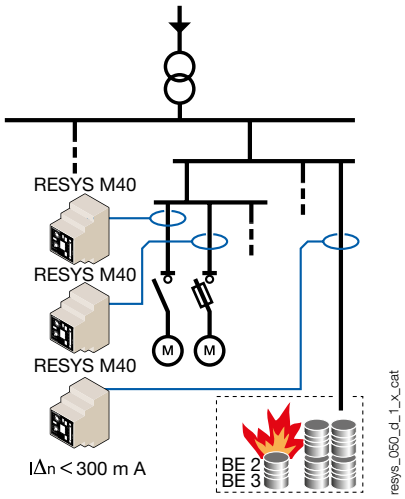
The device has new electronics which improve electromagnetic compatibility.

Applications

Rapid recognition of an insulation fault increases the availability of the distribution network by preventing accidental power cuts and the resulting loss of production.

Protection against fire or explosion risks

The use of Residual Differential Devices (with adjustment IΔn ≤ 300 mA) provides protection against the risk of fire or explosion generated by tracking currents to earth, in areas classed as BE2 or BE3 respectively. This protection is mandatory in TT, TN and IT neutral systems.



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The solution for

- Processes
- Manufacturing
- Oil, gas and petrochemistry
- Energy production

Strong points

- Fully configurable
- Measurement accuracy by TRMS
- Instantaneous display of permanent leakage currents
- Compact and modular case with LED bargraph
- Improved immunity to EMC interferences

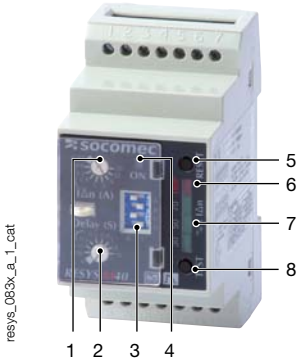
Conformity to standards

- IEC 60755
- IEC 60947-2
- IEC 60664
- IEC 61543 A1

Approvals and certifications(1)

(1) Product reference on request.

Front panel



1. IΔn setting.
2. Time delay setting.
3. Configuration micro-switches (x4).
4. "ON" LED.
5. "RESET" pushbutton.
6. "TRIP" alarm LED.
7. LED bargraph (% x IΔn).
8. "TEST" pushbutton.

General characteristics

- RESYS M40 with 2 configurable relays:
  - either 2 alarm relays,
  - or 1 alarm relay and 1 pre-alarm relay (50 % IΔn).
- Adjustment sensitivity from 0.03 mA to 30 A.
- Time delay 0 to 10 s.
- Tripping accuracy by TRMS measurement.
- Automatic instantaneous tripping at 30 mA.
- Positive or negative security configurable by the user.
- Selection of toroid ratio.
- Automatic permanent relay-toroid connection test.
- Sealable cover.

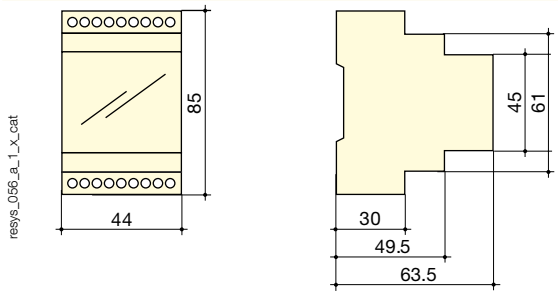
Characteristics

Auxiliary power supply U_s	
Frequency	47 … 63 Hz
AC operating zone	0.8 … 1.15 U_s
DC operating zone	0.8 … 1.05 U_s
Max. consumption	6 VA (AC) / 5 W (DC)
Insulation (according to IEC 60664-1 standard)	
Rated insulation voltage	250 VAC
Rated impulse voltage	2.5 kV (115 VAC) / 4 kV (230/400 VAC)
Degree of pollution	Class 3
Threshold values	
IΔn setting	0.03 - 0.1 - 0.3 - 0.5 - 1 - 3 - 5 - 10 - 30 A
Accuracy of tripping	- 20 … - 10 % IΔn
Domain of mains frequency	15 … 400 Hz
Time delay setting	0 - 0.06 - 0.15 - 0.30 - 0.50 - 0.80 - 1 - 4 - 10 s
PRE-ALARM relay tripping	50 % IΔn
Hysteresis of the PRE-ALARM relay	20 % IΔn
Alarm	
Alarm configuration mode	storage / automatic reset
Alarm factory setting	storage
Reset	manual by pushbutton / using terminal
Output contacts	
Number of contacts	2
Type of ALARM 1 contact	250 VAC - 8 A - 2000 VA
Type of ALARM 2 or PRE-ALARM contact	250 VAC - 6 A - 1500 VA
ALARM 1 operating mode	positive / negative security(1)
ALARM 2 or PRE-ALARM operating mode	positive security(1)
Factory setting of ALARM 1 operating mode	negative security
Factory setting of ALARM 2 operating mode	positive security

(1) Negative security: relay activated in case of alarm / Positive security: relay not activated in case of alarm.

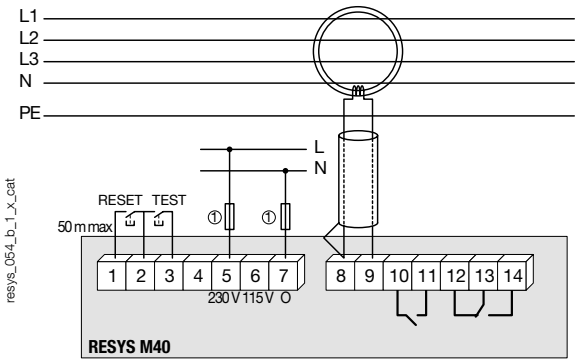
Operating conditions	
Operating temperature	- 20 … + 55 °C
Storage temperature	- 30 … + 70 °C

Case



Type	modular
Number of modules	2.5
Dimensions W x H x D	44 x 85 x 63.5
Case protection index	IP40
Terminal protection index	IP20
Rigid cable cross-section	0.2 … 4 mm²
Flexible cable cross-section	0.2 … 2.5 mm²
Weight	190 g

Terminals and connections



1 - 2 - 3: external push buttons
5 - 6 - 7: auxiliary power supplies U_s
8 - 9: SOCOMEC differential toroid connections
10 - 11 : alarm relay 2 or pre-alarm outputs
12 - 13 - 14: alarm relay 1 output

Note: The earth conductor must not pass through the toroid.
For single phase applications, only the live and neutral need to be passed through the toroid.
Cabling: for distances > 1 m, use twisted pair cable between the unit and toroid. Do not connect the shield to earth.

1. Fuses 2 A gG .

References

Auxiliary power supply U_s(1)	**RESYS M40 Reference**
115 / 230 VAC	4941 **3723**(2)
400 VAC	4941 **3740**(2)
12 … 125 VDC	4941 **3602**(2)

(1) Other rating: Please consult us. (2) References and characteristics of closed, split core and rectangular toroids: see "Core balance transformers type A" page 636.