

# RESYS M40

Type A differential relays  
for motor circuits



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## The solution for

- > Energy
- > Industry
- > Building

## Strong points

- > Fully configurable
- > Trigger accuracy by way of TRMS monitoring
- > Real-time display of continuous leakage currents
- > Compact modular design
- > Improved immunity to EMC interferences

## Conformity to standards

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

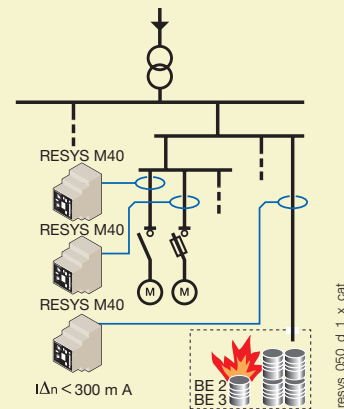


## Approvals and certifications<sup>(1)</sup>



<sup>(1)</sup> Product reference on request.

## Applications



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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  $I_{\Delta n} \leq 300$  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.

## Function

The RESYS M40 differential relay is combined with a triggered cut-off device (automatic power cut-off), to meet the following functions:

- Protect against indirect contact.
- Limit earth leakage currents.

It also ensures the preventive monitoring of electrical installations with its pre-alarm function (configurable) or when used in signalling relays..

## Advantages

### Fully configurable

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

### Trigger accuracy by way of TRMS monitoring

Improves immunity to untimely triggers.

### Real-time display of continuous leakage currents

LED bargraph shows the fluctuations of leakage currents in realtime.

### Compact modular design

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

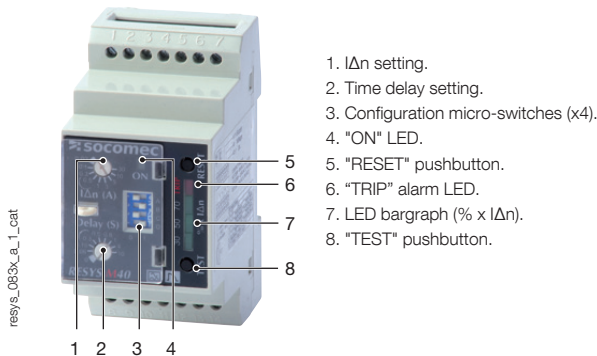
### Improved immunity to EMC interferences

The device has new electronics which improve electromagnetic compatibility.

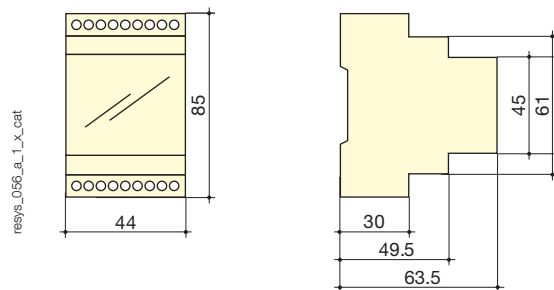
## General characteristics

- RESYS M40 with 2 configurable relays: either 2 alarm relays or 1 alarm relay and 1 prealarm relay (50%  $I_{\Delta n}$ ).
- 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.

## Front panel



## Case

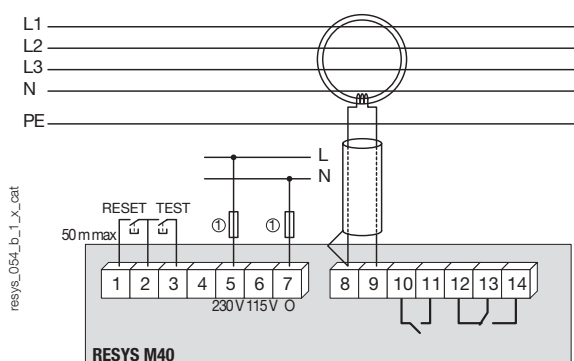


Type	modular
Number of modules	2.5
Dimensions W x H x D	44 x 85 x 63.5
Case protection index	IP40
Terminal protection index	IP20
Rigid cable cross-section	0.2 ... 4 mm <sup>2</sup>
Flexible cable cross-section	0.2 ... 2.5 mm <sup>2</sup>
Weight	190 g

## 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	
$I\Delta n$ setting	0.03 - 0.1 - 0.3 - 0.5 - 1 - 3 - 5 - 10 - 30 A
Accuracy of tripping	- 20 ... - 10 % $I\Delta n$
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 % $I\Delta n$
Hysteresis of the PRE-ALARM relay	20 % $I\Delta n$
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 <sup>(1)</sup>
ALARM 2 or PRE-ALARM operating mode	positive security <sup>(1)</sup>
Factory setting of ALARM 1 operating mode	negative security
Factory setting of ALARM 2 operating mode	positive security
<small>(1) Negative security: relay activated in case of alarm / Positive security: relay not activated in case of alarm.</small>	
Operating conditions	
Operating temperature	- 20 ... + 55 °C
Storage temperature	- 30 ... + 70 °C

## 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 $U_s$ <sup>(1)</sup>	RESYS M40 Reference
115 / 230 VAC	4941 3723 <sup>(2)</sup>
400 VAC	4941 3740 <sup>(2)</sup>
12 ... 125 VDC	4941 3602 <sup>(2)</sup>

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