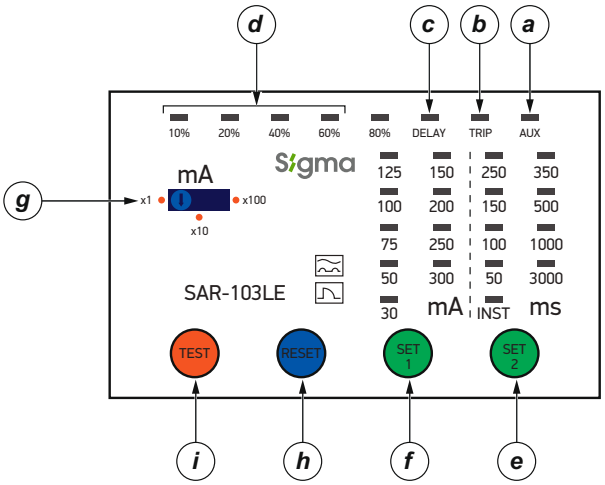
SAR-103LE Din Rail Earth Leakage Relay



a – Auxiliary power supply
b – Trip indicator
c – Trip start indicator
d – Leakage current indicator
e – Time delay selector
f – Residual current sensitvity selector
g – Residual current sensitivity multiplier switch
h – Reset button
i – Test button

Led Indicators

(i) Status indicators

Indicator			Status
AUX (a)	TRIP (b)	DELAY (c)	
Off	Off	Off	No auxiliary power
On	Off	Off	System normal, no tripping
On	Off	On	Trip start, time delay countdown started
On	On	Any	Earth leakage tripped
On	Off	Flash	ST is not connected or press the test button or remote test button

(ii) Leakage Indicators (d)

a) The earth leakage indicators indicate the amount of leakage current detected and are expressed as percentage of the set current.

- 10% - leakage current ≥ 10% of set current
- 20% - leakage current ≥ 20% of set current
- 40% - leakage current ≥ 40% of set current
- 60% - leakage current ≥ 60% of set current
- 80% - leakage current ≥ 80% of set current

b) When the SAR-103LE detects absence of zero-phase current transformer (ST) connection, it will blink the leakage indicators.

Sensitivity Adjustment

The SAR-103LE features 2 rotary selector switches for sensitivity ($I_{\Delta n}$) setting:

(i) 250mA ve 300mA. / 9-position sensitivity selector (f) offers setting range of 30mA, 50mA, 75mA, 100mA, 125mA, 150mA, 200mA, 250mA and 300mA.

(ii) 3-position sensitivity multiplier selector (g) switch offers selection of 1 x, 10x and 100x.

Example 1 : To set $I_{\Delta n}$ = 100mA
Step 1: Set sensitivity selector = 100mA
Step 2 : Set sensitivity multiplier selector= 1 x

$I_{\Delta n}$ = 100mA x 1 = 100mA

Example 2: To set $I_{\Delta n}$ = 25A
Step 1 : Set sensitivity selector = 250mA
Step 2: Set sensitivity multiplier se lector= 100x

$I_{\Delta n}$ = 250mA x 100 = 25A

Tripping Delay Time Adjustment

- The 9-position time delay selector (e) provides additional delay for fault discrimination.
- Selectable delays are: Instantaneous (no delay), 50ms,100ms, 150ms, 250ms, 350ms, 500ms, 1s and 3s.

Push Button Operations

a) Reset Button (h)

- The reset button is for resetting the light indicator and the trip contact after an earth leakage tripped.
- To reset, press the reset button once.

b) Test Button (i)

- Press the test button to simulate an earth leakage trip condition.

Remote Control/Input*

a) Remote Test Input

This digital input is similar to the TEST push-button. To remotely test the relay, make a connection between terminals 3 and 4 of the relay.

b) Remote Reset Input

This digital input is to remotely reset the relay when tripped. To reset the relay, make a connection between terminals 3 and 5 of the relay.

Output Contacts

a) Trip Contact

This is a latching type contact. It operates when tripped.

b) 50% Pre-fault Contact*

Operates when leakage current reaches 50% of the sensitivity setting.

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SAR-103LE Din Rail Earth Leakage Relay

Technical Data

Auxiliary Supply

Supply Voltage	110 VAC +1- 10% or 240 VAC +1- 10%
Frequency	50 Hz or 60Hz
VA rating	Less than 3V A

Setting

Sensitivity setting	30mA, 50mA, 75mA, 100mA, 125mA, 150mA, 200mA, 250mA, 300mA, 500mA, 750mA, 1A, 1.25A, 1.5A, 2A, 2.5A, 3A, SA, 7.5A, 10A, 12.5A, 15A, 20A, 25A, 30A.
Time delay setting	Instantaneous, 50ms, 100ms, 150ms, 250ms, 350ms, 500ms, 1s, 3s.

Inputs

Remote test / Reset inputs	N.O. dry contacts*
Sensor	ST **

Outputs

Contacts (Trip / 50% pre-fault*)

Contact rating	6A, 250 VAC (COSφ = 1)
Contact material	Silver alloy
Operating time	15ms max.
Expected electrical life	100.000 operations at rated current
Expected mechanical life	5 million operations
Approval	UL / CSA, VDE, TUV, SEMKO

Indicators

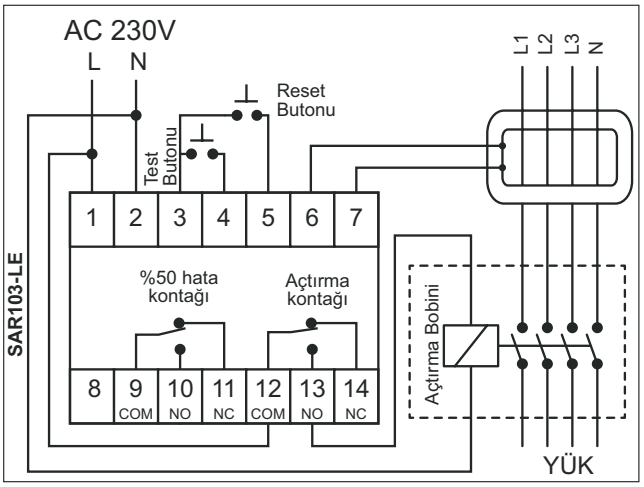
Auxiliary supply	Green light indicator
Time delay	Red light indicator
Trip	Red light indicator
Leakage current	5 red lights for leakage levels

Mekaniksel / Mechanical

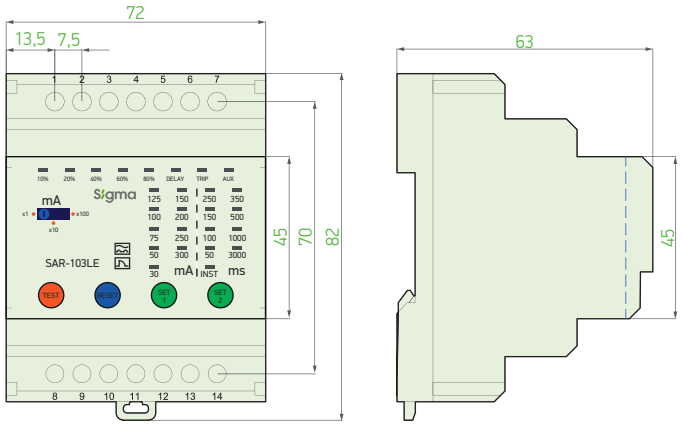
Mounting method	Din rail mounted
Approximate weight	0.3 kg

* Applicable to SAR-103LE model only
** Use only SIGMA CT

Connection Diagrams



Case Dimensions



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