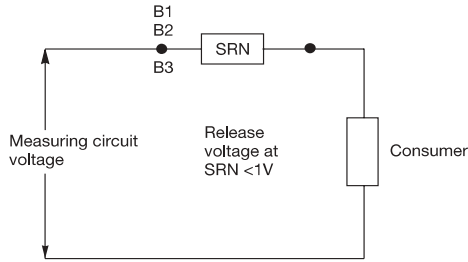


Current monitoring relays SRS and SRN mecotron®

Application



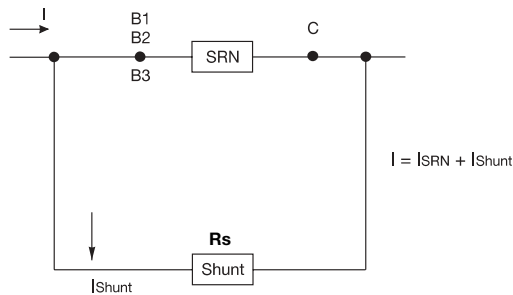
Voltage drop caused by internal resistance R_i of the SRN is negligible (less than 1 V). Thus the SRN can also be used at high measuring circuit voltages.

Setting up

Set delay time to minimum before setting the "desired" response value.

Measuring range extension

Measuring ranges can be extended by the use of current transformers or shunts which must be connected in parallel to the measuring input.



Example:

Current to be monitored: 110 A
 selected range of SRN: 1...5 A

Multiple of range "n": $n = \frac{110}{3} \approx 37$

(3 was chosen being the average of measuring range of 1 A to 5 A).

$$\text{Shunt resistor "Rs"} = \frac{\text{Input resistance "Ri"}}{\text{Multiple of range "n"} - 1}$$

$$R_s = \frac{R_i}{n-1} = \frac{18 \text{ m}\Omega}{37-1} \approx 0.58 \text{ m}\Omega$$

18 mΩ = input resistance SRN 1...5 A according to technical data.

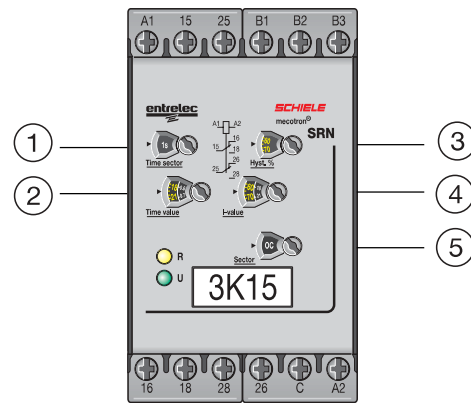
R_s selected 1.3 mΩ (nearest standard value)

Calculation of shunt load

Power consumption $P_v = (\text{extended value} - \text{basic value})^2 \times \text{shunt resistance}$

$$P_v = (110 \text{ A} - 3 \text{ A})^2 \times 0.0005 \approx 5.8 \text{ Watt}$$

With respect to temperature rise, the shunt must be rated **at least** twice the rating calculated.



- ① Time sector: Time selection switch, 0.05...1 s or 1.5...30 s
- ② Time value: Setting the desired time value
- ③ Hyst. %: Setting the response threshold/ hysteresis
- ④ I-value: Setting the desired current value
- ⑤ Sector: Only for AC/DC-versions:
 Selection switch overcurrent (OC)
 Selection switch undercurrent (AC/DC)

Current measuring ranges / current transformer

Current measuring range	Input resistance R_i	Terminal arrangement/ Measuring input	Continuous overload	Overload for $t < 1 \text{ s}$
3...30 mA	33 Ω	B1/C	50 mA	300 mA
10...100 mA	10 Ω	B2/C	150 mA	1 A
0.1...1 A	1 Ω	B3/C	1.5 A	10 A
The table below is only valid for the current monitor SRN mecotron®				
0.3...1.5 A	0.06 Ω	B1/C	2 A	15 A
1...5 A	0.018 Ω	B2/C	7 A	50 A
3...15 A	0.006 Ω	B3/C	20 A	100 A

Current transformer	Rated current	Power/class	sec. 5 A	sec. 1 A
IT 50-200	50 A	2 VA/1	4 450 116 50	4 450 116 10
	75 A	2.5 VA/1	4 450 116 51	4 450 116 11
	100 A	2.5 VA/1	4 450 116 52	4 450 116 12
	150 A	5 VA/1	4 450 116 53	4 450 116 13
	200 A	5 VA/1	4 450 116 54	4 450 116 14
IT 200-600	200 A	5 VA/1	4 450 117 50	4 450 117 10
	300 A	5 VA/1	4 450 117 51	4 450 117 11
	400 A	5 VA/1	4 450 117 52	4 450 117 12
	500 A	5 VA/1	4 450 117 53	4 450 117 13
	600 A	5 VA/1	4 450 117 54	4 450 117 14