

DIG **mat**[®]



DIGmat S100

- Digital protection relay for DC-Breakers
- dependend / undependend overcurrent time protection
- selectable trippings
- bipolar function

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mat[®]

The DC-Protection DIGmat S100 offers an adjustable overload and short-circuit protection for circuit breakers and Non-Automatic Circuit Breakers (e.g. SENTRON WL).

It consists of a measurement sequence of shunt resistor and tripping device DIGmat S100.

Shunt resistances are available for 1000 A, 2000 A and 4000 A (special ranges upon inquiry). They conform to DIN 43703 and have a class accuracy of 0.5.

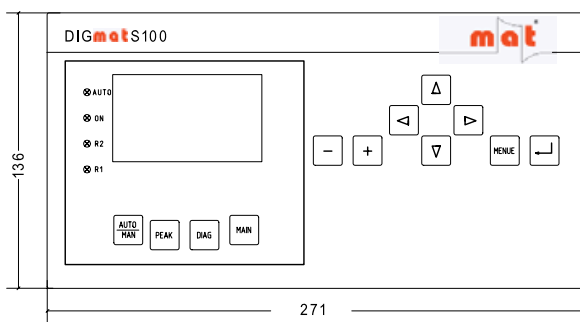
At nominal current I_n , a measured voltage of 60 mV DC is tapped.

Overload capability:

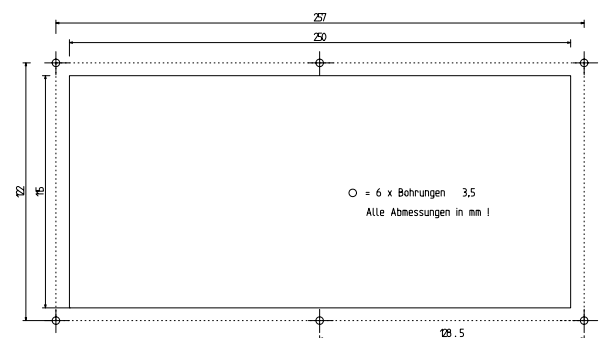
Shunt	1000 A	2000 A	4000 A
continuous	1,2 x I_n	1,2 x I_n	1,2 x I_n
5 s	5 x I_n	5 x I_n	5 x I_n
1 s	14 x I_n	14 x I_n	14 x I_n
0,5 s	20 x I_n	20 x I_n	20 x I_n

The measured voltage is a linear image of the primary current.

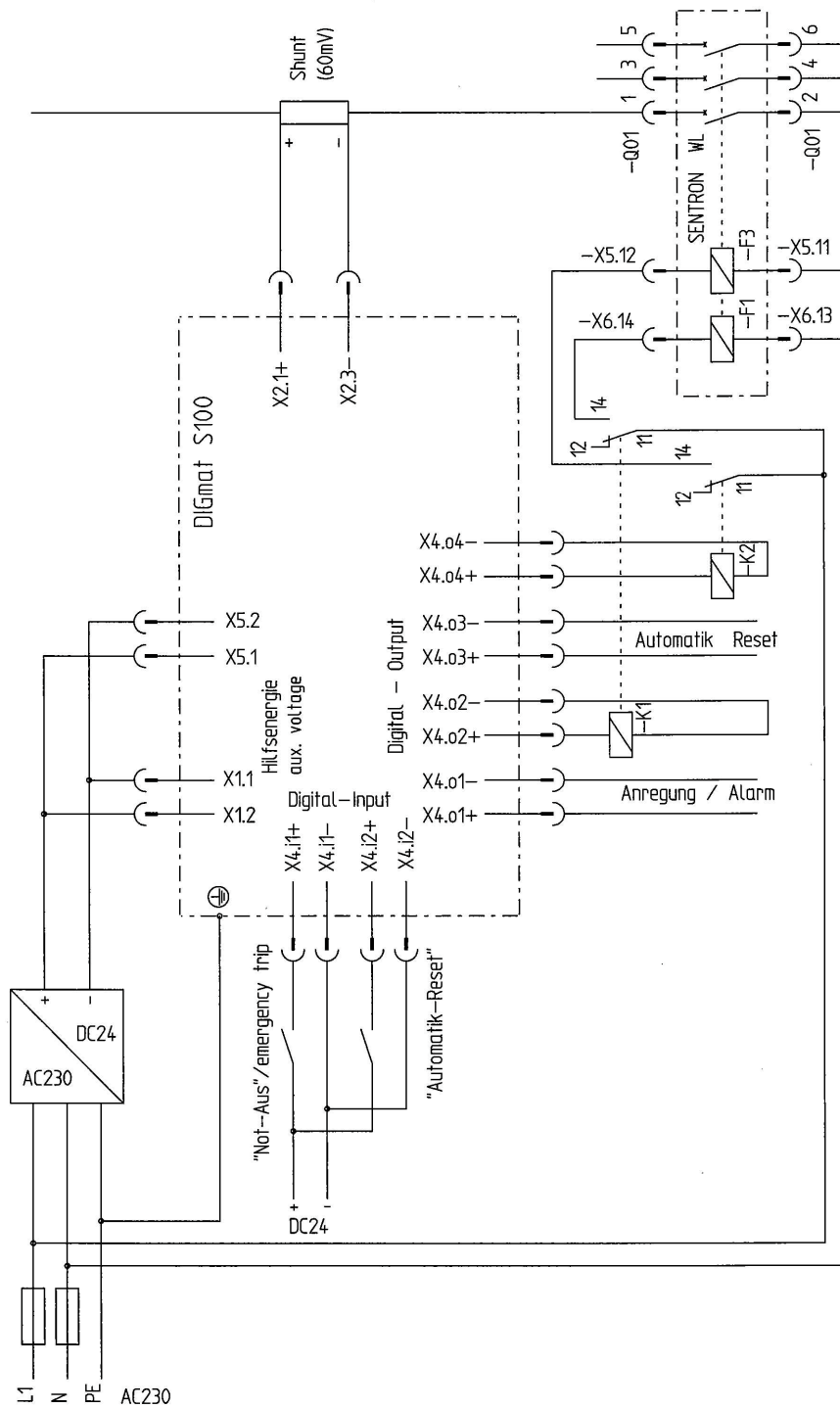
The tripping device DIGmat S100 monitors the image of the primary current that is maintained in this manner and compares it to the tripping characteristic that is set on the device. Revers DC-current operation also is allowed and continuously is monitored. The settings on the tripping device is valid for both of the operation modes.



Dimension front panel



panel cutout



Suggestion for integration of DIGmat S100 into switchgear technique.

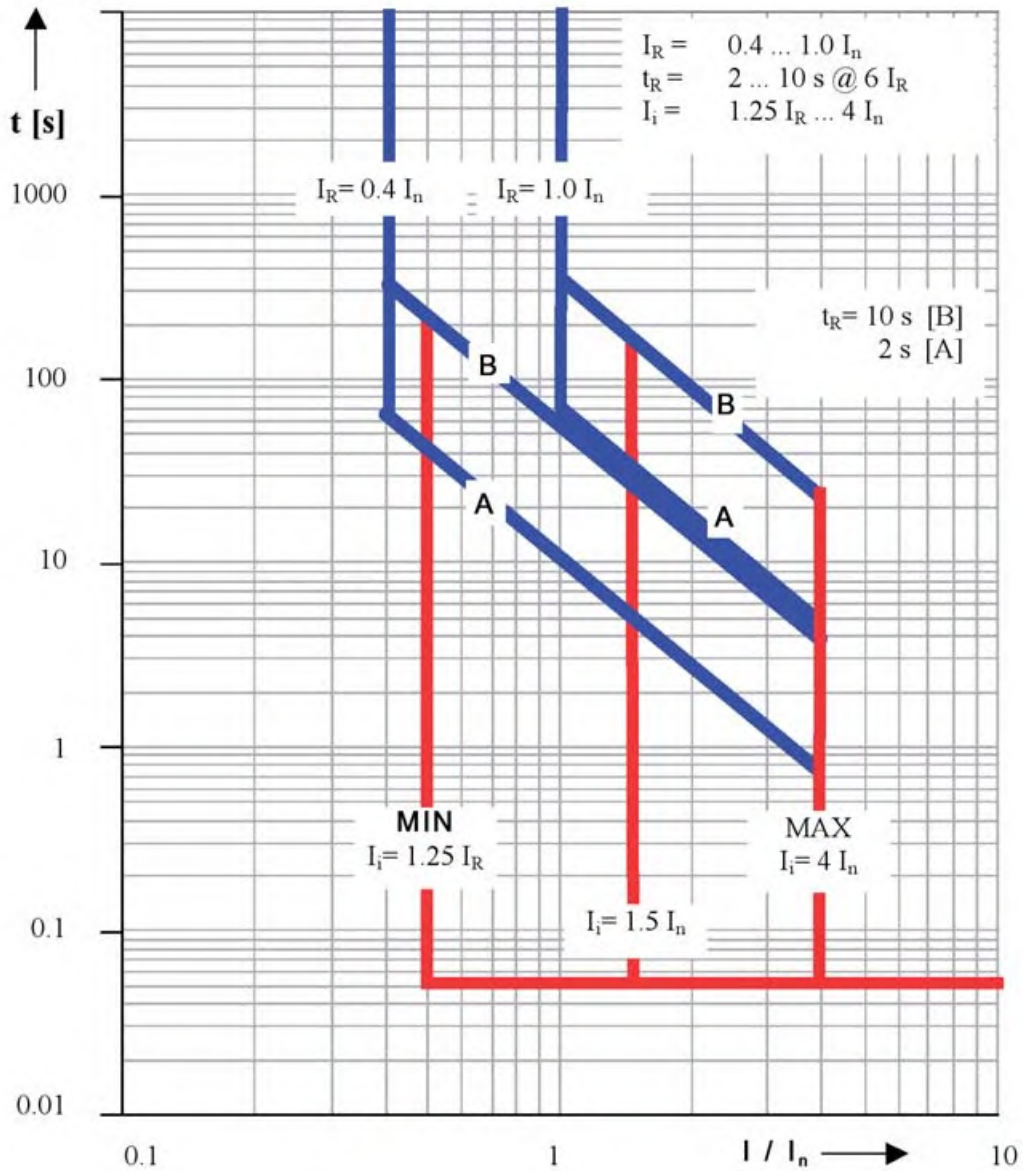
The tripping characteristic is determined by the following values.

I_n = Rated current of the Non-Automatic Circuit Breaker

I_R = Current setting of the adjustable overload actuator

t_R = Assigned tripping time of the overload tripping

I_i = Instantaneous tripping current of the adjustable short-circuit actuator



The tripping characteristic is described as follows.

- Overload protection:
 - Adjustment range $I_R = 0.4 \dots 1.0 I_n$
 - Die Kennlinie besitzt eine I^2t -Charakteristik.
 - The characteristic curve has an I^2t -characteristic.
 - With a current of $1.05 \times I_R$, no tripping takes place within 2 hours, $1.2 \times I_R$ tripping in max. 2h.
 - The tripping time t_R can be selected between 2 and 10 s, where t_R is defined for $6 \times I_R$.
- Short-circuit protection:
 - Adjustment range $I_i = 1.25 \times I_R$ up to max. $4 \times I_n$
 - When the value that has been set is exceeded, the tripping takes place < 50 msec.

Your Power Quality Team