

SXT 12

SXT 32

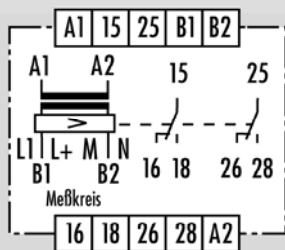
Voltage- or current-measuring relay

- For falling below or exceeding the limit value of single-phased currents or voltages
- Response value in Ratio 1 : 10 adjustable
- Fallback value (from 50 to 95 % of the response value) adjustable
- With auxiliary voltage
- SXT 12: Operating current principle
SXT 32: Standby current principle

Wiring diagram

SXT 12, SXT 32

KS 0233/1



Notes:

- In the measurement circuit, non-screened or partially screened direct voltages and currents can be monitored. In this process, it must be ensured that the relay responds to positive peak values - however, is also scaled to the respective effective values at 50 Hz.
- Negative currents are not measures, yet also not influenced (same operating range as for positive currents).

Operating ranges U/I

Operating range *	Internal resistance	Nominal frequency	Permissible excess current / voltage constant	max. 3 s **
0.01 - 0.1 A AC	2 Ω	50-60 Hz	0.25 A AC	1 A AC
0.05 - 0.5 A AC	400 mΩ	50-60 Hz	1.25 A AC	5 A AC
0.1 - 1 A AC	200 mΩ	50-60 Hz	2.5 A AC	10 A AC
0.5 - 5 A AC	10 mΩ	50-60 Hz	12.5 A AC	50 A AC
1 - 10 A AC	5 mΩ	50-60 Hz	17.5 A AC	50 A AC
2 - 20 mA DC	10 Ω	—	0.05 A DC	0.2 A DC
0.1 - 1 A DC	200 mΩ	—	2.5 A DC	10 A DC
0.5 - 5 A DC	10 mΩ	—	12.5 A DC	50 A DC
1 - 10 A DC	5 mΩ	—	17.5 A DC	50 A DC
0.5 - 5 V DC	125 Ω	—	12.5 V DC	—
5 - 50 V DC	12.5 Ω	—	125 V DC	—

* All operating ranges with one-way rectification direction

** with pause (100 s) until the next overload

Example setting:

- Operating range end value x scale factor = *Response value (ON)*
e.g. 10 A AC x 0.75 = 7.5 A AC
- Response value scale factor = *fallback value (OFF)*
e.g. 7.5 A AC x 0.85 = 6.4 A AC
- *Hysteresis*: 7.5 A AC -- 6.4 A AC = 1.1 A AC

Applications

- Monitoring of field excitation in motors
- Monitoring of external voltage in mains with external supply
- Monitoring of excess voltages levels
- Monitoring of excess current levels

Function

The measuring relay is constantly flush to the supply voltage 50 to 60 Hz. The measurand to be monitored – current or voltage – is supplied via the terminals B1/B2. The supply voltage circuit and the measurement circuit are galvanically separated by a transformer.

On the relay, a response value and a fallback value are set. If the measurand exceeds the response value, then the relay toggles. If the measurand undershoots the fallback value, the relay returns to its default position. The fallback value is adjustable in the range 0.5 ... 0.95 of the response value.

SXT 12 – operating current principle

When supply voltage is applied, the SXT 12 is in the Standby position. When the response value is exceeded, it toggles to the operating position. If the fallback value is undershot, then the relay re-toggles to the Standby position.

SXT 32 – standby current principle

When supply voltage is applied, the SXT 32 toggles to the operating position. When the response value is exceeded, it re-toggles to the Standby position. Only if the fallback value is undershot does it re-toggle to the operating position.

Accessories

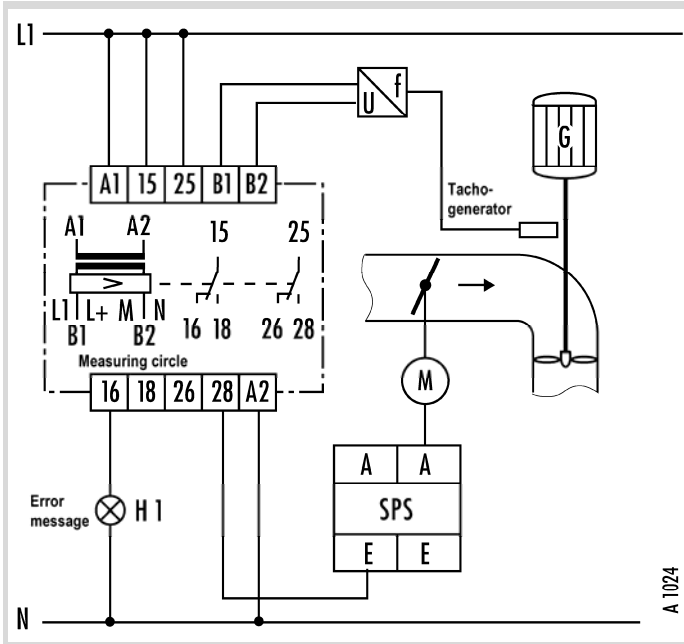
Cover

Z 29

Application examples

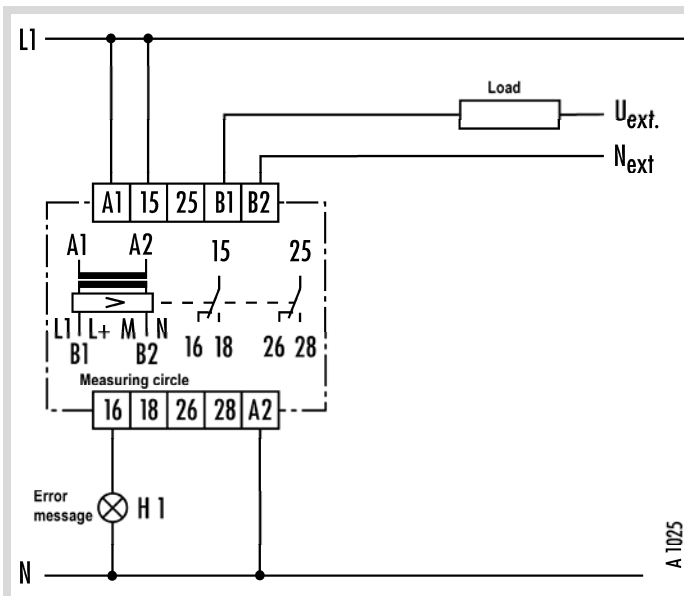
RPM monitoring

The RPM reading supplied by the tacho generator is converted to a voltage. This voltage (measurand) is monitored by the measuring relay SXT 32. If the voltage rises above the set response value, then the relay toggles to Standby position (standby current principle). The fault is indicated by Lamp H1. The flow is controllable via the SPS.



Current monitoring in the consumer load

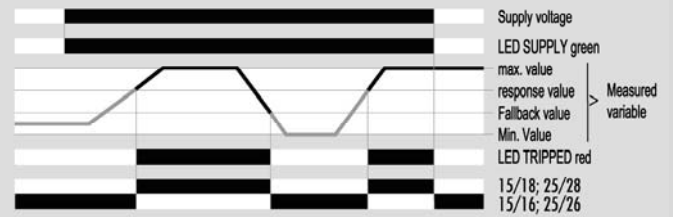
If the current in the consumer load (measurand) rises above the set response value, then the relay toggles to Standby position (standby current principle). The fault is indicated by Lamp H1. If the current decreases below the fallback value, then the relay re-toggles to the operating position.



Function diagrams

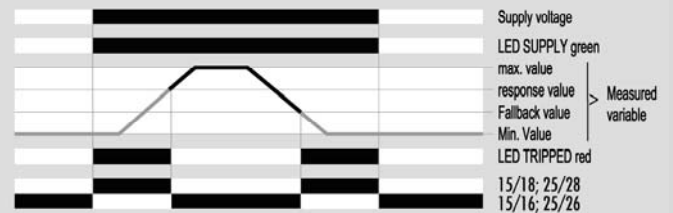
SXT 12

FD 0075 W1

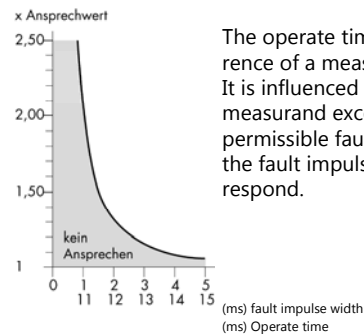


SXT 32

FD 0076 W1



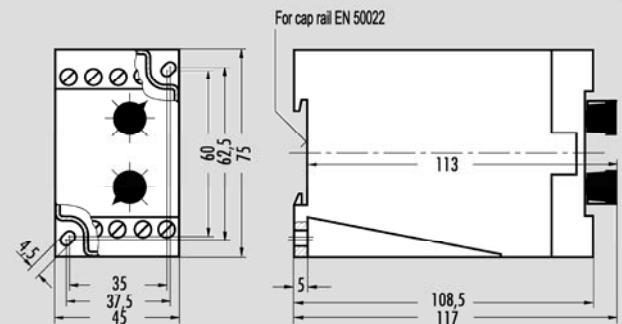
Operate time



The operate time is the time between the occurrence of a measurand and the toggle of the relay. It is influenced by way of the factor by which the measurand exceeds the response value. The permissible fault impulse width is the duration of the fault impulse at which the relay does not yet respond.

Dimensional drawing

S3-4





Technical Data		SXT 12	SXT 32
Function type according to DIN EN 60255-6:11.94		Measuring relay with supply voltage Operating current principle	Measuring relay with supply voltage Standby current principle
Function check		1 LED green, 1 LED red	1 LED green, 1 LED red
Function diagram		FD 0075 W1	FD 0076 W1
Supply circuit			
Nominal voltage U_N	AC	110–127 V 220–240 V	
Rated output at 50 Hz and U_N (AC)		2.5 VA 2.5 VA	
Rated output at 50 Hz and U_N (AC)		2.1 W 2.1 W	
Nominal frequency		50 to 60 Hz	
Operating voltage range		0.8 to 1.1 x U_N	
Parallel consumer loads permissible		yes	
Measurement circuit			
Galvanic separation facing the supply circuit		yes	
Setting / Quantity of operating ranges		analog / 1	
Setting ranges for measurement circuit - response values		see Table " operating ranges U/I"	
Setting ranges for measurement circuit - fallback values		0.5 to 0.95 x response value	
Scatter		≤ ± 0.5 %	
Influence of the supply voltage		≤ 0.05 % / % ΔU_N	
Influence of the ambient temperature		≤ 0.1 % / $K\Delta T$	
Output circuit			
Contact allocation / contact material		2 contact / Ag alloy, gold-plated	
Switching nominal voltage U_n		AC/DC 230/230 V	
max. steady current I_n per current path		5 A	
Usage category according to EN 60947-5-1:1991		AC-15: U_e 230 V AC, I_e 3 A DC-13: U_e 24 V DC, I_e 2 A	
Short circuit safeguard, max. fuse insert Class gG		6 A	
Permissible frequency of operation		≤ 6000 switching cycles/h	
Mechanical service life		30 x 10 ⁶ switching cycles	
Response time t_A		see diagram "Operate time"	
Fallback interval t_R		30 ms	
General Data			
Air and creep sections between the electric circuits		according to DIN VDE 0110-1:04.97	
Rated voltage impulse		4 kV	
Excess voltage category		III	
Degree of contamination		3 exterior, 2 interior	
Rated voltage		250 V AC	
Testing voltage U_{eff} 50 Hz according to DIN VDE 0110-1, Table A.1		2.21 kV	
Safety class for casing / terminals according to DIN VDE 0470 Section 1:11.92		IP 30 / IP 20	
Interference resistance according to IEC 61000-4		Test acuity 3	
Ambient temperature, work area		–20 to +60 °C	
Dimensional drawing		S 3-4	
Wiring diagram		KS 0233/1	
Connector sections, fine wire / single core or fine wire with wire end ferrules		2 x 0.75 to 1.5 mm ² / 2 x 0.75 to 2.5 mm ² 1 or 2 x 0.5 to 1.5 mm ²	
Permissible tightening torque		0.8 to 1 Nm	
Weight		0.24 kg	
Accessories		Cover Z 29	

Device overview / Order numbers

Type	Operating range	Rated voltage	Order number
SXT 12	DC 0.1-1 A	AC 220-240 V 50-60 Hz	R3.185.0099.0
	DC 0.5-5 A	AC 220-240 V 50-60 Hz	R3.185.0059.0
	DC 1-10 A	AC 220-240 V 50-60 Hz	R3.185.0079.0
	DC 0.5-5 V	AC 220-240 V 50-60 Hz	R3.185.0149.0
	AC 0.01-0.1 A	AC 220-240 V 50-60 Hz	R3.185.0109.0
	AC 0.05-0.5 A	AC 220-240 V 50-60 Hz	R3.185.0179.0
	AC 0.1-1 A	AC 110-127 V 50-60 Hz	R3.185.0019.0
		AC 220-240 V 50-60 Hz	R3.185.0039.0
	AC 0.5-5 A	AC 110-127 V 50-60 Hz	R3.185.0169.0
		AC 220-240 V 50-60 Hz	R3.185.0049.0
SXT 32	AC 1-10 A	AC 220-240 V 50-60 Hz	R3.185.0069.0
	DC 2-20 mA	AC 220-240 V 50-60 Hz	R3.185.0189.0
	DC 5-50 V	AC 220-240 V 50-60 Hz	R3.185.0139.0
	AC 0.05-0.5 A	AC 110-127 V 50-60 Hz	R3.185.0339.0
		AC 220-240 V 50-60 Hz	R3.185.0159.0
	AC 0.1-1 A	AC 110-127 V 50-60 Hz	R3.185.0119.0
		AC 220-240 V 50-60 Hz	R3.185.0089.0