

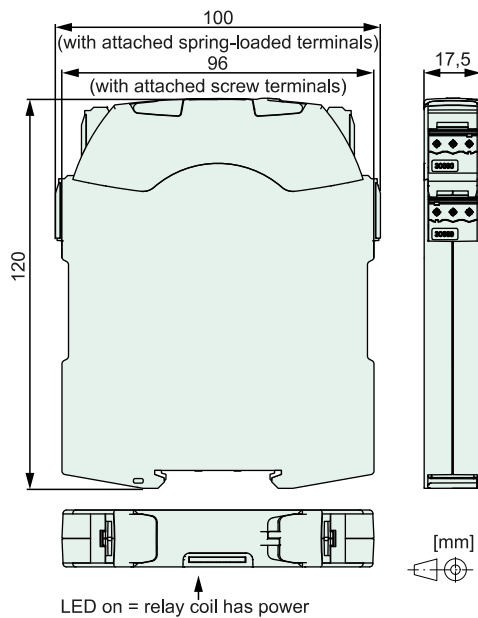


### Features

- Relay module with 4-pole relay with forcibly guided contacts according to IEC 61810-3
- Application type A
- Protective separation (see insulation data)
- Integration in safety applications according to IEC/EN 62061, ISO/EN 13849 possible\*
- Mounting on 35 mm mounting rail (IEC 60715)
- Switching current max. 8 A
- Switching voltage: 250 V AC/DC
- Power consumption: 0,8 ... 1,25 W
- Overvoltage protection in the control unit
- With spring terminals (SMF229/319)
- With screw terminals (SMF228/318)
- Contact assembly  
SMF228/229: 2 NO + 2 NC, SMF318/319: 3 NO + 1 NC

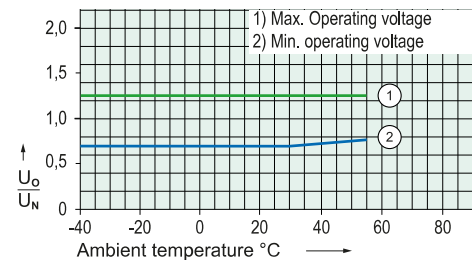
\* User is responsible for correct integration!

### Dimensions



### Module data excitation side at 20 °C

Nominal voltage (VDC)	Min. Pick-up voltage (VDC)	Min. Drop-out voltage (VDC)	Nominal current (mA)
12	8,4	1,2	69
24	16,8	2,4	51
48	33,6	4,8	33
110	77,0	11,0	11



### Test conditions:

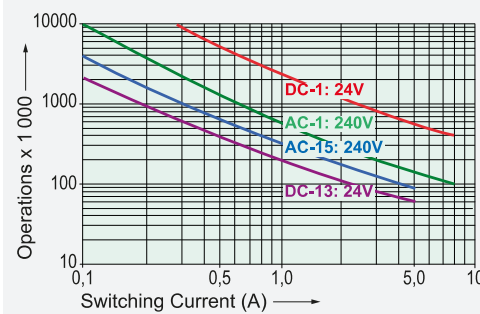
- Graph 1: Contact current 6 A MAX
- Graph 2: without previous operation
- Duty cycle 100%

### Contact data

Contact material	AgCuNi + 0,2, ..., 0,4 µm Au
Type of contact	Single contact with notched crown
Rated switching power	2000 VA
250 V / 8 A / AC-1 (max.)	
Electr. life time (0,1 Hz, rel. duty cycle 10%)	100 000
Inrush current	30 A for 20 ms
Switching voltage range	5, ..., 250 V DC / AC
Switching current range*	3 mA, ..., 8 A
Switching power range*	40 mW, ..., 2000 W (VA)
Contact resistance as new (max.)	100 mΩ
Short circuit resistance of NO contacts**	1000 A
with pre-fuse	SCPD 10 A gG / gL (fuse)
Short circuit resistance of NC contacts**	1000 A
with pre-fuse	SCPD 6 A gG / gL (fuse)

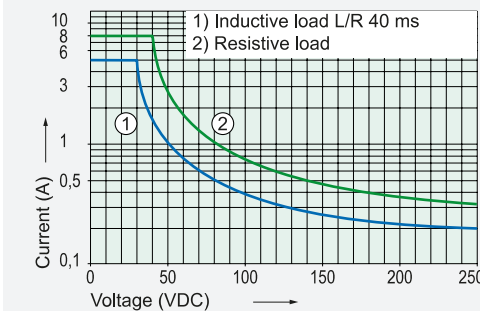
\* Reference values \*\* Prospective short-circuit current

### Electrical life (NO contacts)

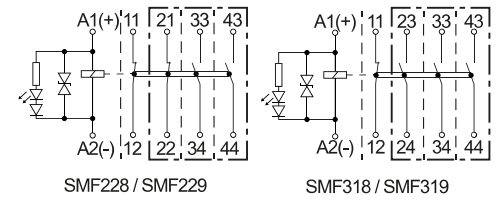


Switching capacity (IEC 61810-1)	
AC-1:	240 V / 8 A MAX
AC-15:	240 V / 5 A MAX
DC-1:	24 V / 8 A MAX
DC-13:	24 V / 5 A / 0,1 Hz MAX
Switching capacity (UL 508)	B300, R300
Continuous current per contact at load of:	
1 or 2 contacts	8 A MAX
3 contacts	6 A MAX

### Contact load limit curve (DC)



### Circuit diagram (top view)



### Insulation data

Rated insulation voltage (IEC 60664-1)	250 VAC
Basic insulation	---
- Air and creepage distance (min.)	2,5 mm
- Test voltage	2500 V <sub>rms</sub> / 1 min
Double or reinforced insulation	---
- Air and creepage distance (min.)	5,5 mm
- Test voltage	4000 V <sub>rms</sub> / 1 min
Open contact: Test voltage*	1500 V <sub>rms</sub> / 1 min
Pollution degree	2
Overvoltage category	III

\* Initial value

### Mechanical data

Mechanical lifetime (min.)	10 x 10 <sup>6</sup> operations
Switching frequency (max.)	15 Hz
Response time (NO closed) (typ.)	12 ms
Drop-out time (NC closed) (typ.)*	5 ms
Bounce time (typ.)	NO: 1,5 ms / NC: 15 ms
Shock resistance (16 ms) (min.)	NO: 14g / NC: 4g
Vibration resistance (10-200 Hz) (min.)	NO: 6g / NC: 4g
Weight	approx. 110 g
Mounting position	any

\* without coil wiring

### Technical data

Connection data Screw terminal:	
- Cross sections for wire:	0,2 - 2,5 mm <sup>2</sup> / AWG 24 - 14
- Cross sections for braid:	0,2 - 2,5 mm <sup>2</sup> / AWG 24 - 12
- Tightening torque:	0,6 Nm
Connection data spring terminal:	
- Cross sections for wire:	0,2 - 2,0 mm <sup>2</sup> / AWG 24 - 14
- Cross sections for braid:	0,2 - 2,5 mm <sup>2</sup> / AWG 24 - 12

### Other data

Ambient temperature	-40 °C, ..., +55 °C
Thermal resistance	60 K / W
Protection class	IP20
Approvals	cULus
UL File	E188953

### Mounting instructions

Mounting on 35 mm mounting rail (IEC 60715)

### Options, Accessories

Other coil designs possible

### Product key

SMF 3 1 8 24VDC XX

SMF	Type designation	
3	Number of contacts NO	
1	Number of contacts NC	
8	Connection technology	8=screw terminal, 9=spring terminal
24VDC	Nominal coil voltage	
XX	Options	