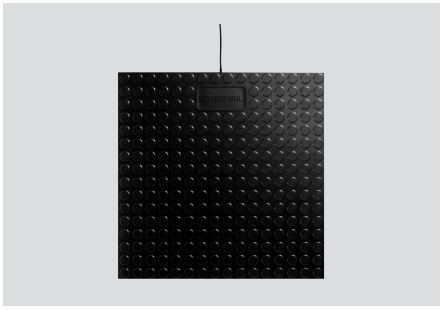
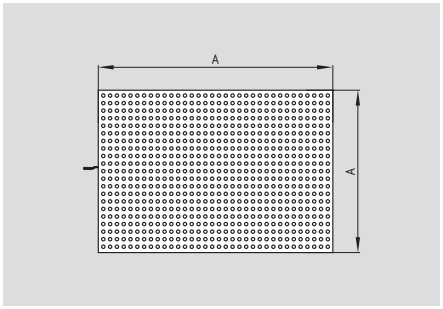
Safety mat

SMS 4





- Certified to EN 1760-1
- Response time max. 25 ms
- Robust design
- High resistance to chemicals
- Slip-free surface
- Cascading possible
- Special sizes and shapes available on request
- No additional terminating resistor required
- Aluminum frame and corner sections available

Legend:
A: active surface

Approvals

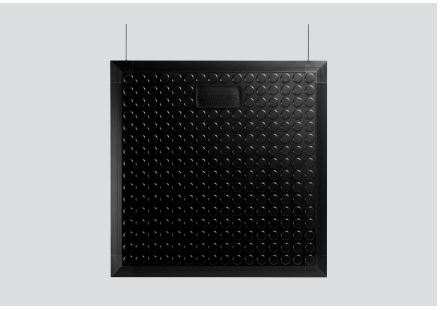
TÜV CE

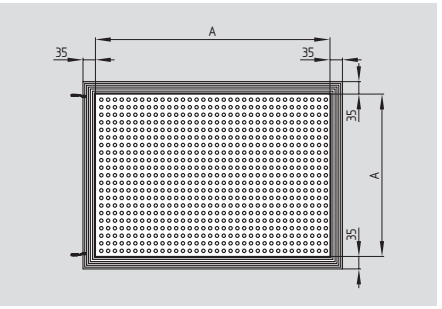
Ordering details

SMS 4-①

No.	Option	Description
		Active surface
①	250-500	250 x 500 mm
	500-500	500 x 500 mm
	500-1000	500 x 1000 mm
	750-1000	750 x 1000 mm
	1000-1000	1000 x 1000 mm
	1000-1500	1000 x 1500 mm

SMS 5





- Certified to EN 1760-1
- Response time max. 25 ms
- Robust design
- High resistance to chemicals
- Slip-free surface
- Cascading possible
- Special sizes and shapes available on request
- No additional terminating resistor required
- With molded ramp profile

Legend: A: active surface
Total size = A + 2 x 35 mm

Approvals

TÜV CE

Ordering details

SMS 5-①

No.	Option	Description
		Active surface
①	250-500	250 x 500 mm
	500-500	500 x 500 mm
	500-1000	500 x 1000 mm
	750-1000	750 x 1000 mm
	1000-1000	1000 x 1000 mm
	1000-1500	1000 x 1500 mm

Technical data

Standards:	EN 1760-1
Control category:	3 to EN 954-1
Surface material:	polyurethane, black
Protection class:	IP65 to EN 60529
Ambient temperature:	0° C … +60°C
Fitting height:	14 mm
Weight:	17 Kg / m²
Actuating force:	150N with round body Ø 80mm
Cable:	
- SMS 4:	4 x 0,34 mm²
- SMS 5:	2 pc. 2 x 0,34 mm²
Cable length:	6 m
Response time:	≤ 25 ms
Mechanical life:	>1.5 million operations
Admissible load:	2000 N / 80 mm Ø
Inactive edge	≤ 10mm
Classification:	(In combination with safety monitoring module SRB 301 HC)
Standards:	EN ISO 13849-1; IEC 61508; IEC 60947-5-3
PL:	up to d
Category:	up to 3
PFH value:	1.0×10^{-7} /h for max. 52,500 switching cycles/year and max. 60% contact load
SIL:	up to 2 in combination with safety monitoring module
Mission time:	20 years
Chemical resistance:	
Water:	Resistant
10% acids:	Resistant
10% caustic solutions:	Resistant
Oils:	Resistant
Gasoline:	Resistant

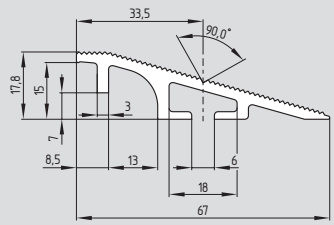
Other on request

Note

Safety Distance Calculations:
S = 1600 mm/s x (T) + 1200 mm
Legend:
T = Total response time from triggering to machine stop, in seconds.

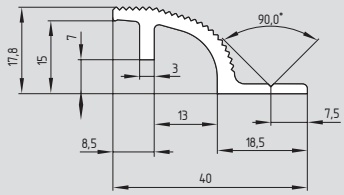
SMS 4 safety mats accessories

System components



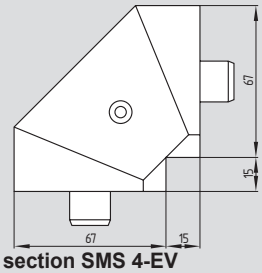
Ramp rail SMS 4-RS-3000

System components

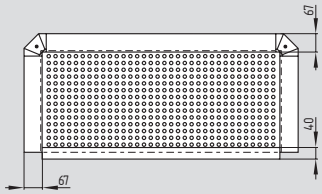


SMS 4-BS-3000 fixing rail

System components



Corner section SMS 4-EV



SMS 4

Ordering details

Ramp rail
3000 mm long **SMS 4-RS 3000**

Precut trim kits
includes 4 rails, 4 corners sections
For mat size:

250 x 500 mm	**SMS4-RS 250-500**
500 x 500 mm	**SMS4-RS 500-500**
500 x 1000 mm	**SMS4-RS 500-1000**
750 x 1000 mm	**SMS4-RS 750-1000**
1000 x 1000 mm	**SMS4-RS 1000-1000**
1000 x 1500 mm	**SMS4-RS 1000-1500**

Ordering details

Fixing rail
3000 mm long **SMS 4-BS-3000**

Ordering details

Corner section (1 pc) **SMS 4-EV**

SRB 301HC

- Safety-monitoring module for safety mats
- 3 enabling contacts
- 1 signalling contact
- Cross-wire detection
- Feedback circuit to monitor external contactors
- Monitored start or automatic start
- LED status indication
- Plug-in terminals

Approvals

Technical data

Standards:	IEC/EN 60204-1, IEC/EN 60947-5-1, EN ISO 13849-1; IEC 61508
Start conditions:	automatic or start button (optionally monitored)
With feedback circuit (Y/N):	yes
ON delay with reset button:	≤ 50 ms
Drop-out delay on „emergency stop“:	≤ 20 ms
Drop-out delay on „supply failure“:	≤ 100 ms
Rated operating voltage U_e:	48 ... 240 VAC; 24 VAC/DC
Frequency range:	50 / 60 Hz
Fuse rating for the operating voltage:	
230 VAC version: primary side:	smelting fuse, tripping current >1.0 A;
secondary side:	internal electronic fuse, tripping current > 0.12 A;
24 VAC/DC version:	internal electronic fuse, tripping current > 0.5 A
Internal electronic fuse (Y/N):	230 VAC version: no 24 VAC/DC version: yes
Current consumption:	230 VAC version: 1.6 W; 4.2 VA 24 VAC/DC version: 1.4 W; 3.3 VA
Inputs monitoring:	
-Cross-wire detection:	yes
- Wire breakage detection:	yes
- Earth leakage detection:	yes
Number of NC contacts:	2
Number of NO contacts:	0
Max. total line resistance:	40 W
Outputs:	
Stop category 0:	3
Stop category 1:	0
Number of safety contacts:	3
Number of signaling outputs:	1
Max. switching capacity of the safety contacts:	250 VAC, 8 A resistive (inductive with suitable protective circuit)
Utilization category to EN 60947-5-1:	AC-15: 230 V / 6 A; DC-13: 24 V / 6 A
Mechanical life:	107 operations
Ambient conditions:	
Operating ambient temperature:	−25°C … +60°C
Storage and transport temperature:	−25°C … +85°C
Protection class:	enclosure: IP40, terminals: IP20, terminal space: IP54
Mounting:	snaps onto standard DIN rails to DIN EN 60715
Connection type:	plug-in type screw terminals
- min. cable section:	0.25 mm²
- max. cable section:	2.5 mm²
Weight:	230 VAC version: 340 g; 24 VAC/DC version: 320 g
Dimensions (height/width/depth):	100 x 45 x 121 mm

Ordering details

SRB 301HC/①-②

No.	Option	Description
①	R	Manual start
	T	Automatic start
②	230 V	48 … 240 VAC
	24 V	24 VAC/DC

Classification

Safety parameters:	
Standards:	EN ISO 13849-1, IEC 61508, EN 60947-5-1
PL:	STOP 0: up to e
Category:	STOP 0: up to 4
PFH value:	STOP 0: ≤ 2.00 x 10^{-8}/h
SIL:	STOP 0: up to 3
Mission time:	20 years

The PFH value of 2.00 x 10^{-8}/h applies to the combinations of contact load (current through enabling contacts) and number of switching cycles (n-op/y) mentioned in the table below. At 365 operating days per year and a 24-hours operation, this results in the below-mentioned switching cycle times (t-cycle) for the relay contacts.
Diverging applications upon request.

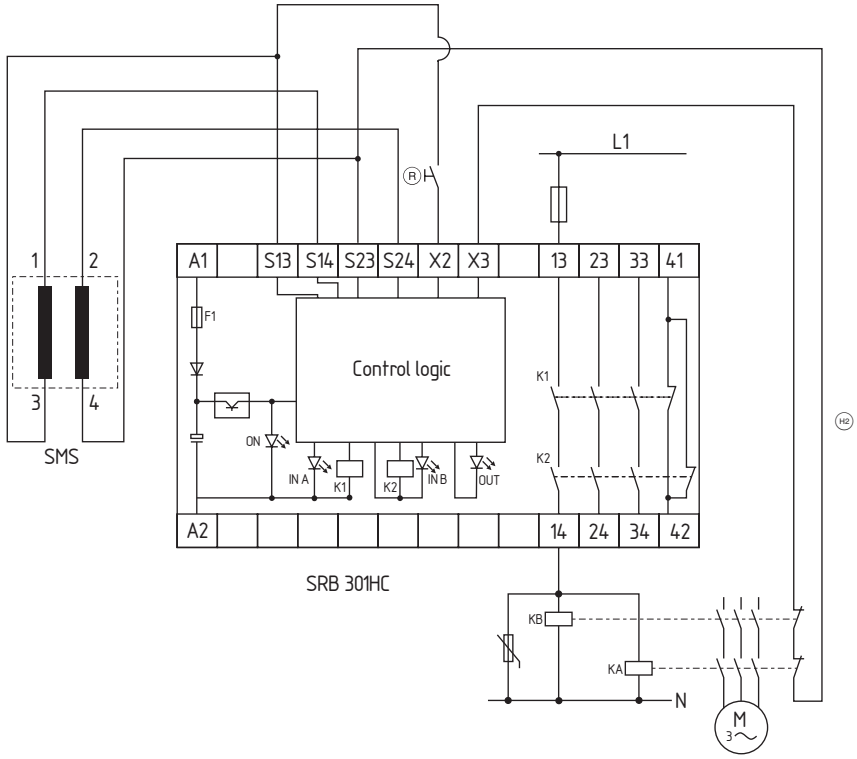
Contact load	n-op/y	t-cycle
20 %	525,600	1.0 min
40 %	210,240	2.5 min
60 %	75,087	7.0 min
80 %	30,918	17.0 min
100 %	12,223	43.0 min

Safety mat

Note

- Protection of a safety mat
- Start button with edge detection
- Feedback circuit ⓗ2 to monitor the external contactors
- Series-wiring of multiple safety mats possible
- Reset button ⓡ

Wiring example



LED

The integrated LEDs indicate the following operating states.

- Position relay K1
- Position relay K2
- Supply voltage U_B

Note

- The wiring example is shown with the safety mat in non-actuated and de-energized condition.
- Inductive loads (e.g. contactors, relays, etc.) are to be supressed by means of a suitable circuit