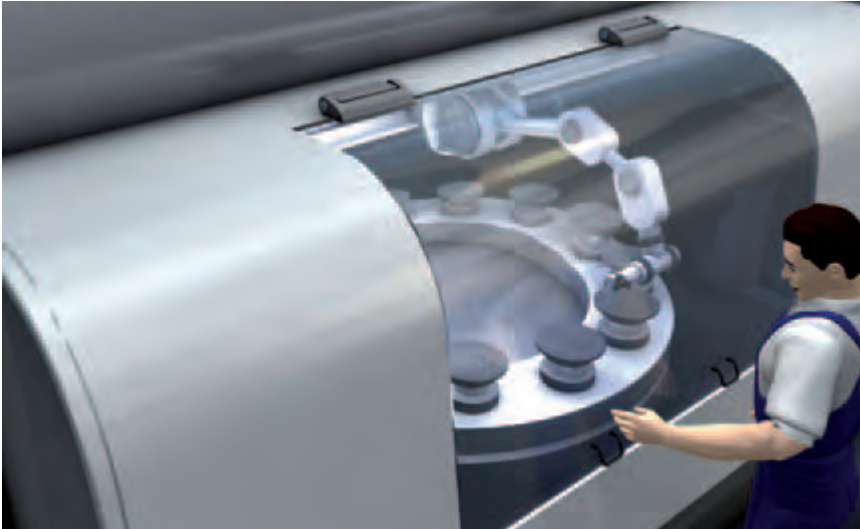


## SAFETY SWITCHES

### S400, S410 Safety Hinge Switches



*Safety Hinge Switch on a semi-automatic test system with protective hood*

S400 series Safety Hinge Switches are used for position monitoring of hard guards that can rotate (e.g. protective hoods) with a monitoring switch (without guard interlocking) integrated into the hinge. The S400 Safety Hinge Switches unite the Safety Switch and door hinge functions in one component. This Safety Switch is used with machines with small stopping times, depending on the distance to the point of operation. As external actuators are not required with this Switch, it can also be used problem-free in environments with high dust concentration levels or with heavy particle loads. The Switch is extremely compact, but robust at the same time, and therefore predestined for numerous applications. It also boasts a simple switching angle alignment. If, for example, doors are to be moved or aligned later on, re-alignment is no problem. The covered screws of the S400 Safety Hinge Switch ensure that it is highly tamperproof.

#### Typical areas of application

- Monitoring of rotating or swiveling protective doors
- Hand protection with flap and hood position monitoring

## S400, S410

### Important technical data, overview

Switch type	Locking device without guard interlocking in acc. with EN 1088
Housing material	Metal
Loads/stresses	1500 Nm (axial), 1000 Nm (radial), 25 Nm (torsional)
Contact equipment	2NC $\ominus$ + 1NO
Switching principle	Creep contact, snap-action contact
Internal actuator	Safety Switch in hinge, encapsulated
Actuation angle	Max. 180°
Connection system	Cable, M12 plug
Protection rating	IP 67

### Functions

Interlock device without guard interlocking in accordance with EN 1088
Integration in control circuits up to category 4 in accordance with EN ISO 13849
Mechanical hinge with integrated Safety Switch

### Special features

- Contact sets for integration up to category 4 in accordance with EN ISO 13849
- Maximum opening angle of the protective device, 180°
- Repeatable setting (switching angle alignment) with moved or mis-aligned doors
- Protection rating: IP 67
- Compact, rounded-off construction design in robust metal version
- Encapsulated, internal actuator guarantees proper functioning, even under difficult conditions
- Extremely tamperproof with covered screws (unobtrusive sturdy design with rear-side mounting)



### Features



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● Dimensional drawings: Accessories	389
● Accessories ordering information	390

Safety Locking Devices

Safety Command Devices

Safety Relays

Configurable Safety Relays

Accessories

Glossary

Product Finder

## SAFETY SWITCHES

### Ordering information

**S400, S410**

Included in delivery: Application information (print document)

**Functions:** Interlock device without guard interlocking in accordance with EN 1088, mechanical hinge with integrated Safety Switch, integrated encapsulated actuator, switching angle can be aligned again and again

### S400, S410 Safety Hinge Switches

Art. no.	Article	Description	Contact equipment
63000400	S400-M4CB2-B	Safety Hinge Switch, 2 m cable, cable runs down	(2 NC ⊖ + 1 NO) creep contacts
63000401	S400-M4M12-B	Safety Hinge Switch, M12 plug, 8-pin, cable runs down	(2NC ⊖ + 1NO) creep contacts
63000402	S400-M4CB2-T	Safety Hinge Switch, 2 m cable, cable runs up	(2NC ⊖ + 1NO) creep contacts
63000403	S400-M4M12-T	Safety Hinge Switch, M12 plug, 8-pin, cable runs up	(2NC ⊖ + 1NO) creep contacts
63000404	S410-M1CB2-B	Safety Hinge Switch, 2 m cable, cable runs down	(2NC ⊖ + 1NO) step contacts
63000405	S410-M1M12-B	Safety Hinge Switch, M12 plug, 8-pin, cable runs down	(2NC ⊖ + 1NO) step contacts

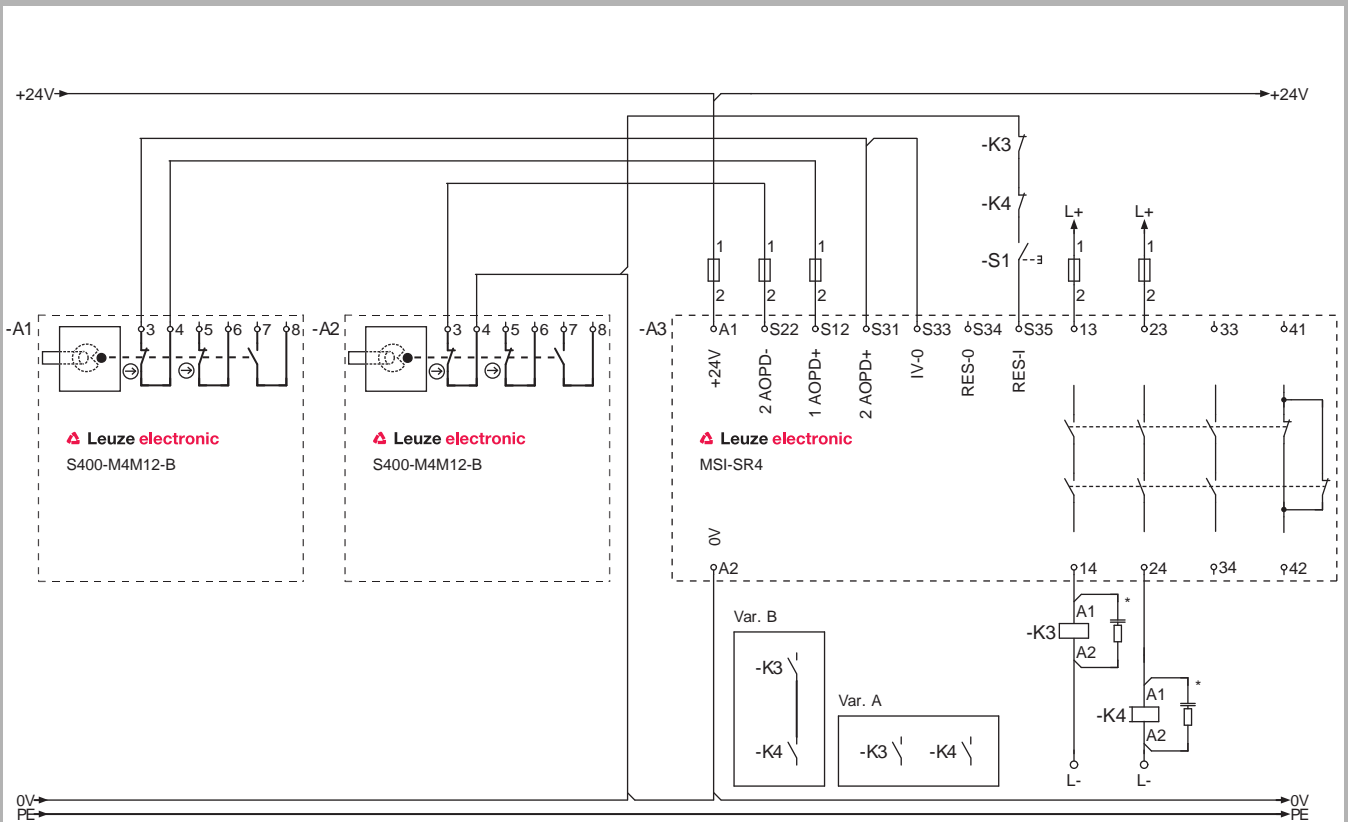
### Article list for S400, S410

Article	Description
<b>S400, S410</b>	<b>Safety Hinge Switches</b>
<b>-M</b>	Metal housing
<b>1, 4</b>	Contact set
<b>CB2</b>	Cable, 2 m long
<b>-M12</b>	M12 plug
<b>-B</b>	Cable entry from below with left installation
<b>-T</b>	Cable entry from above with left installation

**S400**  
**S410**

**Electrical connection**

**S400 connection example**



\*) Spark extinction circuit, supply suitable spark extinction

S400 Safety Hinge Switch with MSI-SR4 Safety Relay

**!** Please observe the operating instructions of the components!

Safety Locking Devices

Safety Command Devices

Safety Relays

Configurable Safety Relays

Accessories

Glossary

Product Finder

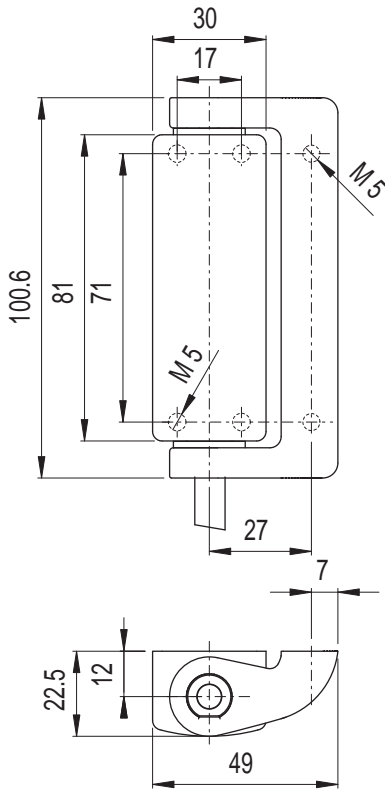
## SAFETY SWITCHES

### Technical data

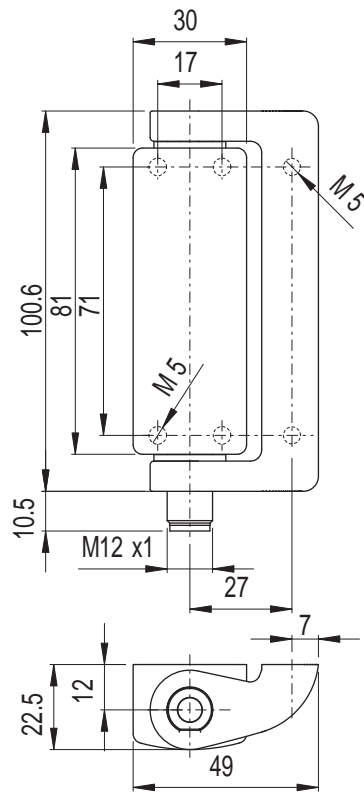
General system data		
Switch type	Interlock device without guard interlocking in accordance with EN 1088	
Service life ( $T_M$ ) in accordance with EN ISO 13849-1	20 years	
Number of cycles until 10 % of the components have a failure to danger ( $B_{10d}$ )	5,000,000	
Ambient temperature, operation	-25...+80 °C (S400-M4CB2-B) -40...+80 °C (S400-M4M12-B)	
Dirt levels, external, in accordance with EN 60947-1	3	
Housing material	Metal	
Internal actuator	Safety Switch in hinge, encapsulated	
Dimensions	See dimensional drawing	
Protection rating	IP 67	
Actuation angle	Max. 180°	
Mechanical life time in accordance with IEC 6047-5-1	1x10 <sup>6</sup> actuation clearance	
Actuation frequency according to IEC 6047-5-1	Max. 1,200 activations an hour	
Actuating path with forced separation	Min. +4° (from switching point)	
Loads/stresses	Max. 1500 Nm (axial), max. 1000 Nm (radial), max. 25 Nm (torsional)	
Contact equipment	2NC ⊕ + 1NO	
Switching principle	Creep contact	S400-M4CB2-B, S400-M4M12-B S400-M4CB2-T, S400-M4M12-T
	Snap-action contact	S410-M1CB2-B, S410-M1M12-B
Contact opening	Force-fit	
Contact material	Silver alloy, solid	
Usage category in accordance with EN 60947-5-1	AC 15 / DC 13: Ue 24 V, Ie 2 A	
Rated insulation voltage	30 V AC, 36 V DC	
Conventional thermal current	Max. 2 A	
Short-circuit protection in accordance with IEC60269-1	500 V, 2 A, type gG	
Connection system	Number of cable bushings	1
	Cable routing side	from below with left installation: (S400-M4CB2-B, S400-M4M12-B S410-M1CB2-B, S410-M1M12-B) from above with left installation: (S400-M4CB2-T, S400-M4M12-T)
	Type of connection	Cable: (S400-M4CB2-B, S400-M4CB2-T, S410-M1CB2-B) M12 plug: (S400-M4M12-B, S400-M4M12-T, S410-M1M12-B)
	Cable cross-section (wire)	7 x 0.5 mm <sup>2</sup> (S400-M4CB2-B, S400-M4CB2-T, S410-M1CB2-B)

Please note the additional information in the connecting and operating instructions at [www.leuze.com/s400](http://www.leuze.com/s400).

Safety Hinge Switches



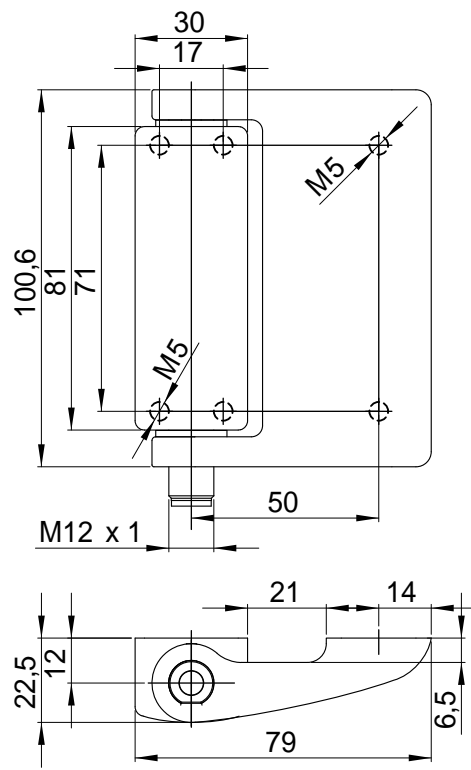
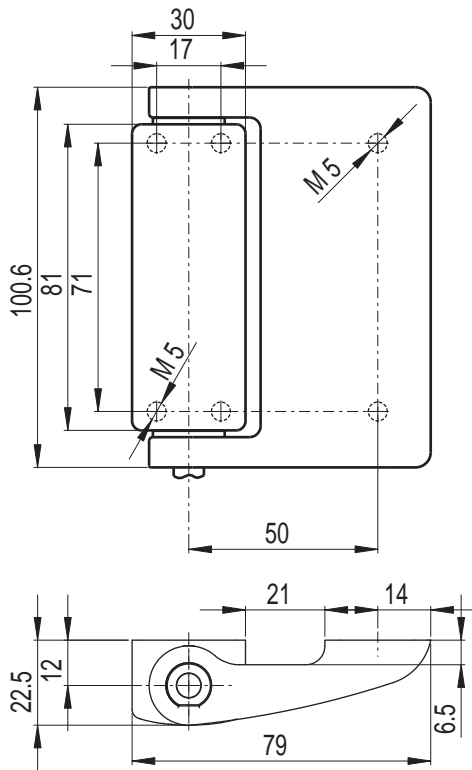
Drilling dimensions Safety Hinge Switch S400-M4CB2-B, S400-M4CB2-T



Drilling dimensions Safety Hinge Switch S400-M4M12-B, S400-M4M12-T

**Dimensional drawings**

**Safety Hinge Switches**



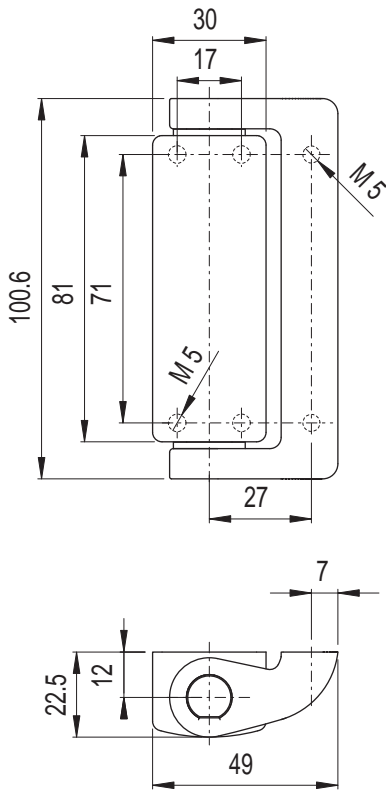
*Drilling dimensions Safety Hinge Switch S410-M1CB2-B*

*Drilling dimensions Safety Hinge Switch S410-M1M12-B*

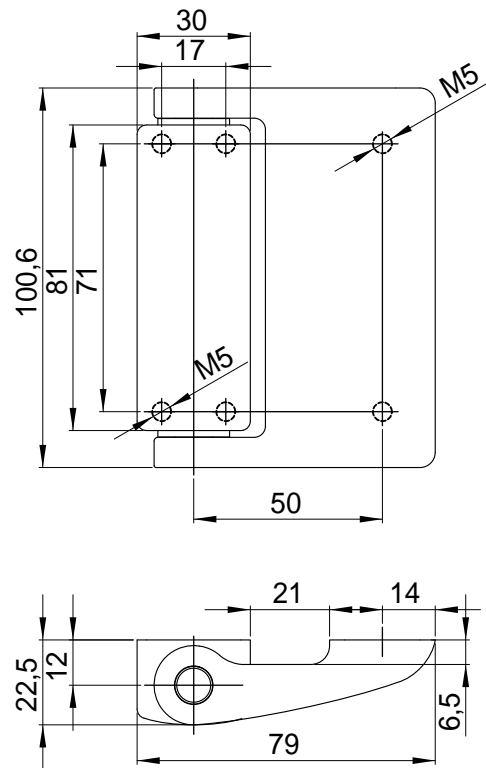
Dimensions in mm

Our 3D CAD models can be found under: [www.leuze.com/3d-cad-models](http://www.leuze.com/3d-cad-models).

Additional hinge



Additional hinge AC-H-S400



Additional hinge AC-H-S410



## SAFETY SWITCHES

### Accessories ordering information

#### S400, S410 accessories

Art. no.	Article	Description
63000770	AC-H-S400	Additional hinge for S400 Safety Hinge Switch
63000771	AC-MP3-S400	Mounting plates, flat, long version, for Safety Hinge Switch S400
63000772	AC-MP1-S400	Mounting plates, angled, long version, for Safety Hinge Switch S400
63000773	AC-H-S410	Additional hinge for S410 Safety Hinge Switch
63000774	AC-SEPL-S4xx	Safety plug for Safety Hinge Switch S4xx

#### Article list for S400, S410 accessories

Article	Description
<b>AC</b>	<b>Accessories</b>
<b>-H</b>	Additional hinge
<b>-MP1</b>	Mounting plate flat
<b>-MP3</b>	Mounting plate angled
<b>-SEPL</b>	Replacement safety plug

AC