

Position detection with system

The new compact position switches PS116



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Position switches PS116

The compact

The benefits of the new position switch at a glance:

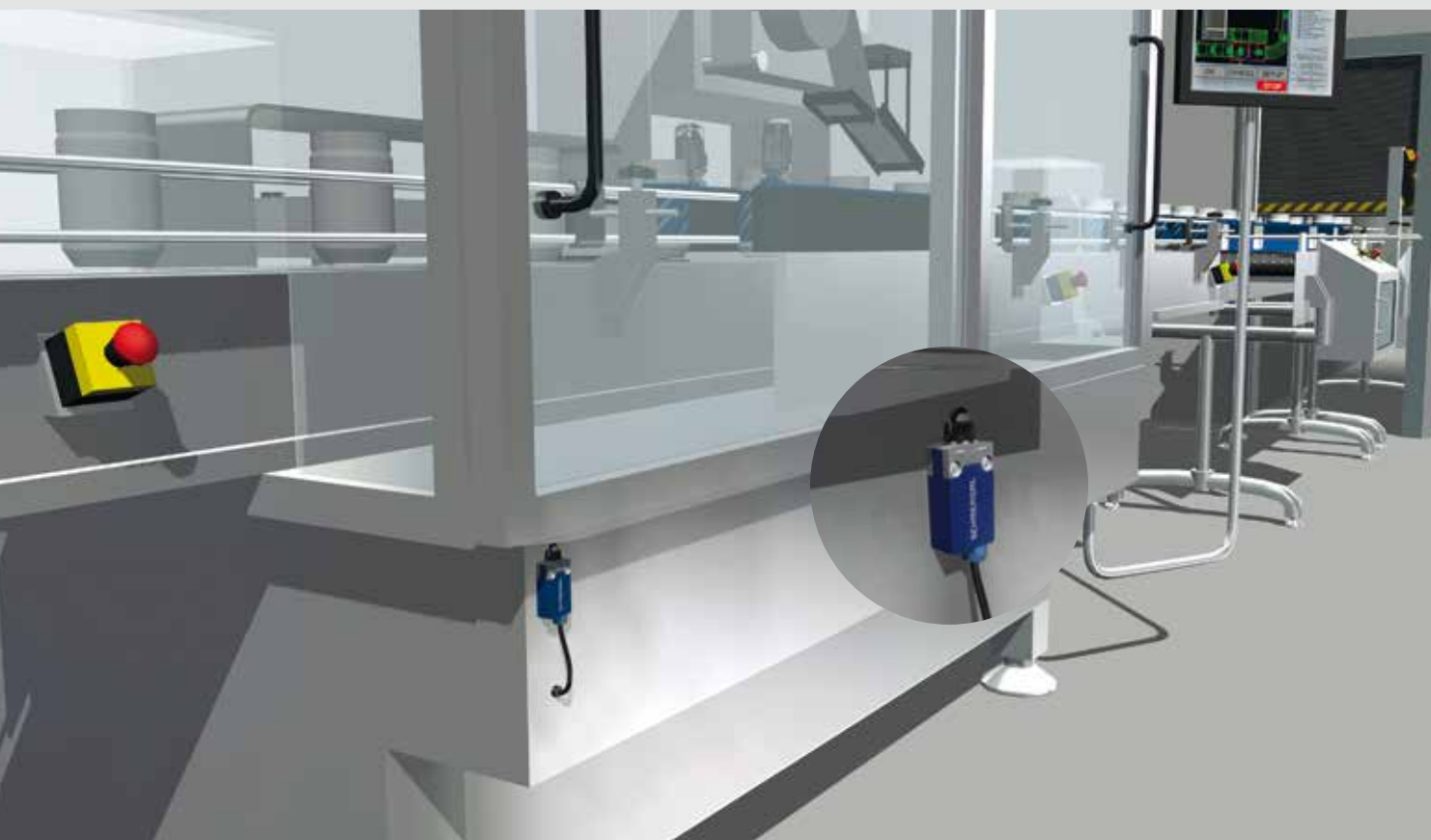
- Minimal space required due to compact-design
- Reduced assembly time due to pre-assembled position switches
- Symmetric casing for different installation situations
- Adaptable to any application
- Quick and easy alteration of the actuators in 45 ° steps



design by Schmersal

- Protection class IP66 / IP67 - safe operation under rough ambient conditions.
- Large variety of actuation and switching elements
- Switching elements with 3 contacts ensures a redundant switch-off with additional signaling contact
- Suitable for the elevator industry (EN 81-1)
- Latching function for saving the switching state





PS116 - Compact and versatile

They are extremely compact, very robust and extremely versatile. With these properties, the new position switches PS116, are aimed at a wide variety of applications across all disciplines of mechanical engineering and plant manufacturing.

The benefits of the new range of position switches at a glance:

- Reliable position detection
- Compact high-quality design
- Highly versatile
- Robust and reliable
- Easy to use

Application usage

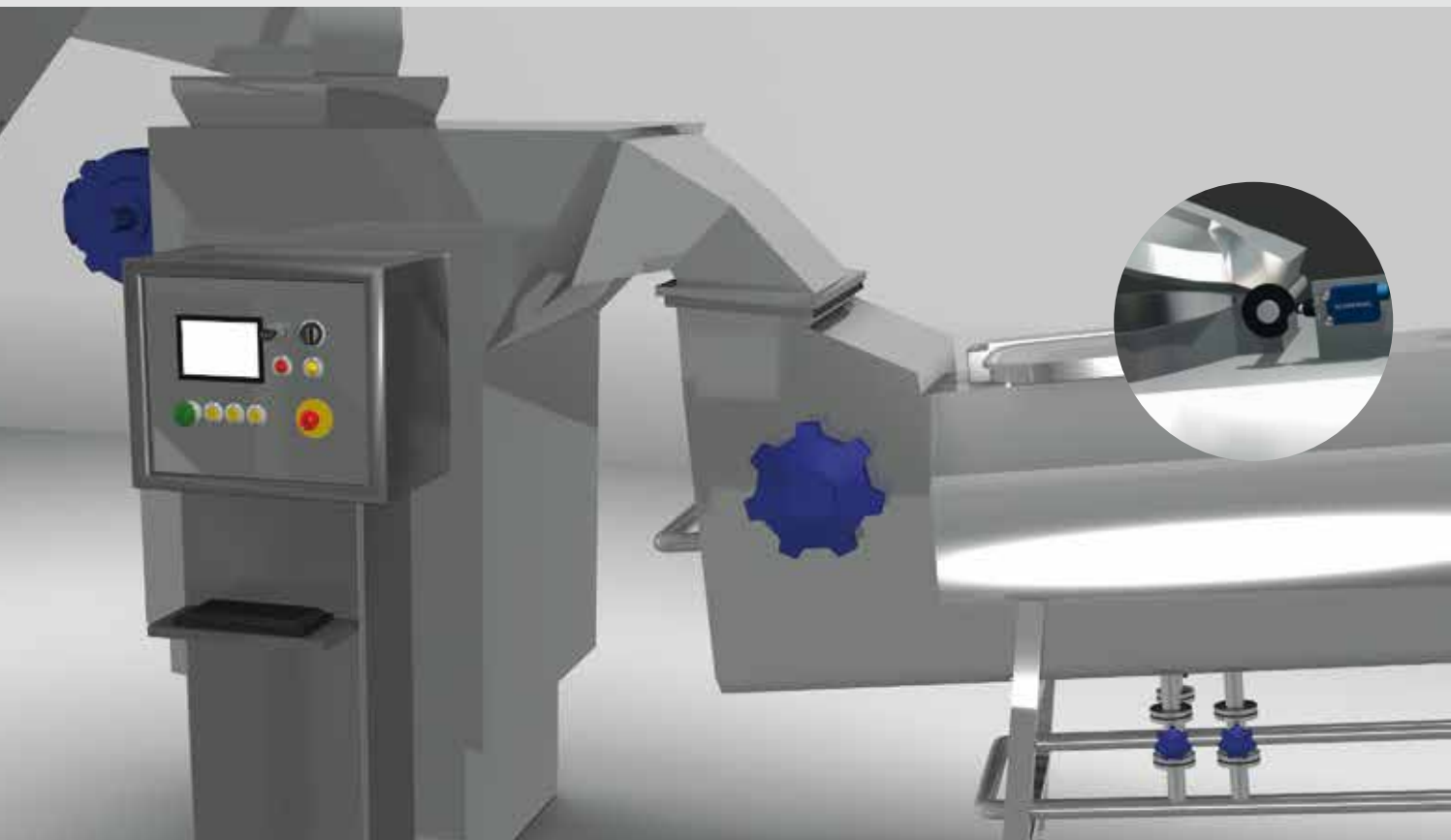
Type 1 position switches according to ISO 14119 are for determining the position and monitoring of movable components on machines and for protective equipment that can be moved laterally or is rotatable. This allows them to be used in all industrial environments.

The protection classes IP66 an IP67 form the requirements for the use of position switches in adverse ambient conditions.

All position switches have positively opening NC contacts according to IEC 60947-5-1. In conjunction with an appropriate safety analysis, a single position switch can be used up to PL d. Using two position switches PL e can be achieved according to ISO 13849-1.

Elevator industry

As all available switching elements have a contact opening of 2 x 2 mm, the new range also fulfils the requirements according to EN 81-1 when it comes to usage in elevator technology.



Flexible solutions

Connection designs

The PS116 range of position switches are already wired and have either a 2m long connection cable or a connector plug M12 (4 / 6 pin).

Switching elements with up to 3 contacts

Switching elements with 3 contacts ensures a redundant switch-off with additional signalling contact. All switching elements of the diverse contact combinations are equipped with galvanically separated contacts with positive break NC contacts.

Latching function

To save the switching state, versions are available with snap action and an optional latching function where the mounting element must be manually reset to the starting condition.

Symmetrical casing

As a result of the symmetrical construction of the casing the same switch can be used for the right and left sides. This is the case for the cable and connector design.



SCHMERSAL-Position Switch PS116 - Compact and versatile for

Can be combined with different actuators



S200
Plunger



R200
Roller plunger
Plastic roller Ø 9.5 mm



K200
Offset roller lever
Plastic roller Ø 12 mm



K240
Angle roller lever
Plastic roller Ø 22 mm



K250
Angle roller lever
Plastic roller Ø 22 mm



H200
Roller lever
Plastic roller Ø 16 mm
Lever length: 24 mm

4 Connecting versions



L200
Lower connection cable
Cable length 2 m



LR200
Right connection cable
Cable length 2 m



ST
Connector plug bottom
M12, 4 / 6 pole

a wide range of applications



K210
Offset roller lever
Plastic roller Ø 14 mm



K230
Angle roller lever
Plastic roller Ø 14 mm

Other versions
upon request



N200
Roller lever
Adjustable in 2 mm steps
Plastic roller Ø 20 mm



J200
Rod lever
Plastic rod Ø 6 mm, length 200 mm
Only suitable for positioning tasks!

Other versions
upon request



STR
Right connector plug
M12, 4 / 6 pole

Can be combined with different
switching elements

	Snap action	Slow action
2 contacts	■	■
3 contacts	■	■
Latching function	■	
Overlapping contacts		■
Staggered contacts		■

Ordering code

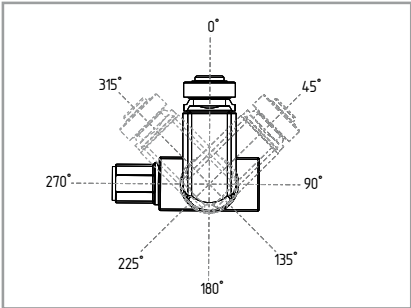
PS116-Z11-L200-S200

Switching elements (others on request)	
Z11	Snap action 1 NO / 1 NC
Z12	Snap action 1 NO / 2 NC
Z11R	Snap action 1 NO / 1 NC with latching
Z12R	Snap action 1 NO / 2 NC with latching
T11	Slow action 1 NO / 1 NC
T12	Slow action 1 NO / 2 NC
T21	Slow action 2 NO / 1 NC
T11UE	Slow action 1 NO / 1 NC with overlapping contacts
T02H	Slow action 2 NC with staggered contacts

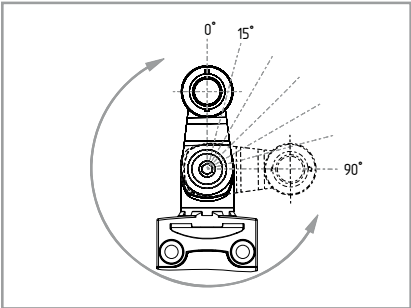
Actuator elements (more on request)	
S200	Plunger
R200	Roller plunger with plastic roller Ø 9.5 mm
K200	Offset roller lever with plastic roller Ø 12 mm
K210	Offset roller lever with plastic roller Ø 14 mm
K230	Angle roller lever with plastic roller Ø 14 mm
K240	Angle roller lever with plastic roller Ø 22 mm
K250	Angle roller lever with plastic roller Ø 22 mm
H200	Roller lever with plastic roller Ø 16 mm, length 24 mm
N200	Roller lever with plastic roller Ø 20 mm, adjustable in 2 mm steps (24 ... 66 mm).
J200	Rod lever with plastic rod Ø 6 mm, length 200 mm

Connection	
L200	Connecting cable bottom, cable length 2 m
LR200	Connecting cable right, cable length 2 m
ST	Connector plug M 12, bottom
STR	Connector plug M 12, right

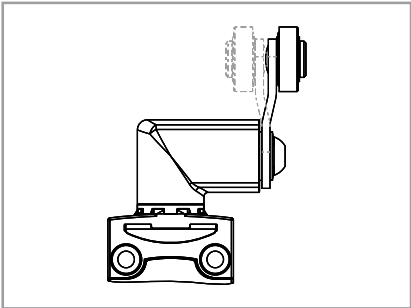
Actuator elements and lever



Adjustable actuator elements
All actuator elements can be rotated in 45° steps and can be quickly replaced and implemented due to the simple mounting design.




Adjustable lever
Roller lever can be set in 15° steps.



Rotatable lever
For versions with a rotatable roller lever, the lever can be fitted so that the roller is on the inside.

Technical data

Features	PS116
Key Features	<ul style="list-style-type: none">■ Compact design■ Symmetrical casing■ Actuator heads can be repositioned by 8 x 45°■ Many switching elements with up to 3 contacts■ Connecting cable or connector plug M12
Electrical characteristics	
Max. switching capacity U/I	AC-15: 240 VAC / 3 A; DC-13: 24 VDC / 1.5 A
Switching principle	Snap- or slow action
Mechanical data	
Cable section	4 x 0.5 mm²; 6 x 0.5 mm²
Dimensions (H x W x D)	31 x 57 x 16 mm
Housing material	Glass-fibre reinforced thermoplastic, chromated zinc die-cast
Design	EN 50047
Ambient conditions	
Ambient temperature	-30°C...+80°C
Protection class	IP66, IP67
Safety classification	
B _{10d} (NC contact) ¹⁾	20,000,000
B _{10d} (NO contact) ¹⁾	1,000,000
Certificates	

¹⁾ Note: at 10% ohmic contact load

$$MTTF_d = \frac{B_{10d}}{0,1 \times n_{op}}$$

$$n_{op} = \frac{d_{op} \times h_{op} \times 3600 \text{ s/h}}{t_{cycle}}$$



The Schmersal Group

For many years the privately owned Schmersal Group has been developing and manufacturing products to enhance occupational safety. What started out with the development and manufacture of a very wide variety of mechanical and non-contact switchgear has now become the world's largest range of safety systems and solutions for the protection of man and machine. Over 1,500 employees in more than 50 countries around the world are developing safety technology solutions in close cooperation with our customers, thus contributing to a safer world.

Motivated by the vision of a safe working environment, the Schmersal Group's engineers are constantly working on the development of new devices and systems for every imaginable application and requirement of the different industries. New safety concepts require new solutions and it is necessary to integrate new detection principles and to discover new paths for the transmission and evaluation of the information provided by these principles. Furthermore, the set of ever more complex standards, regulations and directives relating to machinery safety also requires a change in thinking from the manufacturers and users of machines.

These are the challenges which the Schmersal Group, in partnership with machinery manufacturers, is tackling and will continue to tackle in the future.

Product ranges	Industries	Services	Competences
<div></div> <div>Safe switching and monitoring<ul style="list-style-type: none">■ Guard door monitoring safety switches■ Command devices with safety function■ Tactile safety devices■ Optoelectronic safety devices</div> <div>Safe signal processing<ul style="list-style-type: none">■ Safety monitoring modules■ Safety controllers■ Safety bus systems</div> <div>Automation<ul style="list-style-type: none">■ Position detection■ Command and signalling devices</div>	<div></div> <div><ul style="list-style-type: none">■ Elevators and escalators■ Packaging■ Food■ Machine tools■ Heavy industry</div>	<div></div> <div><ul style="list-style-type: none">■ Application advice■ CE conformity assessment■ Risk assessment in accordance with the Machinery Directive■ Stop time measurements■ Training courses</div>	<div></div> <div><ul style="list-style-type: none">■ Machine safety■ Automation■ Explosion protection■ Hygienic design</div>

Precautions have been taken to assure accuracy of the information in this catalogue. Typographic or pictorial errors that are brought to our attention will be corrected in subsequent issues.

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