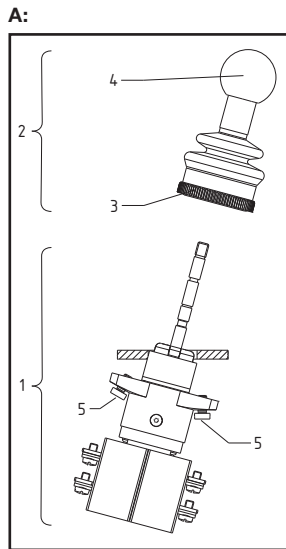


Mounting and wiring instructions

Maintained joystick switch / Spring-return joystick switch / maintained/spring-return joystick switches

For installation diameter 22.3 mm

MKT.../MKS...



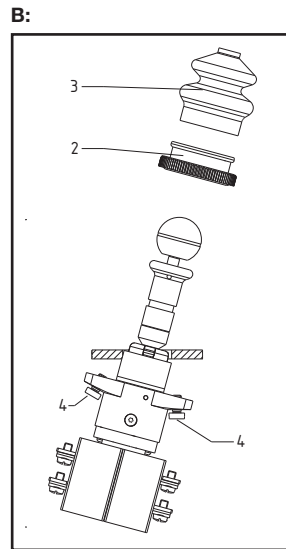
There is a difference in the installation of devices for 22.3 mm with and without locking sleeve on account of the design.

A: Devices without locking sleeve

The devices are supplied as a so-called basic component (1) – comprising the contact element(s) as well as the control head mechanism in one part – and the pre-assembled bellows assembly (2) – comprising the actuator ball, sealing bellows and knurled nut with sealing element. With SPEZ 2949, a central nut AF41 is used instead of the knurled nut.

The basic component (1) is inserted in the Ø 22.3 mm installation opening with the front plate at the rear and tightened to 5 Nm from the front with the knurled nut or central nut (3) of the bellows assembly (2). The bellows assembly (2) is fitted by pressing and turning the actuator ball while simultaneously turning the knurled nut or central nut.

The fixing screws on the basic component (5) should first be screwed back flush to make the maximum front plate thickness of 6 mm available. The fixing screws serve purely as a means of anti-rotation here and are therefore to be tightened evenly to max. 0.6 Nm after the component has been fitted.



B: Devices with locking sleeve

The installation differs on devices that have an installation opening of 22.3 mm with locking sleeve (including actuator ball):

Included in the delivery here – aside from the basic component (1) – are the knurled nut (2) and sealing bellows (3) as individual parts.

The basic component (1) is inserted in the Ø 22.3 mm installation opening with the front plate at the rear and tightened to 5 Nm from the front with the knurled nut (2).

The fixing screws (4) should be screwed back flush on the basic component to make the maximum front plate thickness of 6 mm available. The fixing screws serve purely as a means of anti-rotation here and are therefore to be tightened evenly to max. 0.6 Nm after the component has been fitted.

Following these installation steps, the sealing bellows (3) is pulled over the ball handle into the dedicated grooves in the selector lever and knurled nut.

Removal is carried out in the reverse order.



Caution

- The preferred installation position for the above command devices are angled and vertical surfaces.
- Organisational measures should be adopted to ensure that devices whose seals have been damaged or rendered irreparable are replaced without delay. On cross-type buttons with locking mechanism and with delivery of replacement bellows, the high protection level of IP 65/IP 67 and IP 69K (depending on the version) is only assured if the sealing bellows are correctly bonded. Prior cleaning of the bellows and the switches is a prerequisite.
- Should it not be possible to adhere to or safeguard the aforementioned measures, the rated operating voltage of these devices is to be limited to 50 VAC and 120 VDC to protect against electric shock (see VDE 0100, part 410).
- Actuation of the lever should not be possible until the assembly is complete (with the upper section screwed on).
- In the event of operation of the devices with hazardous live voltages (see EN DIN 50274 and VDE 0660 part 514), additional measures are essential to protect against contact. The screw terminals are supplied for this purpose with pluggable (neutral-coloured) contact protection caps.
- Where the design requires the use of flat connections, either commercially available insulated flat connections should be used or other protective measures implemented.
- Control heads and contact elements are to be insulated against the front plate in situ.
- Switch contacts that open as a result of the previously described positive lift movement equate - regarding the quality of their technical safety - to automatic opener contacts in accordance with IEC EN 60947-1-1 and control category 1 in accordance with EN ISO 13849-1. All other switch signals equate to control category B in accordance with EN ISO 13849-1 and should only be used for operational control signals. Additional measures in terms of EN 60204-1 section 9.4 (control functions in the event of failure) may be necessary.

Terminal labelling

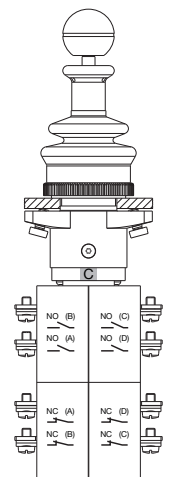
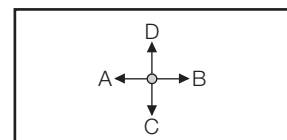
The devices have the switch symbol and number of contacts printed on the side of the contact elements to denote the function of the switch contacts in the zero position (in the unactuated position of the device lever).

The upper contact label refers to the upper switch contact and lower contact label refers to the lower switch contact for each contact element.

To determine which switch contacts work in the respective actuation direction, the switch direction is labelled with A, B, C and D on the device sleeves with reference to the following diagram.

This correlates with the switch direction labels A, B, C and D above the switch symbol, which are assigned the letter C on the device sleeve to represent the correct assembly position (see right).

The number of contacts is consecutive in accordance with IEC 60947-1.



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