

# Joystick Switches



More than safety.



**EUCHNER**

# More than safety.



*Emil Euchner, the company's founder and inventor of the multiple limit switch, circa 1928.*



## **Around the world – the Swabian specialists in motion sequence control for mechanical and systems engineering.**

EUCHNER's history began in 1940 with the establishment of an engineering office by Emil Euchner. Since that time, EUCHNER has been involved in the design and development of switch-gear for controlling a wide variety of motion sequences in mechanical and systems engineering. In 1953, Emil Euchner founded EUCHNER + Co., a milestone in the company's history. In 1952, he developed the first multiple limit switch – to this day a symbol of the enterprising spirit of this family-owned company.

## **Automation – Safety – ManMachine**

Today, our products range from electromechanical and electronic components to complex system solutions. With this wide range of products we can provide the necessary technologies to offer the right solution for special requirements – regardless of whether these relate to reliable and precise positioning or to components and systems for safety engineering in the automation sector.

EUCHNER products are sold through a world-wide sales network of competent partners. With our closeness to the customer and the guarantee of reliable solutions throughout the globe, we enjoy the confidence of customers all over the world.

## **Quality, reliability, precision**

Quality, reliability and precision are the hallmarks of our corporate philosophy. They represent concepts and values to which we feel totally committed.

At EUCHNER, quality means that all our employees take personal responsibility for the company as a whole and, in particular, for their own field of work. This individual commitment to perfection results in products which are ideally tailored to the customers' needs and the requirements of the market. After all: our customers and their needs are the focus of all our efforts. Through efficient and effective use of resources, the promotion of personal initiative and courage in finding unusual solutions to the benefit of our customers, we ensure a high level of customer satisfaction. We familiarize ourselves with their needs, requirements and products and we learn from the experiences of our customers' own customers.

**EUCHNER – More than safety.**



Quality – made by EUCHNER

## Joystick switches

|                                                           |                                                                              |
|-----------------------------------------------------------|------------------------------------------------------------------------------|
| <b>Application</b>                                        | <b>4</b>                                                                     |
| <b>Design and function</b>                                | <b>4</b>                                                                     |
| <b>Advantages/features</b>                                | <b>4</b>                                                                     |
| <b>Series</b>                                             | <b>5</b>                                                                     |
| Series WK...                                              | Control panel installation to IEC 947-5-1 D30 6                              |
| Series WE...                                              | Control panel installation at rear or with front plate 8                     |
| Series KB...                                              | Control panel installation to IEC 947-5-1 D30 10                             |
| Series KF...                                              | Control panel installation at rear 12                                        |
| Series KE...                                              | Control panel installation to IEC 947-5-1 D22 14                             |
| Series KC...                                              | Control panel installation at rear or with front plate 16                    |
| Series KP...                                              | Analog Joystick<br>Control panel installation at rear or with front plate 19 |
| Universal Power Supply Unit P1/P2 for series KP joysticks | 22                                                                           |
| Housing HBL                                               | 23                                                                           |
| Front plate for housing HBL                               | 24                                                                           |

## Application

Joystick switches or joysticks are manually actuated control devices for installation in control and front panels as well as in portable control equipment. They are used wherever motion sequences analogous to the actuation direction are controlled by hand. They are ideal for raising, lowering and triggering movements to the right and left, just to name some few possibilities.

EUCHNER joysticks are used in the steel and construction industry, in machine tools, for transport and conveyor systems, in the system and mechanical engineering sectors and for warehousing, medical and studio technology. With the ® (Germanischer Lloyd) certification, the devices are approved for use in the ship-building industry.

EUCHNER joysticks are also used for radio and cable controls, building machinery and cranes.



Joysticks as control equipment in remote control devices



Remote cable control for concrete pumps



## Design and function

Microswitches with a step function response are used as switching elements. Due to the intermittent control, a clear switching function is given for precise control systems. Depending on the respective application, switching elements with a power rating of between 4mA and 16A can be used. These are fixed on the mounting plate for each different series, either individually or in groups. The switching elements are actuated by the joystick being moved out of the intermediate position. The robust levers made of stainless steel are bedded with a hinged ball bearing that is fixed in a front plate.

## Advantages/features

### Direction of movement:

- ▶ Simplification of the command control station
- ▶ Easy mounting due to the slots in the panel
- ▶ Small space requirement
- ▶ Long service life
- ▶ Robust and lasting construction
- ▶ High protection class: IP 65 and beyond

## Models

EUCHNER joystick switches are available in a number of different models:



**Series WK...**  
(page 6)



**Series WE...**  
(page 8)



**Series KB...**  
(page 10)



**Series KF...**  
(page 12)



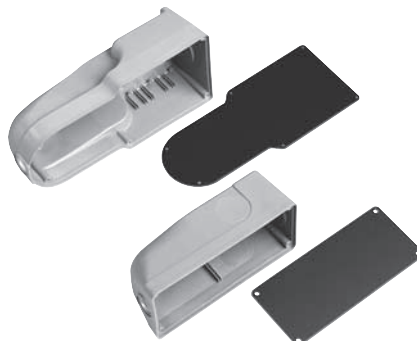
**Series KE...**  
(page 14)



**Series KC...**  
(page 16)



**Series KP...**  
(page 19)



**Housing kits**  
(from page 22)  
suitable for series  
WK, KB, KE  
and KF

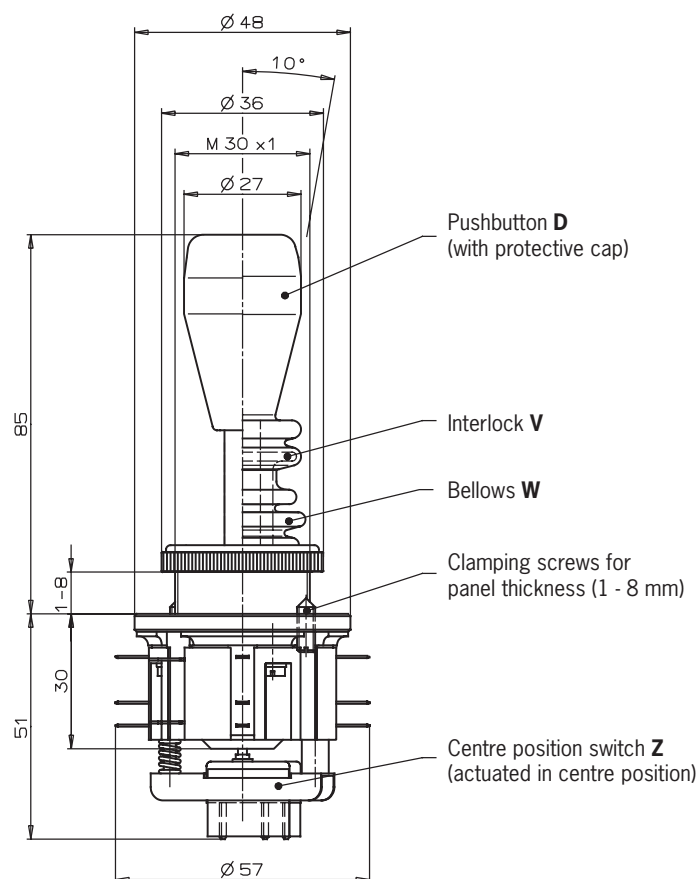
## Series WK...

Germanischer Lloyd  
Certificate no. 17 041 - 00 HH

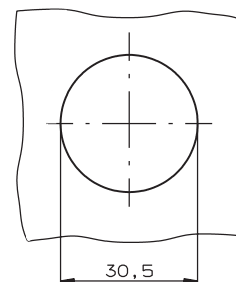


- Control panel installation to IEC 947-5-1 D30
- 1 to 8 actuating directions with spring return operation or combined
- One changeover contact with tab connector 2.8 x 0.5 IEC 760 for each actuating direction
- Centre position switch
- Pushbutton in handle

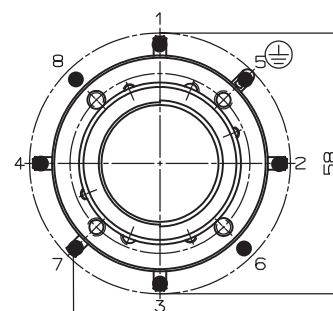
## Dimension drawing



Panel cutout



Actuating directions



Connection D  
(the connection is located on the underside for types with 8 directions)

## Ordering code

|   |   |  |  |
|---|---|--|--|
| W | K |  |  |
|---|---|--|--|

## Series

## Actuating direction and switching behavior

Stayput switch **S** (switching lever latches in selected position)  
Spring return switch **T** (switching lever returns to centre position)

## Options

Pushbutton **D**  
Bellows **W**  
Interlock **V**  
Centre position switch **Z**  
All-round actuation **R**

## Technical data

| Parameters                                                               | Value                                                                                                                                        | Unit |
|--------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|------|
| Housing material                                                         | glass-fibre reinforced thermoplastic / aluminum                                                                                              |      |
| Switching lever material                                                 | stainless steel                                                                                                                              |      |
| Degree of protection to IEC 529 on actuating side with / without bellows | IP65 / IP54                                                                                                                                  |      |
| Mounting method                                                          | IEC 947-5-1 D30                                                                                                                              |      |
| Weight                                                                   | approx. 0.17                                                                                                                                 | kg   |
| Mechanical life                                                          | 1x10 <sup>6</sup> switching cycles                                                                                                           |      |
| Ambient temperature with spring return switch                            | -5 to +65                                                                                                                                    | °C   |
| Ambient temperature with stayput switch                                  | -25 to +65                                                                                                                                   | °C   |
| Max. number of switching elements                                        | 8                                                                                                                                            |      |
| Connection type                                                          | tab connector 2.8 x 0.5 IEC 760                                                                                                              |      |
| Contact elements                                                         | changeover contact C IEC 947-5-1                                                                                                             |      |
| Switching principle                                                      | snap-action switch, type ES 584                                                                                                              |      |
| Rated insulation voltage U <sub>i</sub>                                  | 250                                                                                                                                          | V    |
| Rated impulse withstand voltage U <sub>imp</sub>                         | 2.5                                                                                                                                          | kV   |
| Utilization category AC 15                                               | 230 V / 4 A                                                                                                                                  |      |
| Utilization category DC 13                                               | 24 V / 2 A                                                                                                                                   |      |
| Min. switching current at 24 V                                           | 12                                                                                                                                           | mA   |
| Min. switching voltage                                                   | 10                                                                                                                                           | V    |
| Contact material                                                         | silver alloy, gold on request                                                                                                                |      |
| Short circuit protection (control circuit fuse)                          | slow-blow T6 / quick-blow F10                                                                                                                | A    |
| Max. number of actuating directions                                      | 8                                                                                                                                            |      |
| All-round actuation R (spring return switch only)                        | actuation of 1 switching element (vertical or horizontal) or 2 adjacent switching elements (diagonal) simultaneously, with 8 microswitches * |      |
| Switching positions per direction                                        | 1                                                                                                                                            |      |
| Stayput switch S (latching)                                              | according to type designation                                                                                                                |      |
| Spring return switch T                                                   | according to type designation                                                                                                                |      |
| Bellows W                                                                | Option                                                                                                                                       |      |
| Interlock V in centre position                                           | Option                                                                                                                                       |      |
| Centre position switch Z                                                 | Option                                                                                                                                       |      |
| <b>Pushbutton D</b>                                                      | Option                                                                                                                                       |      |
| Degree of protection to IEC 529                                          | IP65                                                                                                                                         |      |
| Electrical life                                                          | 5x10 <sup>4</sup> switching cycles at 0.7 A / 250 V AC                                                                                       |      |
| Switching element                                                        | 1 x NO contact                                                                                                                               |      |
| Utilization category AC 15                                               | 230 V / 2 A                                                                                                                                  |      |
| Utilization category DC 13                                               | 24 V / 1 A                                                                                                                                   |      |
| Min. switching current at 24 V                                           | 12                                                                                                                                           | mA   |
| Min. switching voltage                                                   | 10                                                                                                                                           | V    |
| Actuating force                                                          | < 8                                                                                                                                          | N    |
| Actuating travel                                                         | approx. 3                                                                                                                                    | mm   |

## Ordering examples:

Joystick switch series **WK**, actuating directions **1+3** stayput switch **S**,  
actuating directions **2+4** spring return switch **T**, Pushbutton **D**, centre position switch **Z**,  
Interlock **V** in centre position

**WK S13 T24 DZV**

Joystick switch series **WK**, 8 switching elements as spring return switches, all-round actuation **R**

**WK T1-8 R**

## Design

Joystick switch series **WK**, 4 switching elements, 2 actuating directions  
(2 switching elements per actuating direction)

**on request**

\* Diagonal actuation of 4 adjacent switching elements is on request.

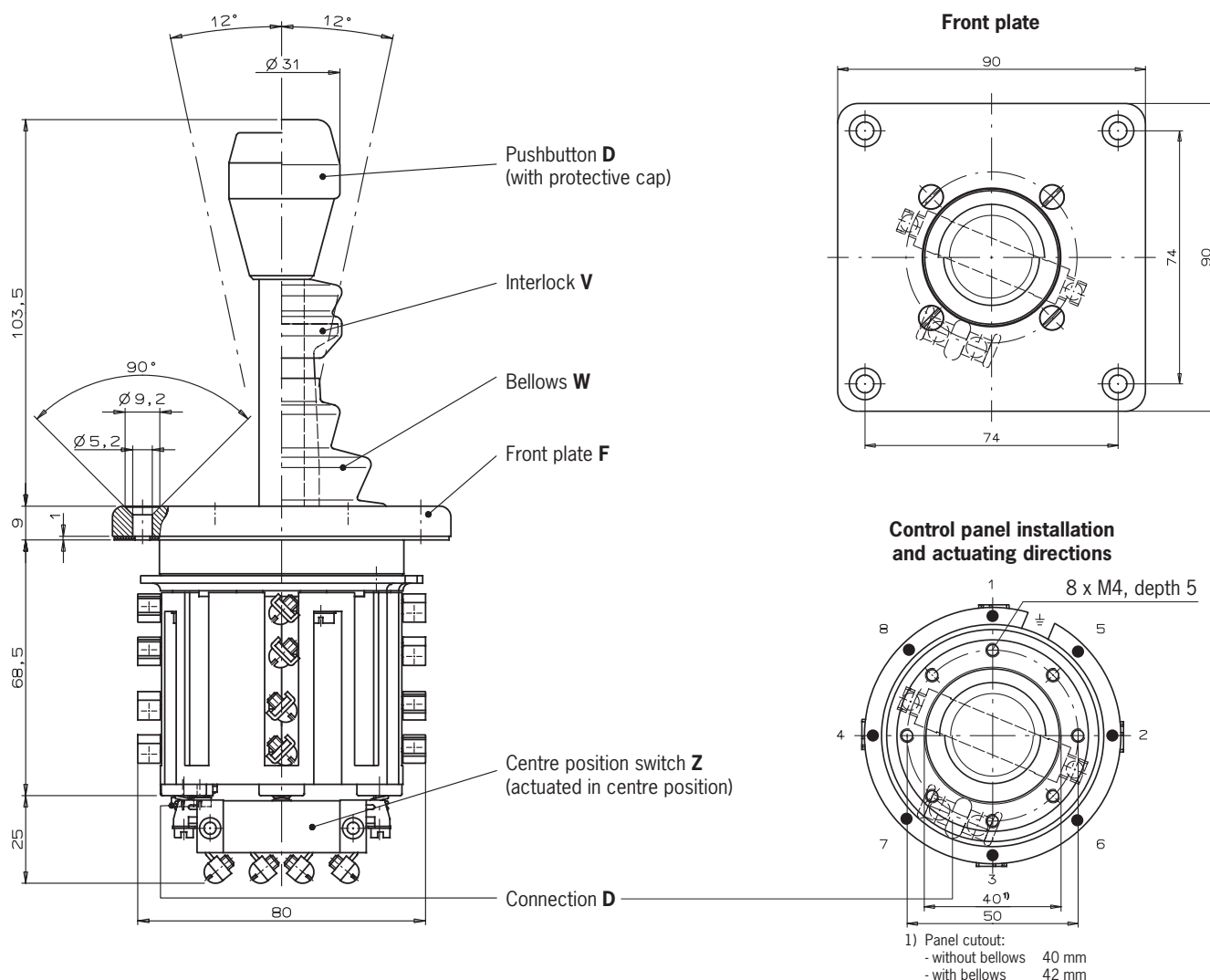
## Series WE...

Germanischer Lloyd  
Certificate no. 17 041 - 00 HH



- ▶ Control panel installation at rear or with front plate
- ▶ 1 to 8 actuating directions with stayput or spring return operation or combined
- ▶ One changeover contact with screw terminal for each actuating direction
- ▶ Centre position switch
- ▶ Pushbutton in handle

## Dimension drawing



## Ordering code

Series

## Actuating direction and switching behavior

Stayput switch **S** (switching lever latches in selected position)  
Spring return switch **T** (switching lever returns to centre position)

## Options

Pushbutton **D**  
Bellows **W**  
Interlock **V**  
Centre position switch **Z**  
All-round actuation **R**  
Front plate **F**

## Technical data

| Parameters                                                               | Value                                                   | Unit |
|--------------------------------------------------------------------------|---------------------------------------------------------|------|
| Housing material                                                         | glass-fibre reinforced thermoplastic / aluminum         |      |
| Switching lever material                                                 | galvanized steel                                        |      |
| Degree of protection to IEC 529 on actuating side with / without bellows | IP65 / IP54                                             |      |
| Mounting method                                                          | control panel installation at rear or with front plate  |      |
| Weight                                                                   | approx. 0.65                                            | kg   |
| Mechanical life                                                          | 1x10 <sup>6</sup> switching cycles                      |      |
| Ambient temperature with spring return switch                            | -5 to +65                                               | °C   |
| Ambient temperature with stayput switch                                  | -25 to +65                                              | °C   |
| Max. number of switching elements                                        | 8                                                       |      |
| Connection type                                                          | screw terminal                                          |      |
| Contact elements                                                         | changeover contact Za IEC 947-5-1                       |      |
| Switching principle                                                      | snap-action switch, type ES 502V1                       |      |
| Rated insulation voltage U <sub>i</sub>                                  | 250                                                     | V    |
| Rated impulse withstand voltage U <sub>imp</sub>                         | 2.5                                                     | kV   |
| Utilization category AC 15                                               | 230 V / 10 A                                            |      |
| Utilization category DC 13                                               | 24 V / 4 A                                              |      |
| Min. switching current at 24 V                                           | 50                                                      | mA   |
| Min. switching voltage                                                   | 24                                                      | V    |
| Contact material                                                         | silver alloy                                            |      |
| Short circuit protection (control circuit fuse)                          | slow-blow T16 / quick-blow F25                          | A    |
| Max. number of actuating directions                                      | 8                                                       |      |
| All-round actuation R (spring return switch only)                        | 1 switching element is actuated per actuating direction |      |
| Switching positions per direction                                        | 1                                                       |      |
| Stayput switch S (latching)                                              | according to type designation                           |      |
| Spring return switch T                                                   | according to type designation                           |      |
| Bellows W                                                                | Option                                                  |      |
| Interlock V in centre position                                           | Option                                                  |      |
| Centre position switch Z                                                 | Option                                                  |      |
| <b>Pushbutton D</b>                                                      | Option                                                  |      |
| Degree of protection to IEC 529                                          | IP65                                                    |      |
| Electrical life                                                          | 5x10 <sup>4</sup> switching cycles at 0.7 A / 250 V AC  |      |
| Switching element                                                        | 1 x NO contact                                          |      |
| Utilization category AC 15                                               | 230 V / 2 A                                             |      |
| Utilization category DC 13                                               | 24 V / 1 A                                              |      |
| Min. switching current at 24 V                                           | 12                                                      | mA   |
| Min. switching voltage                                                   | 10                                                      | V    |
| Actuating force                                                          | < 8                                                     | N    |
| Actuating travel                                                         | approx. 3                                               | mm   |

## Ordering examples:

Joystick switch series **WE**, actuating directions **1+3** stayput switch **S**,  
actuating directions **2+4** spring return switch **T**, Pushbutton **D**, centre position switch **Z**,  
Interlock **V** in centre position

**WE S13 T24 DZV**

Joystick switch series **WE**, 8 switching elements as spring return switches, all-round actuation **R**

**WE T1-8 R**

## Design

Joystick switch series **WE**, 4 switching elements, 2 actuating directions  
(2 switching elements per actuating direction)

**on request**

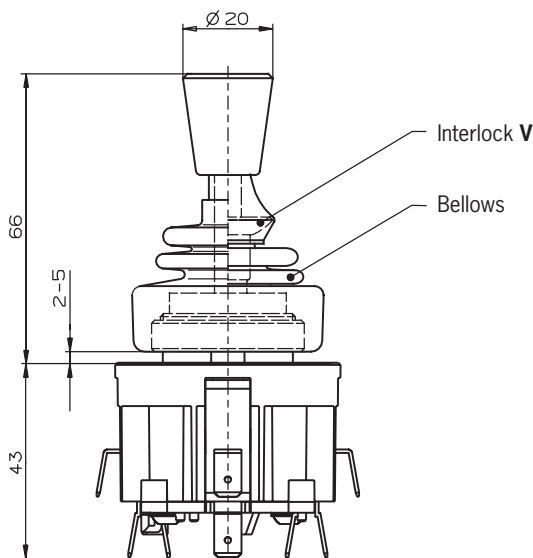
Series KB...

Germanischer Lloyd  
Certificate no. 17 041 - 00 HH

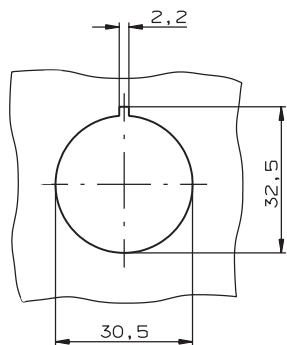


- ▶ Control panel installation to IEC 947-5-1 D30
- ▶ 1 to 8 actuating directions, 4 switching elements. With stayput or spring return operation or combined
- ▶ One changeover contact with tab connector 6.3 x 0.8 IEC 760 for each actuating direction

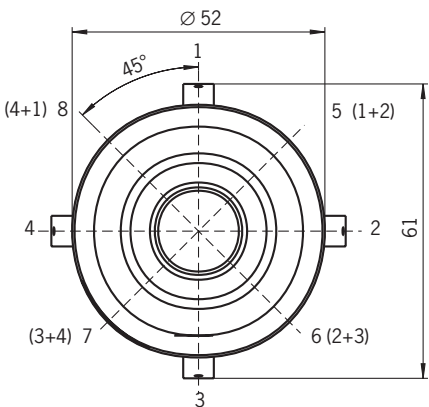
Dimension drawing



Panel cutout



Actuating directions



Ordering code

|   |   |  |  |
|---|---|--|--|
| K | B |  |  |
|---|---|--|--|

Series

Actuating direction and switching behavior

Stayput switch **S** (switching lever latches in selected position)  
Spring return switch **T** (switching lever returns to centre position)

Options

Interlock **V**  
All-round actuation **R**<sup>1)</sup>

1) Simultaneous actuation of 2 adjacent switching elements in diagonal actuating directions.

## Technical data

| Parameters                                                     | Value                                                                                                                   | Unit                                                                     |
|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| Housing material                                               | Thermoset                                                                                                               |                                                                          |
| Switching lever material                                       | stainless steel                                                                                                         |                                                                          |
| Degree of protection to IEC 529 on actuating side with bellows | IP65                                                                                                                    |                                                                          |
| Mounting method                                                | IEC 947-5-1 D30                                                                                                         |                                                                          |
| Weight                                                         | approx. 0.2                                                                                                             | kg                                                                       |
| Mechanical life                                                | spring return switch<br>stayput switch                                                                                  | 2x10 <sup>6</sup> switching cycles<br>1x10 <sup>6</sup> switching cycles |
| Ambient temperature with spring return switch                  | -5 to +65                                                                                                               | °C                                                                       |
| Ambient temperature with stayput switch                        | -25 to +65                                                                                                              | °C                                                                       |
| Max number of switching elements                               | 4                                                                                                                       |                                                                          |
| Connection type                                                | tab connector 6.3 x 0.8<br>screw terminal on request                                                                    | IEC 760                                                                  |
| Contact elements                                               | changeover contact C IEC 947-5-1                                                                                        |                                                                          |
| Switching principle                                            | snap-action switch, type ES 517 A                                                                                       |                                                                          |
| Rated insulation voltage U <sub>i</sub>                        | 250                                                                                                                     | V                                                                        |
| Rated impulse withstand voltage U <sub>imp</sub>               | 2.5                                                                                                                     | kV                                                                       |
| Utilization category AC 15                                     | 230 V / 5 A                                                                                                             |                                                                          |
| Utilization category DC 13                                     | 24 V / 3 A                                                                                                              |                                                                          |
| Min. switching current at 24 V                                 | 10                                                                                                                      | mA                                                                       |
| Min. switching voltage                                         | 12                                                                                                                      | V                                                                        |
| Contact material                                               | silver alloy                                                                                                            |                                                                          |
| Short circuit protection (control circuit fuse)                | T10 / F20                                                                                                               | A                                                                        |
| Max. number of actuating directions                            | 8                                                                                                                       |                                                                          |
| All-round actuation R (spring return switch only)              | actuation of 1 switching element (vertical or horizontal)<br>or 2 adjacent switching elements (diagonal) simultaneously |                                                                          |
| Switching positions per direction                              | 1                                                                                                                       |                                                                          |
| Stayput switch S (latching)                                    | according to type designation                                                                                           |                                                                          |
| Spring return switch T                                         | according to type designation                                                                                           |                                                                          |
| Interlock V in centre position                                 | Option                                                                                                                  |                                                                          |

## Ordering examples:

Joystick switch series **KB**, actuating directions **1+3** stayput switch **S**,  
actuating directions **2+4** spring return switch **T**

**KB S13 T24**

Joystick switch series **KB**, actuating directions **1+3** spring return switch **T**,  
Interlock **V** in centre position

**KB T13 V**

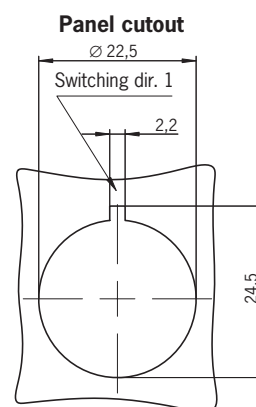
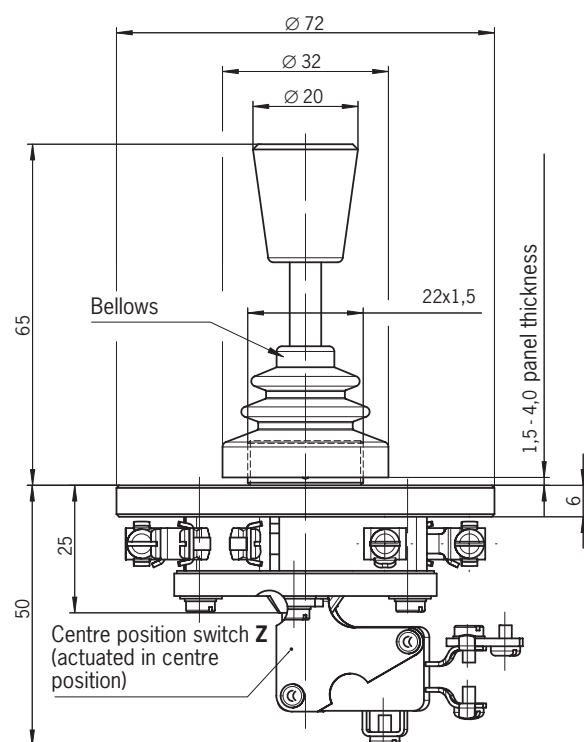
## Series KF...

Germanischer Lloyd  
Certificate no. 17 041 - 00 HH

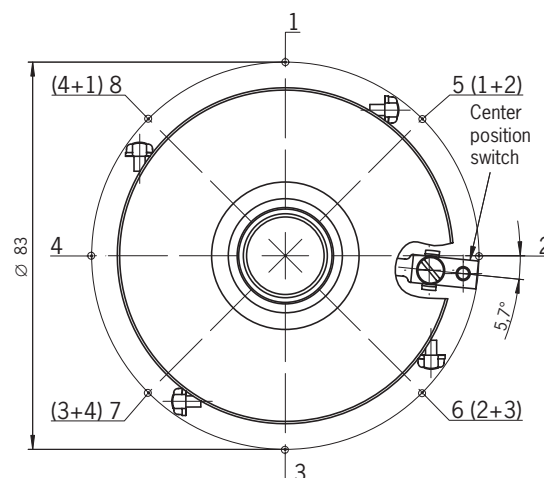


- ▶ Control panel installation at rear
- ▶ 1 to 8 actuating directions, 4 switching elements. With stayput or spring return operation or combined
- ▶ One changeover contact with screw terminal for each actuating direction
- ▶ Centre position switch

## Dimension drawing



## Actuating directions



## Ordering code

|          |          |  |  |
|----------|----------|--|--|
| <b>K</b> | <b>F</b> |  |  |
|----------|----------|--|--|

Series

## Actuating direction and switching behavior

Stayput switch **S** (switching lever latches in selected position)  
Spring return switch **T** (switching lever returns to centre position)

## Options

Centre position switch **Z**  
All-round actuation **R**<sup>1)</sup>

1) Simultaneous actuation of 2 adjacent switching elements in diagonal actuating directions.

## Technical data

| Parameters                                                     | Value                                                                                                                | Unit |
|----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|------|
| Housing material                                               | Thermoset                                                                                                            |      |
| Switching lever material                                       | stainless steel                                                                                                      |      |
| Degree of protection to IEC 529 on actuating side with bellows | IP65                                                                                                                 |      |
| Mounting method                                                | panel installation at rear                                                                                           |      |
| Weight                                                         | approx. 0.2                                                                                                          | kg   |
| Mechanical life                                                | 1x10 <sup>6</sup> switching cycles                                                                                   |      |
| Ambient temperature with spring return switch                  | -25 to +65                                                                                                           | °C   |
| Ambient temperature with stayput switch                        | -25 to +65                                                                                                           | °C   |
| Max. number of switching elements                              | 4                                                                                                                    |      |
| Connection type                                                | screw terminal                                                                                                       |      |
| Contact elements                                               | changeover contact C IEC 947-5-1                                                                                     |      |
| Switching principle                                            | snap-action switch, type ES 517                                                                                      |      |
| Rated insulation voltage U <sub>i</sub>                        | 250                                                                                                                  | V    |
| Rated impulse withstand voltage U <sub>imp</sub>               | 2.5                                                                                                                  | kV   |
| Utilization category AC 15                                     | 230 V / 5 A                                                                                                          |      |
| Utilization category DC 13                                     | 24 V / 3 A                                                                                                           |      |
| Min. switching current at 24 V                                 | 10                                                                                                                   | mA   |
| Min. switching voltage                                         | 12                                                                                                                   | V    |
| Contact material                                               | silver alloy                                                                                                         |      |
| Short circuit protection (control circuit fuse)                | slow-blow T10 / quick-blow F20                                                                                       | A    |
| Max. number of actuating directions                            | 8                                                                                                                    |      |
| All-round actuation R                                          | actuation of 1 switching element (vertical or horizontal) or 2 adjacent switching elements (diagonal) simultaneously |      |
| Switching positions per direction                              | 1                                                                                                                    |      |
| Stayput switch S (latching)                                    | according to type designation                                                                                        |      |
| Spring return switch T                                         | according to type designation                                                                                        |      |
| Centre position switch Z                                       | Option                                                                                                               |      |

## Ordering examples:

Joystick switch series **KF**, actuating directions **1+3** stayput switch **S**,  
actuating directions **2+4** spring return switch **T**, centre position switch **Z**

**KF S13 T24 Z**

Joystick switch series **KF**, actuating directions **1-4** spring return switch **T**,  
all-round actuation **R**

**KF T1234 R**

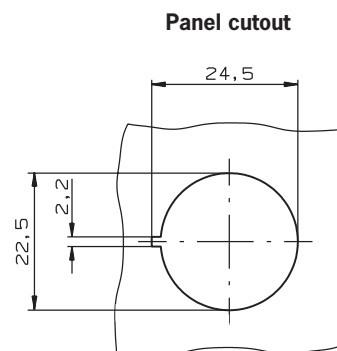
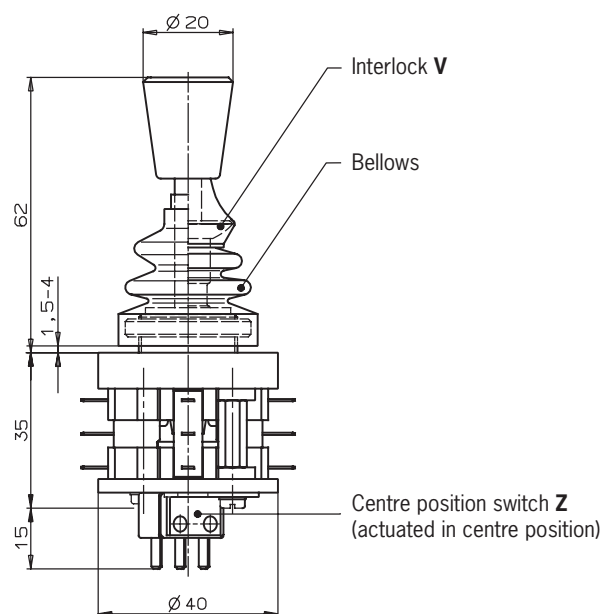
## Series KE...

Germanischer Lloyd  
Certificate no. 17 041 - 00 HH

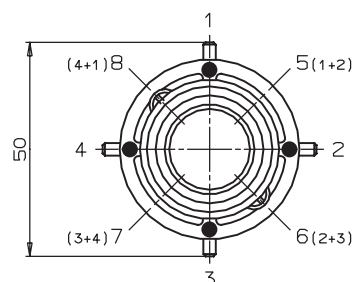


- ▶ Control panel installation to IEC 947-5-1 D22
- ▶ 1 to 8 actuating directions, 4 switching elements. With stayput or spring return operation or combined
- ▶ One changeover contact with tab connector 2.8 x 0.5 IEC 760 for each actuating direction
- ▶ Centre position switch

## Dimension drawing



## Actuating directions



## Ordering code

|   |   |  |  |
|---|---|--|--|
| K | E |  |  |
|---|---|--|--|

## Series

## Actuating direction and switching behavior

Stayput switch **S** (switching lever latches in selected position)  
Spring return switch **T** (switching lever returns to centre position)

## Options

Interlock **V**  
Centre position switch **Z**  
All-round actuation **R**<sup>1)</sup>

1) Simultaneous actuation of 2 adjacent switching elements in diagonal actuating directions.

## Technical data

| Parameters                                                     | Value                                                                                                                | Unit |
|----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|------|
| Housing material                                               | Thermoset                                                                                                            |      |
| Switching lever material                                       | stainless steel                                                                                                      |      |
| Degree of protection to IEC 529 on actuating side with bellows | IP65                                                                                                                 |      |
| Mounting method                                                | IEC 947-5-1 D22                                                                                                      |      |
| Weight                                                         | approx. 0.1                                                                                                          | kg   |
| Mechanical life                                                | 1x10 <sup>6</sup> switching cycles                                                                                   |      |
| Ambient temperature with spring return switch                  | -25 to +65                                                                                                           | °C   |
| Ambient temperature with stayput switch                        | -25 to +65                                                                                                           | °C   |
| Max. number of switching elements                              | 4                                                                                                                    |      |
| Connection type                                                | tab connector 2.8 x 0.5 IEC 760                                                                                      |      |
| Contact elements                                               | changeover contact C IEC 947-5-1                                                                                     |      |
| Switching principle                                            | snap-action switch, type ES 587                                                                                      |      |
| Rated insulation voltage U <sub>i</sub>                        | 250                                                                                                                  | V    |
| Rated impulse withstand voltage U <sub>imp</sub>               | 2.5                                                                                                                  | kV   |
| Utilization category AC 15                                     | 230 V / 4 A                                                                                                          |      |
| Utilization category DC 13                                     | 24 V / 2 A                                                                                                           |      |
| Min. switching current at 24 V                                 | 12                                                                                                                   | mA   |
| Min. switching voltage                                         | 10                                                                                                                   | V    |
| Contact material                                               | silver alloy                                                                                                         |      |
| Short circuit protection (control circuit fuse)                | slow-blow T10 / quick-blow F20                                                                                       | A    |
| Max. number of actuating directions                            | 8                                                                                                                    |      |
| All-round actuation R                                          | actuation of 1 switching element (vertical or horizontal) or 2 adjacent switching elements (diagonal) simultaneously |      |
| Switching positions per direction                              | 1                                                                                                                    |      |
| Stayput switch S (latching)                                    | according to type designation                                                                                        |      |
| Spring return switch T                                         | according to type designation                                                                                        |      |
| Interlock V in centre position                                 | Option                                                                                                               |      |
| Centre position switch Z                                       | Option                                                                                                               |      |

## Ordering examples:

Joystick switch series **KE**, actuating directions **1+3** stayput switch **S**,  
actuating directions **2+4** spring return switch **T**, centre position switch **Z**

**KE S13 T24 Z**

Joystick switch series **KE**, actuating directions **1+3** spring return switch **T**,  
Interlock **V** in centre position

**KE T13 V**

Joystick switch series **KE**, actuating directions **1-4** Spring return switch **T**,  
all-round actuation **R**

**KE T1234 R**

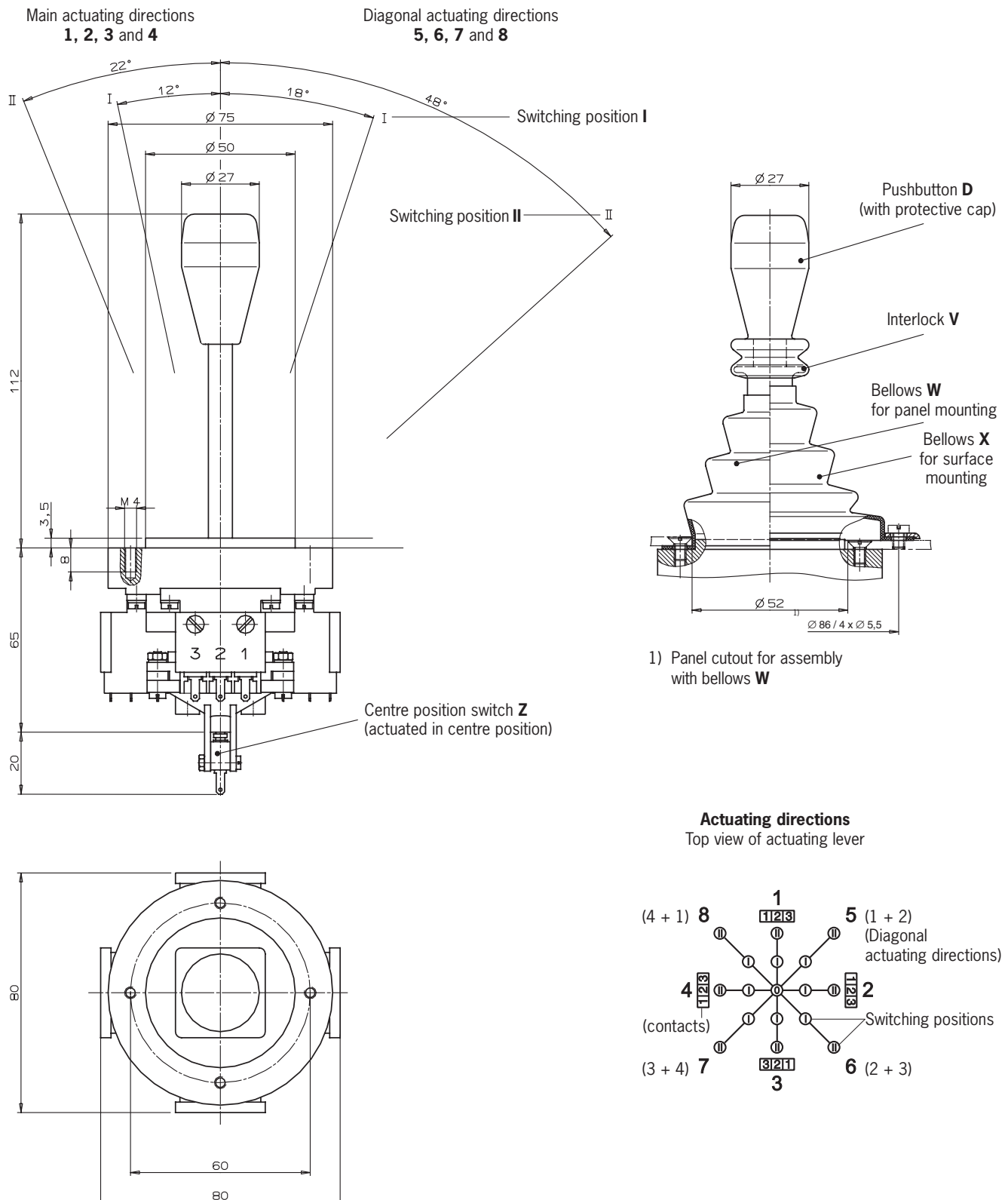
## Series KC...

Germanischer Lloyd  
Certificate no. 17 041 - 00 HH



- control panel installation at rear or with front plate
- 1 to 8 actuating directions with 1 or 2 switching positions for each actuating direction
- Switching positions as stayput or spring return operation in various combinations
- Centre position switch
- Pushbutton in handle

## Dimension drawing



## Technical data

| Parameters                                                               | Value                                                                                                                   | Unit |
|--------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|------|
| Housing material                                                         | glass-fibre reinforced thermoplastic / aluminum                                                                         |      |
| Switching lever material                                                 | galvanized steel                                                                                                        |      |
| Degree of protection to IEC 529 on actuating side with / without bellows | IP65 / IP50                                                                                                             |      |
| Mounting method                                                          | control panel installation at rear or with front plate                                                                  |      |
| Weight                                                                   | approx. 0.75                                                                                                            | kg   |
| Mechanical life                                                          | 1x10 <sup>6</sup> switching cycles                                                                                      |      |
| Ambient temperature with spring return switch                            | -5 to +65                                                                                                               | °C   |
| Ambient temperature with stayput switch                                  | -25 to +65                                                                                                              | °C   |
| Max. number of switching elements                                        | 3 per direction                                                                                                         |      |
| Connection type                                                          | tab connector 2.8 x 0.5 IEC 760 (ES 584)<br>screw terminal (ES 556)                                                     |      |
| Contact elements                                                         | changeover contact C IEC 947-5-1                                                                                        |      |
| Switching principle                                                      | snap-action switch, type ES 584 or ES 556                                                                               |      |
| Rated insulation voltage U <sub>i</sub>                                  | 250                                                                                                                     | V    |
| Rated impulse withstand voltage U <sub>imp</sub>                         | 2.5                                                                                                                     | kV   |
| Utilization category AC 15                                               | 230 V / 4 A                                                                                                             |      |
| Utilization category DC 13                                               | 24 V / 2 A                                                                                                              |      |
| Min. switching current at 24 V                                           | 12                                                                                                                      | mA   |
| Min. switching voltage                                                   | 10                                                                                                                      | V    |
| Contact material                                                         | silver alloy                                                                                                            |      |
| Short circuit protection (control circuit fuse)                          | slow-blow T6 / quick-blow F10                                                                                           | A    |
| Max. number of actuating directions                                      | 8                                                                                                                       |      |
| All-round actuation R (spring return switch only)                        | actuation of 1 switching element (vertical or horizontal)<br>or 2 adjacent switching elements (diagonal) simultaneously |      |
| Switching positions per direction                                        | 1 or 2                                                                                                                  |      |
| Stayput switch S (latching)                                              | according to type designation                                                                                           |      |
| Spring return switch T                                                   | according to type designation                                                                                           |      |
| Bellows W, X                                                             | Option                                                                                                                  |      |
| Interlock V in centre position or position I                             | Option                                                                                                                  |      |
| Centre position switch Z                                                 | Option                                                                                                                  |      |
| <b>Pushbutton D</b>                                                      | Option                                                                                                                  |      |
| Degree of protection to IEC 529                                          | IP65                                                                                                                    |      |
| Electrical life                                                          | 5x10 <sup>4</sup> switching cycles at 0.7 A / 250 V AC                                                                  |      |
| Contact elements                                                         | 1 x NO contact                                                                                                          |      |
| Utilization category AC 15                                               | 230 V / 2 A                                                                                                             |      |
| Utilization category DC 13                                               | 24 V / 1 A                                                                                                              |      |
| Min. switching current at 24 V                                           | 12                                                                                                                      | mA   |
| Min. switching voltage                                                   | 10                                                                                                                      | V    |
| Actuating force                                                          | < 8                                                                                                                     | N    |
| Actuating travel                                                         | approx. 3                                                                                                               | mm   |

**Ordering examples:** (see type code on page 18)

Joystick switch series **KC** with tab connector, main actuating direction 1 with 3 switching elements. As spring return switch in switching position I.

As stayput switch in switching position II.

Main actuating directions 2 and 4 with 2 switching elements each. As stayput switch in switching positions I and II. Main actuating direction 3 not used. Option **V1** (mech. interlock from switching position I to switching position II)

**KCA3A5C005C0000V1**

Joystick switch series **KC** with screw terminal, main actuating directions **1-4**

as stayput switch. **S** with one switching element each, diagonal actuating directions **5-8**,

Pushbutton **D**, bellows **W** for panel mounting.

**KCB4E4E4E4E5678DW**

## Series KC...

### Switching behavior <sup>1)</sup>

- Stayput switch (switching lever latches in selected position)
- ⊕ Spring return switch (switching lever returns to initial position)

| Ordering code | Switching position |    |
|---------------|--------------------|----|
|               | I                  | II |
| 1             | ⊕                  | -  |
| 2             | ⊕                  | ⊕  |
| 3             | ⊕                  | ●  |
| 4             | ●                  | -  |
| 5             | ●                  | ●  |
| 6             | ●                  | ⊕  |

### Switching functions <sup>2)</sup>

|   |   | Contact state in switching position |   |    |   |   | Contact state in switching position |   |    |
|---|---|-------------------------------------|---|----|---|---|-------------------------------------|---|----|
|   |   | 0                                   | I | II |   |   | 0                                   | I | II |
| A | 1 |                                     |   |    | F | 1 |                                     |   |    |
|   | 2 |                                     |   |    |   | 2 |                                     |   |    |
|   | 3 |                                     |   |    |   | 3 |                                     |   |    |
| B | 1 |                                     |   |    | G | 1 |                                     |   |    |
|   | 2 |                                     |   |    |   | 2 |                                     |   |    |
|   | 3 |                                     |   |    |   | 3 |                                     |   |    |
| C | 1 |                                     |   |    | H | 1 |                                     |   |    |
|   | 2 |                                     |   |    |   | 2 |                                     |   |    |
|   | 3 |                                     |   |    |   | 3 |                                     |   |    |
| D | 1 |                                     |   |    | K | 1 |                                     |   |    |
|   | 2 |                                     |   |    |   | 2 |                                     |   |    |
|   | 3 |                                     |   |    |   | 3 |                                     |   |    |
| E | 1 |                                     |   |    |   |   |                                     |   |    |
|   | 2 |                                     |   |    |   |   |                                     |   |    |
|   | 3 |                                     |   |    |   |   |                                     |   |    |

### Ordering code

#### Series

#### Connection type

Tab connector 2.8 x 0.5 IEC 760  
Screw terminal

#### Main actuating direction 1

Switching behavior <sup>1)</sup>  
Switching function <sup>2)</sup>

#### Main actuating direction 2

Switching behavior <sup>1)</sup>  
Switching function <sup>2)</sup>

#### Main actuating direction 3

Switching behavior <sup>1)</sup>  
Switching function <sup>2)</sup>

#### Main actuating direction 4

Switching behavior <sup>1)</sup>  
Switching function <sup>2)</sup>

#### Diagonal actuating direction 5 <sup>3)</sup>

#### Diagonal actuating direction 6 <sup>3)</sup>

#### Diagonal actuating direction 7 <sup>3)</sup>

#### Diagonal actuating direction 8 <sup>3)</sup>

#### Options

Pushbutton in handle  
Bellows for panel mounting  
Bellows for surface mounting  
Interlock switching position 0  
Interlock switching position I to II  
Centre position switch  
All-round actuation

D  
W  
X  
VO  
V1  
Z  
R

<sup>1)</sup> See „Switching behavior“ table. Actuating directions which are not required must be marked with „0“.

<sup>2)</sup> See „Switching functions“ table.

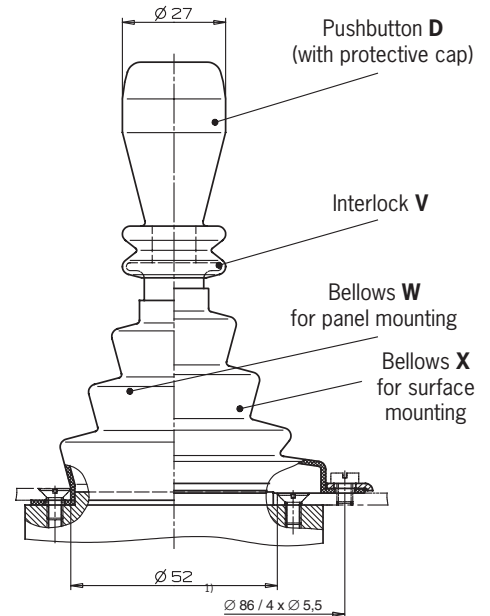
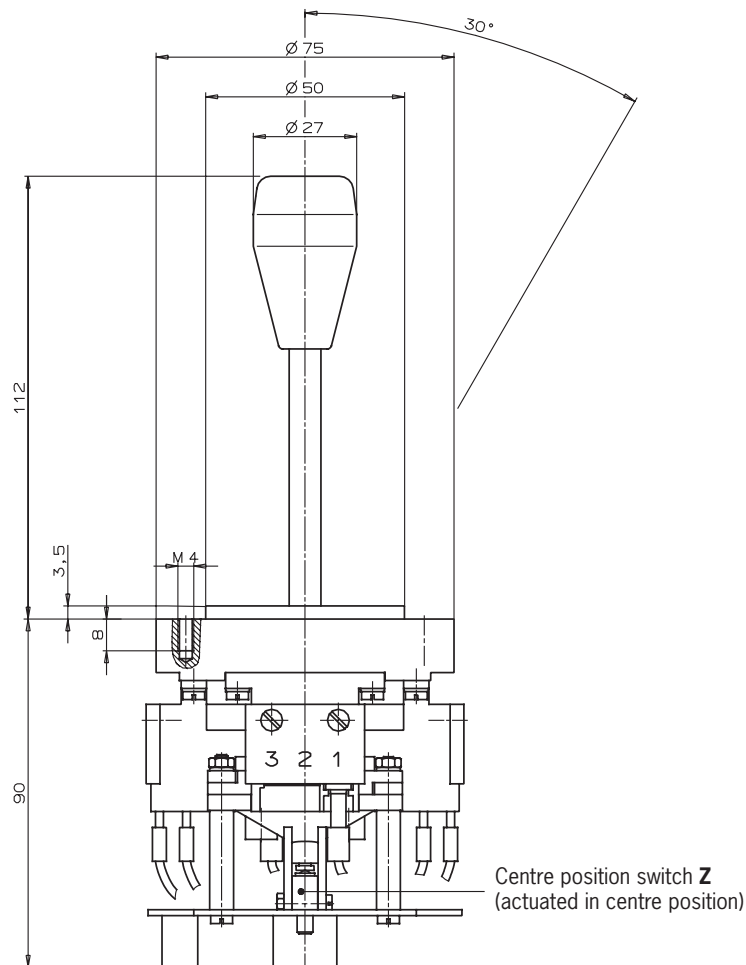
<sup>3)</sup> Simultaneous actuation of 2 adjacent switching elements in diagonal actuating directions.

## Series KP...

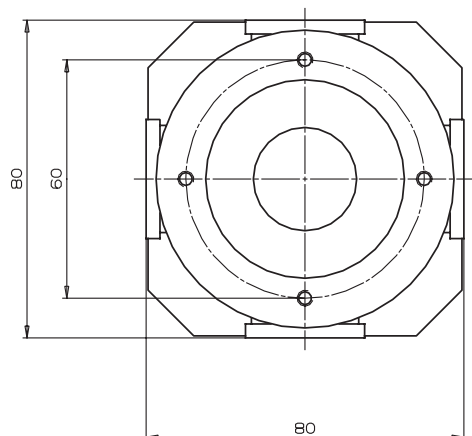
## Analog Joystick

- control panel installation at rear or with front plate
- Analog, proportional output signals
- Control variants with 1 and 2 axes or 2 axes simultaneously
- Centre position switch
- Pushbutton in handle

## Dimension drawing

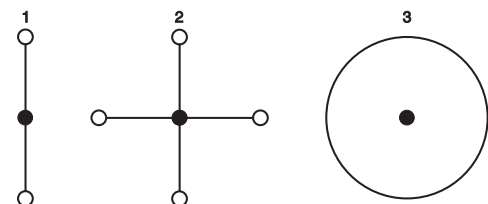


1) Panel cutout for assembly  
with bellows **W**



## Control versions

Versions 1 = 1 axis  
 Versions 2 = 2 axes  
 Versions 3 = 2 axes simultaneously (only spring return version)



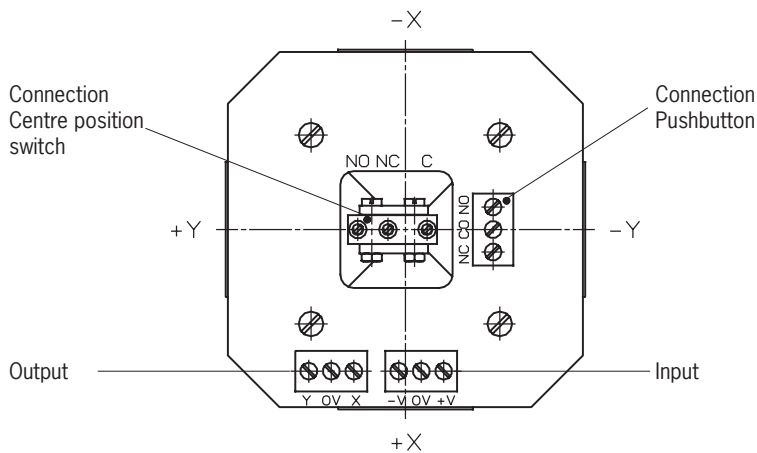
## Technical data

| Parameters                                                               | Value                                                  | Unit |
|--------------------------------------------------------------------------|--------------------------------------------------------|------|
| Housing material                                                         | glass-fibre reinforced thermoplastic / aluminum        |      |
| Switching lever material                                                 | galvanized steel                                       |      |
| Degree of protection to IEC 529 on actuating side with / without bellows | IP65 / IP50                                            |      |
| Mounting method                                                          | control panel installation at rear or with front plate |      |
| Weight                                                                   | approx. 0.75                                           | kg   |
| Mechanical life                                                          | 1x10 <sup>6</sup> switching cycles                     |      |
| Ambient temperature with spring return switch                            | -5 to +65                                              | °C   |
| Ambient temperature with stayput switch                                  | -25 to +65                                             | °C   |
| Max. number of switching elements                                        | 1 per direction                                        |      |
| Connection type                                                          | screw terminal on PC board                             |      |
| Contact elements                                                         | changeover contact C IEC 947-5-1                       |      |
| Switching principle                                                      | snap-action switch                                     |      |
| Rated insulation voltage U <sub>i</sub>                                  | 50                                                     | V    |
| Contact material                                                         | silver alloy                                           |      |
| Input voltage of resistance element                                      | ± 18                                                   | V=   |
| Output voltage of resistance element                                     | ± 10                                                   | V=   |
| Max. number of actuating directions                                      | 1 axis, 2 axes or 2 axes simultaneously                |      |
| Stayput switch S (latching)                                              | according to type designation                          |      |
| Spring return switch T                                                   | according to type designation                          |      |
| Bellows W, X                                                             | Option                                                 |      |
| Interlock V in centre position                                           | Option                                                 |      |
| Centre position switch Z                                                 | Option                                                 |      |
| <b>Pushbutton D</b>                                                      | Option                                                 |      |
| Degree of protection to IEC 529                                          | IP65                                                   |      |
| Electrical life                                                          | 5x10 <sup>4</sup> switching cycles at 0.7 A / 250 V AC |      |
| Contact elements                                                         | 1 x NO contact                                         |      |
| Utilization category AC 15                                               | 230 V / 2 A                                            |      |
| Utilization category DC 13                                               | 24 V / 1 A                                             |      |
| Min. switching current at 24 V                                           | 12                                                     | mA   |
| Min. switching voltage                                                   | 10                                                     | V    |
| Actuating force                                                          | < 8                                                    | N    |
| Actuating travel                                                         | approx. 3                                              | mm   |

## Series KP...

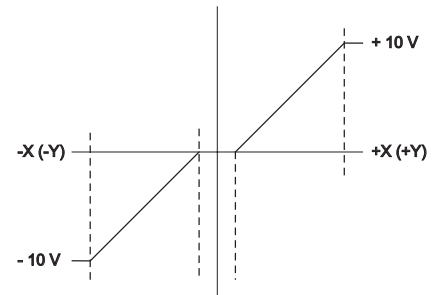
## Analog Joystick

### Pin assignment



### Output

| Terminal | Signal                          |
|----------|---------------------------------|
| Y        | $\pm 10\text{ V}, 10\text{ mA}$ |
| 0 V      | 0 V (GND)                       |
| X        | $\pm 10\text{ V}, 10\text{ mA}$ |



### Input

| Terminal | Signal    |
|----------|-----------|
| - V      | -18 V     |
| 0 V      | 0 V (GND) |
| + V      | +18 V     |

### Ordering code

|   |   |  |  |  |
|---|---|--|--|--|
| K | P |  |  |  |
|---|---|--|--|--|

#### Series

#### Control variants

- 1 axis **1**
- 2 axes **2**
- 2 axes simultaneously **3**

#### End position

- Stayput switch **S**
- Spring return switch **T**

#### Options

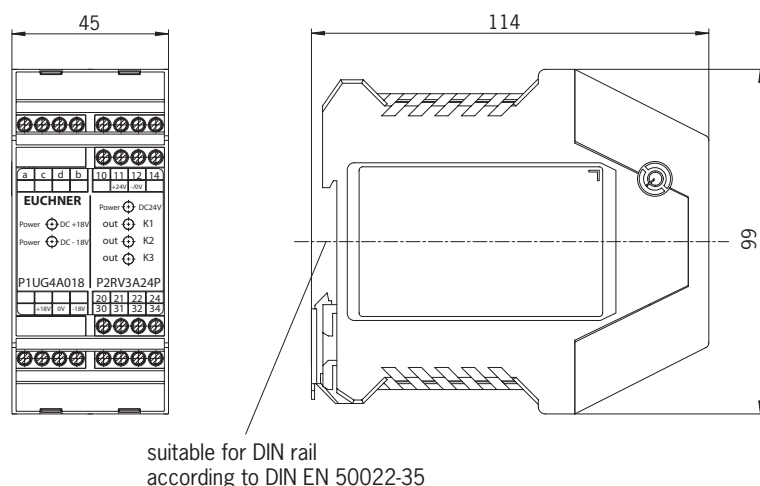
- Pushbutton **D**
- Bellows for panel mounting **W**
- Bellows for surface mounting **X**
- Interlock **V**
- Centre position switch **Z**

### Ordering example:

Analog Joystick series **KP** for **2**-axis control, limit position spring return switch **T**, mechanical interlock, **V** in zero position, bellows **W** for panel mounting, centre position switch **Z** in switching position zero

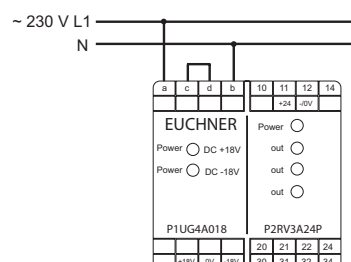
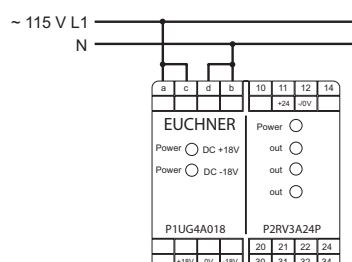
**KP 2 TVWZ**

## Universal Power Supply Unit P1/P2 Order No. 096 645



### Connection to power supply

with AC 115 V or AC 230 V

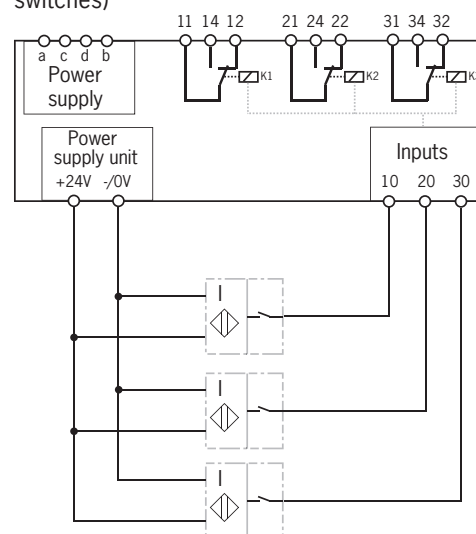


The universal power supply unit P1/P2 comprises the unit P1UG4A018 (P1) for the supply of the EUCHNER series KP joystick.

The unit P2RV3A24P (P2) is used as a switch amplifier for the connection of three inductive proximity switches or single hole fixing limit switches. In addition, it can also be used as a simple power supply. The units can be operated separately or together.

### Use as switch amplifier

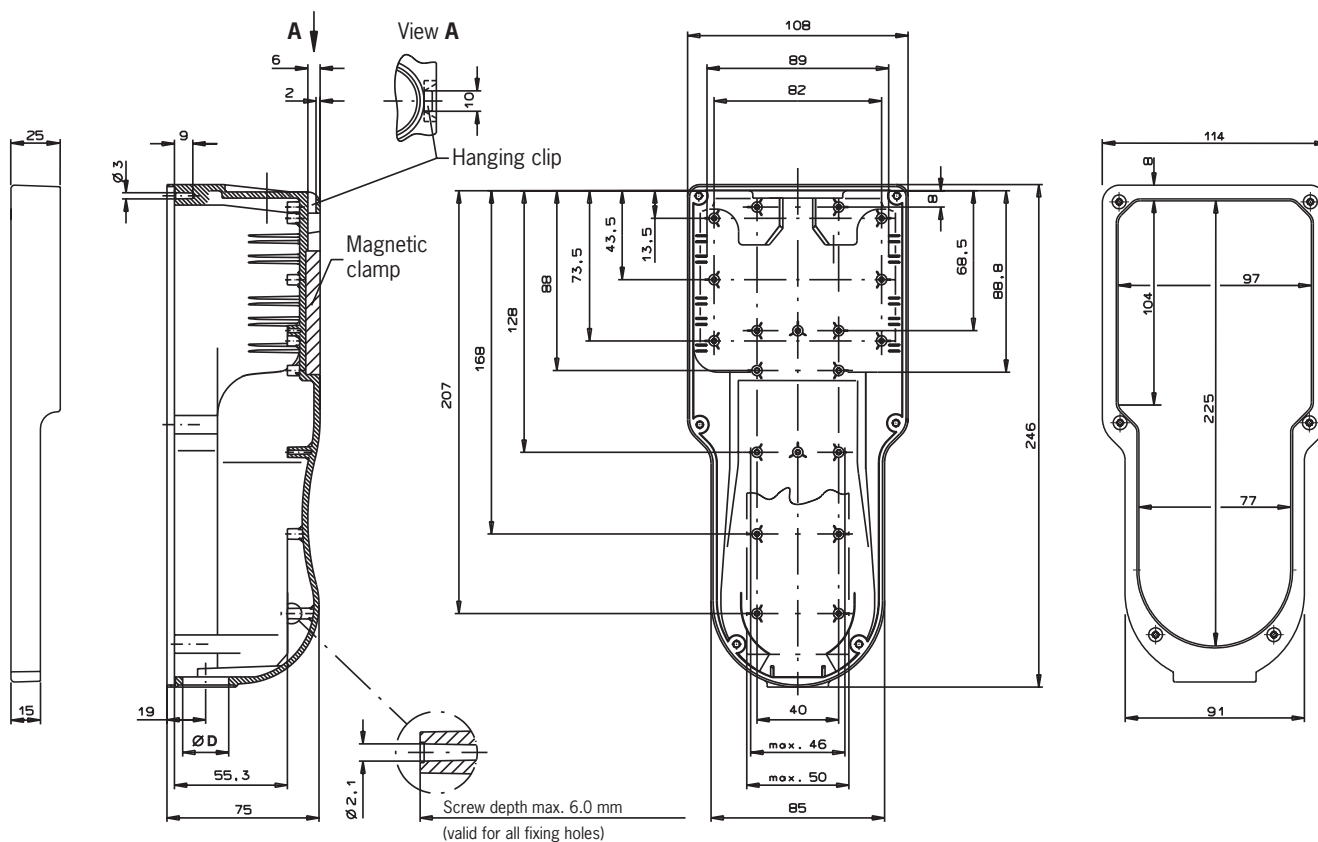
(connection example with inductive proximity switches)



| Parameter                                          | Value                                        | Unit            |
|----------------------------------------------------|----------------------------------------------|-----------------|
| Housing material                                   | Polyamide PA6.6                              |                 |
| Degree of protection acc. to EN/IEC 60529          | IP 20                                        |                 |
| Ambient temperature at $U_B = DC 24 V$             | -15 ... +55                                  | °C              |
| Storage temperature                                | -25 ... +70                                  | °C              |
| Degree of contamination (external)                 | 2 (acc. to EN 60947)                         |                 |
| Material rroup                                     | II                                           |                 |
| Mounting                                           | DIN rail 35 mm according to DIN EN 50022-35  |                 |
| Weight                                             | 0.4                                          | kg              |
| Connection type                                    | Connection terminals                         |                 |
| Conductor cross-section                            | 0.14 ... 2.5                                 | mm <sup>2</sup> |
| Primary voltage                                    | AC 115 V $\pm 10 \%$<br>AC 230 V $\pm 10 \%$ |                 |
| Line frequency                                     | 50 ... 60                                    | Hz              |
| External fuse (transformer, electrically isolated) | 2 x 160 mA, slow blow                        |                 |
| Max. power consumption, P1 and P2 together         | 5.4                                          | VA              |
| <b>P1UG4A018</b>                                   |                                              |                 |
| Output voltage, regulated                          | DC -18 V and DC +18 V                        |                 |
| Load current $I_{max}$                             | 50                                           | mA              |
| Power consumption                                  | 5.4                                          | VA              |
| <b>P2RV3A24P</b>                                   |                                              |                 |
| Control circuit voltage at $I_{max}$               | 24                                           | DC V            |
| $I$ (nominal current)                              | 30                                           | DC V            |
| Power consumption                                  | 2.7                                          | VA              |
| Control current $I_{max}$                          | 70                                           | mA              |
| Output contacts                                    | 3 NC<br>3 NO                                 |                 |
| Max. switching voltage                             | 250                                          | AC/DC V         |
| Max switching current                              | 4                                            | A               |
| Breaking capacity                                  |                                              |                 |
| AC                                                 | 500                                          | VA              |
| DC                                                 | 50                                           | W               |

## Housing HBL

### Dimension drawing



### Note

- 2 versions for different cable glands

| Design  | $\varnothing D$ |
|---------|-----------------|
| PG 11   | 19              |
| PG 13.5 | 20.8            |

### Technical data

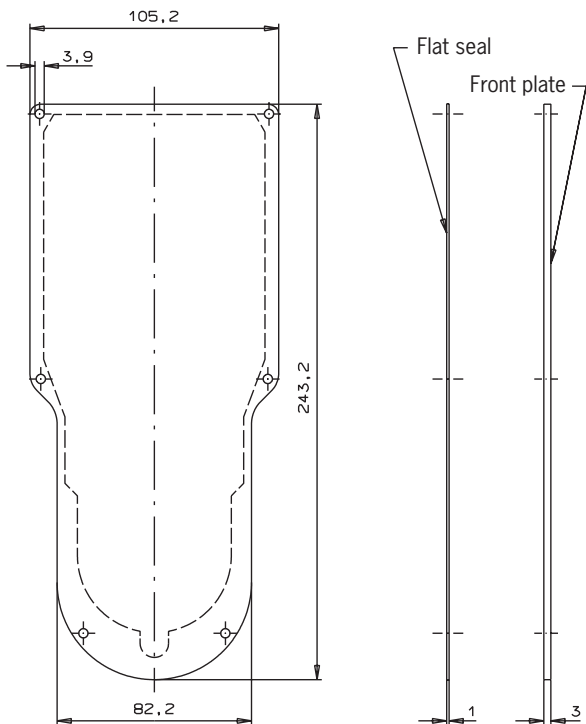
| Parameters                       | Value              | Unit |
|----------------------------------|--------------------|------|
| <b>Housing HBL</b>               |                    |      |
| Material                         | Polyamide          |      |
| Color                            | blue-grey RAL 7031 |      |
| Ambient temperature              | 0 to +55           | °C   |
| Degree of protection to EN 60529 | to IP 65           |      |
| Weight                           | approx. 0.4        | kg   |

### Ordering table

| Design  | Type designation                                                                                                                                 | Order No. |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| PG 11   | Housing HBL, with magnetic clamp, hanging clip, fixing nut for heavy gauge cable gland PG 11, 6 screws for front plate attachment, cover frame   | 073 098   |
| PG 13.5 | Housing HBL, with magnetic clamp, hanging clip, fixing nut for heavy gauge cable gland PG 13.5, 6 screws for front plate attachment, cover frame | 072 630   |

Front plate for housing HBL

Dimension drawing



Technical data

| Material             |                                  |  |
|----------------------|----------------------------------|--|
| Material front plate | electro-anodized aluminum, black |  |
| Material seal        | NBR, self-adhesive on one side   |  |

Ordering table

| Type designation                       | Order No. |
|----------------------------------------|-----------|
| Front plate for HBL housing, with seal | 055 967   |



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