

Safety Switch WZ

Operating Instructions



WZ

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Document Information

Titel: kro_ba_wz_de, Stand: 23.04.2020

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Contents

1	General information	4
1.1	Key words and warning symbols used.....	4
1.2	Brief description of the safety switch WZ.....	5
1.3	Intended use.....	5
2	Safety	6
2.1	Safety advice.....	6
3	Overview safety switch WZ and operating claw	7
4	Assembly	8
4.1	Safety switch WZ and operating claw	8
4.1.1	Installation position of the operating claw to the switch.....	8
4.1.2	Specifications for actuation radii.....	8
4.1.3	Procedure	9
4.1.4	Pinned fitting of the switch	9
5	Electrical connection	9
6	Functional test	10
7	Maintenance, storage, disassembly and disposal	10
7.1	Maintenance.....	10
7.2	Storage	10
7.3	Disassembly and disposal.....	10
8	Data sheet	11
8.1	Dimensions	11
8.2	Switch mechanism and circuit diagram.....	12
8.3	Technical data.....	13
9	EU-Declaration of conformity	13

1 General information

In this operating instruction you will find:

- information on installation, adjustment, maintenance and disposal of the assembly WZ
- safety information
- assistance in the case of malfunctions

Read this operating instruction carefully before you start mounting the device WZ. Pay special attention to the safety instructions, as the failure to comply with them might result in severest injuries, environmental damage or damage to the device and to machines.

1.1 Key words and warning symbols used



Danger

Indicates an imminent danger for life and health of persons.



Warning

Indicates a potentially dangerous situation. Disregarding this warning may result in death or serious injury. This advice additionally warns of risks for machine, material or environment.



Attention

Indicates possible minor personal injury due to neglect.



Caution

Indicates possible material damage when disregarding the instructions or gives an important advice for the function.



Note

Indicates general information on the handling or the product.

1.2 Brief description of the safety switch WZ

The safety switch WZ has been developed and manufactured in accordance with the applicable national standards and guidelines.

The features of the safety switch at a glance:

mechanism:	<ul style="list-style-type: none">• especially robust design• movement of contacts visible through transparent cover• operating claw is ejected, if inserted up to 3 mm before the stop only• mounting brackets made of metal for secure fixation• large tolerance between contact making to the stop of the operating claw, thus no unintentional turning off of the machine due to vibration of the protection device
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electricity:	<ul style="list-style-type: none">• positively driven NC contact
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Mounting points:	<ul style="list-style-type: none">• rotatable movable protection devices as e.g.: protective covers, doors or flaps
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1.3 Intended use

The safety switch WZ is **only** used as intended:

- as component of safety-related functions in installations, machines or lift installations
- in installations that end a dangerous state by opening a rotatable movable protection device. The application can also be used in conjunction with the control-related part of a machine or installation.
- in combination with the original operating claw
- taking into account the information and safety instructions in these operating instructions

The use of the safety switch WZ is only permitted outside EX-protected areas.

Any other use is considered **improper** and may result in personal injury, environmental damage and / or property damage.

Hans & Jos. Kronenberg GmbH do not assume any liability for damages caused by

- improper or incorrect use
- unauthorized modifications
- use of non-approved spare or accessory parts
- non-observance of this manual

2 Safety



Caution – Read this manual carefully, especially the safety instructions and information on the mounting of the safety switch WZ!

For the safety of persons, the environment and to avoid damage to property always observe the country-specific regulations for installation, safety and accident prevention in additions to the safety instructions in this manual.

- Before mounting familiarize yourself with all functions of the safety switch WZ.
- Keep this manual in a safe and legible condition near the safety switch WZ.
- Only pass the safety switch WZ on to third parties with these operating instructions.

2.1 Safety advice



Danger – Risk of injury or death due to electrical current!

Only a **qualified electrician** may connect the safety switch WZ to a properly installed power supply line.

When working on the switch make sure that no voltage is applied and protect it against unintentional reconnection.

If the switch housing, the cable gland or the supply cable is damaged the switch may no longer be operated.

Damaged or faulty switches or operating claws must not be repaired and must be replaced with original components of the manufacturer.



Warning – Malfunction and destruction of the safety switch WZ due to incorrect mounting, setup or manipulated operating claw

After mounting the switch and the operating claw check that the operating claw is accurately fitted into the opening at the switch.

Any change at the operating claw, e.g. by mechanical processing such as filing or bending is not allowed.

If pivoting radii are to be observed in the installation, you will find the specifications described in chapter 4.1.2.



Attention

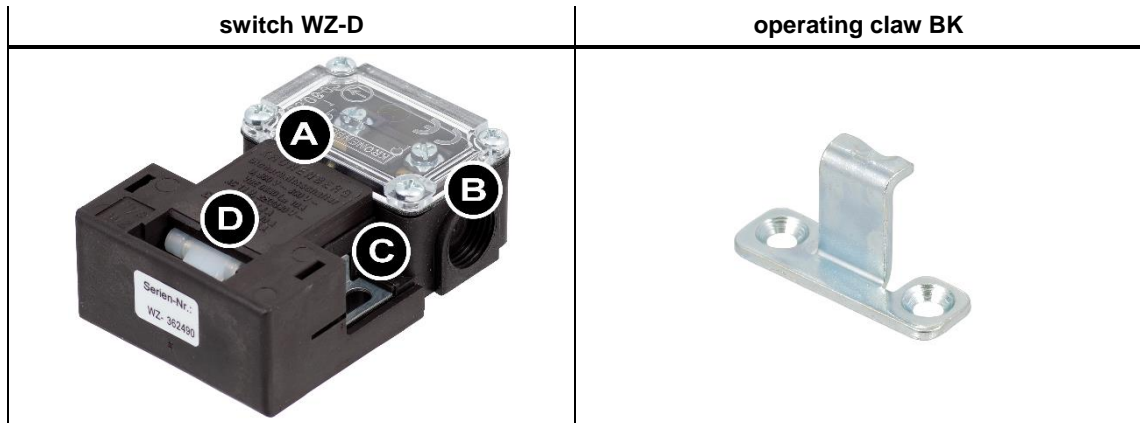
Secure the fastening screws at the operating claw and the switch with Loctite or alike for protection against self-loosening.

Do not load the switch mechanically and do not use the switch as stop, e.g. as a door stop or a flap stop.

Operate the switch only within the permissible temperature range (see chapter 8.3).

Seal the cable entries properly to prevent moisture and dirt entering the switch.

3 Overview safety switch WZ and operating claw BK



switch-variants:

type*	actuation	contacts	type*	material
WZ-B	base side	1 positively driven normally closed contact	BK	steel galvanized
WZ-D	cover side			

* Dimensioning and switching diagram can be found in chapter 8.

components:

(A) cover switching compartment

(C) mounting bracket

(B) cable gland

(D) insertion opening for operating claw

4 Assembly



Notes for fixation

You need:

- fixing material*:
 - screw connections M5, toothed washer and washer (2 pieces each)
 - countersunk head screws M6 for operating claw (2 pieces)
- Loctite or alike for protection against self-loosening of the screw connections

The **switch** can be **mounted in any installation position**.

Ensure that the switch and the operating claw are fixed on a full surface base.

*Please order accessories separately.



Caution installation position of the operating claw!

For the installation position of the operating claw pay attention to:

- a correct orientation to the switch (see chapter 4.1.1)
- a failure-free insertion of the operating claws into the switch

Do not use the operating claw as stop.

Pay attention to the specifications for the actuation radii in chapter 4.1.2.

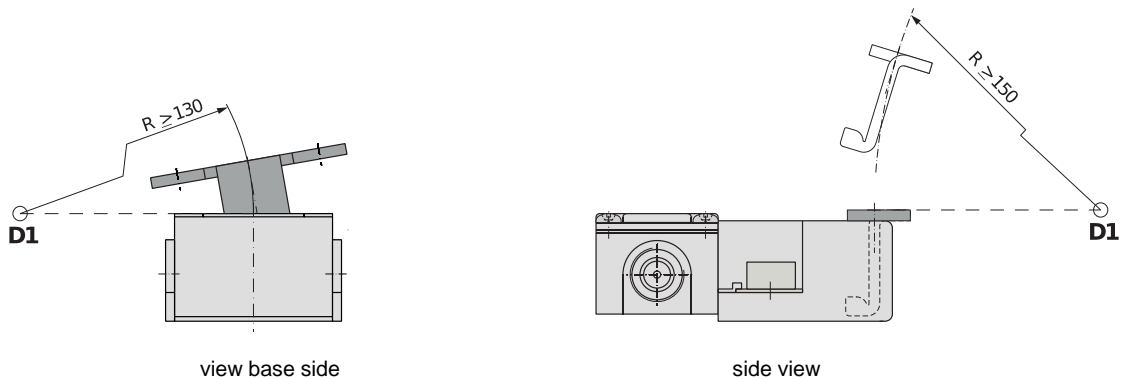
4.1 Safety switch WZ and operating claw

4.1.1 Installation position of the operating claw to the switch

Depending of the switch-variant used, the following installation positions of the operating claw are to be observed:

type	actuation	drawing
WZ-B	base side	see chapter 8.1
WZ-D	cover side	

4.1.2 Specifications for actuation radii



Legend:

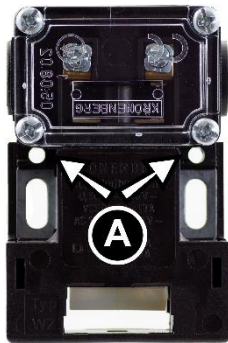
R: radius for operating claw

D1: pivot point in the height of the switch

4.1.3 Procedure

1. Determine the installation location for the switch and the operating claw so that the safety switch WZ can be used as intended.
2. Determine the position of the cable gland for the insertion of the cable at the switch.
3. Carefully remove the closing wall at the switch of step 2. We recommend to remove the closing wall by screwing in a suitable cable gland.
4. Clean the switching compartment from dirt.
5. Attach the cable gland at the switch. Only use cable glands with the corresponding level of protection.
6. Align the switch so that the operating claw can be inserted easily into the switch.
7. Mount the switch.
8. After mounting clean the switch outside and the switching compartment from dirt.
9. Mount the operating claw and observe the notes on the installation position (see chapters 4.1.1 / 4.1.2).
10. After installation clean the operating claw from dirt.

4.1.4 Pinned fitting of the switch



After mounting and adjusting the operating claw you can fix the switch by 2 drill holes (A) with pins (\varnothing 4mm) against rotation.

5 Electrical connection



Danger – Risk of injury or death due to electrical current!

Only a **qualified electrician** may connect the safety switch WZ to a properly installed power supply line.

The electrical connection must only be made when the power is switched off.

The contacts are marked on the terminal compartment cover and in the terminal compartment at the terminals.

The switching diagram of the WZ-variants is described in chapter 8.2.

6 Functional test

1. Check the tightness of the switch and operating claw.
2. Check the electrical supply for damage, in particular make sure that the supply line is laid without tensile load and is not bent.
3. Check the insertion of the electrical supply in the switch for damage and tightness.
4. Check the correct insertion of the operating claw into the switch.
5. Check the switch in **its safety function**.

7 Maintenance, storage, disassembly and disposal



Danger – Risk of injury or death due to electrical current!

Damaged or faulty switches or operating claws must not be repaired.
They must be replaced with original components of the manufacturer.

7.1 Maintenance

We recommend to perform the tests mentioned in chapter 6 at every maintenance.
If necessary remove dust and dirt at the switch and at the operating claw.

7.2 Storage

Store the switch in a clean and dry place. Do not put any loads on the switch.

7.3 Disassembly and disposal



Danger – Risk of injury or death due to electrical current!

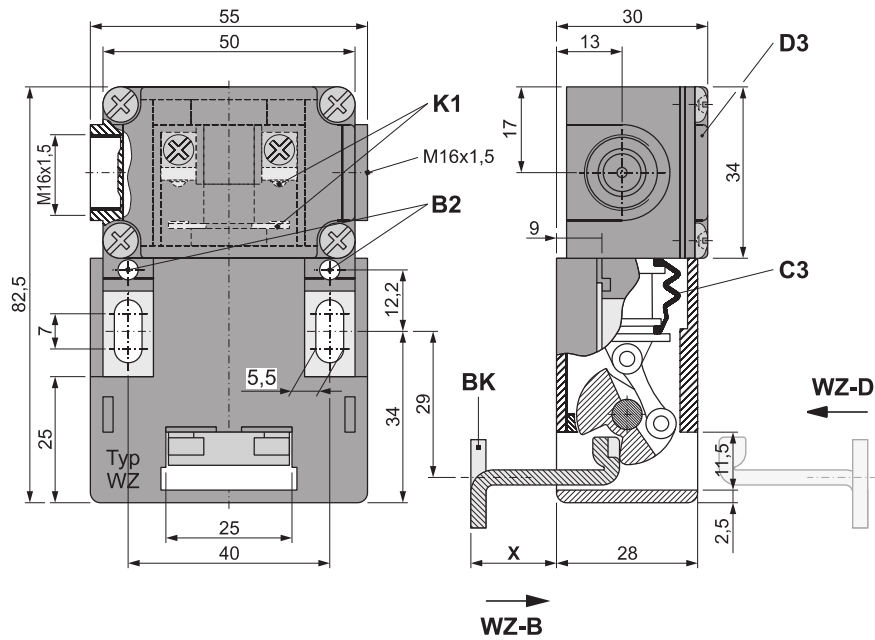
Disassemble only in de-energized state.

Dispose of the components in accordance with national regulations.

8 Data sheet

8.1 Dimensions

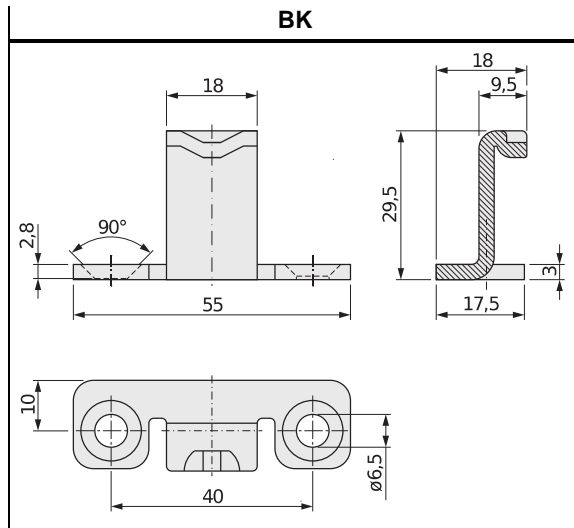
WZ:



Legend:

- B2: possibility for pinned fitting $d = 4 \text{ mm}$
- BK: operating claw
- C3: folding bellows for water protection
- D3: contact travel visible through transparent cover
- K1: contact (positively driven normally closed contact) is closed, if the operating claw is inside the switch
- WZ-B: base side actuation
- WZ-D: cover side actuation
- X: distance between switch housing and mounting surface for the operating claw

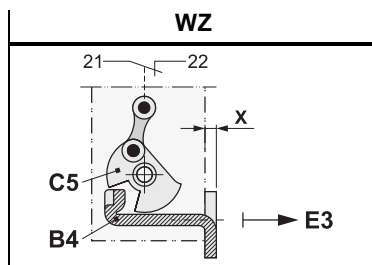
Operating claw:



8.2 Switch mechanism and circuit diagram

The diagrams show the contacts at closed protective device.

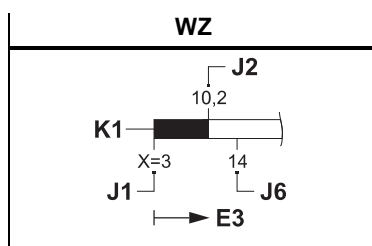
Switch mechanism for realization of the positive opening:



Legend:

- B4: operating claw
- C5: gear drum
- E3: pull-out direction operating claw
- X: distance between housing of the switch and mounting surface for the operating claw

Circuit diagram:



Legend:

- E3: pull-out direction operating claw
- J1: maximum depth of immersion (stop)
- J2: positively driven normally closed contact opens
- J6: last contact of actuator and gear drum
- K1: contact (positively driven normally closed contact) is closed, if the operating claw is inside the switch

Switch legend: ■ contact closed □ contact open

8.3 Technical data

norms	EN 81-20, EN 81-50, IEC/EN 60947-5-1, GS-ET 15, EN ISO 13489-1
switching capacity	$U_i = 250 \text{ V}$ $I_{th} = 10 \text{ A}$ $U_{imp} = 4 \text{ kV}$ AC-11: $U_e = 230 \text{ V}$ $I_e = 6 \text{ A}$ DC-13: $U_e = 200 \text{ V}$ $I_e = 1 \text{ A}$ AC-15: $U_e = 24 \text{ V}$ $I_e = 10 \text{ A}$
short-circuit capacity	T 10 A F 16 A
contact material	fine silver
actuation- / back pressure force	13 N / 0 N
connection	by screw terminal max. 2.5 mm^2 cable gland 2x M16x1.5
level of protection	IP 66
ambient air temperature	-30 °C up to +80 °C
installation position	any
B10d - value (10% nominal load)	10 million / service life max. 25 years
weight	switch = 100 g operating claw = 27 g

9 EU-Declaration of conformity

The current version of the declaration of conformity for the safety switch WZ is available for download on our homepage www.kronenberg-gmbh.de.