

Magnetic switch bistable
type wK008K2... (Casing silumin)

(old type BM2)

type wK180K2... (Casing brass)

Magnetic switch monostable
type wK008K1.. (Casing silumin)

(old type BM1)

type wK180K1.. (Casing brass)

waterproof design IP54

- **Contactless activation by permanent or electromagnets**
- **Maintenance-free**
- **High switching capacity**
- **Large temperature range**
- **Any installation position**
- **High responsiveness up to max. 30 m/s**
- **Long service life - 10⁹ switching cycles**
- **Almost instantaneous**
- **Bistable or monostable switches**
- **With connection area**

Application

The switches are employed as magnet-sensitive contactless monostable and bistable limit switches.

Design and mode of operation

The magnetic switch consists of a contact insert which is mounted insulated against vibration in a corrosion-resistant casing. By the motion of a magnet, contact is made or broken. When the contact is made, the magnetic field increases by the squared power as the air gap between the contact studs decreases and the contact closes abruptly.

The contact switches almost instantaneously owing to the very small distance between the contact studs and to their low mass.

Monostable switch (BM 1)

With this switch design, the switch remains activated for as long as it is influenced by the magnetic field. The switch returns to neutral position when the magnet is removed.

Bistable switch (BM 2)

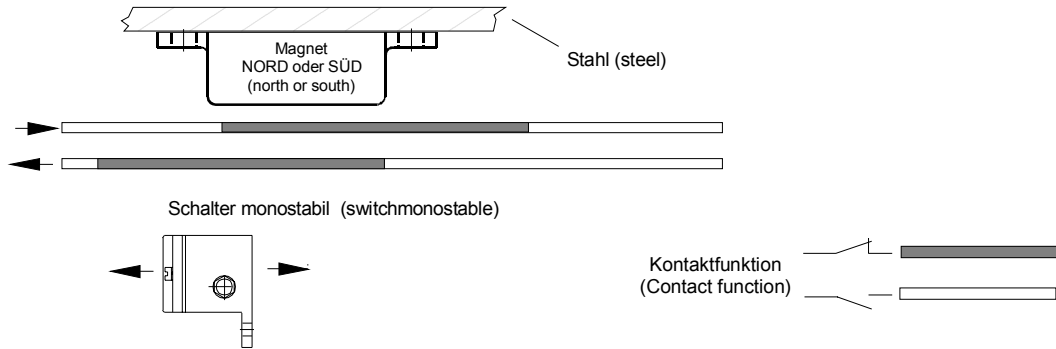
The contact is magnetically locked in its respective position by means of two magnetic clamps. As the switching magnet is more powerful, the switch is set when the magnet moves over and is set back when the magnet returns.

Technical data

Response time (contact made):	max. 2 ms
Release time (contact broken):	max. 0.2 ms
Bounce time:	max. 0.5 ms
Contact assembly:	see Table 1
Contact load:	see Table 2
Repeatability:	+ 0.2 mm
Service life:	10 ⁹ switching cycles (depending on contact load)
Temperature range:	-20°C to +85°C
Switching frequency:	max. 200 Hz
Shock for 11 ms	
Monostable switch	max. 50 g
Bistable switch	max. 15 g
Vibration (50-500Hz)	
Monostable switch	max. 35 g
Bistable switch	max. 10 g
Installation position:	as desired, see installation instructions
Enclosure in accordance:	IP 65 with DIN 40050
Casing:	silumin or brass
Contact insert:	PPH, elastically mounted
Weight	Silumin approx. 0,34 kg Brass approx. 1,0 kg

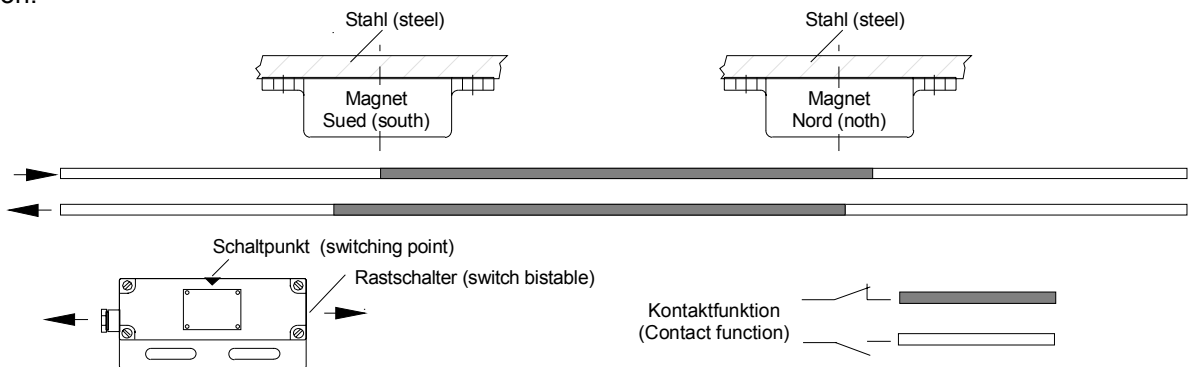
1. Monostable switch

When a magnet is brought closer, contact is made (or broken as the case may be), when the magnet is removed contact is once again broken (or made) and so on. Switching behavior is not dependent on magnet polarity.



2. Switch function, bistable contact. Move over in axial direction (main application)

The switching behavior of the contacts is dependent on the polarity of the magnets and on the move over direction.



When the magnetic bistable switch is moved over in axial direction, the contact is set as soon as it is influenced by the magnet. If there then follows a magnet with a different polarity or if the move over direction is changed, the contact is set back. In this method of operation, a different magnet polarity must always follow. (In a sequence of the same polarity, a double impulse is created).

Example of order: wK008K234 (old BM2/234 Silumin)

Order code:

w	K	008	K	2	3	4	..
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- ↳ Type of contact connection - see Table 1
- ↳ Contact designation - see Table 2
- ↳ Switch assembly - see Table 1 (3 = 1NOC+1NCC)
- ↳ Switch model 1 = monostable switch, 2 = bistable switch
- ↳ Type of connection: K = clips, S = plug
- ↳ Constructional form ; 008 = Casing silumin, 180 = Casing brass
- ↳ Designation K = magnetic contact switch,
- ↳ Enclosure: w = waterproof

Contact cartridge (type K399K...)

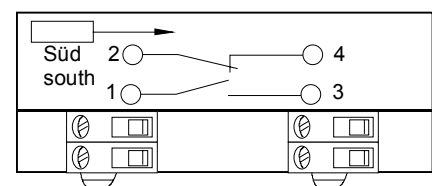
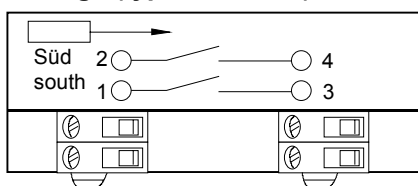


Table 1 Switch assemblies available and connection diagrams

Switch assembly		Contact connection		
		without connection no code number	Code No. 1 Connection with resistance/inductance coil	Coede No.2 Connection with high-volt protector
1	one dry-reed contact			
2	two dry-reed contact electrically separated same switching behaviour			
3	two dry-reed contact electrically separated non equivalent switching behaviour			

Table 2 Contact designation and electrical data

No.		
1	make contact max. breaking capacity max. switching current max. turn-on voltage	60W / 60VA 1 A 230 V DC,AC
2	make contact for switching at long distances max. breaking capacity max. switching current max. turn-on voltage	60W / 60VA 1 A 250 V DC,AC
4	make contact for inductive loads make contact max. breaking capacity max. switching current max. turn-on voltage	100W / 100VA 1,5 A 250 V DC,AC
6	change-over contact max. breaking capacity max. switching current max. turn-on voltage	60W / 80VA 1 A 250 V DC,AC

The values indicated are maximal values which should not be exceeded even for short periods. With greater line lengths (> 80 m), measures must be taken against cut-off spikes. Contact No. 2 (for switching at long distances) is to be recommended for use only in low-vibration conditions (rubber-metal connections if applicable).

Table 3 Switching distances: recommended standard values (magnet on steel; switch in surrounding area free of steel)

Monostable switches

Contact No.	Magnet type M10	Magnet type M10/S	Magnet type M8
2	30 mm	35 mm	70 mm
4	15 mm	25 mm	55 mm
6	15 mm	25 mm	55 mm

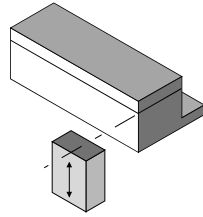
Bistable switches

Contact No.	Magnet type M10	Magnet type M10/S	Magnet type M8
2	45 mm	60 mm	120 mm
4 and 1	40 mm	50 mm	90 mm

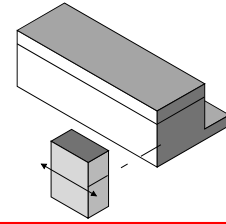
6	35 mm	40 mm	85 mm
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Installation instructions

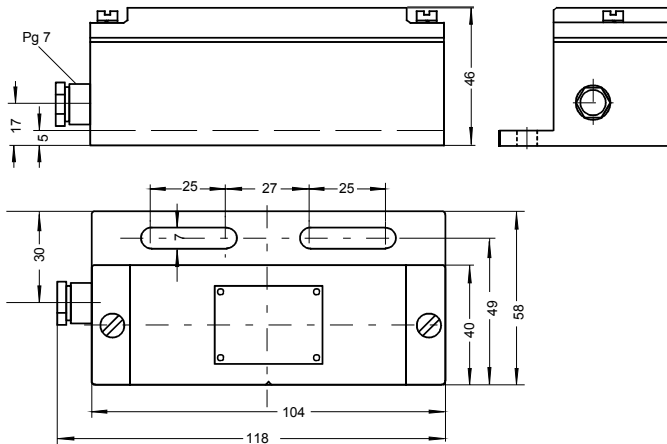
Monostable switch (BM1)
Direction of movement



Bistable switch (BM2)
Direction of movement



Dimensions

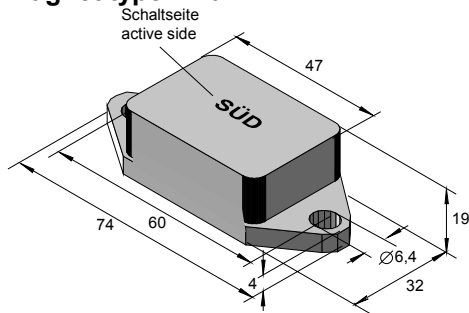


Notice on installation

If the switch is placed on ferromagnetic material, the switching distance is reduced because the lines of force of the magnetic field become distorted or shorted when the switching magnet is brought near.

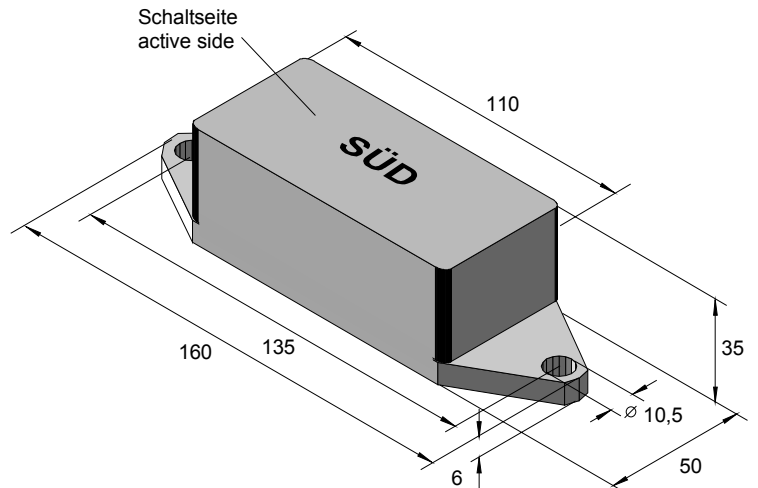
If on the other hand the switching magnet is placed on ferromagnetic material, the switching distance is increased because the action of the switching pole and thus of the entire magnetic field is increased.

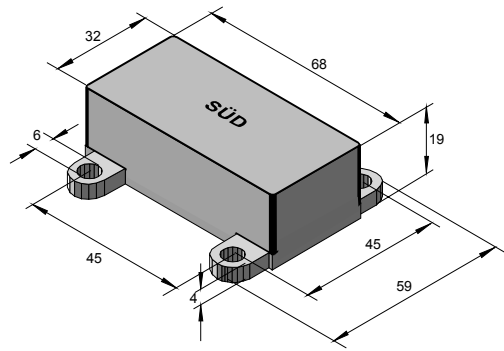
Magnet type M10



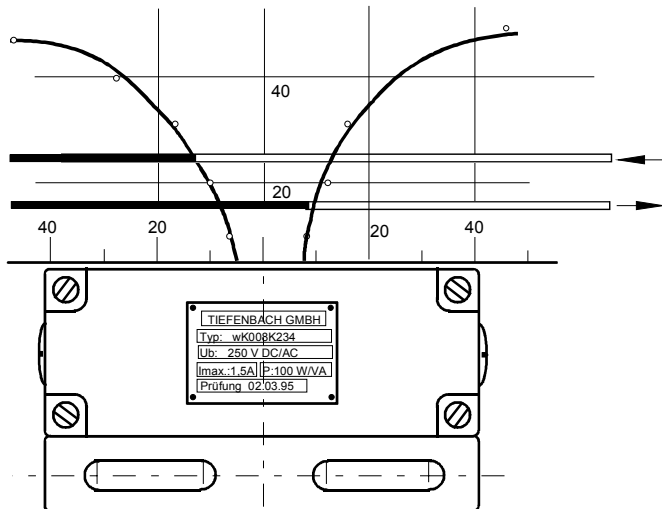
Magnet type M10/S

Magnet type M8

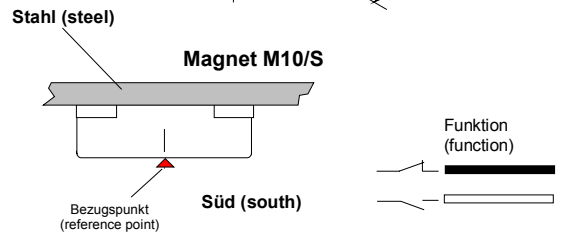
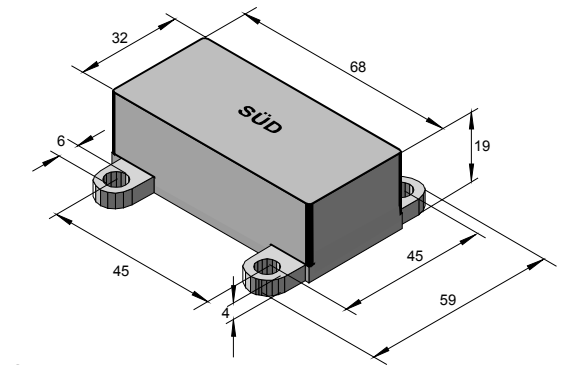




Switching curve with magnet type M10/S

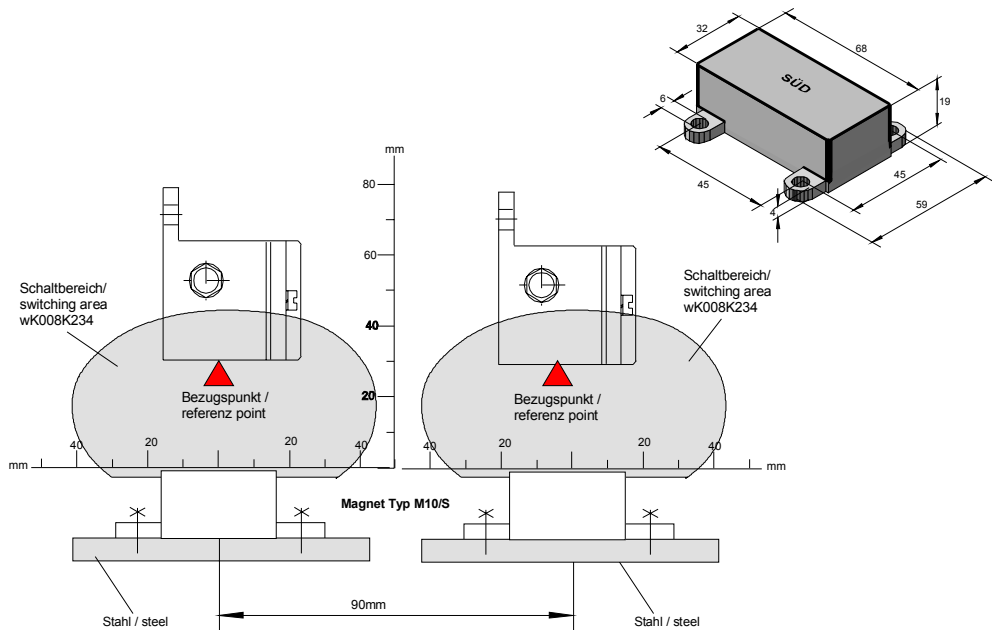


Magnetschalter Bistabil / Magnetic switch bistable
Typ / Type wK008K214 (wK180K214)
(mit 2 Kontakten / with 2 contacts)

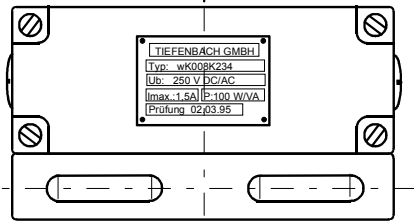
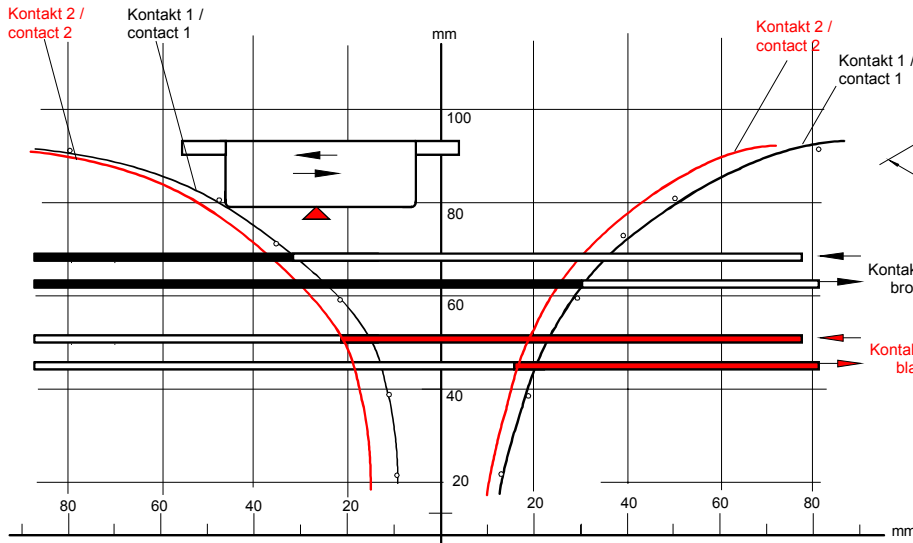


Funktion:
Kontakt 1: Klemme 1 / 3 schwarz/schwarz
(Contact 1: Clamp 1 / 3 black/black)

Influencing of the magnets M10/S

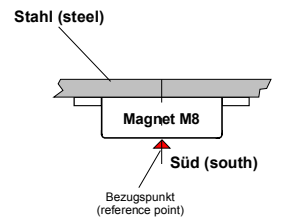
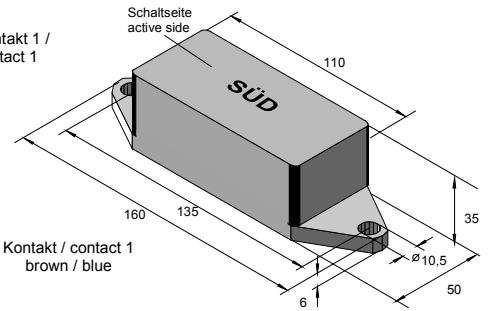


Switching curve with magnet type M8

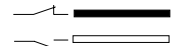


Magnetschalter Bistabil / Magnetic switch bistable
Typ / Type wK008K234 (wK180K234)
(mit 2 Kontakten / with 2 contacts)

Magnet M 8



Funktion / function:



Funktion:
Kontakt 1: Klemme 1 / 3 schwarz/schwarz
Kontakt 2: Klemme 2 / 4 braun/blau
(Contact 1: Clamp 1 / 3 black/black
Contact 2: Clamp 2 / 4 brown/blue)

Influencing of the magnets M8

