PINTSCH TIEFENBACH

Magnetic switches.

Sensor Technology for Industry and Mining.
Robust. Durable. Mature.

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Get a general overview

PINTSCH TIEFENBACH

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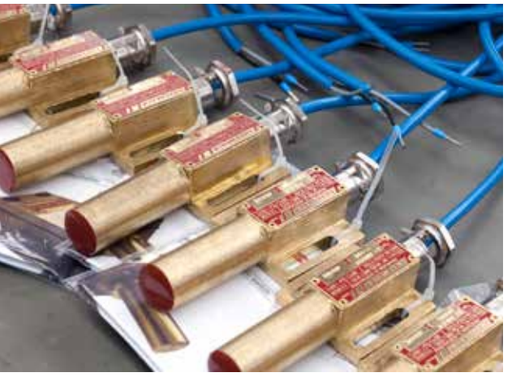
PINTSCH TIEFENBACH



PINTSCH TIEFENBACH

We give more than just impulses.
PINTSCH TIEFENBACH.

This is our motto. We represent innovation, safety and efficiency. Our system solutions are customised, individually dimensioned and match precisely the respective requirements. With our products we focus on:

- **Signalling technique**
- **Shunting equipment**
- **Sensor technology for industry and mining**

In comparison to sensors available in the market, the inductive proximity switches, magnetic switches and filling level monitors (level switches) by PINTSCH TIEFENBACH feature a unique robustness and long service life even in areas with extreme environmental conditions. Examples are: sensors in hot-rolling lines and presses in steel works as well as in deep coal mining or in the chemical industry, where - in addition - requirements with regard to intrinsic safety and explosion protection must be met. The basis for the development of these components was the early activity of the company as a special equipment provider in deep coal mining and the experience gained therefrom. Due to an application-related intensive consulting in connection with the provision of supplementary assemblies for the evaluation of the sensor signals, the users profit from this knowledge and find the optimum solution for their application case.

PINTSCH TIEFENBACH GmbH
Beisenbruchstraße 10
45549 Sprockhövel, Germany
info@pintschtiefenbach.de
Telephone +49 (0) 2324 / 3803 - 0
Fax +49 (0) 2324 / 3803 -114
www.pintschtiefenbach.de

Sales
Fabian Frenzer
Telephone +49 (0) 23 24 / 3803 - 210
fabian.frenzer@pintschtiefenbach.de
Kristina Knaack
Telephone +49 (0) 23 24 / 3803 - 264
kristina.knaack@pintschtiefenbach.de

PINTSCH TIEFENBACH

General Information

- Contact-free actuation thanks to permanent magnets
- Maintenance-free
- High rupturing capacity
- Wide temperature range
- Suitable for any installation position
- High responsiveness up to max. 30 m/s
- Long service life of 10^9 switching cycles
- Virtually no inertia
- With cable set or cable compartment
- Cable lengths of 2 m, 5 m, 10 m, 15 m etc
  Cable:
  standard Ölflex (oil-resistant),
  silicon (temperature-resistant up to 180 °C),
  Purwil (UV-resistant)

Application
The switches are used as magnet-sensitive, non-contact pulse and latching switches.

Components and mode of functioning
The magnetic switches consist of cast-resin insulated inert gas contacts that are integrated in a corrosion-proof switch housing. By moving a magnet passed the switch the contact closes or opens. During the closing procedure the magnetic field increases in a square progression while the gap between the contact studs becomes increasingly smaller and then the contacts close with snap action. Due to the small distance between the contact studs and their low mass the contacts are switched with virtually no inertia.

Pulse switch (monostable)
In this switch design the switch is actuated for as long as it is influenced by the magnetic field. When removing the magnet the switch returns to its resting position.

MONO STABLE | 1 Schematic illustration

Latching switches (bistable)
2 holding magnets in the switch magnetically fix the contact in the respective position. With stronger actuating magnets the switch is either set or reset.

BI STABLE | 2 Schematic illustration

Assembly instructions
If the switch is arranged on a ferromagnetic material, the switching distance is reduced because while the actuating magnet moves towards the switch the magnetic lines of force are distorted or short-circuited.
If, in contrast, the magnet is arranged on a ferromagnetic material, the switching distance increases because the effect of the switching pole and thus the entire magnetic field are increased.

Type code
Order example wK178L234.L=5 m

w	K	178	L	2	3	4	.	L=5m

Cable length
(L = 2 m, 5 m, 10 m, other lengths on request)

Contact wiring
Reference number acc. to Table 1 (see p. 40)
No reference number, no wiring

Contact designation
Reference number acc. to Table 2 (see p. 42)

Switch configuration
Reference number acc. to Table 1 (see p. 40)

Switch design
1 = monostable // 2 = bistable

Type of connection
L = connecting line // K = terminal // S = plug

Design type

Device group
K = magnetic switch // KC = magnetic switch, temperature-resistant // KX = with ATEX approval

Protection class
w = weather resistant // i = intrinsically safe systems // e = (Sch)e,s / (Ex)e,s,G5

Magnetic switches

Sensor Technology for Industry and Mining

PINTSCH TIEFENBACH

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Specifications

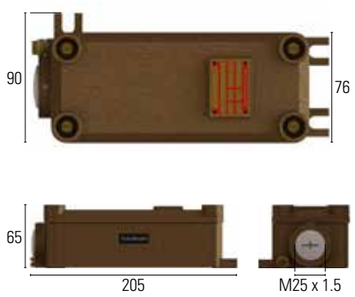
Response time (closing):	max. 3.5 ms
Fall time (opening):	max. 0.2 ms
Bounce duration:	max. 0.5 ms
Contacts fitted:	see Table 1 (p. 40)
Contact load:	see Table 2 (p. 42)
Repeating accuracy:	± 0.2 mm
Service life:	10^9 switching cycles
(depending on the contact load)	
Temperature range:	-55 °C to +80 °C
Switching frequency:	max. 100 Hz
Shock load in 11 ms duration:	
Pulse switch	max. 50 g
Latching switch	max. 15 g
Mounting position:	any
Protection class according to DIN 40050:	
	IP 54 IP 65 see assembly instructions
Housing:	Gunmetal
Application:	PPH
Weight:	approx. 2.8 kg

Magnetic switch of design type 002

Characteristics

MONO STABLE 1 BI STABLE 2

Dimensions (in mm)



Design

wK002K...
Former designation
wKLMST5
w = weather resistant

eK002K...
Former designation
esKLMST6
e = explosion protected*

*The product may only be used as replacement part in plants exposed to explosion risk which were put into operation before the coming into force of the ATEX Directive 94/9/EC or outside the EU. (Sch)es/(EX)es G5 n. VDE 0171 BVS-T4600

iKX002K...
ATEX

iKX = ATEX approval

For intrinsically safe systems:
BVS 04 ATEX E155

CE 0158 ⟨Ex⟩ I M2 EEx ia I
CE 0158 ⟨Ex⟩ II 2G EEx ia IIC T6

Please observe separate ATEX data sheet

Special features

- Up to 3 isolated contacts (normally closed contact/normally open contact) or 2 changeover contacts (pulse and latching switch)

Magnetic switch of design type 008

Design

wK008K...
Former designation BM1 and
BM2

w = weather resistant

Special features

- Fastening by means of elongated holes
- Connection by means of terminals, cables or sensor plug connectors M12
- Up to 2 isolated contacts (normally closed contact/normally open contact) or 1 changeover contact (pulse and latching switch)
- Contact insert exchangeable

Specifications

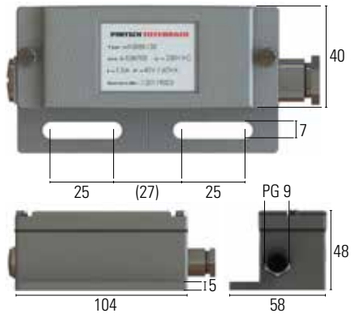
Response time (closing):	max. 3.5 ms
Fall time (opening):	max. 0.2 ms
Bounce duration:	max. 0.5 ms
Contacts fitted:	see Table 1 (p. 40)
Contact load:	see Table 2 (p. 42)
Repeating accuracy:	± 0.2 mm
service life:	10^9 switching cycles
(depending on the contact load)	
Temperature range:	L.: -20 °C to +80 °C K.: -45 °C to +85 °C S.: -45 °C to +85 °C
Switching frequency:	max. 100 Hz
Shock load in 11 ms duration:	
Pulse switch	max. 50 g
Latching switch	max. 15 g
Mounting position:	any
Protection class according to DIN 40050:	
K with cable compartment	IP 54
L with line and fully encapsulated housing	IP 67
Housing:	Light metal casting Silumin
Weight:	approx. 0.340 kg

Characteristics

IP 54 IP 67 CE

MONO STABLE 1 BI STABLE 2

Dimensions (in mm)



PINTSCH TIEFENBACH

Specifications

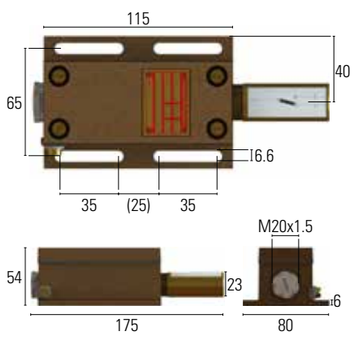
Response time (closing):	max. 3.5 ms
Fall time (opening):	max. 0.2 ms
Bounce duration:	max. 0.5 ms
Contacts fitted:	see Table 1 (p. 40)
Contact load:	see Table 2 (p. 42)
Repeating accuracy:	± 0.2 mm
Hysteresis of pulse switch:	approx. 25% Sn
Hysteresis of latching switch:	approx. 10% Sn
service life:	10^8 switching cycles
(depending on the contact load)	
Temperature range	
wK167K..	-20 °C to +85 °C
wKC167K.. Normally open contact	-55 °C to +300 °C
wKC167K.. Changeover contact	-55 °C to +150 °C
Switching frequency:	max. 100 Hz
Shock load in 11 ms duration:	
Pulse switch	max. 50 g
Latching switch	max. 15 g
Mounting position:	any
Protection class according to DIN 40050:	IP 65
Housing:	Gunmetal
Contact cartridge	brass
Weight:	approx. 1.6 kg

Characteristics

Ex IP 65 CE -20° +300°

MONO STABLE 1 BI STABLE 2

Dimensions (in mm)



Magnetic switch of design type 167

Design

wK167K...

w = weather resistant
with cable compartment

wKC167K...

wKC = heat-resistant
-55 °C to +300 °C
constant ambient temperature

iKX167K...

iKX = ATEX approval

For intrinsically safe systems : BVS 04 ATEX E155

CE 0158 ⟨Ex⟩ I M2 EEx ia I
CE 0158 ⟨Ex⟩ II 2G EEx ia IIC T6

Please observe separate ATEX data sheet

Special features

- Fastening by means of elongated holes
- 1 isolated contact (normally closed contact/normally open contact) or 1 changeover contact (latching switch)
- Up to 3 isolated contacts (normally closed contact/normally open contact) or 2 changeover contacts (pulse switch)

Magnetic switch of design type 168

Design

wK168K...

w = weather resistant
IP 54

eK168K115
Former designation
esHKPT1/U
e = explosion protected*

*The product may only be used as replacement part in plants exposed to explosion risk which were put into operation before the coming into force of the ATEX Directive 94/9/EC or outside the EU. (Sch)es/(Ex)es G5 n. VDE 0171 - BVS - T4824

Special features

- Up to 2 changeover contacts (pulse switch)

Specifications

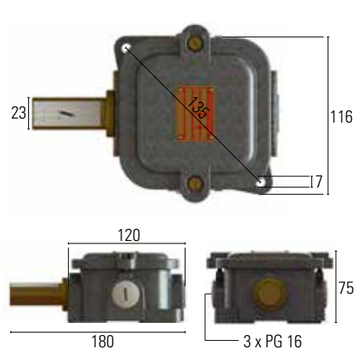
Response time (closing):	max. 3.5 ms
Fall time (opening):	max. 0.2 ms
Bounce duration:	max. 0.5 ms
Contacts fitted:	see Table 1 (p. 40)
Contact load:	see Table 2 (p. 42)
Repeating accuracy:	± 0.2 mm
Hysteresis of pulse switch:	approx. 25% of
service life:	10^8 switching cycles
(depending on the contact load)	
Temperature range:	-20 °C to +85 °C
Switching frequency:	max. 100 Hz
Vibration load:	
Shock load in 11 ms duration:	
Pulse switch	max. 50 g
Mounting position:	any
Protection class according to DIN 40050:	IP 65
Housing:	Grey cast iron
Contact cartridge:	brass
Weight:	approx. 1.5 kg

Characteristics

IP 65 IP 54 CE

MONO STABLE 1

Dimensions (in mm)



PINTSCH TIEFENBACH

Specifications

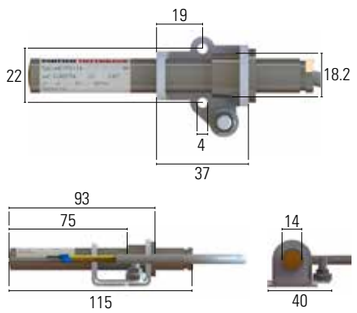
Response time (closing):	max. 3.5 ms
Fall time (opening):	max. 0.2 ms
Bounce duration:	max. 0.5 ms
Contacts fitted:	see Table 1 (p. 40)
Contact load:	see Table 2 (p. 42)
Repeating accuracy:	± 0.2 mm
service life:	10^9 switching cycles
(depending on the contact load)	
Temperature range:	-20 °C to +65 °C
Switching frequency:	max. 100 Hz
Shock load in 11 ms duration:	
Pulse switch	max. 50 g
Mounting position:	any
Protection class according	
to DIN 40050:	IP 65
Housing	Chrome-plated brass
Weight:	approx. 0.230 kg with 2 m cable
	approx. 90 g/m mounting bracket
	approx. 50 g

Magnetic switch of design type 171

Characteristics

MONO STABLE 1

Dimensions (in mm)



Design

wK171L11...	eK171L11...	iKX171L11...
	Former designation s-HKPT1/EX	ATEX
w = weather resistant	e = explosion protected*	iKX = ATEX approval
IP65		
	*The product may only be used as replacement part in plants exposed to explosion risk which were put into operation before the coming into force of the ATEX Directive 94/9/EC or outside the EU. (Ex)s G5 n. VDE 0171 - PTB III B/E-26168	For intrinsically safe systems : BVS 04 ATEX E155 CE 0158 ⟨Ex⟩ I M2 EEx ia I CE 0158 ⟨Ex⟩ II 2G EEx ia IIC T6 Please observe separate ATEX data sheet

Special features

- Design type 170 corresponds to design type 171 (without mounting bracket)
- Optionally 1 normally open contact or 1 changeover contact (pulse switch)
- With Ölflex cable set (oil-resistant) or silicone (temperature-resistant up to 180 °C)

Magnetic switch of design type 173

Specifications

Response time (closing):	max. 3.5 ms
Fall time (opening):	max. 0.2 ms
Bounce duration:	max. 0.5 ms
Contact load:	see Table 2 (p. 42)
Repeating accuracy:	± 0.2 mm
Hysteresis of pulse switch:	approx. 25% of
service life:	10^9 switching cycles
(depending on the contact load)	
Temperature range:	-20 °C to +85 °C
Switching frequency:	max. 100 Hz
Vibration load:	
Shock load in 11 ms duration:	
Pulse switch	max. 50 g
Mounting position:	any
Protection class according	
to DIN 40050:	IP 65
Housing:	PPH
Weight:	approx. 0.280 kg

Design

wK173S1151
Former designation BSUS

w = weather resistant

Special features

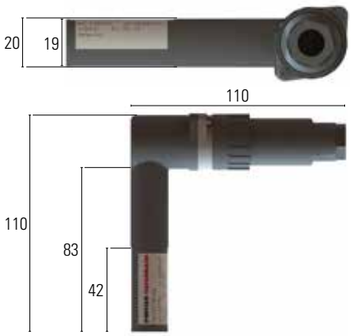
- With plug and coupler
- Special design wk173k1143 (former designation BST), 1 normally open contact with TRIAC wiring

Characteristics

IP 65

MONO STABLE 1

Dimensions (in mm)



Specifications

Response time (closing):	max. 3.5 ms
Fall time (opening):	max. 0.2 ms
Bounce duration:	max. 0.5 ms
Contacts fitted:	see Table 1 (p. 40)
Contact load:	see Table 2 (p. 42)
Repeating accuracy:	± 0.2 mm
service life:	10^9 switching cycles
(depending on the contact load)	
Temperature range:	-20 °C to +75 °C
Switching frequency:	max. 100 Hz
Shock load in 11 ms duration:	
Pulse switch	max. 50 g
Latching switch	max. 15 g
Mounting position:	any
Protection class according to DIN 40050:	IP 65
Approval:	PTB III B/E-15488
Housing:	Plastic
Weight:	approx. 0.220 kg with 2 m cable approx. 90 g/m

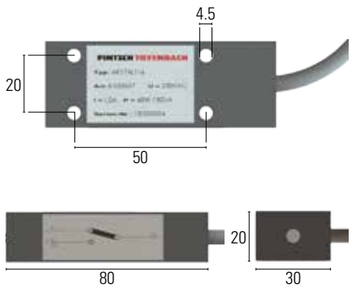
Magnetic switch of design type 174

Characteristics

IP 65 CE

MONO STABLE 1 BI STABLE 2

Dimensions (in mm)



Design

wK174L...
Former designation
wK-HKPT1
(pulse switch)
Former designation
wk-HKPT2
(latching switch)

w = weather resistant
IP65

eK174L...
Former designation
sK-HKPT1/EX
(pulse switch)
Former designation
sk-HKPT2/EX
(latching switch)

e = explosion protected*

*The product may only be used as replacement part in plants exposed to explosion risk which were put into operation before the coming into force of the ATEX Directive 94/9/EC or outside the EU. (Ex)s G5 n. VDE 0171 - PTB III B/E-15488

Special features

- With Ölflex cable set (oil-resistant) or with sensor plug connector M12
- Optionally 1 normally open contact, normally closed contact or changeover contact (pulse and latching switch)

Magnetic switch of design type 176

Specifications

Response time (closing):	max. 3.5 ms
Fall time (opening):	max. 0.2 ms
Bounce duration:	max. 0.5 ms
Contacts fitted:	see Table 1 (p. 40)
Contact load:	see Table 2 (p. 42)
Repeating accuracy:	± 0.2 mm
service life:	10^9 switching cycles
(depending on the contact load)	
Temperature range:	-20 °C to +85 °C
Switching frequency:	max. 100 Hz
Shock load in 11 ms duration:	
Pulse switch	max. 50 g
Mounting position:	any
Protection class according to DIN 40050:	IP 65
Housing:	Chrome-plated brass
Weight:	approx. 0.230 kg with 2 m cable approx. 90 g/m

Design

wK176L11...
Former designation wHKPT6

w = weather resistant
IP65

Special features

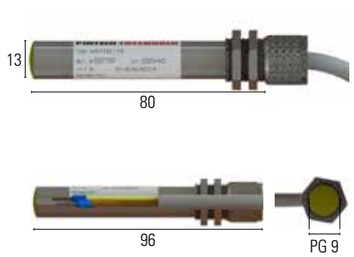
- With Ölflex cable set (oil-resistant) or silicone (temperature-resistant up to 180 °C) (other connecting lines on request)
- Optionally 1 normally closed contact, normally open contact or changeover contact possible (pulse switch)

Characteristics

IP 65 CE

MONO STABLE 1

Dimensions (in mm)

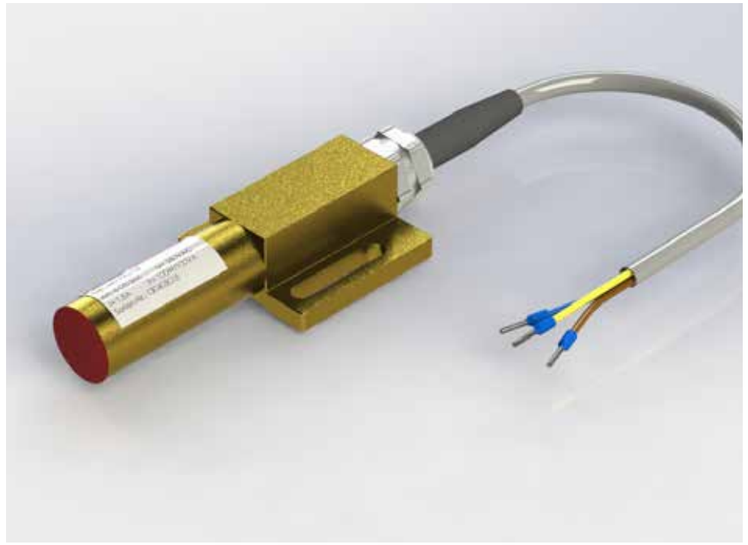


PINTSCH TIEFENBACH

Specifications

Response time (closing):	max. 3.5 ms
Fall time (opening):	max. 0.2 ms
Bounce duration:	max. 0.5 ms
Contacts fitted:	see Table 1 (p. 40)
Contact load:	see Table 2 (p. 42)
Repeating accuracy:	± 0.2 mm
service life:	10^9 switching cycles
Temperature range:	-20 °C to +85 °C
Special design wKC	-60 °C to 150 °C with silicone cable
Switching frequency:	max. 100 Hz
Shock load in 11 ms duration:	
Pulse switch	max. 50 g
Latching switch	max. 15 g
Mounting position:	any
Protection class according to DIN 40050:	IP 67
Housing:	brass
Weight:	approx. 0.390 kg with 2 m cable approx. 90 g/m

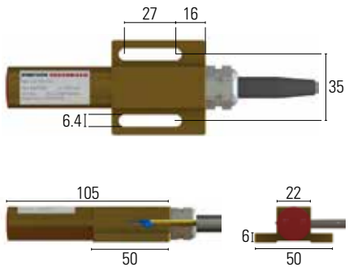
Magnetic switch of design type 177



Characteristics

MONO STABLE 1 BI STABLE 2

Dimensions (in mm)



Design

wK177L...
Former designation w-HKPT1 (pulse switch)
Former designation w-HKPT2a (latching switch)

w = weather resistant
IP67

wKC177L...

wKC= heat-resistant up to +150 °C
with silicone connecting line

iKX177L...

iKX = ATEX approval

For intrinsically safe systems:
BVS 04 ATEX E155

CE 0158 ⟨Ex⟩ I M2 EEx ia I
CE 0158 ⟨Ex⟩ II 2G EEx ia IIC T6

Please observe separate ATEX data sheet

Special features

- Fastening by means of elongated holes
- 1 isolated contact (normally closed contact/normally open contact) or 1 changeover contact (latching switch)
- Up to 3 isolated contacts (normally closed contact/normally open contact) or 2 changeover contacts (pulse switch)
- With Ölflex cable set (oil-resistant), silicone (temperature-resistant up to 180 °C), Purwil (UV-resistant) or sensor plug connector M12

Magnetic switch of design type 178

Design

wK178L...
Former designation wHKPT2

w = weather resistant
IP65

Special features

- Up to 3 isolated contacts (normally closed contact/normally open contact) or 2 changeover contacts (pulse and latching switch)
- With Ölflex cable set (oil-resistant), silicone (temperature-resistant up to 180 °C) or Purwil (UV-resistant)

Specifications

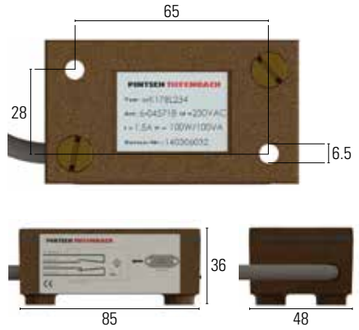
Response time (closing):	max. 3.5 ms
Fall time (opening):	max. 0.2 ms
Bounce duration:	max. 0.5 ms
Contacts fitted:	see Table 1 (p. 40)
Contact load:	see Table 2 (p. 42)
Repeating accuracy:	± 0.2 mm
service life: (depending on the contact load)	10^9 switching cycles
Temperature range:	
Ölflex cable	-20 °C to +85 °C
Purwil cable	-40 °C to +85 °C
Switching frequency:	max. 100 Hz
Shock load in 11 ms duration:	
Pulse switch	max. 50 g
Latching switch	max. 15 g
Mounting position:	any
Protection class according to DIN 40050:	IP 65 IP 67, fully encapsulated
Housing:	Gunmetal
Weight:	0.750 kg with 2 m cable approx. 90 g/m

Characteristics

IP 65 IP 67 CE

MONO STABLE 1 BI STABLE 2

Dimensions (in mm)



PINTSCH TIEFENBACH

Specifications

Response time (closing):	max. 3.5 ms
Fall time (opening):	max. 0.2 ms
Bounce duration:	max. 0.5 ms
Contacts fitted:	see Table 1 (p. 40)
Contact load:	see Table 2 (p. 42)
Repeating accuracy:	± 0.2 mm
service life:	10^9 switching cycles
(depending on the contact load)	
Temperature range:	L.: -20 °C to +85 °C
	K.: -45 °C to +85 °C
	S.: -45 °C to +85 °C
Switching frequency:	max. 100 Hz
Shock load in 11 ms duration:	
Pulse switch	max. 50 g
Latching switch	max. 15 g
Mounting position:	any
Protection class according to DIN 40050:	
K with cable compartment	IP 54
L with cast-on line	IP 67
Housing design type	Gunmetal
Weight	approx. 1 kg

Magnetic switch of design type 180

Characteristics

IP 54 IP 67 CE

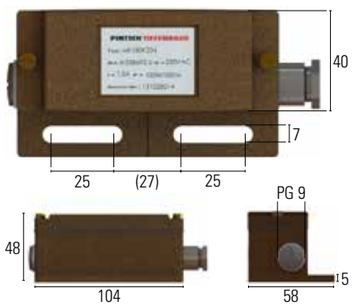
MONO STABLE 1 BI STABLE 2

Design

wK180K...
Former designation BM1 and BM2

w = weather resistant

Dimensions (in mm)



Special features

- Fastening by means of elongated holes
- Connection by means of terminals, cables or sensor plug connectors M12
- Up to 2 isolated contacts (normally closed contact/normally open contact) or 1 changeover contact (pulse and latching switch)
- Contact insert exchangeable

Magnetic switch of design type 209

Design

wK209K...

w = weather resistant
IP65

Special features

- Optionally up to 2 normally open contacts, normally closed contacts or changeover contacts (pulse and latching switch)

Specifications

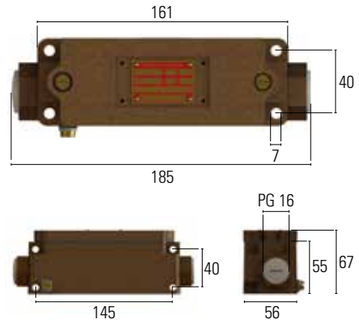
Response time (closing):	max. 3.5 ms
Fall time (opening):	max. 0.2 ms
Bounce duration:	max. 0.5 ms
Contacts fitted:	see Table 1 (p. 40)
Contact load:	see Table 2 (p. 42)
Repeating accuracy:	± 0.2 mm
service life:	10^9 switching cycles
(depending on the contact load)	
Temperature range:	-20 °C to +85 °C
Switching frequency:	max. 100 Hz
Shock load in 11 ms duration:	
Pulse switch	max. 50 g
Latching switch	max. 15 g
Mounting position:	any, see assembly instructions
Protection class according to DIN 40050:	IP 65
Housing:	Gunmetal
Contact insert	PPH, elastically suspended
Weight:	approx. 2.5 kg

Characteristics

IP 65 CE

MONO STABLE 1 BI STABLE 2

Dimensions (in mm)



PINTSCH TIEFENBACH

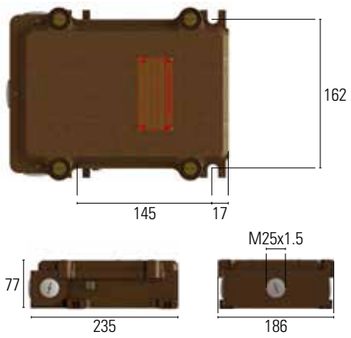
Specifications

Response time (closing):	max. 3.5 ms
Fall time (opening):	max. 0.2 ms
Bounce duration:	max. 0.5 ms
Contacts fitted:	see Table 1 (p. 40)
Contact load:	see Table 2 (p. 42)
Repeating accuracy:	± 0.2 mm
service life:	10^9 switching cycles
(depending on the contact load)	
Temperature range:	-20 °C to +85 °C
Switching frequency:	max. 100 Hz
Shock load in 11 ms duration:	
Pulse switch	max. 50 g
Latching switch	max. 15 g
Mounting position:	any, see assembly instructions
Protection class according to DIN 40050:	IP 65
Connection:	terminals up to 4 mm²
Introduction	3x M25x1.5
Housing:	Gunmetal
Application:	ABS
Weight:	approx. 8.6 kg

Characteristics

MONO STABLE 1 BI STABLE 2

Dimensions (in mm)



Magnetic switch of design type 509

Design

wK509K...
Former designation wMST2/S

w = weather resistant

eK509K...
Former designation esM-ST2/T (pulse switch)
Former designation esM-ST2/S (latching switch)
e = explosion protected*

*The product may only be used as replacement part in plants exposed to explosion risk which were put into operation before the coming into force of the ATEX Directive 94/9/EC or outside the EU. (SCH)es/(Ex)es G5 n. VDE 0171 BVS - T4692

iKX509K...
(ATEX)

iKX = ATEX approval

For intrinsically safe systems:
BVS 04 ATEX E155

CE 0158 ⟨Ex⟩ I M2 EEx ia I
CE 0158 ⟨Ex⟩ II 2G EEx ia IIC T6

Please observe separate ATEX data sheet

Special features

- Optionally up to 2 normally open contacts, normally closed contacts or changeover contacts (pulse and latching switch)
- Connection by means of terminals of up to 4 mm²

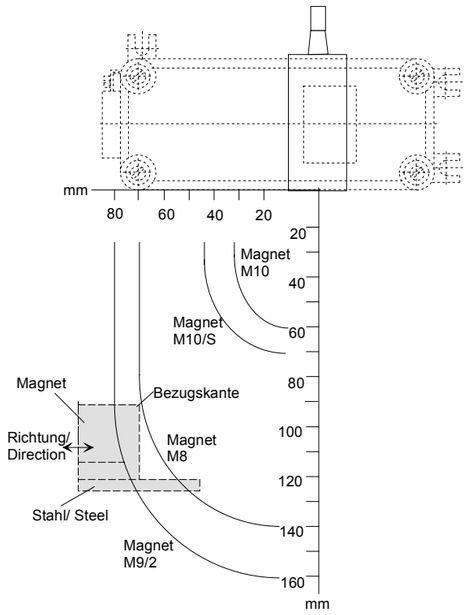
Electronic monostable magnetic switches

Application
The switches are used as magnet-sensitive, non-contact limit switches and pulse generators. Due to the electronic, fully encapsulated design the magnetic switch is resistant to vibration.

Components and mode of functioning
The magnetic switch consists of a magnet-sensitive electronics system embedded in cast resin and is actuated by approaching or moving a magnet passed the switch area. The switch can be operated through non-magnetisable materials such as non-ferrous metals.

Monostable switch
In this switch design the switch is actuated for as long as it is influenced by the magnetic field. After removing the magnet the switch returns to its resting position.

Switching distance

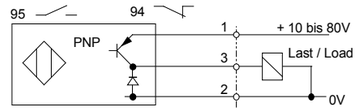


General Information

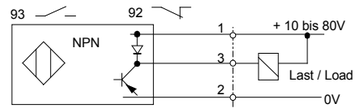
- **Contact-free actuation thanks to permanent magnets or electromagnets**
- **Three-wire switch PNP**
- **Two-wire switch NAMUR**
- **Switching distance up to 300 mm, depending on the magnet**
- **Switch status indicator by means of LED**
- **Any mounting position**
- **High responsiveness up to max. 30 m/s**
- **Operating voltage 12 to 80 V DC**
- **Switching current 0 to 400 mA**
- **Cable set of 2, 3, 5 or 10 m Ölflex (oil-resistant), silicone (temperature-resistant up to 180 °C), Purwil (UV-resistant)**

Electric design

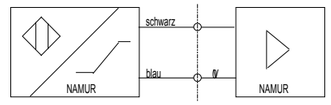
PNP design



NPN design



NAMUR design



PINTSCH TIEFENBACH

Specifications

Operating voltage:	12 to 80 V DC
Load current:	0 to 400 mA 10 ms, 2 A 100 ms, 800 mA Sustained short-circuit-proof
Electr. design:	PNP (positive switching)
No-load current:	> 10 mA
Switch status indicator:	LED red
Electr. design:	NAMUR
Repeating accuracy:	± 0.2 mm
Hysteresis:	2 to 5 mm
Temperature range:	-20 °C to +85 °C
Switching frequency:	max. 250 Hz
Mounting position:	any
Protection class acc. to DIN 40050:	
Cable compartment	IP 54 IP 65, see assembly instructions
Housing:	Gunmetal

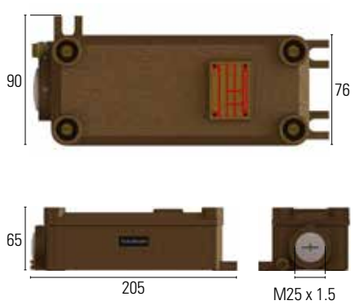
1 NF 22 - ... / 2 NF 22 - ...

Characteristics

IP 54 IP 65 CE

MONOSTABLE 1

Dimensions (in mm)



Type code

2 | NF | 22- | 95 | /94 | -K | 002

- **Design type** (housing)
- **Type of connection:** K = terminals
- **Elect. design, system 2:** 1 = NAMUR, 95 = normally open contact PNP, 94 = normally closed contact PNP
- **Electr. design, system 1:** 1 = NAMUR, 95 = normally open contact PNP, 94 = normally closed contact PNP
- **Nominal size**
- **NF designation**: electronic magnetic switch
- **Number of systems:** 1 = 1 system; 2 = 2 systems

Special features

- Monostable for large switching distances, max. 2 systems
- Resistant to vibration

NF 30 - ...

Type code

NF | 30- | 95- | L | 67 | L = 2 m

- **Cable length:** (L = 2 m)
- **Design type** (housing)
- **Type of connection:** L = cable set
- **Electric design:** 1 = NAMUR, 95 = normally open contact PNP, 94 = normally closed contact PNP
- **Nominal size**
- **NF designation**: electronic magnetic switch

Special features

- Monostable for large switching distances
- Resistant to vibration

Specifications

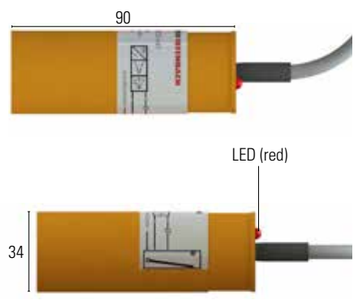
Operating voltage:	12 to 80 V DC
Load current:	0 to 400 mA 10 ms, 2 A 100 ms, 800 mA Sustained short-circuit-proof
Electr. design:	PNP (positive switching)
No-load current:	> 10 mA
Switch status indicator:	LED red
Electr. design:	NAMUR
Repeating accuracy:	± 0.2 mm
Hysteresis:	2 to 5 mm
Temperature range:	-20 °C to +85 °C
Switching frequency:	max. 250 Hz
Mounting position:	any
Protection class acc. to DIN 40050:	
with cable	IP 67
Connecting line:	2 m, 3 m, 5 m, or 10 m possible
Housing:	Crastin
Fastening clip:	to be ordered separately

Characteristics

IP 67 CE

MONOSTABLE 1

Dimensions (in mm)



Permanent actuating magnets

Sensor Technology for Industry and Mining

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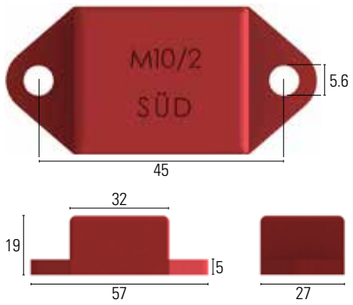
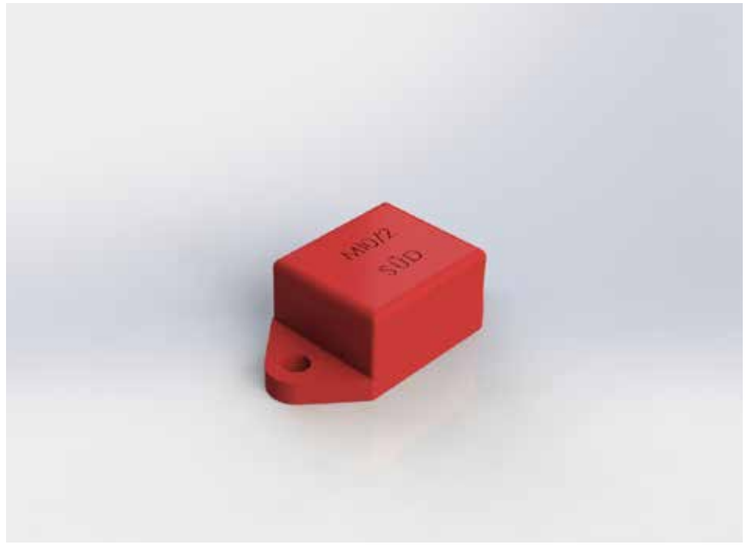
PINTSCH TIEFENBACH

Dimensions (in mm)



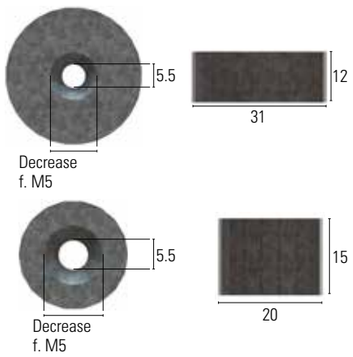
Type M10/2



Design

- Magnet encapsulated in plastic
- Optionally the active side is SOUTH or NORTH

Dimensions (in mm)



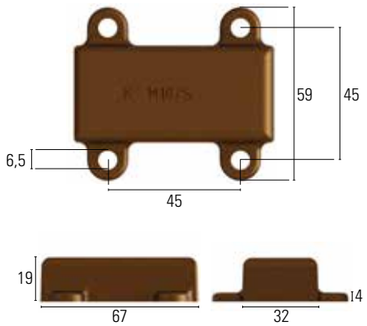
Round magnet D31 and D20

Design

- Diameter of 31 mm (D31)
- Diameter of 20 mm (D20)

Type M10/S

Dimensions (in mm)

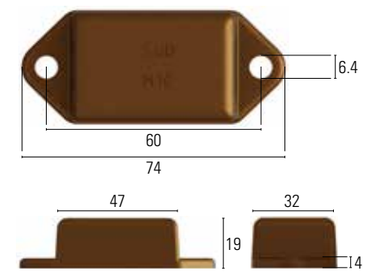


Design

- Magnet encapsulated in gunmetal
- Optionally the active side is SOUTH or NORTH

Type M10

Dimensions (in mm)

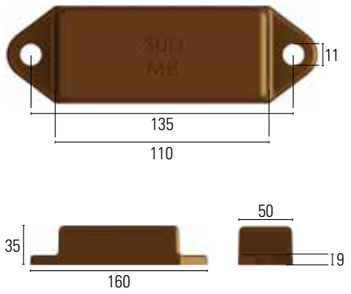


Design

- Magnet encapsulated in gunmetal
- Optionally the active side is SOUTH or NORTH

PINTSCH TIEFENBACH

Dimensions (in mm)

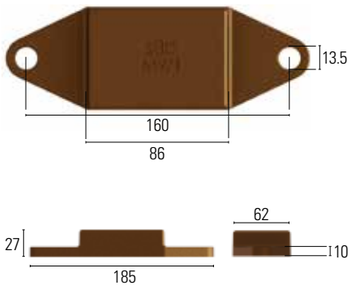


Type M8

Design

- Magnet encapsulated in gunmetal
- Optionally the active side is SOUTH or NORTH

Dimensions (in mm)



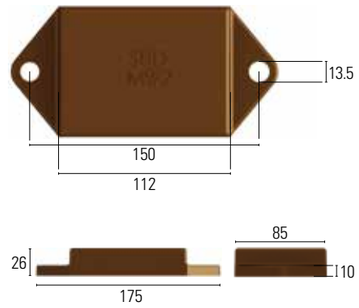
Type M9/1

Design

- Magnet encapsulated in gunmetal
- Optionally the active side is SOUTH or NORTH

Type M9/2

Dimensions (in mm)

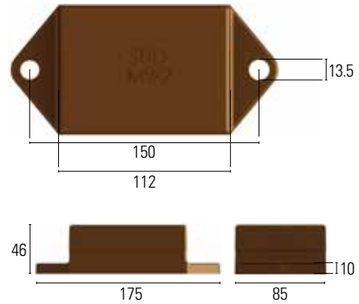


Design

- Magnet encapsulated in gunmetal
- Optionally the active side is SOUTH or NORTH

Type M9/2 (46 mm high)

Dimensions (in mm)



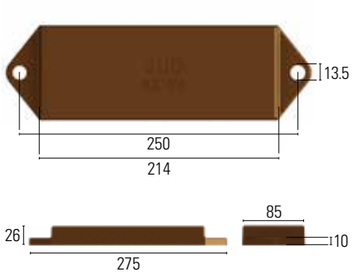
Design

- Magnet encapsulated in gunmetal
- Optionally the active side is SOUTH or NORTH

PINTSCH TIEFENBACH

Type M9/4

Dimensions (in mm)

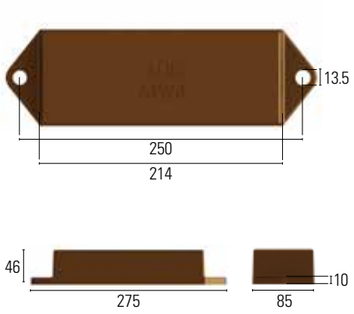


Design

- Magnet encapsulated in gunmetal
- Optionally the active side is SOUTH or NORTH

Type M9/4 (46 mm high)

Dimensions (in mm)

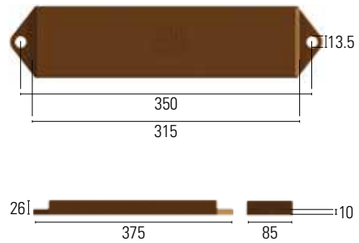


Design

- Magnet encapsulated in gunmetal
- Optionally the active side is SOUTH or NORTH

Type M9/6

Dimensions (in mm)



Design

- Magnet encapsulated in gunmetal
- Optionally the active side is SOUTH or NORTH

Assembly instructions

If the actuating magnet is placed on a ferromagnetic material, the switching distance increases since the effect of the circuit breaker pole and thus the entire magnetic field are increased.

As standard, the magnets are delivered with the south pole being the actuating side.

Electronic actuating magnets

Sensor Technology for Industry and Mining

PINTSCH TIEFENBACH

PINTSCH TIEFENBACH

Class wEMT

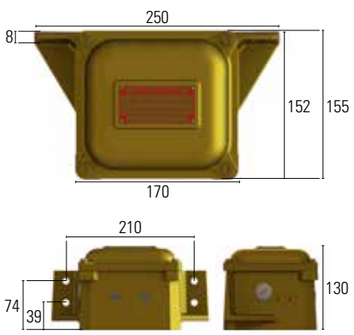
Specifications

Power consumption:	16 W/VA
ON period:	100%
Protection class acc. to DIN 40050:	IP 54
Housing:	Gunmetal
Type of connection:	terminals
Operating voltage:	wEMT/L1/...VDC without rectifier 24VDC, 60 VDC. 115 VDC, 230VDC wEMT/L2/...VAC with rectifier 24VAC, 60 VAC. 115 VAC, 230VAC

Characteristics

IP 54 CE

Dimensions (in mm)



Type code

w	EMT	L1	230V	MS

- **Housing:** MS = gunmetal, AL = silumin (no longer available)
- **Operating voltage**
- **Electric design:** L1 = without rectifier, L2 = with rectifier
- **Class**
- **Protection class:** w = weather resistant IP54

Special features

- Suitable for medium switching distances

Class EUMT/MS/…

Specifications

Power consumption:	130 W/VA
ON period:	100%
Protection class - DIN 40050:	IP 54
Housing:	brass
Type of connection:	Terminals
Operating voltage:	EUMT/MS/...VDC without rectifier 24VDC, 115 VDC, 230VDC EUMT/MS/...VAC with rectifier 24VAC, 115 VAC, 230VAC
Polarity:	South / south (for magnetic switches with inert gas contact) North / south

Type code

EUMT	MS	230V	AC	wK174L114

- **Design:** with magnetic field control
- **Electric design:** AC = with rectifier, DC = without rectifier
- **Operating voltage**
- **Housing:** MS = brass
- **Class**

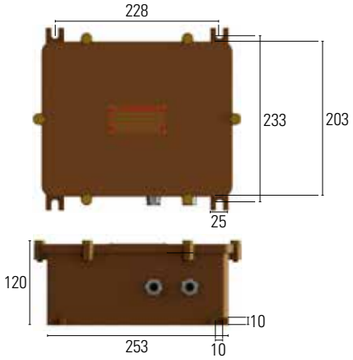
Special features

- Suitable for large switching distances

Characteristics

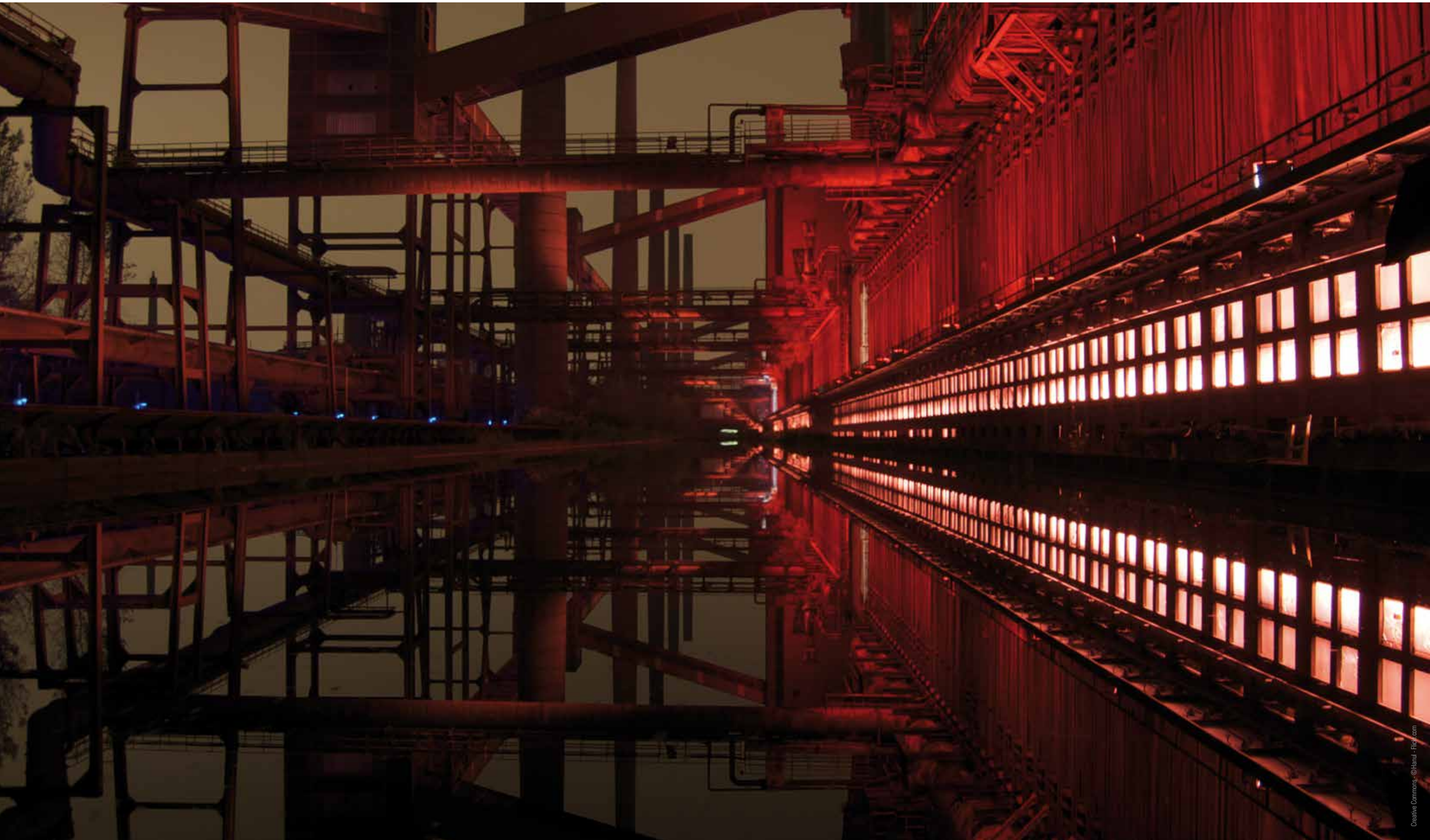
IP 54 CE

Dimensions (in mm)



Technical details
Magnetic switches

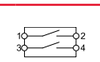
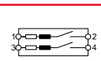
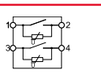
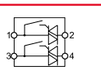
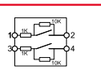
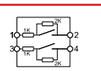
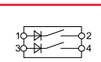
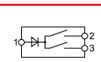
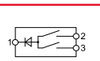
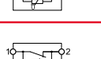
PINTSCH TIEFENBACH



Switch configuration

Table no.1

PINTSCH TIEFENBACH

Switch configuration \ Contact wiring		No reference number Without wiring	Reference number 1 Wiring with resistance	Reference number 2 Wiring with surge protection	Reference number 3 with Triac	Reference number 5 NAMUR design		Reference number 7 NAMUR design	Reference number 8 LED for 24 V DC PNP	A	B	C	D	E
1	One inert gas contact Additional "normally open contact"													
	One inert gas contact Additional "normally closed contact" Only bistable													
	One inert gas contact Additional "changeover contact" (normally closed contact, monostable version)													
2	Two inert gas contacts Galvanically separated Identical switching behaviour Additional "normally open contact"													
	Two inert gas contacts Galvanically separated Identical switching behaviour Additional "normally closed contact"													
	Two inert gas contacts Galvanically separated Identical switching behaviour Additional changeover contact													
3	Two inert gas contacts Galvanically separated Non-equivalent switching behaviour (bistable version)													
	Two inert gas contacts Galvanically separated Non-equivalent switching behaviour (monostable version)													

		Monostable version only to be implemented with a changeover contact
4	Three inert gas contacts Galvanically separated 1 normally open contact, 2 normally closed contacts	
5	Three inert gas contacts Galvanically separated 2 normally open contacts, 1 normally closed contact	
6	Three inert gas contacts Galvanically separated 3 normally open contacts	
7	Three inert gas contacts Galvanically separated 3 normally closed contacts	

Color coding (for switches with a permanently connected line)

		F	G	H	K		L	M	N	P	R	S	T
1	One inert gas contact							With one/two contact(s)					
2	Two inert gas contacts												

		U	V	Q	W		X	Y	Z
2	Two inert gas contacts								

Contact designation and electrical data

Table no. 2, Table no. 3

PINTSCH TIEFENBACH

Table 2

no.	Switch design	Contacts	Electrical data without wiring
1	Monostable and bistable	**Normally open contact** max. rupturing capacity max. switching current max. switching voltage	 60 W / 60 VA 1.5 A 230 V DC, AC
2	Monostable and bistable	**Normally open contact for large switching distances** max. rupturing capacity max. switching current max. switching voltage	 60 W / 60 VA 1 A 250 V DC, AC
4	Monostable and bistable	**Normally open contact for inductive loads** max. rupturing capacity max. switching current max. switching voltage	 100 W / 100 VA 1.5 A 250 V DC, AC
5	Monostable and bistable	**Changeover contact** max. rupturing capacity max. switching current max. switching voltage	 40 W / 60 VA 1 A 230 V DC, AC
6	Monostable and bistable	**Changeover contact** max. rupturing capacity max. switching current max. switching voltage	 60 W / 80 VA 1 A 230 V DC, AC
7	Monostable	**Normally open contact** max. rupturing capacity max. switching current max. switching voltage	 10 W / 10 VA 0.3 A 100 V DC, AC
8	Monostable and bistable	**Changeover contact** max. rupturing capacity max. switching current max. switching voltage	 60 W /60 VA 1 A 230 V DC, AC
9	Monostable	**Changeover contact** max. rupturing capacity max. switching current max. switching voltage	 20 W / 20 VA 1 A 150 V DC, AC

Table 3

	Monostable								Bistable					
Contact / Magnet	1	2	4	5	6	7	8	9	1	2	4	5	6	8
Round D 22	20	25	10	10	5	30	30	30	30	35	25	25	20	40
Round D 31	30	40	20	20	15	45	40	40	50	50	40	40	35	60
M10	35	50	30	25	20	50	45	50	55	60	50	45	40	70
M10/S	40	55	40	30	30	60	50	55	65	70	60	55	50	80
M10/2	20	30	15	10	10	35	25	35	40	40	35	30	25	50
M8	95	120	95	80	75	120	105	115	110	130	110	100	95	145
M9/1	80	105	80	65	60	105	95	95	105	110	95	90	85	130
M9/2	105	145	105	90	85	135	120	125	130	140	120	115	105	155
M9/4	135	195	140	120	110	170	155	160	165	175	150	145	135	205
M9/4 double	165	235	170	150	135	205	190	195	200	210	180	175	160	245
M9/6	140	215	145	125	110	180	170	165	170	185	155	145	135	220

All measurements between the contact and the actuating magnet were performed in a non-ferrous environment. The switching distance varies depending on the housing class and the size. Please refer to the respective data sheet for the product-related parameters.

PINTSCH TIEFENBACH

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