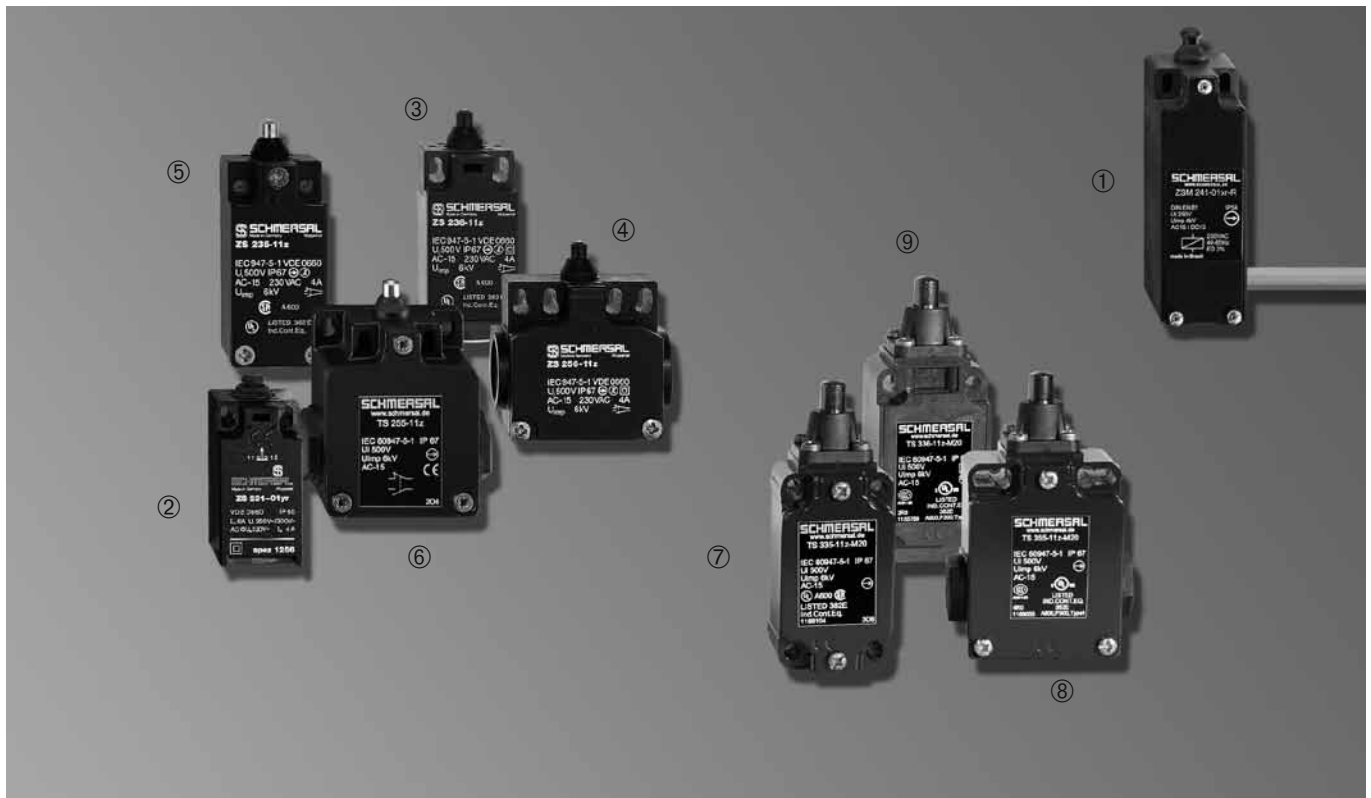




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## Position switches with safety function



### Range of application

Position switches with safety function are suitable for a wide range of applications in lift industry. They are especially used, where safety and positioning accuracy are of paramount importance, e.g. at the terminus, at the safety catch device or at the speed limiter.

For these applications, Schmersal offers a comprehensive program of position switches, which have proven their value to the lift industry all over the world.

The different series can be smoothly adapted to the specific application by means of a wide range of actuating elements.

These position switches with safety function have a positive linkage between the actuator and the positive-break NC contact. The switches are available with two different switching

systems: snap action (Z) and slow action (T). The protection class of all series is IP 54 up to IP 67. The metal or thermoplastic enclosures are available in two different standard sizes and they are highly resistant to oil and fuel.

Combinations of NC and NO contacts can be selected for different applications. The switches are connected through screw terminals or plug-in connectors. The ZSM 241 with electrical reset is supplied with connecting cable. Some switches have an additional wiring compartment cover, which means that the contacts are never exposed, not even when the switch cover is opened. In this case, the cables can be smoothly connected by means of the cage clamps.

### Actuators

In order to provide for a universal application of the position switches, a wide range of actuators – mostly with subsequently changeable head – is available: plungers and roller plungers, roller levers, angled and rod levers as well as special levers with mushroom-shaped actuating head or reset pin and executions with large rubber rollers. To facilitate the storage, the actuators of many types can be fitted afterwards.

## Position switches with safety function

### Overview

		①	②	③	④	⑤	⑥	⑦	⑧	⑨
		ZSM 241	Z 231	Z/T 236	Z/T 256	Z/T 235	Z/T 255	T 335	T 355	T 336
Enclosure	Thermoplastic	•	•	•	•	–	–	–	–	•
	Metal	–	–	–	–	•	•	•	•	–
Mounting details	accordind to DIN EN 50047 (small)	•	•	•	•	•	•	–	–	–
	accordind to DIN EN 50041 (large)	–	–	–	–	–	–	•	•	•
Switching behaviour	Snap action (Z)	•	•	•	•	•	•	–	–	–
	Slow action (T)	–	–	•	•	•	•	•	•	•
	latching	•	•	•	•	–	–	–	–	•
	non-latching	–	–	•	•	•	•	•	•	•
Reset	by pulling the plunger	–	•	•	•	–	–	–	–	•
	by remote triggering	•	–	–	–	–	–	–	–	–
Protection class (max.)	IP	54	65	67	67	67	67	67	67	67
	Double insulation	–	•	•	•	–	–	–	–	•
Contacts	Number of NC contacts	1	1	2	2	2	2	3	3	2
Cable entry	Number	–	1	1	2	1	2	1	3	1
Connection cable	Rigid, 1 m	•	–	–	–	–	–	–	–	–
	Screw terminals	–	•	•	•	•	•	•	•	•
Actuating elements	Can be chosen	–	–	•	•	•	•	•	•	•
	Angle of roller lever adjustable in 10° steps	–	–	•	•	•	•	•	•	•
Wiring compartment cover		–	–	•	•	•	•	•	•	•
Resistance to oil and fuel	high	•	–	•	•	•	•	•	•	•
Application	overspeed governor	•	•	•	•	–	–	–	–	–
	diverse	•	–	•	•	•	•	•	•	•
Approval	IEC / EN 60947	•	•	•	•	•	•	•	•	•
	UL	–	–	•	•	•	–	•	•	•
Page		3-8	3-9	3-10	3-12	3-14	3-15	3-34	3-35	3-32

Legend:

- available
- not available

#### Note:

Load break switches T 064 and T 136 for the all-pole switch-off of the drive, refer to the Main Catalogue

This table gives a general overview of the product program. The next pages include a detailed description of the individual components, as well as information about special versions.

Note: In accordance with EN 81, safety switches must be actuated 2 mm beyond the switching point.

## Position switches with safety function

### Switching behaviour of the switch

#### Snap action (Z)

With snap action there is no differential travel between the opening of the NC contact and the closing of the NO contact, i.e. the NC and NO contacts are switched simultaneously.

The switching movement occurs snap wise and independent from the actuating speed. Because of the switching hysteresis, the switching points are different for both actuating directions.

This switching system is used when the NC and NO contact must operate simultaneously and no intermediate positions (i.e. either one or the other circuit must be closed) are desired.

A latching function is possible. Snap action switches to DIN EN 50047 are authorised for applications to EN 81.



Snap action

- Z 231
- Z 236
- Z 256
- Z 235
- Z 255

#### Slow action (T)

With slow action, there is a differential travel between the opening of the NC contact and the closing of the NO contact; the contacts are not switched simultaneously. The switching points are in exactly the same position during actuation and return switching of the position switch. The switching movement depends on the actuating speed.

Slow action is possible with overlapping or with staggered contacts. In case of overlapping contacts, the NO and the NC contacts are simultaneously closed for a short moment during the switching process. Staggered contacts are possible for two contacts of the same type (i.e. two NC or two NO contacts); the contacts are switched one after the other.



Slow action

- T 236
- T 256
- T 235
- T 255
- T 335
- T 355
- T 336

#### End-position latching (r)

Position switches with end-position latching have no return spring and therefore must be put back into the initial position manually after each operation. To this end, the plungers are enlarged or equipped with a transverse pin.

- Z 231
- Z/T 236
- Z/T 256
- T 336

#### Magnet-Snap action (Z)

The ZS 231-01yr-1256 is another possibility. In this switch, the magnetic snap action system is used, which enables the snap action function almost without any pre-travel. The ZSM 241 with electromagnetic reset is also equipped with the magnetic snap action operating principle.

- ZS 231-01yr-1256
- ZSM 241

## Position switches with safety function



### ZSM 241 with electromagnetic reset

Because of its extraordinarily short actuating or pre-travel, the ZSM 241 position switch is particularly suitable for use with overspeed governor. The ZSM has an electromagnetic reset and is especially developed for machine room-less lifts, where the manual reset is difficultly accessible.

Page 3-8

### Actuators

- Plunger (S)



### Small standardised switches

- To DIN EN 50047
- Snap action (Z)
- Slow action (T)

Page 3-9

### Actuators:

- Plunger (S)
- Roller plunger (R)
- Roller lever (R, K)
- Angled lever (K)
- Roller lever (H)
- Rod lever (H)

Page 3-17



### Large standardised switch

- To DIN EN 50041
- Slow action (T)













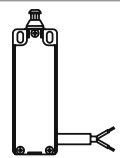

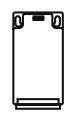
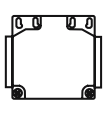

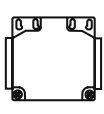
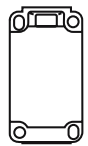
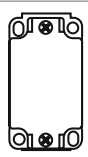
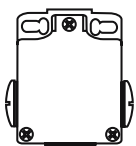
Page 3-32

### Actuators:

- Plunger (S)
- Roller plunger (R)
- Roller lever (R, K)
- Angled lever (K)
- Roller lever (H)
- Rod lever (H)

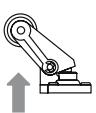


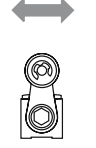
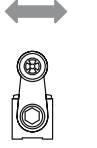
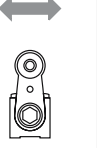
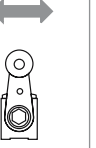
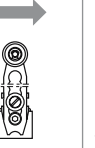
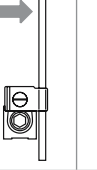

Page 3-36

## Position switches with safety function

Actuators		Actuating elements					
Position switch							
							
<b>ZSM 241 Page 3-8</b>		S					
<ul style="list-style-type: none"> <li>• Thermoplastic enclosure</li> <li>• Right- or left-hand side cable output</li> <li>• Design to DIN EN 50047</li> </ul>							
<b>Z 231 Page 3-9</b>		S					
<ul style="list-style-type: none"> <li>• Thermoplastic enclosure</li> <li>• 1 cable entry</li> <li>• Design to DIN EN 50047</li> </ul>							
<b>Z/T 236 Page 3-10</b>		S	R	4S	4R	1R	K
<ul style="list-style-type: none"> <li>• Thermoplastic enclosure</li> <li>• 1 cable entry</li> <li>• Design to DIN EN 50047</li> </ul>							
<b>Z/T 256 Page 3-12</b>		S	R	4S	4R	1R	K
<ul style="list-style-type: none"> <li>• Thermoplastic enclosure</li> <li>• 2 Cable entries</li> <li>• Mounting details and switching points to DIN EN 50047</li> </ul>							
<b>Z/T 235 Page 3-14</b>		S	R	4S	4R	1R	K
<ul style="list-style-type: none"> <li>• Metal enclosure</li> <li>• 1 cable entry</li> <li>• Design to DIN EN 50047</li> </ul>							
<b>Z/T 255 Page 3-15</b>		S	R	4S	4R	1R	K
<ul style="list-style-type: none"> <li>• Metal enclosure</li> <li>• 3 cable entries</li> <li>• Design to DIN EN 50047</li> </ul>							
<b>T 336 Page 3-32</b>		S	R				1K
<ul style="list-style-type: none"> <li>• Thermoplastic enclosure</li> <li>• 1 cable entry</li> <li>• Design to DIN EN 50041</li> </ul>							
<b>T 335 Page 3-34</b>		S	R				1K
<ul style="list-style-type: none"> <li>• Metal enclosure</li> <li>• 1 cable entry</li> <li>• Design to DIN EN 50041</li> </ul>							
<b>T 355 Page 3-35</b>		S	R				1K
<ul style="list-style-type: none"> <li>• Metal enclosure</li> <li>• 3 cable entries</li> <li>• Mounting details and switching points to DIN EN 50041</li> </ul>							

**Note:** The technical data of the individual series are listed on the above-mentioned pages. Information about the actuators, e.g. dimensions, switch travel and contact diagrams, can be found at the end of the description of the series.

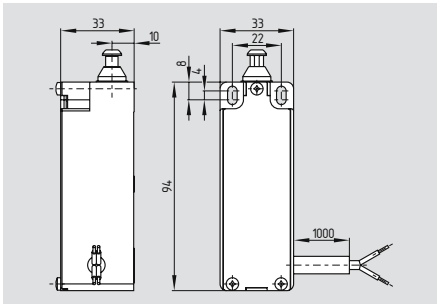
# Position switches with safety function

Actuators									
									Actuating elements
									
3K	4K	K4		V1H	V12H	V14H	V7H	V10H	15H
3K	4K	K4		V1H	V12H	V14H	V7H	V10H	
3K	4K	K4		V1H	V12H	V14H	V7H	V10H	
3K	4K	K4		V1H	V12H	V14H	V7H	V10H	
3K			4VH				4V7H	4V10H	
3K			4VH				4V7H	4V10H	
3K			4VH				4V7H	4V10H	

\* Not all actuators are suitable for safety tasks

## Position switches with safety function

### ZSM 241



- **Reset by remote triggering**
- Thermoplastic enclosure
- Switching function with latching
- with low actuating force and short pre-travel due to magnet snap action system (Z)
- Protection class IP 54
- Contacts: 1 NC contact
- Connection cable 1 m, 1,5 m, 3 m  
other cable lengths on request
- High resistance to oil and fuel
- Perfectly fit for overspeed governor or entry protection of the shaft pit
- Mounting details to DIN EN 50047 (small)

### Technical data

Standards:	IEC/EN 60947-1 DIN VDE 0660-200 BG-GS-ET-15 EN 81-1/2
Enclosure:	glass-fibre reinforced thermoplastic, self-extinguishing
Protection class :	IP 54 to IEC/EN 60529 DIN VDE 0470-1
Contact material:	silver
Switching elements:	NC contact with double break; coil for electromagnet reset
Switching system:	⊖ IEC 60947-5-1; magnetic snap action system, positive break NC contact
$U_{imp}$ :	4 kV
$U_i$ :	250 V
Utilisation category:	AC-15 / DC-13
$I_e/U_e$ :	4 A / 230 V AC, 4 A / 24 V DC,
Short-circuit protection:	4 A GL-gI
Ambient temperature:	- 25 °C ... + 40 °C
Contact opening width:	2 x 2 mm
Mechanical life:	5 x 10 <sup>4</sup> operations
Actuating force:	6 N (± 2 N)
Rated supply voltage:	230 VAC / 50 Hz
Magnet:	3 % ED

### Actuators

Plunger S

### Approvals



### Ordering data

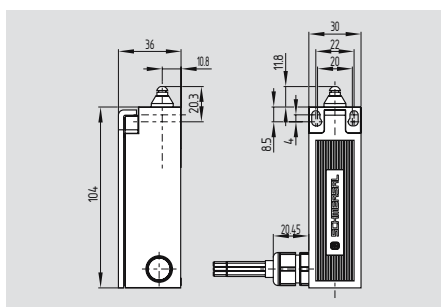
Z1M 241-01xr-②

N°	Add	Description
①	S 2S	Standard plunger adjustable plunger
②	R L	RHS cable output LHS cable output



## Position switches with safety function

### ZSM 476



- Plunger shows switching status
- Manually operated reset of plunger possible
- Reset with electric pulse 24V 110V or 230V options
- Prewired with 3 possible cable entry positions
- Various actuators possible
- Protection class IP 67
- Switching elements: choice of 2 or 3 contacts
- Mechanical life: 50.000 operations
- Actuating distance: 0,3mm
- Actuating force: 6 N

### Technical data

Standards:	IEC/EN 60947-1; IEC/EN 60947-5-1; EN 81
Design:	Fixings to DIN EN 50047
Enclosure:	Glass-fibre reinforced thermoplastic
Mounting:	2 x M4
Standard prewired cable length:	1 m, 1,5 m, 3 m (other lengths on request)
Protection class:	IP 67 and IP 65 to IEC/EN 60529
Contact material:	Silver
Contact types:	2 NC contacts with double break (optionally: 1 NC or 1 NO or 1 NC / 1 NO or 3 NC or 2 NC / 1 NO)
Contact break:	2 x 2 mm
Positive break force:	each NC contact 12 N
Switching system:	A IEC 60947-5-1; snap action, NC contacts with positive break
Actuating force:	6 N (± 2 N) at the plunger
Termination:	Connecting cable LIYYW (UL Style 2517)
$U_{imp}$ :	4 kV
$U_i$ :	250 V
Utilisation category:	AC-15, DC-13
$I_e/U_e$ :	4 A / 230 VAC 4 A / 24 VDC
Max. fuse rating:	4 A gG D-fuse
Electromagnet:	
$U_c$ :	24 VAC/DC, 110 VAC/DC, 230 VAC/DC -15% / +10%
$I_c$ :	3 A; 0.7 A; 0.3 A
Switch-on time:	3% ED; $t_{max}$ 5 s
<b>Ambient conditions:</b>	
Ambient temperature:	-25 °C ... + 50 °C
Mechanical life:	150,000 operations
Actuating speed:	1.5 m/s at the plunger
Switching frequency:	max. 50/h

### Safety classification

Standards:	EN ISO 13849-1
$B_{10d}$ (NC contact):	300,000
Service life:	20 years

$$MTTF_d = \frac{B_{10d}}{0,1 \times n_{op}} \quad n_{op} = \frac{d_{op} \times h_{op} \times 3600 \text{ s/h}}{t_{cycle}}$$

### Actuator

Roller lever	1R
Angled roller lever	3K
Angled roller lever	K4

### Approvals

under preparation



### Ordering details

Z1M 476-②-③④-⑤

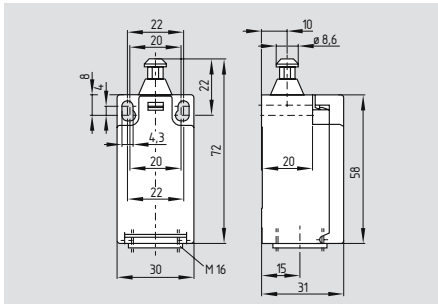
No.	Option	Description
①		Selection of actuators, see page 3-18
②	01	1 NC contact
	10	1 NO contact
	11	1 NO / 1 NC contact
	12	1 NO / 2 NC contacts
	03	3 NC contacts
③	R	Cable output right
	M	Cable output centered
	L	Cable output left
④	1	Cable length 1 m
	1.5	Cable length 1.5 m
	3	Cable length 3 m
⑤	024	Operating voltage 24 V
	110	Operating voltage 110 V
	230	Operating voltage 230 V

### Note

Further technical information can be found in the Schmersal catalogues or in the online catalogue on the Internet: [www.schmersal.net](http://www.schmersal.net).

# Position switches with safety function

## Z 231-01y-1256



- Switching without pre-travel
- Thermoplastic enclosure
- Mounting details to DIN EN 50047 (small)
- Compact design
- Version with latching and plunger
- with low actuating force and short pre-travel due to magnet snap action system Z
- Reset by pulling the plunger S
- Protection class IP 65
- Double insulation  $\square$
- Contacts: 1 NC contact
- Screw terminals M 3.5
- Perfectly fit for speed limiters

## Technical data

Standards:	IEC/EN 60947-5-1 DIN VDE 0660-200 DIN VDE 0660-206 IEC 204/VDE 0113 DIN EN 50047 DIN EN 81
Enclosure:	glass-fibre reinforced thermoplastic, self-extinguishing
Protection class :	IP 67 to IEC/EN 60529 DIN 40050
Contact material:	silver
Switching elements:	NC contact with double break
Switching system:	⊖ IEC 60947-5-1; ⊕ BG-GS-ET-15; Snap action Z, positive break NC contact to IEC 204/VDE 0113; magnetic snap action
Termination:	screw terminals M 3.5
Cable section:	max. 2.5 mm <sup>2</sup> (including conductor ferrules)
U <sub>imp</sub> :	4 kV
U <sub>i</sub> :	250 VAC
I <sub>the</sub> :	10 A
Utilisation category:	AC-15
I <sub>e</sub> /U <sub>e</sub> :	4 A/230 VAC; 2,5 A/400 VAC; 1 A/500 VAC
Short-circuit protection:	10 A (slow blow); 16 A (quick blow)
Ambient temperature:	- 30 °C ... + 80 °C
Mechanical life:	20 x 10 <sup>6</sup> operations
Switching frequency:	max. 5000/h
Actuating speed:	min. 10 mm/min with regard to the plunger
Actuating force:	min. 6 ± 2 N
Pre-travel	max. 0.2 mm contact break
width at full travel:	> 2 x 2 mm
Duration to standstill:	≤ 3 ms
Switching time:	≤ 5 ms with an actuating speed of 10 mm/min at the plunger

## Actuators

Plunger S

### Approvals



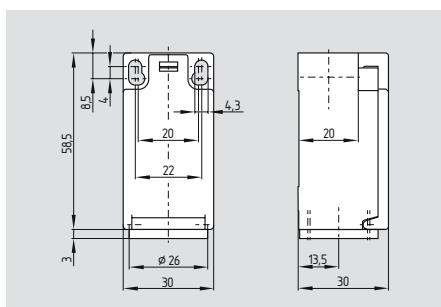
## Ordering data

ZS 231-01yr-M16-1256

6.3 3 18 1 0.2

# Position switches with safety function

## Z 236 with latching



- Thermoplastic enclosure
- Mounting details to DIN EN 50047 (small)
- Compact design
- Switching function latching
- Snap action with constant contact pressure
- Reset by pulling the plunger
- Protection class IP 67
- Double insulated
- 2 contacts
- 1 cable entry M20 x 1.5 or M16 x 1.5
- Screw terminals max. 2.5 mm<sup>2</sup> with conductor ferrules
- Large range of actuating elements
- Actuating elements can be turned in steps 4 x 90°
- High resistance to oil and fuel

## Technical data

Standards:	IEC/EN 60947-5-1 BG-GS-ET-15
Design:	DIN EN 50047 compliant
Enclosure:	glass-fibre reinforced thermoplastic, self-extinguishing
Protection class :	IP 67
Contact material:	silver
Switching elements:	changeover contact with double break or 2 NC contacts, galvanically separated contact bridges
Switching system:	⊖ IEC 60947-5-1 slow or snap action, latching positive break NC contact
Termination:	screw terminals, male connector M12
Cable section:	max. 2.5 mm <sup>2</sup> min. 1.5 mm <sup>2</sup> (including conductor ferrules)
Cable entry:	M 20 x 1.5
U <sub>imp</sub> :	6 kV
U <sub>i</sub> :	500 V
I <sub>the</sub> :	10 A
Utilisation category:	AC-15; DC-13
I <sub>e</sub> /U <sub>e</sub> :	4 A / 230 VAC 1 A / 24 VDC
Short-circuit protection:	6 A gL/gG D-fuse
Ambient temperature:	- 30 °C ... + 80 °C
Mechanical life:	20 million operations
Switching frequency:	max. 5000/h

## Actuators

Plunger	S-1519 S-1816
Rollen plunger	R-1816
Roller lever	1R-1816 K-1816
Angled lever	3K-1816 4K-1816 K4-1816

## Approvals



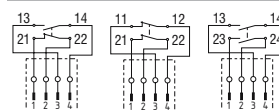
## Ordering data

Z ① 236-②zr③-④

N°	Add	Description
①		Selection of actuators, see page 3-18
②	02	2 NC contacts
	11	1 NO / 1 NC contact
	20	2 NO contacts
③		Cable entry M20
	M16	Cable entry M16
	ID	Cage clamps
	ST	Connector M12 (A-coding)
④	1519	with mushroom-shaped actuating head
	1816	with reset lever

## Ordering data

## Plug-in connector



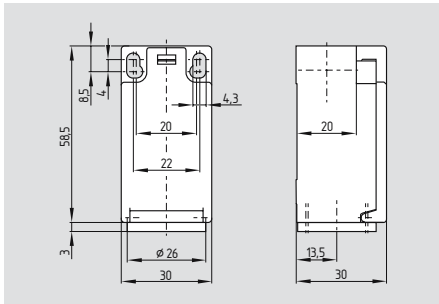
Actuators from page 3-17

### Note:

The actuator is defined by item ① and ④ of the ordering data.

# Position switches with safety function

## Z/T 236 without latching



- Thermoplastic enclosure
- Mounting details to DIN EN 50047 (small)
- Compact design
- Switching function non-latching
- Snap action with constant contact pressure
- Slow action with overlapping or staggered contacts
- Protection class IP 67
- Double insulated  $\square$
- 2 contacts
- 1 Cable entry M20 x 1.5 or M16 x 1.5
- Screw terminals max. 2.5 mm<sup>2</sup> with conductor ferrules
- Large range of actuating elements available
- Actuating elements can be turned in steps 4 x 90°
- Angle of roller lever adjustable in 10° steps
- High resistance to oil and fuel

## Technical data

Standards:	IEC/EN 60947-5-1 BG-GS-ET-15
Design:	DIN EN 50047 compliant
Enclosure:	glass-fibre reinforced thermoplastic, self-extinguishing
Protection class :	IP 67
Contact material:	silver
Switching elements:	changeover contact with double break or 2 NC contacts, galvanically separated contact bridges
Switching system:	$\ominus$ IEC 60947-5-1 slow or snap action, positive break NC contact
Termination:	screw terminals, male connector M12
Cable section:	max. 2.5 mm <sup>2</sup> min. 1.5 mm <sup>2</sup> (including conductor ferrules)
Cable entry:	M 20 x 1.5
U <sub>imp</sub> :	6 kV
U <sub>i</sub> :	500 V
I <sub>the</sub> :	10 A
Utilisation category:	AC-15; DC-13
I <sub>e</sub> /U <sub>e</sub> :	4 A / 230 VAC 1 A / 24 VDC
Short-circuit protection:	6 A gL/gG D-fuse
Ambient temperature:	- 30 °C ... + 80 °C
Mechanical life:	20 million operations
Switching frequency:	max. 5000/h
Duration to standstill:	Snap action: < 3 ms; Slow action: in accordance with the actuating speed
Switching time:	Snap action: > 5.5 ms; Slow action: in accordance with the actuating speed

## Actuators

Plunger	S
Rollenplunger	R 4S 4R
Roller lever	1R K
Angled lever	3K 4K 4A
Roller lever	1H 7H-2138 7H-1058/2138 7H-2079-2 12H 14H 14H-1058 15H
Rod lever	10H

## Approvals



## Ordering data

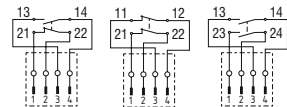
①② 236-③z④-⑤-⑥

N°	Add	Description
①	Z T	Snap action $\ominus$ Slow action $\ominus$
②		Selection of actuators, see page 3-18
③	02 11 20	2 NC contacts 1 NO / 1 NC contact 2 NO contacts
④	h ü	Slow action with staggered contacts with overlapping contacts
⑤	M16 ID ST	Cable entry M20 Cable entry M16 Cage clamps Connector M12 (A-coding)

## Ordering data

N°	Add	Description
⑥	2079-2 1058 1058/2138	with large rubber roller and fixed 7H lever for Roller lever 7H rubber roller 50 mm with large rubber roller and lever arm lengthadjustable in steps

## Plug-in connector

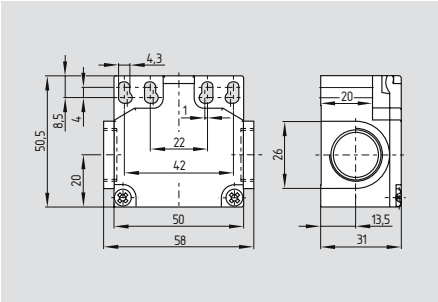


### Actuators from page 3-17

**Note:**  
The actuator is defined by item ② and ⑥ of the ordering data.

# Position switches with safety function

## Z 256 with latching



- Thermoplastic enclosure
- Mounting details to DIN EN 50047 (small)
- extended width
- Switching function latching
- Snap action with constant contact pressure
- Reset by pulling the plunger
- Protection class IP 67
- Double insulated □
- 2 contacts
- 2 cable entries M20 x 1.5 or M16 x 1.5
- Screw terminals max. 2.5 mm<sup>2</sup> with conductor ferrules
- Large range of actuating elements available
- Actuating elements can be turned in steps 4 x 90°
- High resistance to oil and fume

## Technical data

Standards: IEC/EN 60947-5-1  
BG-GS-ET-15

Design: DIN EN 50047 compliant

Enclosure: glass-fibre reinforced thermoplastic, self-extinguishing

Protection class : IP 67

Contact material: silver

Switching elements: changeover contact with double break or 2 NC contacts, galvanically separated contact bridges

Switching system: ⊖ IEC 60947-5-1  
Snap action, positive break NC contact

Termination: screw terminals

Cable section: max. 2.5 mm<sup>2</sup>  
min. 1.5 mm<sup>2</sup>  
(including conductor ferrules)

Cable entry: 2 x M 20 x 1.5

U<sub>imp</sub>: 6 kV

U<sub>i</sub>: 500 V

I<sub>the</sub>: 10 A

Utilisation category: AC-15; DC-13

I<sub>e</sub>/U<sub>e</sub>: 4 A / 230 VAC  
1 A / 24 VDC

Short-circuit protection: 6 A gL/gG  
D-fuse

Ambient temperature: - 30 °C ... + 80 °C

Mechanical life: 20 million operations

Switching frequency: max. 5000/h

## Actuators

Plunger S-1519  
S-1816

Roller lever 1R-1816  
K-1816

Angled lever 3K-1816  
4K-1816  
K4-1816

### Approvals



## Ordering data

Z ① 256-②zr③-④

N°	Add	Description
①		Selection of actuators, see page 3-18
②	02	2 NC contacts
	11	1 NO / 1 NC contact
	20	2 NO contacts
③		Cable entry M20
	M16	Cable entry M16
④	1519	with mushroom-shaped actuating head
	1816	with reset lever
	2079-2	with large rubber roller and fixed 7H lever

## Ordering data

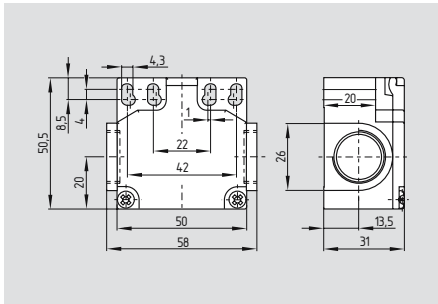
## Note

Actuators from page 3-17

The actuator is defined by item ① and ④ of the ordering data.

# Position switches with safety function

## Z/T 256 without latching



- Thermoplastic enclosure
- Mounting details to DIN EN 50047 (small)
- extended width
- Switching function non-latching
- Snap action with constant contact pressure
- Slow action with overlapping or staggered contacts
- Protection class IP 67
- double insulated □
- 2 contacts
- 2 Cable entries M20 x 1.5 or M16 x 1.5
- Screw terminals max. 2.5 mm<sup>2</sup> with conductor ferrules
- Large range of actuating elements available
- Actuating elements can be turned in steps 4 x 90°
- Angle of roller lever adjustable in 10° steps
- High resistance to oil and fuel

## Technical data

Standards:	IEC/EN 60947-5-1 BG-GS-ET-15
Design:	DIN EN 50047 compliant
Enclosure:	glass-fibre reinforced thermoplastic, self-extinguishing
Protection class :	IP 67
Contact material:	silver
Switching elements:	changeover contact with double break or 2 NC contacts, galvanically separated contact bridges
Switching system:	⊖ IEC 60947-5-1 slow or snap action, positive break NC contact
Termination:	screw terminals, male connector M12
Cable section:	max. 2.5 mm <sup>2</sup> min. 1.5 mm <sup>2</sup> (including conductor ferrules)
Cable entry:	2 x M 20 x 1.5
U <sub>imp</sub> :	6 kV
U <sub>i</sub> :	500 V
I <sub>the</sub> :	10 A
Utilisation category:	AC-15; DC-13
I <sub>e</sub> /U <sub>e</sub> :	4 A / 230 VAC 1 A / 24 VDC
Short-circuit protection:	6 A gL/gG D-fuse
Ambient temperature:	- 30 °C ... + 80 °C
Mechanical life:	20 million operations
Switching frequency:	max. 5000/h
Duration to standstill:	Snap action: < 3 ms; Slow action: in accordance with the actuating speed
Switching time:	Snap action: > 5.5 ms; Slow action: in accordance with the actuating speed

## Actuators

Plunger	S
Roller plunger	R 4S 4R
Roller lever	1R K
Angled lever	3K K K4
Roller lever	1H 7H-2138 7H-1058/2138 7H-2079-2 12H 14H 14H-1058 15H
Rod lever	10H

## Approvals



## Ordering data

①② 256-③z④-⑤-⑥

N°	Add	Description
①	Z T	Snap action ⊖ Slow action ⊖
②	Selection of actuators, see page 3-18	
③	02	2 NC contacts
	11	1 NO / 1 NC contact
	20	2 NO contacts
④	h	Slow action with staggered contacts
	ü	with overlapping contacts
⑤	M16	Cable entry M20
		Cable entry M16

## Ordering data

N°	Add	Description
⑥	2079-2	with large rubber roller and fixed 7H lever
	1058	for roller lever 7H rubber roller 50 mm
	1058/2138	with large rubber roller and lever arm length- adjustable in steps

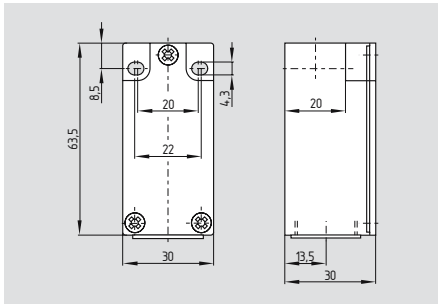
## Note

**Actuators from page 3-17**

The actuator is defined by item ② and ⑥ of the ordering data.

# Position switches with safety function

## Z/T 235



- Metal enclosure
- Mounting details to DIN EN 50047 (small)
- Compact design
- Switching function non-latching
- Snap action with constant contact pressure
- Slow action also available with overlapping or staggered contacts
- Protection class IP 67
- 2 contacts
- 1 cable entry M20 x 1.5
- Screw terminals max. 2.5 mm<sup>2</sup> with conductor ferrules
- Large range of actuating elements available
- Actuating elements can be turned in steps 4 x 90°
- Angle of roller lever adjustable in 10° steps
- High resistance to oil and fuel

## Technical data

Standards:	IEC/EN 60947-5-1 BG-GS-ET-15
Design:	DIN EN 50047 compliant
Enclosure:	zinc die-cast, paint finish
Protection class :	IP 67
Contact material:	silver
Switching elements:	changeover contact with double break or 2 NC contacts, galvanically separated contact bridges
Switching system:	⊖ IEC 60947-5-1 slow or snap action, positive break NC contact
Termination:	screw terminals
Cable section:	max. 2.5 mm <sup>2</sup> , min. 0.75 mm <sup>2</sup> (including conductor ferrules)
Cable entry:	M 20 x 1.5
U <sub>imp</sub> :	6 kV
U <sub>i</sub> :	500 V
I <sub>the</sub> :	10 A
Utilisation category:	AC-15, DC-13
I <sub>e</sub> /U <sub>e</sub> :	4 A / 230 VAC 1 A / 24 VDC
Short-circuit protection:	6 A gL/gG D-Sicherung
Ambient temperature:	- 30 °C ... + 80 °C
Mechanical life:	20 million operations
Switching frequency:	max. 5000/h
Duration to standstill:	Snap action: < 3 ms; Slow action: in accordance with the actuating speed
Switching time:	Snap action: > 5.5 ms; Slow action: in accordance with the actuating speed

## Actuators

Plunger	S
Roller plunger	R 4S 4R
Roller lever	1R K
Angled lever	3K 4K K4
Roller lever	1H 7H-2138 7H-1058/2138 7H-2079-2 12H 14H 14H-1058 15H
Rod lever	10H

## Approvals



## Ordering data

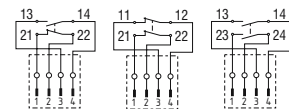
①② 235-③z④-⑤-⑥

N°	Add	Description
①	Z T	Snap action ⊖ Slow action ⊖
②	Selection of actuators, see page 3-18	
③	02	2 NC contacts
	11	1 NO / 1 NC contact
	20	2 NO contacts
④	h	Slow action with staggered contacts
	ü	with overlapping contacts
⑤	Cable entry M20	
	ST	Connector M12

## Ordering data

N°	Add	Description
⑥	2079-2	with large rubber roller and fixed 7H lever
	1058	for roller lever 7H rubber roller 50 mm
	1058/2138	with large rubber roller and lever arm length- adjustable in steps

## Plug-in connector



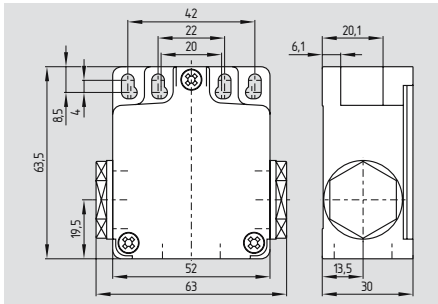
### Actuators from page 3-17

#### Note:

The actuator is defined by item ② and ⑥ of the ordering data.

# Position switches with safety function

## Z/T 255



- Metal enclosure
- Mounting details to DIN EN 50047 (small)
- extended width
- Switching function non-latching
- Snap action with constant contact pressure
- Slow action also available with overlapping or staggered contacts
- Protection class IP 67
- 2 contacts
- 2 cable entries M20 x 1.5
- Screw terminals max. 2.5 mm<sup>2</sup> with conductor ferrules
- Large range of actuating elements available
- Actuating elements can be turned in steps 4 x 90°
- Angle of roller lever adjustable in 10° steps
- High resistance to oil and fuel

## Technical data

Standards: IEC/EN 60947-5-1  
BG-GS-ET-15

Design: DIN EN 50047 compliant

Enclosure: aluminium die-cast, paint finish

Protection class : IP 67

Contact material: silver

Switching elements: changeover contact with double break or 2 NC contacts, galvanically separated contact bridges

Switching system: ⊖ IEC 60947-5-1  
slow or snap action, positive break NC contact

Termination: Screw terminals

Cable section: max. 2.5 mm<sup>2</sup>  
min. 0.75 mm<sup>2</sup>  
(including conductor ferrules)

Cable entry: 2 x M 20 x 1.5

U<sub>imp</sub>: 6 kV

U<sub>i</sub>: 500 V

I<sub>the</sub>: 10 A

Utilisation category: AC-15, DC-13

I<sub>e</sub>/U<sub>e</sub>: 4 A / 230 VAC  
1 A / 24 VDC

Short-circuit protection: 6 A gL/gG  
D-fuse

Ambient temperature: - 30 °C ... + 80 °C

Mechanical life: 20 million operations

Switching frequency: max. 5000/h

Duration to standstill: Snap action: < 3 ms;  
Slow action: in accordance with the actuating speed

Switching time: Snap action: > 5.5 ms;  
Slow action: in accordance with the actuating speed

## Actuators

Plunger	S
Roller plunger	R
	4S
	4R
Roller lever	1R
	K
Angled lever	3K
	4K
	K4
Roller lever	1H
	7H-2138
	7H-1058/2138
	7H-2079-2
	12H
	14H
	14H-1058
	15H
Rod lever	10H

## Approvals



## Ordering data

①② 255-③z④-⑤-⑥

N°	Add	Description
①	Z T	Snap action ⊖ Slow action ⊖
②		Selection of actuators, see page 3-18
③	02 11 20	2 NC contacts 1 NO / 1 NC contact 2 NO contacts
④	h ü	Slow action with staggered contacts with overlapping contacts
⑤		Cable entry M20

## Ordering data

N°	Add	Description
⑥	2079-2 1058 1058/2138	with large rubber roller and fixed 7H lever for roller lever 7H rubber roller 50 mm with large rubber roller and lever arm length-adjustable in steps

## Note

Actuators from page 3-17

### Note:

The actuator is defined by item ② and ⑥ of the ordering data.



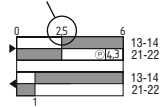
## Position switches with safety function

### Example for contact variants: Plunger S

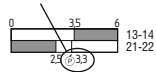
1 NO contact 1 NC contacts TS 2..-11z	Snap action	Z
0 NO contact 2 NC contacts TS 2..-02z	Slow action	T
2 NO contact 0 NC contacts TS 2..-20z	Slow action with overlapping contacts	T, ü
	Slow action with staggered contacts	T, h
	Latching function	r

Protection class IP 67 TS 2..-11z  
 Protection class IP 65 TS 2..-11y

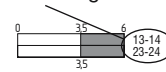
Switching point after ...mm



Positive break travel

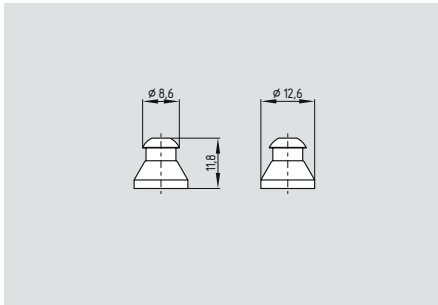


Switching contacts



## Position switches with safety function

### Plunger S-1519

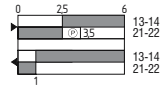


- For safety catch devices and extended width
- For position switches with latching function
- Reset by extracting the plunger head
- Actuating force: min. 4.5 N
- Suitable for Z 236, Z 256

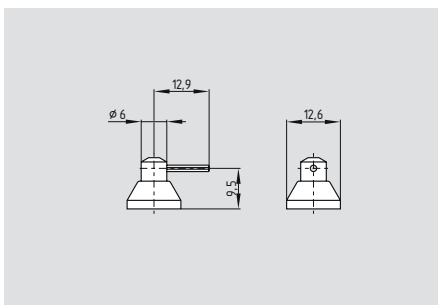
### Contact variants

Switch travel/ Snap action (Z)  
Contacts

1 NO contact ZS 2..-11zr-1519  
1 NC contacts



### Plunger S-1816

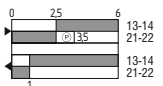


- For safety catch devices and extended width
- For position switches with latching function
- With reset lever
- Actuating force: min. 4.5 N
- Also available with actuators K, 1R, 3K, 4K and K4
- Suitable for Z 236, Z 256

### Contact variants

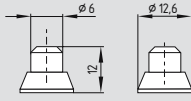
Switch travel/ Snap action (Z)  
Contacts

1 NO contact ZS 2..-11zr-1816  
1 NC contacts



# Position switches with safety function

## Plunger S

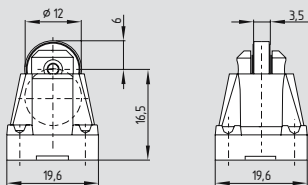


- Actuator type B to DIN EN 50047
- Actuating force: min. 9 N
- Positive-break force: 19 N
- Actuating speed in case of vertical actuation  
 Snap action: min. 10 mm/min, max. 1 m/s  
 Slow action: min. 60 mm/min, max. 1 m/s
- Metal Z/T 235, Z/T 255
- Plastic Z/T 236, Z/T 256, ZSM 241

## Contact variants

Switch travel/ Contacts	Snap action (Z)	Slow action (T)	Slow action with overlapping contacts (T, ü)	Slow action with staggered contacts (T, h)
<b>1 NO contact 1 NC contact</b>	<b>ZS 2..-11z</b> 	<b>TS 2..-11z</b> 	<b>TS 2..-11zü</b> 	
<b>2 NC contacts</b>	<b>ZS 2..-02z</b> 	<b>TS 2..-02z</b> 		<b>TS 2..-02zh</b> 
<b>2 NO contacts</b>		<b>TS 2..-20z</b> 		<b>TS 2..-20zh</b> 

## Roller plunger R



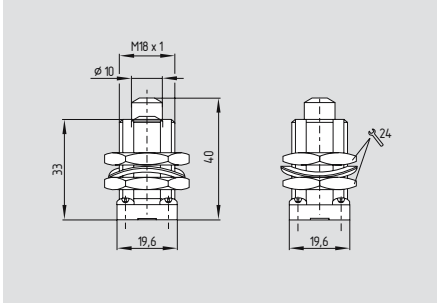
- Actuator type C to DIN EN 50047
- Actuating force: min. 9 N
- Positive-break force: 19 N
- Actuating speed with actuating angle 30° to switch axis  
 Snap action: min. 20 mm/min, max. 1 m/s  
 Slow action: min. 120 mm/min, max. 1 m/s
- Suitable for Z/T 236, Z/T 256, Z/T 235, Z/T 255

## Contact variants

Switch travel/ Contacts	Snap action (Z)	Slow action (T)	Slow action with overlapping contacts (T, ü)	Slow action with staggered contacts (T, h)
<b>1 NO contact 1 NC contact</b>	<b>ZR 2..-11z</b> 	<b>TR 2..-11z</b> 	<b>TR 2..-11zü</b> 	
<b>2 NC contacts</b>	<b>ZR 2..-02z</b> 	<b>TR 2..-02z</b> 		<b>TR 2..-02zh</b> 
<b>2 NO contacts</b>		<b>TR 2..-20z</b> 		<b>TR 2..-20zh</b> 

# Position switches with safety function

## Plunger 4S

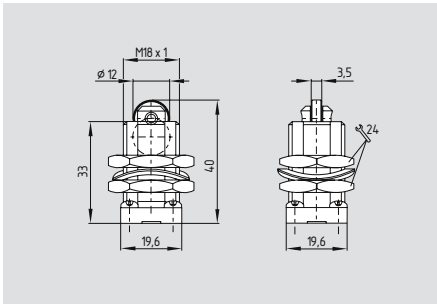


- Central fixing with threaded flange
- Actuating force: min. 9 N
- Positive-break force: 19 N
- Actuating speed in case of vertical actuation  
 Snap action: min. 10 mm/min, max. 1 m/s  
 Slow action: min. 60 mm/min, max. 1 m/s
- Suitable for Z/T 236, Z/T 256, Z/T 235, Z/T 255

## Contact variants

Switch travel/ Contacts	Snap action (Z)	Slow action (T)	Slow action with overlapping contacts (T, ü)	Slow action with staggered contacts (T, h)
<b>1 NO contact 1 NC contact</b>	<b>Z4S 2..-11z</b> 	<b>T4S 2..-11z</b> 	<b>T4S 2..-11zü</b> 	
<b>2 NC contacts</b>	<b>Z4S 2..-02z</b> 	<b>T4S 2..-02z</b> 		<b>T4S 2..-02zh</b> 
<b>2 NO contacts</b>		<b>T4S 2..-20z</b> 		<b>T4S 2..-20zh</b> 

## Roller plunger 4R



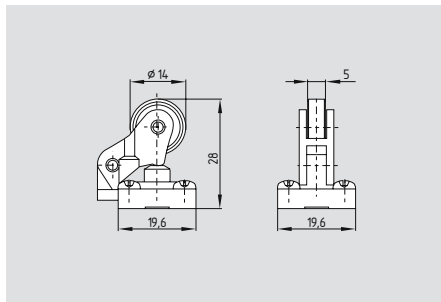
- Central fixing with threaded flange
- Actuating force: min. 9 N
- Positive-break force: 19 N
- Actuating speed with actuating angle 30° to switch axis  
 Snap action: min. 20 mm/min, max. 1 m/s  
 Slow action: min. 120 mm/min, max. 1 m/s
- Suitable for Z/T 236, Z/T 256, Z/T 235, Z/T 255

## Contact variants

Switch travel/ Contacts	Snap action (Z)	Slow action (T)	Slow action with overlapping contacts (T, ü)	Slow action with staggered contacts (T, h)
<b>1 NO contact 1 NC contact</b>	<b>Z4R 2..-11z</b> 	<b>T4R 2..-11z</b> 	<b>T4R 2..-11zü</b> 	
<b>2 NC contacts</b>	<b>Z4R 2..-02z</b> 	<b>T4R 2..-02z</b> 		<b>T4R 2..-02zh</b> 
<b>2 NO contacts</b>		<b>T4R 2..-20z</b> 		<b>T4R 2..-20zh</b> 

## Position switches with safety function

### Roller lever 1R

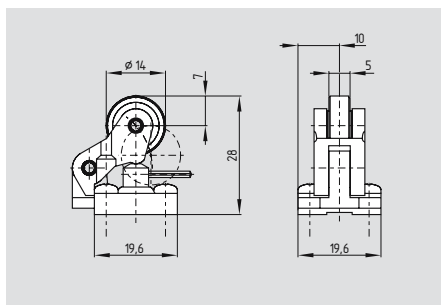


- The roller is located centrally over plunger, which results in a function similar to actuator R
- Actuating force: min. 9 N
- Positive-break force: 19 N
- Actuating speed with actuating angle 30° to switch axis  
 Snap action: min. 27 mm/min, max. 1 m/s  
 Slow action: min. 160 mm/min, max. 1 m/s
- The actuator can be repositioned clockwise by 90° steps (u90, u180, u270)
- Suitable for Z/T 236, Z/T 256, Z/T 235, Z/T 255

### Contact variants

Switch travel/ Contacts	Snap action (Z)	Slow action (T)	Slow action with overlapping contacts (T, ü)
<b>1 NO contact 1 NC contact</b>	<b>Z1R 2..-11z</b> 	<b>T1R 2..-11z</b> 	<b>T1R 2..-11zü</b> 
<b>2 NC contacts</b>	<b>Z1R 2..-02z</b> 	<b>T1R 2..-02z</b> 	
<b>2 NO contacts</b>		<b>T1R 2..-20z</b> 	

### Roller lever 1R-1816



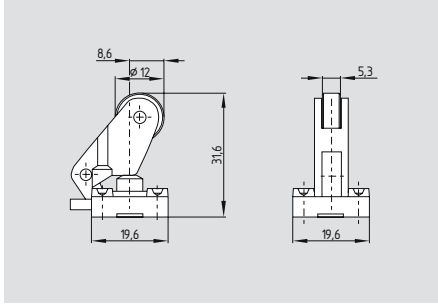
- **For position switches with latching function**
- The roller is located centrally over plunger, which results in a function similar to actuator R
- Actuating force: min. 9 N
- Positive-break force: 19 N
- With reset lever
- Actuating speed with actuating angle 30° to switch axis  
 Actuating speed: min. 27 mm/min, max. 1 m/s
- Roller with lateral offset with regard to the plunger
- The actuator can be repositioned clockwise by 90° steps (u90, u270)
- Suitable for Z 236, Z 256 with latching

### Contact variants

Switch travel/ Contacts	Snap action (Z)
<b>1 NO contact 1 NC contact</b>	<b>Z1R 2..-11zr</b> 
<b>2 NC contacts</b>	<b>Z1R 2..-02zr</b> 

# Position switches with safety function

## Roller lever K

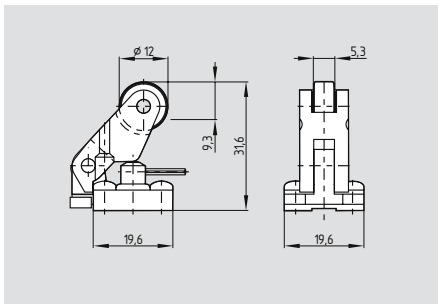


- Actuator type E to DIN EN 50047
- Actuating force: min. 9 N
- Positive-break force: 19 N
- Actuating speed with actuating angle 30° to switch axis  
 Snap action: min. 24 mm/min, max. 1 m/s  
 Slow action: min. 240 mm/min, max. 1 m/s
- Roller with lateral offset with regard to the plunger
- The actuator can be repositioned clockwise by 90° steps (u90, u180, u270)
- Suitable for Z/T 236, Z/T 256, Z/T 235, Z/T 255

## Contact variants

Switch travel/ Contacts	Snap action (Z)	Slow action (T)	Slow action with overlapping contacts (T, ü)	Slow action with staggered contacts (T, h)
<b>1 NO contact 1 NC contact</b>	<b>ZK 2..-11z</b> 	<b>TK 2..-11z</b> 	<b>TK 2..-11zü</b> 	
<b>2 NC contacts</b>	<b>ZK 2..-02z</b> 	<b>TK 2..-02z</b> 		<b>TK 2..-02zh</b> 
<b>2 NO contacts</b>		<b>TK 2..-20z</b> 		<b>TK 2..-20zh</b> 

## Roller lever K-1816



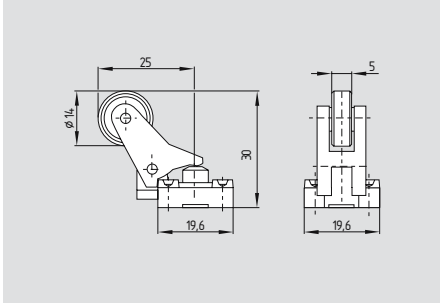
- **For position switches with latching function**
- Actuator type E to DIN EN 50047
- With reset lever
- Actuating force: min. 9 N
- Positive-break force: 19 N
- Actuating speed with actuating angle 30° to switch axis  
 Actuating speed: min. 24 mm/min, max. 1 m/s
- Roller with lateral offset with regard to the plunger
- The actuator can be repositioned clockwise by 90° steps (u90, u270)
- Suitable for Z 236, Z 256 with latching

## Contact variants

Switch travel/ Contacts	Snap action (Z)
<b>1 NO contact 1 NC contact</b>	<b>ZK 2..-11zr</b> 
<b>2 NC contacts</b>	<b>ZK 2..-02zr</b> 

# Position switches with safety function

## Angled lever 3K

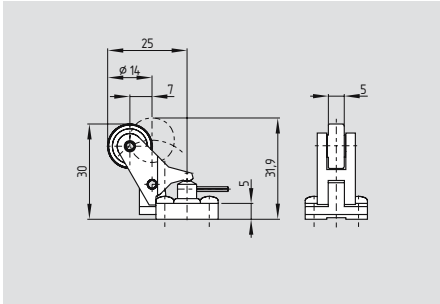


- Actuating force: min. 9 N
- Positive-break force: 19 N
- Actuating speed with actuating angle 30° to switch axis
  - Snap action: min. 27 mm/min, max. 1 m/s
  - Slow action: min. 160 mm/min, max. 1 m/s
- Actuation parallel to switch axis from below
- The actuator can be repositioned clockwise by 90° steps (u90, u180, u270)
- Suitable for Z/T 236, Z/T 256, Z/T 235, Z/T 255

## Contact variants

Switch travel/ Contacts	Snap action (Z)	Slow action (T)	Slow action with overlapping contacts (T, ü)	Slow action with staggered contacts (T, h)
<b>1 NO contact 1 NC contact</b>	<b>Z3K 2..-11z</b> 	<b>T3K 2..-11z</b> 	<b>T3K 2..-11zü</b> 	
<b>2 NC contacts</b>	<b>Z3K 2..-02z</b> 	<b>T3K 2..-02z</b> 		<b>T3K 2..-02zh</b> 
<b>2 NO contacts</b>		<b>T3K 2..-20z</b> 		<b>T3K 2..-20zh</b> 

## Angled lever 3K-1816



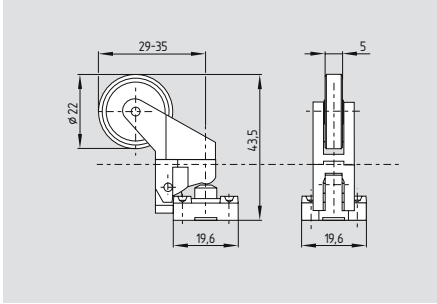
- **For position switches with latching function**
- With reset lever
- Actuating force: min. 9 N
- Positive-break force: 19 N
- Actuating speed with actuating angle 30° to switch axis
  - Actuating speed: min. 27 mm/min, max. 1 m/s
- Actuation parallel to switch axis from below, therefore only suitable for small enclosures (Z 235 and Z 236)
- The actuator can be repositioned clockwise by 90° steps (u90, u270)
- Suitable for Z 236, Z 235 with latching

## Contact variants

Switch travel/ Contacts	Snap action (Z)
<b>1 NO contact 1 NC contact</b>	<b>Z3K 2..-11zr</b> 
<b>2 NC contacts</b>	<b>Z3K 2..-02zr</b> 

# Position switches with safety function

## Angled lever 4K

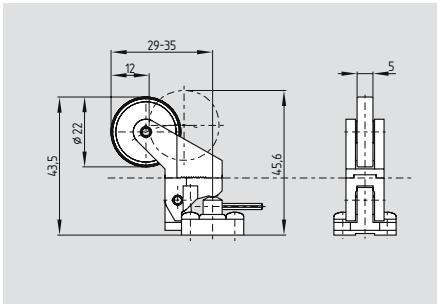


- Actuating force: min. 6 N
- Positive-break force: 16 N
- Actuating speed with actuating angle 30° to switch axis
  - Snap action: min. 44 mm/min, max. 1 m/s
  - Slow action: min. 264 mm/min, max. 1 m/s
- adjustable
- Actuation parallel to switch axis from below
- The actuator can be repositioned clockwise by 90° steps (u90, u180, u270)
- Perfectly fit as buffer or for positioning tasks
- Suitable for Z/T 236, Z/T 256, Z/T 235, Z/T 255

## Contact variants

Switch travel/ Contacts	Snap action (Z)	Slow action (T)	Slow action with overlapping contacts (T, ü)	Slow action with staggered contacts (T, h)
<b>1 NO contact 1 NC contact</b>	<b>Z4K 2..-11z</b> 	<b>T4K 2..-11z</b> 	<b>T4K 2..-11zü</b> 	
<b>2 NC contacts</b>	<b>Z4K 2..-02z</b> 	<b>T4K 2..-02z</b> 		<b>T4K 2..-02zh</b> 
<b>2 NO contacts</b>		<b>T4K 2..-20z</b> 		<b>T4K 2..-20zh</b> 

## Angled lever 4K-1816



- **For position switches with latching function**
- With reset lever
- Actuating force: min. 6 N
- Positive-break force: 16 N
- Actuating speed with actuating angle 30° to switch axis
  - Actuating speed: min. 44 mm/min, max. 1 m/s
- adjustable
- Actuation parallel to switch axis from below
- The actuator can be repositioned clockwise by 90° steps (u90, u270)
- Perfectly fit as buffer or for positioning tasks
- Suitable for Z 236, Z 235 with latching

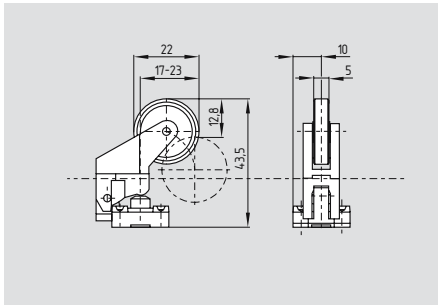
## Contact variants

Switch travel/ Contacts	Snap action (Z)
<b>1 NO contact 1 NC contact</b>	<b>Z4K 2..-11zr</b> 
<b>2 NC contacts</b>	<b>Z4K 2..-02zr</b> 



# Position switches with safety function

## Angled lever K4

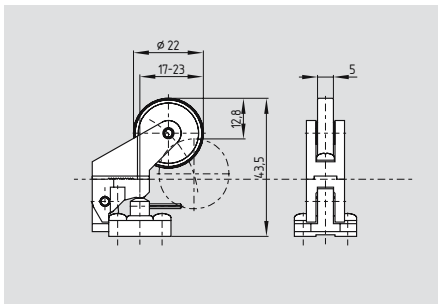


- Actuating force: min. 6 N
- Positive-break force: 16 N
- Actuating speed with actuating angle 30° to switch axis  
 Snap action: min. 56 mm/min, max. 1 m/s  
 Slow action: min. 336 mm/min, max. 1 m/s
- adjustable
- The actuator can be repositioned clockwise by 90° steps (u90, u180, u270)
- Perfectly fit as buffer or for positioning tasks
- Suitable for Z/T 236, Z/T 256, Z/T 235, Z/T 255

## Contact variants

Switch travel/ Contacts	Snap action (Z)	Slow action (T)	Slow action with overlapping contacts (T, ü)	Slow action with staggered contacts (T, h)
<b>1 NO contact 1 NC contact</b>	<b>ZK4 2..-11z</b> 	<b>TK4 2..-11z</b> 	<b>TK4 2..-11zü</b> 	
<b>2 NC contacts</b>	<b>ZK4 2..-02z</b> 	<b>TK4 2..-02z</b> 		<b>TK4 2..-02zh</b> 
<b>2 NO contacts</b>		<b>TK4 2..-20z</b> 		<b>TK4 2..-20zh</b> 

## Angled lever K4-1816



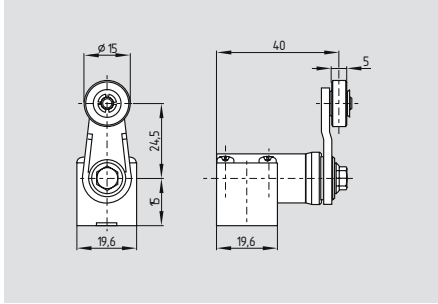
- **For position switches with latching function**
- With reset lever
- Actuating force: min. 6 N
- Positive-break force: 16 N
- Actuating speed with actuating angle 30° to switch axis  
 Actuating speed: min. 56 mm/min, max. 1 m/s
- adjustable
- The actuator can be repositioned clockwise by 90° steps (u90, u270)
- Perfectly fit as buffer
- Suitable for Z 236, Z 235

## Contact variants

Switch travel/ Contacts	Snap action (Z)
<b>1 NO contact 1 NC contact</b>	<b>ZK4 2..-11zr</b> 
<b>2 NC contacts</b>	<b>ZK4 2..-02zr</b> 

# Position switches with safety function

## Roller lever 1H

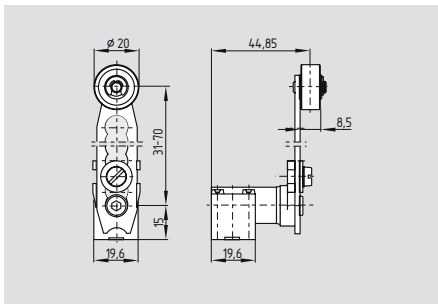


- Actuator type A to DIN EN 50047
- Lever angle adjustable in 10° steps
- Actuating torque: min. 15 Ncm
- Positive-break torque: 18.5 Ncm
- Actuating speed with actuating angle 30° to switch axis  
 Snap action: min. 92 mm/min, max. 1 m/s  
 Slow action : min. 492 mm/min, max. 1 m/s
- Plastic lever
- Actuator can be fitted subsequently
- Actuator can be turned clockwise in 90° steps (u90, u180, u270)
- Suitable for Z/T 236, Z/T 256, Z/T 235, Z/T 255

## Contact variants

Switch travel/ Contacts	Snap action (Z)	Slow action (T)	Slow action with overlapping contacts (T, ü)	Slow action with staggered contacts (T, h)
<b>1 NO contact 1 NC contact</b>	<b>ZV1H 2...-11z</b> 	<b>TV1H 2...-11z</b> 	<b>TV1H 2...-11zü</b> 	
<b>2 NC contacts</b>	<b>ZV1H 2...-02z</b> 	<b>TV1H 2...-02z</b> 		<b>TV1H 2...-02zh</b> 
<b>2 NO contacts</b>		<b>TV1H 2...-20z</b> 		<b>TV1H 2...-20zh</b> 

## Roller lever 7H-2138



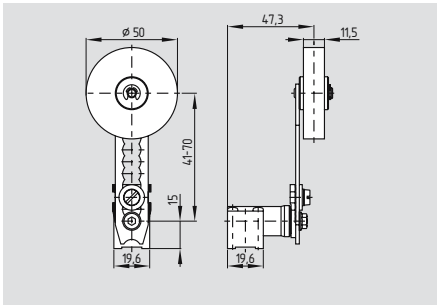
- Lever arm length adjustable in steps
- Lever angle adjustable in 10° steps
- Actuating torque: min. 15 Ncm
- Positive-break torque: 18.5 Ncm
- Actuating speed with actuating angle 30° to switch axis  
 Snap action: min. 240 mm/min, max. 1 m/s  
 Slow action : min. 1440 mm/min, max. 1 m/s
- Metal lever
- Actuator can be turned clockwise in 90° steps (u90, u180, u270)
- Suitable for Z/T 236, Z/T 256, Z/T 235, Z/T 255

## Contact variants

Switch travel/ Contacts	Snap action (Z)	Slow action (T)	Slow action with overlapping contacts (T, ü)	Slow action with staggered contacts (T, h)
<b>1 NO contact 1 NC contact</b>	<b>ZV7H 2...-11z-2138</b> 	<b>TV7H 2...-11z-2138</b> 	<b>TV7H 2...-11zü-2138</b> 	
<b>2 NC contacts</b>	<b>ZV7H 2...-02z-2138</b> 	<b>TV7H 2...-02z-2138</b> 		<b>TV7H 2...-02zh-2138</b> 
<b>2 NO contacts</b>		<b>TV7H 2...-20z-2138</b> 		<b>TV7H 2...-20zh-2138</b> 

# Position switches with safety function

## Roller lever 7H-1058/2138

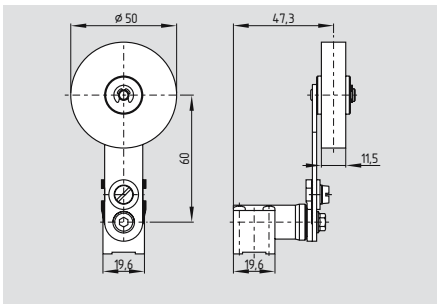


- Lever arm length adjustable in steps
- With large rubber roller
- Rubber roller shore hardness 50
- Lever angle adjustable in 10° steps
- Actuator can be turned in steps 4 x 90°
- Actuating torque: min. 15 Ncm
- Positive-break torque: 18.5 Ncm
- Actuating speed with actuating angle 30° to switch axis  
 Snap action: min. 240 mm/min, max. 1 m/s  
 Slow action: min. 1440 mm/min, max. 1 m/s
- Metal lever
- Actuator head gasket available, ordering suffix -z
- Suitable for Z/T 236, Z/T 256, Z/T 235, Z/T 255

## Contact variants

Switch travel/ Contacts	Snap action (Z)	Slow action (T)	Slow action with overlapping contacts (T, ü)	Slow action with staggered contacts (T, h)
<b>1 NO contact 1 NC contact</b>	<b>ZV7H 2...-11z-1058/2138</b> 	<b>TV7H 2...-11z-1058/2138</b> 	<b>TV7H 2...-11zü-1058/2138</b> 	
<b>2 NC contacts</b>	<b>ZV7H 2...-02z-1058/2138</b> 	<b>TV7H 2...-02z-1058/2138</b> 		<b>TV7H 2...-02zh-1058/2138</b> 
<b>2 NO contacts</b>		<b>TV7H 2...-20z-1058/2138</b> 		<b>TV7H 2...-20zh-1058/2138</b> 

## Roller lever 7H-2079-2



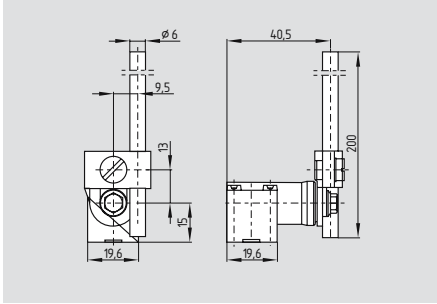
- With large rubber roller
- 7H lever not length-adjustable
- Lever angle adjustable in 10° steps
- Actuator can be turned in steps 4 x 90°
- Actuating torque: min. 15 Ncm
- Positive-break torque: 18.5 Ncm
- Actuating speed with actuating angle 30° to switch axis  
 Snap action: min. 240 mm/min, max. 1 m/s  
 Slow action: min. 1440 mm/min, max. 1 m/s
- Metal lever
- Suitable for Z/T 236, Z/T 256, Z/T 235, Z/T 255

## Contact variants

Switch travel/ Contacts	Snap action (Z)	Slow action (T)	Slow action with overlapping contacts (T, ü)	Slow action with staggered contacts (T, h)
<b>1 NO contact 1 NC contact</b>	<b>ZV7H 2...-11z-2079-2</b> 	<b>TV7H 2...-11z-2079-2</b> 	<b>TV7H 2...-11zü-2079-2</b> 	
<b>2 NC contacts</b>	<b>ZV7H 2...-02z-2079-2</b> 	<b>TV7H 2...-02z-2079-2</b> 		<b>TV7H 2...-02zh-2079-2</b> 
<b>2 NO contacts</b>		<b>TV7H 2...-20z-2079-2</b> 		<b>TV7H 2...-20zh-2079-2</b> 

# Position switches with safety function

## Rod lever 10H

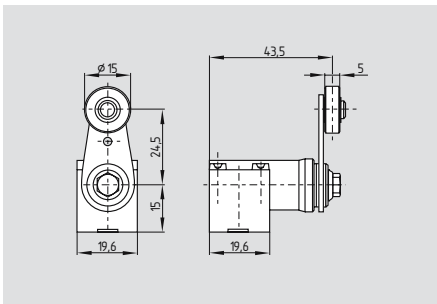


- Only suitable for positioning tasks
- Plastic rod
- Lever angle adjustable in 10° steps
- Actuator can be turned in steps 4 x 90°
- Actuating torque: min. 15 Ncm
- Actuating speed with actuating angle 30° to switch axis  
 Snap action: min. 687 mm/min, max. 1 m/s  
 Slow action: min. 4122 mm/min, max. 1 m/s
- Aluminium rod, ordering suffix -1183
- Suitable for Z/T 236, Z/T 256, Z/T 235, Z/T 255

## Contact variants

Switch travel/ Contacts	Snap action (Z)	Slow action (T)	Slow action with overlapping contacts (T, ü)	Slow action with staggered contacts (T, h)
<b>1 NO contact 1 NC contact</b>	<b>ZV10H 2..-11z</b> 	<b>TV10H 2..-11z</b> 	<b>TV10H 2..-11zü</b> 	
<b>2 NC contacts</b>	<b>ZV10H 2..-02z</b> 	<b>TV10H 2..-02z</b> 		<b>TV10H 2..-02zh</b> 
<b>2 NO contacts</b>		<b>TV10H 2..-20z</b> 		<b>TV10H 2..-20zh</b> 

## Roller lever 12H



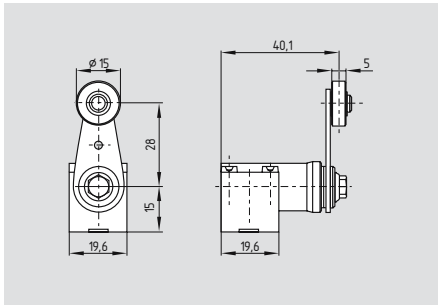
- Actuator type A to DIN EN 50047
- Lever angle adjustable in 10° steps
- Actuator can be turned in steps 4 x 90°
- Actuating torque: min. 15 Ncm
- Positive-break torque: 18.5 Ncm
- Actuating speed with actuating angle 30° to switch axis  
 Snap action: min. 687 mm/min, max. 1 m/s  
 Slow action: min. 4122 mm/min, max. 1 m/s
- Metal lever
- Suitable for Z/T 236, Z/T 256, Z/T 235, Z/T 255

## Contact variants

Switch travel/ Contacts	Snap action (Z)	Slow action (T)	Slow action with overlapping contacts (T, ü)	Slow action with staggered contacts (T, h)
<b>1 NO contact 1 NC contact</b>	<b>ZV12H 2..-11z</b> 	<b>TV12H 2..-11z</b> 	<b>TV12H 2..-11zü</b> 	
<b>2 NC contacts</b>	<b>ZV12H 2..-02z</b> 	<b>TV12H 2..-02z</b> 		<b>TV12H 2..-02zh</b> 
<b>2 NO contacts</b>		<b>TV12H 2..-20z</b> 		<b>TV12H 2..-20zh</b> 

# Position switches with safety function

## Roller lever 14H

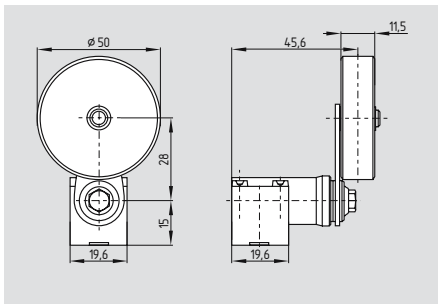


- Lever angle adjustable in 10° steps
- Actuator can be turned in steps 4 x 90°
- Actuating torque: min. 15 Ncm
- Positive-break torque: 18.5 Ncm
- Actuating speed with actuating angle 30° to switch axis  
 Snap action: min. 687 mm/min, max. 1 m/s  
 Slow action: min. 4122 mm/min, max. 1 m/s
- Metal lever
- Suitable for Z/T 236, Z/T 256, Z/T 235, Z/T 255

## Contact variants

Switch travel/ Contacts	Snap action (Z)	Slow action (T)	Slow action with overlapping contacts (T, ü)	Slow action with staggered contacts (T, h)
<b>1 NO contact 1 NC contact</b>	<b>ZV14H 2..-11z</b> 	<b>TV14H 2..-11z</b> 	<b>TV14H 2..-11zü</b> 	
<b>2 NC contacts</b>	<b>ZV14H 2..-02z</b> 	<b>TV14H 2..-02z</b> 		<b>TV14H 2..-02zh</b> 
<b>2 NO contacts</b>		<b>TV14H 2..-20z</b> 		<b>TV14H 2..-20zh</b> 

## Roller lever 14H-1058



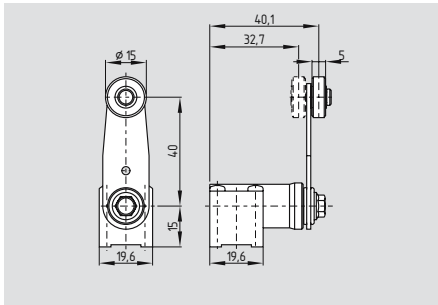
- With large rubber roller
- Lever angle adjustable in 10° steps
- Actuator can be turned in steps 4 x 90°
- Actuating torque: min. 15 Ncm
- Positive-break torque: 18.5 Ncm
- Actuating speed with actuating angle 30° to switch axis  
 Snap action: min. 687 mm/min, max. 1 m/s  
 Slow action: min. 4122 mm/min, max. 1 m/s
- Metal lever
- Suitable for Z/T 236, Z/T 256, Z/T 235, Z/T 255

## Contact variants

Switch travel/ Contacts	Snap action (Z)	Slow action (T)	Slow action with overlapping contacts (T, ü)	Slow action with staggered contacts (T, h)
<b>1 NO contact 1 NC contact</b>	<b>ZV14H 2..-11z-1058</b> 	<b>TV14H 2..-11z-1058</b> 	<b>TV14H 2..-11zü-1058</b> 	
<b>2 NC contacts</b>	<b>ZV14H 2..-02z-1058</b> 	<b>TV14H 2..-02z-1058</b> 		<b>TV14H 2..-02zh-1058</b> 
<b>2 NO contacts</b>		<b>TV14H 2..-20z-1058</b> 		<b>TV14H 2..-20zh-1058</b> 

# Position switches with safety function

## Roller lever 15H



- Lever angle adjustable in 10° steps
- Actuator can be turned in steps 4 x 90°
- Actuating torque: min. 15 Ncm
- Positive-break torque: 18.5 Ncm
- Actuating speed with actuating angle 30° to switch axis  
 Snap action: min. 687 mm/min, max. 1 m/s  
 Slow action : min. 4122 mm/min, max. 1 m/s
- Metal lever
- Suitable for Z/T 236, Z/T 256, Z/T 235, Z/T 255

## Contact variants

Switch travel/ Contacts	Snap action (Z)	Slow action (T)	Slow action with overlapping contacts (T, ü)	Slow action with staggered contacts (T, h)
<b>1 NO contact 1 NC contact</b>	<b>ZV15H 2..-11z</b> 	<b>TV15H 2..-11z</b> 	<b>TV15H 2..-11zü</b> 	
<b>2 NC contacts</b>	<b>ZV15H 2..-02z</b> 	<b>TV15H 2..-02z</b> 		<b>TV15H 2..-02zh</b> 
<b>2 NO contacts</b>		<b>TV15H 2..-20z</b> 		<b>TV15H 2..-20zh</b> 



## Position switches with safety function

	ZSM 241	Z 231-01y-1256	Z/T 236
<b>Standards</b>	IEC/EN 60947-1, DIN VDE 0660-200, BG-GS-ET-15, EN 81-1/2	IEC/EN 60947-5-1, DIN VDE 0660-200, DIN VDE 0660-206, IEC 204/VDE 0113, EN 50047, UL, EN 81	IEC/EN 60947-5-1, BG-GS-ET-15 UL
<b>Design</b>	DIN EN 50047 compliant	DIN EN 50047 compliant	DIN EN 50047 compliant
<b>Switching behaviour</b>	Snap action (Z)	Snap action (Z)	Snap action (Z), Slow action (T)
<b>Enclosure</b>	glass-fibre reinforced thermoplastic, self-extinguishing	glass-fibre reinforced thermoplastic, self-extinguishing	glass-fibre reinforced thermoplastic, self-extinguishing
<b>Protection class</b>	IP 54	IP 65	IP 67
<b>Contact material</b>	Silver	Silver	Silver
<b>Switching elements</b>	NC contact with double break	NC contact with double break	Changeover contact with double break or 2 NC contacts, galvanically separated contact bridges
<b>Switching system</b>	Positive break NC contact magnetic snap action	Positive break NC contact magnetic snap action	Positive break NC contact
<b>Termination</b>	Wire 1 m	Screw terminals	Screw terminals
<b>Cable section</b>		max. 2.5 mm <sup>2</sup> (including conductor ferrules)	1,5 mm <sup>2</sup> – 2.5 mm <sup>2</sup> (including conductor ferrules)
<b>Cable entry</b>	Fixed cable connection	M 20 x 1.5	M 20 x 1.5
<b>U<sub>imp</sub></b>	4 kV	4 kV	6 kV
<b>U<sub>i</sub></b>	250 V	250 VAC	500 V
<b>I<sub>the</sub></b>	10 A	10 A	10 A
<b>Utilisation category</b>	AC-15 / DC-13	AC-15	AC-15 DC-13
<b>I<sub>e</sub>/U<sub>e</sub></b>	4 A / 230 VAC 4 A / 24 VDC	4 A / 230 VAC 2,5 A / 400 VAC 1 A / 500 VAC	4 A / 230 VAC 1 A / 24 VDC
<b>Short-circuit protection</b>	4 A GL-gI	10 A (slow blow); 16 A (quick blow)	6 A gL/gG D-fuse
<b>Ambient temperature</b>	– 25 °C ... + 40 °C	– 30 °C ... + 80 °C	– 30 °C ... + 80 °C
<b>Mechanical life</b>	50 thousand operations	20 million operations	20 million operations
<b>Switching frequency</b>		5000 / h	5000 / h
<b>Actuating force</b>	6 N (± 2 N)	min. 6 ± 2 N	
<b>Duration to standstill</b>			
Snap action (Z)	3 ms	3 ms	< 3 ms
Slow action (T)	–	–	In accordance with the actuating speed
<b>Switching time</b>			
Snap action (Z)		5 ms with an actuating speed of 10 mm/min at the plunger	> 5.5 ms
Slow action (T)	–	–	in accordance with the actuating speed

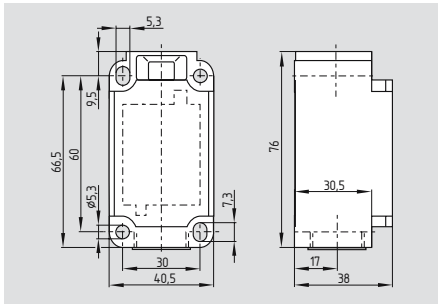


## Position switches with safety function

Z/T 256	Z/T 235	Z/T 255	
IEC/EN 60947-5-1, BG-GS-ET-15 UL	IEC/EN 60947-5-1, BG-GS-ET-15 UL	IEC/EN 60947-5-1, BG-GS-ET-15 UL	<b>Standards</b>
DIN EN 50047 compliant	DIN EN 50047 compliant	DIN EN 50047 compliant	<b>Design</b>
Snap action (Z), Slow action (T)	Snap action (Z), Slow action (T)	Snap action (Z), Slow action (T)	<b>Switching behaviour</b>
glass-fibre reinforced thermoplastic, self-extinguishing	Zinc die-cast, paint finish	Aluminium die-cast, paint finish	<b>Enclosure</b>
IP 67	IP 67	IP 67	<b>Protection class</b>
Silver	Silver	Silver	<b>Contact material</b>
Changeover contact with double break or 2 NC contacts, galvanically separated contact bridges	Changeover contact with double break or 2 NC contacts, galvanically separated contact bridges	Changeover contact with double break or 2 NC contacts, galvanically separated contact bridges	<b>Switching elements</b>
Positive break NC contact	Positive break NC contact	Positive break NC contact	<b>Switching system</b>
Screw terminals	Screw terminals	Screw terminals	<b>Termination</b>
1.5 mm <sup>2</sup> – 2.5 mm <sup>2</sup> (including conductor ferrules)	0.75 mm <sup>2</sup> – 2.5 mm <sup>2</sup> (including conductor ferrules)	0.75 mm <sup>2</sup> – 2.5 mm <sup>2</sup> (including conductor ferrules)	<b>Cable section</b>
2 x M 20 x 1.5	M 20 x 1.5	2 x M 20 x 1.5	<b>Cable entry</b>
6 kV	6 kV	6 kV	<b>U<sub>imp</sub></b>
500 V	500 V	500 V	<b>U<sub>i</sub></b>
10 A	10 A	10 A	<b>I<sub>the</sub></b>
AC-15 DC-13	AC-15, DC-13	AC-15, DC-13	<b>Utilisation category</b>
4 A / 230 VAC 1 A / 24 VDC	4 A / 230 VAC 1 A / 24 VDC	4 A / 230 VAC 1 A / 24 VDC	<b>I<sub>e</sub>/U<sub>e</sub></b>
6 A gL/gG D-fuse	6 A gL/gG D-fuse	6 A gL/gG D-fuse	<b>Short-circuit protection</b>
- 30 °C ... + 80 °C	- 30 °C ... + 80 °C	- 30 °C ... + 80 °C	<b>Ambient temperature</b>
20 million operations	20 million operations	20 million operations	<b>Mechanical life</b>
5000 / h	5000 / h	5000 / h	<b>Switching frequency</b>
			<b>Actuating force</b>
< 3 ms	< 3 ms	< 3 ms	<b>Duration to standstill</b> Snap action (Z)
In accordance with the actuating speed	In accordance with the actuating speed	In accordance with the actuating speed	Slow action (T)
> 5.5 ms	> 5.5 ms	> 5.5 ms	<b>Switching time</b> Snap action (Z)
In accordance with the actuating speed	In accordance with the actuating speed	In accordance with the actuating speed	Slow action (T)

# Position switches with safety function

## T 336 with latching



- Switching function latching
- T 336 with latching only with roller and rod lever
- Thermoplastic enclosure
- Mounting details to DIN EN 50041 (large)
- Compact design
- Protection class IP 67
- double insulated
- 2 contacts
- 1 cable entry M20 x 1.5
- Screw terminals max. 2.5 mm<sup>2</sup> with conductor ferrules
- Actuating elements can be turned in steps 4 x 90°
- Angle of roller lever adjustable in 10° steps
- High resistance to oil and fuel

## Technical data

Standards:	IEC/EN 60947-5-1 BG-GS-ET-15
Design:	DIN EN 50041
Enclosure:	glass-fibre reinforced thermoplastic, self-extinguishing
Protection class :	IP 67
Contact material:	silver
Switching elements:	changeover contact with double break Zb or 2 NC contacts, galvanically separated contact bridges
Switching system:	⊖ IEC 60947-5-1 Slow action, Positive break NC contact
Termination:	Screw terminals
Cable section:	max. 2.5 mm <sup>2</sup> (including conductor ferrules)
Cable entry:	M 20 x 1.5
U <sub>imp</sub> :	6 kV
U <sub>j</sub> :	500 V
I <sub>the</sub> :	10 A
Utilisation category:	AC-15; DC-13
I <sub>e</sub> /U <sub>e</sub> :	4 A / 230 VAC 1A / 24 VDC
Short-circuit protection:	6 A gL/gG D-fuse
Ambient temperature:	- 30 °C ... + 80 °C
Mechanical life:	30 million operations
Switching frequency:	max. 5000/h
Duration to standstill:	< 2ms
Switching time:	in accordance with the actuating speed

## Actuators

Roller lever	H 7H-2138 7H-1058/2138 7H-2079-2 H-1058
Rod lever	10H

## Approvals



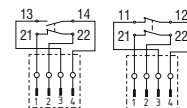
## Ordering data

T ① 336-②yr③-④

N°	Add	Description
①		Selection of actuators, see page 3-38
②	11	1 NO / 1 NC contact
	02	2 NC contacts
③	M20	Cable entry M20
	NPT	Cable entry NPT 1/2"
	ST	Connector M12
④	2079-2	with large rubber roller and fixed 7H lever
	1058	for roller lever rubber roller 50 mm
	1058/2138	with large rubber roller and lever arm length- adjustable in steps

## Ordering data

## Plug-in connector



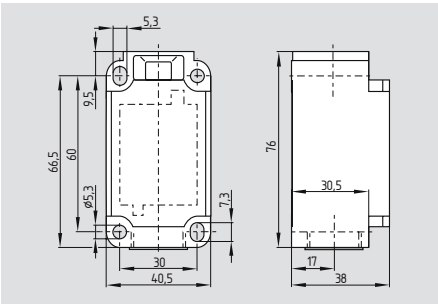
Actuators from page 3-36

### Note:

The actuator is defined by item ① and ④ the ordering data.

# Position switches with safety function

## T 336 without latching



- Thermoplastic enclosure
- Mounting details to DIN EN 50041 (large)
- Compact design
- Switching function non-latching
- Slow action also available with overlapping or staggered contacts
- Protection class IP 67
- double insulated □
- 2 contacts
- 1 cable entry M20 x 1.5
- Screw terminals max. 2.5 mm<sup>2</sup> with conductor ferrules
- Large range of actuating elements available
- Actuating elements can be turned in steps 4 x 90°
- Angle of roller lever adjustable in 10° steps
- High resistance to oil and fuel

## Technical data

Standards:	IEC/EN 60947-5-1 BG-GS-ET-15
Design:	DIN EN 50041
Enclosure:	glass-fibre reinforced thermoplastic, self-extinguishing
Protection class :	IP 67
Contact material:	Silver
Switching elements:	changeover contact with double break Zb or 2 NC contacts, galvanically separated contact bridges
Switching system:	⊖ IEC 60947-5-1 Slow action, Positive break NC contact
Termination:	Screw terminals, male connector M12
Cable section:	max. 2.5 mm <sup>2</sup> (including conductor ferrules)
Cable entry:	M 20 x 1.5
U <sub>imp</sub> :	6 kV
U <sub>i</sub> :	500 V
I <sub>the</sub> :	10 A
Utilisation category:	AC-15; DC-13
I <sub>e</sub> /U <sub>e</sub> :	4 A / 230 VAC 1A / 24 VDC
Short-circuit protection:	6 A gL/gG D-fuse
Ambient temperature:	- 30 °C ... + 80 °C
Mechanical life:	30 million operations
Switching frequency:	max. 5000/h
Duration to standstill:	< 2ms
Switching time:	in accordance with the actuating speed

## Actuators

Plunger	S
Roller plunger	R
Roller lever	1K
Angled lever	3K
Roller lever	H 7H-2138 7H-1058/2138 7H-2079-2
Rod lever	10H

### Approvals



## Ordering data

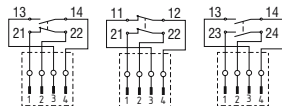
T ① 336-②z③-④-⑤

N°	Add	Description
①		Selection of actuators, see page 3-38
②	11	1 NO / 1 NC contacts
	02	2 NC contacts
	20	2 NO contact
	01/01	1 NC contacts left / 1 NC contacts right
③	h	Slow action with staggered contacts
	ü	with overlapping contacts
④	M20	Cable entry M20
	NPT	Cable entry NPT 1/2"
	ST	Connector M12

## Ordering data

N°	Add	Description
⑤	2079-2	with large rubber roller and fixed 7H lever
	1058	for roller lever rubber roller 50 mm
	1058/2138	rubber roller 50 mm and lever arm length- adjustable in steps

## Plug-in connector

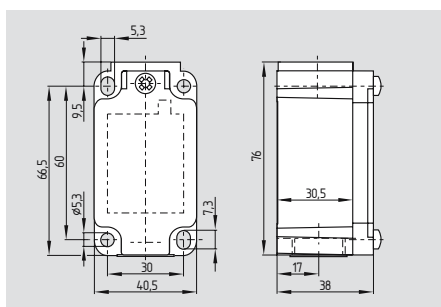


### Actuators from page 3-36

**Note:**  
The actuator is defined by item ① and ⑤ the ordering data.

# Position switches with safety function

## T 335



- Metal enclosure
- Mounting details to DIN EN 50041 (large)
- Compact design
- Switching function non-latching
- Slow action also available with overlapping or staggered contacts
- Protection class IP 67
- max. 3 contacts
- 1 cable entry M20 x 1.5
- Screw terminals max. 2.5 mm<sup>2</sup> with conductor ferrules
- Large range of actuating elements available
- Actuating elements can be turned in steps 4 x 90°
- Angle of roller lever adjustable in 10° steps
- High resistance to oil and fuel

## Technical data

Standards:	IEC/EN 60947-5-1 BG-GS-ET-15
Design:	DIN EN 50041
Enclosure:	light-metal die-cast, paint finish
Protection class :	IP 67
Contact material:	Silver
Switching elements:	changeover contact with double break Zb or 2 NC contacts, galvanically separated contact bridges
Switching system:	⊖ IEC 60947-5-1 Slow action, Positive break NC contact
Termination:	Screw terminals, male connector M12
Cable section:	max. 2.5 mm <sup>2</sup> (including conductor ferrules)
Cable entry:	M 20 x 1.5
U <sub>imp</sub> :	6 kV
U <sub>i</sub> :	-03z, -12z: 4kV 500 V
I <sub>the</sub> :	-03z, -12z: 250 V 10 A
Utilisation category:	AC-15; DC-13
I <sub>e</sub> /U <sub>e</sub> :	4 A / 230 VAC 1A / 24 VDC
Short-circuit protection:	6 A gL/gG D-fuse
Ambient temperature:	- 30 °C ... + 80 °C
Mechanical life:	30 million operations
Switching frequency:	max. 5000/h
Duration to standstill:	< 2ms
Switching time:	in accordance with the actuating speed

## Actuators

Plunger	S
Roller plunger	R
Roller lever	1K
Angled lever	3K
Roller lever	H 7H-2138 7H-1058/2138 7H-2079-2
Rod lever	10H

## Approvals



## Ordering data

T ① 335-②z③-④-⑤-⑥

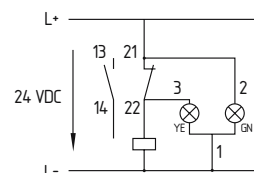
N°	Add	Description
①		Selection of actuators, see page 3-38
②	11	1 NO / 1 NC contact
	02	2 NC contacts
	20	2 NO contacts
	01/01	1 NC contact left / 1 NC contact right
	12	1 NO contact / 2 NC contacts
	03	3 NC contacts
③	h	Slow action with staggered contacts
	ü	with overlapping contacts
④	G24	with LED

## Ordering data

N°	Add	Description
⑤	M20	Cable entry M20
	NPT	Cable entry NPT 1/2"
	ST	Connector M12
⑥	1058	for roller lever rubber roller 50 mm
	1058/2138	rubber roller 50 mm and lever arm length-adjustable in steps

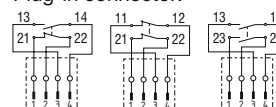
**Note:**  
The actuator is defined by item ① and ⑥ of the ordering data.

## Note



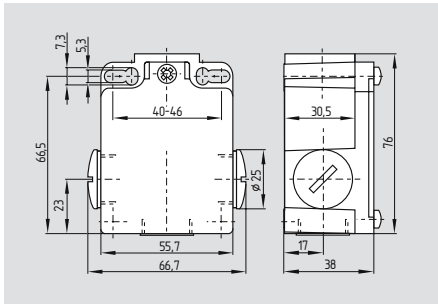
Version with LED:  
ordering suffix G24, protected against incorrect polarity and voltage spikes

Plug-in connector:



# Position switches with safety function

## T 355



- Metal enclosure
- Mounting details nach DIN EN 50041 (large)
- Large design
- Switching function non-latching
- Slow action also available with overlapping or staggered contacts
- Protection class IP 67
- max. 3 contacts
- 3 cable entries M20 x 1.5
- Screw terminals max. 2.5 mm<sup>2</sup> with conductor ferrules
- Large range of actuating elements available
- Actuating elements can be turned in steps 4 x 90°
- Angle of roller lever adjustable in 10° steps
- High resistance to oil and fuel

## Technical data

Standards: IEC/EN 60947-5-1  
BG-GS-ET-15

Design: DIN EN 50041

Enclosure: light-metal die-cast, paint finish

Protection class : IP 67

Contact material: Silver

Switching elements: changeover contact with double break Zb or 2 NC contacts, galvanically separated contact bridges

Switching system: ⊖ IEC 60947-5-1  
Slow action,  
Positive break NC contact

Termination: Screw terminals, male connector M12

Cable section: max. 2.5 mm<sup>2</sup>  
(including conductor ferrules)

Cable entry: 3 x M 20 x 1.5

U<sub>imp</sub>: 6 kV

U<sub>i</sub>: -03z, -12z: 4kV  
500 V

U<sub>j</sub>: -03z, -12z: 250 V

I<sub>the</sub>: 10 A

Utilisation category: AC-15; DC-13

I<sub>e</sub>/U<sub>e</sub>: 4 A / 230 VAC  
1A / 24 VDC

Short-circuit protection: 6 A gL/gG D-fuse

Ambient temperature: - 30 °C ... + 80 °C

Mechanical life: 30 million operations

Switching frequency: max. 5000/h

Duration to standstill: < 2ms

Switching time: in accordance with the actuating speed

## Actuators

Plunger	S
Roller plunger	R
Roller lever	1K
Angled lever	3K
Roller lever	H
	7H-2138
	7H-1058/2138
	7H-2079-2
	H-1058
Rod lever	10H

## Approvals



## Ordering data

T ① 355-②z③-④-⑤

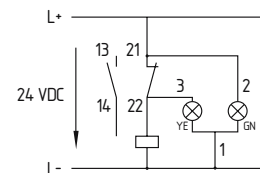
N°	Add	Description
①		Selection of actuators, see page 3-38
②	11	1 NO / 1 NC contact
	02	2 NC contacts
	20	2 NO contacts
	01/01	1 NC contact left / 1 NC contact right
	12	1 NO contact / 2 NC contacts
	03	3 NC contacts
③	h	Slow action with staggered contacts
	ü	with overlapping contacts

N°	Add	Description
④	M20	Cable entry M20
	NPT	Cable entry NPT 1/2"
	ST	Connector M12
⑤	1058	for Roller lever rubber roller 50 mm
	1058/2138	rubber roller 50 mm and lever arm length-adjustable in steps

### Note:

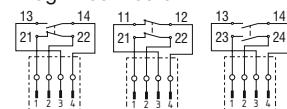
The actuator is defined by item ① and ⑤ of the ordering data.

## Note



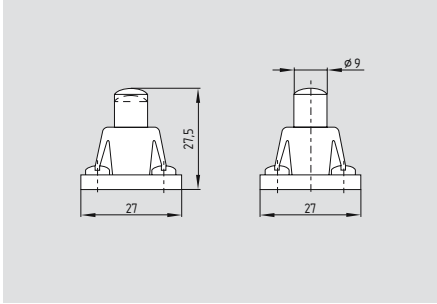
Version with LED:  
ordering suffix G24, protected against incorrect polarity and voltage spikes.

Plug-in connector:



# Position switches with safety function

## Plunger S

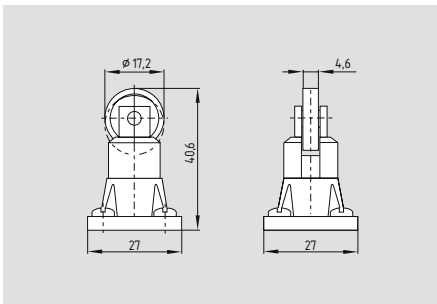


- Actuator type B to DIN EN 50041
- Required actuating force 17 N
- Actuating speed with actuating angle 0° to switch axis max. 0.5 m/s
- Suitable for T 335, T 355, T 336

## Contact variants

Switch travel/ Contacts	Slow action (T)	Slow action with overlapping contacts (T, ü)	Slow action with staggered contacts (T, h)
<b>1 NO contact 1 NC contact</b>	<b>TS 3..-11z</b> 	<b>TS 3..-11zü</b> 	
<b>2 NC contacts</b>	<b>TS 3..-02z</b> 		<b>TS 3..-02zh</b> 
<b>2 NO contacts</b>	<b>TS 3..-20z</b> 		<b>TS 3..-20zh</b> 
<b>1 NO contact 2 NC contacts</b>	<b>TS 3..-12z</b> 	<b>TS 3..-12zü</b> 	
<b>3 NC contacts</b>	<b>TS 3..-03z</b> 		<b>TS 3..-03zh</b> 

## Roller plunger R



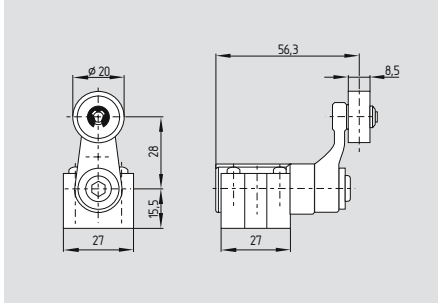
- Actuator type C to DIN EN 50041
- Required actuating force 17 N
- Actuating speed with actuating angle 30° to switch axis max. 0.5 m/s
- Suitable for T 335, T 355, T 336

## Contact variants

Switch travel/ Contacts	Slow action (T)	Slow action with overlapping contacts (T, ü)	Slow action with staggered contacts (T, h)
<b>1 NO contact 1 NC contact</b>	<b>TR 3..-11z</b> 	<b>TR 3..-11zü</b> 	
<b>2 NC contacts</b>	<b>TR 3..-02z</b> 		<b>TR 3..-02zh</b> 
<b>2 NO contacts</b>	<b>TR 3..-20z</b> 		<b>TR 3..-20zh</b> 
<b>1 NO contact 2 NC contacts</b>	<b>TR 3..-12z</b> 	<b>TR 3..-12zü</b> 	
<b>3 NC contacts</b>	<b>TR 3..-03z</b> 		<b>TR 3..-03zh</b> 

# Position switches with safety function

## Roller lever H

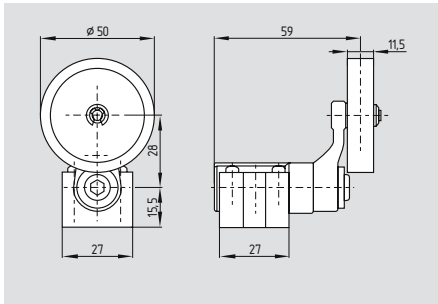


- Actuator type A to DIN EN 50041
- Required actuating torque 31 Ncm
- Actuating speed with actuating angle of 30° max. 2.5 m/s
- On version TVH ...-01/01z positive break only to one side.
- Lever angle adjustable in 10° steps
- Actuator can be turned in steps 4 x 90°
- Metal lever
- Suitable for T 335, T 355, T 336
- plastic roller
- metal roller ordering suffix RMS

## Contact variants

Switch travel/ Contacts	Slow action (T)	Slow action with overlapping contacts (T, ü)	Slow action with staggered contacts (T, h)
<b>1 NO contact 1 NC contact</b>	<b>T4VH 3..-11z</b> 	<b>T4VH 3..-11zü</b> 	
<b>2 NC contacts</b>	<b>T4VH 3..-02z</b> 		<b>T4VH 3..-02zh</b> 
<b>2 NO contacts</b>	<b>T4VH 3..-20z</b> 		<b>T4VH 3..-20zh</b> 
<b>1 NC contact left 1 NC contact right</b>	<b>TVH 3..-01/01z</b> 		
<b>1 NO contact 2 NC contacts</b>	<b>T4VH 3..-12z</b> 	<b>T4VH 3..-12zü</b> 	
<b>3 NC contacts</b>	<b>T4VH 3..-03z</b> 		<b>T4VH 3..-03zh</b> 

## Roller lever H-1058



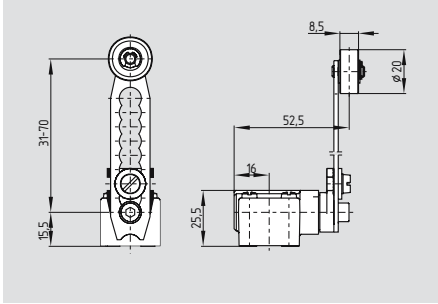
- Actuator type A to DIN EN 50041
- With rubber roller 50 mm
- Required actuating torque 31 Ncm
- Actuating speed with actuating angle of 30° max. 2.5 m/s
- On version TVH 336-01/01z positive break only to one side.
- Lever angle adjustable in 10° steps
- Actuator can be turned in steps 4 x 90°
- Metal lever
- Suitable for T 335, T 355, T 336

## Contact variants

Switch travel/ Contacts	Slow action (T)	Slow action with overlapping contacts (T, ü)	Slow action with staggered contacts (T, h)	Slow action with End position resting (T, r)
<b>1 NO contact 1 NC contact</b>	<b>T4VH 3..-11z - 1058</b> 	<b>T4VH 3..-11zü - 1058</b> 		<b>T4VH 3..-11yr-1058</b> 
<b>2 NC contacts</b>	<b>T4VH 3..-02z - 1058</b> 		<b>T4VH 3..-02zh - 1058</b> 	<b>T4VH 3..-02yr-1058</b> 
<b>2 NO contacts</b>	<b>T4VH 3..-20z - 1058</b> 		<b>T4VH 3..-20zh - 1058</b> 	<b>T4VH 3..-20yr-1058</b> 
<b>1 NC contact left 1 NC contact right</b>	<b>TVH 3..-01/01z-1058</b> 			

# Position switches with safety function

## Roller lever 7H-2138

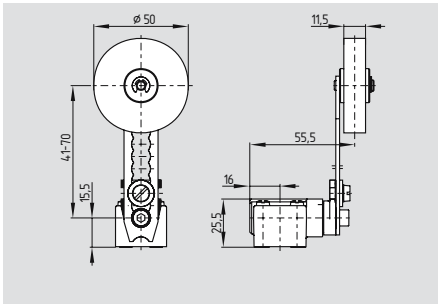


- For safety tasks ⊕
- Required actuating torque 31 Ncm
- Actuating speed with actuating angle of 30° max. 2.5 m/s
- On version TV7H ...-01/01z-2138 positive break only to one side.
- Positive-break NC contact
- Lever arm length adjustable in steps
- Lever angle adjustable in 10° steps
- Actuator can be turned in steps 4 x 90°
- Metal lever
- Suitable for T 335, T 355, T 336
- plastic roller
- metal roller ordering suffix RMS

## Contact variants

Switch travel/ Contacts	Slow action (T)	Slow action with overlapping contacts (T, ü)	Slow action with staggered contacts (T, h)
<b>1 NO contact 1 NC contact</b>	<b>T4V7H 3...-11z-2138</b> 	<b>T4V7H 3...-11z-2138</b> 	
<b>2 NC contacts</b>	<b>T4V7H 3...-02z-2138</b> 		<b>T4V7H 3...-02zh-2138</b> 
<b>2 NO contacts</b>	<b>T4V7H 3...-20z-2138</b> 		<b>T4V7H 3...-20zh-2138</b> 
<b>1 NC contact left 1 NC contact right</b>	<b>TV7H 3...-01/01z-2138</b> 		
<b>1 NO contact 2 NC contacts</b>	<b>T4V7H 3...-12z-2138</b> 	<b>T4V7H 3...-12z-2138</b> 	
<b>3 NC contacts</b>	<b>T4V7H 3...-03z-2138</b> 		<b>T4V7H 3...-03zh-2138</b> 

## Roller lever 7H-1058/2138



- For safety tasks ⊕
- With large rubber roller
- Required actuating torque 31 Ncm
- Actuating speed with actuating angle of 30° max. 2.5 m/s
- On version TV7H ...-01/01z-1058/2138 positive break only to one side.
- Positive-break NC contact
- Lever arm length adjustable in steps
- Lever angle adjustable in 10° steps
- Actuator can be turned in steps 4 x 90°
- Metal lever
- Suitable for T 335, T 355, T 336

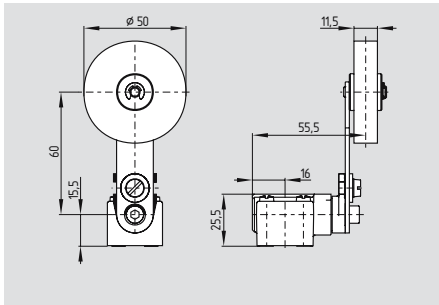
## Contact variants

Switch travel/ Contacts	Slow action (T)	Slow action with overlapping contacts (T, ü)	Slow action with staggered contacts (T, h)
<b>1 NO contact 1 NC contact</b>	<b>T4V7H 3...-11z-1058/2138</b> 	<b>T4V7H 3...-11z-1058/2138</b> 	
<b>2 NC contacts</b>	<b>T4V7H 3...-02z-1058/2138</b> 		<b>T4V7H 3...-02zh-1058/2138</b> 
<b>2 NO contacts</b>	<b>T4V7H 3...-20z-1058/2138</b> 		<b>T4V7H 3...-20zh-1058/2138</b> 
<b>1 NC contact left 1 NC contact right</b>	<b>TV7H 3...-01/01z-1058/2138</b> 		
<b>1 NO contact 2 NC contacts</b>	<b>T4V7H 3...-12z-1058/2138</b> 	<b>T4V7H 3...-12z-1058/2138</b> 	
<b>3 NC contacts</b>	<b>T4V7H 3...-03z-1058/2138</b> 		<b>T4V7H 3...-03zh-1058/2138</b> 



# Position switches with safety function

## Roller lever 7H-2079-2

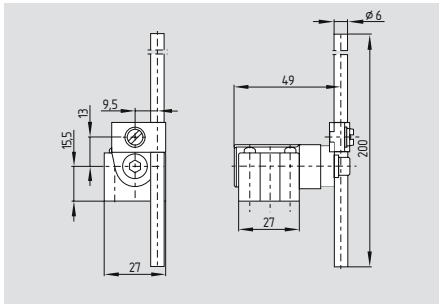


- For safety tasks ⊖
- With large rubber roller
- Plastic roller Ø 20 mm available, ordering suffix -2079-1
- Required actuating torque 31 Ncm
- Actuating speed with actuating angle of 30° max. 2.5 m/s
- On version TV7H ...-01/01z-2079-2 positive break only to one side.
- Positive-break NC contact
- With fixed 7H lever
- Lever angle adjustable in 10° steps
- Actuator can be turned in steps 4 x 90°
- Metal lever
- Suitable for T 335, T 355, T 336

## Contact variants

Switch travel/ Contacts	Slow action (T)	Slow action with overlapping contacts (T, ü)	Slow action with staggered contacts (T, h)
<b>1 NO contact 1 NC contact</b>	<b>T4V7H 3...-11z-2079-2</b> 	<b>T4V7H 3...-11zü-2079-2</b> 	
<b>2 NC contacts</b>	<b>T4V7H 3...-02z-2079-2</b> 		<b>T4V7H 3...-02zh-2079-2</b> 
<b>2 NO contacts</b>	<b>T4V7H 3...-20z-2079-2</b> 		<b>T4V7H 3...-20zh-2079-2</b> 
<b>1 NC contact left 1 NC contact right</b>	<b>TV7H 3...-01/01z-2079-2</b> 		
<b>1 NO contact 2 NC contacts</b>	<b>T4V7H 3...-12z-2079-2</b> 	<b>T4V7H 3...-12zü-2079-2</b> 	
<b>3 NC contacts</b>	<b>T4V7H 3...-03z-2079-2</b> 		<b>T4V7H 3...-03zh-2079-2</b> 

## Rod lever 10H



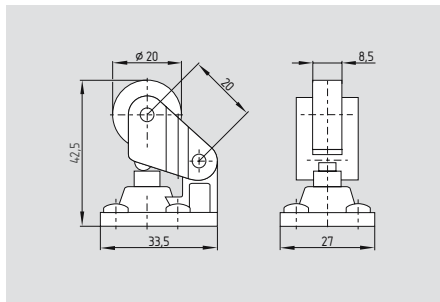
- Only suitable for positioning tasks
- Actuator type D to DIN EN 50041
- Plastic rod
- Required actuating torque 31 Ncm
- Actuating speed with actuating angle 30° max. 2.5 m/s
- Aluminium rod, ordering suffix -1183
- Lever angle adjustable in 10° steps
- Actuator can be turned in steps 4 x 90°
- Suitable for T 355, T 336

## Contact variants

Switch travel/ Contacts	Slow action (T)	Slow action with overlapping contacts (T, ü)	Slow action with staggered contacts (T, h)
<b>1 NO contact 1 NC contact</b>	<b>T4V10H 336-11z</b> 	<b>T4V10H 336-11zü</b> 	
<b>2 NC contacts</b>	<b>T4V10H 336-02z</b> 		<b>T4V10H 336-02zh</b> 
<b>2 NO contacts</b>	<b>T4V10H 336-20z</b> 		<b>T4V10H 336-20zh</b> 
<b>1 NC contact left 1 NC contact right</b>	<b>TV10H 336-01/01z</b> 		

## Position switches with safety function

### Roller lever 1K

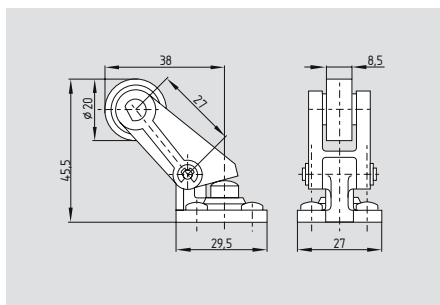


- Required actuating force 17 N
- Actuating speed with actuating angle 30° to switch axis max. 0.5 m/s
- Lever arm located to the right in the normal version; actuator can be turned clockwise in 90° steps
- Suitable for T 335, T 355, T 336

### Contact variants

Switch travel/ Contacts	Slow action (T)	Slow action with overlapping contacts (T, ü)	Slow action with staggered contacts (T, h)
<b>1 NO contact 1 NC contact</b>	<b>T1K 3..-11z</b> 	<b>T1K 3..-11zü</b> 	
<b>2 NC contacts</b>	<b>T1K 3..-02z</b> 		<b>T1K 3..-02zh</b> 
<b>2 NO contacts</b>	<b>T1K 3..-20z</b> 		<b>T1K 3..-20zh</b> 
<b>1 NO contact 2 NC contacts</b>	<b>T1K 3..-12z</b> 	<b>T1K 3..-12zü</b> 	
<b>3 NC contacts</b>	<b>T1K 3..-03z</b> 		<b>T1K 3..-03zh</b> 

### Angled lever 3K



- Required actuating force 17 N
- Actuating speed with actuating angle 30° to switch axis max. 0.5 m/s
- Actuation parallel to switch axis from below
- Actuator can be turned in steps 4 x 90°
- Suitable for T 335, T 355, T 336

### Contact variants

Switch travel/ Contacts	Slow action (T)	Slow action with overlapping contacts (T, ü)	Slow action with staggered contacts (T, h)
<b>1 NO contact 1 NC contact</b>	<b>T3K 3..-11z</b> 	<b>T3K 3..-11zü</b> 	
<b>2 NC contacts</b>	<b>T3K 3..-02z</b> 		<b>T3K 3..-02zh</b> 
<b>2 NO contacts</b>	<b>T3K 3..-20z</b> 		<b>T3K 3..-20zh</b> 
<b>1 NO contact 2 NC contacts</b>	<b>T3K 3..-12z</b> 	<b>T3K 3..-12zü</b> 	
<b>3 NC contacts</b>	<b>T3K 3..-03z</b> 		<b>T3K 3..-03zh</b> 

## Position switches with safety function

	T 336	T 335	T 355
<b>Standards</b>	IEC/EN 60947-5-1 BG-GS-ET-15 UL	IEC/EN 60947-5-1 BG-GS-ET-15 UL	IEC/EN 60947-5-1 BG-GS-ET-15 UL
<b>Design</b>	DIN EN 50041	DIN EN 50041	DIN EN 50041
<b>Switching behaviour</b>	Slow action (T)	Slow action (T)	Slow action (T)
<b>Enclosure</b>	glass-fibre reinforced thermoplastic, self-extinguishing	Light-metal die-cast, paint finish	Light-metal die-cast, paint finish
<b>Protection class</b>	IP 67	IP 67	IP 67
<b>Contact material</b>	Silver	Silver	Silver
<b>Switching elements</b>	Changeover contact with double break or 2 NC contacts, galvanically separated contact bridges	Changeover contact with double break or 2 NC contacts, galvanically separated contact bridges	Changeover contact with double break or 2 NC contacts, galvanically separated contact bridges
<b>Switching system</b>	Positive break NC contact	Positive break NC contact	Positive break NC contact
<b>Termination</b>	Screw terminals, male connector M12	Screw terminals, male connector M12	Screw terminals, male connector M12
<b>Cable section</b>	max. 2.5 mm <sup>2</sup> (including conductor ferrules)	max. 2.5 mm <sup>2</sup> (including conductor ferrules)	max. 2.5 mm <sup>2</sup> (including conductor ferrules)
<b>Cable entry</b>	M 20 x 1.5	M 20 x 1.5	3 x M 20 x 1.5
<b>U<sub>imp</sub></b>	6 kV	-02 / -20z / -11z: 6 kV -03z / -12z: 4 kV	-02 / -20z / -11z: 6 kV -03z / -12z: 4 kV
<b>U<sub>i</sub></b>	500 V	-02 / -20z / -11z: 500 V -03z / -12z: 250 V	-02 / -20z / -11z: 500 V -03z / -12z: 250 V
<b>I<sub>the</sub></b>	10 A	10 A	10 A
<b>Utilisation category</b>	AC-15 DC-13	AC-15 DC-13	AC-15 DC-13
<b>I<sub>e</sub>/U<sub>e</sub></b>	4 A / 230 VAC 1A / 24 VDC	4 A / 230 VAC 1A / 24 VDC	4 A / 230 VAC 1A / 24 VDC
<b>Short-circuit protection</b>	6 A gL/gG D-fuse	6 A gL/gG D-fuse	6 A gL/gG D-fuse
<b>Ambient temperature</b>	- 30 °C ... + 80 °C	- 30 °C ... + 80 °C	- 30 °C ... + 80 °C
<b>Mechanical life</b>	30 million operations	30 million operations	30 million operations
<b>Switching frequency</b>	5000/h	5000/h	5000/h
<b>Duration to standstill</b>	< 2ms	< 2ms	< 2ms

