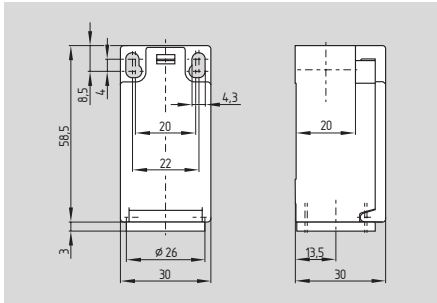


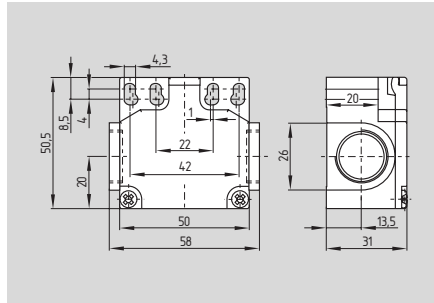
Position switches with safety function

Z/T 236



- Thermoplastic enclosure
- Double insulated □
- Available with 2 positive break NC contacts
- Snap action with constant contact pressure up to switching point
- Slow action available with overlapping or staggered contacts
- 1 cable entry M20 x 1.5
- Wide range of alternative actuators
- Actuator heads can be repositioned by 4 x 90°
- Angle of roller lever adjustable in 10° steps
- Good resistance to oil and petroleum spirit

Z/T 256



- Mounting details to EN 50047
- 2 cable entries from sides M20 x 1.5

Technical data

Standards:	IEC/EN 60947-5-1 BG-GS-ET-15
Design:	fixings to EN 50047
Enclosure:	glass-fibre reinforced thermoplastic, self-extinguishing
Protection class:	IP 67 to EN 60529
Contact material:	silver
Contact type:	change-over contact with double break, type Zb or 2 NC contacts, with galvanically separated contact bridges
Switching system:	⊖ IEC 60947-5-1 slow or snap action, NC contacts with positive break
Connection:	screw terminals
Cable section:	max. 2.5 mm ² , min. 1.5 mm ² (incl. conductor ferrules)
Cable entry:	Z/T 236: 1 x M20 x 1.5 Z/T 256: 2 x M20 x 1.5
U _{imp} :	6 kV
U _i :	500 V
I _{the} :	10 A
Utilisation category:	AC-15, DC-13
I _e /U _e :	4 A / 230 VAC 1 A / 24 VDC
Max. fuse rating:	6 A gG D-fuse
Ambient temperature:	- 30 °C ... + 80 °C
Mechanical life:	20 million operations
Switching frequency:	max. 5000/h
Bounce duration:	snap action: < 3 ms; slow action: in accordance with actuating speed
Switchover time:	snap action: > 5.5 ms; slow action: in accordance with actuating speed

Approvals



Ordering details

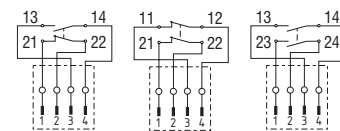
①② 2③6-④z⑤-⑥-⑦-⑧-⑨

No.	Replace	Description
①	Z	Snap action ⊖
	T	Slow action ⊖
②		For the appropriate actuator: see as of page 1-40
③	3	Slim design
	5	Large design
④	02	2 NC
	11	1 NO / 1 NC
	20	2 NO
⑤	h	Slow action with staggered contacts
	ü	with overlapping contacts

Approvals



Connector



No.	Replace	Description
⑥	ID	Cable entry M20
	NPT	Cut clamp
	ST	Cable entry NPT 1/2"
		Connector M12
		(A-Coding)
		(B-Coding)
⑦	2310	Enclosure with transversely slotted mounting holes
	1297	roller lever 7H for safety duties
⑧	2138	Gold-plated contacts
⑨	1637	

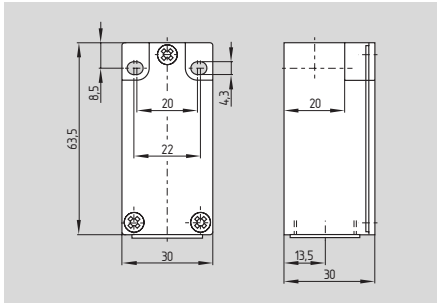
Other product variants:

- 3-pole NC/NO contact combinations
- Change-over contacts, etc.

List S-IP ELAN, Wettenberg

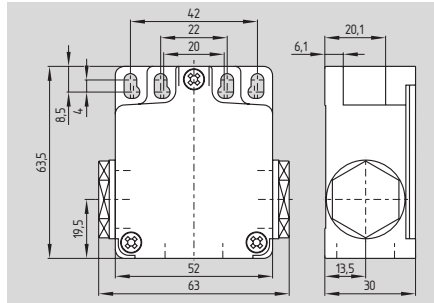
Position switches with safety function

Z/T 235



- Metal enclosure
- Available with 2 positive break NC contacts
- Snap action with constant contact pressure up to switching point
- Slow action available with overlapping or staggered contacts
- Wiring compartment
- 1 cable entry M20 x 1.5
- Wide range of alternative actuators
- Actuator heads can be repositioned by 4 x 90°
- Angle of roller lever adjustable in 10° steps
- Good resistance to oil and petroleum spirit
- Metal roller available on request

Z/T 255



- Mounting details to EN 50047
- 3 cable entries M20 x 1.5

Technical data

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

Design: fixings to EN 50047

Enclosure: Z/T 235: zinc die-cast, enamel finish
Z/T 255: aluminium die-cast, enamel finish

Protection class: IP 67 to EN 60529

Contact material: silver

Contact type: change-over contact with double break, type Zb or 2 NC contacts, with galvanically separated contact bridges

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

Connection: screw terminals

Cable section: max. 2.5 mm², min. 0.75 mm² (incl. conductor ferrules)

Cable entry: Z/T 235: 1 x M20 x 1.5
Z/T 255: 3 x M20 x 1.5

U_{imp}: 6 kV
connector: 0.8 kV

U_i: 500 V
connector: 50 V

I_{the}: 10 A

Utilisation category: AC-15, DC-13

I_e/U_e: 4 A / 230 VAC
1 A / 24 VDC
connector: 4 A / 50 VAC

Max. fuse rating: 6 A gG D-fuse

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

Mechanical life: 20 million operations

Switching frequency: max. 5000/h

Bounce duration: snap action: < 3 ms;
slow action: in accordance with actuating speed

Switchover time: snap action: > 5.5 ms;
slow action: in accordance with actuating speed

Approvals



Approvals



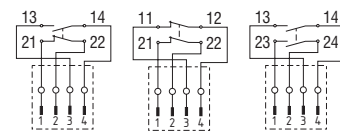
Ordering details

①② 2③5-④z⑤-⑥-⑦-⑧-⑨

No.	Replace	Description
①	Z	Snap action ⊖
	T	Slow action ⊖
②	For the appropriate actuator: see as of page 1-40	
③	3	Slim design
	5	Large design
④	02	2 NC
	11	1 NO / 1 NC
	20	2 NO
⑤	h	Slow action with staggered contacts
	ü	with overlapping contacts

No.	Replace	Description
⑥	ID	Cable entry M20
	NPT	Cut clamp
	ST	Cable entry NPT 1/2"
		Connector M12
		(A-Coding)
		(B-Coding)
⑦	2310	Enclosure with transversely slotted mounting holes
	1297	Enclosure with transversely slotted mounting holes
⑧	2138	Roller lever 7H for safety duties
⑨	1637	Gold-plated contacts

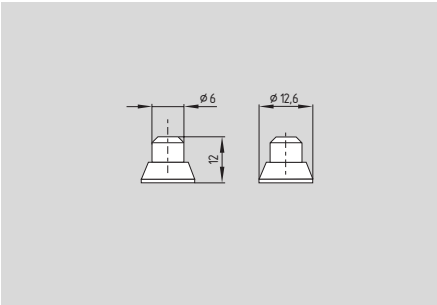
Connector



Caution! The versions with connector may only be used in PELV circuits to EN 60204-1.

Position switches with safety function

Plunger S

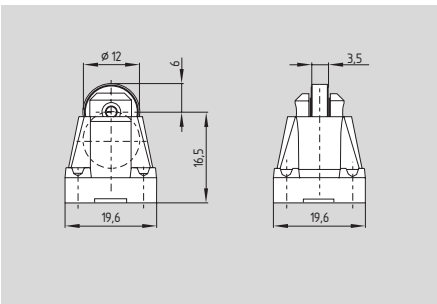


- Actuator type B to EN 50047
- Actuating force: Min. 9 N
- Positive break force: 19 N
- Actuating speed with actuating angle 0° to switch axis
 Snap action: Min. 10 mm/min, max. 1 m/s
 Slow action: Min. 60 mm/min, max. 1 m/s

Contact variants

Contacts/ Switch travel	Snap action	Slow action	Slow action with overlapping contacts	Slow action with staggered contacts
1 NO 1 NC	ZS 2..-11z 	TS 2..-11z 	TS 2..-11zü 	
2 NC	ZS 2..-02z 	TS 2..-02z 		TS 2..-02zh
2 NO		TS 2..-20z 		TS 2..-20zh

Roller plunger R



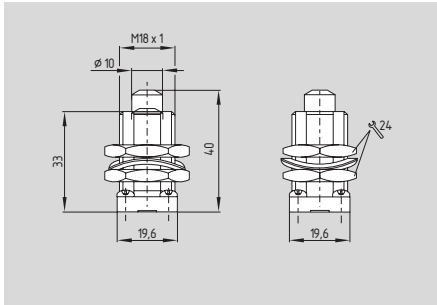
- Actuator type C to EN 50047
- Actuating force: Min. 9 N
- Positive break force: 19 N
- Actuating speed with actuating angle 30° to switch axis
 Snap action: Min. 20 mm/min, max. 1 m/s
 Slow action: Min. 120 mm/min, max. 1 m/s

Contact variants

Contacts/ Switch travel	Snap action	Slow action	Slow action with overlapping contacts	Slow action with staggered contacts
1 NO 1 NC	ZR 2..-11z 	TR 2..-11z 	TR 2..-11zü 	
2 NC	ZR 2..-02z 	TR 2..-02z 		TR 2..-02zh
2 NO		TR 2..-20z 		TR 2..-20zh

Position switches with safety function

Plunger 4S

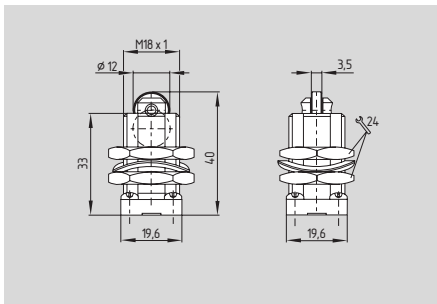


- Actuating force: Min. 9 N
- Positive break force: 19 N
- Actuating speed with actuating angle 0° to switch axis
 Snap action: Min. 10 mm/min, max. 1 m/s
 Slow action: Min. 60 mm/min, max. 1 m/s

Contact variants

Contacts/ Switch travel	Snap action	Slow action	Slow action with overlapping contacts	Slow action with staggered contacts
1 NO 1 NC	Z4S 2..-11z 	T4S 2..-11z 	T4S 2..-11zü 	
2 NC	Z4S 2..-02z 	T4S 2..-02z 		T4S 2..-02zh
2 NO		T4S 2..-20z 		T4S 2..-20zh

Roller plunger 4R



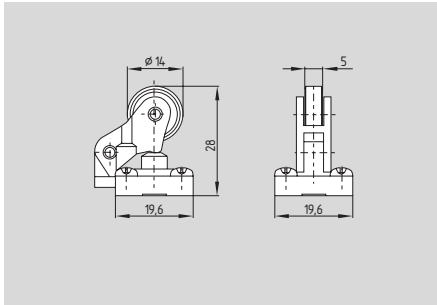
- Actuating force: Min. 9 N
- Positive break force: 19 N
- Actuating speed with actuating angle 30° to switch axis
 Snap action: Min. 20 mm/min, max. 1 m/s
 Slow action: Min. 120 mm/min, max. 1 m/s

Contact variants

Contacts/ Switch travel	Snap action	Slow action	Slow action with overlapping contacts	Slow action with staggered contacts
1 NO 1 NC	Z4R 2..-11z 	T4R 2..-11z 	T4R 2..-11zü 	
2 NC	Z4R 2..-02z 	T4R 2..-02z 		T4R 2..-02zh
2 NO		T4R 2..-20z 		T4R 2..-20zh

Position switches with safety function

Offset roller lever 1R

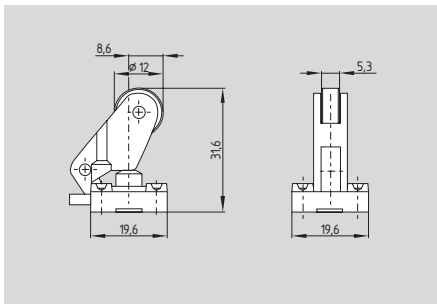


- Actuating force: Min. 9 N
- Positive break force: 19 N
- Actuating speed with actuating angle 30° to switch axis
 Snap action: Min. 27 mm/min, max. 1 m/s
 Slow action: Min. 160 mm/min, max. 1 m/s

Contact variants

Contacts/ Switch travel	Snap action	Slow action	Slow action with overlapping contacts
1 NO 1 NC	Z1R 2..-11z 	T1R 2..-11z 	T1R 2..-11zü
2 NC	Z1R 2..-02z 	T1R 2..-02z 	
2 NO		T1R 2..-20z 	

Offset roller lever K



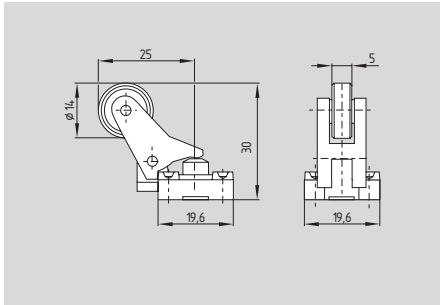
- Actuator type E to EN 50047
- Actuating force: Min. 9 N
- Positive break force: 19 N
- Actuating speed with actuating angle 30° to switch axis
 Snap action: Min. 24 mm/min, max. 1 m/s
 Slow action: Min. 240 mm/min, max. 1 m/s

Contact variants

Contacts/ Switch travel	Snap action	Slow action	Slow action with overlapping contacts	Slow action with staggered contacts
1 NO 1 NC	ZK 2..-11z 	TK 2..-11z 	TK 2..-11zü 	
2 NC	ZK 2..-02z 	TK 2..-02z 		TK 2..-02zh
2 NO		TK 2..-20z 		TK 2..-20zh

Position switches with safety function

Angle roller lever 3K

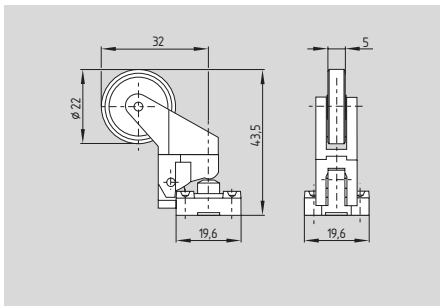


- Actuating force: Min. 9 N
- Positive break force: 19 N
- Actuating speed with actuating angle 30° to switch axis
 Snap action: Min. 27 mm/min, max. 1 m/s
 Slow action: Min. 160 mm/min, max. 1 m/s
- Actuation from bottom parallel to the switch, therefore only suitable for small housings (Z/T 235 and Z/T 236)

Contact variants

Contacts/ Switch travel	Snap action	Slow action	Slow action with overlapping contacts	Slow action with staggered contacts
1 NO 1 NC	Z3K 2..-11z 	T3K 2..-11z 	T3K 2..-11zü 	
2 NC	Z3K 2..-02z 	T3K 2..-02z 		T3K 2..-02zh
2 NO		T3K 2..-20z 		T3K 2..-20zh

Angle roller lever 4K



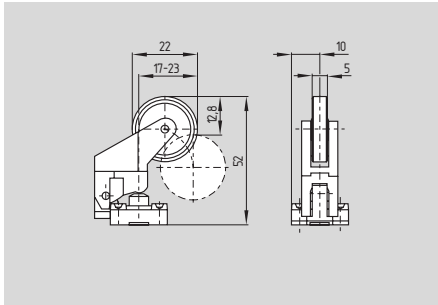
- Actuating force: Min. 6 N
- Positive break force: 16 N
- Actuating speed with actuating angle 30° to switch axis
 Snap action: Min. 44 mm/min, max. 1 m/s
 Slow action: Min. 264 mm/min, max. 1 m/s
- Actuation from bottom parallel to the switch, therefore only suitable for small housings (Z/T 235 and Z/T 236)

Contact variants

Contacts/ Switch travel	Snap action	Slow action	Slow action with overlapping contacts	Slow action with staggered contacts
1 NO 1 NC	Z4K 2..-11z 	T4K 2..-11z 	T4K 2..-11zü 	
2 NC	Z4K 2..-02z 	T4K 2..-02z 		T4K 2..-02zh
2 NO		T4K 2..-20z 		T4K 2..-20zh

Position switches with safety function

Angle roller lever K4

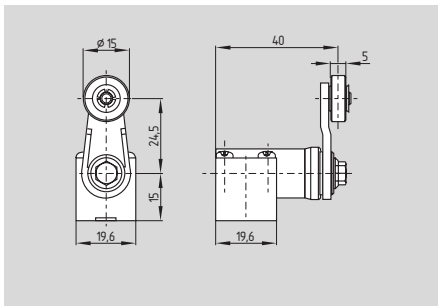


- Actuating force: Min. 6 N
- Positive break force: 16 N
- Actuating speed with actuating angle 30° to switch axis
 Snap action: Min. 56 mm/min, max. 1 m/s
 Slow action: Min. 336 mm/min, max. 1 m/s

Contact variants

Contacts/ Switch travel	Snap action	Slow action	Slow action with overlapping contacts	Slow action with staggered contacts
1 NO 1 NC	ZK4 2..-11z 	TK4 2..-11z 	TK4 2..-11zü 	
2 NC	ZK4 2..-02z 	TK4 2..-02z 		TK4 2..-02zh
2 NO		TK4 2..-20z 		TK4 2..-20zh

Roller lever 1H



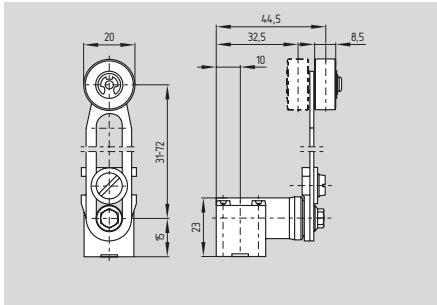
- Plastic lever
- Actuator type A to EN 50047
- Lever angle adjustable in 10° steps
- Actuating torque: Min. 15 Ncm
- Positive break torque: 18.5 Ncm
- Actuating speed with actuating angle 30° to switch axis
 Snap action: Min. 92 mm/min, max. 1 m/s
 Slow action: Min. 492 mm/min, max. 1 m/s
- Actuator head gasket, ordering suffix -z

Contact variants

Contacts/ Switch travel	Snap action	Slow action	Slow action with overlapping contacts	Slow action with staggered contacts
1 NO 1 NC	ZV1H 2..-11z 	TV1H 2..-11z 	TV1H 2..-11zü 	
2 NC	ZV1H 2..-02z 	TV1H 2..-02z 		TV1H 2..-02zh
2 NO		TV1H 2..-20z 		TV1H 2..-20zh

Position switches with safety function

Roller lever 7H

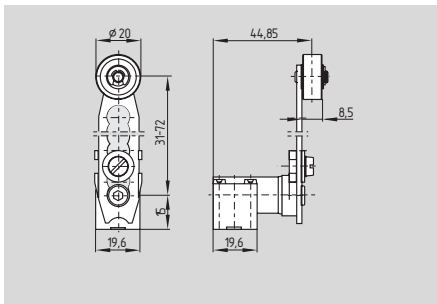


- Only for positioning tasks
- Lever angle adjustable in 10° steps
- Actuating torque: Min. 15 Ncm
- Actuating speed with actuating angle 30° to switch axis
Snap action: Min. 240 mm/min, max. 1 m/s
Slow action: Min. 1440 mm/min, max. 1 m/s
- Actuator head gasket, ordering suffix -z

Contact variants

Contacts/ Switch travel	Snap action	Slow action	Slow action with overlapping contacts	Slow action with staggered contacts
1 NO 1 NC	ZV7H 2...-11z 	TV7H 2...-11z 	TV7H 2...-11zü 	
2 NC	ZV7H 2...-02z 	TV7H 2...-02z 		TV7H 2...-02zh
2 NO		TV7H 2...-20z 		TV7H 2...-20zh

Roller lever 7H-2138



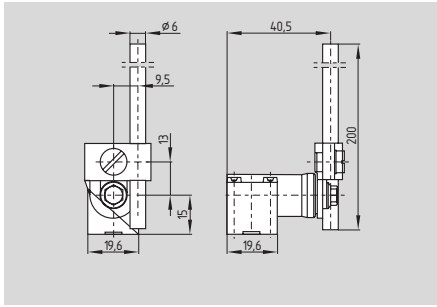
- For safety tasks ⊖, positive break, ordering suffix -2138
- Lever angle adjustable in 10° steps
- Actuating torque: Min. 15 Ncm
- Positive break torque: 18.5 Ncm
- Actuating speed with actuating angle 30° to switch axis
Snap action: Min. 240 mm/min, max. 1 m/s
Slow action: Min. 1440 mm/min, max. 1 m/s
- Actuator head gasket, ordering suffix -z

Contact variants

Contacts/ Switch travel	Snap action	Slow action	Slow action with overlapping contacts	Slow action with staggered contacts
1 NO 1 NC	ZV7H 2...-11z- 2138 	TV7H 2...-11z- 2138 	TV7H 2...-11zü- 2138 	
2 NC	ZV7H 2...-02z- 2138 	TV7H 2...-02z- 2138 		TV7H 2...-02zh- 2138
2 NO		TV7H 2...-20z- 2138 		TV7H 2...-20zh- 2138

Position switches with safety function

Rod lever 10H

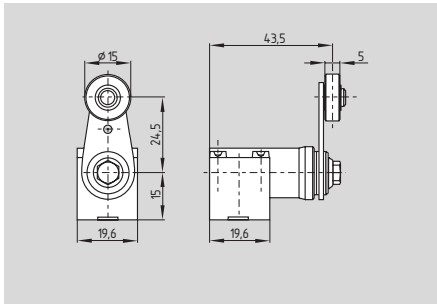


- Only for positioning tasks
- Lever angle adjustable in 10° steps
- Plastic rod
- Actuating torque: Min. 15 Ncm
- Actuating speed with actuating angle 30° to switch axis
Snap action: Min. 687 mm/min, max. 1 m/s
Slow action: Min. 4122 mm/min, max. 1 m/s
- Actuator head gasket, ordering suffix -z
- Aluminium rod, ordering suffix -1183

Contact variants

Contacts/ Switch travel	Snap action	Slow action	Slow action with overlapping contacts	Slow action with staggered contacts
1 NO 1 NC	ZV10H 2..-11z 	TV10H 2..-11z 	TV10H 2..-11zÜ 	
2 NC	ZV10H 2..-02z 	TV10H 2..-02z 		TV10H 2..-02zh
2 NO		TV10H 2..-20z 		TV10H 2..-20zh

Roller lever 12H



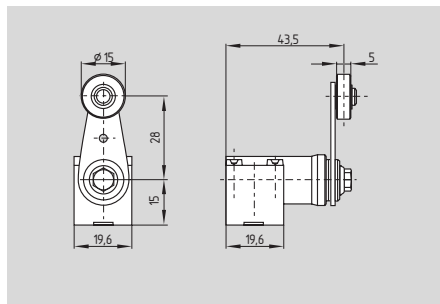
- Metal lever with plastic roller
- Actuator type A to EN 50047
- Lever angle adjustable in 10° steps
- Actuating torque: Min. 15 Ncm
- Positive break torque: 18.5 Ncm
- Actuating speed with actuating angle 30° to switch axis
Snap action: Min. 687 mm/min, max. 1 m/s
Slow action: Min. 4122 mm/min, max. 1 m/s
- Actuator head gasket, ordering suffix -z
- Available with metal roller, ordering suffix -RMS

Contact variants

Contacts/ Switch travel	Snap action	Slow action	Slow action with overlapping contacts	Slow action with staggered contacts
1 NO 1 NC	ZV12H 2..-11z 	TV12H 2..-11z 	TV12H 2..-11zÜ 	
2 NC	ZV12H 2..-02z 	TV12H 2..-02z 		TV12H 2..-02zh
2 NO		TV12H 2..-20z 		TV12H 2..-20zh

Position switches with safety function

Roller lever 14H



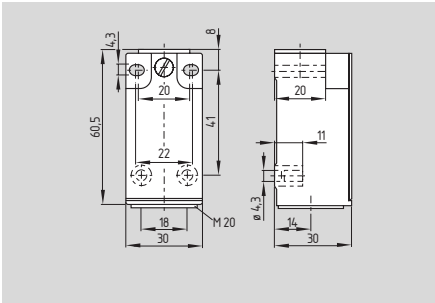
- Metal lever with plastic roller
- Lever angle adjustable in 10° steps
- Actuating torque: Min. 15 Ncm
- Positive break torque: 18.5 Ncm
- Actuating speed with actuating angle 30° to switch axis
 Snap action: Min. 687 mm/min, max. 1 m/s
 Slow action: Min. 4122 mm/min, max. 1 m/s
- Actuator head gasket, ordering suffix -z
- Available with metal roller, ordering suffix -RMS

Contact variants

Contacts/ Switch travel	Snap action	Slow action	Slow action with overlapping contacts	Slow action with staggered contacts
1 NO 1 NC	ZV14H 2..-11z 	TV14H 2..-11z 	TV14H 2..-11zü 	
2 NC	ZV14H 2..-02z 	TV14H 2..-02z 		TV14H 2..-02zh
2 NO		TV14H 2..-20z 		TV14H 2..-20zh

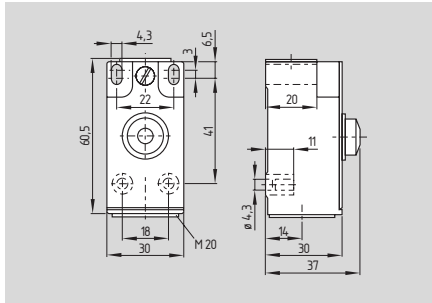
Position switches with safety function

ES/EM 95



- Thermoplastic enclosure
- Transverse slotted mounting holes
- Double insulated □
- Snap action with constant contact pressure up to switching point
- Slow action available with overlapping contacts
- Wide range of alternative actuators
- Actuator heads can be repositioned by 4 x 90°
- Angle of roller lever adjustable in 10° steps
- 1 cable entry M20 x 1.5
- Good resistance to oil and petroleum spirit
- Knockouts for additional mounting holes if required

ES/EM 95 V



- Slow action with mechanical locking and blue unlocking button available, ordering suffix -V
- Enclosure with longitudinal slotted mounting holes, ordering suffix LL

Technical data

Standards:	IEC/EN 60947-5-1 BG-GS-ET-15
Design:	DIN EN 50047
Enclosure:	glass-fibre reinforced thermoplastic, self-extinguishing
Protection class:	IP 67 to EN 60529
Contact material:	silver
Contact type:	change-over contact with double break, type Zb or 2 NC contacts, with galvanically separated contact bridges
Switching system:	⊖ IEC 60947-5-1 slow or snap action, NC contacts with positive break
Connection:	screw terminals
Cable section:	max. 2.5 mm ² (incl. conductor ferrules)
Cable entry:	1 x M20 x 1.5
U _{imp} :	6 kV
U _i :	500 V
I _{the} :	6 A
Utilisation category:	AC-15, DC-13
I _e /U _e :	0.275 A / 250 VDC 1 A / 24 VDC
Max. fuse rating:	6 A gG D-fuse
Mechanical life:	> 1 million operations
Switching frequency:	1800/h
Ambient temperature:	- 20 °C ... + 80 °C
Actuating speed referring to the plunger:	snap action: min. 10 mm/min; slow action: min. 60 mm/min
Bounce duration:	snap action: < 3 ms; slow action: in accordance with actuating speed
Switchover time:	snap action: > 5.5 ms; slow action: in accordance with actuating speed

Approvals



Approvals



Ordering details

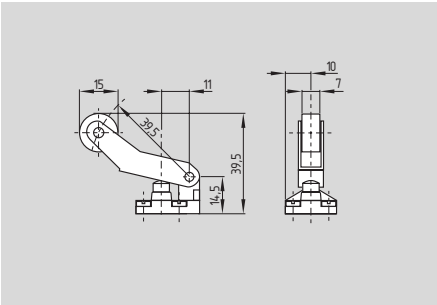
E ① 95 ②-③-④-⑤-⑥

No.	Replace	Description
①	M S	Snap action ⊖ Slow action ⊖
②	For the appropriate actuator: see as of page 1-49	
③	1Ö/1S UE 2Ö 2S	1 NC / 1 NO 1 NC / 1 NO with overlapping contacts 2 NC 2 NO

No.	Replace	Description
④	V	Mechanical locking and unlocking push button
⑤	M16	Cable entry M20 Cable entry M16
⑥	LL	Transverse slotted holes Longitudinal slotted holes

Position switches with safety function

Long offset roller lever

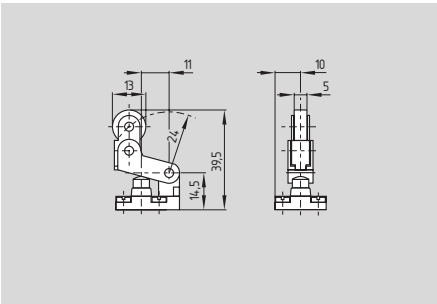


- Plunger with watertight collar
- Wear-resistant thermoplastic roller
- Actuator heads can be repositioned by 4 x 90°
- Metal roller available on request

Contact variants

Contacts/ Switch travel	Snap action	Slow action	Slow action with overlapping contacts
1 NO 1 NC	EM 95 WHLM 1Ö/1S 	ES 95 WHLM 1Ö/1S 	ES 95 WHLM UE
2 NC		ES 95 WHLM 2Ö 	
2 NO		ES 95 WHLM 2S 	

Rocking offset roller lever



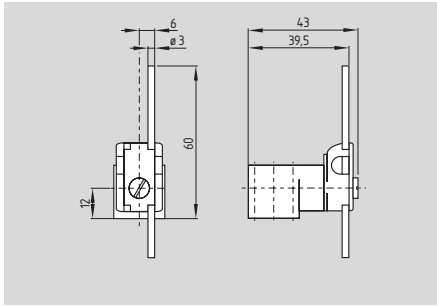
- **Only for positioning tasks**
- Plunger with watertight collar
- Actuator heads can be repositioned by 4 x 90°
- Actuation only possible from one side (R.H.S. in illustration)
- Free movement of actuator from other side
- Metal roller available on request

Contact variants

Contacts/ Switch travel	Snap action	Slow action	Slow action with overlapping contacts
1 NO 1 NC	EM 95 WHKM 1Ö/1S 	ES 95 WHKM 1Ö/1S 	ES 95 WHKM UE
2 NC		ES 95 WHKM 2Ö 	
2 NO		ES 95 WHKM 2S 	

Position switches with safety function

Wire lever DD

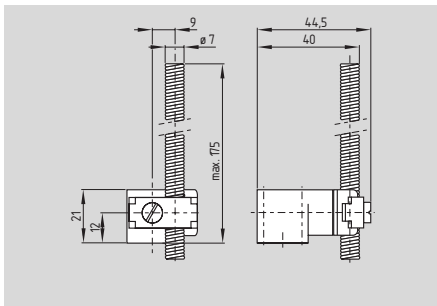


- Only for positioning tasks
- Lever angle adjustable in 10° steps
- Actuator heads can be repositioned by 4 x 90°

Contact variants

Contacts/ Switch travel	Snap action	Slow action	Slow action with overlapping contacts
1 NO 1 NC	EM 95 DD 1Ö/1S 	ES 95 DD 1Ö/1S 	ES 95 DD UE
2 NC		ES 95 DD 2Ö 	
2 NO		ES 95 DD 2S 	

Spring-rod lever DF



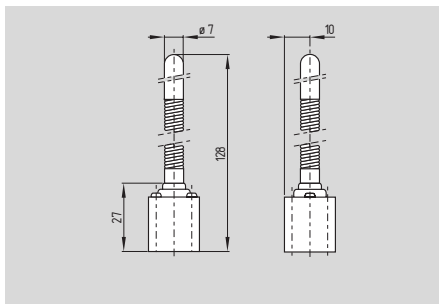
- Only for positioning tasks
- Lever angle adjustable in 10° steps
- Actuator heads can be repositioned by 4 x 90°

Contact variants

Contacts/ Switch travel	Snap action	Slow action	Slow action with overlapping contacts
1 NO 1 NC	EM 95 DF 1Ö/1S 	ES 95 DF 1Ö/1S 	ES 95 DF UE
2 NC		ES 95 DF 2Ö 	
2 NO		ES 95 DF 2S 	

Position switches with safety function

Spring rod TK



- Only for positioning tasks
- Wear-resistant thermoplastic tip
- Spring rod can be actuated from any direction

Contact variants

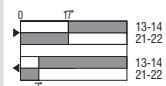
Contacts/
Switch travel

Snap action

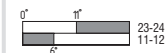
Slow action

1 NO
1 NC

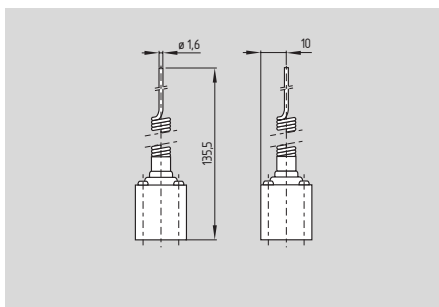
EM 95 TK 1Ö/1S



ES 95 TK 1Ö/1S



Long spring wire TL



- Only for positioning tasks
- Spring rod can be actuated from any direction

Contact variants

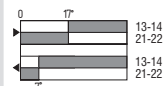
Contacts/
Switch travel

Snap action

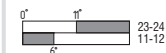
Slow action

1 NO
1 NC

EM 95 TL 1Ö/1S

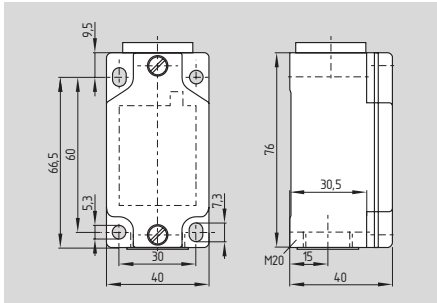


ES 95 TL 1Ö/1S



Position switches with safety function

Z 332



- Metal enclosure
- Gold-plated solid silver contacts
- Magnetic-storage snap action system
- Wiring compartment
- Short contact-bounce duration
- Switching system separated from snap action system, providing constant switching point independent of contact wear
- Large contact break
- High repeat accuracy of switching point position
- Wide range of alternative actuators
- Actuator heads can be repositioned by 4 x 90°
- Angle of roller lever adjustable in 10° steps
- Good resistance to oil and petroleum spirit

Technical data

Standards:	IEC/EN 60947-5-1 BG-GS-ET-15
Design:	DIN EN 50041
Enclosure:	light-alloy diecast, paint finish
Protection class:	IP 65 to EN 60529
Contact material:	silver
Contact type:	change-over contact with double break, type Zb or 2 NC contacts, with galvanically separated contact bridges
Switching system:	⊖ IEC 60947-5-1 snap action, NC contacts with positive break
Connection:	screw terminals
Cable section:	max. 2.5 mm ² (incl. conductor ferrules)
U _{imp} :	4 kV
U _i :	connector: 0.8 kV 250 V
I _{the} :	connector: 50 V 6 A
Utilisation category:	AC-15, DC-13
I _e /U _e :	2.5 A / 230 VAC connector: 4 A / 50 VAC
Max. fuse rating:	6 A gG D-fuse
Ambient temperature:	- 30 °C ... + 80 °C
Mechanical life:	30 million operations
Switching frequency:	3000/h
Switching-point accuracy:	± 0.02 mm
Actuating speed snap action:	min. 10 mm/min
Contact break for complete stroke:	> 2 x 1.25 mm
Bounce duration:	< 2.5 ms
Switchover time snap action:	> 1,5 ms

Approvals

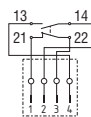


Ordering details

Z ① 332-11y-②-③

No.	Replace	Description
①		For the appropriate actuator: see as of page 1-53
②	ST	Cable entry M20 Connector M12 (A-Coding)
	2310	(B-Coding)
③	2138	Roller lever 7H for safety duties

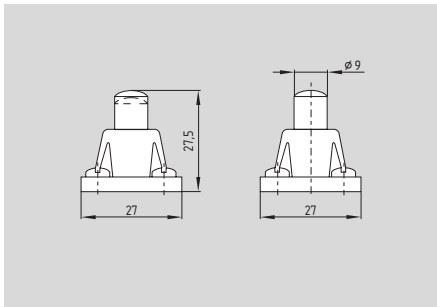
Connector



Caution! The versions with connector may only be used in PELV circuits to EN 60204-1.

Position switches with safety function

Plunger S



- Actuator type B to EN 50041
- Actuating force: Min. 31 N

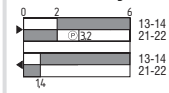
Contact variants

Contacts/
Switch travel

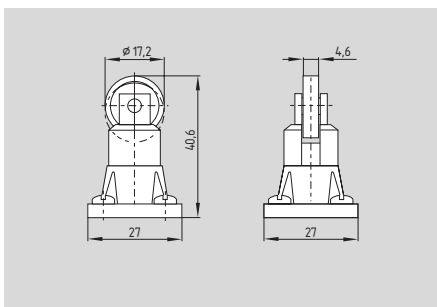
Snap action

1 NO
1 NC

ZS 332-11y



Roller plunger R



- Actuator type C to EN 50041
- Actuating force: Min. 31 N
- Brass actuator roller

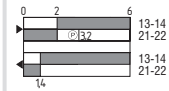
Contact variants

Contacts/
Switch travel

Snap action

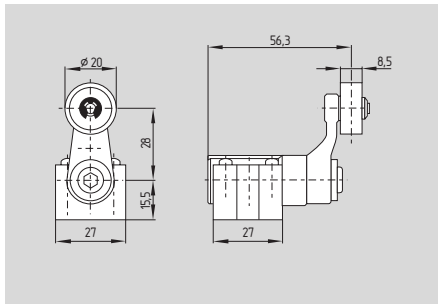
1 NO
1 NC

ZR 332-11y



Position switches with safety function

Roller lever H



- Actuator type A to EN 50041
- Actuating torque: Min. 35 Ncm

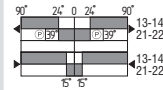
Contact variants

Contacts/
Switch travel

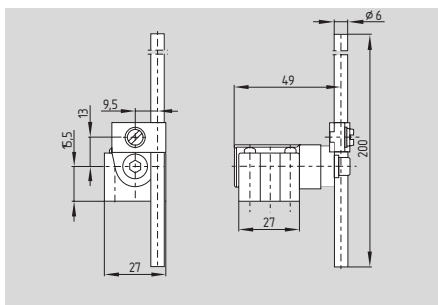
Snap action

1 NO
1 NC

Z4VH 332-11y



Roller lever 10H



- **Only for positioning tasks**
- Actuator type D to EN 50041
- Plastic rod
- Actuating torque: Min. 35 Ncm
- Aluminium rod, ordering suffix -1183

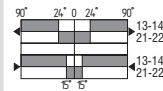
Contact variants

Contacts/
Switch travel

Snap action

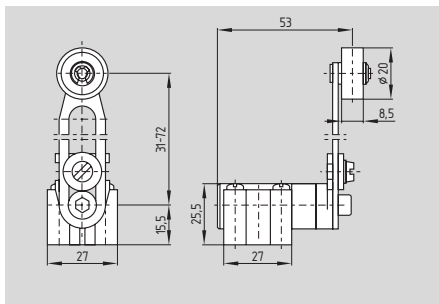
1 NO
1 NC

Z4V10H 332-11y



Position switches with safety function

Roller lever 7H



- Only for positioning tasks
- Actuating torque: Min. 35 Ncm

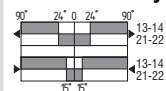
Contact variants

Contacts/
Switch travel

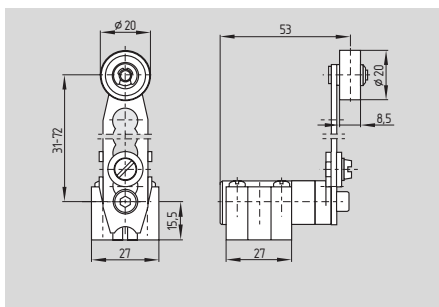
Snap action

1 NO
1 NC

Z4V7H 332-11y



Roller lever 7H-2138



- For safety tasks ⊕, positive break, ordering suffix -2138
- Actuating torque: Min. 35 Ncm

Positive break angle ⊕ only valid with ordering suffix -2138

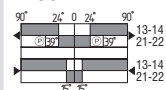
Contact variants

Contacts/
Switch travel

Snap action

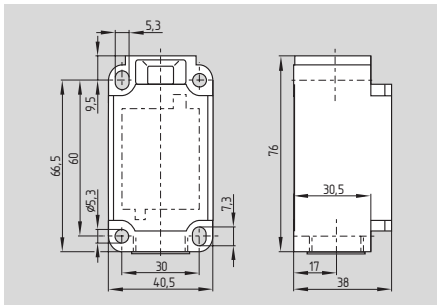
1 NO
1 NC

Z4V7H 332-11y-
2138



Position switches with safety function

Z/T 336



- Thermoplastic enclosure
- Double insulated \square
- Available with positive break NC contacts to EN 60947-5-1
- Snap action with constant contact pressure up to switching point
- Slow action available with 2 positive break NC contacts
- Slow action available with overlapping or staggered contacts
- 1 cable entry M20 x 1.5
- Wide range of alternative actuators
- Actuator heads can be repositioned by 4 x 90°
- Angle of roller lever adjustable in 10° steps
- Good resistance to oil and petroleum spirit
- Metal roller available on request

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 to EN 60529

Contact material: silver

Contact type: change-over contact with double break, type Zb or 2 NC contacts, with galvanically separated contact bridges

Switching system: \ominus IEC 60947-5-1
slow or snap action, NC contacts with positive break

Connection: screw terminals

Cable section: max. 2.5 mm² (incl. conductor ferrules)

Cable entry: 1 x M20 x 1.5

U_{imp} : 6 kV

U_i : 500 V

I_{the} : 10 A

Utilisation category: AC-15, DC-13

I_e/U_e : 4 A / 230 VAC
1 A / 24 VDC

Max. fuse rating: 6 A gG D-fuse

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

Mechanical life: 30 million operations

Switching frequency: max. 5000/h

Bounce duration: snap action: in accordance with actuating speed;
slow action: < 2ms

Switchover time: snap action: < 2 ms;
slow action: in accordance with actuating speed

Approvals



Ordering details

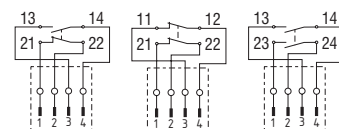
①② 336-③z④-⑤-⑥-⑦

No.	Replace	Description
①	Z	Snap action \ominus
	T	Slow action \ominus
②	For the appropriate actuator: see as of page 1-57	
③	11	1 NO / 1 NC
	02	2 NC
	20	2 NO
	01/01	1 NC left / 1 NC right
④	h	Slow action with staggered contacts
	ü	Slow action with overlapping contacts

Ordering details

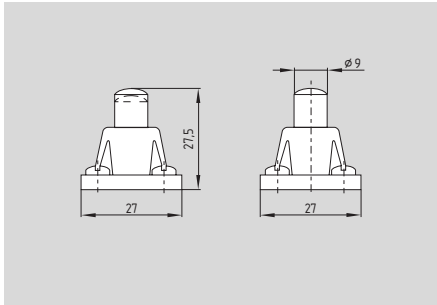
No.	Replace	Description
⑤	NPT	Cable entry M20
	ST	Cable entry NPT 1/2"
		Connector M12 (A-Coding) (B-Coding)
⑥	2310	Roller lever 7H for safety duties
⑦	1637	Gold-plated contacts

Connector



Position switches with safety function

Plunger S

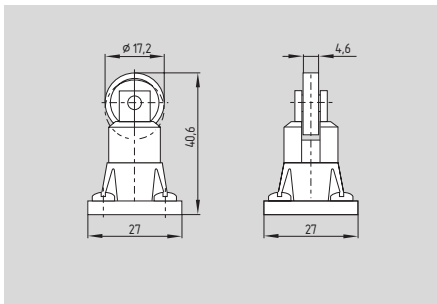


- Actuator type B to EN 50041
- Required actuating force:
12 N for snap action,
17 N for slow action
- Actuating speed with actuating angle 0° to switch axis, max. 0.5 m/s

Contact variants

Contacts/ Switch travel	Snap action	Slow action	Slow action with overlapping contacts	Slow action with staggered contacts
1 NO 1 NC	ZS 336-11z 	TS 336-11z 	TS 336-11zü 	
2 NC	ZS 336-02z 	TS 336-02z 		TS 336-02zh
2 NO		TS 336-20z 		TS 336-20zh

Roller plunger R



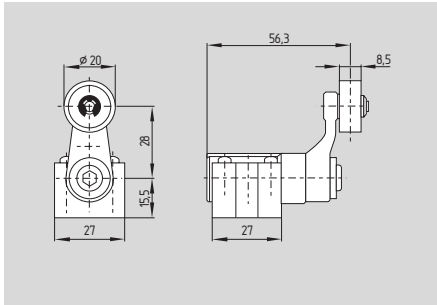
- Actuator type C to EN 50041
- Required actuating force:
12 N for snap action,
17 N for slow action
- Actuating speed with actuating angle 30° to switch axis: max. 0.5 m/s

Contact variants

Contacts/ Switch travel	Snap action	Slow action	Slow action with overlapping contacts	Slow action with staggered contacts
1 NO 1 NC	ZR 336-11z 	TR 336-11z 	TR 336-11zü 	
2 NC	ZR 336-02z 	TR 336-02z 		TR 336-02zh
2 NO		TR 336-20z 		TR 336-20zh

Position switches with safety function

Roller lever H



- Actuator type A to EN 50041
- Required actuating torque:
26 Ncm for snap action,
31 Ncm for slow action
- Actuating speed with actuating angle 30° to switch axis: max. 2.5 m/s

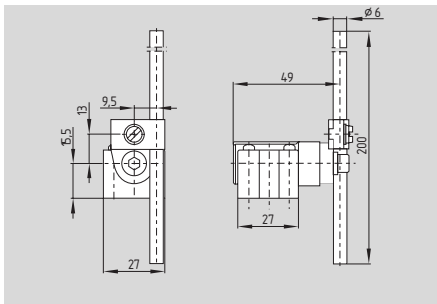
The positioning of the head on version "1 NC left/1 NC right" must be carried out in factory.

On version TVH 336-01/01z positive break only to one side.

Contact variants

Contacts/ Switch travel	Snap action	Slow action	Slow action with overlapping contacts	Slow action with staggered contacts
1 NO 1 NC	Z4VH 336-11z 	T4VH 336-11z 	T4VH 336-11zÜ 	
2 NC	Z4VH 336-02z 	T4VH 336-02z 		T4VH 336-02zh
2 NO		T4VH 336-20z 		T4VH 336-20zh
1 NC left 1 NC right		TVH 336-01/01z 		

Rod lever 10H



- **Only for positioning tasks**
- Actuator type D to EN 50041
- Plastic rod
- Required actuating torque:
26 Ncm for snap action,
31 Ncm for slow action
- Actuating speed with actuating angle 30° to switch axis: max. 2.5 m/s
- Aluminium rod, ordering suffix -1183

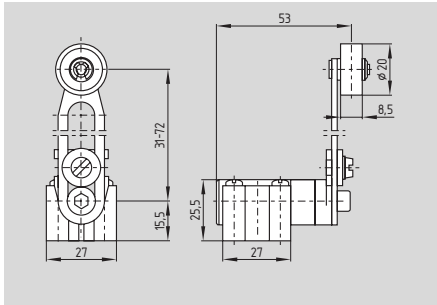
The positioning of the head on version "1 NC left/1 NC right" must be carried out in factory.

Contact variants

Contacts/ Switch travel	Snap action	Slow action	Slow action with overlapping contacts	Slow action with staggered contacts
1 NO 1 NC	Z4V10H 336-11z 	T4V10H 336-11z 	T4V10H 336-11zÜ 	
2 NC	Z4V10H 336-02z 	T4V10H 336-02z 		T4V10H 336-02zh
2 NO		T4V10H 336-20z 		T4V10H 336-20zh
1 NC left 1 NC right		TV10H 336-01/01z 		

Position switches with safety function

Roller lever 7H



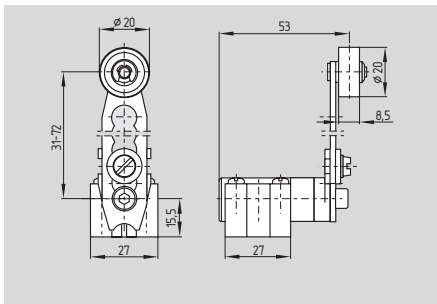
- Only for positioning tasks
- Required actuating torque:
26 Ncm for snap action,
31 Ncm for slow action
- Actuating speed with actuating angle 30° to switch axis: max. 2.5 m/s

The positioning of the head on version "1 NC left/1 NC right" must be carried out in factory.

Contact variants

Contacts/ Switch travel	Snap action	Slow action	Slow action with overlapping contacts	Slow action with staggered contacts
1 NO 1 NC	Z4V7H 336-11z 	T4V7H 336-11z 	T4V7H 336-11z 	
2 NC	Z4V7H 336-02z 	T4V7H 336-02z 		T4V7H 336-02zh
2 NO		T4V7H 336-20z 		T4V7H 336-20zh
1 NC left 1 NC right		TV7H 336-01/01z 		

Roller lever 7H-2138



- For safety tasks ⊖, positive break, ordering suffix -2138
- Required actuating torque:
26 Ncm for snap action,
31 Ncm for slow action
- Actuating speed with actuating angle 30° to switch axis: max. 2.5 m/s

The positioning of the head on version "1 NC left/1 NC right" must be carried out in factory.

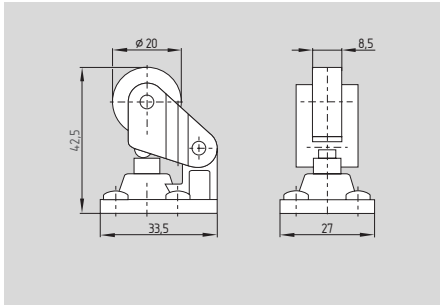
On version TV7H 336-01/01z-2138 positive break only to one side.

Contact variants

Contacts/ Switch travel	Snap action	Slow action	Slow action with overlapping contacts	Slow action with staggered contacts
1 NO 1 NC	Z4V7H 336-11z -2138 	T4V7H 336-11z -2138 	T4V7H 336-11z -2138 	
2 NC	Z4V7H 336-02z -2138 	T4V7H 336-02z -2138 		T4V7H 336-02zh -2138
2 NO		T4V7H 336-20z -2138 		T4V7H 336-20zh -2138
1 NC left 1 NC right		TV7H 336-01/01z -2138 		

Position switches with safety function

Offset roller lever 1K

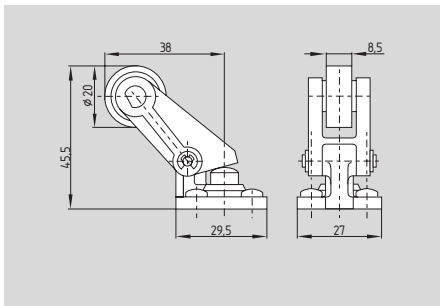


- Required actuating force:
12 N for snap action,
17 N for slow action
- Actuating speed with actuating angle 30° to switch axis: max. 0.5 m/s

Contact variants

Contacts/ Switch travel	Snap action	Slow action	Slow action with overlapping contacts	Slow action with staggered contacts
1 NO 1 NC	Z1K 336-11z 	T1K 336-11z 	T1K 336-11zü 	
2 NC	Z1K 336-02z 	T1K 336-02z 		T1K 336-02zh
2 NO		T1K 336-20z 		T1K 336-20zh

Angle roller lever 3K



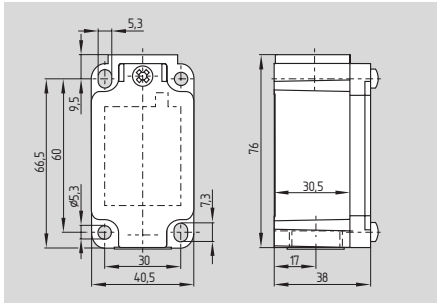
- Required actuating force:
12 N for snap action,
17 N for slow action
- Actuating speed with actuating angle 30° to switch axis: max. 0.5 m/s
- Actuation parallel to axis of switch from below

Contact variants

Contacts/ Switch travel	Snap action	Slow action	Slow action with overlapping contacts	Slow action with staggered contacts
1 NO 1 NC	Z3K 336-11z 	T3K 336-11z 	T3K 336-11zü 	
2 NC	Z3K 336-02z 	T3K 336-02z 		T3K 336-02zh
2 NO		T3K 336-20z 		T3K 336-20zh

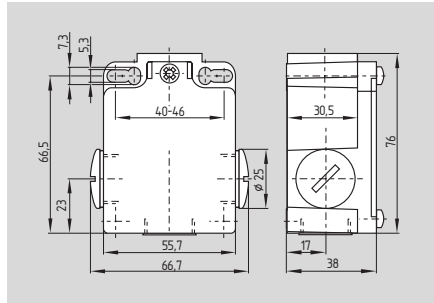
Position switches with safety function

Z/T 335



- Metal enclosure
- Snap action with constant contact pressure up to switching point
- Slow or snap action available with 2 positive break NC contacts to EN 60947-5-1
- Slow action available with overlapping or staggered contacts
- 1 cable entry M20 x 1.5
- Wide range of alternative actuators
- Actuator heads can be repositioned by 4 x 90°
- Angle of roller lever adjustable in 10° steps
- Good resistance to oil and petroleum spirit
- Metal roller available on request

Z/T 355



- Mountings and switching points to EN 50041
- 3 cable entries M20 x 1.5

Technical data

Standards:	IEC/EN 60947-5-1 BG-GS-ET-15
Design:	DIN EN 50041
Enclosure:	light-alloy diecast, paint finish
Protection class:	IP 67 to EN 60529
Contact material:	silver
Contact type:	change-over contact with double break, type Zb or 2 NC contacts, with galvanically separated contact bridges
Switching system:	⊖ IEC 60947-5-1 slow or snap action, NC contacts with positive break screw terminals
Connection:	max. 2.5 mm ² (incl. conductor ferrules)
Cable section:	Z/T 335: 1 x M20 x 1.5 Z/T 355: 3 x M20 x 1.5
Cable entry:	
U _{imp} :	6 kV -03z, -12z: 4kV connector: 0.8 kV
U _i :	500 V -03z, -12z: 250 V connector: 50 V
I _{the} :	10 A
Utilisation category:	AC-15, DC-13
I _e /U _e :	4 A / 230 VAC 1 A / 24 VDC connector: 4 A / 50 VAC
Max. fuse rating:	6 A gG D-fuse
Ambient temperature:	- 30 °C ... + 80 °C
Mechanical life:	30 million operations
Switching frequency:	max. 5000/h
Bounce duration:	snap action: in accordance with actuating speed; slow action: < 2ms
Switchover time:	snap action: < 2 ms; slow action: in accordance with actuating speed

Approvals



Approvals



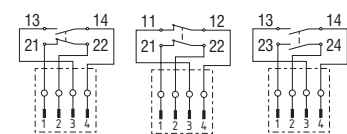
Ordering details

①② 3③5-④z⑤-⑥-⑦-⑧-⑨

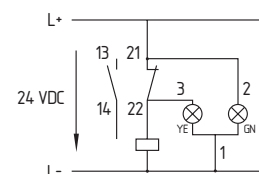
No.	Replace	Description
①	Z T	Snap action ⊖ Slow action ⊖
②		For the appropriate actuator: see as of page 1-62
③	3 5	Slim design Large design
④	11 02 20 01/01 12 03	1 NO / 1 NC 2 NC 2 NO 1 NC left / 1 NC right 1 NO / 2 NC 3 NC

No.	Replace	Description
⑤	h ü	Slow action with staggered contacts with overlapping contacts
⑥	G24	With LED
⑦	NPT ST	Cable entry M20 Cable entry NPT 1/2"
	2310 2138	Connector M12 (A-Coding) (B-Coding) Roller lever 7H for safety duties
⑧		
⑨	1637	Gold-plated contacts

Note



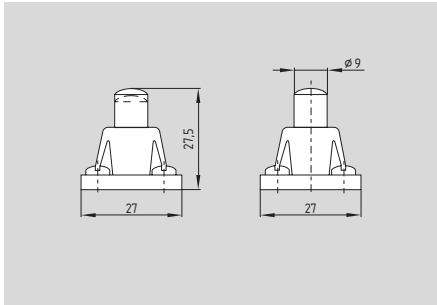
Caution! The versions with connector may only be used in PELV circuits to EN 60204-1.



LED version
Ordering suffix G24, Protected against incorrect polarity and voltage spikes.

Position switches with safety function

Plunger S

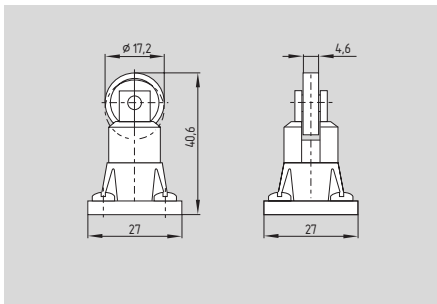


- Actuator type B to EN 50041
- Required actuating force:
12 N for snap action,
17 N for slow action
- Actuating speed with actuating angle 0° to switch axis, max. 0.5 m/s

Contact variants

Contacts/ Switch travel	Snap action	Slow action	Slow action with overlapping contacts	Slow action with staggered contacts
1 NO 1 NC	ZS 3..-11z 	TS 3..-11z 	TS 3..-11zü 	
2 NC	ZS 3..-02z 	TS 3..-02z 		TS 3..-02zh
2 NO		TS 3..-20z 		TS 3..-20zh
1 NO 2 NC		TS 3..-12z 	TS 3..-12zü 	
3 NC		TS 3..-03z 		TS 3..-03zh

Roller plunger R



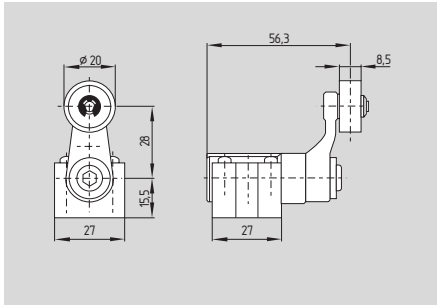
- Actuator type C to EN 50041
- Required actuating force:
12 N for snap action,
17 N for slow action
- Actuating speed with actuating angle 30° to switch axis: max. 0.5 m/s

Contact variants

Contacts/ Switch travel	Snap action	Slow action	Slow action with overlapping contacts	Slow action with staggered contacts
1 NO 1 NC	ZR 3..-11z 	TR 3..-11z 	TR 3..-11zü 	
2 NC	ZR 3..-02z 	TR 3..-02z 		TR 3..-02zh
2 NO		TR 3..-20z 		TR 3..-20zh
1 NO 2 NC		TR 3..-12z 	TR 3..-12zü 	
3 NC		TR 3..-03z 		TR 3..-03zh

Position switches with safety function

Roller lever H



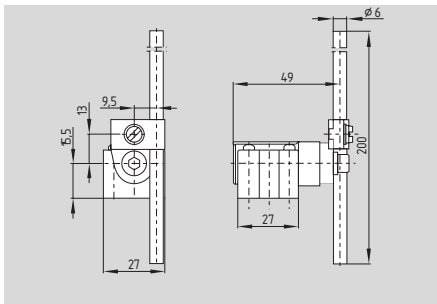
- Actuator type A to EN 50041
- Required actuating torque:
26 Ncm for snap action,
31 Ncm for slow action
- Actuating speed with actuating angle 30° to switch axis: max. 2.5 m/s

On version TVH ...-01/01z positive break only to one side.

Contact variants

Contacts/ Switch travel	Snap action	Slow action	Slow action with overlapping contacts	Slow action with staggered contacts
1 NO 1 NC	Z4VH 3..-11z 	T4VH 3..-11z 	T4VH 3..-11zü 	
2 NC	Z4VH 3..-02z 	T4VH 3..-02z 		T4VH 3..-02zh
2 NO		T4VH 3..-20z 		T4VH 3..-20zh
1 NC left 1 NC right		TVH 3..-01/01z 		
1 NO 2 NC		T4VH 3..-12z 	T4VH 3..-12zü 	
3 NC		T4VH 3..-03z 		T4VH 3..-03zh

Rod lever 10H



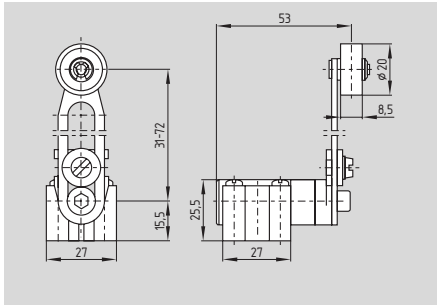
- **Only for positioning tasks**
- Actuator type D to EN 50041
- Plastic rod
- Required actuating torque:
26 Ncm for snap action,
31 Ncm for slow action
- Actuating speed with actuating angle 30° to switch axis: max. 2.5 m/s
- Aluminium rod, ordering suffix -1183

Contact variants

Contacts/ Switch travel	Snap action	Slow action	Slow action with overlapping contacts	Slow action with staggered contacts
1 NO 1 NC	Z4V10H 3..-11z 	T4V10H 3..-11z 	T4V10H 3..-11zü 	
2 NC	Z4V10H 3..-02z 	T4V10H 3..-02z 		T4V10H 3..-02zh
2 NO		T4V10H 3..-20z 		T4V10H 3..-20zh
1 NC left 1 NC right		TV10H 3..-01/01z 		
1 NO 2 NC		T4V10H 3..-12z 	T4V10H 3..-12zü 	
3 NC		T4V10H 3..-03z 		T4V10H 3..-03zh

Position switches with safety function

Roller lever 7H

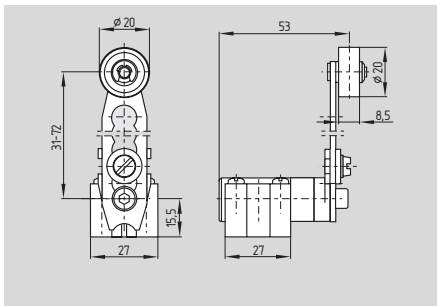


- Only for positioning tasks
- Required actuating torque:
26 Ncm for snap action,
31 Ncm for slow action
- Actuating speed with actuating angle 30° to switch axis: max. 2.5 m/s

Contact variants

Contacts/ Switch travel	Snap action	Slow action	Slow action with overlapping contacts	Slow action with staggered contacts
1 NO 1 NC	Z4V7H 3..-11z 	T4V7H 3..-11z 	T4V7H 3..-11zü 	
2 NC	Z4V7H 3..-02z 	T4V7H 3..-02z 		T4V7H 3..-02zh
2 NO		T4V7H 3..-20z 		T4V7H 3..-20zh
1 NC left 1 NC right		TV7H 3..-01/01z 		
1 NO 2 NC		T4V7H 3..-12z 	T4V7H 3..-12zü 	
3 NC		T4V7H 3..-03z 		T4V7H 3..-03zh

Roller lever 7H-2138



- For safety tasks ⊖, positive break, ordering suffix -2138
- Required actuating torque:
26 Ncm for snap action,
31 Ncm for slow action
- Actuating speed with actuating angle 30° to switch axis: max. 2.5 m/s

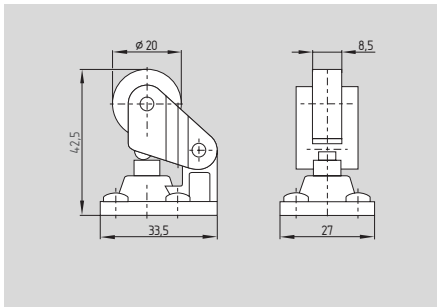
On version TV7H ...-01/01z-2138 positive break only to one side.

Contact variants

Contacts/ Switch travel	Snap action	Slow action	Slow action with overlapping contacts	Slow action with staggered contacts
1 NO 1 NC	Z4V7H 3..-11z-2138 	T4V7H 3..-11z-2138 	T4V7H 3..-11zü-2138 	
2 NC	Z4V7H 3..-02z-2138 	T4V7H 3..-02z-2138 		T4V7H 3..-02zh-2138
2 NO		T4V7H 3..-20z-2138 		T4V7H 3..-20zh-2138
1 NC left 1 NC right		TV7H 3..-01/01z-2138 		
1 NO 2 NC		T4V7H 3..-12z-2138 	T4V7H 3..-12zü-2138 	
3 NC		T4V7H 3..-03z-2138 		T4V7H 3..-03zh-2138

Position switches with safety function

Offset roller lever 1K

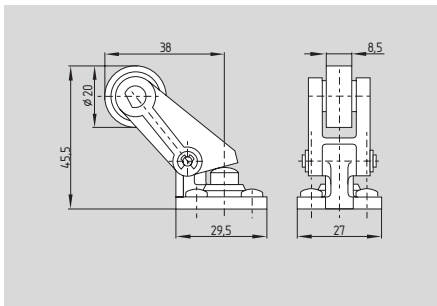


- Required actuating force:
12 N for snap action,
17 N for slow action
- Actuating speed with actuating
angle 30° to switch axis: max. 0.5 m/s

Contact variants

Contacts/ Switch travel	Snap action	Slow action	Slow action with overlapping contacts	Slow action with staggered contacts
1 NO 1 NC	Z1K 3..-11z 	T1K 3..-11z 	T1K 3..-11z\ddot{u} 	
2 NC	Z1K 3..-02z 	T1K 3..-02z 		T1K 3..-02zh
2 NO		T1K 3..-20z 		T1K 3..-20zh
1 NO 2 NC		T1K 3..-12z 	T1K 3..-12z\ddot{u} 	
3 NC		T1K 3..-03z 		T1K 3..-03zh

Angle roller lever 3K



- Required actuating force:
12 N for snap action,
17 N for slow action
- Actuating speed with actuating
angle 30° to switch axis: max. 0.5 m/s
- Actuation parallel to axis of switch
from below

Contact variants

Contacts/ Switch travel	Snap action	Slow action	Slow action with overlapping contacts	Slow action with staggered contacts
1 NO 1 NC	Z3K 3..-11z 	T3K 3..-11z 	T3K 3..-11z\ddot{u} 	
2 NC	Z3K 3..-02z 	T3K 3..-02z 		T3K 3..-02zh
2 NO		T3K 3..-20z 		T3K 3..-20zh
1 NO 2 NC		T3K 3..-12z 	T3K 3..-12z\ddot{u} 	
3 NC		T3K 3..-03z 		T3K 3..-03zh