



Position switches with safety function

Thermoplastic enclosure

// Series ES 13

from page 24

// Series ES 14

from page 34

// Series ES 95

from page 42

Metal enclosure

// Series ES 51

from page 50

// Series ES 41

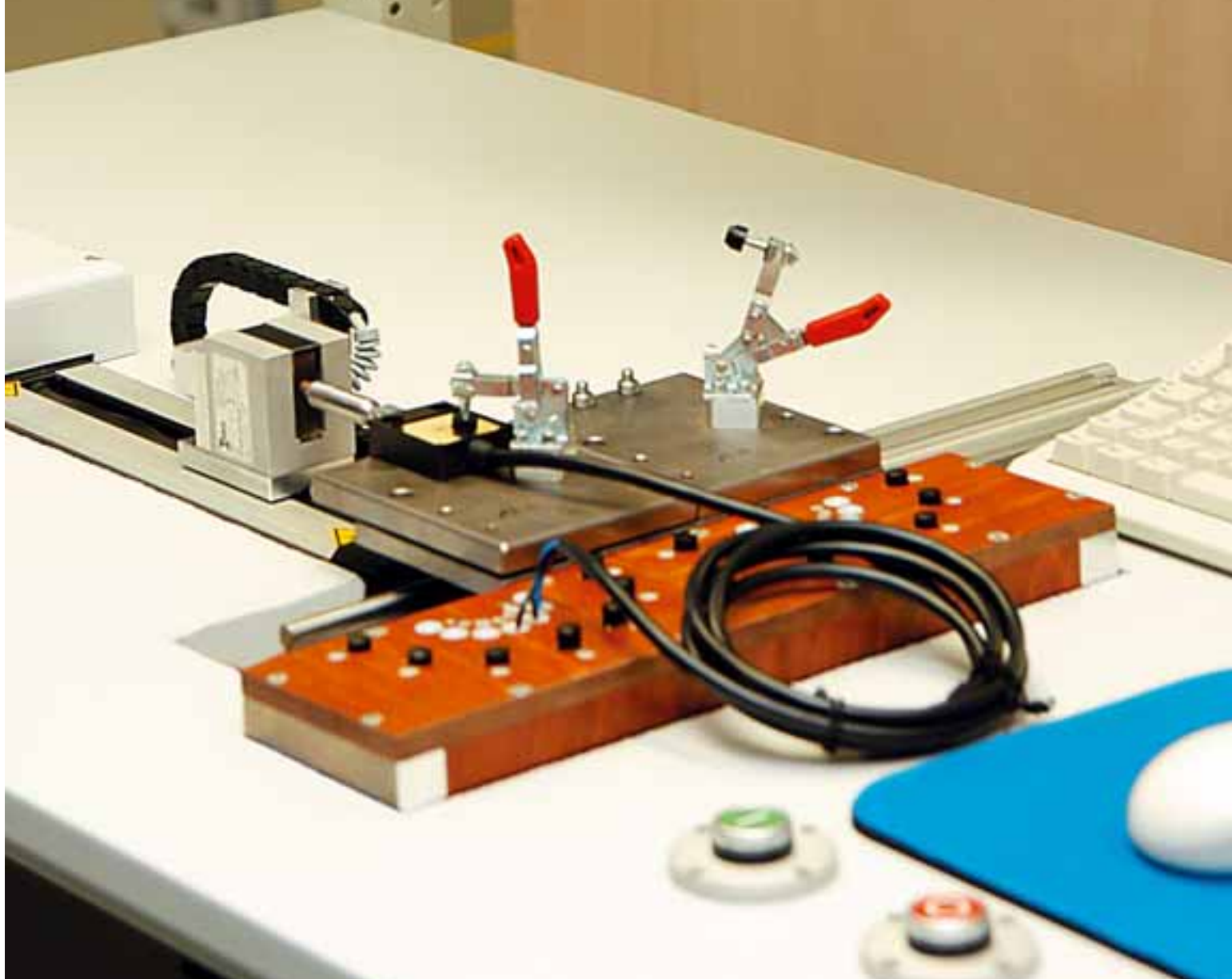
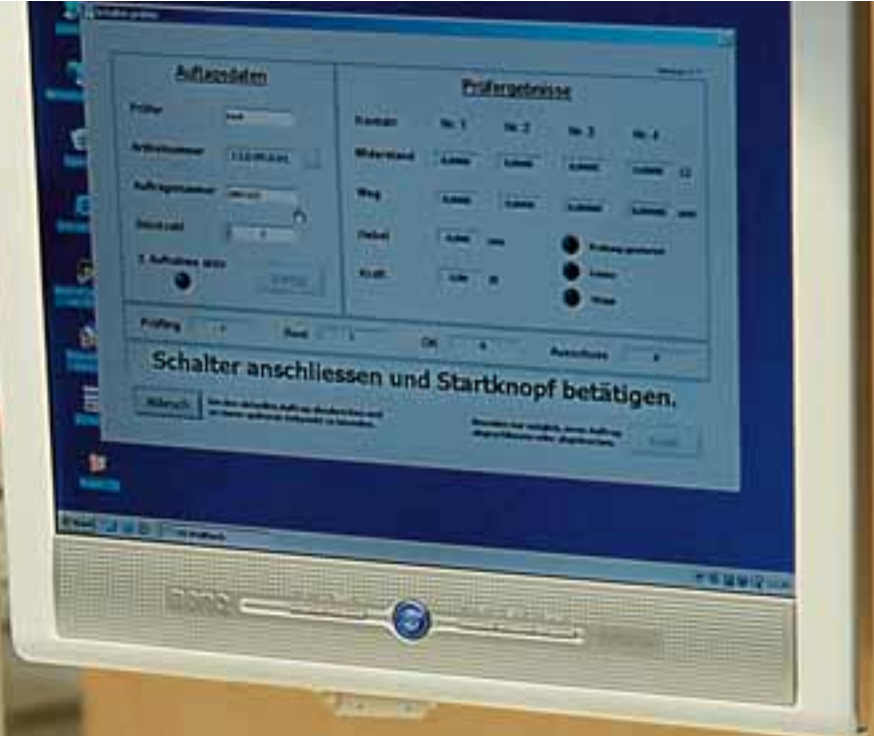
from page 60

// Series ES 411

from page 60

// Series ES 61

from page 70



Position switches with safety function

Range of application

The position switches with a safety function are suitable for sliding and hinged guard devices, which must be closed in order to guarantee the necessary operational safety. In combination with an appropriate safety control module, all safety switches shown in this chapter achieve Control Category 3 or 4 to EN 954-1.

Further applications for position switches with safety function are most varied positioning duties. The variety of requirements to be found in practice can be met in detail by means of a wide range of actuating elements

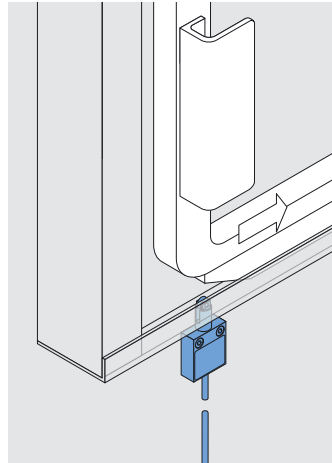
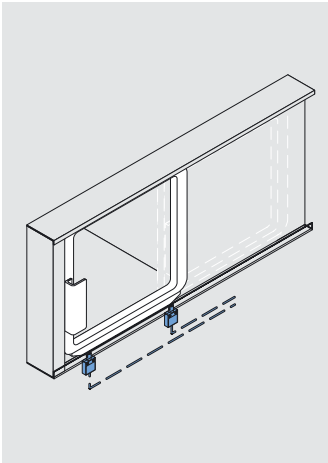
Design and operating principle

On the position switches with a safety function, the guard device and the positive break NC contact are positively linked. With the safety guard in closed condition, the position switch with safety function is not operated.

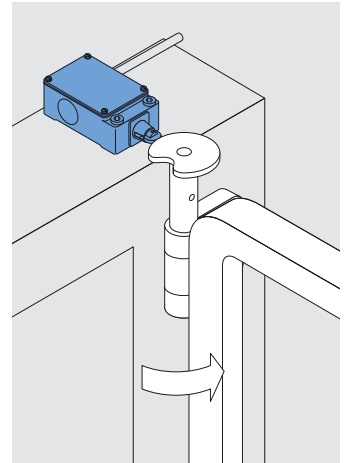
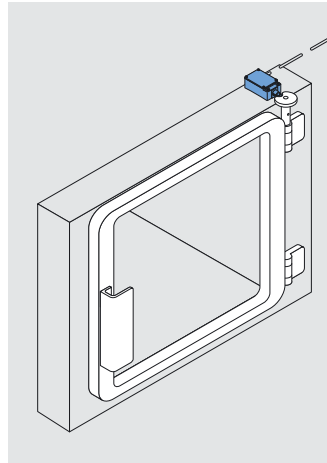
Many versions with snap or slow action are available. The position switches with a safety function can be fitted in any desired mounting position.

Application

on hinged guards

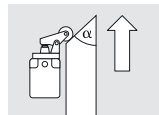


on sliding guards



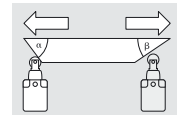
Legend

α : Actuating angle from below as shown in picture



α : Actuating angle from right of switch axis

β : Actuating angle from left of switch axis with reference to lever position as shown in picture









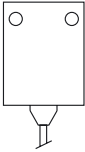


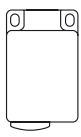
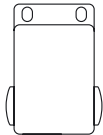
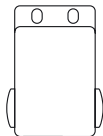
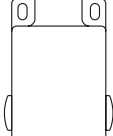


Selection table

Position switches with safety function/actuators









// Series

// Actuator

		↓	↓	↓	↺	↺	↺	↓	↔
									
ES 13, from page 24 - Thermoplastic enclosure - Cable		+ W		F	KU WKU	FKU			R WR
ES 14, from page 34 - Thermoplastic enclosure - Cable		+ W		F	KU WKU	FKU	VKU		R WR
ES 95, from page 42 - Thermoplastic enclosure - Wiring compartment - 1 cable entry - Design to DIN EN 50 047		W							R
ES 51, from page 50 - Metal enclosure - Wiring compartment - 1 cable entry		+ W	ST WST		KU			WK	R WR
ES 41, from page 60 - Metal enclosure - Wiring compartment - 3 cable entries		+ W	ST WST		KU			WK	R WR
ES 411, from page 60 - Metal enclosure - Wiring compartment - 3 cable entries		+ W	ST WST		KU			WK	R WR
ES 61, from page 70 - Metal enclosure - Wiring compartment - 3 cable entries		W							

+ default: plunger without watertight collar

Actuating direction → / Free movement of actuator →

	↔	↔	↔	↔	↔	↑	↔	↔
								
		FR		WH	WHL	WPH	D	DL
		FR	VR				D	DL
	RL			WH WHM	WHLM	WPH WPHM 4K	D	
				H WH	HL WHL	PH WPH		
				H WH	HL WHL	PH WPH		
				H WH	HL WHL	PH WPH		
				WH	WHL	WPH		

Position switches with safety function

// Series ES 13

Features/Options

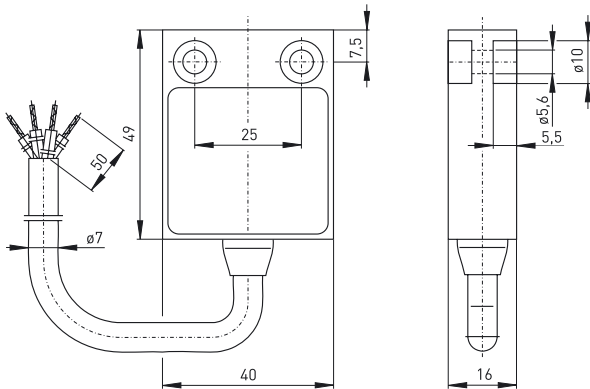
- Thermoplastic enclosure
- Double insulated \square
- Slow action \ominus , change-over contact with double break
- Slow action with overlapping contacts available
- Max. 3 contacts
- Version with 3 contacts has cable on left-hand side
- Suitable for in-line mounting
- With pre-wired cable, cable length 1 meter
- Ex-version available

// ES 13



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	glass-fibre reinforced, shock-proof thermoplastic, self-extinguishing UL 94-V0
Protection class	IP 67 to EN 60529
Contact material	silver
Switching system	slow action, positive break NC contact \ominus
Switching elements	change-over contact with double break with galvanically separated contact bridges
Termination	cable H05VV-F
Cable section	4 x 0.75 mm ²
U _{imp}	4 kV
U _i	250 V
I _{the}	6 A
I _e /U _e	6 A/250 VAC; 0,25 A/230 VDC
Utilisation category	AC-15, DC-13
Max. fuse rating	6 A gL/gG D-fuse
Ambient temperature	-20 °C ... +75 °C
Mechanical life	> 1 million operations
Switching frequency	1800/h
Repeat accuracy of switching points	± 0.1 mm
Impact resistance/Contact opening	max. 2 x 4.5 mm



Ordering details

ES 13 WR 10/1S-s-B-1m

- Cable length 1 m, (2 m, 5 m, 10 m)
- Tapped bushing M16 x 1.5
- Cable on side
- Contact type 1NC/1NO, (UE, 20/1S, 10/2S)
- Actuator R (H, TK, D, etc. ...)
- Watertight collar
- Series
- S Slow action

Position switches with safety function

// Series ES 13

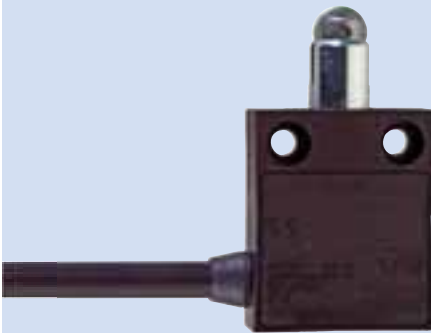
Features/Options

- With gold-plated contacts available on request
- Pneumatic version available

Features/Options

- Actuating speed 0.5 m/s with an actuating angle of 0°

// Cable entry on side s



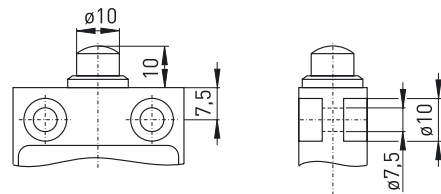
// Tapped bushing M16 x 1,5



// Connector M12 x 1, 4-pole

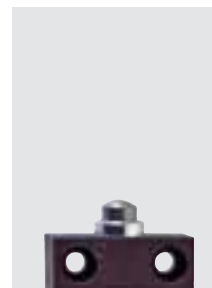


// Plunger



Contact variants: switch travel/contacts

Slow action	
1 NC / 1 NO contact	ES 13



Position switches with safety function

// Series ES 13, actuators

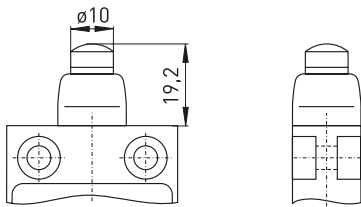
Features/Options

- Actuating speed 0.5 m/s with an actuating angle of 0°
- Collar to protect against the entry of foreign bodies

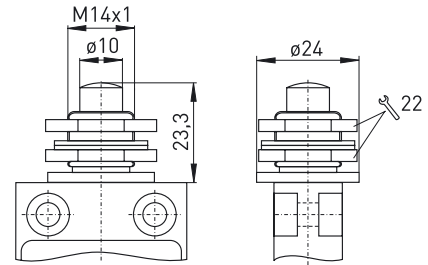
Features/Options

- Actuating speed 0.5 m/s with an actuating angle of 0°

// Plunger collar W



// Plunger for front mounting F



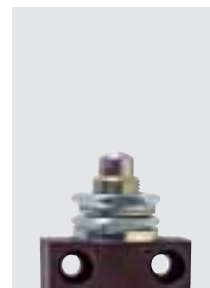
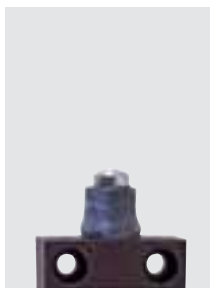
26

Contact variants: switch travel/contacts

Contact variants: switch travel/contacts

	Slow action
1 NC / 1 NO contact	ES 13 W 10/1S

	Slow action
1 NC / 1 NO contact	ES 13 F 10/1S



Features/Options

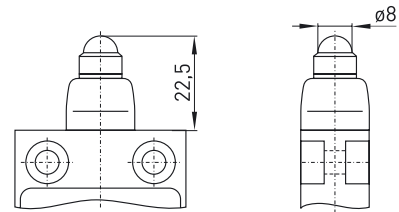
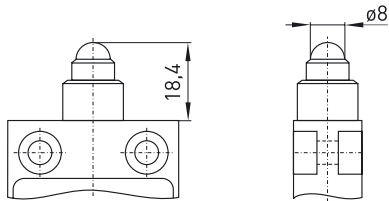
- Actuating speed 0.5 m/s with an actuating angle of 20°
- Can be actuated in line with or from side of switch axis
- Actuator head with captive stainless steel ball actuator
- Exact repeatability of switching point

Features/Options

- Actuating speed 0.5 m/s with an actuating angle of 15°
- Can be actuated in line with or from side of switch axis
- Actuator head with captive stainless steel ball actuator
- Exact repeatability of switching point
- Collar to protect against the entry of foreign bodies

// Ball plunger KU

// Ball plunger with watertight collar WKU

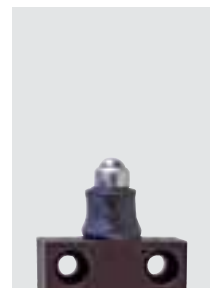
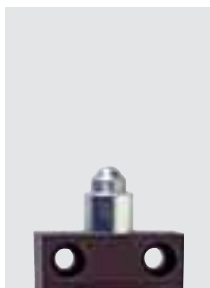


Contact variants: switch travel/contacts

Contact variants: switch travel/contacts

	Slow action
1 NC / 1 NO contact	ES 13 KU 1Ö/1S

	Slow action
1 NC / 1 NO contact	ES 13 WKU 1Ö/1S



Position switches with safety function

// Series ES 13, actuators

Features/Options

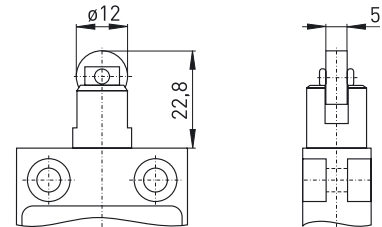
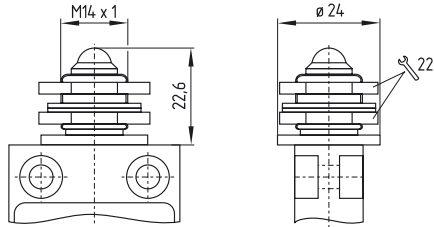
- Actuating speed 0.5 m/s with an actuating angle of 20°
- Can be actuated in line with or from side of switch axis
- Actuator head with captive stainless steel ball actuator
- Ball diameter: 8 mm
- Exact repeatability of switching point

Features/Options

- Actuating speed 0.5 m/s with an actuating angle of 30°
- Metal roller
- Actuator can be repositioned by 90°

// Ball plunger for front mounting FKU

// Roller plunger R



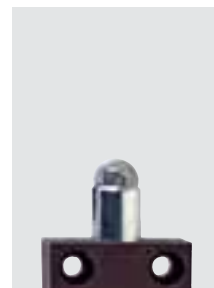
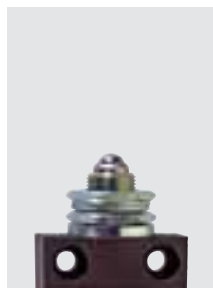
28

Contact variants: switch travel/contacts

Contact variants: switch travel/contacts

	Slow action
1 NC / 1 NO contact	ES 13 FKU 10/1S
	BK-BK BN-BU

	Slow action
1 NC / 1 NO contact	ES 13 R 10/1S
	BK-BK BN-BU



Features/Options

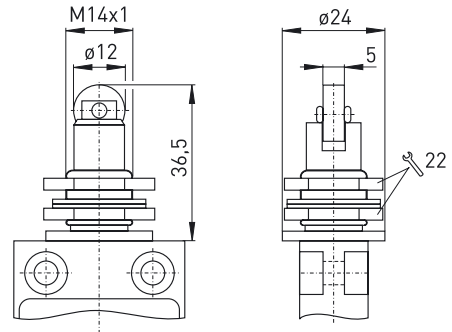
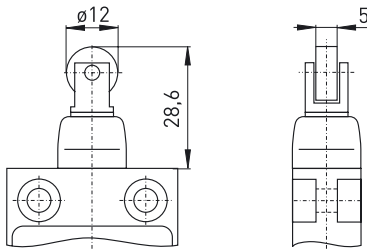
- Actuating speed 0.5 m/s with an actuating angle of 25°
- Metal roller
- Actuator can be repositioned by 90°
- Collar to protect against the entry of foreign bodies

Features/Options

- Actuating speed 0.5 m/s with an actuating angle of 25°
- Metal roller
- Actuator can be repositioned by 90°

// Roller plunger collar WR

// Roller plunger for front mounting FR



Contact variants: switch travel/contacts

Contact variants: switch travel/contacts

Slow action

1 NC / 1 NO contact

ES 13 WR 10/1S

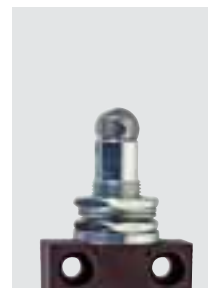
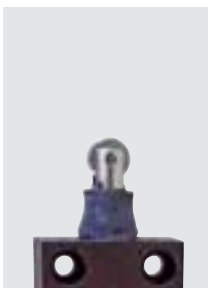
BK-BK
BN-BU

Slow action

1 NC / 1 NO contact

ES 13 FR 10/1S

BK-BK
BN-BU



Position switches with safety function

// Series ES 13, actuators

Features/Options

- Actuating speed 0.5 m/s with an actuating angle of $\alpha = 40^\circ$ and $\beta = 25^\circ$
- Metal roller
- Actuator can be repositioned by 180°
- Collar to protect against the entry of foreign bodies
- With plastic roller available on request

Note

Actuation from the left should be avoided since this reduces the mechanical life of the position switch.

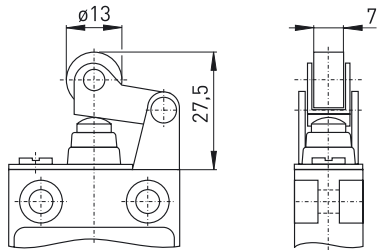
Features/Options

- Actuating speed 0.5 m/s with an actuating angle of $\alpha = 40^\circ$ and $\beta = 25^\circ$
- Metal roller
- Actuator can be repositioned by 180°
- Collar to protect against the entry of foreign bodies
- With plastic roller available on request

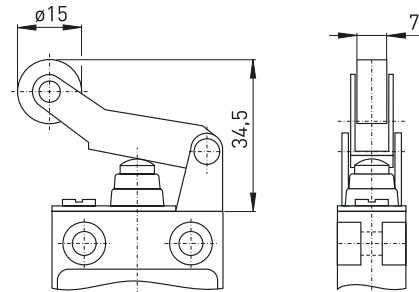
Note

Actuation from the left should be avoided since this reduces the mechanical life of the position switch.

// Roller lever collar WH



// Long roller lever collar WHL



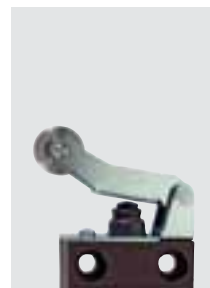
30

Contact variants: switch travel/contacts

Contact variants: switch travel/contacts

	Slow action
1 NC / 1 NO contact	ES 13 WH 10/1S

	Slow action
1 NC / 1 NO contact	ES 13 WHL 10/1S



Features/Options

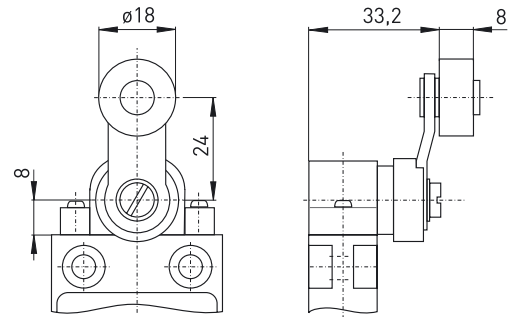
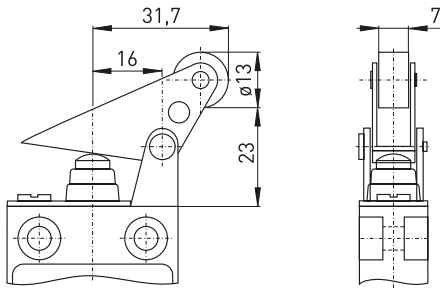
- Actuating speed 0.5 m/s with an actuating angle of $\alpha = 30^\circ$
- Actuation parallel to switch from below
- Metal roller
- Actuator can be repositioned by 180°
- Collar to protect against the entry of foreign bodies
- With plastic roller available on request

Features/Options

- Actuating speed 0.5 m/s with an actuating angle of 45°
- Wear-resistant thermoplastic roller
- Lever can be repositioned in 10° steps clockwise or counter-clockwise
- Actuator can be repositioned by 180°
- With metal roller available on request

// Parallel roller lever collar WPH

// Roller lever D

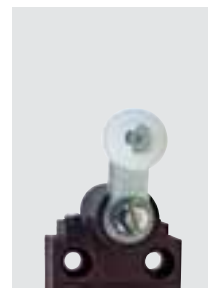


Contact variants: switch travel/contacts

Contact variants: switch travel/contacts

	Slow action								
1 NC / 1 NO contact	ES 13 WPH 10/1S								
	<table border="1"> <tr> <td>0</td> <td>3.2</td> <td>5.4</td> <td>BK-BK</td> </tr> <tr> <td>1.5</td> <td>3</td> <td></td> <td>BN-BU</td> </tr> </table>	0	3.2	5.4	BK-BK	1.5	3		BN-BU
0	3.2	5.4	BK-BK						
1.5	3		BN-BU						

	Slow action												
1 NC / 1 NO contact	ES 13 D 10/1S												
	<table border="1"> <tr> <td>65°</td> <td>35°</td> <td>0°</td> <td>35°</td> <td>65°</td> <td>BK-BK</td> </tr> <tr> <td>15°</td> <td>15°</td> <td></td> <td></td> <td></td> <td>BN-BU</td> </tr> </table>	65°	35°	0°	35°	65°	BK-BK	15°	15°				BN-BU
65°	35°	0°	35°	65°	BK-BK								
15°	15°				BN-BU								



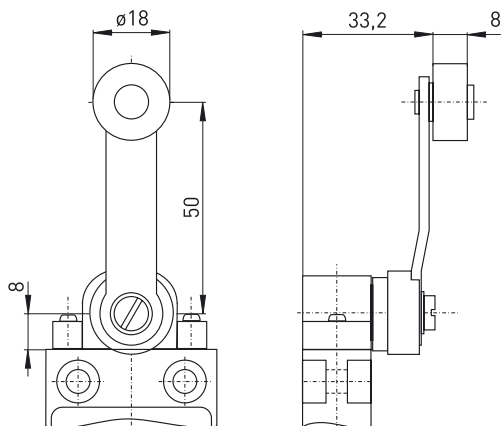
Position switches with safety function

// Series ES 13, actuators

Features/Options

- Actuating speed 0.5 m/s with an actuating angle of 45°
- Wear-resistant thermoplastic roller
- Lever can be repositioned in 10° steps clockwise or counter-clockwise
- Actuator can be repositioned by 180°
- With metal roller available on request

// Long roller lever DL

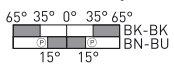


Contact variants: switch travel/contacts

Slow action

1 NC / 1 NO contact

ES 13 DL 10/1S



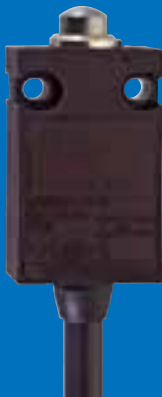
Position switches with safety function

// Series ES 14

Features/Options

- Thermoplastic enclosure
- Double insulated ☐
- Slow action ⊖, change-over contact or 2 NC contacts with double break
- Slow action with overlapping contacts available
- Mounting details to DIN EN 50 047
- Suitable for in-line mounting
- With pre-wired cable, cable length 1 meter
- Ex-Version available

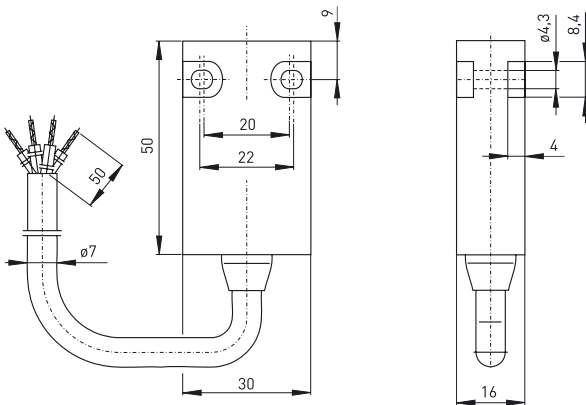
// ES 14



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	glass-fibre reinforced, shock-proof thermoplastic, self-extinguishing UL 94-V0
Protection class	IP 67 to EN 60529
Contact material	silver
Switching system	slow action; positive break NC contacts ⊖
Switching elements	change-over contact with double break, galvanically separated contact bridges
Termination	cable H05VV-F
Cable section	4 x 0.75mm ²
U_{imp}	4 kV
U_i	250 V
I_{the}	6 A
I_e/U_e	6 A/250 VAC; 0,25 A/230 VDC
Utilisation category	AC-15, DC-13
Max. fuse rating	6 A gL/gG D-fuse
Ambient temperature	-20 °C ... +75 °C
Mechanical life	> 1 million operations
Switching frequency	1800/h
Repeat accuracy of switching points	± 0.1 mm
Contact opening	max. 2 x 4 mm

34



Ordering details

ES 14 WR 10/1S-s-1m

- Cable length 1 m, (2 m, 5 m, 10 m)
- Cable on side
- Contact type 1NC/1NO, (UE, 2Ö)
- Actuator R (H, TK, D, etc. ...)
- Watertight collar
- Series
- S Slow action

Position switches with safety function

// Series ES 14, actuators

Features/Options

- Slow action version with 2 NC contacts available
- With gold-plated contacts available on request
- Version with UL/CSA approval available
- With latching element available on request

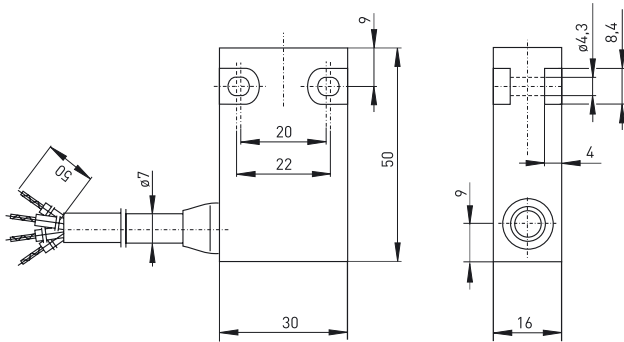
Features/Options

- Actuating speed 0.5 m/s with an actuating angle of 0°

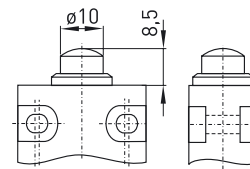
// Connector M12 x 1, 4-pole



// Cable on side



// Plunger

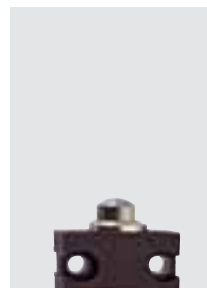


Contact variants: switch travel/contacts

Slow action

1 NC / 1 NO contact

ES 14 10/1S



Position switches with safety function

// Series ES 14, actuators

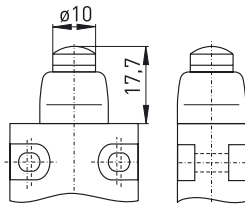
Features/Options

- Actuating speed 0.5 m/s with an actuating angle of 0°
- Collar to protect against the entry of foreign bodies

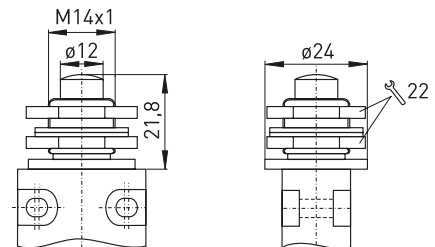
Features/Options

- Actuating speed 0.5 m/s with an actuating angle of 0°

// Plunger collar W



// Plunger for front mounting F

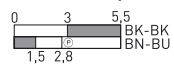


Contact variants: switch travel/contacts

Slow action

1 NC / 1 NO contact

ES 14 W 10/1S

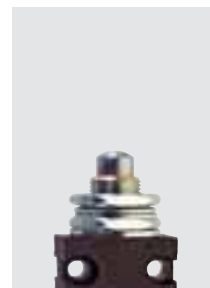
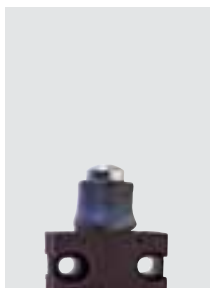


Contact variants: switch travel/contacts

Slow action

1 NC / 1 NO contact

ES 14 F 10/1S



Features/Options

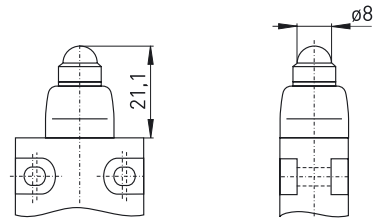
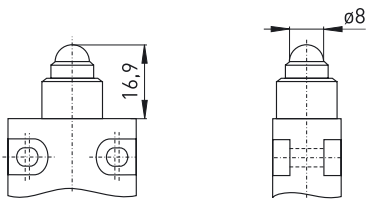
- Actuating speed 0.5 m/s with an actuating angle of 20°
- Can be actuated in line with or from side of switch axis
- Actuator head with captive stainless steel ball actuator
- Exact repeatability of switching point

Features/Options

- Actuating speed 0.5 m/s with an actuating angle of 20°
- Can be actuated in line with or from side of switch axis
- Actuator head with captive stainless steel ball actuator
- Exact repeatability of switching point
- Collar to protect against the entry of foreign bodies

// Ball plunger KU

// Ball plunger collar WKU

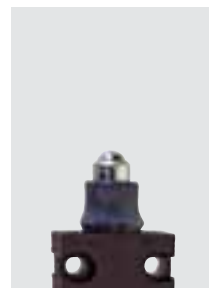
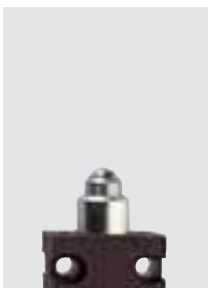


Contact variants: switch travel/contacts

Contact variants: switch travel/contacts

	Slow action
1 NC / 1 NO contact	ES 14 KU 10/1S
	BK-BK BN-BU

	Slow action
1 NC / 1 NO contact	ES 14 WKU 10/1S
	BK-BK BN-BU



Position switches with safety function

// Series ES 14, actuators

Features/Options

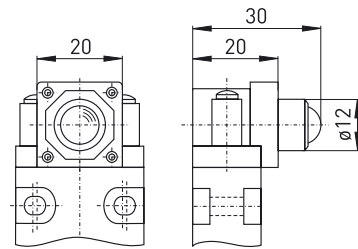
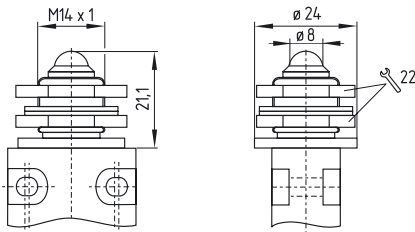
- Actuating speed 0.5 m/s with an actuating angle of 20°
- Can be actuated in line with or from side of switch axis
- Actuator head with captive stainless steel ball actuator
- Exact repeatability of switching point

Features/Options

- Actuation from any direction
- Actuator head with captive stainless steel ball actuator

// Ball plunger for front mounting FKU

// Ball plunger at front VKU



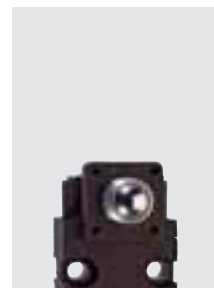
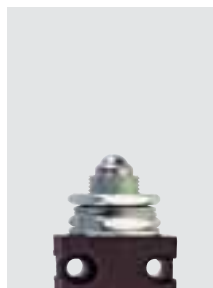
38

Contact variants: switch travel/contacts

Contact variants: switch travel/contacts

	Slow action
1 NC / 1 NO contact	ES 14 FKU 10/15

	Slow action
1 NC / 1 NO contact	ES 14 VKU 10/15



Features/Options

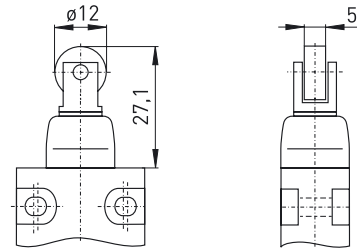
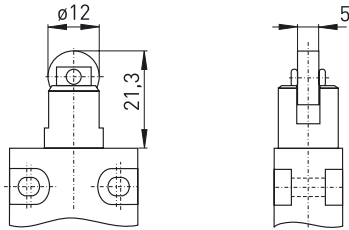
- Actuating speed 0.5 m/s with an actuating angle of 30°
- Metal roller
- Actuator can be repositioned by 90°

Features/Options

- Actuating speed 0.5 m/s with an actuating angle of 25°
- Metal roller
- Actuator can be repositioned by 90°
- Collar to protect against the entry of foreign bodies

// Roller plunger R

// Roller plunger collar WR



Contact variants: switch travel/contacts

Contact variants: switch travel/contacts

Slow action

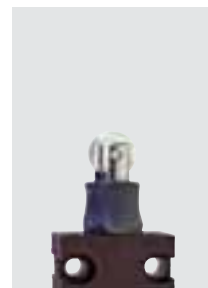
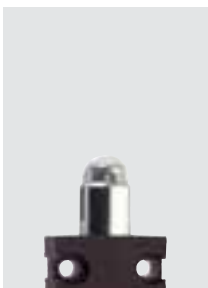
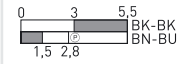
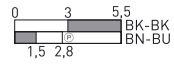
Slow action

1 NC / 1 NO contact

1 NC / 1 NO contact

ES 14 R 10/1S

ES 14 WR 10/1S



Position switches with safety function

// Series ES 14, actuators

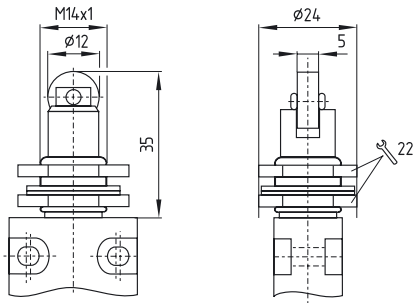
Features/Options

- Actuating speed 0.5 m/s with an actuating angle of 25°
- Metal roller
- Actuator can be repositioned by 90°

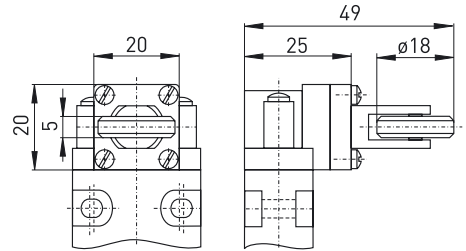
Features/Options

- Actuator can be turned 90°
- Wear-resistant thermoplastic roller

// Roller plunger for front mounting FR



// Roller plunger at front VR



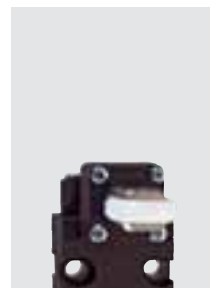
40

Contact variants: switch travel/contacts

Contact variants: switch travel/contacts

	Slow action
1 NC / 1 NO contact	ES 14 FR 10/1S

	Slow action
1 NC / 1 NO contact	ES 14 VR 10/1S



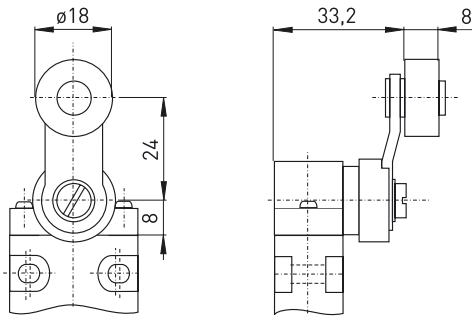
Features/Options

- Actuating speed 0.5 m/s with an actuating angle of 45°
- Wear-resistant thermoplastic roller
- Lever can be repositioned in 10° steps clockwise or counter-clockwise
- Actuator can be repositioned by 180°
- With metal roller available on request

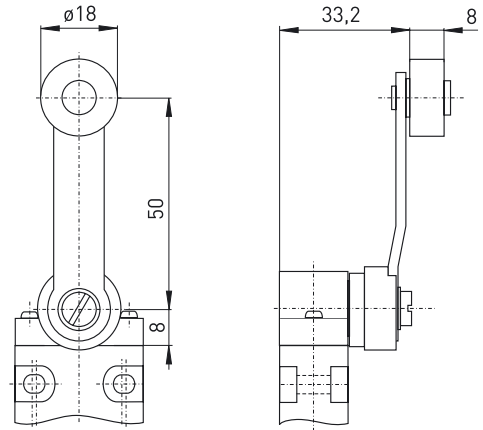
Features/Options

- Actuating speed 0.5 m/s with an actuating angle of 45°
- Wear-resistant thermoplastic roller
- Lever can be repositioned in 10° steps clockwise or counter-clockwise
- Actuator can be repositioned by 180°
- With metal roller available on request

// Roller lever D

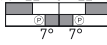


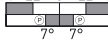
// Long roller lever DL

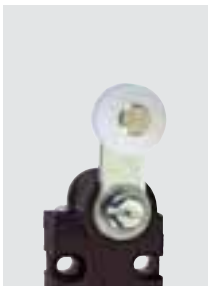


Contact variants: switch travel/contacts

Contact variants: switch travel/contacts

	Slow action
1 NC / 1 NO contact	ES 14 D 10/1S 70° 22° 0° 22° 70°  BK-BK BN-BU


	Slow action
1 NC / 1 NO contact	ES 14 DL 10/1S 70° 22° 0° 22° 70°  BK-BK BN-BU



Position switches with safety function

// Series ES 95


Features/Options

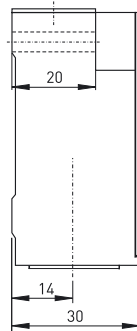
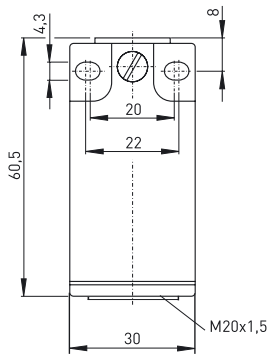
- Thermoplastic enclosure
- Horizontal mounting slots
- Double insulated 
- Slow action with overlapping contacts available
- Wide range of alternative actuators
- Actuator heads can be repositioned in 4 x 90° steps
- Angle of offset roller lever can be adjusted in 10° steps
- 1 cable entry M20 x 1.5
- Good resistance to oil and petroleum spirit

// ES 95



Technical data

Standards	IEC/EN 60947-5-1; EN 1088; BG-GS-ET-15
Class	DIN EN 50 047
Enclosure	glass-fibre reinforced, shock-proof thermoplastic, self-extinguishing UL 94-V0
Protection class	IP 67 to EN 60529
Contact material	silver
Switching elements	change-over contact with double break Zb or 2 NC contacts, galvanically separated contact bridges
Switching system	⊖ IEC 60947-5-1 slow action, positive break NC contacts
Termination	plug-in connector
Cable section	max. 2.5 mm ² (incl. conductor ferrules)
Cable entry	M 20 x 1.5
U_{imp}	4 kV
U_i	400 V
I_{the}	6 A
Utilisation category	AC-15; DC-13
I_e/U_e	6 A/400 VAC; 0.25 A/230 VDC
Max. fuse rating	6 A gL/gG D-fuse
Mechanical life	> 1 million operations
Switching frequency	1800/h
Ambient temperature	- 20 °C ... + 80 °C
Contact opening	2 x 3.5 mm
Approvals	



Ordering details

ES 95 WH 10/1S-V-LL

- █ Longitudinal slotted holes
- █ Locking
- █ Contact type 1NC/1NO, (2Ö, 2S, UE)
- █ Actuator H (R, D, DS, etc. ...)
- █ Watertight collar
- █ Series
- █ S Slow action

Position switches with safety function

// Series ES 95, actuators

Features/Options

- Mechanical locking: release by means of push button
- Mechanical locking V only possible with slow action
- With gold-plated contacts available on request

Features/Options

- Actuator type B to DIN EN 50 047
- Actuator with watertight collar

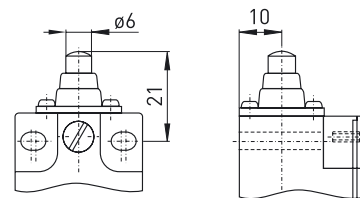
// Mechanical locking V



// Connector M12 x 1, 4-pole

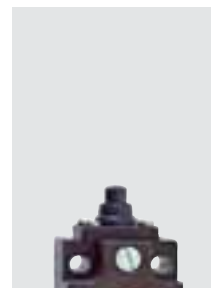


// Plunger W



Contact variants: switch travel/contacts

	Slow action
1 NC / 1 NO contact	ES 95 W 10/1S
1 NC / 1 NO contact with overlapping	ES 95 W UE
2 NC contacts	ES 95 W 2Ö



Position switches with safety function

// Series ES 95, actuators

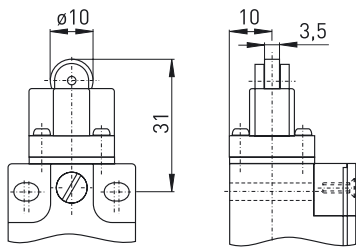
Features/Options

- Actuator type C to DIN EN 50 047
- Wear-resistant thermoplastic roller
- Metal roller available on request
- Actuator heads can be repositioned in 4 x 90° steps

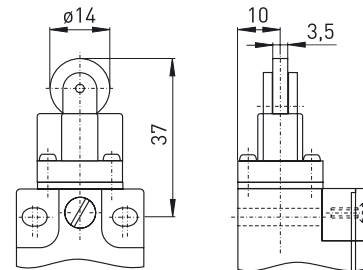
Features/Options

- Wear-resistant thermoplastic roller
- Metal roller available on request
- Actuator heads can be repositioned in 4 x 90° steps

// Roller plunger R



// Long roller plunger RL



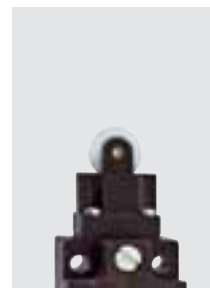
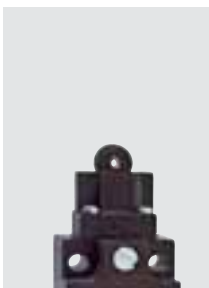
44

Contact variants: switch travel/contacts

Contact variants: switch travel/contacts

	Slow action
1 NC / 1 NO contact	ES 95 R 10/1S
1 NC / 1 NO contact with overlapping	ES 95 R UE
2 NC contacts	ES 95 R 2Ö

	Slow action
1 NC / 1 NO contact	ES 95 RL 10/1S
1 NC / 1 NO contact with overlapping	ES 95 RL UE
2 NC contacts	ES 95 RL 2Ö



Features/Options

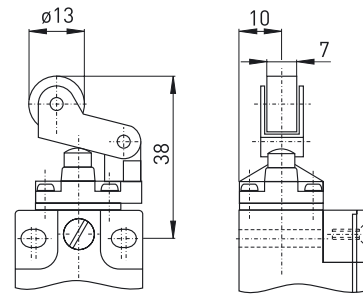
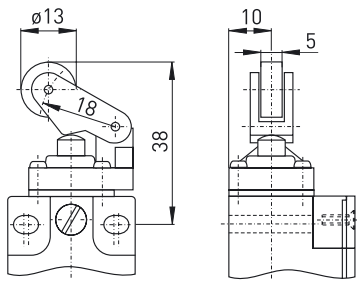
- Actuating speed 0.5 m/s with an actuating angle of $\alpha = 40^\circ$ and $\beta = 25^\circ$
- Actuator type E to DIN EN 50 047
- Actuator with watertight collar
- Wear-resistant thermoplastic roller
- Actuator heads can be repositioned in 4 x 90° steps
- Metal roller available on request

Features/Options

- Actuating speed 0.5 m/s with an actuating angle of $\alpha = 40^\circ$ and $\beta = 25^\circ$
- Actuator with watertight collar
- Wear-resistant thermoplastic roller
- Actuator heads can be repositioned in 4 x 90° steps
- Metal roller available on request

// Roller lever WH

// Metal roller lever WHM

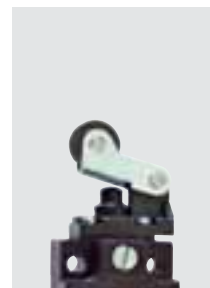
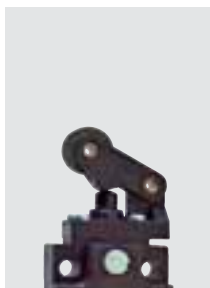


Contact variants: switch travel/contacts

Contact variants: switch travel/contacts

	Slow action
1 NC / 1 NO contact	<p>ES 95 WH 10/15</p>
1 NC / 1 NO contact with overlapping	<p>ES 95 WH UE</p>
2 NC contacts	<p>ES 95 WH 20</p>

	Slow action
1 NC / 1 NO contact	<p>ES 95 WHM 10/15</p>
1 NC / 1 NO contact with overlapping	<p>ES 95 WHM UE</p>
2 NC contacts	<p>ES 95 WHM 20</p>



Position switches with safety function

// Series ES 95, actuators

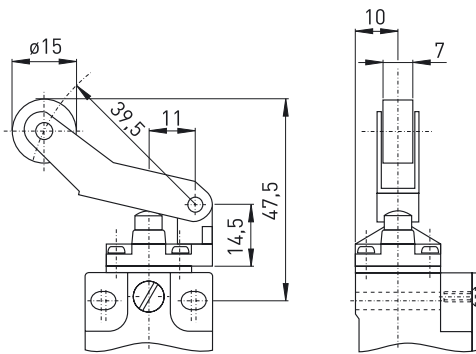
Features/Options

- Actuating speed 0.5 m/s with an actuating angle of $\alpha = 40^\circ$
- Actuator with watertight collar
- Wear-resistant thermoplastic roller
- Actuator heads can be repositioned in 4 x 90° steps
- Metal roller available on request

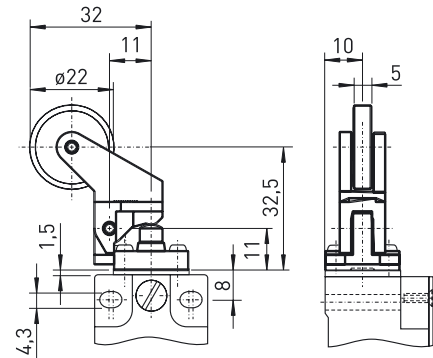
Features/Options

- Actuating speed 0.5 m/s with an actuating angle of $\alpha = 40^\circ$
- Wear-resistant thermoplastic roller
- Actuator heads can be repositioned in 4 x 90° steps
- Metal roller available on request

// Long metal roller lever WHLM



// Plastic roller lever 4K



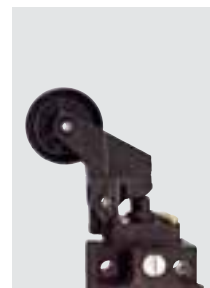
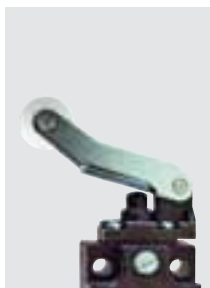
46

Contact variants: switch travel/contacts

Contact variants: switch travel/contacts

	Slow action
1 NC / 1 NO contact	ES 95 WHLM 10/1S
1 NC / 1 NO contact with overlapping	ES 95 WHLM UE
2 NC contacts	ES 95 WHLM 2Ö

	Slow action
1 NC / 1 NO contact	ES 95 4K 10/1S
1 NC / 1 NO contact with overlapping	ES 95 4K UE
2 NC contacts	ES 95 4K 2Ö



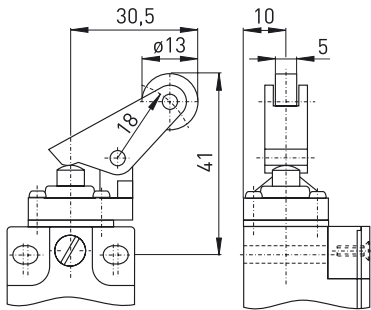
Features/Options

- Actuating speed 0.5 m/s with an actuating angle of $\alpha = 30^\circ$
- Actuator with watertight collar
- Wear-resistant thermoplastic roller
- Actuator heads can be repositioned in 4 x 90° steps
- Actuation parallel to axis of switch from below
- Metal roller available on request

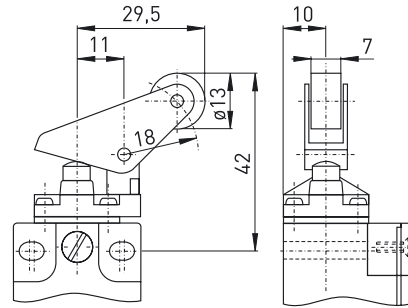
Features/Options

- Actuating speed 0.5 m/s with an actuating angle of $\alpha = 30^\circ$
- Actuator with watertight collar
- Wear-resistant thermoplastic roller
- Actuator heads can be repositioned in 4 x 90° steps
- Actuation parallel to axis of switch from below
- Metal roller available on request

// Parallel roller lever WPH



// Parallel metal roller lever WPHM

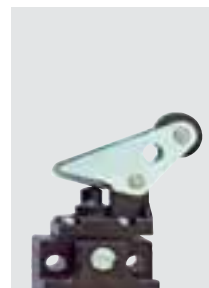


Contact variants: switch travel/contacts

	Slow action
1 NC / 1 NO contact	ES 95 WPH 1Ö/1S
1 NC / 1 NO contact with overlapping	ES 95 WPH UE
2 NC contacts	ES 95 WPH 2Ö

Contact variants: switch travel/contacts

	Slow action
1 NC / 1 NO contact	ES 95 WPHM 1Ö/1S
1 NC / 1 NO contact with overlapping	ES 95 WPHM UE
2 NC contacts	ES 95 WPHM 2Ö



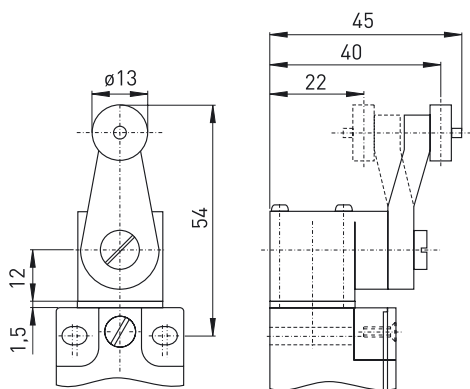
Position switches with safety function

// Series ES 95, actuators

Features/Options

- Lever angle adjustable in 10° steps
- Wear-resistant thermoplastic roller
- Actuator heads can be repositioned in 4 x 90° steps
- Metal roller available on request

// Roller lever D



48

Contact variants: switch travel/contacts

	Slow action
1 NC / 1 NO contact	ES 95 D 10/1S
1 NC / 1 NO contact with overlapping	ES 95 D UE
2 NC contacts	ES 95 D 20



Position switches with safety function

// Series ES 51

Features/Options

- Metal enclosure
- Slow action \ominus , change-over contact with double break
- 1 cable entry M16 x 1.5

Note

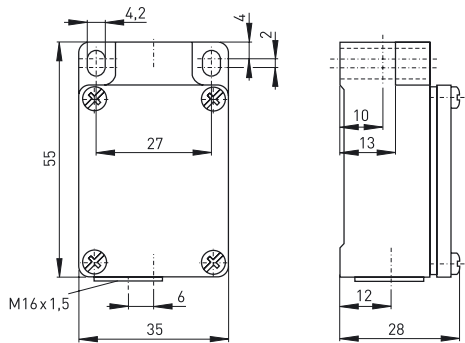
When used as a safety switch, secure the enclosure against slipping with appropriate means, e.g. pinning.

// ES 51



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	aluminium die cast, paint finish
Protection class	IP 65 to EN 60529
Contact material	silver
Switching elements	change-over contact with double break Zb or 2 NC contacts, galvanically separated contact bridges
Switching system	\ominus IEC 60947-5-1 slow action, positive break NC contacts
Termination	plug-in connector M3
Cable section	max. 1.5 mm ² [incl. conductor ferrules]
Cable entry	M 16 x 1.5
U _{imp}	4 kV
U _i	400 V
I _{the}	4 A
Utilisation category	AC-15
I _e /U _e	4 A / 400 VAC
Max. fuse rating	4 A gL/gG D-fuse
Mechanical life	> 1 million operations
Switching frequency	3600/h
Ambient temperature	- 20 °C ... + 80 °C
Repeat accuracy of switching points	± 0.1 mm



Ordering details

ES 51 WK 10/1S-ST

- Connector M12 x 1, 4-pole
- Contact type 1NC/1NO
- Actuator K (R, TK, D, etc. ...)
- Watertight collar
- Series
- S Slow action

Position switches with safety function

// Series ES 51, actuators

Features/Options

- With gold-plated contacts available on request

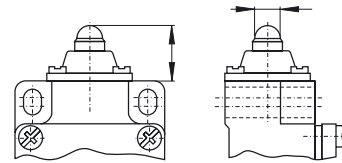
Features/Options

- Actuating speed 0.5 m/s with an actuating angle of 20°
- Can be actuated in line with or from side of switch axis
- Actuator head with captive stainless steel ball actuator
- Exact repeatability of switching point

// Connector M12 x 1, 4-pole

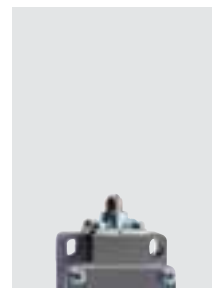


// Plunger



Contact variants: switch travel/contacts

	Slow action
1 NC / 1 NO contact	ES 51 10/1S



Position switches with safety function

// Series ES 51, actuators

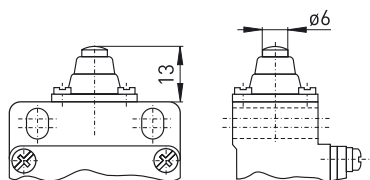
Features/Options

- Actuating speed 0.5 m/s with an actuating angle of 0°
- Exact repeatability of switching point
- Collar to protect against the entry of foreign bodies

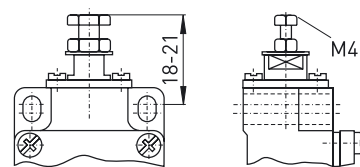
Features/Options

- Actuating speed 0.5 m/s with an actuating angle of 0°
- Projection of plunger adjustable for fine setting of switching point

// Plunger collar W



// Adjustable plunger ST



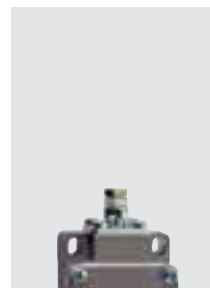
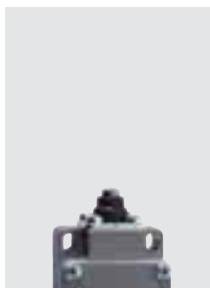
52

Contact variants: switch travel/contacts

Contact variants: switch travel/contacts

	Slow action
1 NC / 1 NO contact	ES 51 W 10/1S

	Slow action
1 NC / 1 NO contact	ES 51 ST 10/1S



Features/Options

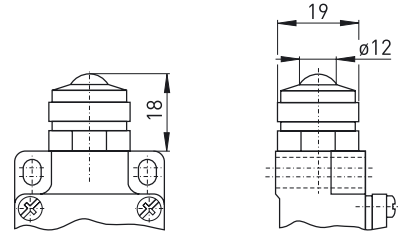
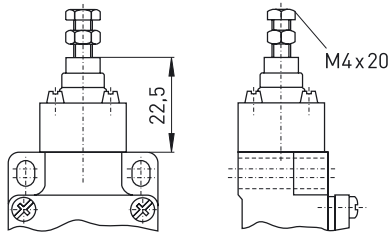
- Actuating speed 0.5 m/s with an actuating angle of 0°
- Projection of plunger adjustable for fine setting of switching point
- Collar to protect against the entry of foreign bodies

Features/Options

- Actuating speed 0.5 m/s with an actuating angle of 20°
- Can be actuated in line with or from side of switch axis
- Actuator head with captive stainless steel ball actuator
- Exact repeatability of switching point

// Adjustable plunger with collar WST

// Ball plunger KU

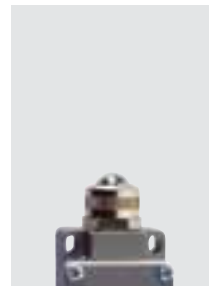
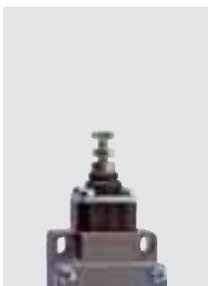


Contact variants: switch travel/contacts

Contact variants: switch travel/contacts

	Slow action
1 NC / 1 NO contact	ES 51 WST 10/1S

	Slow action
1 NC / 1 NO contact	ES 51 KU 10/1S



Position switches with safety function

// Series ES 51, actuators

Features/Options

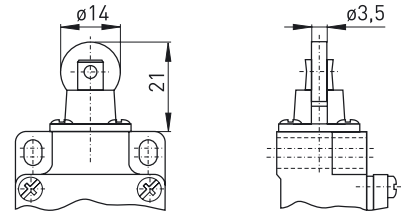
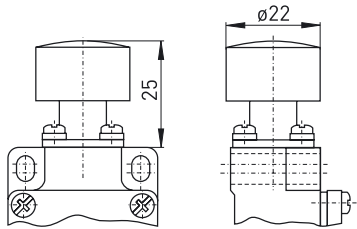
- Large actuating surface
- Safe switching even with imprecise actuation
- Suitable for manual operation
- Collar to protect against the entry of foreign bodies

Features/Options

- Actuating speed 0.5 m/s with an actuating angle of 30°
- Metal roller
- Actuator heads can be repositioned by 4 x 90°

// Cover WK

// Roller plunger R



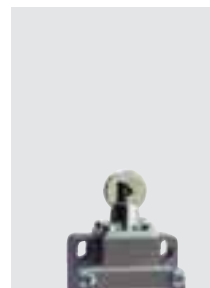
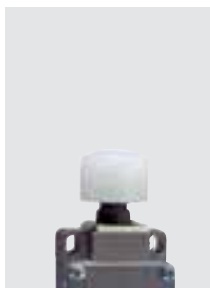
54

Contact variants: switch travel/contacts

Contact variants: switch travel/contacts

	Slow action
1 NC / 1 NO contact	ES 51 WK 10/1S

	Slow action
1 NC / 1 NO contact	ES 51 R 10/1S



Features/Options

- Actuating speed 0.5 m/s with an actuating angle of 25°
- Metal roller
- Actuator heads can be repositioned by 4 x 90°
- Collar to protect against the entry of foreign bodies

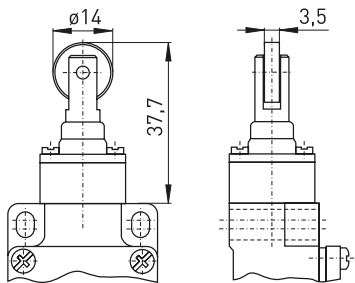
Features/Options

- Actuating speed 0.5 m/s with an actuating angle of $\alpha = 40^\circ$ and $\beta = 25^\circ$
- Plastic roller
- Actuator heads can be repositioned in 4 x 90° steps
- With metal roller available on request

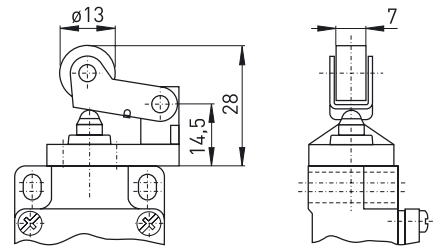
Note

Actuation from the left should be avoided since this reduces the mechanical life of the position switch.

// Roller plunger WR



// Lever H

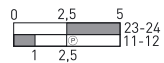


Contact variants: switch travel/contacts

Slow action

1 NC / 1 NO contact

ES 51 WR 10/1S

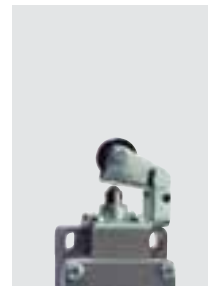


Contact variants: switch travel/contacts

Slow action

1 NC / 1 NO contact

ES 51 H 10/1S



Position switches with safety function

// Series ES 51, actuators

Features/Options

- Actuating speed 0.5 m/s with an actuating angle of $\alpha = 40^\circ$ and $\beta = 25^\circ$
- Wear-resistant thermoplastic roller
- Actuator heads can be repositioned in 4 x 90° steps
- Collar to protect against the entry of foreign bodies
- With metal roller available on request

Note

Actuation from the left should be avoided since this reduces the mechanical life of the position switch.

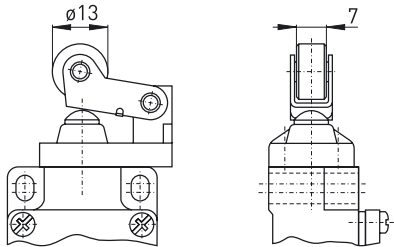
Features/Options

- Actuating speed 0.5 m/s with an actuating angle of $\alpha = 40^\circ$ and $\beta = 30^\circ$
- Wear-resistant thermoplastic roller
- Actuator heads can be repositioned in 4 x 90° steps
- With metal roller available on request

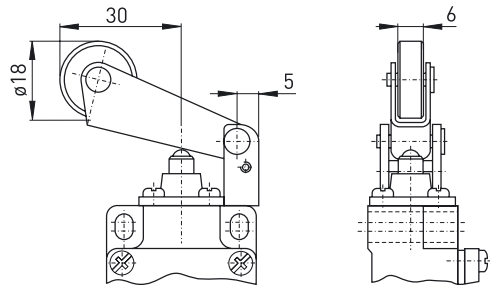
Note

Actuation from the left should be avoided since this reduces the mechanical life of the position switch.

// Offset roller lever collar WH



// Long roller lever HL



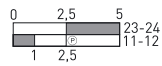
56

Contact variants: switch travel/contacts

Slow action

1 NC / 1 NO contact

ES 51 WH 10/1S

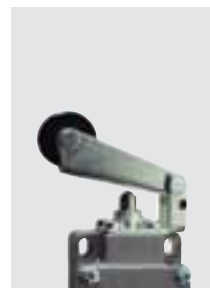
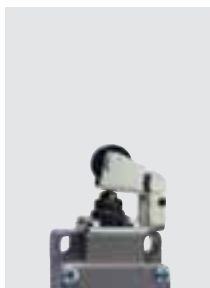
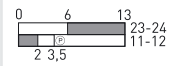


Contact variants: switch travel/contacts

Slow action

1 NC / 1 NO contact

ES 51 HL 10/1S



Features/Options

- Actuating speed 0.5 m/s with an actuating angle of $\alpha = 40^\circ$ and $\beta = 30^\circ$
- Wear-resistant thermoplastic roller
- Actuator heads can be repositioned in 4 x 90° steps
- Collar to protect against the entry of foreign bodies
- With metal roller available on request

Note

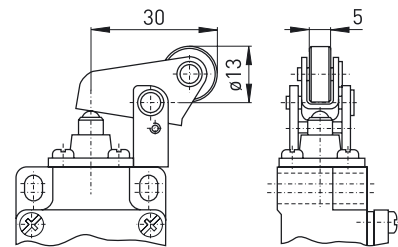
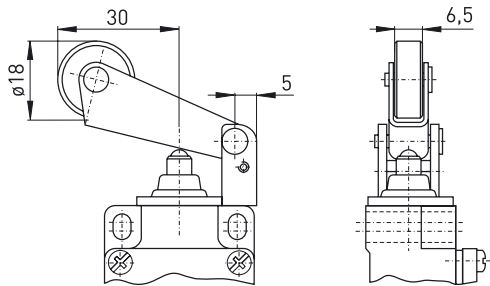
Actuation from the left should be avoided since this reduces the mechanical life of the position switch.

Features/Options

- Actuating speed 0.5 m/s with an actuating angle of $\alpha = 30^\circ$
- Actuation parallel to axis of switch from below
- Wear-resistant thermoplastic roller
- Actuator heads can be repositioned in 4 x 90° steps
- With metal roller available on request

// Long roller lever collar WHL

// Parallel offset roller lever PH

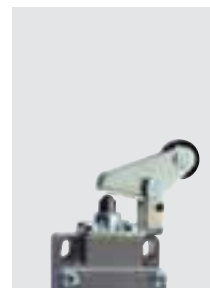
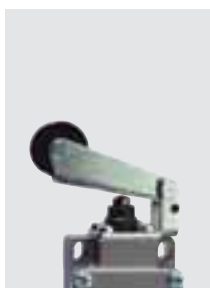


Contact variants: switch travel/contacts

Contact variants: switch travel/contacts

	Slow action								
1 NC / 1 NO contact	ES 51 WHL 10/1S								
	<table border="1"> <tr> <td>0</td> <td>6</td> <td>13</td> <td>23-24</td> </tr> <tr> <td>2</td> <td>3,5</td> <td></td> <td>11-12</td> </tr> </table>	0	6	13	23-24	2	3,5		11-12
0	6	13	23-24						
2	3,5		11-12						

	Slow action								
1 NC / 1 NO contact	ES 51 PH 10/1S								
	<table border="1"> <tr> <td>0</td> <td>1,5</td> <td>4</td> <td>23-24</td> </tr> <tr> <td>0,5</td> <td>2</td> <td></td> <td>11-12</td> </tr> </table>	0	1,5	4	23-24	0,5	2		11-12
0	1,5	4	23-24						
0,5	2		11-12						



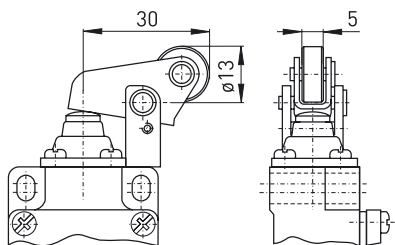
Position switches with safety function

// Series ES 51, actuators

Features/Options

- Actuating speed 0.5 m/s with an actuating angle of $\alpha = 30^\circ$
- Actuation parallel to axis of switch from below
- Wear-resistant thermoplastic roller
- Actuator heads can be repositioned in 4 x 90° steps
- Collar to protect against the entry of foreign bodies
- With metal roller available on request

// Parallel roller lever collar WPH



58

Contact variants: switch travel/contacts

	Slow action
1 NC / 1 NO contact	ES 51 WPH 10/1S



Position switches with safety function // Series ES 41 and ES 411

Features/Options

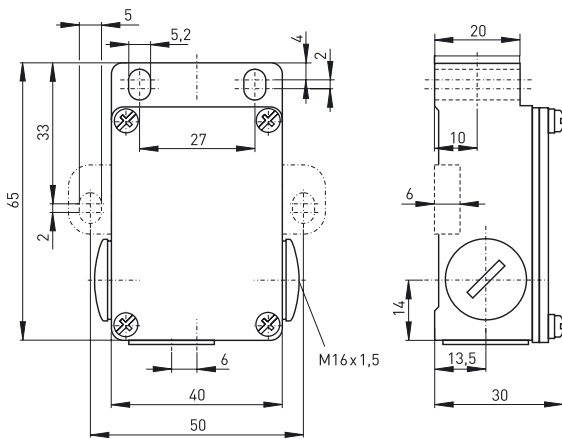
- Metal enclosure
- Slow action \ominus , change-over contact or 2 NC contacts with double break
- Slow action with overlapping contacts available
- ES 411: 25 mm mounting hole centres, depth 34 mm
- 3 cable entries M16 x 1.5
- Available with mechanical locking
- For temperatures up to 180°C available on request

// ES 41



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	aluminium die cast, paint finish
Protection class	IP 65 to EN 60529
Contact material	silver
Switching elements	change-over contact with double break Zb or 2 NC contacts, galvanically separated contact bridges
Switching system	slow action, positive break NC contacts \ominus IEC 60947-5-1
Termination	plug-in connector M3,5
Cable section	max. 2.5 mm ² [incl. conductor ferrules]
Cable entry	3 x M 16 x 1.5
U _{imp}	4 kV
U _i	400 V
I _{the}	6 A
Utilisation category	AC-15
I _e /U _e	6 A/400 VAC
Max. fuse rating	6 A gL/gG D-fuse
Mechanical life	> 1 million operations
Switching frequency	3600/h
Ambient temperature	- 20 °C ... + 80 °C
Repeat accuracy of switching points:	± 0.1 mm



Ordering details

ES 41 WH 10/1S-V

- Locking
- Contact type 1NC/1NO, (ZÖ, UE)
- Actuator H (R, WPH, HL, etc. ...)
- Watertight collar
- Series 41 or 411
- S Slow action

Position switches with safety function

// Series ES 41 und ES 411, actuators

Features/Options

- Mechanical locking: release by means of push button
- Mechanical locking V only possible for slow action
- With gold-plated contacts available on request

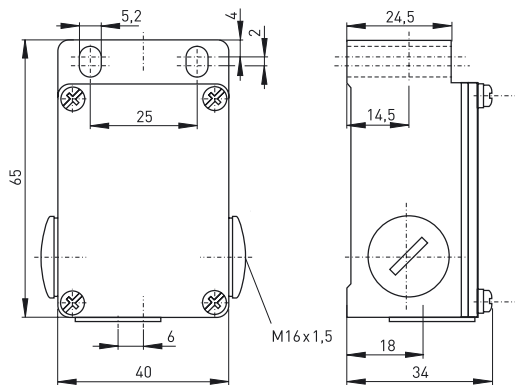
Note

When used as a safety switch, secure the enclosure against slipping with appropriate means, e.g. pinning.

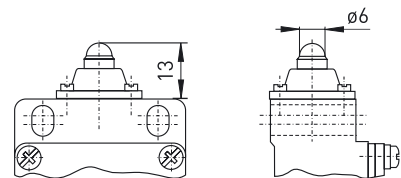
Features/Options

- Actuating speed 0.5 m/s with an actuating angle of 20°
- Can be actuated in line with or from side of switch axis
- Actuator head with captive stainless steel ball actuator
- Exact repeatability of switching point

// ES 411



// Plunger



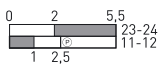
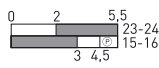
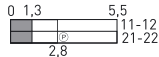
// Mechanical locking V



// Connector M12 x 1, 4-pole



Contact variants: switch travel/contacts

	Slow action
1 NC / 1 NO contact	ES 41 10/1S ES 411 10/1S 
1 NC / 1 NO contact with overlapping	ES 41 UE ES 411 UE 
2 NC contacts	ES 41 20 ES 411 20 

Position switches with safety function

// Series ES 41 and ES 411, actuators

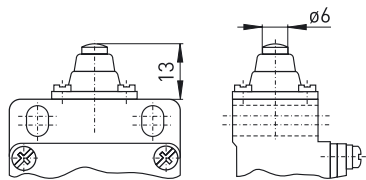
Features/Options

- Actuating speed 0.5 m/s with an actuating angle of 0°
- Exact repeatability of switching point
- Collar to protect against the entry of foreign bodies

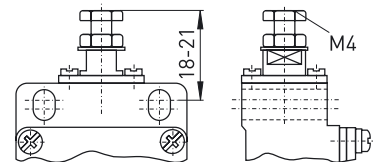
Features/Options

- Actuating speed 0.5 m/s with an actuating angle of 0°
- Length of plunger adjustable by means of M4 setting screw
- For fine setting of switching point

// Plunger collar W



// Adjustable plunger ST



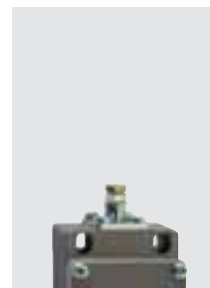
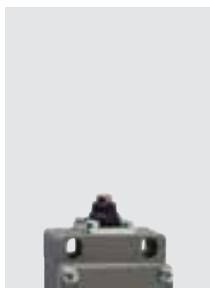
62

Contact variants: switch travel/contacts

	Slow action
1 NC / 1 NO contact	<p>ES 41 W 10/1S ES 411 W 10/1S</p>
1 NC / 1 NO contact with overlapping	<p>ES 41 W UE ES 411 W UE</p>
2 NC contacts	<p>ES 41 W 20 ES 411 W 20</p>

Contact variants: switch travel/contacts

	Slow action
1 NC / 1 NO contact	<p>ES 41 ST 10/1S ES 411 ST 10/1S</p>
1 NC / 1 NO contact with overlapping	<p>ES 41 ST UE ES 411 ST UE</p>
2 NC contacts	<p>ES 41 ST 20 ES 411 ST 20</p>



Features/Options

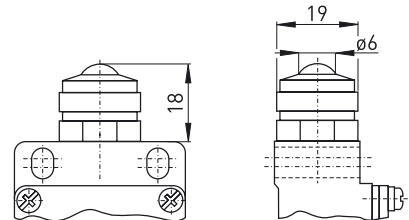
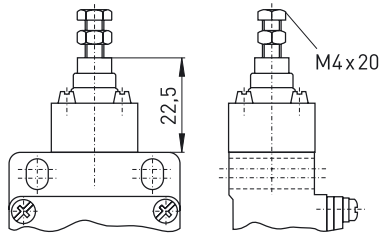
- Actuating speed 0.5 m/s with an actuating angle of 0°
- Length of plunger adjustable by means of M4 setting screw
- For fine setting of switching point
- Collar to protect against the entry of foreign bodies

Features/Options

- Actuating speed 0.5 m/s with an actuating angle of 20°
- Can be actuated in line with or from side of switch axis
- Actuator head with captive stainless steel ball actuator
- Exact repeatability of switching point

// Adjustable plunger collar WST

// Ball plunger KU

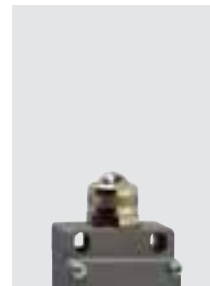
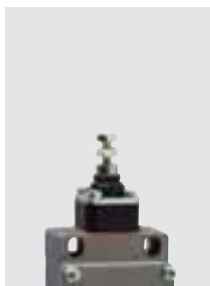


Contact variants: switch travel/contacts

Contact variants: switch travel/contacts

	Slow action
1 NC / 1 NO contact	<p>ES 41 WST 10/1S ES 411 WST 10/1S</p>
1 NC / 1 NO contact with overlapping	<p>ES 41 WST UE ES 411 WST UE</p>
2 NC contacts	<p>ES 41 WST 20 ES 411 WST 20</p>

	Slow action
1 NC / 1 NO contact	<p>ES 41 KU 10/1S ES 411 KU 10/1S</p>
1 NC / 1 NO contact with overlapping	<p>ES 41 KU UE ES 411 KU UE</p>
2 NC contacts	<p>ES 41 KU 20 ES 411 KU 20</p>



Position switches with safety function

// Series ES 41 and ES 411, actuators

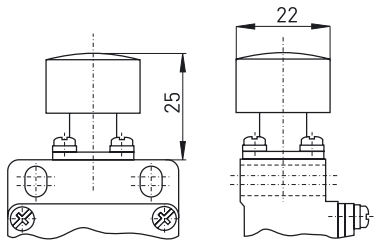
Features/Options

- Large actuating surface
- Safe switching even with imprecise actuation
- Suitable for manual operation
- Collar to protect against the entry of foreign bodies

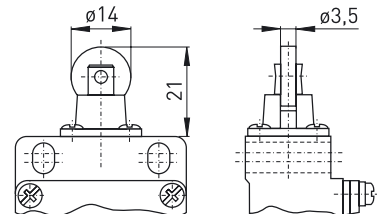
Features/Options

- Actuating speed 0.5 m/s with an actuating angle of 30°
- Metal roller
- Actuator can be turned 90°

// Cover WK



// Roller plunger R



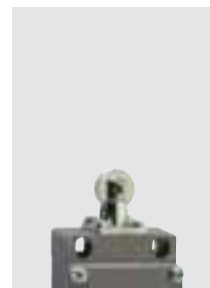
64

Contact variants: switch travel/contacts

	Slow action
1 NC / 1 NO contact	<p>ES 41 WK 10/1S ES 411 WK 10/1S</p>
1 NC / 1 NO contact with overlapping	<p>ES 41 WK UE ES 411 WK UE</p>
2 NC contacts	<p>ES 41 WK 20 ES 411 WK 20</p>

Contact variants: switch travel/contacts

	Slow action
1 NC / 1 NO contact	<p>ES 41 R 10/1S ES 411 R 10/1S</p>
1 NC / 1 NO contact with overlapping	<p>ES 41 R UE ES 411 R UE</p>
2 NC contacts	<p>ES 41 R 20 ES 411 R 20</p>



Features/Options

- Actuating speed 0.5 m/s with an actuating angle of 25°
- Wear-resistant thermoplastic roller
- Actuator can be turned 90°
- Collar to protect against the entry of foreign bodies
- With metal roller available on request

Features/Options

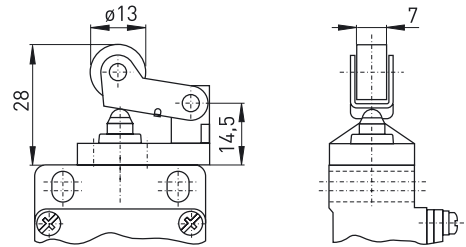
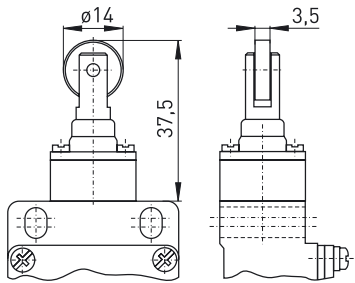
- Actuating speed 0.5 m/s with an actuating angle of $\alpha = 40^\circ$ and $\beta = 25^\circ$
- Wear-resistant thermoplastic roller
- Actuator heads can be repositioned in 4 x 90° steps
- With metal roller available on request

Note

Actuation from the left should be avoided since this reduces the mechanical life of the position switch.

// Roller plunger WR

// Lever H

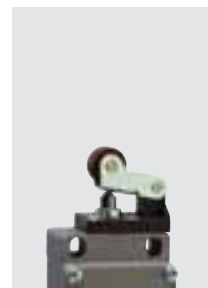


Contact variants: switch travel/contacts

Contact variants: switch travel/contacts

	Slow action
1 NC / 1 NO contact	<p>ES 41 WR 1Ö/1S ES 411 WR 1Ö/1S</p>
1 NC / 1 NO contact with overlapping	<p>ES 41 WR UE ES 411 WR UE</p>
2 NC contacts	<p>ES 41 WR 2Ö ES 411 WR 2Ö</p>

	Slow action
1 NC / 1 NO contact	<p>ES 41 H 1Ö/1S ES 411 H 1Ö/1S</p>
1 NC / 1 NO contact with overlapping	<p>ES 41 H UE ES 411 H UE</p>
2 NC contacts	<p>ES 41 H 2Ö ES 411 H 2Ö</p>



Position switches with safety function

// Series ES 41 and ES 411, actuators

Features/Options

- Actuating speed 0.5 m/s with an actuating angle of $\alpha = 40^\circ$ and $\beta = 25^\circ$
- Wear-resistant thermoplastic roller
- Actuator heads can be repositioned in 4 x 90° steps
- Collar to protect against the entry of foreign bodies
- With metal roller available on request

Note

Actuation from the left should be avoided since this reduces the mechanical life of the position switch.

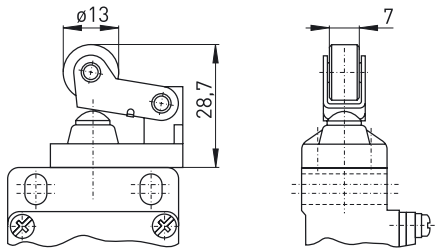
Features/Options

- Actuating speed 0.5 m/s with an actuating angle of $\alpha = 40^\circ$ and $\beta = 30^\circ$
- Wear-resistant thermoplastic roller
- Actuator heads can be repositioned in 4 x 90° steps
- With metal roller available on request

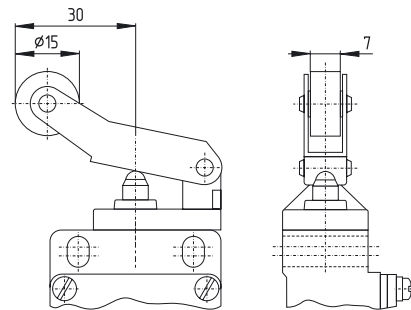
Note

Actuation from the left should be avoided since this reduces the mechanical life of the position switch.

// Offset roller lever collar WH



// Long roller lever HL



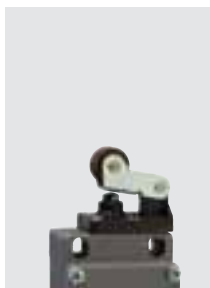
66

Contact variants: switch travel/contacts

	Slow action
1 NC / 1 NO contact	<p>ES 41 WH 10/1S ES 411 WH 10/1S</p>
1 NC / 1 NO contact with overlapping	<p>ES 41 WH UE ES 411 WH UE</p>
2 NC contacts	<p>ES 41 WH 20 ES 411 WH 20</p>

Contact variants: switch travel/contacts

	Slow action
1 NC / 1 NO contact	<p>ES 41 HL 10/1S ES 411 HL 10/1S</p>
1 NC / 1 NO contact with overlapping	<p>ES 41 HL UE ES 411 HL UE</p>
2 NC contacts	<p>ES 41 HL 20 ES 411 HL 20</p>



Features/Options

- Actuating speed 0.5 m/s with an actuating angle of $\alpha = 40^\circ$ and $\beta = 30^\circ$
- Wear-resistant thermoplastic roller
- Actuator heads can be repositioned in 4 x 90° steps
- Collar to protect against the entry of foreign bodies
- With metal roller available on request

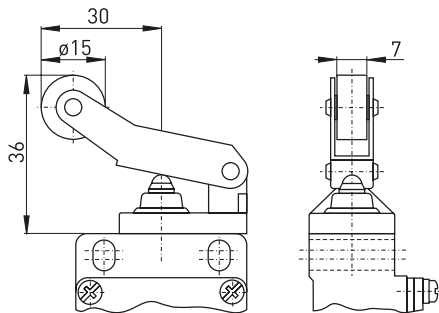
Note

Actuation from the left should be avoided since this reduces the mechanical life of the position switch.

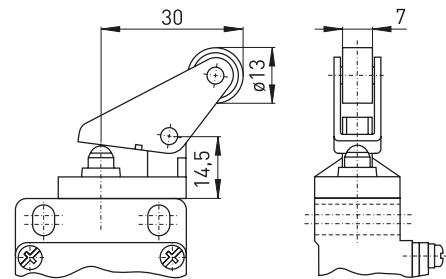
Features/Options

- Actuating speed 0.5 m/s with an actuating angle of $\alpha = 30^\circ$
- Actuation parallel to axis of switch from below
- Wear-resistant thermoplastic roller
- Actuator heads can be repositioned in 4 x 90° steps
- With metal roller available on request

// Long roller lever collar WHL



// Parallel roller lever PH

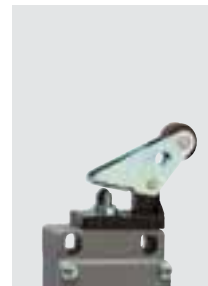


Contact variants: switch travel/contacts

	Slow action
1 NC / 1 NO contact	ES 41 WHL 10/1S ES 411 WHL 10/1S
1 NC / 1 NO contact with overlapping	ES 41 WHL UE ES 411 WHL UE
2 NC contacts	ES 41 WHL 20 ES 411 WHL 20

Contact variants: switch travel/contacts

	Slow action
1 NC / 1 NO contact	ES 41 PH 10/1S ES 411 PH 10/1S
1 NC / 1 NO contact with overlapping	ES 41 PH UE ES 411 PH UE
2 NC contacts	ES 41 PH 20 ES 411 PH 20



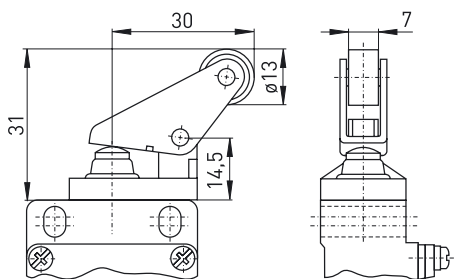
Position switches with safety function

// Series ES 41 and ES 411, actuators

Features/Options

- Actuating speed 0.5 m/s with an actuating angle of $\alpha = 30^\circ$
- Actuation parallel to axis of switch from below
- Wear-resistant thermoplastic roller
- Actuator heads can be repositioned in 4 x 90° steps
- Collar to protect against the entry of foreign bodies
- With metal roller available on request

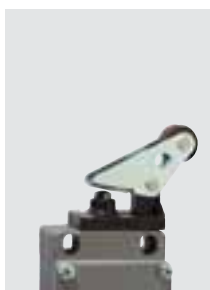
// Parallel roller lever collar WPH



68

Contact variants: switch travel/contacts

	Slow action
1 NC / 1 NO contact	<p>ES 41 WPH 10/1S ES 411 WPH 10/1S</p>
1 NC / 1 NO contact with overlapping	<p>ES 41 WPH UE ES 411 WPH UE</p>
2 NC contacts	<p>ES 41 WPH 20 ES 411 WPH 20</p>



Position switches with safety function // Series ES 61

Features/Options

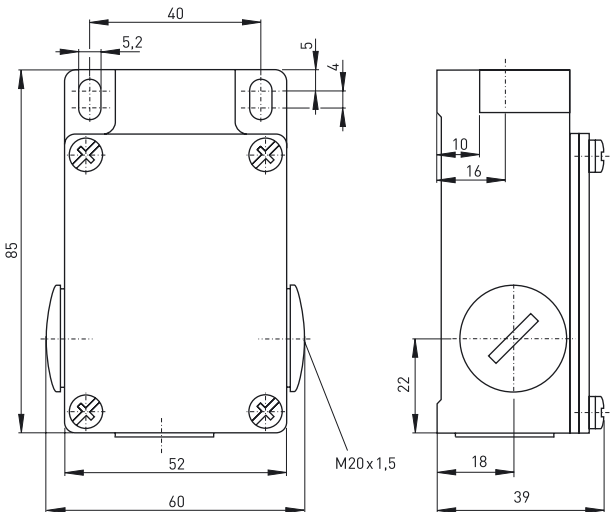
- Metal enclosure
- Slow action \ominus , change-over contact or 2 NC contacts with double break
- Available with overlapping contacts
- 3 cable entries M20 x 1.5
- Actuator heads can be repositioned by 4 x 90°
- Ex-version available

// ES 61



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	aluminium die cast, paint finish
Protection class	IP 65 to EN 60529
Contact material	silver
Switching elements	change-over contact with double break Zb or 2 NC contacts, galvanically separated contact bridges
Switching system	slow action, positive break NC contacts \ominus IEC 60947-5-1
Termination	plug-in connector
Cable section	max. 2.5 mm ² [incl. conductor ferrules]
Cable entry	3 x M 20 x 1.5
U _{imp}	6 kV
U _i	400 V
I _{the}	6 A
Utilisation category	AC-15
Ie/Ue	16 A/400 VAC ES 61 2NC: 6 A/400 VAC
Max. fuse rating	16 A gL/gG D-fuse ES 61 2NC: 6 A gL/gG D-fuse
Mechanical life	> 1 million operations
Switching frequency	3600/h
Ambient temperature	- 20 °C ... + 80 °C
Repeat accuracy of switching points:	± 0.1 mm



Ordering details ES 61 WH 10/1S

ES 61 WH 10/1S

- Contact type 1NC/1NO, (2Ö, UE)
- Actuator H (WPH, W, WHL, etc. ...)
- Watertight collar
- Series
- S Slow action

Position switches with safety function

// Series ES 61, actuators

Features/Options

- With gold-plated contacts available on request

Note

When used as safety switch, secure the enclosure against slipping with appropriate means, e.g. pinning.

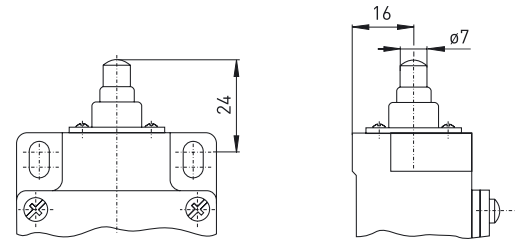
Features/Options

- Actuating speed 0.5 m/s with an actuating angle of 15°
- Exact repeatability of switching point
- Collar to protect against the entry of foreign bodies

// Connector M12 x 1, 4-pole



// Plunger W



Contact variants: switch travel/contacts

	Slow action
1 NC / 1 NO contact	ES 61 W 10/1S
1 NC / 1 NO contact with overlapping	ES 61 W UE
2 NC contacts	ES 61 W 20



Position switches with safety function

// Series ES 61, actuators

Features/Options

- Actuating speed 0.5 m/s with an actuating angle of $\alpha = 40^\circ$ and $\beta = 25^\circ$
- Wear-resistant thermoplastic roller
- Actuator heads can be repositioned in 4 x 90° steps
- Collar to protect against the entry of foreign bodies
- With metal roller available on request

Note

Actuation from the left should be avoided since this reduces the mechanical life of the position switch.

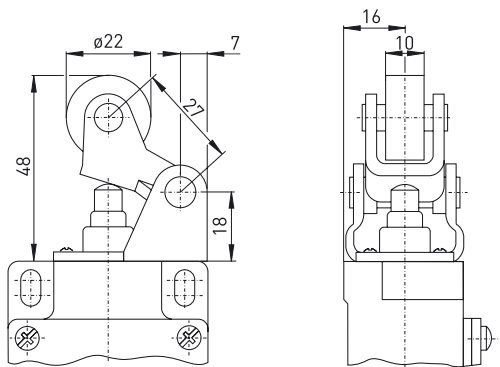
Features/Options

- Actuating speed 0.5 m/s with an actuating angle of $\alpha = 40^\circ$ and $\beta = 30^\circ$
- Wear-resistant thermoplastic roller
- Actuator heads can be repositioned in 4 x 90° steps
- Collar to protect against the entry of foreign bodies
- With metal roller available on request

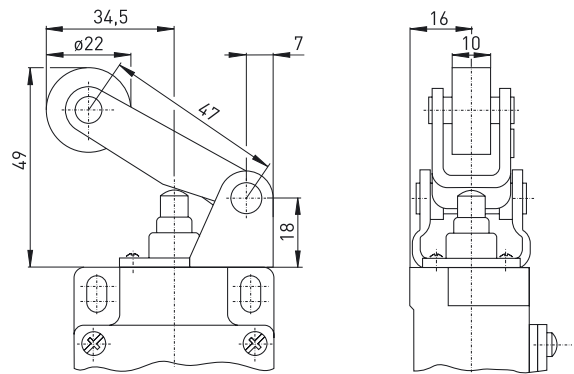
Note

Actuation from the left should be avoided since this reduces the mechanical life of the position switch.

// Roller lever WH



// Long roller lever WHL



72

Contact variants: switch travel/contacts

Contact variants: switch travel/contacts

	Slow action
1 NC / 1 NO contact	ES 61 WH 10/1S
1 NC / 1 NO contact with overlapping	ES 61 WH UE
2 NC contacts	ES 61 WH 2Ö

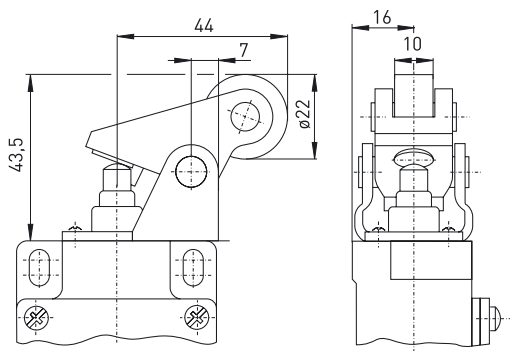
	Slow action
1 NC / 1 NO contact	ES 61 WHL 10/1S
1 NC / 1 NO contact with overlapping	ES 61 WHL UE
2 NC contacts	ES 61 WHL 2Ö



Features/Options

- Actuating speed 0.5 m/s with an actuating angle of $\alpha = 30^\circ$
- Actuation parallel to axis of switch from below
- Wear-resistant thermoplastic roller
- Actuator heads can be repositioned in 4 x 90° steps
- Collar to protect against the entry of foreign bodies
- With metal roller available on request

// Parallel roller lever WPH



Contact variants: switch travel/contacts

	Slow action
1 NC / 1 NO contact	<p>ES 61 WPH 1Ö/1S</p>
2 NC contacts	<p>ES 61 WPH 2Ö</p>

