LS position switches

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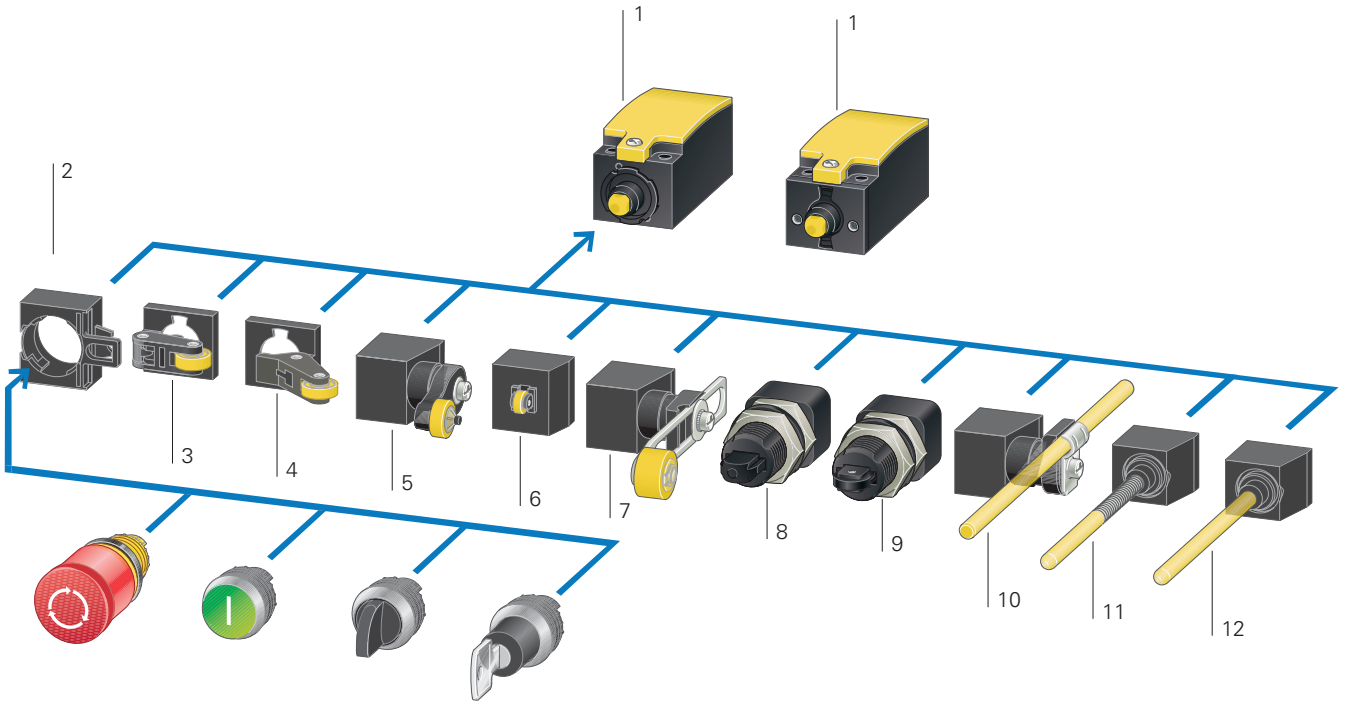
Position Switches

Safety position switches

System overview



LS, LSM

Basic units

Basic Unit	1
According to EN 50047	
With screw-on cover	
Contact configuration: 1N/O / 1NC, 2N/O, 2NC	
Cage Clamp, Screw terminals technology	
As snap-action or standard-action switch	
As electronic snap-action switch,(individually adjustable)	
As 4-20 mA analog signal encoder	
As 0-10 VDC analog signal encoder	
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Operating heads
Can be rotated by 90°

Fixing adapters	2
Actuation through front element RMQ-Titan®	
Roller lever	3
For one-sided operation with higher operating speed	
Angled roller lever	4
For actuation along the unit axis	
Rotary lever	5
For transverse actuation, for pendulum movements	
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Operating heads
Can be rotated by 90°

Roller plunger	6
For transverse actuation with low actuating force	
Adjustable roller lever	7
For length adjustment as required	
Rounded plunger, center fixing	8
For mounting in enclosure wall or mounting plate drilling M18 x 1	
Roller plunger, center fixing	9
For mounting in enclosure wall or mounting plate drilling M18 x 1	
Actuating rod	10
On conveyor belts for lightweight goods	
Spring rod	11
For flexible actuation from all sides	
Actuating rod	12
Withdrawable mechanism from front	
→ Page 5	

LS, LSM product features

- Modular system
- IP65 and IP66 protection type (except LSM)

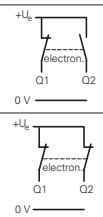
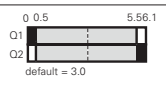
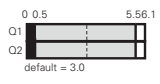
totally insulated

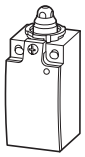
- Personnel protection
- Positive operation
- ⊖ Safety function with positively opening contacts to IEC/EN 60947-5-1 up to Category 4 to EN 954-1

- Suitable for use with electronic units to IEC/EN 61131-2
- Devices for world markets

Ordering

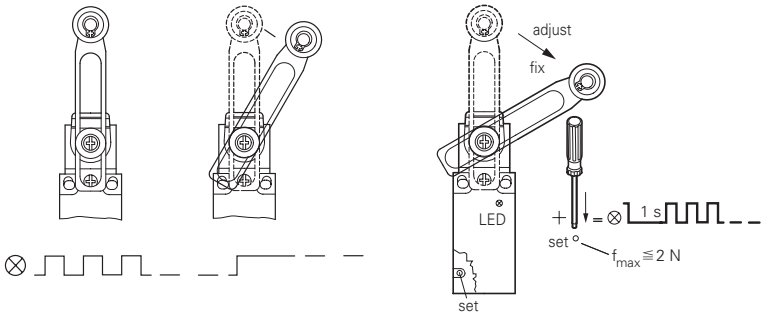
LS-Titan

Contact configuration ⊖ Safety function safety function to IEC/EN 60947-5-1 N/O = normally open contact NC = normally closed contact	Circuit symbol	Contact travel ■ = Contact closed □ = Contact open	Color Enclosure cover	**Part no.** Article no.	**Price** See price list	Std. pack
Basic unit, expandable						
Operating point electronically adjustable, IP66, IP67						
Basic unit Visible status display, comparable with positive opening function Partly short-circuit-proof, restart after reset						
1 N/O 1 NC				**LSE-11** 266121		2 off 1)
– 2 NC				**LSE-02** 266122		2 off 1)



Notes

LSE-11 and LSE-02: Individual operating point adjustment:



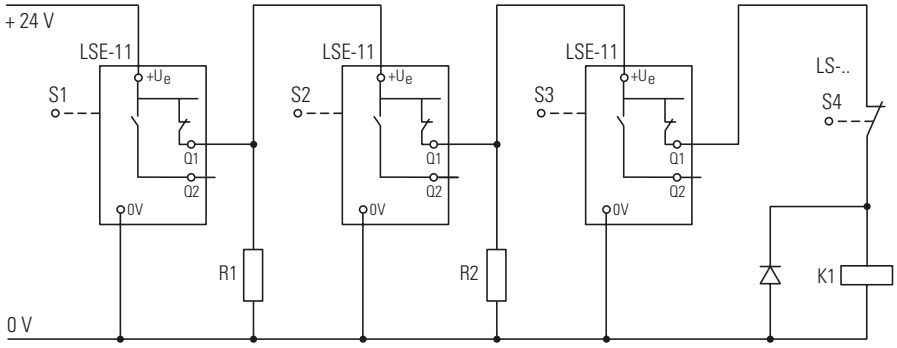
The following applies to LSE-11 and LSE-02: ensure that the power supply operates correctly when setting the operating point.

Information relevant for export to North America

Product Standards	IEC/EN 60947-5; UL 508; CSA-C22.2 No. 14; CE marking
UL File No.	E29184
UL CCN	NKCR
CSA File No.	12528
CSA Class No.	3211-03
NA Certification	UL Listed, CSA certified
Degree of Protection	IEC: IP66, 67, UL/CSA Type 3R, 4X (indoor use only), 12, 13

Circuit example of series connection:

LSE-11 and LSE-02 can be used in safety-oriented circuits.



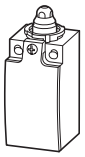
S1 is connected to 24 V DC
S2, S3 each switch with a delay of 0.7 s
R1, R2 e.g. series resistor element M22-XLED60 (2820 Ω/0.5 W)

1) Operating heads → Page 3/9

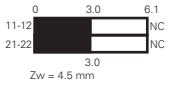
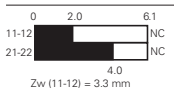
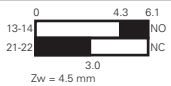
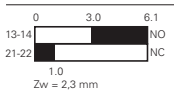
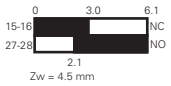
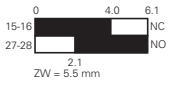
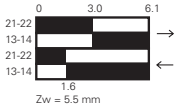
Position Switches

Safety position switches

Rounded plunger, IP66, IP67



LS-Titan

Contact configuration ⊖ Positive opening safety function according to IEC/EN 60947-5-1 N/O = normally open contact	NC = normally closed contact	Circuit symbol	Contact travel ■ = Contact closed □ = Contact open	Color Enclosure covers	Enclosure	Connection type	**Part no.** Article no.	**Price** See price list	Std. pack
Basic unit, expandable									
–	2 NC ⊖				plastic	Cage Clamp	**LS-02** 266107		10 off 1) 2)
–	2 NC ⊖					Cage Clamp	**LS-02-SW** 272009		10 off 1) 2)
–	2 NC ⊖					Screwed terminal	**LS-S02** 106729		10 off 2)
–	2 NC ⊖					Screwed terminal	**LS-S02-SW** 106782		10 off 2)
–	2 NC ⊖				metal	Cage Clamp	**LSM-02** 266142		2 off 1) 2)
–	2 NC ⊖				plastic EN 50047 Form B	Cage Clamp	**LS-02A** 116702		10 off 1) 2)
–	2 NC ⊖					Screwed terminal	**LS-S02A** 116703		10 off 2)
1 N/O	1 NC ⊖				plastic	Cage Clamp	**LS-11** 266109		10 off 1) 2)
1 N/O	1 NC ⊖					Cage Clamp	**LS-11-SW** 272006		10 off 1) 2)
1 N/O	1 NC ⊖					Screwed terminal	**LS-S11** 106783		10 off 2)
1 N/O	1 NC ⊖					Screwed terminal	**LS-S11-SW** 106807		10 off 2)
1 N/O	1 NC ⊖				metal EN 50047 Form B	Cage Clamp	**LSM-11** 266144		2 off 1) 2)
1 N/O	1 NC ⊖				plastic EN 50047 Form B	Cage Clamp	**LS-11A** 116704		10 off 1) 2)
1 N/O	1 NC ⊖					Screwed terminal	**LS-S11A** 116705		10 off 2)
1 N/O	1 NC ⊖				plastic	Cage Clamp	**LS-11D** 266114		10 off 1) 2)
1 N/O	1 NC ⊖					Cage Clamp	**LS-11D-SW** 272007		10 off 1) 2)
1 N/O	1 NC ⊖					Screwed terminal	**LS-S11D** 106791		10 off 2)
1 N/O	1 NC ⊖					Screwed terminal	**LS-S11D-SW** 106797		10 off 2)
1 N/O	1 NC ⊖				metal	Cage Clamp	**LSM-11D** 266149		2 off 1) 2)
1 N/O	1 NC ⊖				plastic	Cage Clamp	**LS-11DA** 292361		10 off 1) 2)
1 N/O	1 NC ⊖					Screwed terminal	**LS-S11DA** 106795		1 off 2)
1 N/O	1 NC ⊖				metal	Cage Clamp	**LSM-11DA** 292363		1 off 1) 2)
1 N/O	1 NC ⊖				plastic EN 50047 Form B	Cage Clamp	**LS-11S** 266105		10 off 1) 2)
1 N/O	1 NC ⊖					Cage Clamp	**LS-11S-SW** 272020		10 off 1) 2)
1 N/O	1 NC ⊖					Screwed terminal	**LS-S11S** 106798		10 off 2)
1 N/O	1 NC ⊖					Screwed terminal	**LS-S11S-SW** 106806		10 off 2)
1 N/O	1 NC ⊖				metal EN 50047 Form B	Cage Clamp	**LSM-11S** 266140		2 off 1) 2)

Notes

1) Cage Clamp is a registered trademark of Wago Kontakttechnik, 32432 Minden, Germany. Accessories for the Cage Clamp terminals from Wago: Jumper insert, grey, Wago article no. 264-402

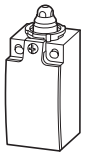
2) Operating heads → Page 9

Information relevant for export to North America

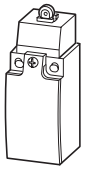
Product Standards	IEC/EN 60947-5; UL 508; CSA-C22.2 No. 14; CE marking
UL File No.	E29184
UL CCN	NKCR
CSA File No.	12528
CSA Class No.	3211-03
NA Certification	UL Listed, CSA certified
Degree of Protection	IEC: IP66, 67, UL/CSA Type 3R, 4X (indoor use only), 12, 13

LS-Titan

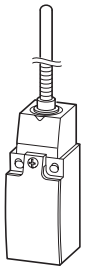
Rounded plunger, IP66, IP67 (front fixing)

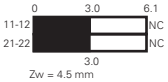
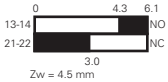
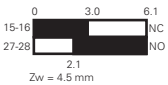
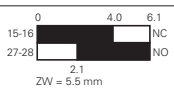
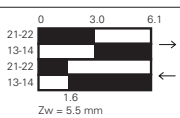
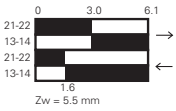
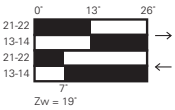


Roller plungers, IP66, IP67



Spring rod actuator IP66, IP67
Do not use spring-rod actuator as a safety position switch; admissible only with snap-action contact.



Contact configuration ⊖ Positive opening safety function according to IEC/EN 60947-5-1 N/O = normally open contact	NC = normally closed contact	Circuit symbol	Contact travel ■ = Contact closed □ = Contact open	Color Enclosure covers	Enclosure	Connection type	**Part no.** Article no.	**Price** See price list	Std. pack
Complete units									
–	2 NC ⊖				plastic	Cage Clamp	**LS-02/F** 292365		1 off 1) 2)
–	2 NC ⊖				plastic	Screwed terminal	**LS-S02/F** 106780		1 off 2)
–	2 NC ⊖				metal	Cage Clamp	**LSM-02/F** 292371		1 off 1) 2)
1 N/O	1 NC ⊖				plastic	Cage Clamp	**LS-11/F** 290176		1 off 1) 2)
1 N/O	1 NC ⊖				plastic	Screwed terminal	**LS-S11/F** 106784		1 off 2)
1 N/O	1 NC ⊖				metal	Cage Clamp	**LSM-11/F** 292372		1 off 1) 2)
1 N/O	1 NC ⊖				plastic	Screwed terminal	**LS-S11D/F** 106792		1 off 2)
1 N/O	1 NC ⊖				plastic	Cage Clamp	**LS-11D/F** 292366		1 off 1) 2)
1 N/O	1 NC ⊖				metal	Cage Clamp	**LSM-11D/F** 292373		1 off 1) 2)
1 N/O	1 NC ⊖				plastic	Cage Clamp	**LS-11DA/F** 292369		1 off 1) 2)
1 N/O	1 NC ⊖				plastic	Screwed terminal	**LS-S11DA/F** 106796		1 off 2)
1 N/O	1 NC ⊖				metal	Cage Clamp	**LSM-11DA/F** 292376		1 off 1) 2)
1 N/O	1 NC ⊖				plastic	Cage Clamp	**LS-11S/F** 292367		1 off 1) 2)
1 N/O	1 NC ⊖				plastic	Screwed terminal	**LS-S11S/F** 106799		1 off 2)
1 N/O	1 NC ⊖				metal	Cage Clamp	**LSM-11S/F** 292374		1 off 1) 2)
1 N/O	1 NC ⊖				plastic EN 50047 Form C	Cage Clamp	**LS-11/P** 266112		2 off 1) 2)
1 N/O	1 NC ⊖					Screwed terminal	**LS-S11/P** 106788		2 off 2)
1 N/O	1 NC ⊖				metal EN 50047 Form C	Cage Clamp	**LSM-11/P** 266147		2 off 1) 2)
1 N/O	1 NC ⊖				plastic EN 50047 Form C	Cage Clamp	**LS-11S/P** 266118		2 off 1) 2)
1 N/O	1 NC ⊖					Screwed terminal	**LS-S11S/P** 106801		2 off 2)
1 N/O	1 NC ⊖				metal EN 50047 Form C	Cage Clamp	**LSM-11S/P** 266153		2 off 1) 2)
1 N/O	1 NC ⊖				plastic	Cage Clamp	**LS-11S/S** 266104		2 off 1) 2)
1 N/O	1 NC ⊖				plastic	Screwed terminal	**LS-S11S/S** 106805		2 off 2)
1 N/O	1 NC ⊖				metal	Cage Clamp	**LSM-11S/S** 266139		2 off 1) 2)

Notes

1) Cage Clamp is a registered trademark of Wago Kontakttechnik, 32432 Minden. Accessories for the Cage Clamp terminals from Wago:
Jumper insert, grey, Wago article no. 264-402

2) The operating head can be rotated at 90° intervals to adapt to the specified operating direction.

Information relevant for export to North America

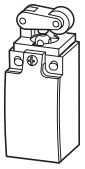
Product Standards	IEC/EN 60947-5; UL 508; CSA-C22.2 No. 14; CE marking
UL File No.	E29184
UL CCN	NKCR
CSA File No.	12528
CSA Class No.	3211-03
NA Certification	UL Listed, CSA certified
Degree of Protection	IEC: IP66, 67, UL/CSA Type 3R, 4X (indoor use only), 12, 13

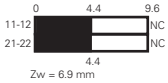
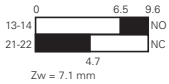
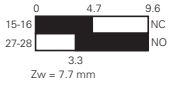
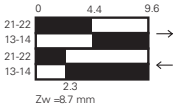
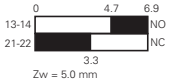
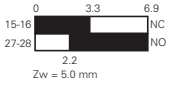
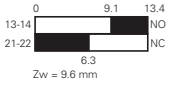
Position Switches

Safety position switches

LS-Titan

Roller lever IP66, IP67 Long



Contact configuration ⊖ Positive opening safety function according to IEC/EN 60947-5-1 N/O = normally open contact NC = normally closed contact		Circuit symbol	Contact travel ■ = Contact closed □ = Contact open	Color Enclosure cover	Enclosure	Connection type	**Part no.** Article no.	**Price** See price list	Std. pack	
Complete units										
–	2 NC ⊖				plastic	Cage Clamp	**LS-02/L** 266108		2 off	1) 2)
–	2 NC ⊖				plastic	Screwed terminal	**LS-S02/L** 106781		2 off	2)
–	2 NC ⊖				metal	Cage Clamp	**LSM-02/L** 266143		2 off	1) 2)
1 N/O	1 NC ⊖				plastic EN 50047 Form E	Cage Clamp	**LS-11/L** 266110		2 off	1) 2)
1 N/O	1 NC ⊖				plastic EN 50047 Form E	Screwed terminal	**LS-S11/L** 106785		2 off	2)
1 N/O	1 NC ⊖				metal EN 50047 Form E	Cage Clamp	**LSM-11/L** 266145		2 off	1) 2)
1 N/O	1 NC ⊖				plastic EN 50047 Form E	Cage Clamp	**LS-11D/L** 266115		2 off	1) 2)
1 N/O	1 NC ⊖				plastic EN 50047 Form E	Screwed terminal	**LS-S11D/L** 106793		2 off	2)
1 N/O	1 NC ⊖				metal EN 50047 Form E	Cage Clamp	**LSM-11D/L** 266150		2 off	1) 2)
1 N/O	1 NC ⊖				plastic EN 50047 Form E	Cage Clamp	**LS-11S/L** 266116		2 off	1) 2)
1 N/O	1 NC ⊖				plastic EN 50047 Form E	Screwed terminal	**LS-S11S/L** 106800		2 off	2)
1 N/O	1 NC ⊖				metal EN 50047 Form E	Cage Clamp	**LSM-11S/L** 266151		2 off	1) 2)
Roller lever IP66, IP67 Short										
1 N/O	1 NC ⊖				plastic	Cage Clamp	**LS-11/LS** 290173		2 off	1) 2)
1 N/O	1 NC ⊖				plastic	Screwed terminal	**LS-S11/LS** 106787		1 off	2)
1 N/O	1 NC ⊖				plastic	Cage Clamp	**LS-11D/LS** 290174		1 off	1) 2)
1 N/O	1 NC ⊖				plastic	Screwed terminal	**LS-S11D/LS** 106794		1 off	2)
Roller lever IP66, IP67 Large										
1 N/O	1 NC ⊖				plastic	Cage Clamp	**LS-11/LB** 290175		1 off	1) 2)
1 N/O	1 NC ⊖				plastic	Screwed terminal	**LS-S11/LB** 106786		1 off	2)

Notes

1) Cage Clamp is a registered trademark of Wago Kontakttechnik, 32432 Minden.
Accessories for the Cage Clamp terminals from Wago:
Jumper insert, grey, Wa go article no. 264-402

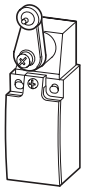
2) The operating head can be rotated at 90° intervals to adapt to the specified operating direction.

Information relevant for export to North America

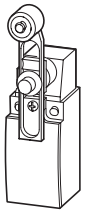
Product Standards	IEC/EN 60947-5; UL 508; CSA-C22.2 No. 14; CE marking
UL File No.	E29184
UL CCN	NKCR
CSA File No.	12528
CSA Class No.	3211-03
NA Certification	UL Listed, CSA certified
Degree of Protection	IEC: IP66, 67, UL/CSA Type 3R, 4X (indoor use only), 12, 13

LS-Titan

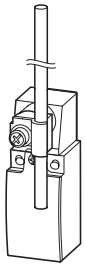
Rotary lever, IP66, IP67



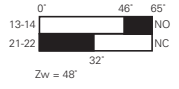
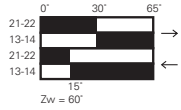
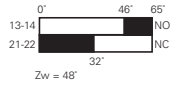
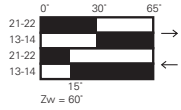
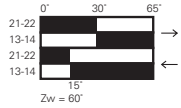
Adjustable roller levers, IP66, IP67



Actuating rodIP66, IP67



(*) Use-definable customer ID or stock no.: up to 10 characters

Contact configuration ⊖ Positive opening safety function according to IEC/EN 60947-5-1 N/O = normally open contact NC = normally closed contact	Circuit symbol	Contact travel ■ = Contact closed □ = Contact open	Color Enclosure cover	Enclosure	Connection type	**Part no.** Article no.	**Price** See price list	Std. pack
Complete units								
1 N/O 1 NC ⊖			●	plastic EN 50047 Form A	Cage Clamp	**LS-11/RL** 266111		2 off 1) 2)
1 N/O 1 NC ⊖			●	metal EN 50047 Form A	Cage Clamp	**LSM-11/RL** 266146		2 off 1) 2)
1 N/O 1 NC ⊖			●	plastic EN 50047 Form A	Screwed terminal	**LS-S11/RL** 106789		2 off 2)
1 N/O 1 NC ⊖			●	plastic EN 50047 Form A	Cage Clamp	**LS-11S/RL** 266117		2 off 1) 2)
1 N/O 1 NC ⊖			●	plastic EN 50047 Form A	Screwed terminal	**LS-S11S/RL** 106802		2 off 2)
1 N/O 1 NC ⊖			●	metal EN 50047 Form A	Cage Clamp	**LSM-11S/RL** 266152		2 off 1) 2)
1 N/O 1 NC ⊖			●	plastic	Cage Clamp	**LS-11/RLA** 266113		2 off 1) 2)
1 N/O 1 NC ⊖			●	plastic	Screwed terminal	**LS-S11/RLA** 106790		2 off 2)
1 N/O 1 NC ⊖			●	metal	Cage Clamp	**LSM-11/RLA** 266148		2 off 1) 2)
1 N/O 1 NC ⊖			●	plastic	Cage Clamp	**LS-11S/RLA** 266119		2 off 1) 2)
1 N/O 1 NC ⊖			●	plastic	Screwed terminal	**LS-S11S/RLA** 106803		2 off 2)
1 N/O 1 NC ⊖			●	metal	Cage Clamp	**LSM-11S/RLA** 266154		2 off 1) 2)
1 N/O 1 NC ⊖			●	plastic	Cage Clamp	**LS-11S/RR** 266106		4 off 1) 2)
1 N/O 1 NC ⊖			●	plastic	Screwed terminal	**LS-S11S/RR** 106804		4 off 2)
1 N/O 1 NC ⊖			●	metal	Cage Clamp	**LSM-11S/RR** 266141		4 off 1) 2)
Customer specific complete units IP66, IP67								
				plastic	–	**LS-COMBINATION-*** 266168		1 off 1) 2)

Notes

1) Cage Clamp is a registered trademark of Wago Kontakttechnik, 32432 Minden, Germany.
Accessories for the Cage Clamp terminals from Wago:
Jumper insert, grey, Wago article no. 264-402

2) The operating head can be rotated at 90° intervals to adapt to the specified operating direction.

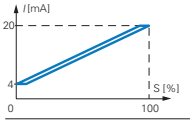
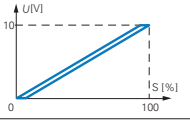
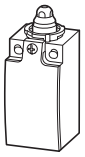
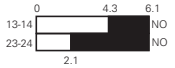
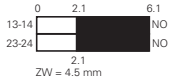
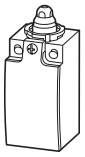
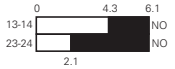
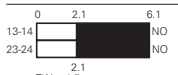
Information relevant for export to North America

Product Standards	IEC/EN 60947-5; UL 508; CSA-C22.2 No. 14; CE marking
UL File No.	E29184
UL CCN	NKCR
CSA File No.	12528
CSA Class No.	3211-03
NA Certification	UL Listed, CSA certified
Degree of Protection	IEC: IP66, 67, UL/CSA Type 3R, 4X (indoor use only), 12, 13

Position Switches

Positions switches without positive opening

LS-Titan

Contact configuration ⊖ Positive opening safety function according to IEC/EN 60947-5-1 N/O = normally open contact NC = normally closed contact		Circuit symbol	Contact travel ■ = Contact closed □ = Contact open	Color Enclosure cover	Enclosure	Connection type	**Part no.** Article no.	**Price** See price list	Std. pack	
Basic unit, expandable										
Analog electronic position switches IP66, IP67										
Basic unit Visual status indication Q1 = Analog output Q2 = Diagnostics output (the diagnostics output has a 0 V signal in the event of a fault.)					plastic	Cage Clamp	**LSE-AI** 269461		2 off	2)
					plastic	Cage Clamp	**LSE-AU** 274096		2 off	2)
Rounded plunger, IP66, IP67										
	2 N/O	–			●	plastic	Cage Clamp	**LS-20** 266120		10 off	1) 2)
	2 N/O	–			●	plastic	Cage Clamp	**LS-20-SW** 272008		10 off	1) 2)
	2 N/O	–			●	plastic	Screwed terminal	**LS-S20** 106808		1 off	2)
	2 N/O	–			●	plastic	Screwed terminal	**LS-S20-SW** 106812		10 off	2)
	2 N/O	–			●	metal	Cage Clamp	**LSM-20** 266155		2 off	1) 2)
	2 N/O	–			●	plastic	Cage Clamp	**LS-20A** 292362		1 off	1) 2)
	2 N/O	–			●	plastic	Screwed terminal	**LS-S20A** 106810		10 off	2)
	2 N/O	–			●	metal	Cage Clamp	**LSM-20A** 100051		2 off	1) 2)
	2 N/O	–			●	plastic EN 50047 Form B	Cage Clamp	**LS-20B** 116706		10 off	1) 2)
	2 N/O	–			●	plastic EN 50047 Form B	Screwed terminal	**LS-S20B** 116707		10 off	2)
Basic unit, not expandable										
Rounded plunger, IP66, IP67 (front fixing)										
	2 N/O	–			●	plastic	Cage Clamp	**LS-20/F** 292368		1 off	1)
	2 N/O	–			●	plastic	Screwed terminal	**LS-S20/F** 106809		1 off	
	2 N/O	–			●	metal	Cage Clamp	**LSM-20/F** 292375		1 off	1)
	2 N/O	–			●	plastic	Cage Clamp	**LS-20A/F** 292370		1 off	1)
	2 N/O	–			●	plastic	Screwed terminal	**LS-S20A/F** 106811		1 off	
	2 N/O	–			●	metal	Cage Clamp	**LSM-20A/F** 292377		1 off	1)

Notes

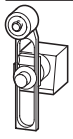
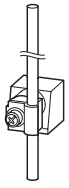
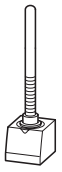
1) Cage Clamp is a registered trademark of Wago Kontakttechnik, 32432 Minden.
Accessories for the Cage Clamp terminals from Wago:
Jumper insert, grey, Wago article no. 264-402

2) Operating heads → Page 3/9

Information relevant for export to North America

Product Standards	IEC/EN 60947-5; UL 508; CSA-C22.2 No. 14; CE marking
UL File No.	E29184
UL CCN	NKCR
CSA File No.	12528
CSA Class No.	3211-03
NA Certification	UL Listed, CSA certified
Degree of Protection	IEC: IP66, 67, UL/CSA Type 3R, 4X (indoor use only), 12, 13

LS-Titan

		plastic			metal			
		Part no. Article no.	**Price** See price list	Std. pack	**Part no.** Article no.	**Price** See price list	Std. pack	**Notes**
Rounded plunger, center fixing								
	For installation in M18 × 1 enclosure wall or mounting plate drilling	**LS-XZS** 114024					1 off	The operating head can be rotated at 90° intervals to adapt to the specified operating direction.
Roller plunger, center fixing								
	For installation in M18 × 1 enclosure wall or mounting plate drilling	**LS-XZRS** 114025					1 off	
Roller plunger								
	–	**LS-XP** 266125		10 off	**LSM-XP** 266158		10 off	
Roller lever								
	Large	**LS-XLB** 290178		5 off				
	Short	**LS-XLS** 290177		1 off				
	Long	**LS-XL** 266123		10 off	**LSM-XL** 266156		10 off	
Angled roller lever								
	–	**LS-XLA** 266124		10 off	**LSM-XLA** 266157		10 off	
Rotary lever								
	–	**LS-XRL** 266126		5 off	**LSM-XRL** 266159		5 off	
Adjustable roller lever								
	D = 18 mm	**LS-XRLA** 266127		4 off	**LSM-XRLA** 266160		4 off	
	D = 30 mm	**LS-XRLA30** 266128		5 off				
	D = 40 mm (rubber)	**LS-XRLA40R** 266130		5 off				
	D = 40 mm	**LS-XRLA40** 266129		5 off				
Actuating rod								
	Rod from insulated material	**LS-XRR** 266131		4 off	**LSM-XRR** 266161		4 off	
	Metal rod	**LS-XRRM** 266132		4 off	**LSM-XRRM** 266162		4 off	
Spring rod								
	Not to be used as a safety position switch Use only in conjunction with snap-action contact.	**LS-XS** 266133		5 off	**LSM-XS** 266163		5 off	
Actuating rod								
	–	**LS-XOR** 290190		1 off				
Fixing adapters								
	Actuation through front element RMQ-Titan®	**M22-LS** 266137		10/1 off				UL/CSA certification not required

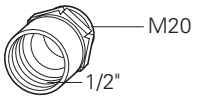
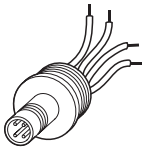
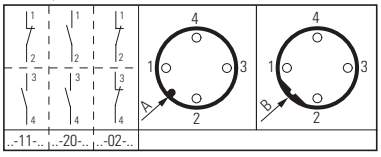
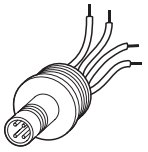
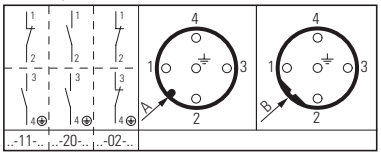
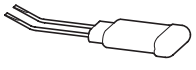
Information relevant for export to North America

Product Standards	IEC/EN 60947-5; UL 508; CSA-C22.2 No. 14; CE marking
UL File No.	E29184
UL CCN	NKCR
CSA File No.	12528
CSA Class No.	3211-03
NA Certification	UL Listed, CSA certified

Position Switches

Accessories

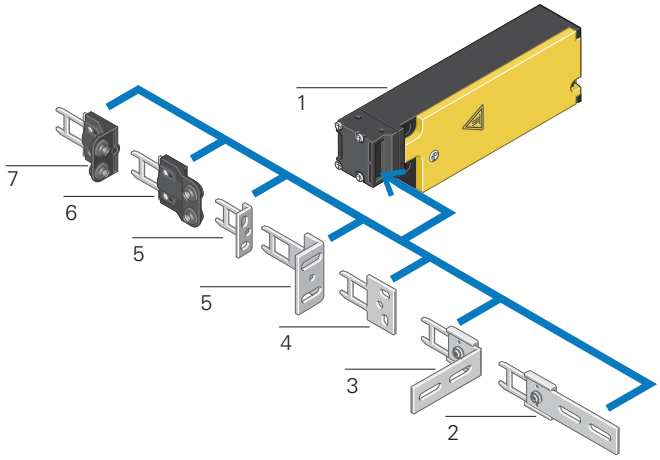
LS-Titan

	Description		Part no. Article no.	Price See price list	Std. pack	Notes	Information relevant for export to North America
Screw connection to fit M20 to ½"							
	Screw connector for American pipe thread Metal		**V1/2"/M20-NA** 225269		10 off	The screw connection is for grounding; no total insulation For connection thread lengths up to 9 mm	Product Standards UL 508; CSA-C22.2 No. 14; UL File No. E29184 UL CCN NKCR CSA File No. 12528 CSA Class No. 3211-03 NA Certification UL Listed, CSA certified Specially designed for NA ✓
	Screw connector for American pipe thread Molded material		**V1/2"/M20** 225270		10 off	For connection thread lengths up to 9 mm	UL/CSA certification not required
M20 diaphragm bolt, IP65							
	With built in push-through diaphragm External diameter of cable up to 13 mm IP65 with cable inserted		**EMS20** 225271		25 off	–	
Screw closure M20							
	(self-sealing grommet) For tightening/loosening using a standard spanner for sealing grommet plugs		**LS-X20** 266134		25 off	–	
Plug connector M12x1, IP66 Molded material I_{th} = 4 A Fuse: 6 A gG/gL							
4-pole U_e = 250 V	For use with						
	LS	"A" coded Standard to IEC/EN 60947-5-2	**M12A** 266135		10 off	M12A, M12B 	
	LS	"B"-coded 	**M12B** 266136		10 off		
5-pole U_e = 125 V							
	LSM	"A" coded Standard to IEC/EN 60947-5-2	**M12A5** 272202		10 off	M12A5, M12B5 	
	LSM	"B"-coded 	**M12B5** 272203		10 off		
Cage clamp twin NC contacts							
	–	For opening two terminals simultaneously	**LS-XTW** 290179		1 off	–	UL/CSA certification not required
Adapter plate, thickness 2.5 mm							
	For additional fixing with sideways operation, together with locating plate FS-AT (order separately)		**LS-XAP** 114026		1 off		UL/CSA certification not required
Locating plate							
	For fixing with side motion		**FS-AT** 019610		20 off	–	UL/CSA certification not required

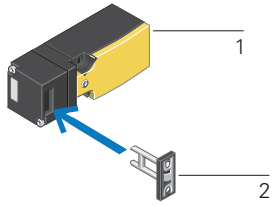
Position Switches

System overview

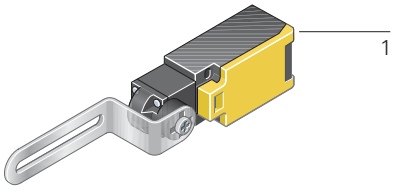
LS-…ZBZ



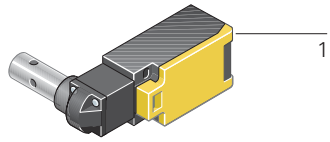
LS-…ZB



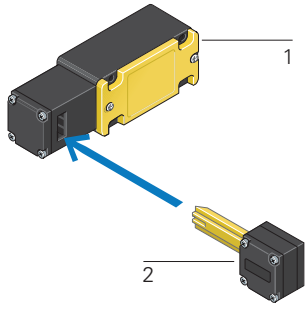
LSR-…TKG



LSR-…TS



LS4…ZB



LS-...ZBZ

Basic Unit	1
Spring or magnet-powered interlock	
For increased personnel and process protection	
Tamper-proof	
Multiple coded actuators	
Contact configuration: 1 N/O / 1 NC or 2 NC	
→ Page 16	

Flat flexible actuator	2
For doors that do not close precisely	
→ Page 17	

Angled flexible actuator	3
For doors that do not close precisely	
→ Page 17	

Flat actuator	4
For sliding doors	
→ Page 17	

Angled actuator	5
For swing doors	
→ Page 17	

Flat compensating actuator	6
For increased tolerance compensation in the direction of door closure	
→ Page 17	

Angled compensating actuator	7
For increased tolerance compensation in the direction of door closure	
→ Page 17	

LS-...ZB

Complete unit	1
For personnel protection	
Contact configuration: 1 NC, 1 N/O / 1 NC or 2 NC	
5 directions of operation possible	
→ Page 18	

Actuator	2
Multiple coding protection against tampering	

LSR-...TKG, LSR-...TS

Complete unit	1
For personnel protection	
Contact configuration: 1 N/O / 1 NC or 2 NC	
For swing doors with fixed connection to the door/hinge pin	
Multiple coded actuators	
Contact configuration: 1 N/O / 1 NC or 2 NC	
LSR-...TKG → Page 18	
LSR-...TS → Page 18	

LS4.../ZB

Complete unit	1
Narrow enclosure version	
For personnel protection	
Contact configuration: 1 NC, 1 N/O / 1 NC	
→ Page 16	

Actuator	2
Multiple coding	
For horizontal or vertical operation	

Product features

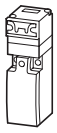
Interlocking unit to EN 1088
- For use in safety circuits
- ⊖ Positive opening safety function according to IEC/EN 60947-5-1
- Protection type IP65
- Operating head can be turned 4 x 90°
- With M20 x 1.5 connecting thread

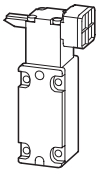
totally insulated

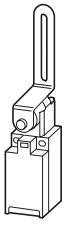
SUVA CNA INSAI

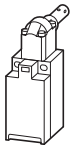
Position Switches

LS-...ZB LS4/ZB LSR-...TKG LSR-...TS



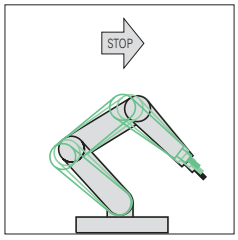




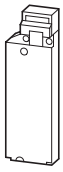


"Personnel protection" by monitoring of the protective mechanism

- Door open
- LS...-ZB disconnects power
- No danger

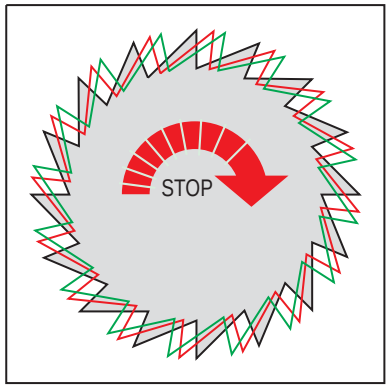


LS/ZBZ

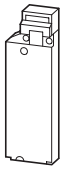


"Increased personnel protection" by monitoring and interlocking the protective mechanism

- Stop command
- Waiting time
- Machine is stopped
- Protective mechanism open
- No danger

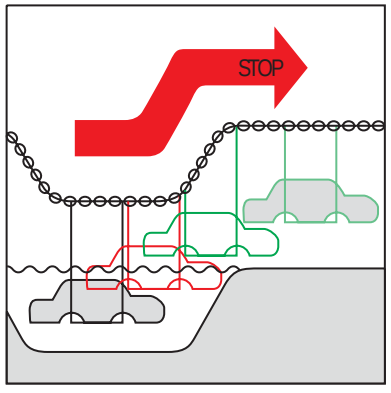


LS/ZBZ



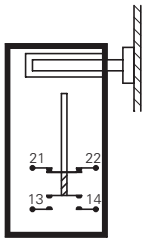
"Increased personnel protection" by monitoring and interlocking the protective mechanism

- Stop command
- Waiting time
- Process sequence halted
- Protective mechanism open
- Product OK

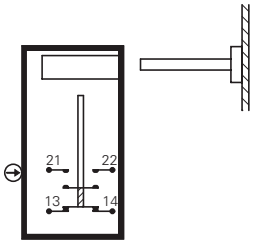


LS-...ZB

Closed



Open



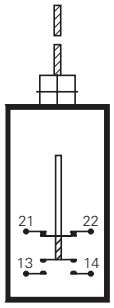
→ Personnel protection

Door open	→ Enabling contact (21-22) opening positively
Door open	→ Enabling contact safely open; tamperproof against simple tools
Door close	→ Triple coded actuator closes the enabling contact

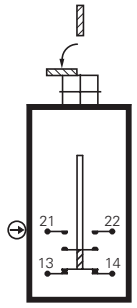
Switch must never be used as a mechanical stop!

LSR-...TKG
LSR-...TS

Closed



Open



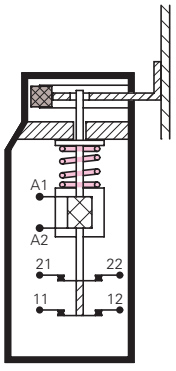
→ Personnel protection

Open of guard mechanism	→ Enabling contact (21-22) opening positively
Guard mechanism open	→ Enabling contact safely open; tamperproof against simple tools
Closing of guard mechanism	→ Closes enabling contact (21–22)

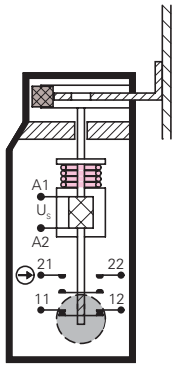
LS-S02-...FT-ZBZ, spring-powered interlock (closed-circuit current principle)

→ Increased personnel protection with separate signal for door position

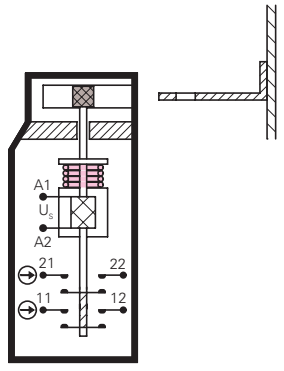
Interlocked



Released



Open



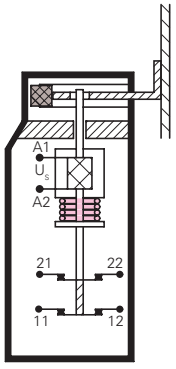
Door closed and interlocked	→ De-energized: even with mains failure or wire breakage: door interlocked = safe state Enabling contact (21-22)
To unlock door	→ Applies voltage to coil (A1, A2) e.g. via zero-speed monitor, enabling contact (21-22) opens
Door open	→ Both contacts blocked in the open position, even with tampering with simple tools
Door close	→ Triple-coded actuator cancels enabling contact inhibit; door position contact (11-12) closes
Interlock door	→ Disconnect coil voltage: 1st actuator interlocked 2nd enabling contact closed Enable only when door locked

Switch must never be used as a mechanical stop!

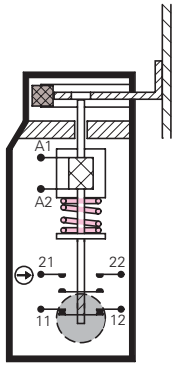
LS-S02-...MT-ZBZ, magnet-powered interlock (operating current principle)

→ Process protection + increased personnel protection with separate signal for door position

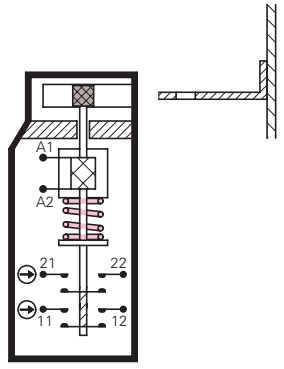
Interlocked



Released



Open



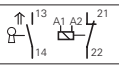
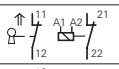
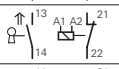
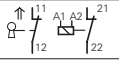
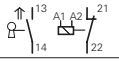
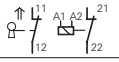
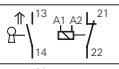
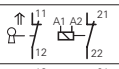
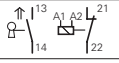
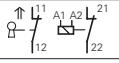
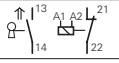
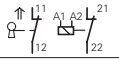
Door closed and interlocked	→ Energized: Enables immediate access in the event of mains failure and wire breakage. Both contacts closed
To unlock door	→ Applies voltage to coil (A1, A2) e.g. via zero-speed monitor, enabling contact (21-22) opens
Door open	→ Only possible once it is released, door position contact (11-12) opens
Door close	→ Triple-coded actuator cancels enabling contact inhibit; door position contact (11-12) closes
Interlock door	→ Disconnect coil voltage: 1st actuator interlocked 2nd enabling contact closed → Enable only when door locked

Switch must never be used as a mechanical stop!

Position Switches

Safety position switches

LS-...ZBZ

Contact configuration ⊖ Safety function by positive opening according to IEC/EN 60947-5-1 N/O = normally open contact	NC = normally closed contact	Circuit symbol	Rated control voltage for magnet drive U_s V	**Part no.** Article no.	**Price** See price list	Std. pack
Basic units with spring-powered interlock (closed-circuit principle) IP65						
• With interlock monitoring and auxiliary release mechanism • Monitoring of door position: continuous						
1 N/O	1 NC ⊖		24 V DC	**LS-S11-24DFT-ZBZ/X** 106829		1 off
–	2 NC ⊖		24 V DC	**LS-S02-24DFT-ZBZ/X** 106823		1 off
1 N/O	1 NC ⊖		120 V 50/60 Hz	**LS-S11-120AFT-ZBZ/X** 106825		1 off
–	2 NC ⊖		120 V 50/60 Hz	**LS-S02-120AFT-ZBZ/X** 106778		1 off
1 N/O	1 NC ⊖		230 V 50/60 Hz	**LS-S11-230AFT-ZBZ/X** 106827		1 off
–	2 NC ⊖		230 V 50/60 Hz	**LS-S02-230AFT-ZBZ/X** 106821		1 off
Basic units with magnet-powered interlock (open-circuit principle) IP65 [1]						
• With interlock monitoring • Monitoring of door position: continuous						
1 N/O	1 NC ⊖		24 V DC	**LS-S11-24DMT-ZBZ/X** 106830		1 off
–	2 NC ⊖		24 V DC	**LS-S02-24DMT-ZBZ/X** 106824		1 off
1 N/O	1 NC ⊖		120 V 50/60 Hz	**LS-S11-120AMT-ZBZ/X** 106826		1 off
–	2 NC ⊖		120 V 50/60 Hz	**LS-S02-120AMT-ZBZ/X** 106820		1 off
1 N/O	1 NC ⊖		230 V 50/60 Hz	**LS-S11-230AMT-ZBZ/X** 106828		1 off
–	2 NC ⊖		230 V 50/60 Hz	**LS-S02-230AMT-ZBZ/X** 106822		1 off

Notes

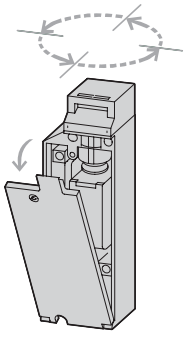
Electric circuitry with DIL contactors and ESR5 safety relay
→ Safety manual TB02000-009, Article no. 119906

With the actuator inserted, the N/O contact is open and the NC contact is closed.

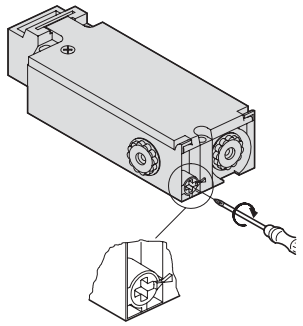
Switch must never be used as a mechanical stop!

[1] Time control of the release operation possible using ESR5-NV30-30

The operating head can be rotated manually in 90° steps to suit the specified level of actuation.



In the event of a loss of voltage, (e.g. during commissioning), the spring-powered LS-..-...FT-ZBZ can be released with a screwdriver.
The auxiliary release mechanism must be sealed!
→ Instructional leaflet AWA 1310-2354



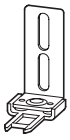
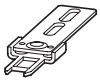
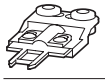
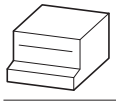
For protection type IP65, use V-M20 cable glands with max 9 mm long thread.

Cable gland V-M20 → Page 2/46

Information relevant for export to North America

Product Standards	IEC/EN 60947-5; UL 508; CSA-C22.2 No. 14; CE marking
UL File No.	E29184
UL CCN	NKCR
CSA File No.	12528
CSA Class No.	3211-03
NA Certification	UL Listed, CSA certified
Degree of Protection	IEC: IP65, UL/CSA Type 3R, 4X (indoor use only), 12, 13

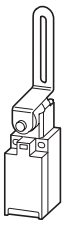
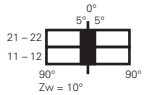
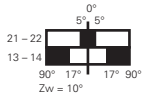
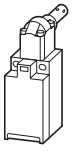
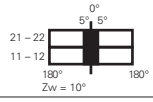
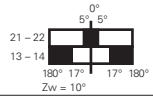
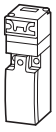
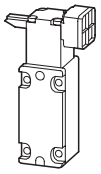
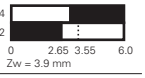
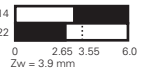
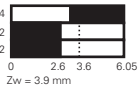
LS-...ZBZ

		Part no. Article no.	Price See price list	Std. pack	Notes	Information relevant for export to North America
Actuators						
For combination with LS-...ZBZ/X basic units Stainless steel						
Flat actuator For sliding doors						Product Standards: IEC/EN 60947-5; UL 508; CSA-C22.2 No. 14; CE marking UL File No.: E29184 UL CCN: NKCR CSA File No.: 12528 CSA Class No.: 3211-03 NA Certification: UL Listed, CSA certified
		LS-XG-ZBZ 106833		10 off	–	
Angled actuator For swing doors above 250 mm width						
	Short	**LS-XW-ZBZ** 106839		10 off	From width: 350 mm	
	Long	**LS-XWA-ZBZ** 106838		10 off	From width: 550 mm	
Angled, flexible actuator For doors that do not close precisely						
		**LS-XF-ZBZ** 106832		10 off	–	
Flat, flexible compensating actuator For doors that do not close precisely						
		**LS-XFG-ZBZ** 106831		10 off	–	
Flat, compensating actuator With increased tolerance in closing direction for door that does not close precisely.						
		**LS-XNG-ZBZ** 106834		1 off	–	
Angled compensating actuator With increased tolerance in closing direction for door that does not close precisely.						
		LS-XNW-ZBZ 106835		10 off	–	
Accessories						
Dust protection cap Prevents ingress of foreign matter into the unit head						
		**LS-XSK-ZBZ** 106837		10 off	–	UL/CSA certification not required

Position Switches

Safety position switches

LSR, LS...ZB

	Contact configuration ⊖ Positive opening safety function according to IEC/EN 60947-5-1 N/O = normally open contact	NC = normally closed contact	Circuit symbol	Contact travel ■ = Contact closed □ = Contact open	Approval mark	Connection type	**Part no.** Article no.	**Price** See price list	Std. pack
Hasp-operated safety switch LSR-…/TKG, IP65									
	–	2 NC ⊖				Screwed terminal	**LSR-S02-1-I/TKG** 106848		1 off
	1 N/O	1 NC ⊖				Screwed terminal	**LSR-S11-1-I/TKG** 106847		1 off
Hinge-operated switch LSR-…/TS, IP65									
	–	2 NC ⊖				Screwed terminal	**LSR-S02-1-I/TS** 106852		1 off
	1 N/O	1 NC ⊖				Screwed terminal	**LSR-S11-1-I/TS** 106851		1 off
Safety position switches LS-…-ZB, IP65									
	–	2 NC ⊖				Cage Clamp	**LS-02-ZB**[1] 106817		2 off
	–	2 NC ⊖				Screwed terminal	**LS-S02-ZB**[1] 106874		2 off
	1 N/O	1 NC ⊖				Cage Clamp	**LS-11-ZB**[1] 106819		2 off
	1 N/O	1 NC ⊖				Screwed terminal	**LS-S11-ZB**[1] 106876		2 off
	1 N/O	1 NC ⊖				Cage Clamp	**LS-11S-ZB**[1] 106870		2 off
	1 N/O	1 NC ⊖				Screwed terminal	**LS-S11S-ZB**[1] 106877		2 off
Safety position switches LS4…/ZB, IP65									
	1 N/O	1 NC ⊖				Screwed terminal	**LS4/S11-1/I/ZB**[2] 106857		1 off
	1 N/O	1 NC ⊖				Screwed terminal	**LS4/S11-1/IA/ZB**[2] 106858		1 off
	1 N/O	2 NC ⊖				Screwed terminal	**LS4/S12-7/IB/ZB**[2] 106859		1 off

Notes

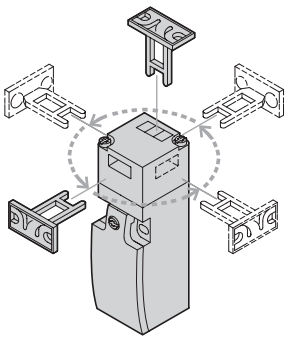
Electric circuitry with contactors DIL and safety relay ESR5
→ Safety manual TB02000-009, Article no. 119906

Switch must never be used as a mechanical stop!

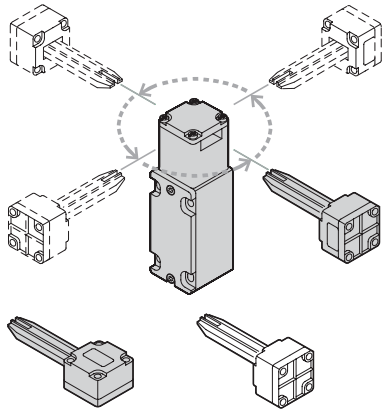
For protection type IP65 use cable glands V-M20 with max. 9 mm connection thread length.
Cable gland V-M20
→ Page 46

With the actuator inserted, the N/O contact is open and the NC contact is closed.

1)



2) Actuator can be repositioned for horizontal or vertical installation. The operating heads can be rotated manually in 90° steps to suit the specified level of actuation.



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UL CCN	NKCR
CSA File No.	12528
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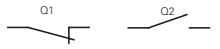
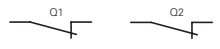
NA Certification	UL Listed, CSA certified
Degree of Protection	IEC: IP65, UL/CSA Type 3R, 4X (indoor use only), 12, 13

Engineering

LSE

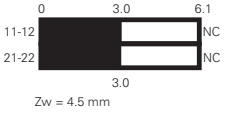
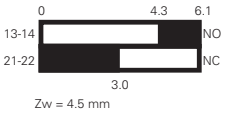
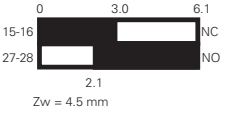
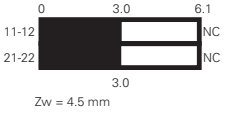
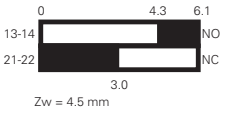
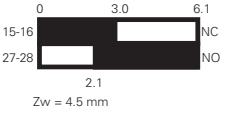
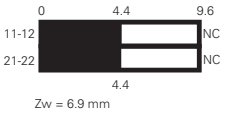
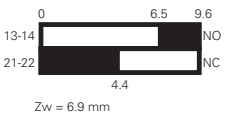
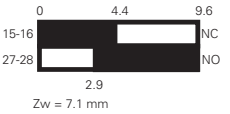
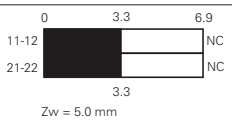
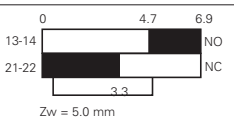
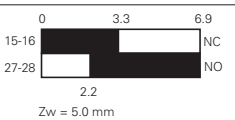
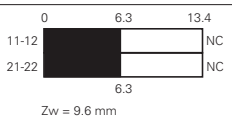
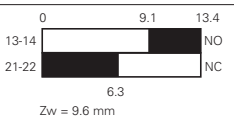
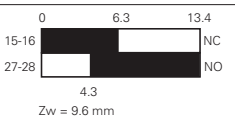
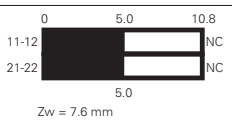
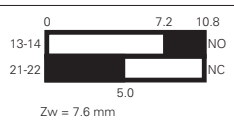
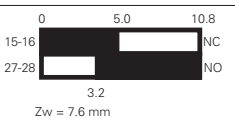
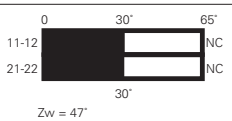
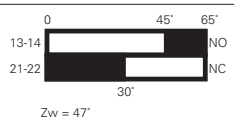
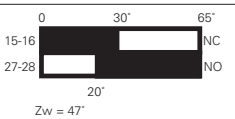
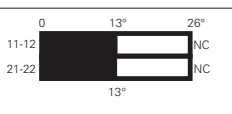
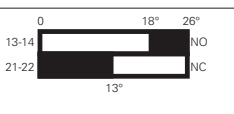
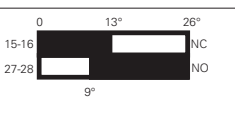
	LSE-11	LSE-02
		
Basic units		
	0 0.5 5.5 6.1 Q1 Q2 default=3.0	0 0.5 5.5 6.1 Q1 Q2 default=3.0
Operating heads		
Roller plunger		
LS-XP LSM-XP LS-XOR	0 0.5 5.5 6.1 Q1 Q2 default=3.0	0 0.5 5.5 6.1 Q1 Q2 default=3.0
Roller lever		
LS-XL LSM-XL LS-XLS LS-XLB	0 0.5 9.0 9.6 Q1 Q2 default=4.4	0 0.5 9.0 9.6 Q1 Q2 default=4.4
Angled roller lever		
LS-XLA LSM-XLA	0 0.5 10 108 Q1 Q2 default=5.0	0 0.5 10 108 Q1 Q2 default=5.0
Rotary lever		
LS-XRL LSM-XRL	0° 5° 60° 65° Q1 Q2 default=30°	0° 5° 60° 65° Q1 Q2 default=30°
Adjustable roller lever		
LS-XRLA LSM-XRLA LS-XRLA30 LS-XRLA40 LS-XRLA40R	0° 5° 60° 65° Q1 Q2 default=30°	0° 5° 60° 65° Q1 Q2 default=30°
Actuating rod		
LS-XRR LSM-XRR LS-XRRM LSM-XRRM	0° 5° 60° 65° Q1 Q2 default=30°	0° 5° 60° 65° Q1 Q2 default=30°
Spring rod actuator		
LS-XS LSM-XS	0° 3° 23° 26° Q1 Q2 default=13°	0° 3° 23° 26° Q1 Q2 default=13°

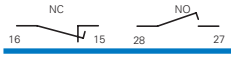
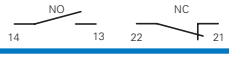
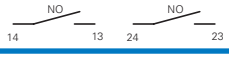
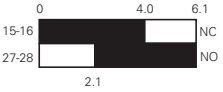
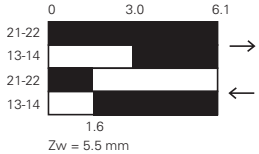
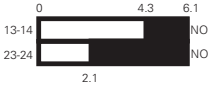
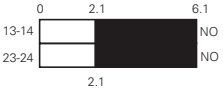
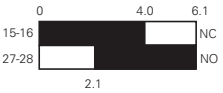
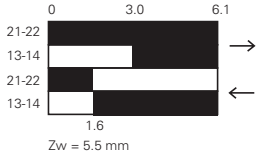
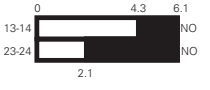
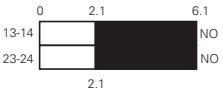
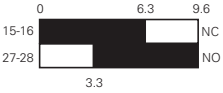
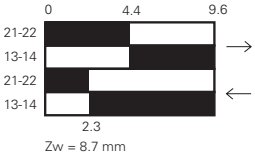
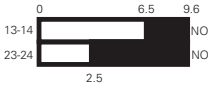
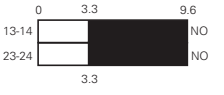
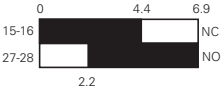
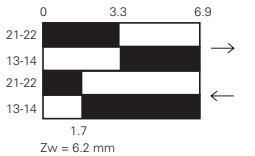
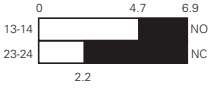
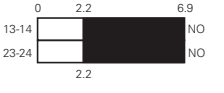
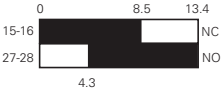
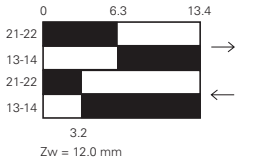
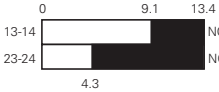
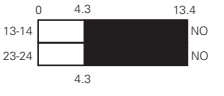
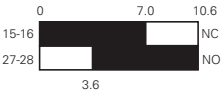
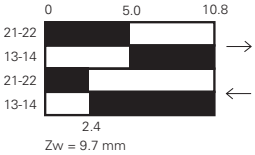
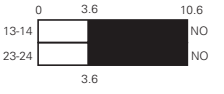
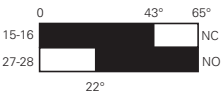
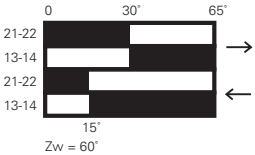
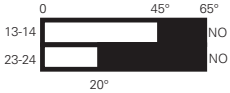
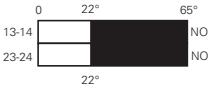
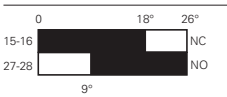
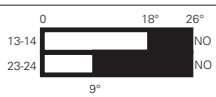
Position Switches

Contact travel diagrams

LS, LSM

Notes: LS-(S)02A,
LS-(S)11A → Page 4
LS-(S)20B → Page 8

	LS-02 LS-S02 LSM-02	LS-11 LS-S11 LSM-11	LS-11D LS-S11D LSM-11D
Basic units	 Zw = 4.5 mm	 Zw = 4.5 mm	 Zw = 4.5 mm
Operating heads			
Roller plunger			
LS-XP LSM-XP	 Zw = 4.5 mm	 Zw = 4.5 mm	 Zw = 4.5 mm
Roller lever			
LS-XL, LSM-XL	 Zw = 6.9 mm	 Zw = 6.9 mm	 Zw = 7.1 mm
Roller lever, short			
LS-XLS	 Zw = 5.0 mm	 Zw = 5.0 mm	 Zw = 5.0 mm
Roller lever, large			
LS-XLB	 Zw = 9.6 mm	 Zw = 9.6 mm	 Zw = 9.6 mm
Angled roller lever			
LS-XLA, LSM-XLA	 Zw = 7.6 mm	 Zw = 7.6 mm	 Zw = 7.6 mm
Rotary lever			
LS-XRL, LSM-XRL	 Zw = 47°	 Zw = 47°	 Zw = 47°
Adjustable roller lever			
LS-XRLA, LSM-XRLA, LS-XRLA30, LS-XRLA40, LS-XRLA40R			
Actuating rod			
LS-XRR, LSM-XRR, LS-XRRM, LSM-XRRM			
Spring rod actuator			
LS-XS, LSM-XS			

LS-11DA LS-S11DA LSM-11DA	LS-11S LS-S11S LSM-11S	LS-20 LS-S20 LSM-20	LS-20A LS-S20A LSM-20A
			
 ZW = 5.5 mm	 Zw = 5.5 mm		 ZW = 4.5 mm
 ZW = 5.5 mm	 Zw = 5.5 mm		 ZW = 4.5 mm
 Zw = 8.6 mm	 Zw = 8.7 mm		
 Zw = 6.2 mm	 Zw = 6.2 mm		
 Zw = 12.0 mm	 Zw = 12.0 mm		
 Zw = 9.6 mm	 Zw = 9.7 mm		
 Zw = 58°	 Zw = 60°		
			

Technical data

LS, LSM, LSE

				Complete units IP66, IP67			
			unit	LS, LSM	LSE11 LSE02	LSE-AI	LSE-AU
General							
Standards				IEC/EN 60947	IEC/EN 60947 EN 61000-4	IEC/EN 60947 EN 61000-4	IEC/EN 60947 EN 61000-4
Climatic proofing				Damp heat, constant, to IEC 60068-2-78, Damp heat, cyclic, to IEC 60068-2-30			
Ambient temperature			°C	-25 - +70	-25 - +70	-25 - +70	-25 - +70
Mounting position				Any	Any	Any	Any
Protection type				IP66, IP67	IP66, IP67	IP66, IP67	IP66, IP67
Terminal capacity of screw terminal and Cage Clamp							
Solid			mm^2	1 x (0.5 - 2.5)	1 x (0.5 - 2.5)	1 x (0.5 - 2.5)	1 x (0.5 - 2.5)
Flexible with ferrule to DIN 46228			mm^2	1 x (0.5 - 1.5)	1 x (0.5 - 1.5)	1 x (0.5 - 1.5)	1 x (0.5 - 1.5)
Power supply							
Rated voltage		U_e	V DC	–	12…30	24 (-15…+20 %)	24 (-15…+20 %)
Rated operational current							
12 V		I_e	mA	–	15	–	–
24 V		I	mA	–	18	28…45	24
30 V		I	mA	–	19	–	–
Contacts/switching capacity							
Rated impulse withstand voltage		U_{imp}	V AC	4000	–	–	–
Rated insulation voltage		U_i	V	400	–	–	–
Overvoltage category/pollution degree				III/3	III/3	–	–
Rated operational current							
AC-15	24 V	I_e	A	6	–	–	–
	230 V/240 V	I_e	A	6	–	–	–
	400 V/415 V	I_e	A	4	–	–	–
DC-13	24 V	I_e	A	3	0.2	–	–
	110 V	I_e	A	0.8	–	–	–
	220 V	I_e	A	0.3	–	–	–
Analog output Q1							
Output voltage (max. 10 mA)			V DC	–	–	–	0…10
Output current			mA	–	–	4 - 20	–
Fault scenario			V	–	–	0	0
Resolution			Steps	–	–	100	100
Step tolerance			Steps	–	–	<1	<1
Shunt resistor, resistive load			Ω	–	–	< 400	> 1000
Digital diagnostics output Q2 (positive switching PNP)							
Response threshold			V	–	–	approx. U_e	approx. U_e
			mA	–	–	< 200	< 200
Fault scenario			V	–	–	0	0
Control circuit reliability							
At 24 V DC/5 mA		H_F	Fault frequency	$< 10^{-7}$, < 1 fault in 10^7 operations	–	–	–
At 5 V DC/1 mA		H_F	Fault frequency	$< 10^{-6}$, < 1 fault in 5 x 10^6 operations	–	–	–
Mains frequency			Hz	max. 400	–	–	–
Short-circuit rating to IEC/EN 60947-5-1							
Max. fuse			A gG/gL	6	–	–	–
Repetition accuracy			mm	± 0.02	± 0.02	± 0.02	± 0.02
UL-File No. E29184							
Rating data for approved types to UL/CSA							
Pilot Duty							
AC operated				A300	–	–	–
DC operated				Q300 (1 A, 250 V DC)	Q300 (0.2 A, 24 V DC)	–	–
UL-approved degrees of protection				NEMA 4, 12, 13	NEMA 4, 12, 13	NEMA 4, 12, 13	NEMA 4, 12, 13

LS, LSM, LSE

		unit	Complete units IP66, IP67 LS, LSM	 LSE11 LSE02	 LSE-AI LSE-AU
Mechanical data					
Lifespan					
Standard action contact	Operations	x 10^6	8	–	3
Snap-action contact	Operations	x 10^6	8	3 (electronic)	–
Contact temperature of roller head		°C	≦100	≦100	≦100
Mechanical shock resistance (half-sinusoidal shock, 20 ms)					
Standard action contact		g	25	–	–
Snap-action contact		g	–	–	–
Basic Unit		g	–	30	30
Operating frequency	Operations/h		≦6000	≦3000	≦3000
Switching point			–	0.5 - 5.5 mm, freely adjustable	–
Hysteresis		mm	–	0.4	0.4
Resolution		mm	–	0.04	0.06
Drive					
Mechanical					
Actuating force at beginning/end of stroke					
Basic units		N	1.0/8.0	3.5/8.0	3.5/8.0
LS(M)-XP		N	1.0/8.0	1.0/8.0	1.0/8.0
LS(M)-XL		N	1.0/8.0	1.0/8.0	1.0/8.0
LS(M)-XLA		N	1.0/8.0	1.0/8.0	1.0/8.0
Actuating torque of rotary drives		Nm	0.2	0.2	0.2
Max. operating speed with DIN cam					
Basic unit for angle of actuation	α = 0°/30°	m/s	1/0.5	1/0.5	1/0.5
LS(M)-XRL for angle of actuation	α = 0°	m/s	1.5	1.5	1.5
LS(M)-XRLA for angle of actuation	α = 30°, L = 125 mm	m/s	1.5	1.5	1.5
LS(M)-XRR for	L = 130 mm	m/s	1.5	1.5	1.5
LS(M)-XL for angle of actuation	α = 30°/45°	m/s	1	1	1
LS(M)-XLA for angle of actuation	α = 30°/45°	m/s	1	1	1
LS(M)-XP for angle of actuation	α = 0°/30°	m/s	1/1	1/1	1/1
Electromagnetic compatibility (EMC)					
Electrostatic discharge (ESD), to IEC EN 61000-4-2					
Air discharge		kV	–	8	8
Contact discharge		kV	–	4	4
Electromagnetic fields (RFI), to IEC EN 61000-4-2		V/m	–	10	10
Burst, to IEC/EN 61000-4-4					
Supply cables		kV	–	2	2
Signal cables		kV	–	2	2
High-energy pulses (surge) (IEC/EN 61000-4-5)		kV	–	0.5	0.5
Radiated RFI, to IEC/EN 61000-4-6		V	–	10	10

Notes Accessories for the Cage Clamp terminals from Wago: Power comb, gray, Wago Article No. 264-402

LS, LSM, LSE

		unit	plug connectors M12A(B)	 M12A(B)
General				
Pole			4	5
Protection type			IP66	IP66
Lifespan, mechanical	Operations		> 500	> 500
Characteristic values				
Rated operating voltage	U_e	V AC	250	125
Rated operational current	I_e	A	1	1
Overvoltage category/pollution degree			II/3	II/3

Position Switches

Safety position switches

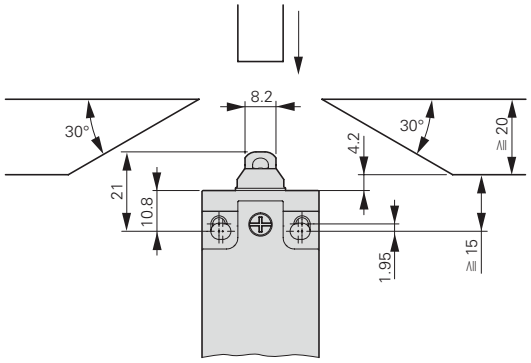
LS-...ZB

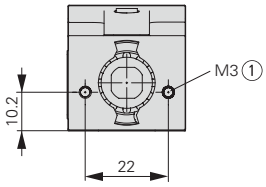
				Safety position switches			
			unit	LS-…ZBZ	LS-…ZB	LS4…ZB	LSR...
General							
Standards				IEC/EN 60947	IEC/EN 60947	IEC/EN 60947	IEC/EN 60947
Climatic proofing				Damp heat, constant, to IEC 60068-2-78, Damp heat, cyclic, to IEC 60068-2-30			
Ambient temperature			°C	-25 - +40	-25 - +70	-25 - +70	-25 - +70
Mounting position				Any	Any	Any	Any
Protection type				IP65	IP65	IP65	IP65
Terminal capacity							
Solid			mm^2	1 x (0.75 - 2.5) 2 x (0.75 - 1.5)	1 x (0.5 - 1.5) 2 x (0.5 - 1.5)	1 x (0.75 - 2.5) 2 x (0.75 - 1.5)	1 x (0.75 - 2.5) 2 x (0.75 - 1.5)
Flexible with ferrule to DIN 46228			mm^2	1 x (0.5 - 1.5) 2 x (0.5 - 1.5)	1 x (0.5 - 1.5) 2 x (0.5 - 1.5)	1 x (0.5 - 1.5) 2 x (0.5 - 1.5)	1 x (0.5 - 1.5) 2 x (0.5 - 1.5)
Terminal screw				PH1	PH1	PH1	PH1
Terminal screw tightening torque			Nm	0.9	0.4	0.9	0.9
Contacts/switching capacity							
Rated impulse withstand voltage		U_{imp}	V AC	4000	6000	6000	6000
Rated insulation voltage		U_i	V	400	500	500	500
Overvoltage category/pollution degree				III/3	III/3	III/3	III/3
Rated operational current							
AC-15	24 V	I_e	A	6	6	10	10
	230 V/240 V	I_e	A	6	6	6	6
	400 V/415 V	I_e	A	4	4	4	4
DC-13	24 V	I_e	A	3	3	3	3
	110 V	I_e	A	0.8	0.8	0.8	1
	220 V	I_e	A	0.3	0.3	0.3	0.5
Mains frequency			Hz	max. 400	max. 400	max. 400	max. 400
Short-circuit rating to IEC/EN 60947-5-1							
Max. fuse			A gG/gL	6	6	6	6
Repetition accuracy			mm	± 0.02	± 0.02	± 0.02	± 0.02
Mechanical data							
Lifespan							
Standard action contact	Operations		x 10^6	1	10	10	20
Snap-action contact	Operations		x 10^6	–	–	–	20
Mechanical shock resistance (half-sinusoidal shock, 20 ms)							
Standard action contact			g	10	25	5	25
Snap-action contact			g	–	2	–	2
Operating frequency	Operations/h			≦800	≦1800	≦1800	≦1800
Drive							
Mechanical							
Actuating force at beginning/end of stroke							
ZB/ZBZ (push-in/pull-out)			N	25/15	10/5	15/20	
Mechanical holding force acc. to GS-ET-19 (04/2004)							
XG, XW, XNG			N	1700	–	–	
XWA, XFG, XF			N	1600	–	–	
XNW			N	1200	–	–	
Electro mechanical							
For magnet							
Power consumption							
At 120 V AC			VA	8	–	–	
At 230 V AC			VA	11	–	–	
At 24 V DC			W	8	–	–	
Voltage tolerance			x U_s	0.85 - 1.1			
Magnet duty factor			% DF	100	–	–	
UL-File No. E29184							
Rating data for approved types to UL/CSA 1)							
General Use							
AC operated			V	300	–	–	
AC operated			A	10	–	–	
Pilot Duty							
AC operated				A300	A300	A300	
DC operated				Q300	Q300 (1 A, 250 V DC)	Q300	
UL-approved degrees of protection				NEMA 4, 12, 13	NEMA 12, 13	–	

Dimensions

Basic units, non expandable (front fixing)

LS(M)-…/F

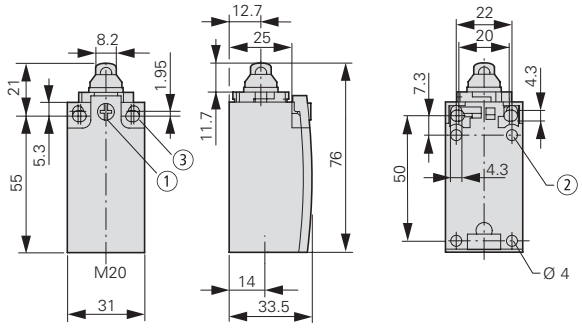


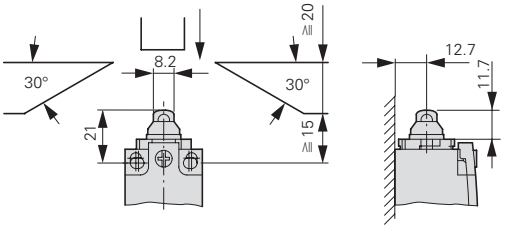


① Screw-in depth max. 12 mm

Basic units, expandable

LS-…, LSM-…, LSE-…

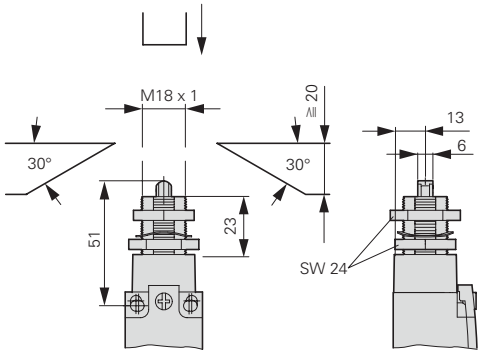




① Tightening torque of cover screw: 0.8 Nm ±0.2 Nm
② Only with LS (insulated version)
③ Fixing screw 2 x M4≧ 30
M_A = 1.5 Nm

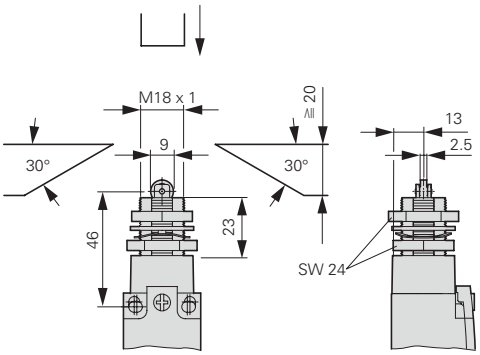
Rounded plunger, center fixing

LS-XZS



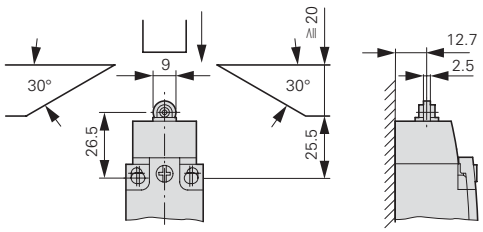
Roller plunger, center fixing

LS-XZRS



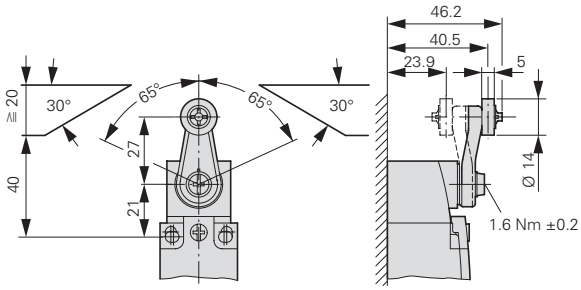
Roller plunger

LS(M)-…/P



Rotarylever

LS(M)-…/RL

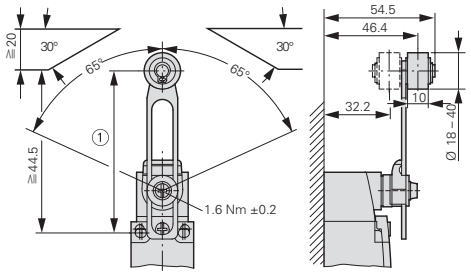


Position Switches

(Safety) position switches

Adjustable roller leve

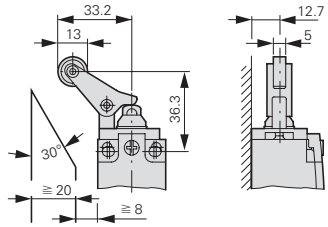
LS(M)-…/RLA



① Setting range from 54.5 to 97

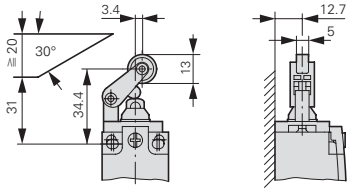
Angled roller lever

LS(M)-XLA



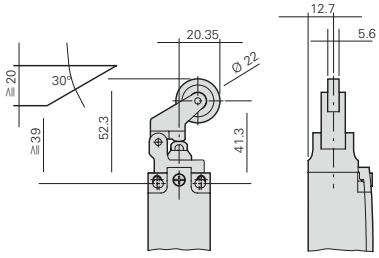
Roller lever

LS(M)-…/L



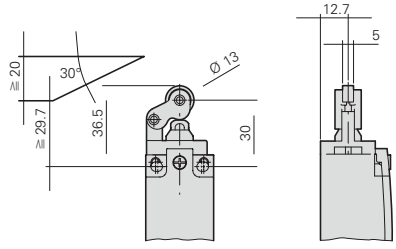
Roller lever

LS(M)-…/LB



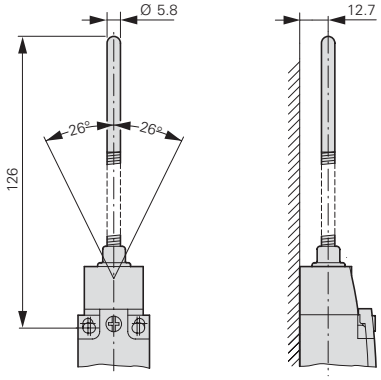
Roller lever

LS(M)-…/LS



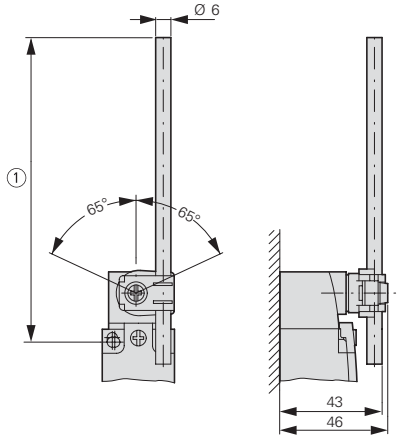
Spring rod

LS(M)-…/S



Actuating rod

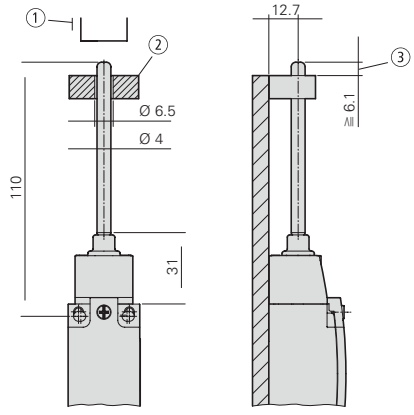
LS(M)-…/RR



① LS…/RR ≦ 150
LS…/RRM ≦ 210

Actuating rod

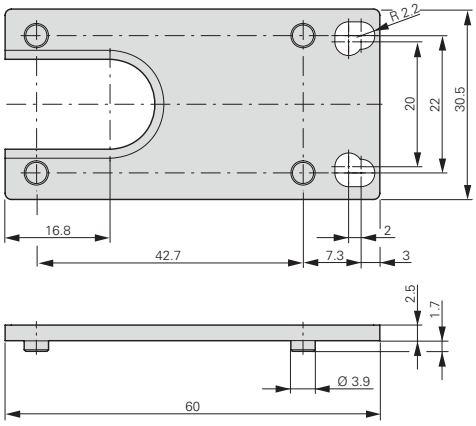
LS(M)-…/OR



① Approach direction, vertical
② Guide is done by customer, not included
③ Max. push-through

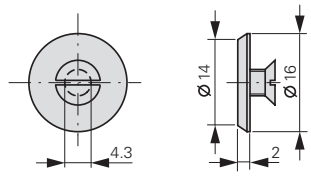
Adapter plate

LS-XAP

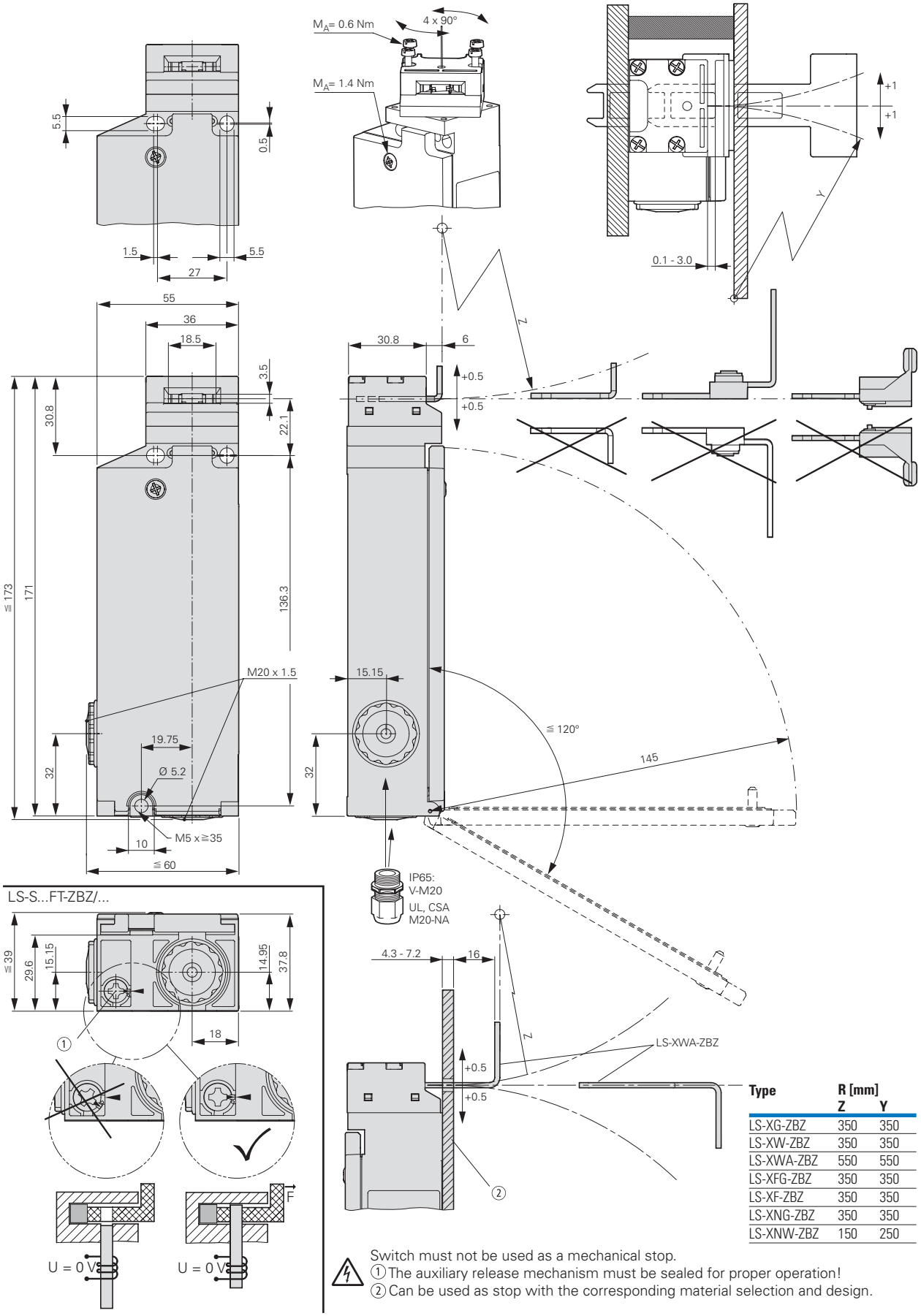


Locating plate

FS-AT



Safety position switches LS...ZBZ



Type	R [mm] Z	Y
LS-XG-ZBZ	350	350
LS-XW-ZBZ	350	350
LS-XWA-ZBZ	550	550
LS-XFG-ZBZ	350	350
LS-XF-ZBZ	350	350
LS-XNG-ZBZ	350	350
LS-XNW-ZBZ	150	250

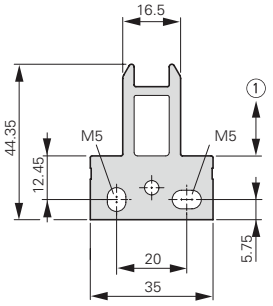
Switch must not be used as a mechanical stop.
① The auxiliary release mechanism must be sealed for proper operation!
② Can be used as stop with the corresponding material selection and design.

Position Switches

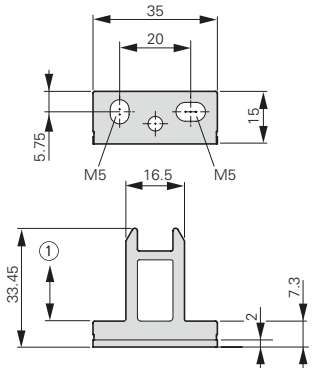
Safety position switches

Actuating element

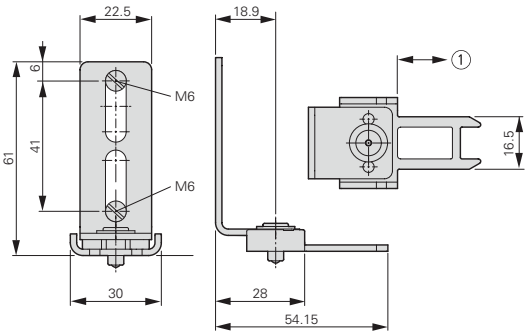
LS-XG-ZBZ



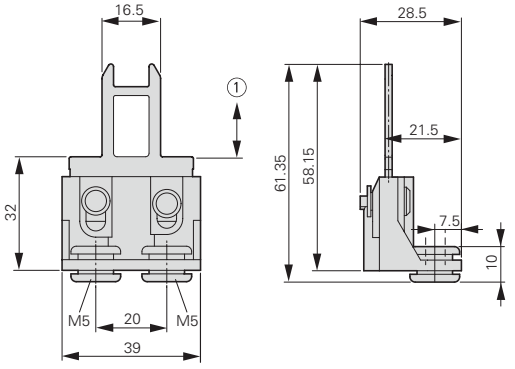
LS-XW-ZBZ



LS-XF-ZBZ

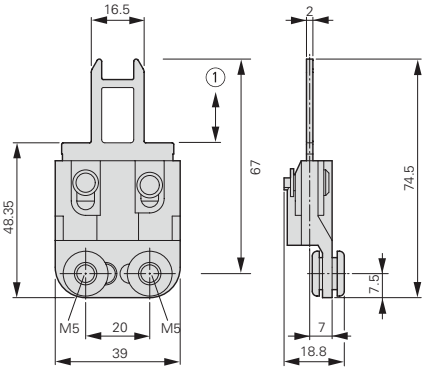


LS-XNW-ZBZ



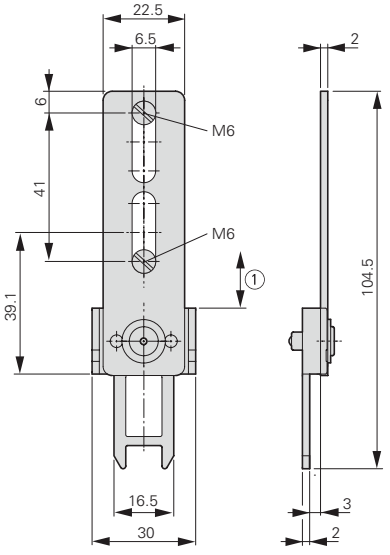
Fixing only allowed with M5 fixing screw and washer according to DIN EN ISO 7093

LS-XNG-ZBZ



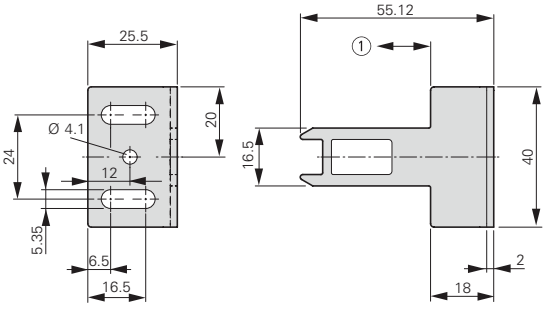
Fixing only allowed with M5 fixing screw and washer according to DIN EN ISO 7093

LS-XFG-ZBZ

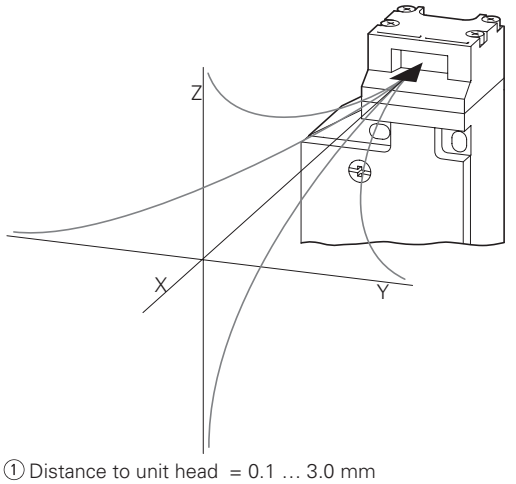


Part no.	R [mm]		
	F [N]	Z	Y
LS-XG-ZBZ	1700	350	350
LS-XW-ZBZ	1700	350	350
LS-XWA-ZBZ	1600	550	550
LS-XFG-ZBZ	1600	350	350
LS-XF-ZBZ	1600	350	350
LS-XNG-ZBZ	1700	350	350
LS-XNW-ZBZ	1200	150	250

LS-XWA-ZBZ



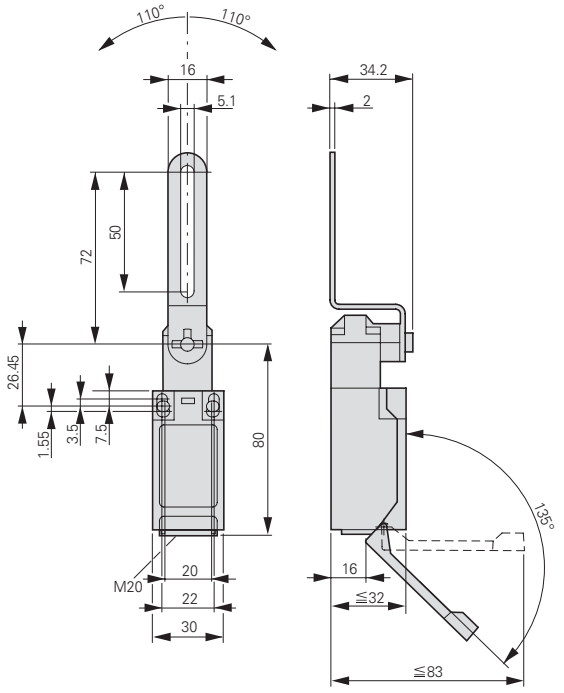
Pin with a 4 mm pin after mounting



① Distance to unit head = 0.1 … 3.0 mm

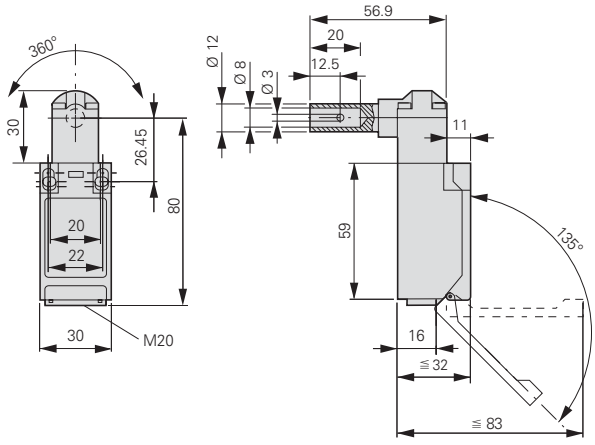
Hasp-operated safety switches

LSR-…/TKG



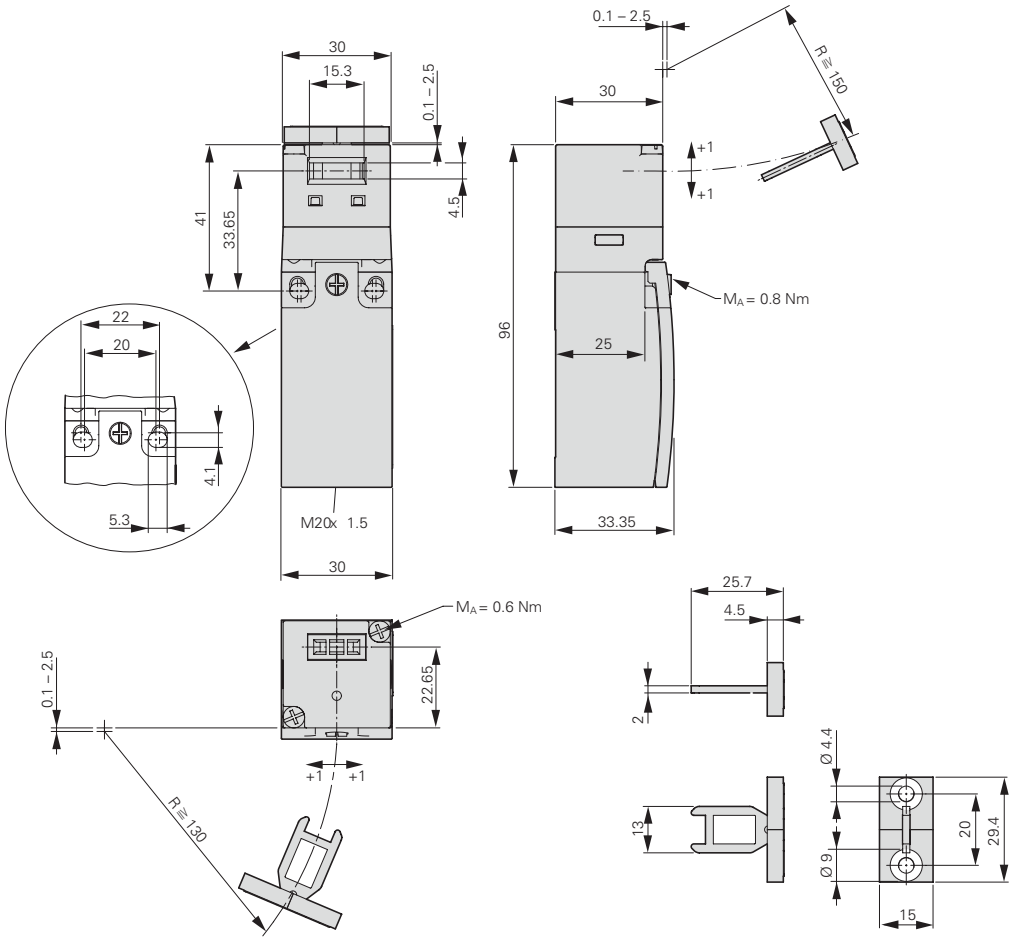
Safety hinge switches

LSR-…/TS



Safety position switches

LS…-ZB



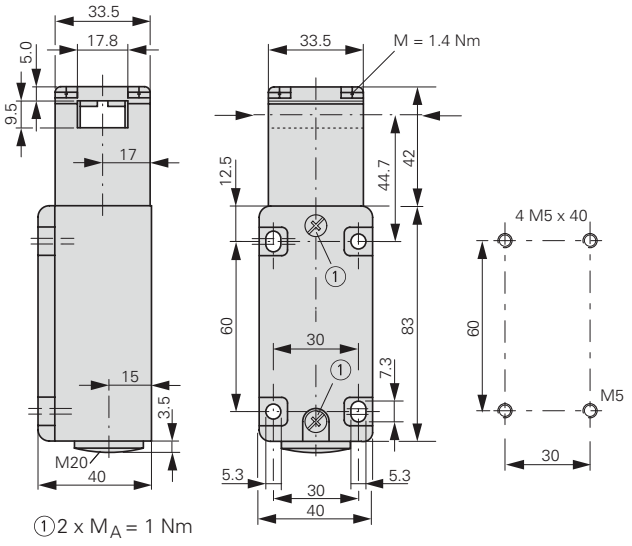
Switch must not be used as a mechanical stop.

Position Switches

Safety position switches

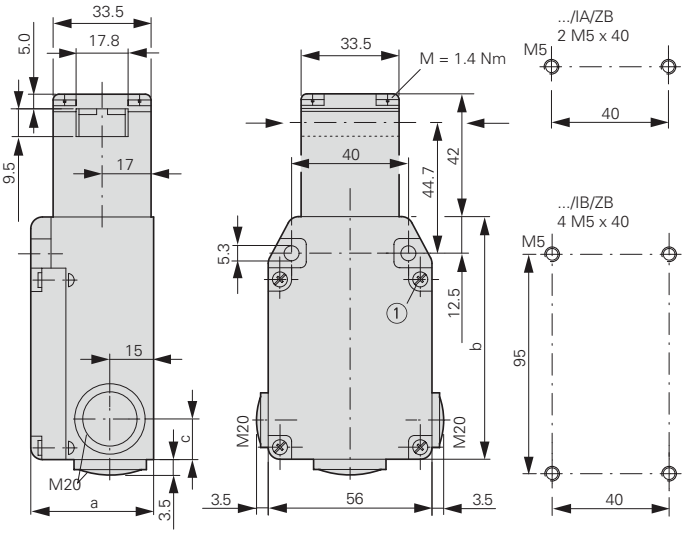
Safety position switches

LS4…ZB



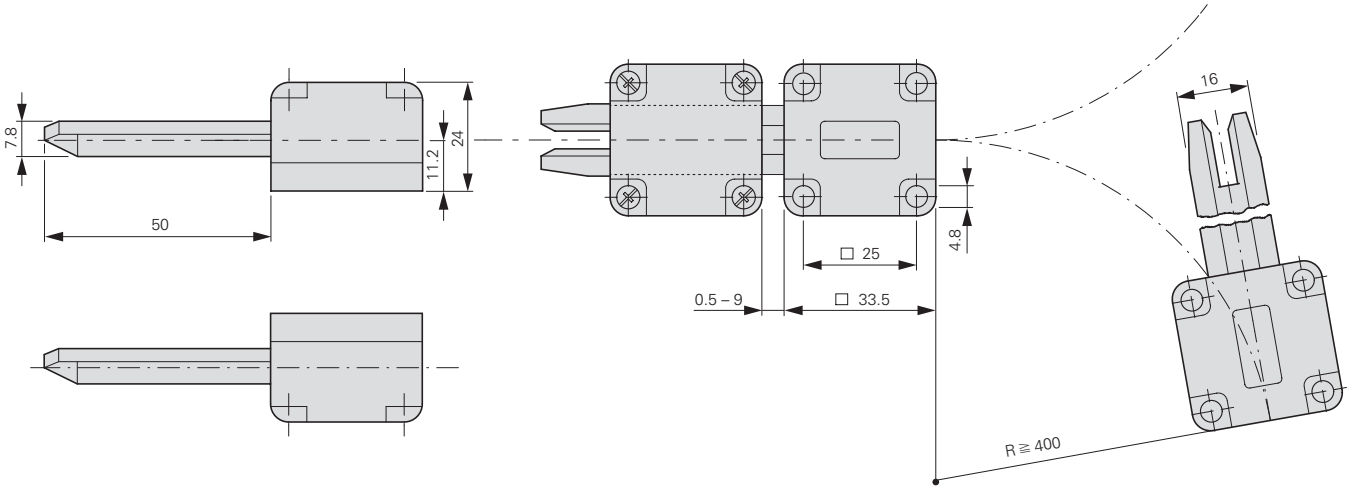
LS4/.../IA/ZB

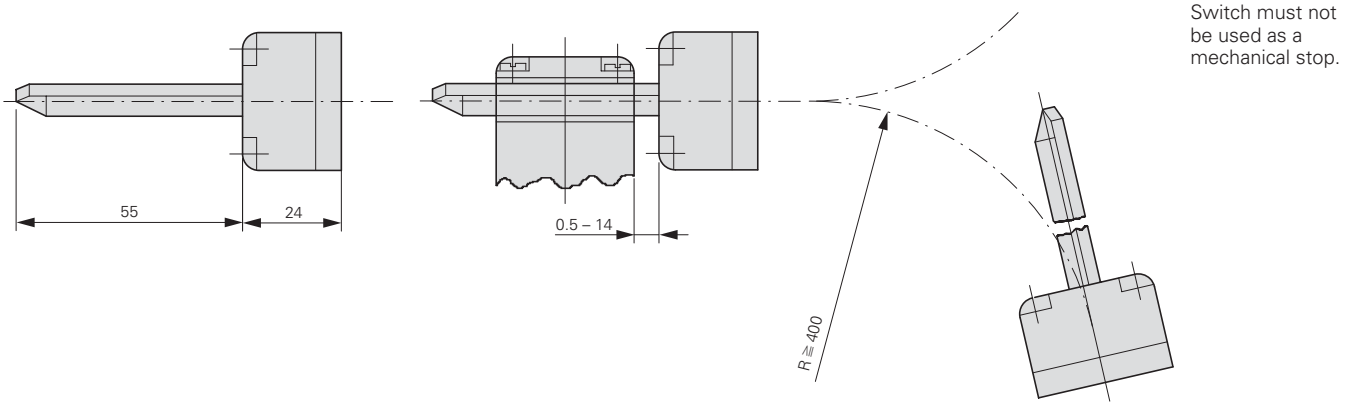
LS4/.../IB/ZB



	a	b	c
LS4/S…/IA/ZB	41.5	83	16.7
LS4/S…/IB/ZB	43	115	29.5

Actuators





Switch must not be used as a mechanical stop.

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