

LS position switches

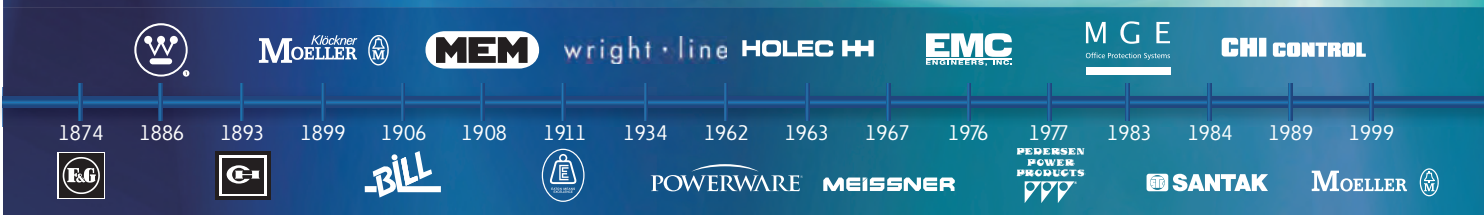


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System overview

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Ordering

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 Safety position switches LSR..., LS...ZB 18

Engineering

Contact travel diagrams for LS-Titan position switches. 19

Technical data

(Safety) position switch LS-Titan 22
 Safety position switches LS...ZBZ 24

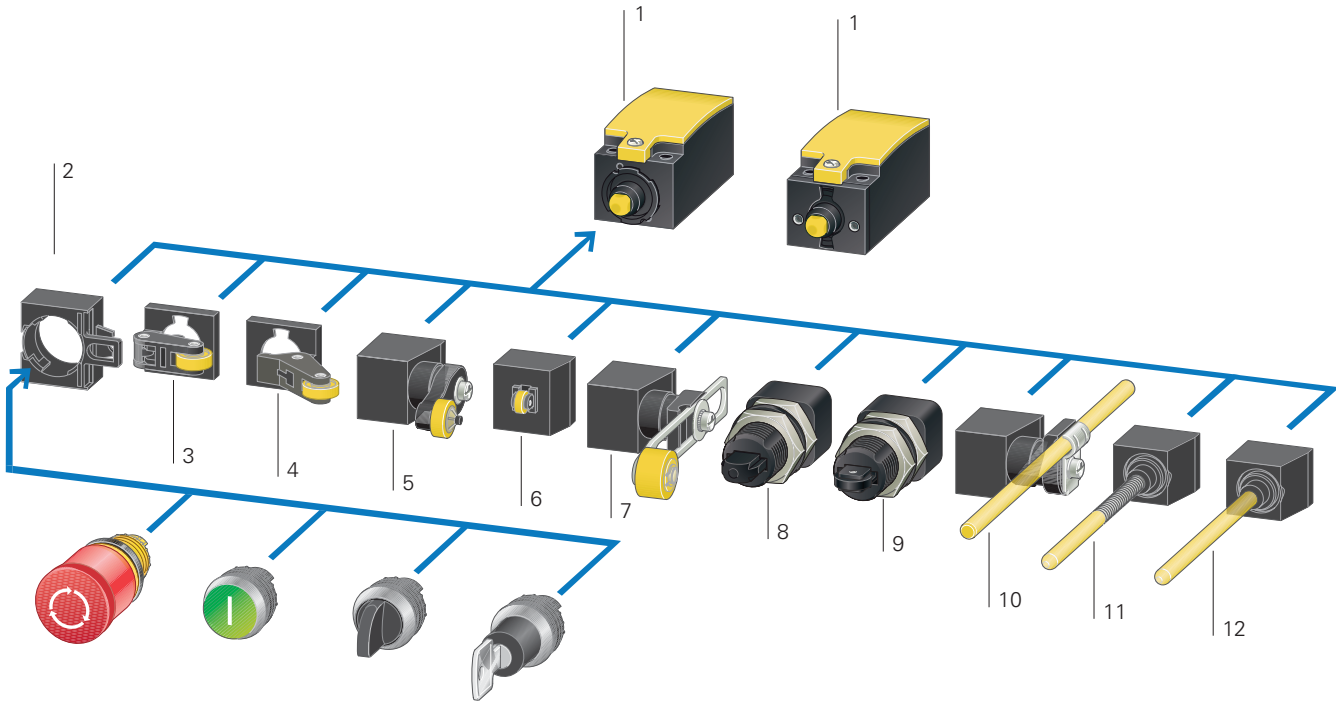
Dimensions

(Safety) position switch LS-Titan 25
 Safety position switches LS...ZBZ, LS...ZB, LSR... 27
 Safety position switches LSR..., LS...ZB 29
 Safety position switches LS4...ZB 30

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	
→ Page 5	

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	Circuit symbol	Contact travel ■ = Contact closed □ = Contact open	Color Enclosure cover	Part no. Article no.	Price See price list	Std. pack
☉ Safety function safety function to IEC/EN 60947-5-1 N/O = normally open contact NC = normally closed contact						

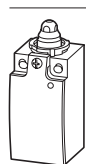
Basic unit, expandable

Operating point electronically adjustable, IP66, IP67

Basic unit

Visible status display, comparable with positive opening function

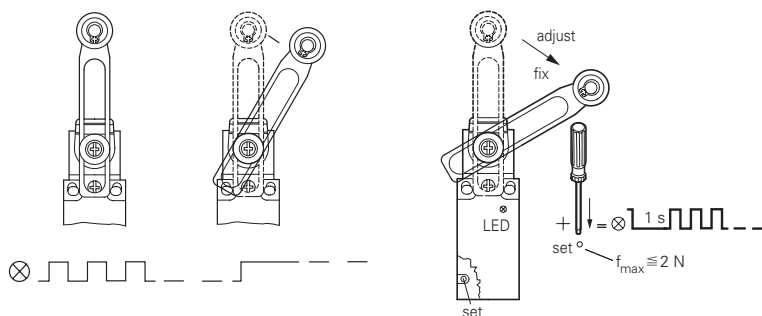
Partly short-circuit-proof, restart after reset



1 N/O	1 NC				LSE-11 266121	2 off ¹⁾
—	2 NC				LSE-02 266122	2 off ¹⁾

Notes

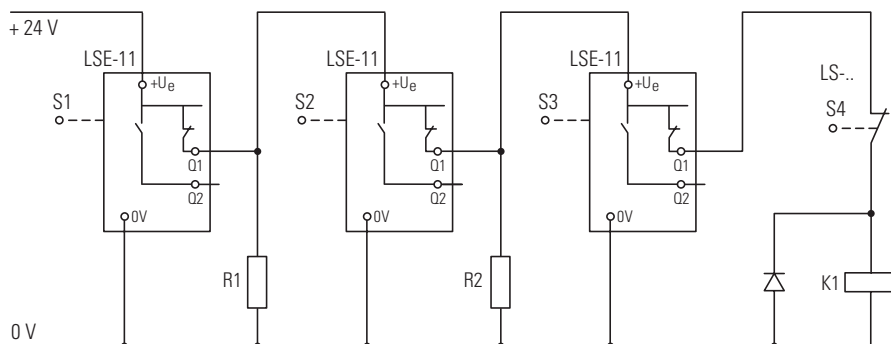
LSE-11 and LSE-02: Individual operating point adjustment:



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

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

Information relevant for export to North America

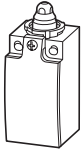


Product Standards	IEC/EN 60947-5; UL 508; CSA-C22.2 No. 14; CE marking
UL File No.	E29184
UL CCN	NKCR
CSA File No.	12528
CSA Class No.	3211-03
NA Certification	UL Listed, CSA certified
Degree of Protection	IEC: IP66, 67, UL/CSA Type 3R, 4X (indoor use only), 12, 13

Position Switches

Safety position switches

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
UL File No.
UL CCN
CSA File No.
CSA Class No.
NA Certification
Degree of Protection

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

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

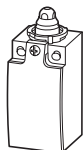
Connection type

Part no.
 Article no.

Price
 See price list

Std. pack

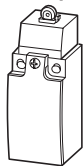
Rounded plunger, IP66, IP67 (front fixing)



Complete units

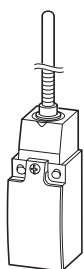
–	2 NC ⊕			0 3.0 6.1 11-12 NC 21-22 NC Zw = 4.5 mm	●	plastic	Cage Clamp	LS-02/F 292365	1 off		1)2)
–	2 NC ⊕				●	plastic	Screwed terminal	LS-S02/F 106780	1 off		2)
–	2 NC ⊕				●	metal	Cage Clamp	LSM-02/F 292371	1 off		1)2)
1 N/O	1 NC ⊕			0 4.3 6.1 13-14 NO 21-22 NC Zw = 4.5 mm	●	plastic	Cage Clamp	LS-11/F 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 ⊕			0 3.0 6.1 15-16 NC 27-28 NO Zw = 4.5 mm	●	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 ⊕			0 4.0 6.1 15-18 NC 27-28 NO Zw = 5.5 mm	●	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 ⊕			0 3.0 6.1 21-22 NO 13-14 NO Zw = 5.5 mm	●	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 ⊕			0 4.3 6.1 13-14 NO 21-22 NC Zw = 4.5 mm	●	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 ⊕			0 3.0 6.1 21-22 NO 13-14 NO Zw = 5.5 mm	●	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 ⊕			0 13 26 21-22 NO 13-14 NO Zw = 19	●	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)

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.



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

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

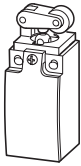
Connection type

Part no.
 Article no.

Price
 See price list

Std. pack

Roller lever IP66, IP67 Long



Complete units

–	2 NC ☉			0 4.4 9.6 11-12 NC 21-22 NC 4.4 Zw = 6.9 mm	●	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 ☉			0 6.5 9.6 13-14 NO 21-22 NC 4.7 Zw = 7.1 mm	●	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 ☉			0 4.7 9.6 15-16 NO 27-28 NC 3.3 Zw = 7.7 mm	●	plastic	Cage Clamp	LS-11D/L 266115	2 off	1) 2)
1 N/O	1 NC ☉				●	plastic	Screwed terminal	LS-S11D/L 106793	2 off	2)
1 N/O	1 NC ☉				●	metal	Cage Clamp	LSM-11D/L 266150	2 off	1) 2)
1 N/O	1 NC ☉			0 4.4 9.6 21-22 NO 13-14 NC 21-22 NC 2.3 Zw = 8.7 mm	●	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)
1 N/O	1 NC ☉			0 4.7 6.9 13-14 NO 21-22 NC 3.3 Zw = 5.0 mm	●	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 ☉			0 3.3 6.9 15-16 NO 27-28 NC 2.2 Zw = 5.0 mm	●	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)
1 N/O	1 NC ☉			0 9.1 13.4 13-14 NO 21-22 NC 6.3 Zw = 9.6 mm	●	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

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 Jumper insert, grey, Wago article no. 264-402
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 UL File No. NKCR
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 NA Certification UL Listed, CSA certified
 Degree of Protection IEC: IP66, 67, UL/CSA Type 3R, 4X
 (indoor use only), 12, 13

LS-Titan

Contact configuration
 ⊕ Positive opening safety function according to IEC/EN 60947-5-1

N/O = normally open contact
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Circuit symbol

Contact travel
 ■ = Contact closed
 □ = Contact open

Color
 Enclosure cover

Enclosure

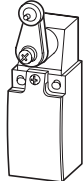
Connection type

Part no.
 Article no.

Price
 See price list

Std. pack

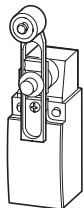
Rotary lever, IP66, IP67



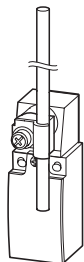
Complete units

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)

Adjustable roller levers, IP66, IP67



Actuating rod IP66, IP67



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

Customer specific complete units IP66, IP67

				plastic	–		LS-COMBINATION-* 266168	1 off	1)2)
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Notes

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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.

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Product Standards	IEC/EN 60947-5; UL 508; CSA-C22.2 No. 14; CE marking
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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

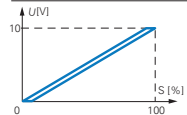
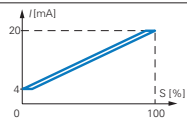
LS-Titan

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
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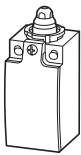
Basic unit, expandable

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.)



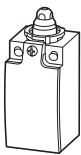
Rounded plunger, IP66, IP67



2 N/O	—		●	plastic	Cage Clamp	LSE-AI 269461	2 off		2) ²⁾
2 N/O	—		●	plastic	Cage Clamp	LSE-AU 274096	2 off		2) ²⁾
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⁾
2 N/O	—		●	plastic	Screwed terminal	LS-S20-SW 106812	10 off		2) 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⁾
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) ²⁾

Basic unit, not expandable

Rounded plunger, IP66, IP67 (front fixing)



2 N/O	—		●	plastic	Cage Clamp	LS-20/F 292368	1 off		1) ¹⁾
2 N/O	—		●	plastic	Screwed terminal	LS-S20/F 106809	1 off		1) ¹⁾
2 N/O	—		●	metal	Cage Clamp	LSM-20/F 292375	1 off		1) ¹⁾
2 N/O	—		●	plastic	Cage Clamp	LS-20A/F 292370	1 off		1) ¹⁾
2 N/O	—		●	plastic	Screwed terminal	LS-S20A/F 106811	1 off		1) ¹⁾
2 N/O	—		●	metal	Cage Clamp	LSM-20A/F 292377	1 off		1) ¹⁾

































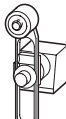



















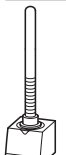




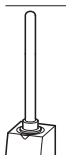





Notes

- 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
- 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



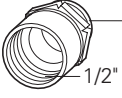


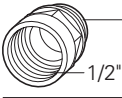




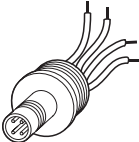

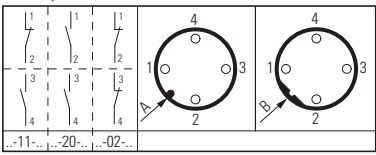

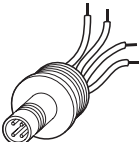

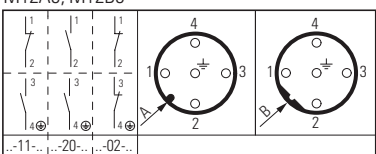

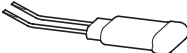








LS-Titan

		plastic		metal			
		Part no.	Price	Std. pack	Part no.	Price	Std. pack
		Article no.	See price list		Article no.	See price list	
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.							
Information relevant for export to North America							
 							
Product Standards IEC/EN 60947-5; UL 508; CSA-C22.2 No. 14; CE marking E29184 NKCR 12528 CSA Class No. 3211-03 UL Listed, CSA certified							
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

Position Switches

Accessories

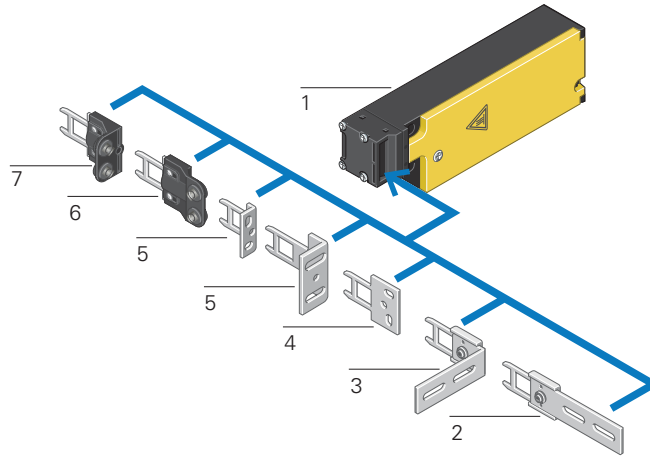
LS-Titan

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 1/2"							
	M20 Screw connector for American pipe thread Metal 1/2"	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 File No. UL CCN CSA File No. CSA Class No. NA Certification	UL 508; CSA-C22.2 No. 14; E29184 NKCR 12528 3211-03 UL Listed, CSA certified
	M20 Screw connector for American pipe thread Molded material 1/2"	V1/2"/M20 225270		10 off  	For connection thread lengths up to 9 mm	Specially designed for NA ✓ 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 $I_{th} = 4 \text{ A}$ Fuse: 6 A gG/gL 4-pole $U_e = 250 \text{ V}$							
	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 $U_e = 125 \text{ V}$							
	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	

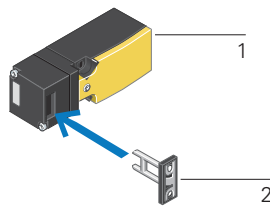
Position Switches

System overview

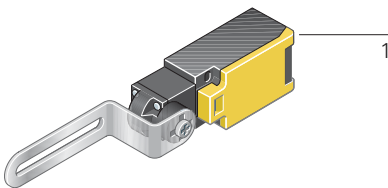
LS-...ZBZ



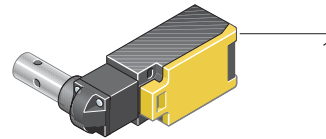
LS-...ZB



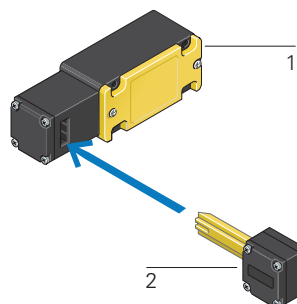
LSR-...TKG



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	

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	

Product features

- Interlocking unit to EN 1088
- For use in safety circuits
 - ⊕ Positive opening safety function according to IEC/EN 60947-5-1

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	

Actuator	2
Multiple coding	
For horizontal or vertical operation	

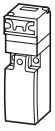
- Protection type IP65
- Operating head can be turned 4 x 90°
- With M20 x 1.5 connecting thread

totally insulated

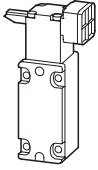


Position Switches

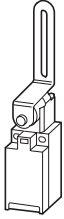
LS...ZB



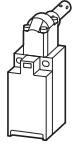
LS4/ZB



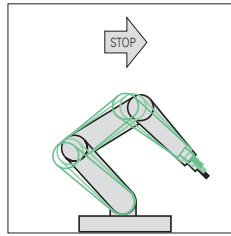
LSR...TKG



LSR...TS

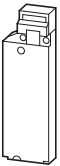


“Personnel protection” by monitoring of the protective mechanism

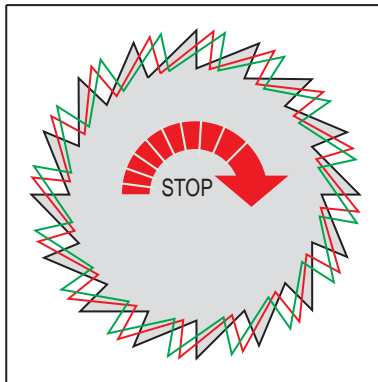


- Door open
- LS...-ZB disconnects power
- No danger

LS/ZBZ

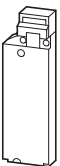


“Increased personnel protection” by monitoring and interlocking the protective mechanism

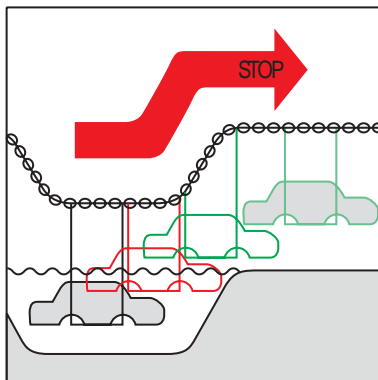


- Stop command
- Waiting time
- Machine is stopped
- Protective mechanism open
- No danger

LS/ZBZ

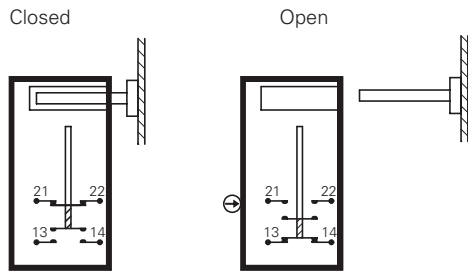


“Increased personnel protection” by monitoring and interlocking the protective mechanism



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

LS-...ZB



→ Personnel protection

Door open

Door open

Door close

→ Enabling contact (21-22) opening positively

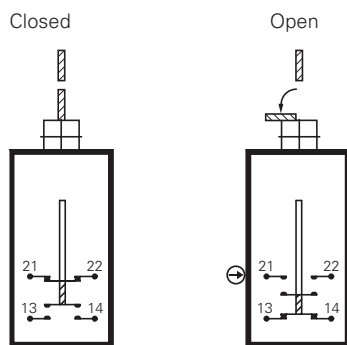
→ Enabling contact safely open; tamperproof against simple tools

→ Triple coded actuator closes the enabling contact

Switch must never be used as a mechanical stop!



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



→ Personnel protection

Open of guard mechanism

Guard mechanism open

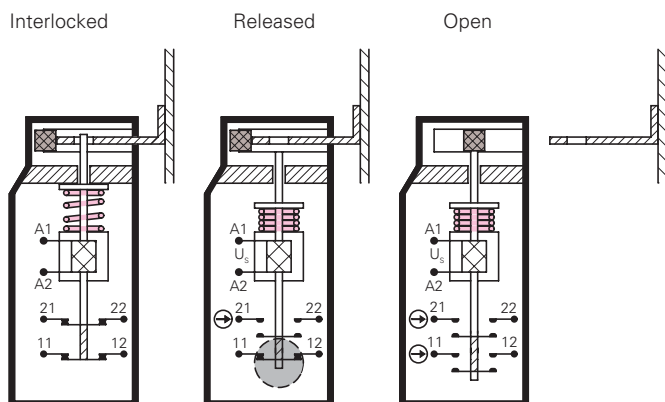
Closing of guard mechanism

→ Enabling contact (21-22) opening positively

→ Enabling contact safely open; tamperproof against simple tools

→ 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

Door closed and interlocked

To unlock door

Door open

Door close

Interlock door

→ De-energized: even with mains failure or wire breakage: door interlocked = safe state
Enabling contact (21-22)

→ Applies voltage to coil (A1, A2) e.g. via zero-speed monitor, enabling contact (21-22) opens

→ Both contacts blocked in the open position, even with tampering with simple tools

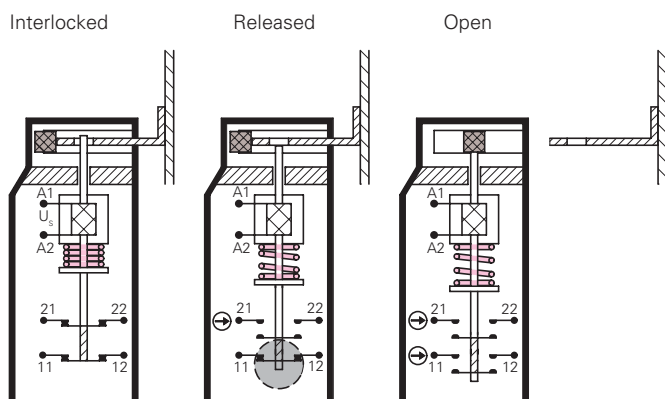
→ Triple-coded actuator cancels enabling contact inhibit; door position contact (11-12) closes

→ 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

Door closed and interlocked

To unlock door

Door open

Door close

Interlock door

→ Energized:
Enables immediate access in the event of mains failure and wire breakage. Both contacts closed

→ Applies voltage to coil (A1, A2) e.g. via zero-speed monitor, enabling contact (21-22) opens
→ Only possible once it is released, door position contact (11-12) opens

→ Triple-coded actuator cancels enabling contact inhibit; door position contact (11-12) closes

→ 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

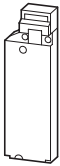


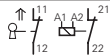




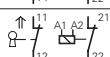


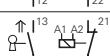

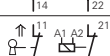

Part no.
 Article no.

Price
 See price list

Std. pack

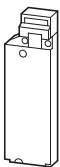


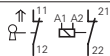




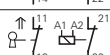


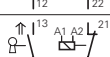

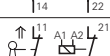

Basic units with spring-powered interlock (closed-circuit principle) IP65

- 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

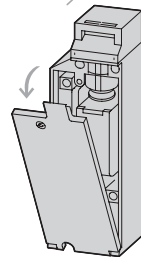
With the actuator inserted, the N/O contact is open and the NC contact is closed.



Switch must never be used as a mechanical stop!

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

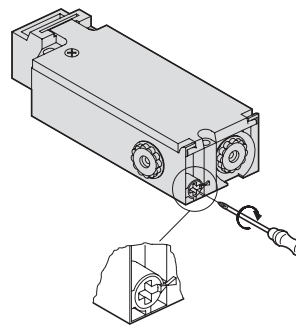
The operating head can be rotated manually in 90° steps to suit the specified level of actuation.



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.







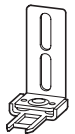

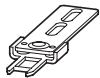

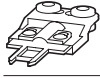





Cable gland V-M20 → [Page 2/46](#)

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						
	LS-XG-ZBZ 106833		10 off 	–	Product Standards IEC/EN 60947-5; UL 508; CSA-C22.2 No. 14; CE marking E29184 NKCR 12528 CSA File No. 3211-03 UL Listed, CSA certified	
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	Circuit symbol	Contact travel	Approval mark	Connection type	Part no. Article no.	Price	Std. pack
	⊕ Positive opening safety function according to IEC/EN 60947-5-1 N/O = normally open contact NC = normally closed contact		■ = Contact closed □ = Contact open				See price list	
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-ZB¹⁾ 106817	2 off	
	—	2 NC ⊕			Screwed terminal	LS-S02-ZB¹⁾ 106874	2 off	
	1 N/O	1 NC ⊕			Cage Clamp	LS-11-ZB¹⁾ 106819	2 off	
	1 N/O	1 NC ⊕			Screwed terminal	LS-S11-ZB¹⁾ 106876	2 off	
	1 N/O	1 NC ⊕			Cage Clamp	LS-11S-ZB¹⁾ 106870	2 off	
	1 N/O	1 NC ⊕			Screwed terminal	LS-S11S-ZB¹⁾ 106877	2 off	
Safety position switches LS4.../ZB, IP65								
	1 N/O	1 NC ⊕			 	Screwed terminal	LS4/S11-1/I/ZB²⁾ 106857	1 off
	1 N/O	1 NC ⊕				Screwed terminal	LS4/S11-1/IA/ZB²⁾ 106858	1 off
	1 N/O	2 NC ⊕				Screwed terminal	LS4/S12-1/IB/ZB²⁾ 106859	1 off

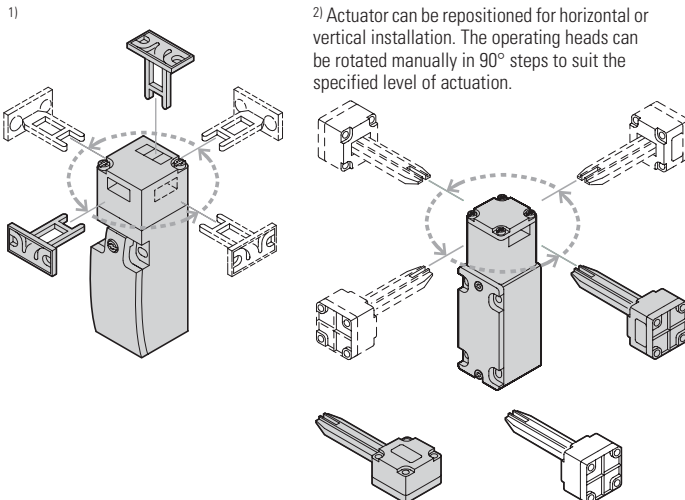
Notes

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.



Information relevant for export to North America



Product Standards

UL File No.
UL CCN
CSA File No.
CSA Class No.
NA Certification
Degree of Protection

IEC/EN 60947-5; UL 508;
CSA-C22.2 No. 14; CE marking
E29184
NKCR
12528
3211-03
UL Listed, CSA certified
IEC: IP65, UL/CSA Type 3R,
4X (indoor use only), 12, 13

Engineering

LSE

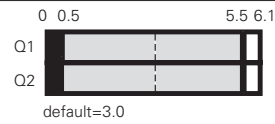
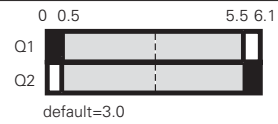
LSE-11



LSE-02



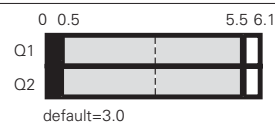
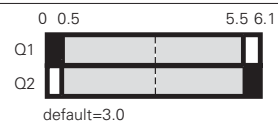
Basic units



Operating heads

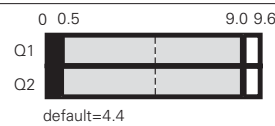
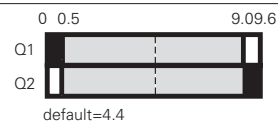
Roller plunger

- LS-XP
- LSM-XP
- LS-XOR



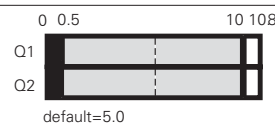
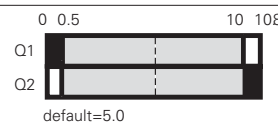
Roller lever

- LS-XL
- LSM-XL
- LS-XLS
- LS-XLB



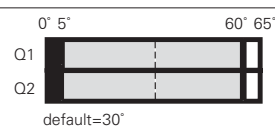
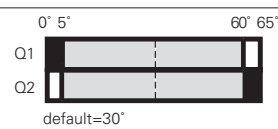
Angled roller lever

- LS-XLA
- LSM-XLA



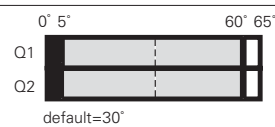
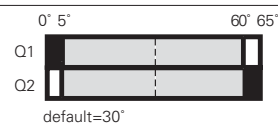
Rotary lever

- LS-XRL
- LSM-XRL



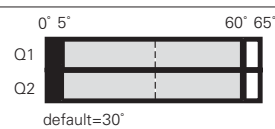
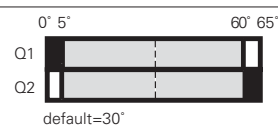
Adjustable roller lever

- LS-XRLA
- LSM-XRLA
- LS-XRLA30
- LS-XRLA40
- LS-XRLA40R



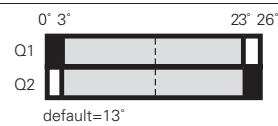
Actuating rod

- LS-XRR
- LSM-XRR
- LS-XRRM
- LSM-XRRM



Spring rod actuator

- LS-XS
- LSM-XS



Position Switches

Contact travel diagrams

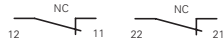
LS, LSM

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

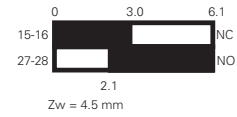
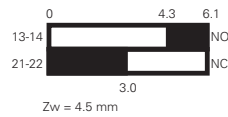
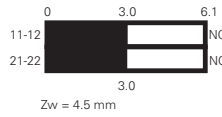
LS-02
LS-S02
LSM-02

LS-11
LS-S11
LSM-11

LS-11D
LS-S11D
LSM-11D



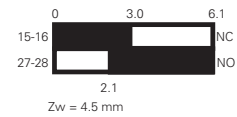
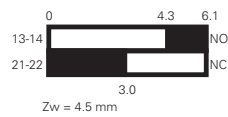
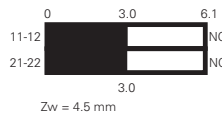
Basic units



Operating heads

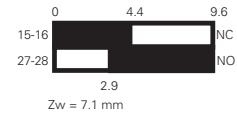
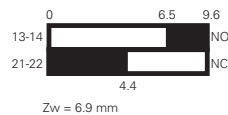
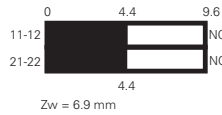
Roller plunger

LS-XP
LSM-XP



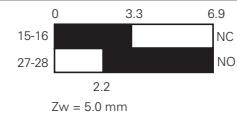
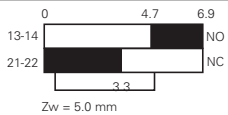
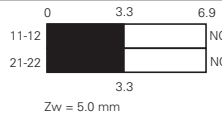
Roller lever

LS-XL, LSM-XL



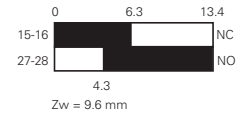
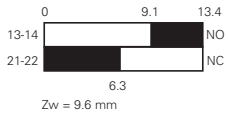
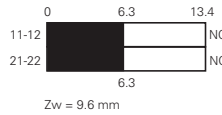
Roller lever, short

LS-XLS



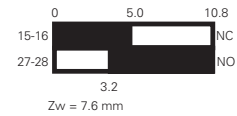
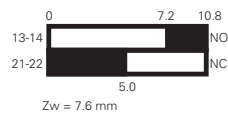
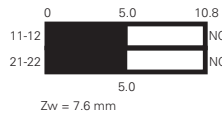
Roller lever, large

LS-XLB



Angled roller lever

LS-XLA, LSM-XLA

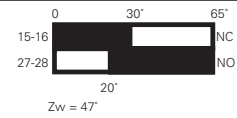
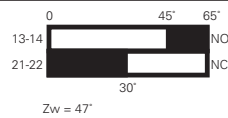
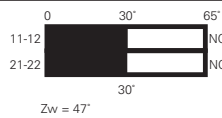


Rotary lever

LS-XRL, LSM-XRL

Adjustable roller lever

LS-XRLA, LSM-XRLA,
LS-XRLA30, LS-XRLA40,
LS-XRLA40R

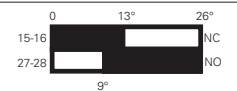
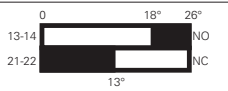
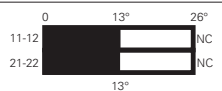


Actuating rod

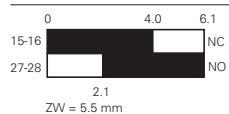
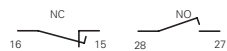
LS-XRR, LSM-XRR,
LS-XRRM, LSM-XRRM

Spring rod actuator

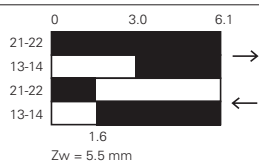
LS-XS, LSM-XS



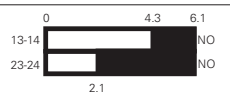
LS-11DA
LS-S11DA
LSM-11DA



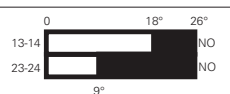
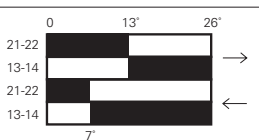
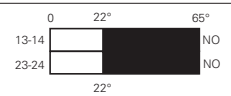
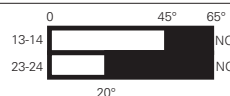
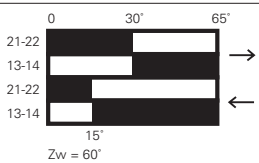
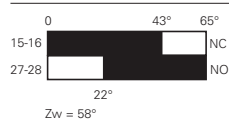
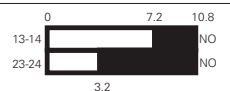
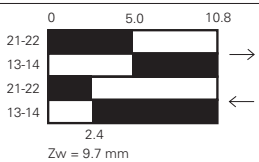
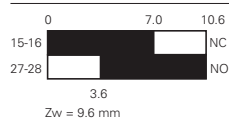
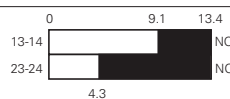
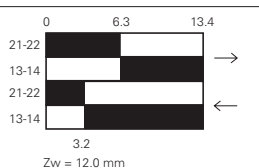
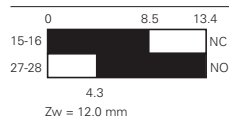
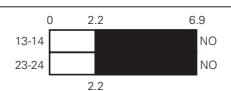
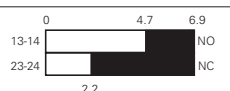
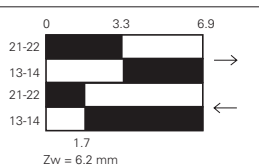
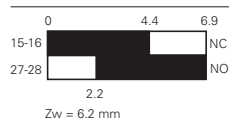
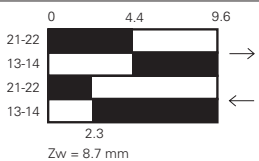
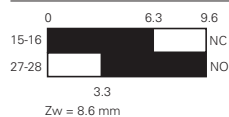
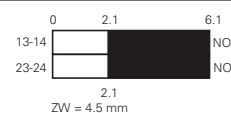
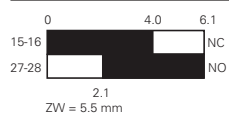
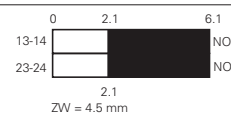
LS-11S
LS-S11S
LSM-11S



LS-20
LS-S20
LSM-20



LS-20A
LS-S20A
LSM-20A



Position Switches

Complete units

Technical data

LS, LSM, LSE

			Complete units IP66, IP67			
			LS, LSM	LSE11 LSE02	LSE-AI	LSE-AU
unit						
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

		Complete units IP66, IP67			
		unit	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	$\alpha = 0^\circ/30^\circ$	m/s	1/0.5	1/0.5	1/0.5
LS(M)-XRL for angle of actuation	$\alpha = 0^\circ$	m/s	1.5	1.5	1.5
LS(M)-XRLA for angle of actuation	$\alpha = 30^\circ, L = 125 \text{ mm}$	m/s	1.5	1.5	1.5
LS(M)-XRR for	$L = 130 \text{ mm}$	m/s	1.5	1.5	1.5
LS(M)-XL for angle of actuation	$\alpha = 30^\circ/45^\circ$	m/s	1	1	1
LS(M)-XLA for angle of actuation	$\alpha = 30^\circ/45^\circ$	m/s	1	1	1
LS(M)-XP for angle of actuation	$\alpha = 0^\circ/30^\circ$	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

		plug connectors			
		unit	M12A(B)	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

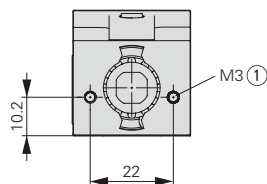
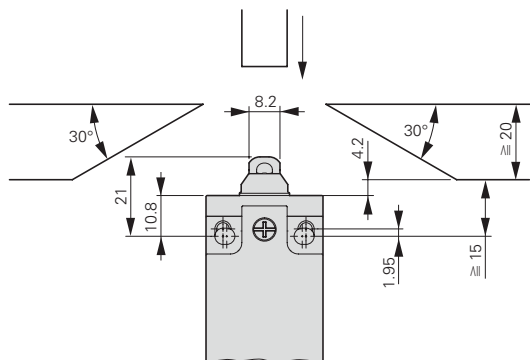
LS-...ZB

				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
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)
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)
Terminal screw					PH1	PH1	PH1
Terminal screw tightening torque				Nm	0.9	0.4	0.9
Contacts/switching capacity							
Rated impulse withstand voltage				U _{imp}	V AC	4000	6000
Rated insulation voltage				U _i	V	400	500
Overvoltage category/pollution degree					III/3	III/3	III/3
Rated operational current							
AC-15		24 V	I _e	A	6	6	10
		230 V/240 V	I _e	A	6	6	6
		400 V/415 V	I _e	A	4	4	4
DC-13		24 V	I _e	A	3	3	3
		110 V	I _e	A	0.8	0.8	1
		220 V	I _e	A	0.3	0.3	0.5
Mains frequency				Hz	max. 400	max. 400	max. 400
Short-circuit rating to IEC/EN 60947-5-1							
Max. fuse				A gG/gL	6	6	6
Repetition accuracy				mm	± 0.02	± 0.02	± 0.02
Mechanical data							
Lifespan							
Standard action contact			Operations	x 10 ⁶	1	10	10
Snap-action contact			Operations	x 10 ⁶	–	–	20
Mechanical shock resistance (half-sinusoidal shock, 20 ms)							
Standard action contact				g	10	25	5
Snap-action contact				g	–	2	–
Operating frequency				Operations/h	≅ 800	≅ 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	Q300
						(1 A, 250 V DC)	
UL-approved degrees of protection					NEMA 4, 12, 13	NEMA 12, 13	–

Dimensions

Basic units, non expandable (front fixing)

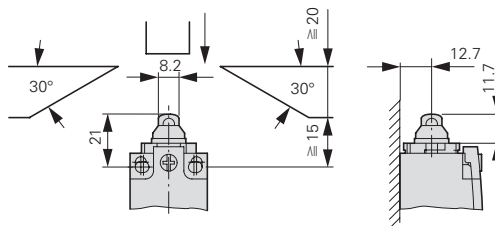
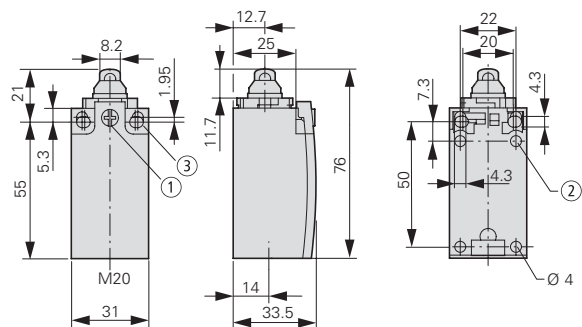
LS(M)-.../F



① Screw-in depth max. 12 mm

Basic units, expandable

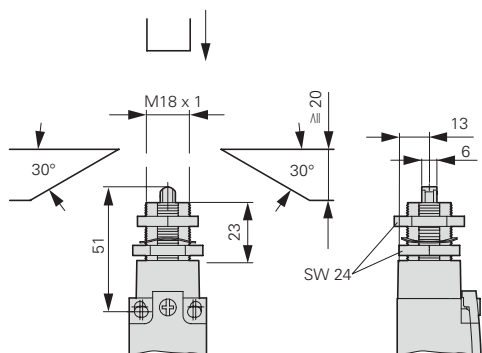
LS-..., LSM-..., LSE-...



- ① Tightening torque of cover screw: $0.8 \text{ Nm} \pm 0.2 \text{ Nm}$
- ② Only with LS (insulated version)
- ③ Fixing screw 2 x M4 $\cong 30$
 $M_A = 1.5 \text{ Nm}$

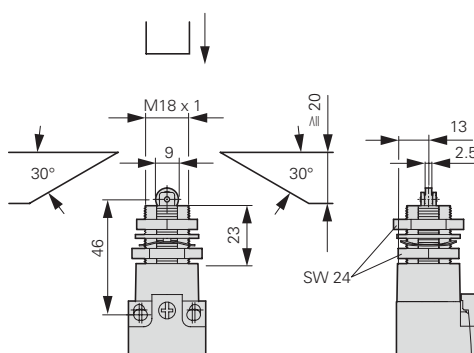
Rounded plunger, center fixing

LS-XZS



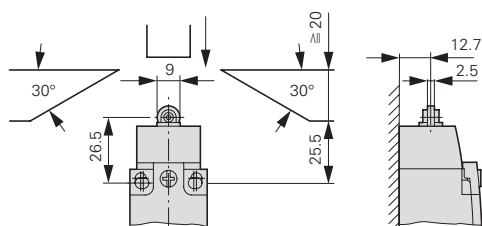
Roller plunger, center fixing

LS-XZRS



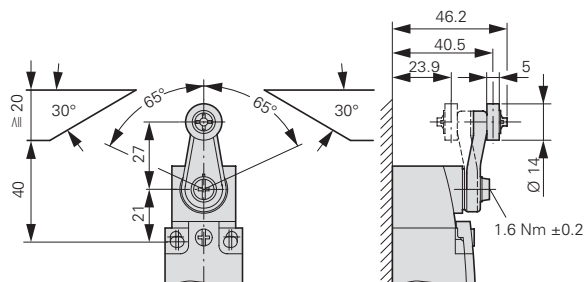
Roller plunger

LS(M)-.../P



Rotarylever

LS(M)-.../RL

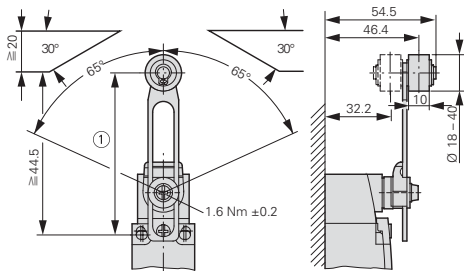


Position Switches

(Safety) position switches

Adjustable roller lever

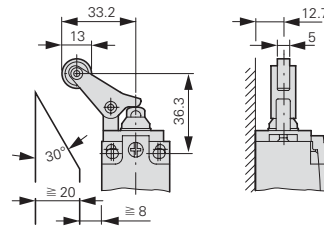
LS(M)-.../RLA



① Setting range from 54.5 to 97

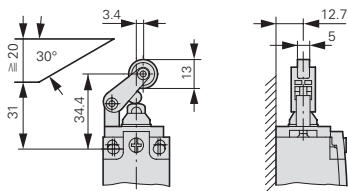
Angled roller lever

LS(M)-XLA



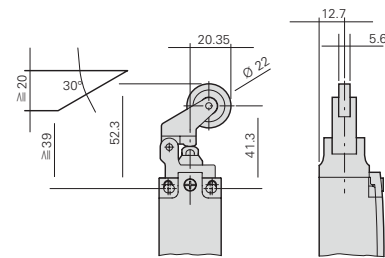
Roller lever

LS(M)-.../L



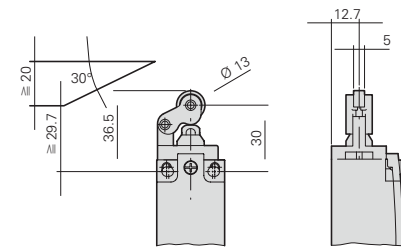
Roller lever

LS(M)-.../LB



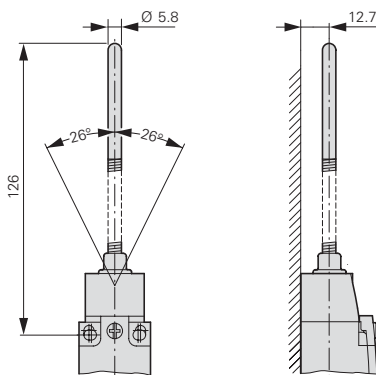
Roller lever

LS(M)-.../LS



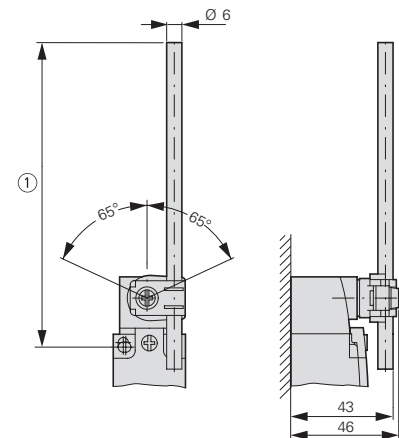
Spring rod

LS(M)-.../S



Actuating rod

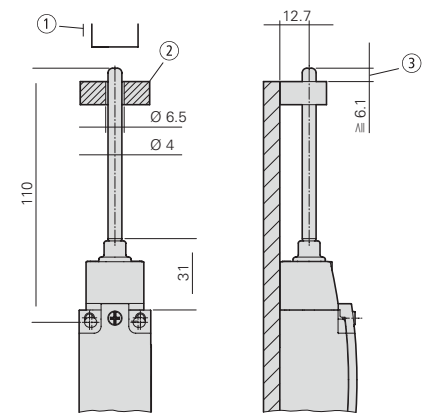
LS(M)-.../RR



① LS.../RR ≅ 150
LS.../RRM ≅ 210

Actuating rod

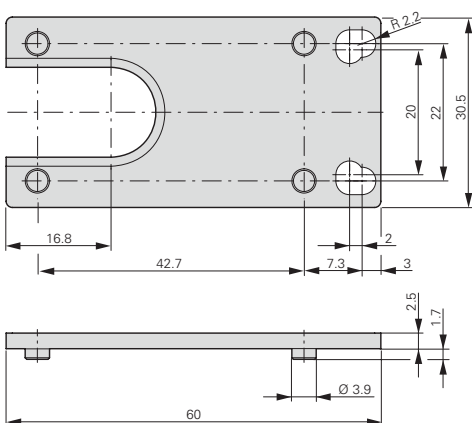
LS(M)-.../OR



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

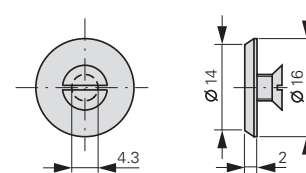
Adapter plate

LS-XAP

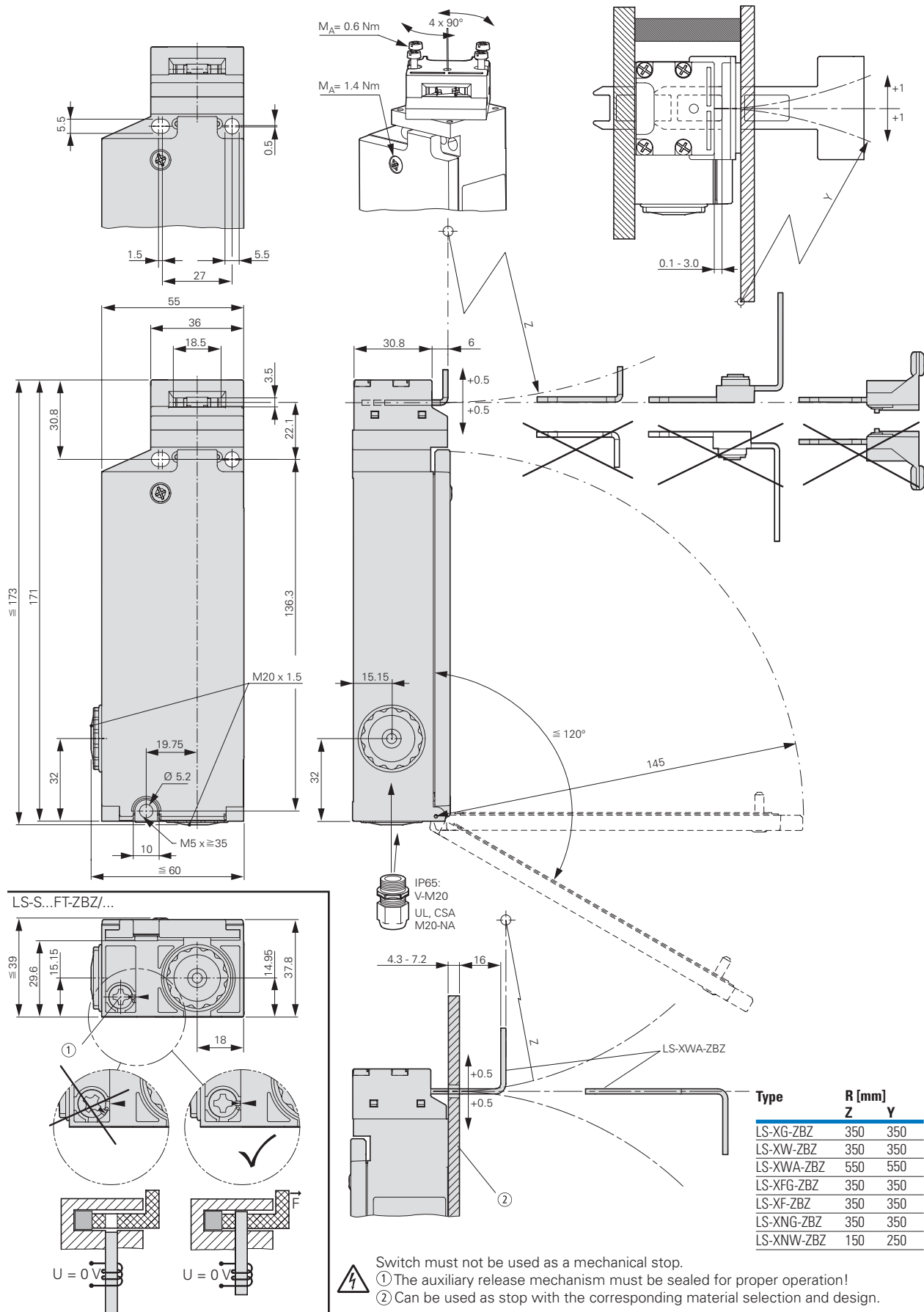


Locating plate

FS-AT



Safety position switches LS...ZBZ

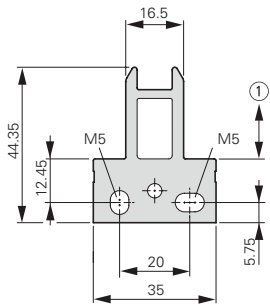


Position Switches

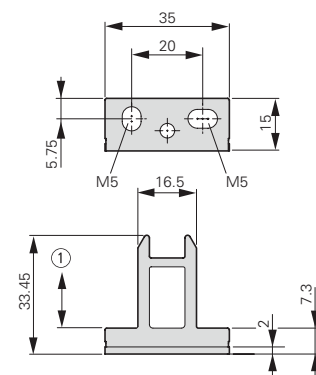
Safety position switches

Actuating element

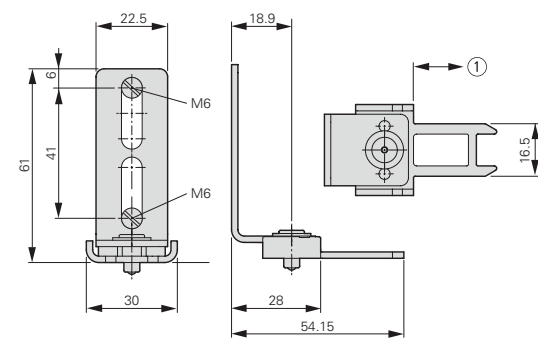
LS-XG-ZBZ



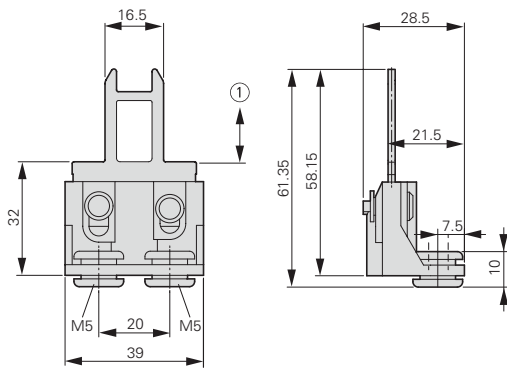
LS-XW-ZBZ



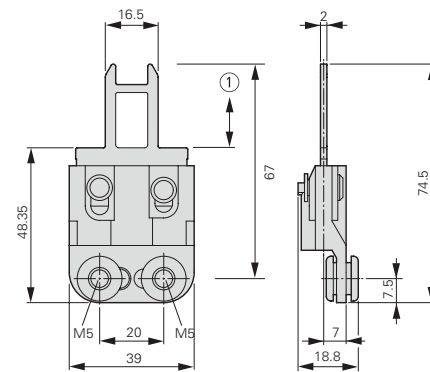
LS-XF-ZBZ



LS-XNW-ZBZ



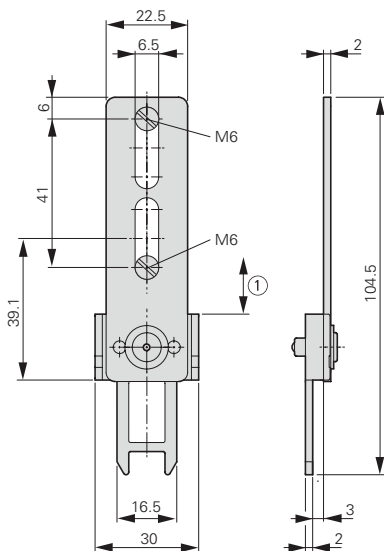
LS-XNG-ZBZ



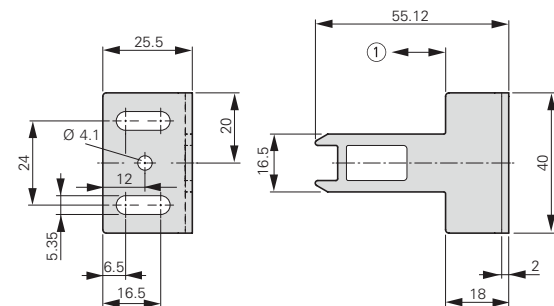
Fixing only allowed with M5 fixing screw and washer according to DIN EN ISO 7093

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

LS-XFG-ZBZ

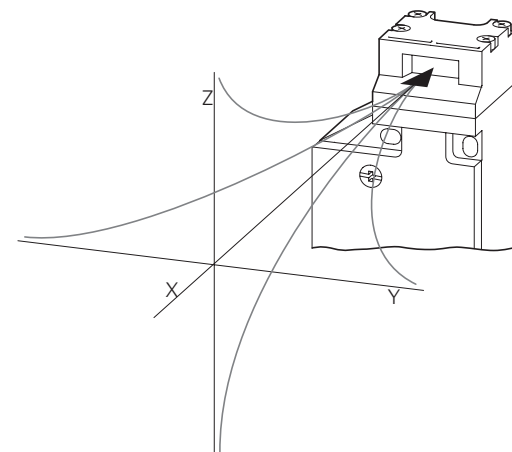


LS-XWA-ZBZ



Pin with a 4 mm pin after mounting

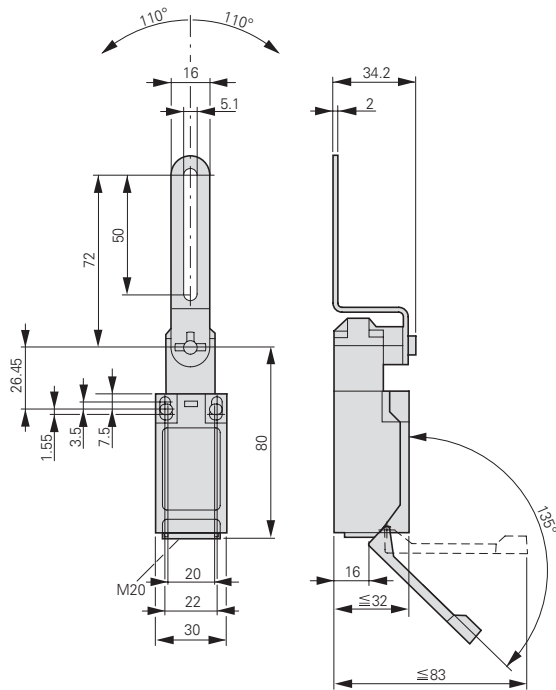
Part no.	R [mm]		
	F [N]	Z	Y
LS-XG-ZBZ	1700	350	350
LS-XW-ZBZ	1700	350	350
LS-XWA-ZBZ	1600	550	550
LS-XFG-ZBZ	1600	350	350
LS-XF-ZBZ	1600	350	350
LS-XNG-ZBZ	1700	350	350
LS-XNW-ZBZ	1200	150	250



① Distance to unit head = 0.1 ... 3.0 mm

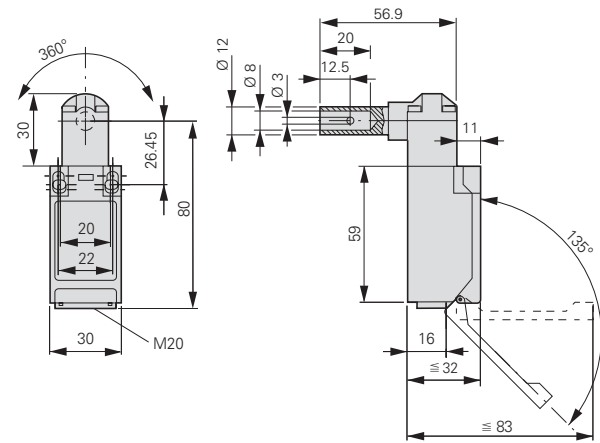
Hasp-operated safety switches

LSR-.../TKG



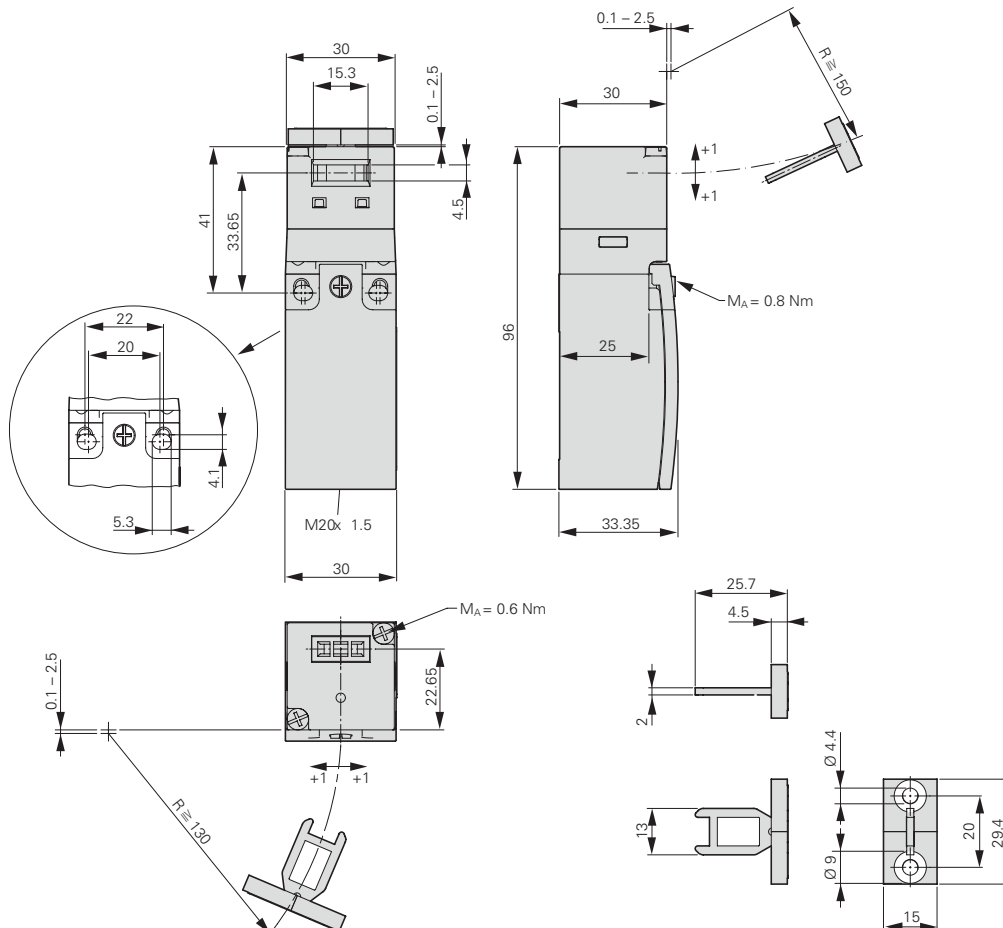
Safety hinge switches

LSR-.../TS



Safety position switches

LS-...-ZB



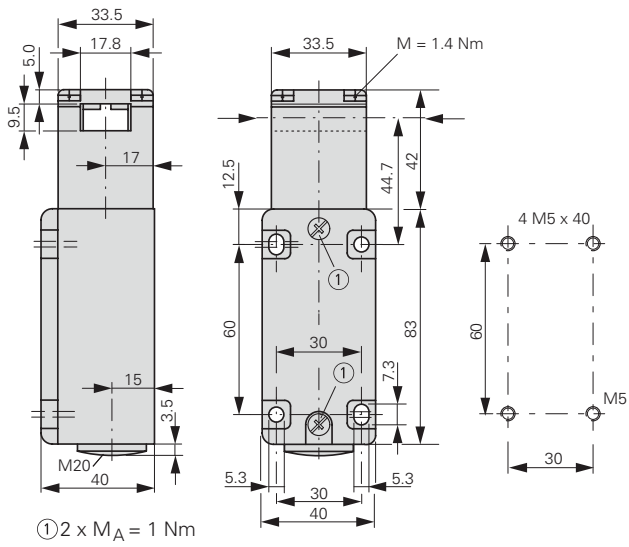
Switch must not be used as a mechanical stop.

Position Switches

Safety position switches

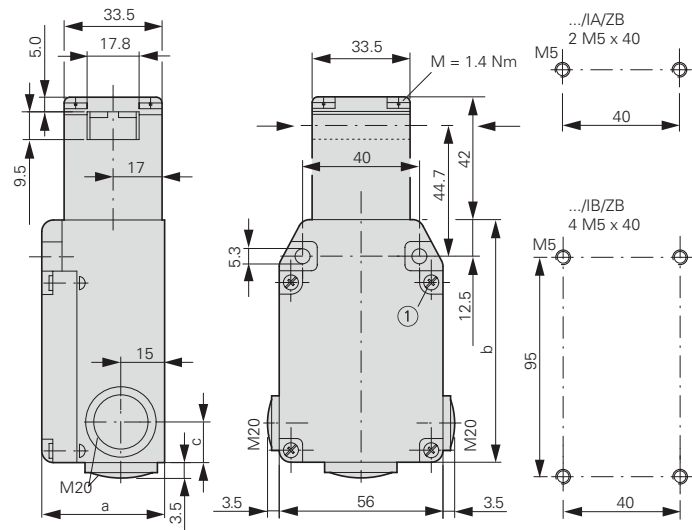
Safety position switches

LS4...ZB



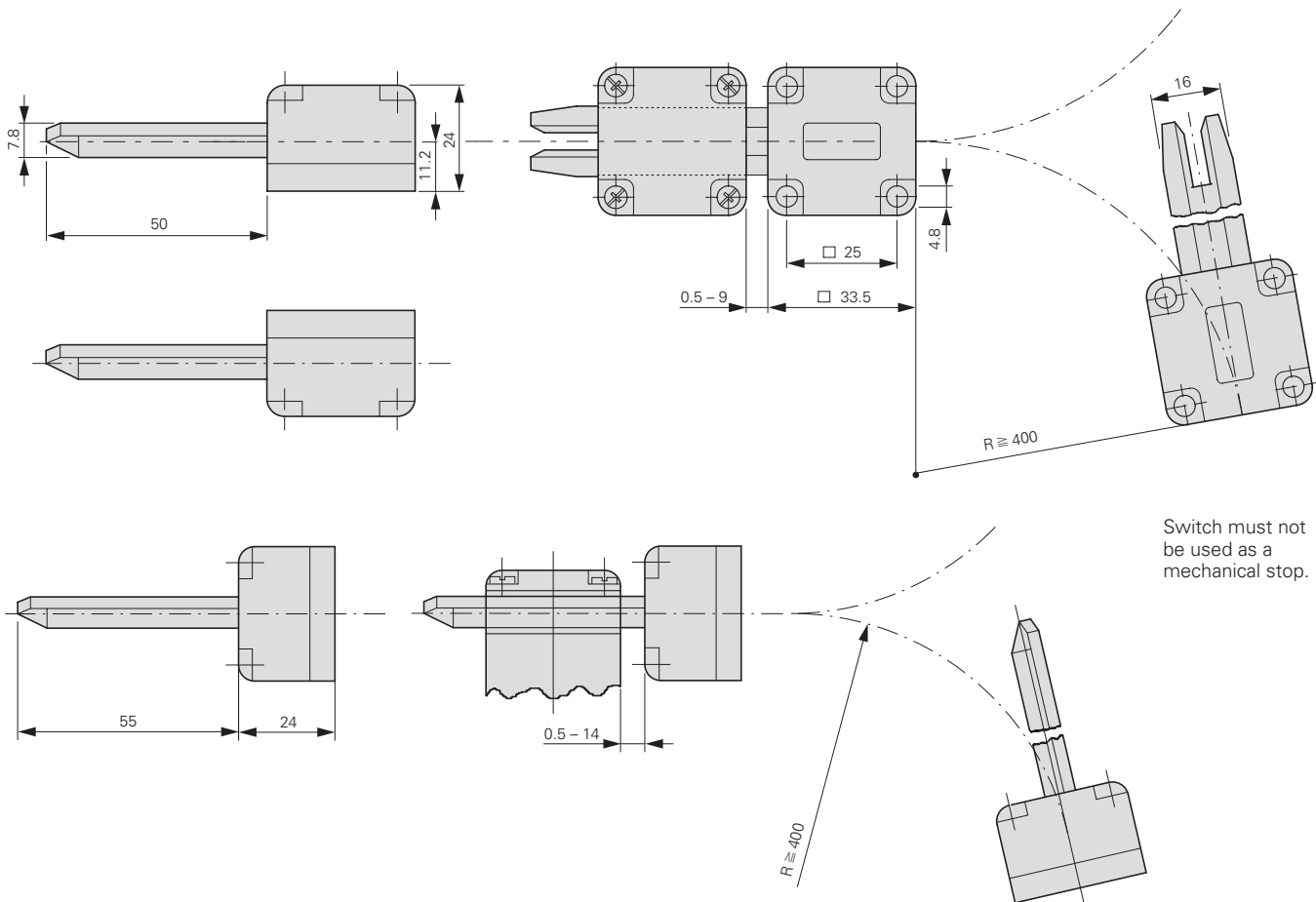
LS4/.../IA/ZB

LS4/.../IB/ZB



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

Actuators



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