

## LS position switches

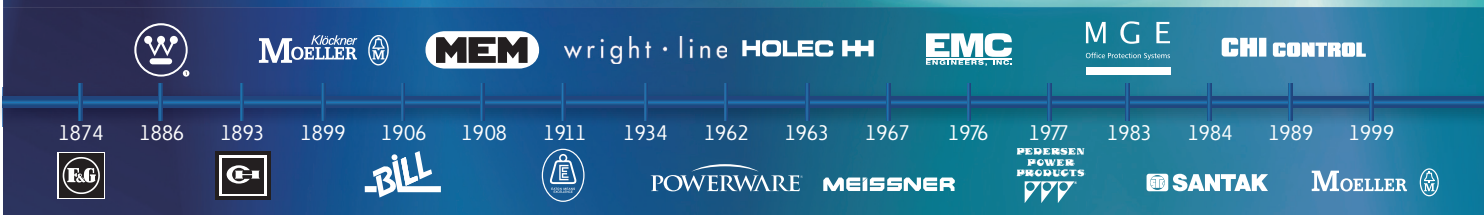


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*Powering Business Worldwide*

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## The power of fusion.



# EAT•N

Powering Business Worldwide

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**Ordering**

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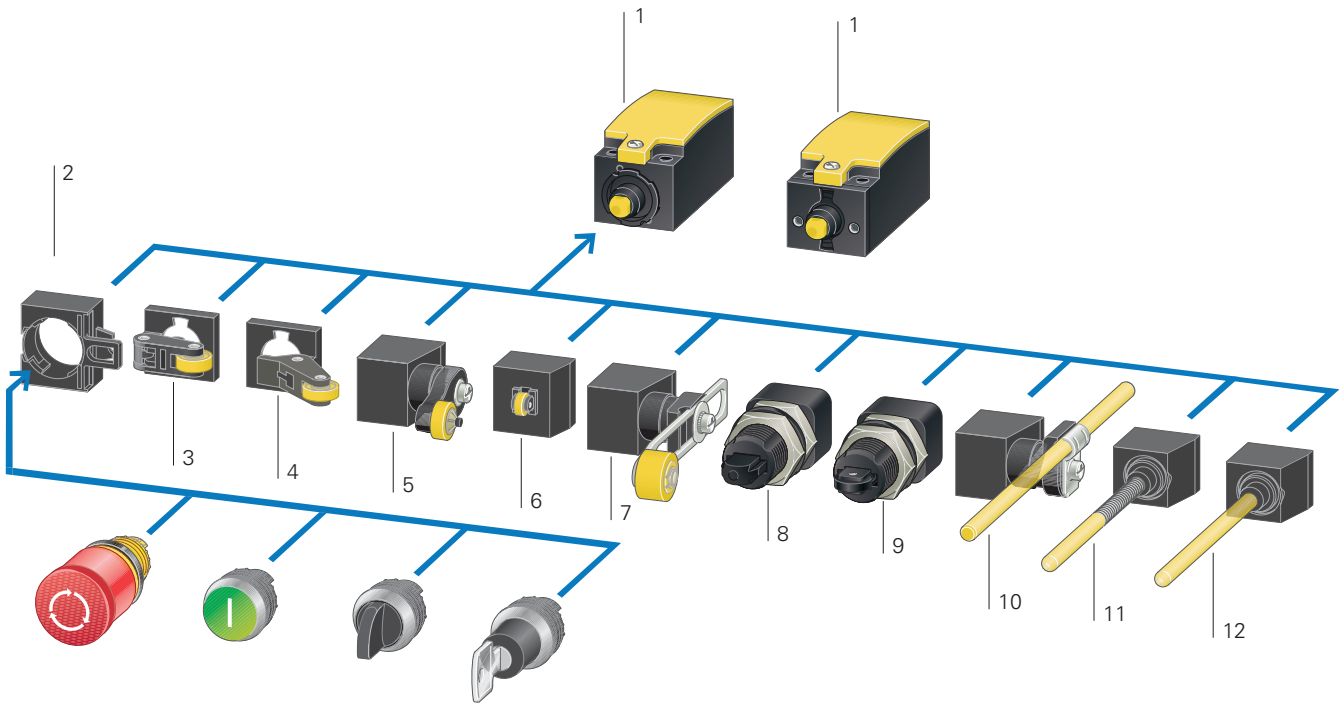
**Dimensions**

(Safety) position switch LS-Titan ..... 25  
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# Position Switches

Safety position switches

## System overview



## LS, LSM

### Basic units

<b>Basic Unit</b>	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	
→ Page 3	

### Operating heads

Can be rotated by 90°

<b>Fixing adapters</b>	2
Actuation through front element RMQ-Titan®	
<b>Roller lever</b>	3
For one-sided operation with higher operating speed	
<b>Angled roller lever</b>	4
For actuation along the unit axis	
<b>Rotary lever</b>	5
For transverse actuation, for pendulum movements	
→ Page 5	

### Operating heads

Can be rotated by 90°

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

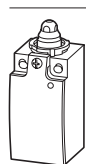
#### Basic unit, expandable

Operating point electronically adjustable, IP66, IP67

Basic unit

Visible status display, comparable with positive opening function

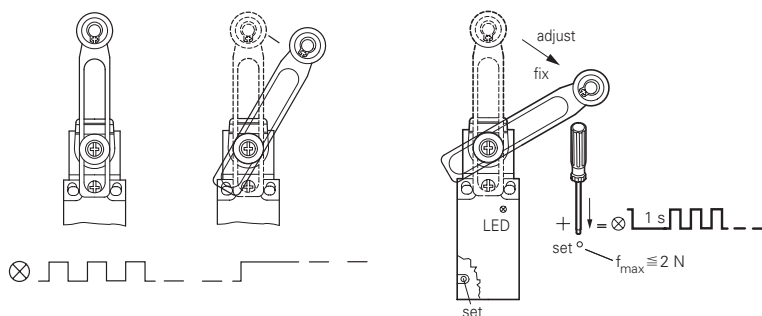
Partly short-circuit-proof, restart after reset



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

#### Notes

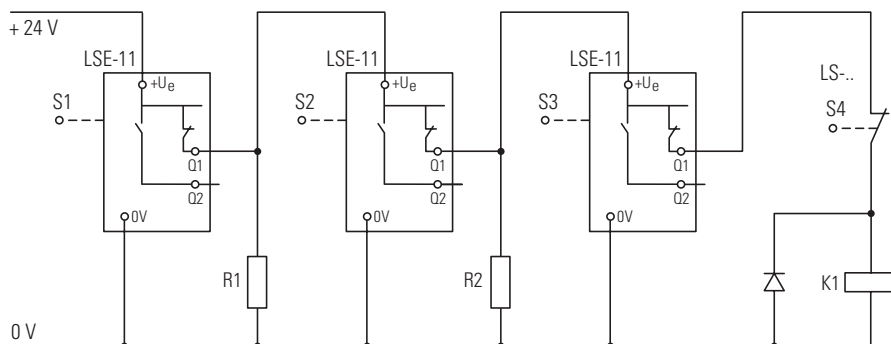
##### LSE-11 and LSE-02: Individual operating point adjustment:



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



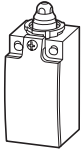
Product Standards	IEC/EN 60947-5; UL 508; CSA-C22.2 No. 14; CE marking
UL File No.	E29184
UL CCN	NKCR
CSA File No.	12528
CSA Class No.	3211-03
NA Certification	UL Listed, CSA certified
Degree of Protection	IEC: IP66, 67, UL/CSA Type 3R, 4X (indoor use only), 12, 13



# 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	<b>LS-02</b> 266107	10 off	<sup>1)2)</sup>
–	2 NC ⊕			●		Cage Clamp	<b>LS-02-SW</b> 272009	10 off	<sup>1)2)</sup>
–	2 NC ⊕			●		Screwed terminal	<b>LS-S02</b> 106729	10 off	<sup>2)</sup>
–	2 NC ⊕			●		Screwed terminal	<b>LS-S02-SW</b> 106782	10 off	<sup>2)</sup>
–	2 NC ⊕			●	metal	Cage Clamp	<b>LSM-02</b> 266142	2 off	<sup>1)2)</sup>
–	2 NC ⊕			●	plastic EN 50047 Form B	Cage Clamp	<b>LS-02A</b> 116702	10 off	<sup>1)2)</sup>
–	2 NC ⊕			●		Screwed terminal	<b>LS-S02A</b> 116703	10 off	<sup>2)</sup>
1 N/O	1 NC ⊕			●	plastic	Cage Clamp	<b>LS-11</b> 266109	10 off	<sup>1)2)</sup>
1 N/O	1 NC ⊕			●		Cage Clamp	<b>LS-11-SW</b> 272006	10 off	<sup>1)2)</sup>
1 N/O	1 NC ⊕			●		Screwed terminal	<b>LS-S11</b> 106783	10 off	<sup>2)</sup>
1 N/O	1 NC ⊕			●		Screwed terminal	<b>LS-S11-SW</b> 106807	10 off	<sup>2)</sup>
1 N/O	1 NC ⊕			●	metal EN 50047 Form B	Cage Clamp	<b>LSM-11</b> 266144	2 off	<sup>1)2)</sup>
1 N/O	1 NC ⊕			●	plastic EN 50047 Form B	Cage Clamp	<b>LS-11A</b> 116704	10 off	<sup>1)2)</sup>
1 N/O	1 NC ⊕			●		Screwed terminal	<b>LS-S11A</b> 116705	10 off	<sup>2)</sup>
1 N/O	1 NC ⊕			●	plastic	Cage Clamp	<b>LS-11D</b> 266114	10 off	<sup>1)2)</sup>
1 N/O	1 NC ⊕			●		Cage Clamp	<b>LS-11D-SW</b> 272007	10 off	<sup>1)2)</sup>
1 N/O	1 NC ⊕			●		Screwed terminal	<b>LS-S11D</b> 106791	10 off	<sup>2)</sup>
1 N/O	1 NC ⊕			●		Screwed terminal	<b>LS-S11D-SW</b> 106797	10 off	<sup>2)</sup>
1 N/O	1 NC ⊕			●	metal	Cage Clamp	<b>LSM-11D</b> 266149	2 off	<sup>1)2)</sup>
1 N/O	1 NC ⊕			●	plastic	Cage Clamp	<b>LS-11DA</b> 292361	10 off	<sup>1)2)</sup>
1 N/O	1 NC ⊕			●		Screwed terminal	<b>LS-S11DA</b> 106795	1 off	<sup>2)</sup>
1 N/O	1 NC ⊕			●	metal	Cage Clamp	<b>LSM-11DA</b> 292363	1 off	<sup>1)2)</sup>
1 N/O	1 NC ⊕			●	plastic EN 50047 Form B	Cage Clamp	<b>LS-11S</b> 266105	10 off	<sup>1)2)</sup>
1 N/O	1 NC ⊕			●		Cage Clamp	<b>LS-11S-SW</b> 272020	10 off	<sup>1)2)</sup>
1 N/O	1 NC ⊕			●		Screwed terminal	<b>LS-S11S</b> 106798	10 off	<sup>2)</sup>
1 N/O	1 NC ⊕			●		Screwed terminal	<b>LS-S11S-SW</b> 106806	10 off	<sup>2)</sup>
1 N/O	1 NC ⊕			●	metal EN 50047 Form B	Cage Clamp	<b>LSM-11S</b> 266140	2 off	<sup>1)2)</sup>

#### Notes

- <sup>1)</sup> 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  
<sup>2)</sup> 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

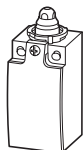
Connection type

Part no.  
 Article no.

Price  
 See price list

Std. pack

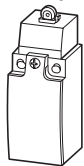
#### Rounded plunger, IP66, IP67 (front fixing)



#### Complete units

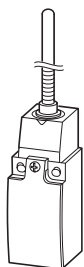
–	2 NC ⊕			0 3.0 6.1 11-12 NC 21-22 NC Zw = 4.5 mm	●	plastic	Cage Clamp	<b>LS-02/F</b> 292365	1 off		1)2)
–	2 NC ⊕				●	plastic	Screwed terminal	<b>LS-S02/F</b> 106780	1 off		2)
–	2 NC ⊕				●	metal	Cage Clamp	<b>LSM-02/F</b> 292371	1 off		1)2)
1 N/O	1 NC ⊕			0 4.3 6.1 13-14 NO 21-22 NC Zw = 4.5 mm	●	plastic	Cage Clamp	<b>LS-11/F</b> 290176	1 off		1)2)
1 N/O	1 NC ⊕				●	plastic	Screwed terminal	<b>LS-S11/F</b> 106784	1 off		2)
1 N/O	1 NC ⊕				●	metal	Cage Clamp	<b>LSM-11/F</b> 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	<b>LS-S11D/F</b> 106792	1 off		2)
1 N/O	1 NC ⊕				●	plastic	Cage Clamp	<b>LS-11D/F</b> 292366	1 off		1)2)
1 N/O	1 NC ⊕				●	metal	Cage Clamp	<b>LSM-11D/F</b> 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	<b>LS-11DA/F</b> 292369	1 off		1)2)
1 N/O	1 NC ⊕				●	plastic	Screwed terminal	<b>LS-S11DA/F</b> 106796	1 off		2)
1 N/O	1 NC ⊕				●	metal	Cage Clamp	<b>LSM-11DA/F</b> 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	<b>LS-11S/F</b> 292367	1 off		1)2)
1 N/O	1 NC ⊕				●	plastic	Screwed terminal	<b>LS-S11S/F</b> 106799	1 off		2)
1 N/O	1 NC ⊕				●	metal	Cage Clamp	<b>LSM-11S/F</b> 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	<b>LS-11/P</b> 266112	2 off		1)2)
1 N/O	1 NC ⊕				●		Screwed terminal	<b>LS-S11/P</b> 106788	2 off		2)
1 N/O	1 NC ⊕				●	metal EN 50047 Form C	Cage Clamp	<b>LSM-11/P</b> 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	<b>LS-11S/P</b> 266118	2 off		1)2)
1 N/O	1 NC ⊕				●		Screwed terminal	<b>LS-S11S/P</b> 106801	2 off		2)
1 N/O	1 NC ⊕				●	metal EN 50047 Form C	Cage Clamp	<b>LSM-11S/P</b> 266153	2 off		1)2)
1 N/O	1 NC ⊕			0 13 26 21-22 NO 13-14 NO Zw = 19	●	plastic	Cage Clamp	<b>LS-11S/S</b> 266104	2 off		1)2)
1 N/O	1 NC ⊕				●	plastic	Screwed terminal	<b>LS-S11S/S</b> 106805	2 off		2)
1 N/O	1 NC ⊕				●	metal	Cage Clamp	<b>LSM-11S/S</b> 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

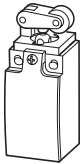
Connection type

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	<b>LS-02/L</b> 266108	2 off	1) 2)
–	2 NC ☉				●	plastic	Screwed terminal	<b>LS-S02/L</b> 106781	2 off	2)
–	2 NC ☉				●	metal	Cage Clamp	<b>LSM-02/L</b> 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	<b>LS-11/L</b> 266110	2 off	1) 2)
1 N/O	1 NC ☉				●	plastic EN 50047 Form E	Screwed terminal	<b>LS-S11/L</b> 106785	2 off	2)
1 N/O	1 NC ☉				●	metal EN 50047 Form E	Cage Clamp	<b>LSM-11/L</b> 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	<b>LS-11D/L</b> 266115	2 off	1) 2)
1 N/O	1 NC ☉				●	plastic	Screwed terminal	<b>LS-S11D/L</b> 106793	2 off	2)
1 N/O	1 NC ☉				●	metal	Cage Clamp	<b>LSM-11D/L</b> 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	<b>LS-11S/L</b> 266116	2 off	1) 2)
1 N/O	1 NC ☉				●	plastic EN 50047 Form E	Screwed terminal	<b>LS-S11S/L</b> 106800	2 off	2)
1 N/O	1 NC ☉				●	metal EN 50047 Form E	Cage Clamp	<b>LSM-11S/L</b> 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	<b>LS-11/LS</b> 290173	2 off	1) 2)
1 N/O	1 NC ☉				●	plastic	Screwed terminal	<b>LS-S11/LS</b> 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	<b>LS-11D/LS</b> 290174	1 off	1) 2)
1 N/O	1 NC ☉				●	plastic	Screwed terminal	<b>LS-S11D/LS</b> 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	<b>LS-11/LB</b> 290175	1 off	1) 2)
1 N/O	1 NC ☉				●	plastic	Screwed terminal	<b>LS-S11/LB</b> 106786	1 off	2)

#### Notes

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 Accessories for the Cage Clamp terminals from Wago:  
 Jumper insert, grey, Wago article no. 264-402
- 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  
 UL File No. NKCR  
 UL CCN 12528  
 CSA File 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

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

Circuit symbol

Contact travel  
 ■ = Contact closed  
 □ = Contact open

Color  
 Enclosure cover

Enclosure

Connection type

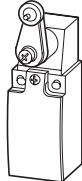
Part no.  
 Article no.

Price  
 See price list

Std. pack

N/O = normally open contact  
 NC = normally closed contact

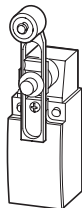
#### Rotary lever, IP66, IP67



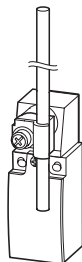
#### Complete units

Contact configuration	Circuit symbol	Contact travel	Color	Enclosure	Connection type	Part no. Article no.	Price	Std. pack
1 N/O 1 NC ⊕			Yellow	plastic EN 50047 Form A	Cage Clamp	<b>LS-11/RL</b> 266111	2 off	1)2)
1 N/O 1 NC ⊕			Yellow	metal EN 50047 Form A	Cage Clamp	<b>LSM-11/RL</b> 266146	2 off	1)2)
1 N/O 1 NC ⊕			Yellow	plastic EN 50047 Form A	Screwed terminal	<b>LS-S11/RL</b> 106789	2 off	2)
1 N/O 1 NC ⊕			Yellow	plastic EN 50047 Form A	Cage Clamp	<b>LS-11S/RL</b> 266117	2 off	1)2)
1 N/O 1 NC ⊕			Yellow	plastic EN 50047 Form A	Screwed terminal	<b>LS-S11S/RL</b> 106802	2 off	2)
1 N/O 1 NC ⊕			Yellow	metal EN 50047 Form A	Cage Clamp	<b>LSM-11S/RL</b> 266152	2 off	1)2)
1 N/O 1 NC ⊕			Yellow	plastic	Cage Clamp	<b>LS-11/RLA</b> 266113	2 off	1)2)
1 N/O 1 NC ⊕			Yellow	plastic	Screwed terminal	<b>LS-S11/RLA</b> 106790	2 off	2)
1 N/O 1 NC ⊕			Yellow	metal	Cage Clamp	<b>LSM-11/RLA</b> 266148	2 off	1)2)
1 N/O 1 NC ⊕			Yellow	plastic	Cage Clamp	<b>LS-11S/RLA</b> 266119	2 off	1)2)
1 N/O 1 NC ⊕			Yellow	plastic	Screwed terminal	<b>LS-S11S/RLA</b> 106803	2 off	2)
1 N/O 1 NC ⊕			Yellow	metal	Cage Clamp	<b>LSM-11S/RLA</b> 266154	2 off	1)2)
1 N/O 1 NC ⊕			Yellow	plastic	Cage Clamp	<b>LS-11S/RR</b> 266106	4 off	1)2)
1 N/O 1 NC ⊕			Yellow	plastic	Screwed terminal	<b>LS-S11S/RR</b> 106804	4 off	2)
1 N/O 1 NC ⊕			Yellow	metal	Cage Clamp	<b>LSM-11S/RR</b> 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	–	<b>LS-COMBINATION-*</b> 266168	1 off	1)2)
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#### Notes

- 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
- 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

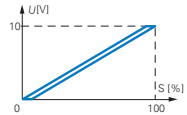
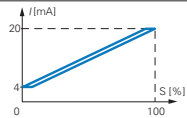
### LS-Titan

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

#### Basic unit, expandable

Analog electronic position switches IP66, IP67

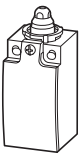
Basic unit  
Visual status indication  
Q1 = Analog output  
Q2 = Diagnostics output  
(the diagnostics output has a 0 V signal in the event of a fault.)



●	plastic	Cage Clamp	<b>LSE-AI</b> 269461	2 off	<sup>2)</sup>
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●	plastic	Cage Clamp	<b>LSE-AU</b> 274096	2 off	<sup>2)</sup>
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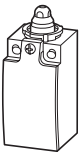
Rounded plunger, IP66, IP67



2 N/O	—			●	plastic	Cage Clamp	<b>LS-20</b> 266120	10 off	<sup>1) 2)</sup>
2 N/O	—			●	plastic	Cage Clamp	<b>LS-20-SW</b> 272008	10 off	<sup>1) 2)</sup>
2 N/O	—			●	plastic	Screwed terminal	<b>LS-S20</b> 106808	1 off	<sup>2)</sup>
2 N/O	—			●	plastic	Screwed terminal	<b>LS-S20-SW</b> 106812	10 off	<sup>2)</sup>
2 N/O	—			●	metal	Cage Clamp	<b>LSM-20</b> 266155	2 off	<sup>1) 2)</sup>
2 N/O	—			●	plastic	Cage Clamp	<b>LS-20A</b> 292362	1 off	<sup>1) 2)</sup>
2 N/O	—			●	plastic	Screwed terminal	<b>LS-S20A</b> 106810	10 off	<sup>2)</sup>
2 N/O	—			●	metal	Cage Clamp	<b>LSM-20A</b> 100051	2 off	<sup>1) 2)</sup>
2 N/O	—			●	plastic EN 50047 Form B	Cage Clamp	<b>LS-20B</b> 116706	10 off	<sup>1) 2)</sup>
2 N/O	—			●	plastic EN 50047 Form B	Screwed terminal	<b>LS-S20B</b> 116707	10 off	<sup>2)</sup>

#### Basic unit, not expandable

Rounded plunger, IP66, IP67 (front fixing)



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

































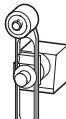



















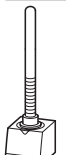




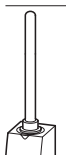





#### Notes

- 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



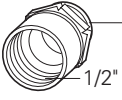


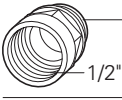




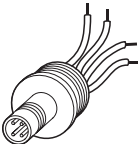

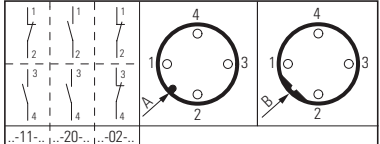

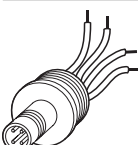

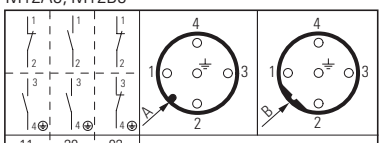

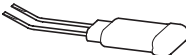








### LS-Titan

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

# Position Switches

## Accessories

### LS-Titan

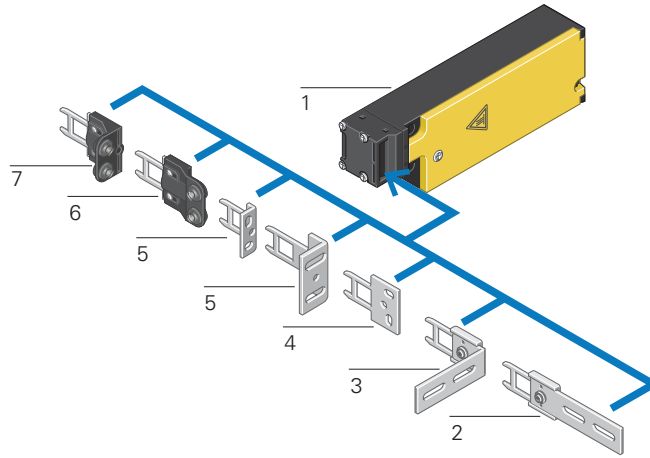
Description		Part no. Article no.	Price See price list	Std. pack	Notes	Information relevant for export to North America	
							
<b>Screw connection to fit M20 to 1/2"</b>							
	M20 Screw connector for American pipe thread Metal	<b>V1/2"/M20-NA</b> 225269		10 off  	The screw connection is for grounding;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



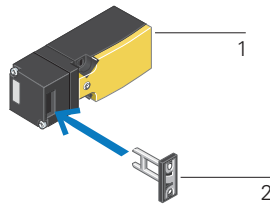
# Position Switches

## System overview

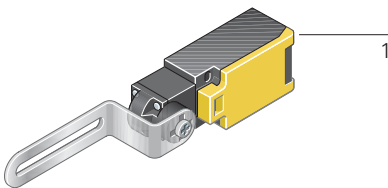
### LS-...ZBZ



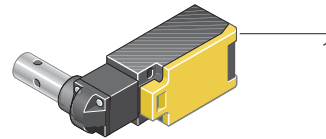
### LS-...ZB



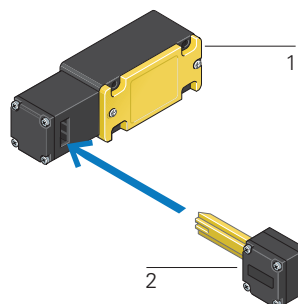
### LSR-...TKG



### 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

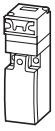
- Protection type IP65
- Operating head can be turned 4 x 90°
- With M20 x 1.5 connecting thread

totally insulated

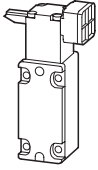


# Position Switches

## LS...ZB



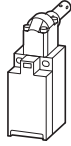
## LS4/ZB



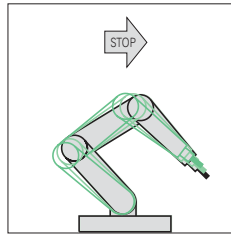
## LSR...TKG



## LSR...TS

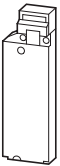


“Personnel protection” by monitoring of the protective mechanism

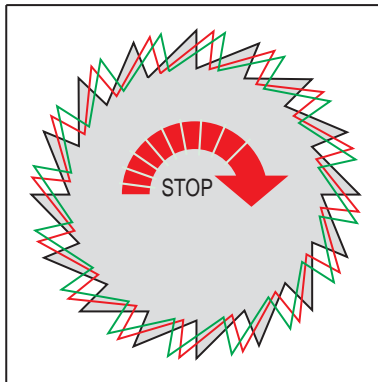


- Door open
- LS...-ZB disconnects power
- No danger

## LS/ZBZ

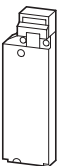


“Increased personnel protection” by monitoring and interlocking the protective mechanism

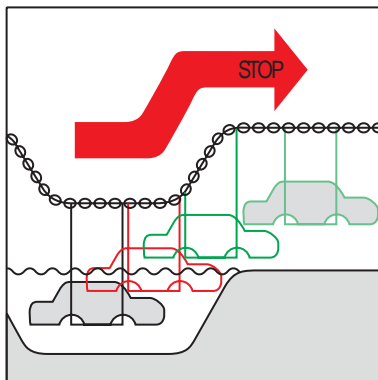


- Stop command
- Waiting time
- Machine is stopped
- Protective mechanism open
- No danger

## LS/ZBZ

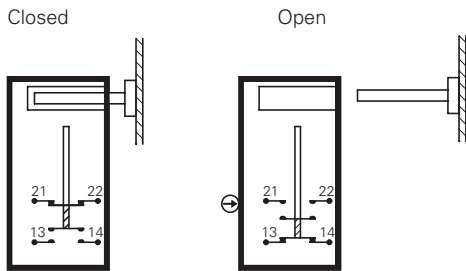


“Increased personnel protection” by monitoring and interlocking the protective mechanism



- 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

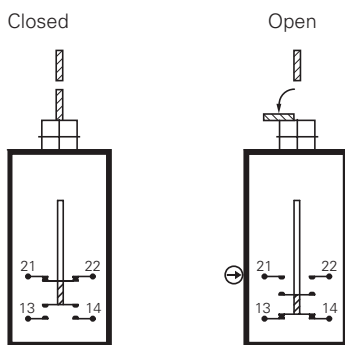
→ Enabling contact safely open; tamperproof against simple tools

→ 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

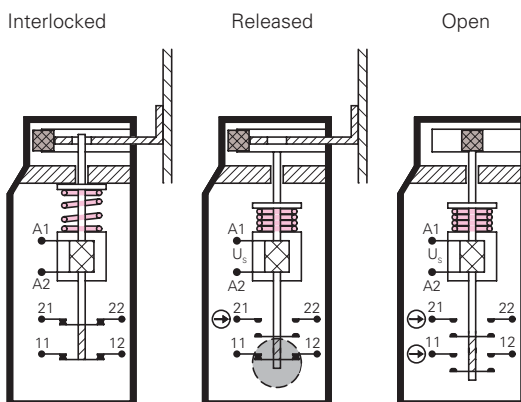
Closing of guard mechanism

→ 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

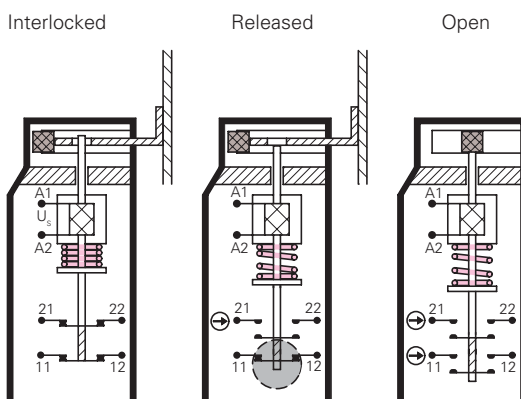
→ Triple-coded actuator cancels enabling contact inhibit; door position contact (11-12) closes

→ 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

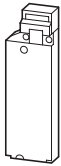
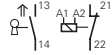

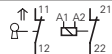




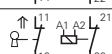


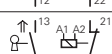

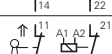

Part no.  
Article no.

Price  
See price list

Std. pack

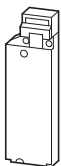
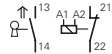

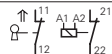


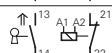

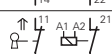


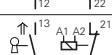

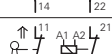

#### Basic units with spring-powered interlock (closed-circuit principle) IP65

- With interlock monitoring and auxiliary release mechanism
- Monitoring of door position: continuous

	1 N/O	1 NC ☉		24 V DC	<b>LS-S11-24DFT-ZBZ/X</b> 106829	1 off 
	–	2 NC ☉		24 V DC	<b>LS-S02-24DFT-ZBZ/X</b> 106823	1 off 
	1 N/O	1 NC ☉		120 V 50/60 Hz	<b>LS-S11-120AFT-ZBZ/X</b> 106825	1 off 
	–	2 NC ☉		120 V 50/60 Hz	<b>LS-S02-120AFT-ZBZ/X</b> 106778	1 off 
	1 N/O	1 NC ☉		230 V 50/60 Hz	<b>LS-S11-230AFT-ZBZ/X</b> 106827	1 off 
	–	2 NC ☉		230 V 50/60 Hz	<b>LS-S02-230AFT-ZBZ/X</b> 106821	1 off 

#### Basic units with magnet-powered interlock (open-circuit principle) IP65 <sup>1)</sup>

- With interlock monitoring
- Monitoring of door position: continuous

	1 N/O	1 NC ☉		24 V DC	<b>LS-S11-24DMT-ZBZ/X</b> 106830	1 off 
	–	2 NC ☉		24 V DC	<b>LS-S02-24DMT-ZBZ/X</b> 106824	1 off 
	1 N/O	1 NC ☉		120 V 50/60 Hz	<b>LS-S11-120AMT-ZBZ/X</b> 106826	1 off 
	–	2 NC ☉		120 V 50/60 Hz	<b>LS-S02-120AMT-ZBZ/X</b> 106820	1 off 
	1 N/O	1 NC ☉		230 V 50/60 Hz	<b>LS-S11-230AMT-ZBZ/X</b> 106828	1 off 
	–	2 NC ☉		230 V 50/60 Hz	<b>LS-S02-230AMT-ZBZ/X</b> 106822	1 off 

#### Notes

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

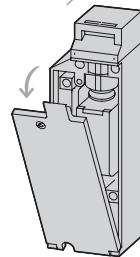
With the actuator inserted, the N/O contact is open and the NC contact is closed.



**Switch must never be used as a mechanical stop!**

<sup>1)</sup> Time control of the release operation possible using ESR5-NV30-30

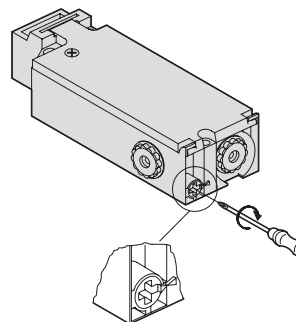
The operating head can be rotated manually in 90° steps to suit the specified level of actuation.



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.







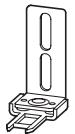

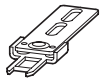







Cable gland V-M20 → [Page 2/46](#)

#### 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

	<b>Part no.</b> Article no.	<b>Price</b> See price list	<b>Std. pack</b>	<b>Notes</b>	<b>Information relevant for export to North America</b> 	
<b>Actuators</b>						
For combination with LS...ZBZ/X basic units Stainless steel						
Flat actuator For sliding doors						
	<b>LS-XG-ZBZ</b> 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 <b>LS-XW-ZBZ</b> 106839		10 off 	From width: 350 mm		
	Long <b>LS-XWA-ZBZ</b> 106838		10 off 	From width: 550 mm		
Angled, flexible actuator For doors that do not close precisely						
	<b>LS-XF-ZBZ</b> 106832		10 off 	–		
Flat, flexible compensating actuator For doors that do not close precisely						
	<b>LS-XFG-ZBZ</b> 106831		10 off 	–		
Flat, compensating actuator With increased tolerance in closing direction for door that does not close precisely.						
	<b>LS-XNG-ZBZ</b> 106834		1 off 	–		
Angled compensating actuator With increased tolerance in closing direction for door that does not close precisely.						
	<b>LS-XNW-ZBZ</b> 106835		10 off 	–		
<b>Accessories</b>						
Dust protection cap Prevents ingress of foreign matter into the unit head						
	<b>LS-XSK-ZBZ</b> 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	
<b>Hasp-operated safety switch LSR-.../TKG, IP65</b>								
	—	2 NC ⊕				Screwed terminal	<b>LSR-S02-1-I/TKG</b> 106848	1 off
	1 N/O	1 NC ⊕				Screwed terminal	<b>LSR-S11-1-I/TKG</b> 106847	1 off
<b>Hinge-operated switch LSR-.../TS, IP65</b>								
	—	2 NC ⊕				Screwed terminal	<b>LSR-S02-1-I/TS</b> 106852	1 off
	1 N/O	1 NC ⊕				Screwed terminal	<b>LSR-S11-1-I/TS</b> 106851	1 off
<b>Safety position switches LS-...-ZB, IP65</b>								
	—	2 NC ⊕			Cage Clamp	<b>LS-02-ZB<sup>1)</sup></b> 106817	2 off	
	—	2 NC ⊕			Screwed terminal	<b>LS-S02-ZB<sup>1)</sup></b> 106874	2 off	
	1 N/O	1 NC ⊕			Cage Clamp	<b>LS-11-ZB<sup>1)</sup></b> 106819	2 off	
	1 N/O	1 NC ⊕			Screwed terminal	<b>LS-S11-ZB<sup>1)</sup></b> 106876	2 off	
	1 N/O	1 NC ⊕			Cage Clamp	<b>LS-11S-ZB<sup>1)</sup></b> 106870	2 off	
	1 N/O	1 NC ⊕			Screwed terminal	<b>LS-S11S-ZB<sup>1)</sup></b> 106877	2 off	
<b>Safety position switches LS4.../ZB, IP65</b>								
	1 N/O	1 NC ⊕				Screwed terminal	<b>LS4/S11-1/I/ZB<sup>2)</sup></b> 106857	1 off
	1 N/O	1 NC ⊕				Screwed terminal	<b>LS4/S11-1/IA/ZB<sup>2)</sup></b> 106858	1 off
	1 N/O	2 NC ⊕				Screwed terminal	<b>LS4/S12-1/IB/ZB<sup>2)</sup></b> 106859	1 off

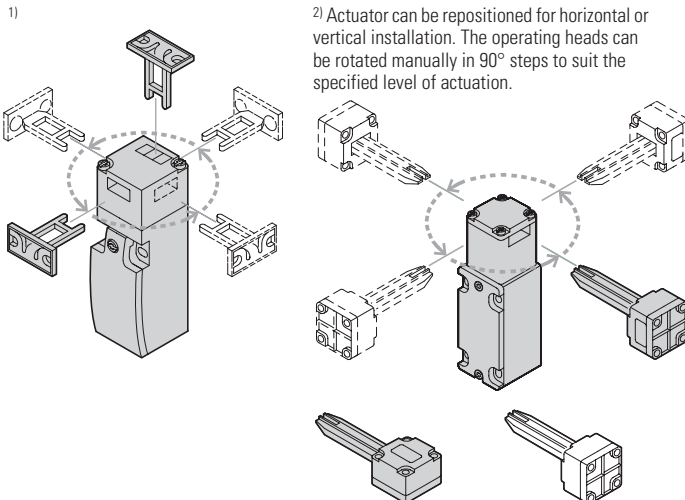
### Notes

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

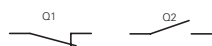
IEC/EN 60947-5; UL 508;  
CSA-C22.2 No. 14; CE marking  
E29184  
NKCR  
12528  
3211-03  
UL Listed, CSA certified  
IEC: IP65, UL/CSA Type 3R,  
4X (indoor use only), 12, 13



## Engineering

### LSE

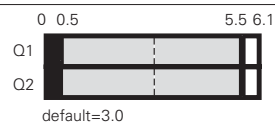
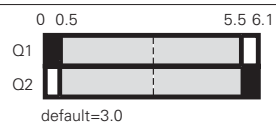
LSE-11



LSE-02



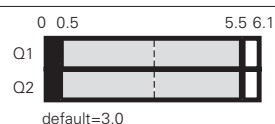
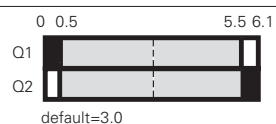
#### Basic units



#### Operating heads

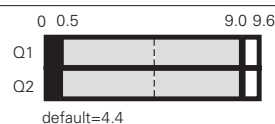
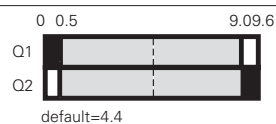
##### Roller plunger

LS-XP  
LSM-XP  
LS-XOR



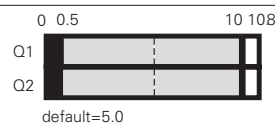
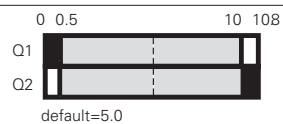
##### Roller lever

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



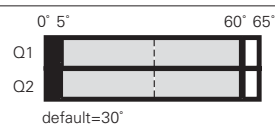
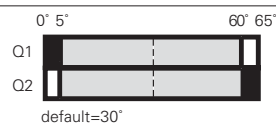
##### Angled roller lever

LS-XLA  
LSM-XLA



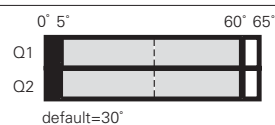
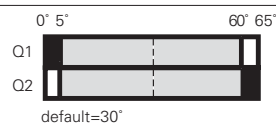
##### Rotary lever

LS-XRL  
LSM-XRL



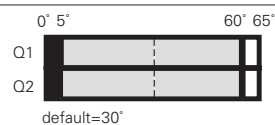
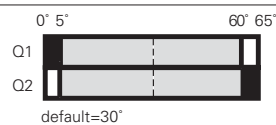
##### Adjustable roller lever

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



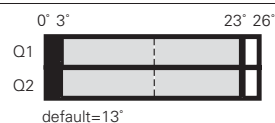
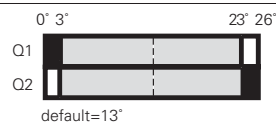
##### Actuating rod

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

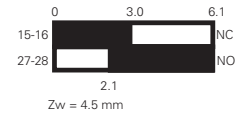
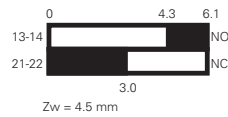
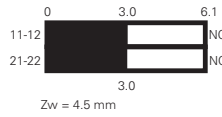
LS-02  
LS-S02  
LSM-02

LS-11  
LS-S11  
LSM-11

LS-11D  
LS-S11D  
LSM-11D



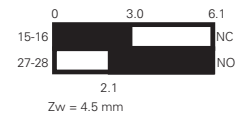
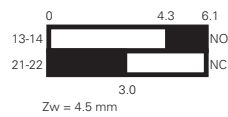
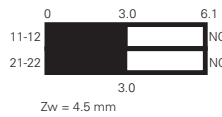
### Basic units



### Operating heads

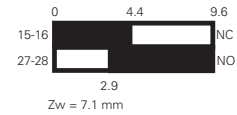
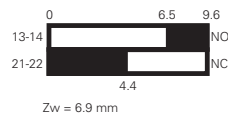
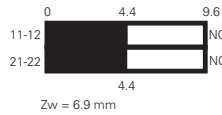
#### Roller plunger

LS-XP  
LSM-XP



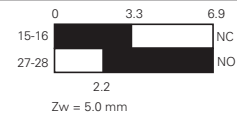
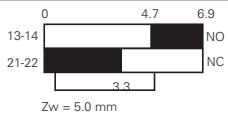
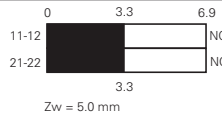
#### Roller lever

LS-XL, LSM-XL



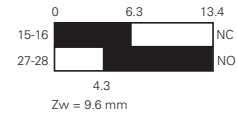
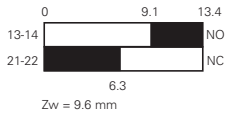
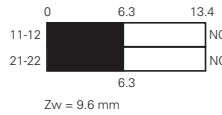
#### Roller lever, short

LS-XLS



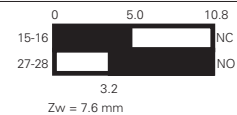
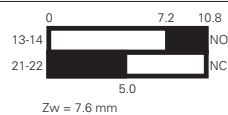
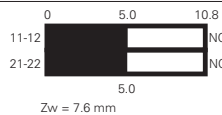
#### Roller lever, large

LS-XLB



#### Angled roller lever

LS-XLA, LSM-XLA

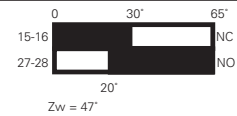
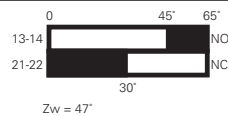
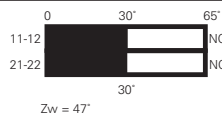


#### Rotary lever

LS-XRL, LSM-XRL

#### Adjustable roller lever

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

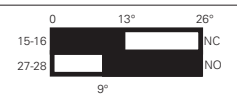
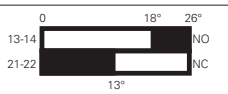
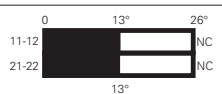


#### Actuating rod

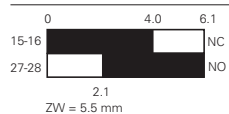
LS-XRR, LSM-XRR,  
LS-XRRM, LSM-XRRM

#### Spring rod actuator

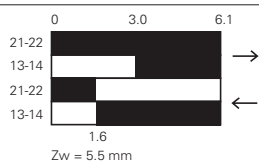
LS-XS, LSM-XS



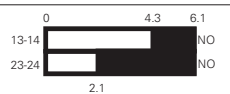
LS-11DA  
LS-S11DA  
LSM-11DA



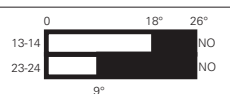
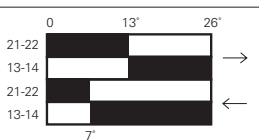
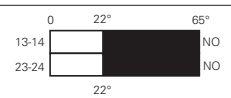
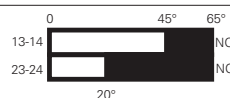
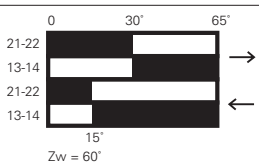
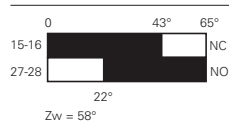
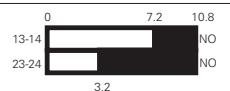
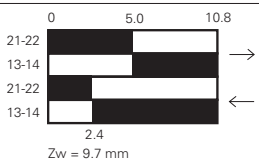
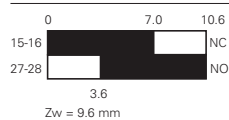
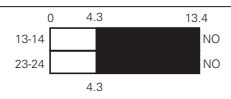
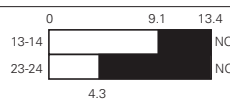
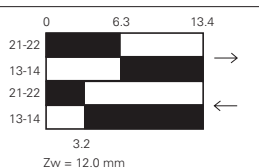
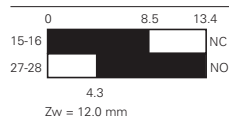
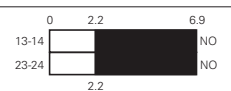
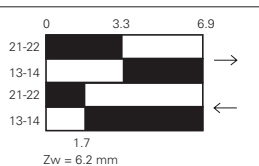
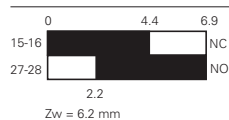
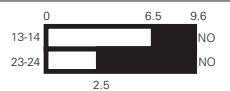
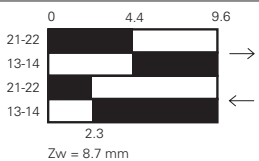
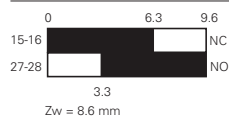
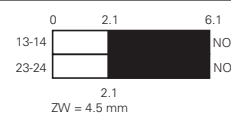
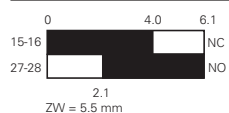
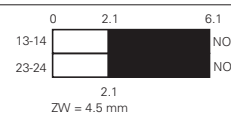
LS-11S  
LS-S11S  
LSM-11S



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						
<b>General</b>						
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 <sup>2</sup>		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 <sup>2</sup>		1 x (0.5 - 1.5)	1 x (0.5 - 1.5)	1 x (0.5 - 1.5)	1 x (0.5 - 1.5)
<b>Power supply</b>						
Rated voltage	U <sub>e</sub>	V DC	–	12...30	24 (-15...+20 %)	24 (-15...+20 %)
Rated operational current						
12 V	I <sub>e</sub>	mA	–	15	–	–
24 V	I	mA	–	18	28...45	24
30 V	I	mA	–	19	–	–
<b>Contacts/switching capacity</b>						
Rated impulse withstand voltage	U <sub>imp</sub>	V AC	4000	–	–	–
Rated insulation voltage	U <sub>i</sub>	V	400	–	–	–
Overvoltage category/pollution degree			III/3	III/3	–	–
Rated operational current						
AC-15	24 V	I <sub>e</sub>	A	6	–	–
	230 V/240 V	I <sub>e</sub>	A	6	–	–
	400 V/415 V	I <sub>e</sub>	A	4	–	–
DC-13	24 V	I <sub>e</sub>	A	3	0.2	–
	110 V	I <sub>e</sub>	A	0.8	–	–
	220 V	I <sub>e</sub>	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 <sub>e</sub>
			mA	–	–	< 200
Fault scenario			V	–	–	0
Control circuit reliability						
At 24 V DC/5 mA	H <sub>F</sub>	Fault frequency	< 10 <sup>-7</sup> , < 1 fault in 10 <sup>7</sup> operations	–	–	–
At 5 V DC/1 mA	H <sub>F</sub>	Fault frequency	< 10 <sup>-6</sup> , < 1 fault in 5 x 10 <sup>6</sup> 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
<b>UL-File No. E29184</b>						
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
<b>Mechanical data</b>					
Lifespan					
Standard action contact	Operations	x 10 <sup>6</sup>	8	–	3
Snap-action contact	Operations	x 10 <sup>6</sup>	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
<b>Drive</b>					
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
<b>Electromagnetic compatibility (EMC)</b>					
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)
<b>General</b>				
Pole			4	5
Protection type			IP66	IP66
Lifespan, mechanical	Operations		> 500	> 500
<b>Characteristic values</b>				
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

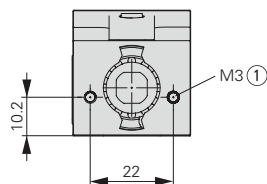
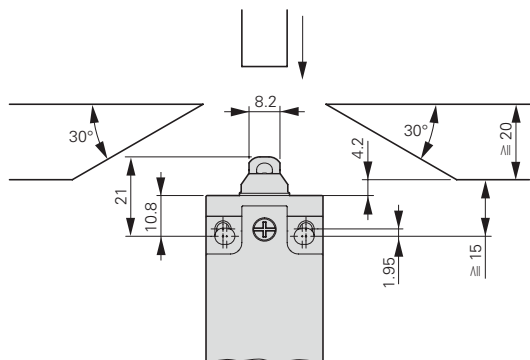
				Safety position switches				
unit				LS-...ZBZ	LS-...ZB	LS4...ZB	LSR...	
<b>General</b>								
Standards				IEC/EN 60947	IEC/EN 60947	IEC/EN 60947	IEC/EN 60947	
Climatic proofing				Damp heat, constant, to IEC 60068-2-78, Damp heat, cyclic, to IEC 60068-2-30				
Ambient temperature				°C	-25 - +40	-25 - +70	-25 - +70	
Mounting position				Any	Any	Any	Any	
Protection type				IP65	IP65	IP65	IP65	
Terminal capacity								
Solid				mm <sup>2</sup>	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 <sup>2</sup>	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	
Terminal screw tightening torque				Nm	0.9	0.4	0.9	
<b>Contacts/switching capacity</b>								
Rated impulse withstand voltage				U <sub>imp</sub>	V AC	4000	6000	
Rated insulation voltage				U <sub>i</sub>	V	400	500	
Overvoltage category/pollution degree					III/3	III/3	III/3	
Rated operational current								
AC-15				24 V	I <sub>e</sub>	A	6	
				230 V/240 V	I <sub>e</sub>	A	6	
				400 V/415 V	I <sub>e</sub>	A	4	
DC-13				24 V	I <sub>e</sub>	A	3	
				110 V	I <sub>e</sub>	A	0.8	
				220 V	I <sub>e</sub>	A	0.3	
Mains frequency					Hz	max. 400	max. 400	
Short-circuit rating to IEC/EN 60947-5-1								
Max. fuse					A gG/gL	6	6	
Repetition accuracy					mm	± 0.02	± 0.02	
<b>Mechanical data</b>								
Lifespan								
Standard action contact				Operations	x 10 <sup>6</sup>	1	10	
Snap-action contact				Operations	x 10 <sup>6</sup>	–	–	
Mechanical shock resistance (half-sinusoidal shock, 20 ms)								
Standard action contact					g	10	25	
Snap-action contact					g	–	2	
Operating frequency				Operations/h		≅ 800	≅ 1800	
<b>Drive</b>								
Mechanical								
Actuating force at beginning/end of stroke								
ZB/ZBZ (push-in/pull-out)				N		25/15	10/5	
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 <sub>s</sub>	0.85 - 1.1	–	
Magnet duty factor					% DF	100	–	
<b>UL-File No. E29184</b>								
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	
DC operated						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)

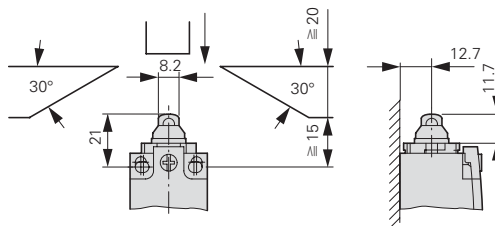
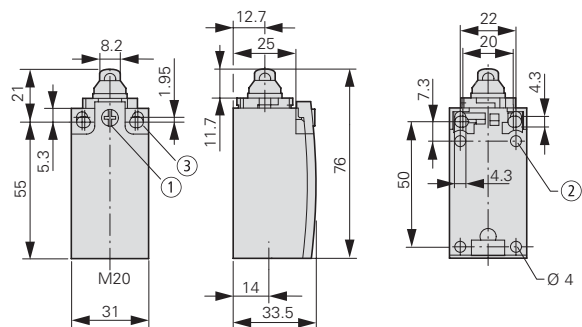
LS(M)-.../F



① Screw-in depth max. 12 mm

### Basic units, expandable

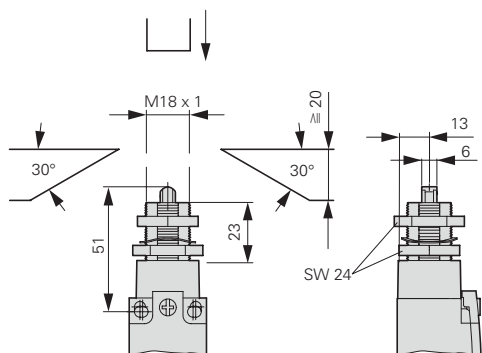
LS-..., LSM-..., LSE-...



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

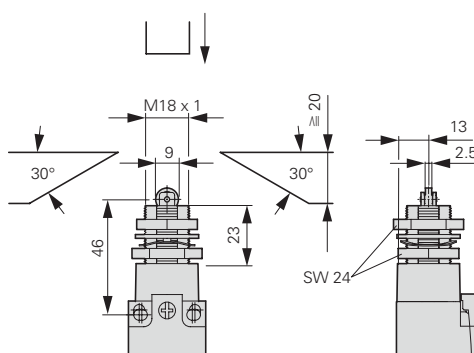
### Rounded plunger, center fixing

LS-XZS



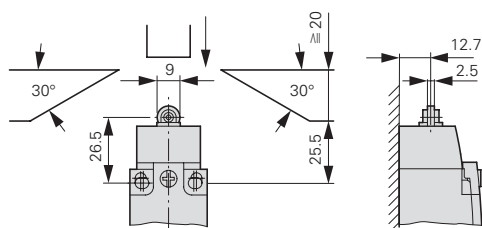
### Roller plunger, center fixing

LS-XZRS



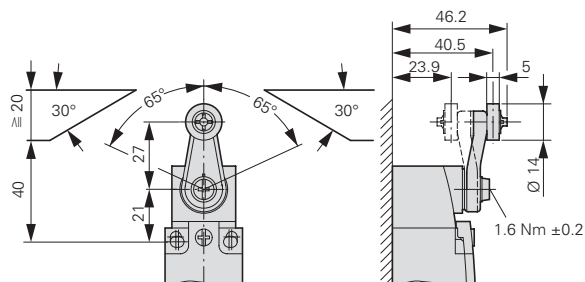
### Roller plunger

LS(M)-.../P



### Rotarylever

LS(M)-.../RL

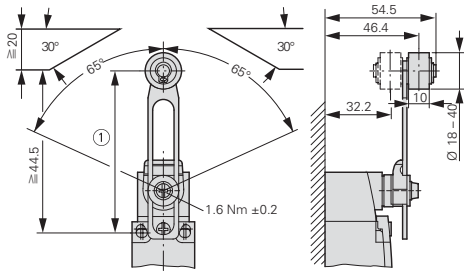


# Position Switches

(Safety) position switches

## Adjustable roller lever

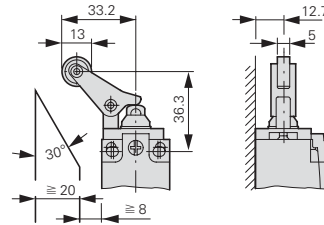
LS(M)-.../RLA



① Setting range from 54.5 to 97

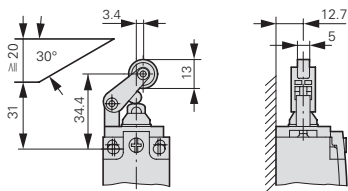
## Angled roller lever

LS(M)-XLA



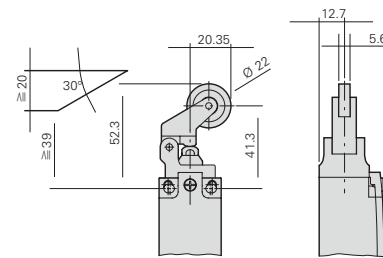
## Roller lever

LS(M)-.../L



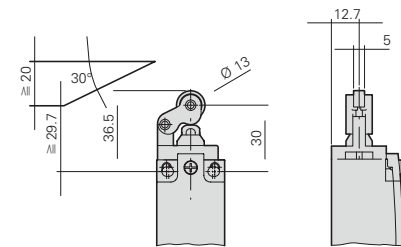
## Roller lever

LS(M)-.../LB



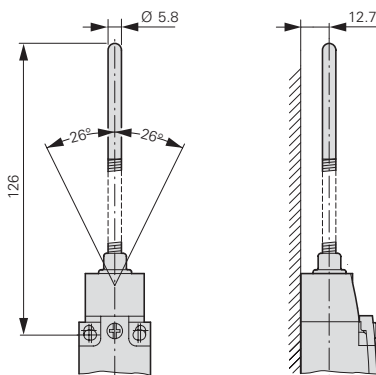
## Roller lever

LS(M)-.../LS



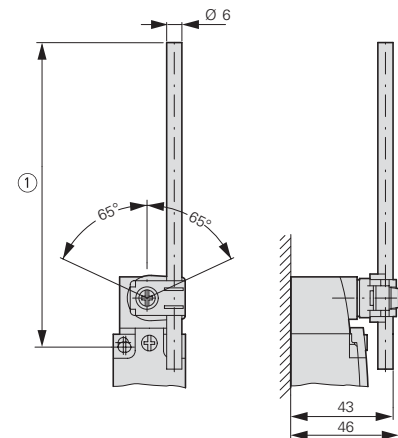
## Spring rod

LS(M)-.../S



## Actuating rod

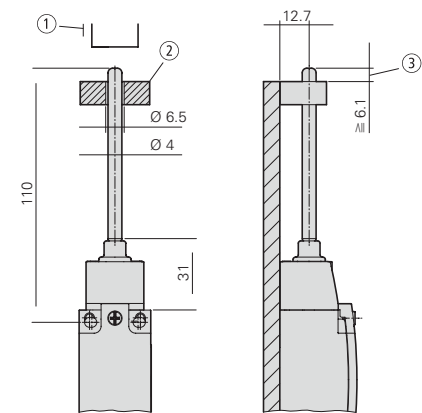
LS(M)-.../RR



① LS.../RR ≅ 150  
LS.../RRM ≅ 210

## Actuating rod

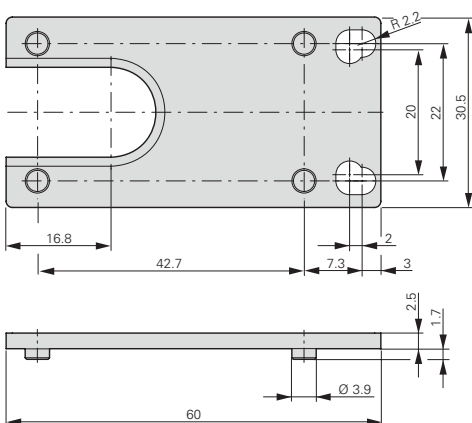
LS(M)-.../OR



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

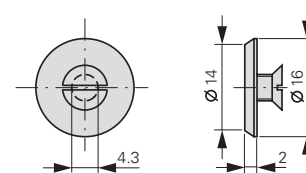
## Adapter plate

LS-XAP

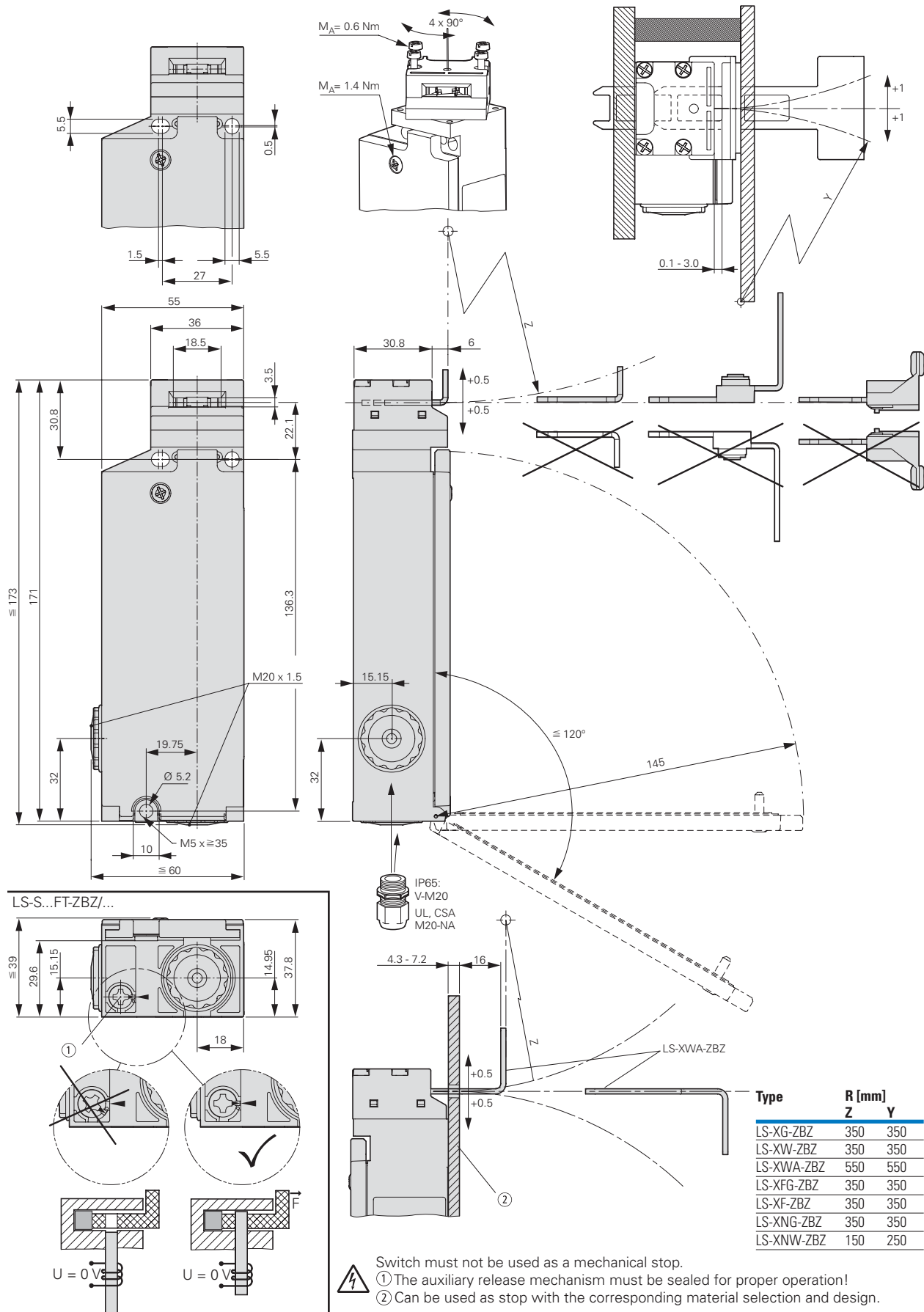


## Locating plate

FS-AT



### Safety position switches LS...ZBZ

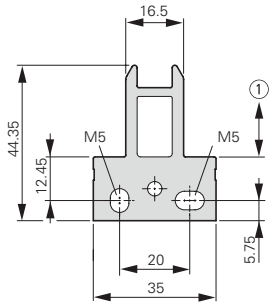


# Position Switches

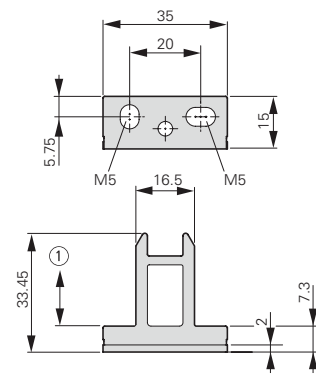
## Safety position switches

### Actuating element

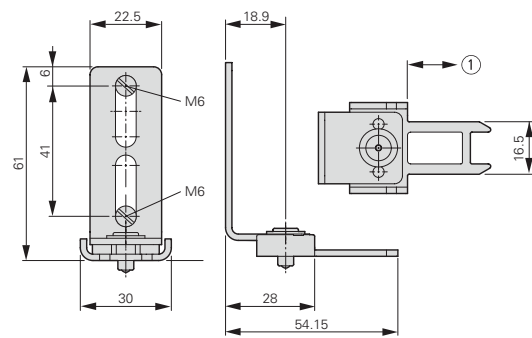
LS-XG-ZBZ



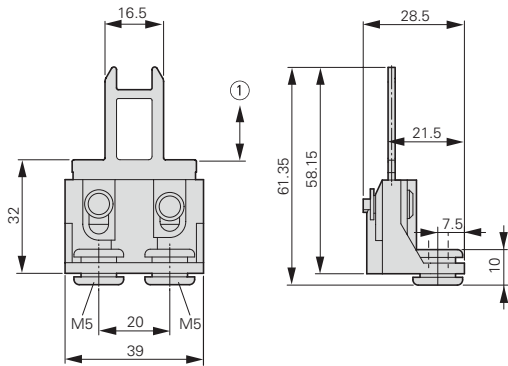
LS-XW-ZBZ



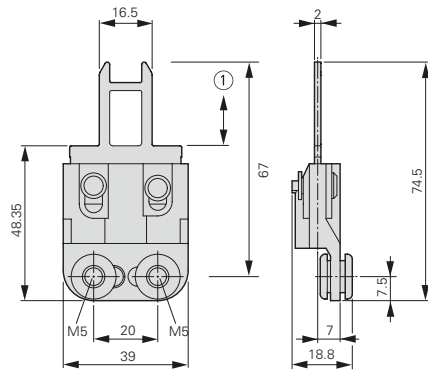
LS-XF-ZBZ



LS-XNW-ZBZ



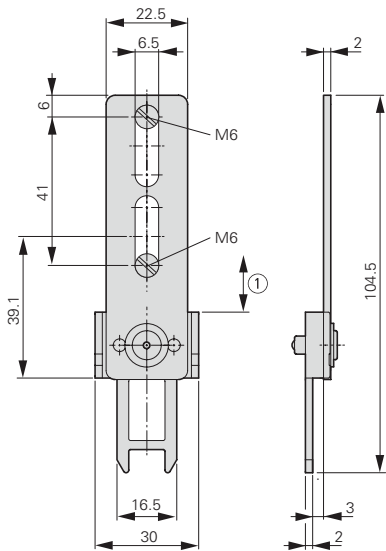
LS-XNG-ZBZ



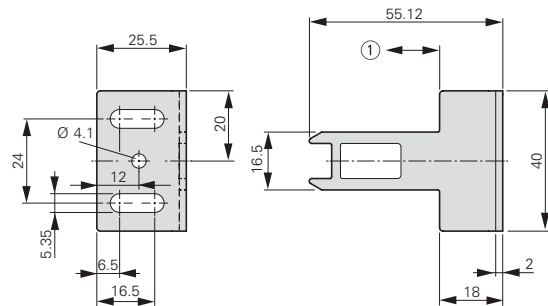
Fixing only allowed with M5 fixing screw and washer according to DIN EN ISO 7093

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

LS-XFG-ZBZ

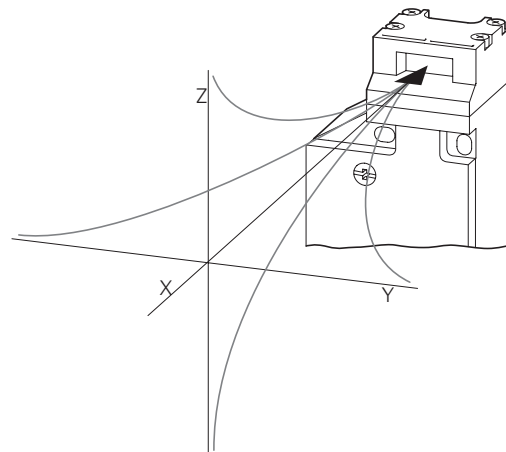


LS-XWA-ZBZ



Pin with a 4 mm pin after mounting

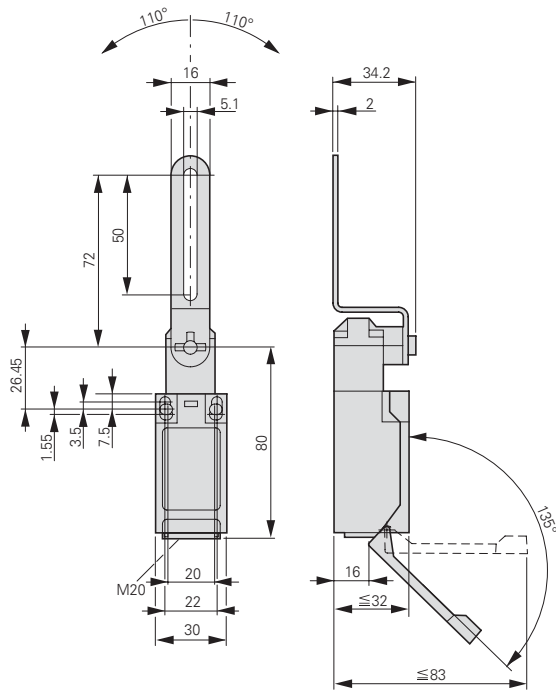
Part no.	R [mm]		
	F [N]	Z	Y
LS-XG-ZBZ	1700	350	350
LS-XW-ZBZ	1700	350	350
LS-XWA-ZBZ	1600	550	550
LS-XFG-ZBZ	1600	350	350
LS-XF-ZBZ	1600	350	350
LS-XNG-ZBZ	1700	350	350
LS-XNW-ZBZ	1200	150	250



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

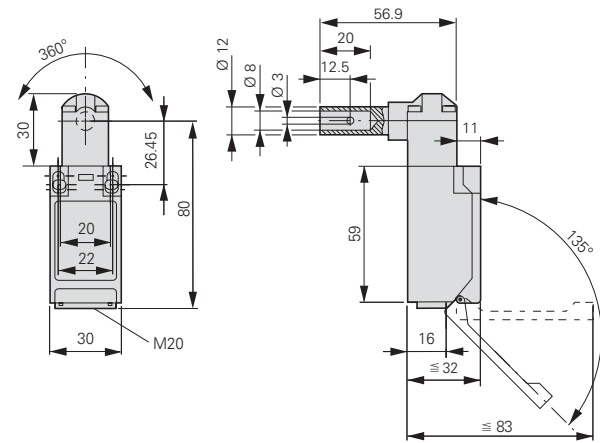
## Hasp-operated safety switches

LSR-.../TKG



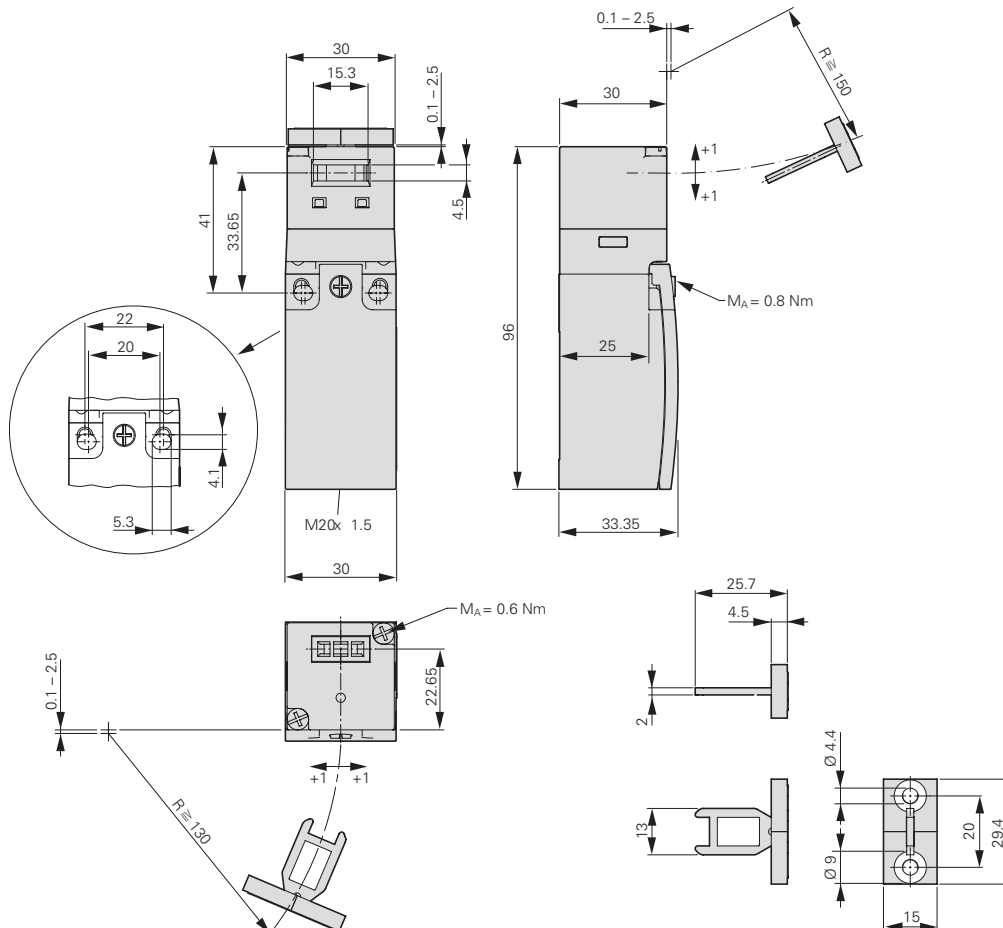
## Safety hinge switches

LSR-.../TS



## Safety position switches

LS-...-ZB



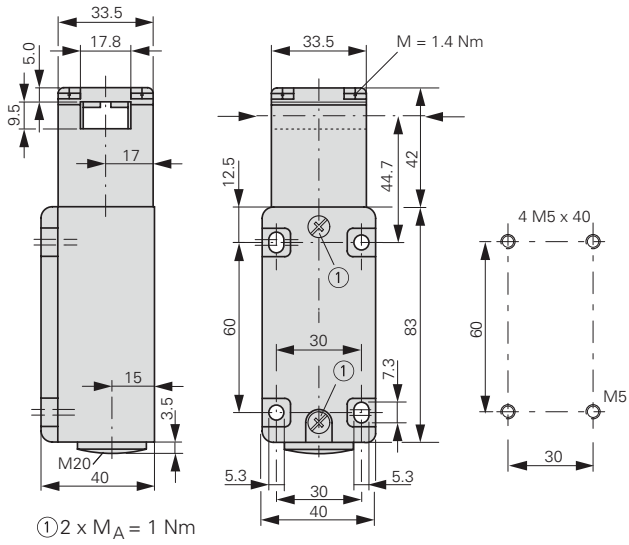
Switch must not be used as a mechanical stop.

# Position Switches

Safety position switches

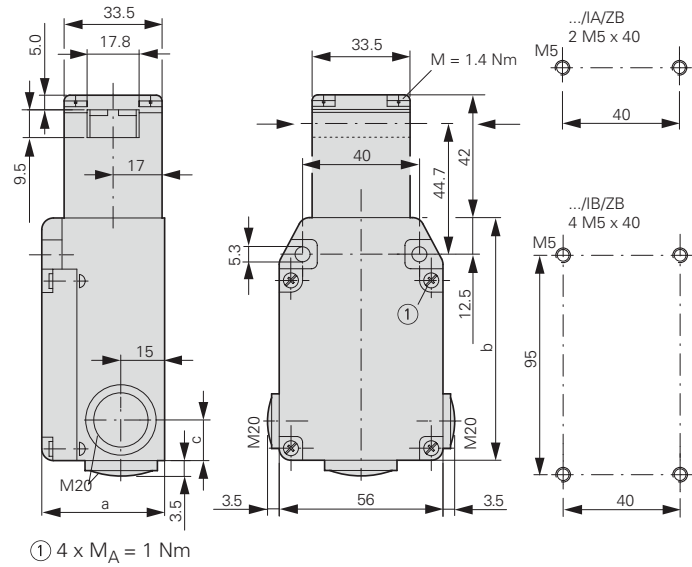
## Safety position switches

LS4...ZB



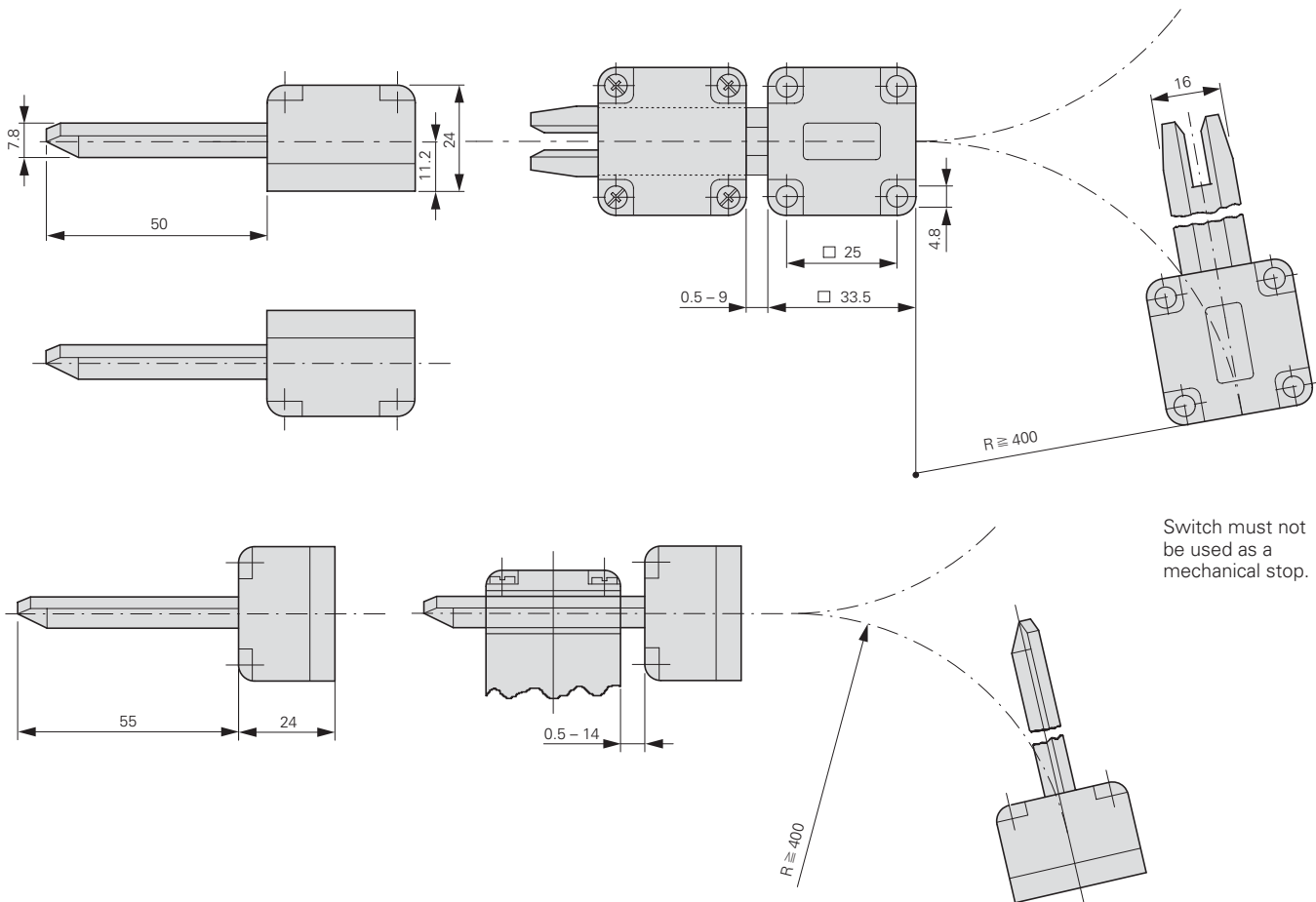
LS4/.../IA/ZB

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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