LS-Titan Miniature DIN Switches

Contents

LS-Titan Miniature DIN Switches

Product Description

Eaton's LS-Titan™ limit switch line is a complete offering of safety position switches designed for worldwide application. Economical insulated plastic or rugged metal enclosures and modular, plug-in operating heads and bodies make LS-Titan a flexible switching solution.

A highlight of the LS-Titan switch line is the world's first electronic position switch (LSE models). These switches feature freely programmable operating points that can be set individually at any time. Additional LSE models provide analog outputs proportional to the actuator position.

LS-Titan switches are suitable for use in safety applications designed to protect persons or processes.

Features

- Modular, plug-in system (head and body components)
- Positive opening NC contacts for safety applications
- Wide variety of economical plastic and rugged metal versions available
- Operating heads can be rotated 90 degrees to suit specific direction of operation
- Unique electronic safety position switches (LSE models) provide analog (0–10 Vdc or 4–20 mA) outputs proportional to the actuator position and allow for easy configuration of a custom trip point

- Can be ordered as separate components (head and body) or as completely assembled switches
- Screw and Cage Clamp® (standard on LSE models and optionally available on mechanical models) connections provide larger wiring areas for easier installation
- Approved for worldwide application

Standards and Certifications

- Safety function by positive opening contacts per IEC/EN 60947-5-1 up to Category 4 per EN 954-1
- TÜV-Rheinland Certified for Functional-Safety (LSE models)
- CSA® certified
- UL® listed
- CE
- CCC

Listed

Note: Cage Clamp is a registered trademark of Wago Kontakttechnik, 32423 Minden, Germany.

For Customer Service in the U.S. call **1-877-ETN CARE (386-2273)**, in Canada call **1-800-268-3578**.
For Application Assistance in the U.S. and Canada call **1-800-426-9184**.

For the most current information on this product, visit our web site: www.eaton.com

Product Identification
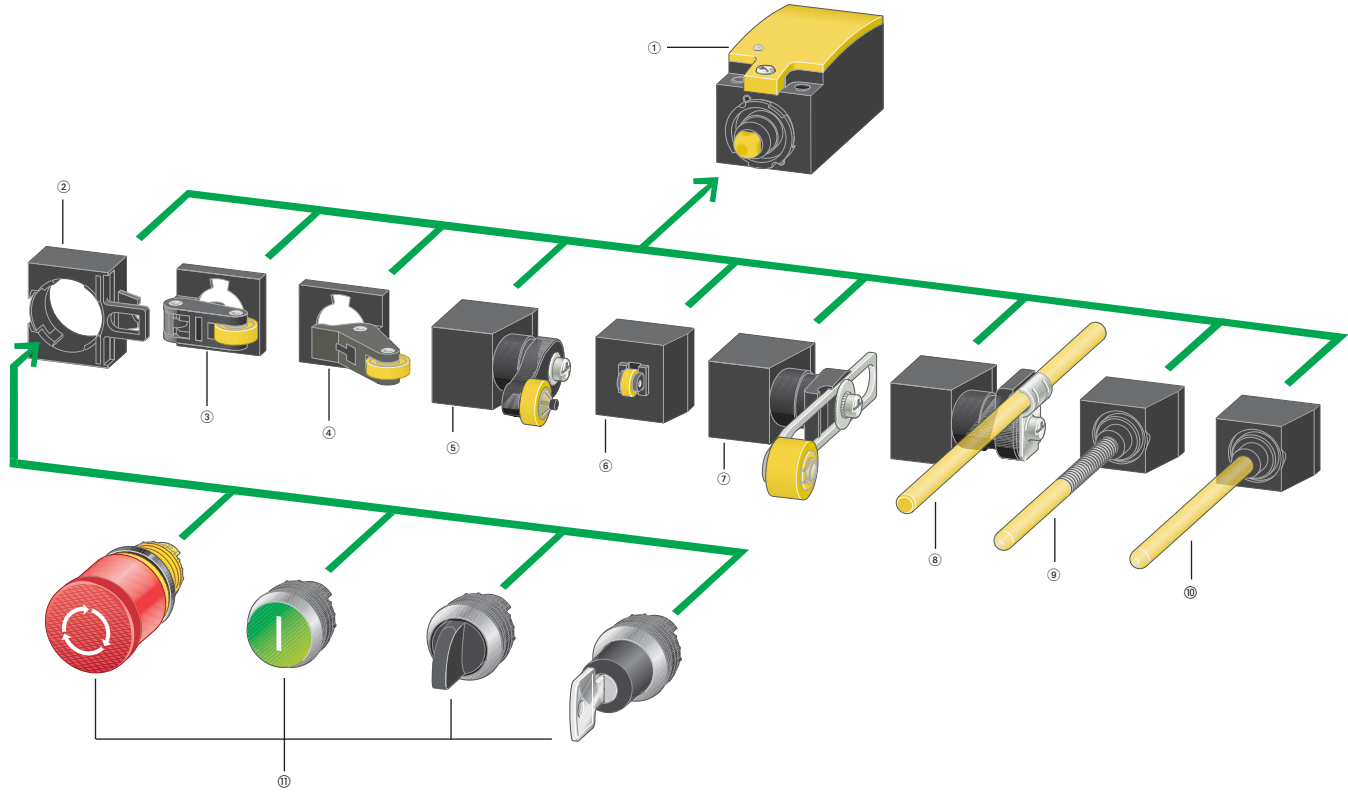
Notes

① **Basic device** (see **Pages 37–45**)
 According to EN 50047
 With screw-on cover
 Contacts: 1NO-1NC, 2NO, 2NC
 Cage Clamp, screw terminal
 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

② **Fixing adapter** (see **Page 47**)
 Allows mounting of M22 pushbuttons

③ **Roller lever** (see **Pages 37** and **40**)
 For one-sided operation with higher
 operating speed

④ **Angled roller lever**
 (see **Pages 37**, **40** and **44**)
 For actuation along the unit axis

⑤ **Rotary lever** (see **Pages 37**, **41** and **44**)
 For actuation from the side, for
 pendulum movements

⑥ **Roller plunger** (see **Pages 37**, **40**
 and **44**)
 For actuation from the side with low
 actuating force

⑦ **Adjustable roller lever**
 (see **Pages 38**, **41**, **42** and **44**)
 For length adjustment as required

⑧ **Actuating rod** (see **Pages 39**, **43**
 and **45**)
 On conveyor belts for lightweight goods

⑨ **Spring-rod** (see **Pages 39**, **43** and **45**)
 For flexible actuation from all sides

⑩ **Actuating rod** (see **Pages 39**, **43**
 and **45**)
 Withdrawable mechanism from front

⑪ Pushbuttons from the M22 family; see
 M22 catalog (CA04716001E) or
 www.eaton.com/m22

*Operating heads can be rotated
by 90 degrees.*

Product Selection

LS-Titan Plastic Safety Switches

Plastic Safety Switch Body

Assembled Switch

Plastic Safety Switches

	LS-S02	LS-S20A	LS-S11S
Switch Body Catalog Number			
Output Function	2NC with positive opening contacts	2NO with slow make/break	1NO and 1NC with positive opening contact
Terminal Connection	Screw terminal ①	Screw terminal ①	Screw terminal ①
Contact Sequence	11 21 / 12 22	13 23 / 14 24	13 21 / 14 22

Contact Travel

■ = contact closed
□ = contact open

LS-S02:
	0	3.0	6.1	
11–12				NC
21–22				NC

3.0
Zw = 4.5 mm

LS-S20A:
	0	2.1	6.1	
13–14				NO
23–24				NO

2.1
ZW = 4.5 mm

LS-S11S:
Snap-action contact
	0	3.0	6.1	
21–22				→
13–14				
21–22				←
13–14				

1.6
Zw = 5.5 mm

Operating Head Type ②

Head Only Catalog Number	Assembled Switch Catalog Number		

Operating Head	LS-XP...	LS-S02...	LS-S20A...	LS-S11S...
Top Push Roller Plunger	LS-XP	LS-S02-P	LS-S20A-P	LS-S11S-P
Long Roller Lever	LS-XL	LS-S02-L	LS-S20A-L	LS-S11S-L
Short Roller Lever	LS-XLS	LS-S02-LS	LS-S20A-LS	LS-S11S-LS
Large Roller Lever	LS-XLB	LS-S02-LB	LS-S20A-LB	LS-S11S-LB
Angled Roller	LS-XLA	LS-S02-LA	LS-S20A-LA	LS-S11S-LA
Rotary Lever	LS-XRL	LS-S02-RL	LS-S20A-RL	LS-S11S-RL

Notes
① Cage Clamp versions available. Contact Application Engineering.
② For operating head dimensions, see **Page 54**.

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Plastic Safety Switch Body

Assembled Switch

Plastic Safety Switches, continued

Switch Body Catalog Number	LS-S02	LS-S20A	LS-S11S
Output Function	2NC with positive opening contacts	2NO with slow make/break	1NO and 1NC with positive opening contact
Terminal Connection	Screw terminal [1]	Screw terminal [1]	Screw terminal [1]
Contact Sequence			

Contact Travel

■ = contact closed

□ = contact open

Operating Head Type [2]

Head Only Catalog Number	Assembled Switch Catalog Number		
LS-XRLA	**LS-S02-RLA**	**LS-S20A-RLA**	**LS-S11S-RLA**
LS-XRLA30	**LS-S02-RLA30**	**LS-S20A-RLA30**	**LS-S11S-RLA30**
LS-XRLA40	**LS-S02-RLA40**	**LS-S20A-RLA40**	**LS-S11S-RLA40**
LS-XRLA40R	**LS-S02-RLA40R**	**LS-S20A-RLA40R**	**LS-S11S-RLA40R**
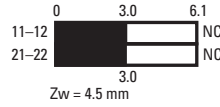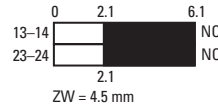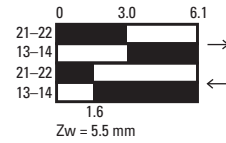
Adjustable Roller Lever (with 18 mm Roller)

Adjustable Roller Lever (with 30 mm Roller)

Adjustable Roller Lever (with 40 mm Roller)

Adjustable Roller Lever (with 40 mm Rubber Roller)

Notes

[1] Cage Clamp versions available. Contact Application Engineering.

[2] For operating head dimensions, see **Page 54**.

Plastic Safety Switch Body

Assembled Switch

Plastic Safety Switches, continued

Switch Body Catalog Number	LS-S02	LS-S20A	LS-S11S
Output Function	2NC with positive opening contacts	2NO with slow make/break	1NO and 1NC with positive opening contact
Terminal Connection	Screw terminal [1]	Screw terminal [1]	Screw terminal [1]

Contact Sequence

Contact Travel

■ = contact closed

□ = contact open

LS-S02:
```
        0      3.0    6.1
11–12 [                ] NC
21–22 [                ] NC
             3.0
        Zw = 4.5 mm
```

LS-S20A:
```
        0    2.1     6.1
13–14 [                ] NO
23–24 [                ] NO
             2.1
        ZW = 4.5 mm
```

LS-S11S: Snap-action contact
```
        0      3.0    6.1
21–22 [                ] →
13–14 [                ]
21–22 [                ] ←
13–14 [                ]
             1.6
        Zw = 5.5 mm
```

Operating Head Type [2]

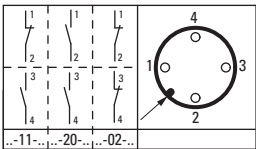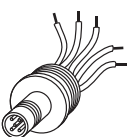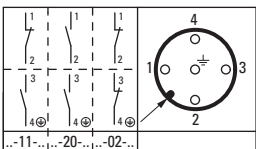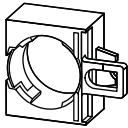| Head Only Catalog Number	Assembled Switch Catalog Number		
Plastic Rod Lever			
LS-XRR	LS-S02-RR	LS-S20A-RR	LS-S11S-RR
Metal Rod			
LS-XRRM	LS-S02-RRM	LS-S20A-RRM	LS-S11S-RRM
Spring Rod (Wobble) [3]			
LS-XS	LS-S02-S	LS-S20A-S	LS-S11S-S
Actuating Rod			
LS-XOR	LS-S02-OR	LS-S20A-OR	LS-S11S-OR
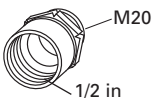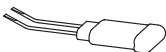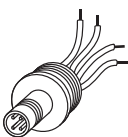
Notes

[1] Cage Clamp versions available. Contact Application Engineering.

[2] For operating head dimensions, see **Page 54**.

[3] Not to be used as a safety position switch. Use only in conjunction with snap-action contact.

Accessories

LS-Titan Safety Switches

<table>
<tr><th></th><th>For Use With</th><th>Description</th><th>Notes</th><th>Catalog Number</th></tr>
<tr><td>**V1-2-M20**</td><td>Any</td><td>M20 screw terminal in 1/2 in. For use with American pipe thread, metal.</td><td>The screw connection must be earthed. Not total insulation.</td><td>**V1-2-M20-NA**</td></tr>
<tr><td></td><td>Any</td><td>M20 screw terminal in 1/2 in. For use with American pipe thread, molded material.</td><td>—</td><td>**V1-2-M20**</td></tr>
<tr><td>**EMS20**</td><td>Any</td><td>M20 diaphragm bolt. With internal push-through membrane. Will fit cable with an external diameter of up to 13 mm. Rated IP65 with cable inserted.</td><td>—</td><td>**EMS20**</td></tr>
<tr><td>**LS-XTW**</td><td>Any</td><td>Cage Clamp tool.</td><td>—</td><td>**LS-XTW**</td></tr>
<tr><td>**M12A**</td><td>LS-Titan plastic bodies (LS-_)</td><td>Plug connector, 12 mm, 4-pin male connector M12x1 (M12x1). Rated IP65. Molded material. Color coded to IEC/EN 60947-5-2.</td><td></td><td>**MS12A**</td></tr>
<tr><td>**M12A5**</td><td>LS-Titan metal bodies (LSM-_)</td><td>Plug connector, 12 mm, 5-pin male connector (M12x1). Rated IP65. Molded material. Color coded to IEC/EN 60947-5-2.</td><td></td><td>**MS12A5**</td></tr>
<tr><td>**M22-LS**</td><td>Any</td><td>Allows mounting of M22 pushbuttons. (See the M22 catalog, CA04716001E, for a full selection of pushbuttons.)</td><td>—</td><td>**M22-LS**</td></tr>
</table>