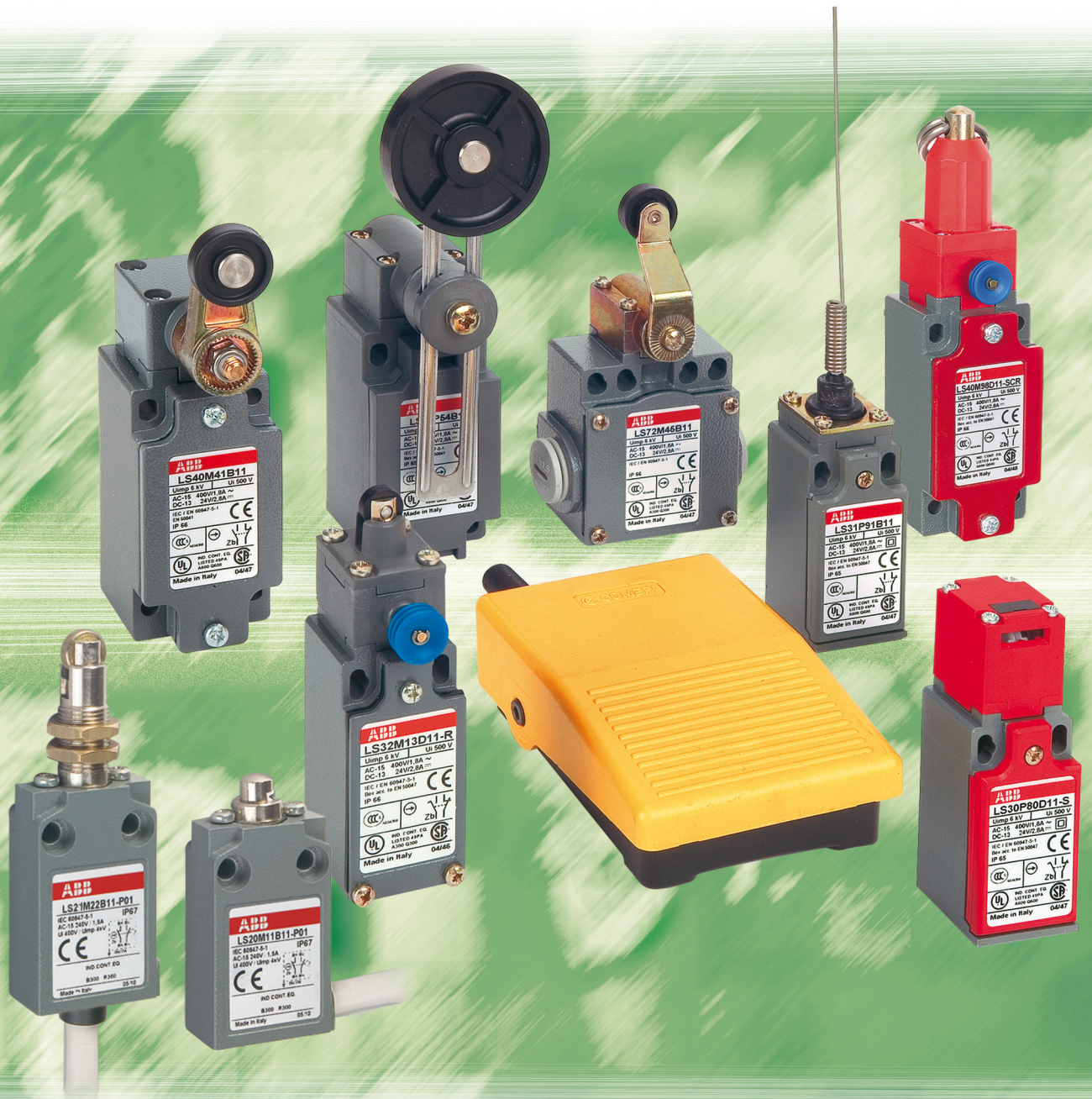


# LS Series Limit Switches







# LS Series Limit Switches Foot Switches

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# LS Series Prewired

## 30 mm width

Metal Casing IP67





Plastic Casing IP67 – Double insulation

LS2   ...







**M** = Metal casing  
**P** = Plastic casing

**0** = Cable output left / right  
**1** = Cable output bottom



Type	<b>LS2..M11, LS2..P11</b>	<b>LS2..M12, LS2..P12</b>	<b>LS2..M13, LS2..P13</b>	<b>LS2..M14, LS2..P14</b>
Actuator	Brass plain plunger	Steel roller plunger	Plastic roller plunger	Cross steel roller plunger
Action type				
CENELEC Conformity / Positive opening operation	-	-	-	-



<b>LS2..M41, LS2..P41</b>	<b>LS2..M42, LS2..P42</b>	<b>LS2..M45, LS2..P45</b>	<b>LS2..M46, LS2..P46</b>	<b>LS2..M51, LS2..P51</b>	<b>LS2..54, LS2..P54</b>
ø14 plastic roller lever	ø14 steel roller lever	ø18 plastic roller with bent lever	ø18 steel roller with bent lever	Adjustable ø18 plastic roller lever	Adjustable ø18 steel roller lever
					
-	-	-	-	-	-

## 35 mm width

Metal Casing IP67

Plastic Casing IP67 – Double insulation





LS2   ...

**M** = Metal casing  
**P** = Plastic casing





































**5** = Cable output left / right  
**6** = Cable output bottom



As the range is very large, the products shown there are the most common. For the complete range, please consult us.

Type	<b>LS2..M11, LS2..P11</b>	<b>LS2..M12, LS2..P12</b>	<b>LS2..M14, LS2..P14</b>	<b>LS2..M21, LS2..P21</b>
Actuator	Brass plain plunger	Steel roller plunger	Cross steel roller plunger	Brass plain plunger with fixing nuts
Action type				
CENELEC conformity / Positive opening operation	-	-	-	-

# Limit Switches - IP67

					
<b>LS2..M15, LS2..P15</b>	<b>LS2..M21, LS2..P21</b>	<b>LS2..M22, LS2..P22</b>	<b>LS2..M23, LS2..P23</b>	<b>LS2..M24, LS2..P24</b>	<b>LS2..M25, LS2..P25</b>
Cross plastic roller plunger	Brass plain plunger with fixing nuts	Steel roller plunger with fixing nuts	Plastic roller plunger with fixing nuts	Cross roller plunger with fixing nuts	Cross plastic roller plunger with fixing nuts
					
-	-	-	-	-	-
					
<b>LS2..M71, LS2..P71</b>	<b>LS2..M72, LS2..P72</b>	<b>LS2..M73, LS2..P73</b>	<b>LS2..M78, LS2..P78</b>	<b>LS2..M91, LS2..P91</b>	<b>LS2..M92, LS2..P92</b>
Adjustable ø3 steel rod lever	Adjustable ø3 fibre-glass rod lever	Adjustable ø6 polyamide rod lever	Adjustable ø3 steel rod lever	Spring rod	Flexible rod with insulated end
					
-	-	-	-	-	-
					
<b>LS2..M22, LS2..P22</b>	<b>LS2..M24, LS2..P24</b>	<b>LS2..M41, LS2..P41</b>	<b>LS2..M51, LS2..P51</b>	<b>LS2..M71, LS2..P71</b>	<b>LS2..M91, LS2..P91</b>
Steel roller plunger with fixing nuts	Cross steel roller lever with fixing nuts	ø14 Plastic roller lever	Adjustable ø18 plastic roller lever	Adjustable ø3 steel rod lever	Spring rod
					
-	-	-	-	-	-

# LS Series Limit Switches

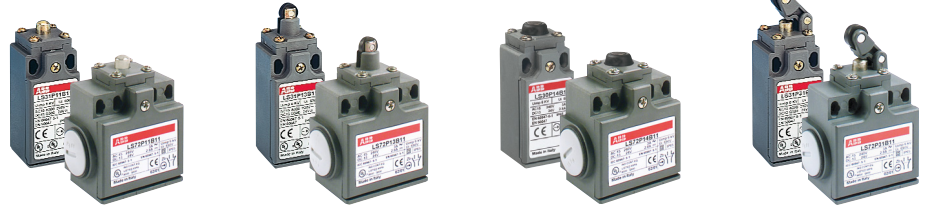
Plastic Casing IP65 - Double insulation

**30 mm** LS3 □ P...

**60 mm** LS7 □ P...

**Width**

Electrical Connection	0	= Pg 13.5
	1	= Pg 11
	2	= M16 x 1.5
	3	= M20 x 1.5
	5	= 1/2" NPT



Type	LS..P10, LS..P11	LS..P12, LS..P13	LS..P14	LS..P31
Actuator	Plain plunger	Roller plunger	Plain plunger	Roller lever
Action type				
CENELEC conformity / Positive opening operation	EN 50047	EN 50047	EN 50047	EN 50047

**Nota:** For LS7□P... (60 mm width) compatible with EN 50047 (fixing)



LS..P51, LS..P53	LS..P52	LS..P55	LS..P61	LS..P62	LS..P71, LS..P72
Adjustable roller lever	Adjustable roller lever	Adjustable roller lever	Flexible lever	Flexible lever	Adjustable rod lever
-	-	-	-	-	-

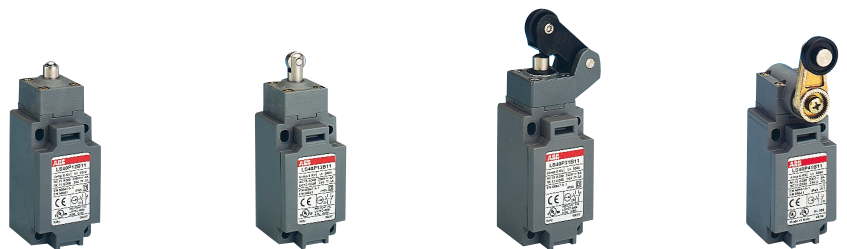
Plastic Casing IP65 - Double insulation

**40 mm** LS4 □ P...

**Width**

Electrical Connection	0	= Pg 13.5
	3	= M20 x 1.5
	5	= 1/2" NPT

As the range is very large, the products shown here are the most common. For the complete range, please consult us.



Type	LS..P11	LS..P13	LS..P31	LS..P41
Actuator	Plain plunger	Roller plunger	Roller lever	Roller lever
Action type				
CENELEC conformity / Positive opening operation	EN 50041	EN 50041	-	EN 50041

# Plastic Casing IP65



**LS..P32**

**Roller lever**

-



**LS..P35**

**Roller lever**

EN 50047



**LS..P38**

**Adjustable roller lever**

-



**LS..P41, LS..P43**

**Roller lever**

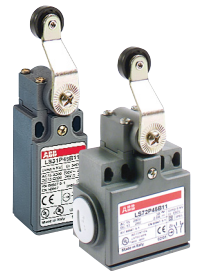
EN 50047



**LS..P42**

**Roller lever**

-



**LS..P45, LS..P46**

**Roller lever**

-



**LS..P73**

**Adjustable rod lever**

-



**LS..P74**

**Adjustable rod lever**

-



**LS..P78**

**Adjustable rod lever**

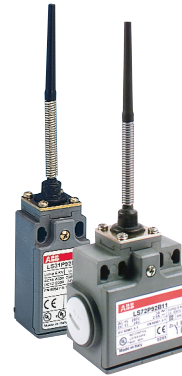
-



**LS..P91**

**Flexible rod**

-



**LS..P92**

**Flexible rod**

-



**LS..P98B11-A**

**Pull action**

-



**LS..P44**

**Roller lever**

-



**LS..P51**

**Adjustable roller levers**

-



**LS..P54**

**Adjustable roller levers**

-



**LS..P61**

**Adjustable flexible and rigid rod levers**

-



**LS..P72**

**Adjustable flexible and rigid rod levers**

EN 50041



**LS..P91**

**Flexible rod**

-

# LS Series Limit Switches

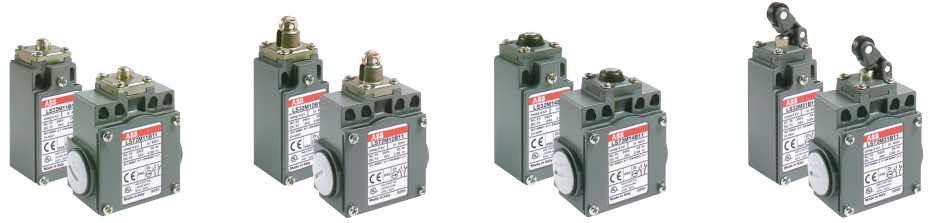
Metal Casing IP66

**30 mm** LS3 □ M...

**60 mm** LS7 □ M...

**Width**

Electrical Connection	0	= Pg 13.5
	1	= Pg 11
	2	= M16 x 1.5
	3	= M20 x 1.5
	5	= 1/2" NPT



Type	LS..M11	LS..M12, LS..M13	LS..M14	LS..M31
Actuator	Plain plunger	Roller plunger	Plain plunger	Roller lever
Action type				
CENELEC conformity / Positive opening operation	EN 50047	EN 50047	EN 50047	EN 50047

Nota: For LS7□M... (60 mm width) compatible with EN 50047 (fixing)



LS..M51, LS..M53	LS..M52	LS..M55	LS..M61	LS..M62	LS..M71, LS..M72
Adjustable roller lever	Adjustable roller lever	Adjustable roller lever	Flexible lever	Flexible lever	Adjustable rod lever
-	-	-	-	-	-

Metal Casing IP66

**40 mm** LS4 □ M...

**Width**

Electrical Connection	0	= Pg 13.5
	3	= M20 x 1.5
	5	= 1/2" NPT

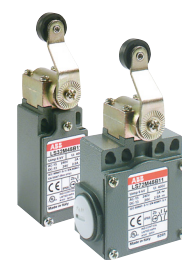
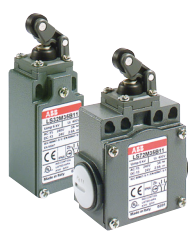


As the range is very large, the products shown here are the most common. For the complete range, please consult us.

Type	LS..M11	LS..M13	LS..M21	LS..M22	LS..M31
Actuator	Plain plunger	Roller plunger	Plain plunger	Roller plunger	Roller lever
Action type					
CENELEC conformity / Positive opening operation	EN 50041	EN 50041	EN 50041	EN 50041	-



# Metal Casing IP66



**LS..M32**

**Roller lever**



**LS..M35**

**Roller lever**



EN 50047



**LS..M38**

**Adjustable roller lever**



**LS..M41, LS..M43**

**Roller lever**



EN 50047



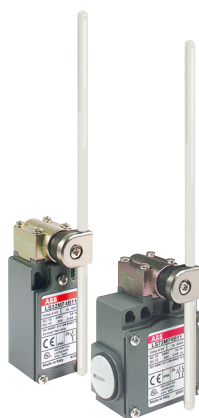
**LS..M42**

**Roller lever**



**LS..M45, LS..M46**

**Roller lever**



**LS..M73**

**Adjustable rod lever**



**LS..M74**

**Adjustable rod lever**



**LS..M78**

**Adjustable rod lever**



**LS..M91**

**Flexible rod**



**LS..M92**

**Flexible rod**



**LS..M98B11-A**

**Pull action**



**LS..M41**

**Roller lever**



EN 50041



**LS..M51**

**Adjustable roller levers**



**LS..M54**

**Adjustable roller levers**



**LS..M61**

**Adjustable flexible and rigid rod levers**



**LS..M72**

**Adjustable flexible and rigid rod levers**



EN 50041



**LS..M91**

**Flexible rod**



# LS Series Limit Switches

## Safety Limit Switches

<b>30 mm Width</b>	<b>LS 3</b>	<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">P</div> = Plastic casing  <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">M</div> = Metal casing         </div>	□ □ ...
			<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">0</div> = Pg 13.5  <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">1</div> = Pg 11  <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">2</div> = M16 x 1.5  <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">3</div> = M20 x 1.5  <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">5</div> = 1/2" NPT         </div>
<b>40 mm Width</b>	<b>LS 4</b>	<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">P</div> = Plastic casing  <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">M</div> = Metal casing         </div>	□ □ ...
			<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">0</div> = Pg 13.5  <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">3</div> = M20 x 1.5  <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">5</div> = 1/2" NPT         </div>



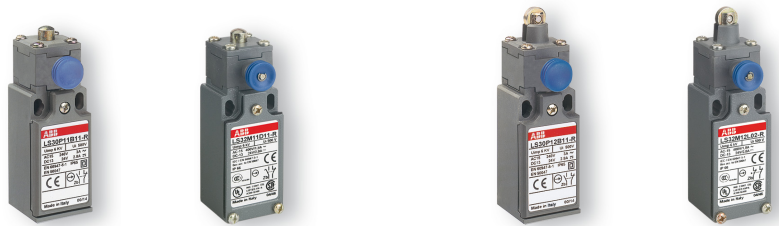
Limit Switches	<b>LS3..P80..-S</b>	<b>LS3..M80..-S</b>	<b>LS3..P81..-S</b>	<b>LS3..M81..-S</b>	<b>LS4..P80..-S</b>	<b>LS4..M80..-S</b>
Operating head options:	Adjustable head		Pivoting head		Adjustable head	
Action type: <b>Translation with small latch (key)</b>						
Positive opening operation						

## Keys

<b>Keys</b>							
	<b>Keys for LS3... limit switches</b>	<b>LSA30P03</b>	<b>LSA30P04</b>	<b>LSA30P05</b>	<b>LSA30P06</b>	<b>LSA30P07</b>	<b>LSA30P08</b>
<b>Keys for LS4... limit switches</b>			<b>LSA40X05</b>	<b>LSA40X06</b>	<b>LSA40X07</b>	<b>LSA40X08</b>	<b>LSA40X09</b>
Actuator	Right angle key	Straight key	Right angle key	Straight key	Right angle key + shock absorber	Straight key + shock absorber	Adjustable angle key
Fixing	22 mm	22 mm	13 mm	13 mm	15 mm	15 mm	40 mm

## Limit Switches with Latch and Manual Reset

<b>30 mm Width</b>	<b>LS 3</b>	<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">P</div> = Plastic casing  <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">M</div> = Metal casing         </div>	□ □ ...
			<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">0</div> = Pg 13.5  <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">1</div> = Pg 11  <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">2</div> = M16 x 1.5  <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">3</div> = M20 x 1.5  <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">5</div> = 1/2" NPT         </div>





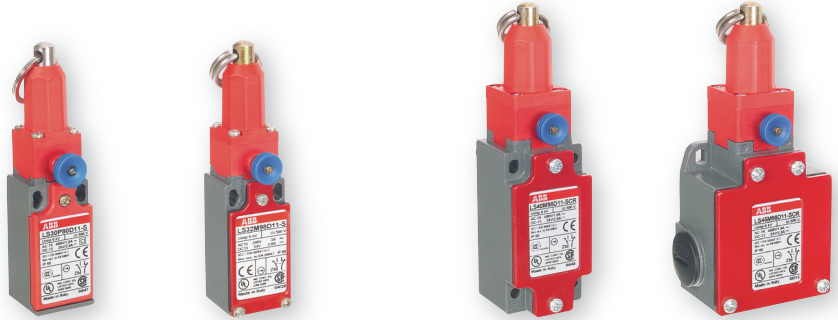
Limit Switches	<b>LS3..P11..-R</b>	<b>LS3..M11..-R</b>	<b>LS3..P12..-R</b>	<b>LS3..M12..-R</b>
Actuator:	Galvanized steel plain plunger		Galvanized steel roller plunger	
Action type				
Positive opening operation				

# Plastic Casing IP65 and Metal Casing IP66





## Safety Limit Switches with Pulling Cable



30 mm  
Width

**LS 3**   ...  
**Electrical Connection**  
 0 = Pg 13.5  
 1 = Pg 11  
 2 = M16 x 1.5  
 3 = M20 x 1.5  
 5 = 1/2" NPT





40 mm  
60 mm  
Width

**LS 4**   ...  
**LS 6**   ...  
**Electrical Connection**  
 0 = Pg 13.5  
 3 = M20 x 1.5  
 5 = 1/2" NPT



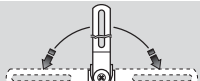

Limit Switches	<b>LS3..P98..-SCR</b> <b>LS3..M98..-SCR</b>	<b>LS4..M98..-SCR</b> <b>LS6..M98..-SCR</b>
Actuator:	By red cable	
Action type: Pulling		
Positive opening operation		











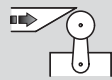



## Safety Limit Switches with Rotative Axis or with Lever

30 mm  
Width

**LS 3**   ...  
**Electrical Connection**  
 0 = Pg 13.5  
 1 = Pg 11  
 2 = M16 x 1.5  
 3 = M20 x 1.5  
 5 = 1/2" NPT

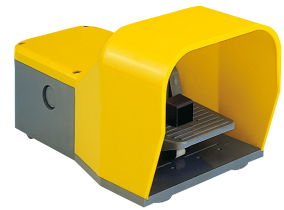
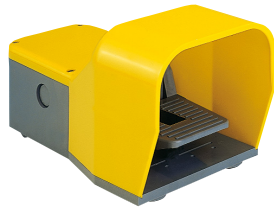


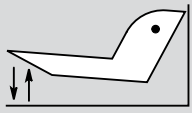
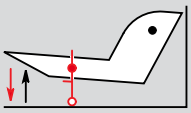
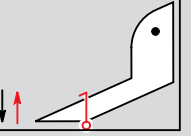
Limit Switches	<b>LS3..P75..-S</b> <b>LS3..M75..-S</b>	<b>LS3..P76..-S</b> <b>LS3..M76..-S</b>	<b>LS3..P77..-S</b> <b>LS3..M77..-S</b>
Actuator:	Galvanized steel rotative axis	Stainless steel rotative axis	Galvanized steel lever
Action type			
Positive opening operation			

							
<b>LS3..P13..-R</b>	<b>LS3..M13..-R</b>	<b>LS3..P31..-R</b>	<b>LS3..M31..-R</b>	<b>LS3..P32..-R</b>	<b>LS3..M32..-R</b>	<b>LS3..P41..-R</b>	<b>LS3..M41..-R</b>
Plastic roller plunger		Plastic roller lever on galvanized steel plunger				Rotary lever with plastic roller	
							
							

# Foot Switches with Cover

**Double insulation  
IP65**

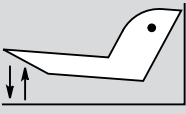
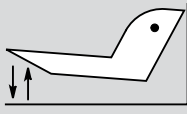


Foot Switches	<b>IPS..1..</b>	<b>IPS..2..</b>	<b>IPS..3..</b>
Actuator:	Free movement	Locked in neutral position	Latched in low position
Action type			
CENELEC conformity / Positive opening operation	-	-	-

# Mini Foot Switches



**IP40**

Mini Foot Switches	<b>IPM..1..</b>	<b>IPM..2..</b>
Actuator:	Free movement	Free movement
Action type		
CENELEC conformity / Positive opening operation	-	-



# LS Series Limit Switches Foot Switches

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# LS20P ... LS26P.. and LS20M ... LS26M.. Prewired Limit Switches

Double Insulation  - Plastic Casing IP67 or Metal Casing IP67

## Applications

Easy to use, electromechanical limit switches offer specific qualities:

- Visible operation.
- Able to switch strong currents (5 A conventional thermal current).
- Electrically separated contacts (Zb shape).
- Contact blocks with positive opening operation of the "N.C." normally closed contact(s) (symbol ⊕).
- Precise operating points (consistency).
- Immune to electromagnetic disturbances.

They are exceptional detection devices thanks to these characteristics:

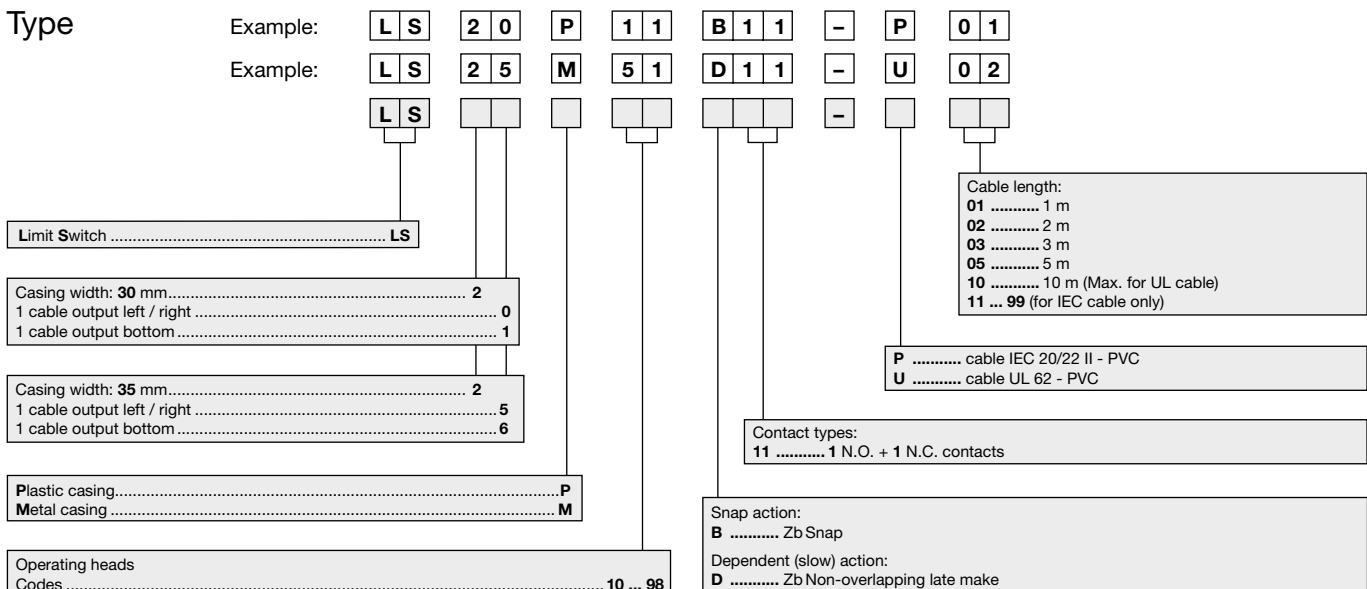
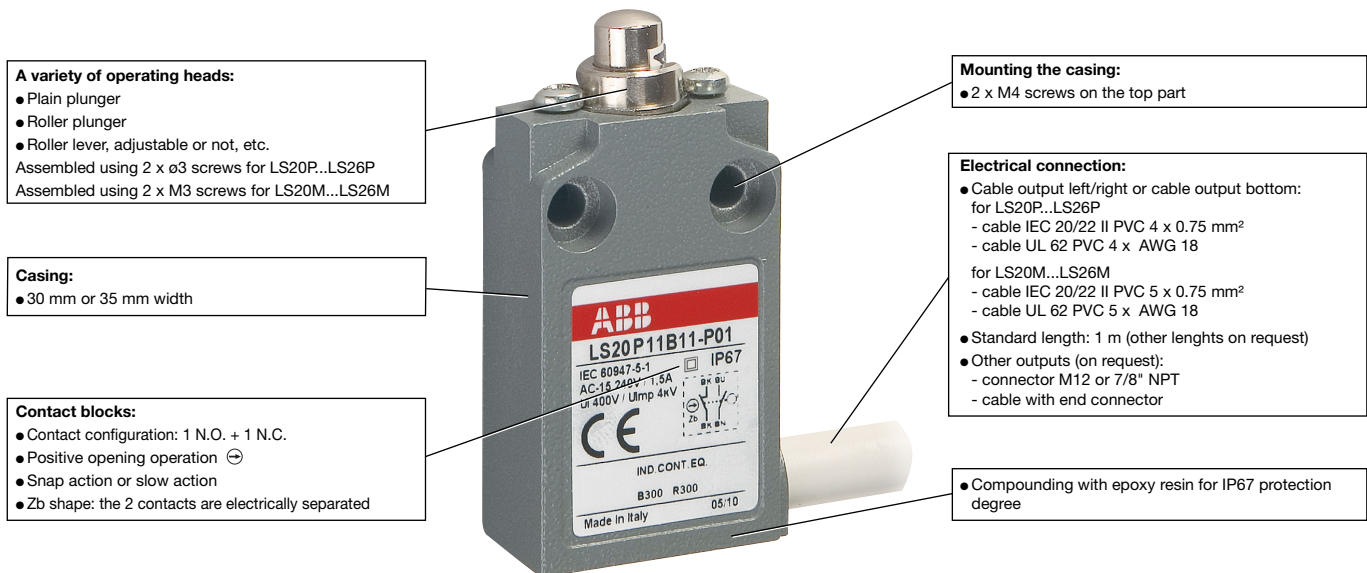
- Presence/absence.
- Positioning and travel limit.
- Objects passing/counting.

## Description

**LS20P ... LS26P** limit switches, made of fibre-glass reinforced UL-V0 thermoplastic material, sealed with epoxy resin at the base on the body, offer double insulation  and a degree of protection IP67.

**LS20M ... LS26M** limit switches, made of zinc alloy (zamack), sealed with epoxy resin at the base on the body, offer a degree of protection IP67.

The casings come in 2 dimensions: **LS20 ... LS21**, 30 mm width, **LS25 ... LS26**, 35 mm width.



# LS3..P., LS4..P. and LS7..P. Limit Switches

## Double Insulation □ - Plastic Casing IP65

### Applications

Easy to use, electromechanical limit switches offer specific qualities:

- Visible operation.
- Able to switch strong currents (10 A conventional thermal current).
- Electrically separated contacts.
- Contact blocks with positive opening operation of the "N.C." normally closed contact(s) (symbol ⊖).
- Precise operating points (consistency).
- Immune to electromagnetic disturbances.

They are exceptional detection devices thanks to these characteristics:

- Presence/absence.
- Positioning and travel limit.
- Objects passing/counting.

### Description

LS3..P., LS4..P. and LS7..P., limit switches, which are made of fibre-glass reinforced UL-V0 thermoplastic material, offer double insulation □ and a degree of protection IP65.

The casings come in 3 dimensions: **LS3..P..** 30 mm width, **LS4..P..** 40 mm width, **LS7..P..** 60 mm width.

**Cover:**

- Closed using 1 x ø3 screw for 30 & 60 mm width
- Self clipping closure for 40 mm width
- One piece sealing gasket to ensure tightness

**Mounting the casing:**

- 2 x M4 screws for 30 mm width
- 2 or 4 x M5 screws for 40 mm width
- 2 or 4 x M4 screws for 60 mm width

**Electrical connection:**

- 1 (LS30P), 1 (LS40P) or 2 (LS70P) cable inlets for Pg 13.5 cable gland
- 1 (LS31P) or 2 (LS71P) cable inlets for Pg 11 cable gland
- 1 (LS32P) or 2 (LS72P) cable inlets for ISO 16 cable gland
- 1 (LS33P), 1 (LS43P) or 2 (LS73P) cable inlets for ISO 20 cable gland
- 1 (LS35P) cable inlet by 1/2" NPT plastic adaptor
- 1 (LS45P) cable inlet for 1/2" NPT cable gland
- 1 (LS75P) cable inlet by 1/2" NPT plastic adaptor + 1 cable inlet Pg11 for additional 1/2" NPT plastic adaptor (on request)
- Suitable for conduit connection only with use of adaptor sleeve optionally provided by manufacturer. (on request)

**A variety of operating heads:**

- Plain plunger
- Roller plunger
- Roller lever, adjustable or not, etc.

Assembled using 4 x ø3 screws for 30 & 60 mm width  
Assembled using 4 x ø4 screws for 40 mm width

**Casing:**

- 30 mm width with standardized dimensions according to EN 50047
- 40 mm width with standardized dimensions according to EN 50041
- 60 mm width compatible with EN 50047 (Fixing)

**Block of 2 contacts:**

- Contact configuration: 1 N.O. + 1 N.C., 2 N.O., 2 N.C.
- Positive opening operation ⊖
- Snap action or slow action
- The 2 contacts are electrically separated

**Connecting terminals:**

- M3.5 (+,-) pozidriv 2 screw (Screw head with captive cable clamp)
- Markings conform with IEC 60947-1, IEC 60947-5-1, EN 50005 and EN 50013 standards

### Type

Example:



Limit Switch.....	LS
Casing width: 30 mm.....	3
1 cable inlet for Pg 13.5 cable gland .....	0
1 cable inlet for Pg 11 cable gland .....	1
1 cable inlet M16 x 1.5 for ISO 16 cable gland .....	2
1 cable inlet M20 x 1.5 for ISO 20 cable gland .....	3
1 cable inlet by 1/2" NPT plastic adaptor delivered not mounted.....	5
Casing width: 40 mm.....	4
1 cable inlet for Pg 13.5 cable gland .....	0
1 cable inlet M20 x 1.5 for ISO 20 cable gland .....	3
1 cable inlet for 1/2" NPT cable gland.....	5
Casing width: 60 mm.....	7
2 cable inlets for Pg 13.5 cable gland .....	0
2 cable inlets for Pg 11 cable gland .....	1
2 cable inlets M16 x 1.5 for ISO 16 cable gland.....	2
2 cable inlets M20 x 1.5 for ISO 20 cable gland.....	3
1 cable inlet by 1/2" NPT plastic adaptor + 1 cable inlet Pg 11 for additional 1/2" NPT plastic adaptor (on request).....	5

Contact types:

11 .....	1 N.O. + 1 N.C. contacts
20 .....	2 N.O. contacts
02 .....	2 N.C. contacts

Snap action:

B .....	Zb Snap (except for 2 N.O. contacts)
---------	--------------------------------------

Dependent (slow) action:

L .....	Slow / Simultaneous
D .....	Zb Non-overlapping late make
C .....	Zb Overlapping early make

Operating heads: (see panorama)  
10 ... 98 ..... Codes

P ..... Plastic casing



# LS3..M.., LS4..M.. and LS7..M.. Limit Switches

## Metal Casing IP66

### Applications

Easy to use, electromechanical limit switches offer specific qualities:

- Visible operation.
- Able to switch strong currents (10 A conventional thermal current).
- Electrically separated contacts.
- Contact blocks with positive opening operation of the "N.C." normally closed contact(s) (symbol ⊖).
- Precise operating points (consistency).
- Immune to electromagnetic disturbances.

They are exceptional detection devices thanks to these characteristics:

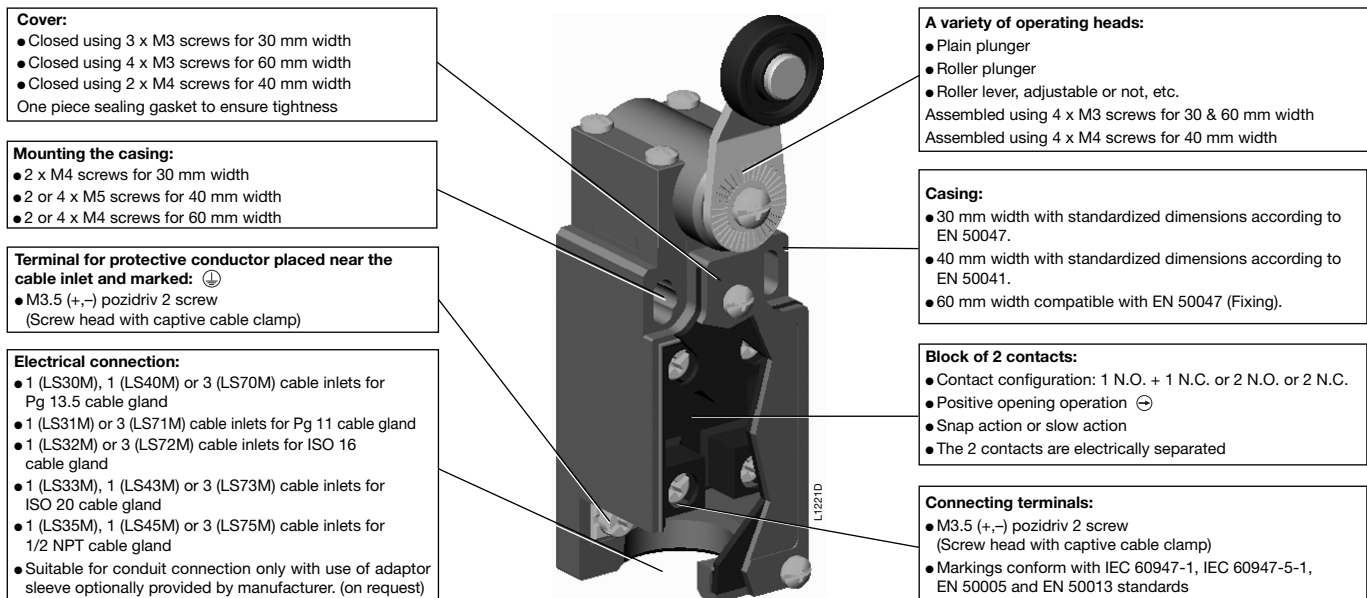
- Presence/absence.
- Positioning and travel limit.
- Objects passing/counting.

### Description

Limit switches, **LS3..M..** and **LS7..M..**, which are made of zinc alloy (zamack), have a degree of protection IP66.

Limit switches, **LS4..M..**, which are made of aluminium alloy, have a degree of protection IP66.

The casings come in 3 dimensions: **LS3..M...** 30 mm width, **LS4..M...** 40 mm width, **LS7..M...** 60 mm width.

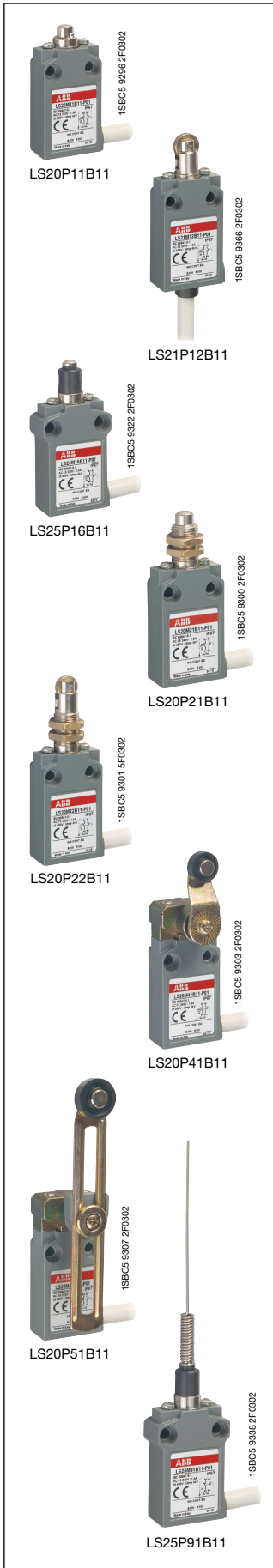


Type	Example:	LS	3 2	M	4 1	B 1 1
Limit Switch	LS	LS		M		
Casing width: 30 mm	3		3			
1 cable inlet for Pg 13.5 cable gland	0		0			
1 cable inlet for Pg 11 cable gland	1		1			
1 cable inlet M16 x 1.5 for ISO 16 cable gland	2		2			
1 cable inlet M20 x 1.5 for ISO 20 cable gland	3		3			
1 cable inlet for 1/2" NPT cable gland	5		5			
Casing width: 40 mm	4			4		
1 cable inlet for Pg 13.5 cable gland	0			0		
1 cable inlet M20 x 1.5 for ISO 20 cable gland	3			3		
1 cable inlet for 1/2" NPT cable gland	5			5		
Casing width: 60 mm (new casing)	7					7
3 cable inlets for Pg 13.5 cable gland	0					0
3 cable inlets for Pg 11 cable gland	1					1
3 cable inlets M16 x 1.5 for ISO 16 cable gland	2					2
3 cable inlets M20 x 1.5 for ISO 20 cable gland	3					3
3 cable inlets for 1/2" NPT cable gland	5					5
Contact types:						
11	1 N.O. + 1 N.C. contacts					
20	2 N.O. contacts					
02	2 N.C. contacts					
Snap action:						
B	Zb Snap (except for 2 N.O. contacts)					
Dependent (slow) action:						
L	Slow / Simultaneous					
D	Zb Non-overlapping late make					
C	Zb Overlapping early make					
Operating heads: (see panorama)						
10 ... 98	Codes					
M	Metal casing					



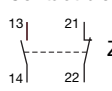
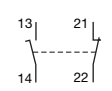
# LS2..P.. Limit Switches

Double insulation  - Plastic Casing IP67  
30 mm and 35 mm Width



LS20P: 1 cable output left / right .....	0	5	9	Plastic Casing - IP67 <b>30 mm Width</b>
LS21P: 1 cable output bottom .....	1	6	0	
LS25P: 1 cable output left / right .....	5	6	7	Plastic Casing - IP67 <b>35 mm Width</b>
LS26P: 1 cable output bottom .....	6	6	8	

## Ordering Details

Contact blocks	Type	Order code	Weight kg (1)(2)	Pack <sup>ing</sup> 1 piece
	B11	state cable output code		
	D11	state cable output code		

### Brass plain plunger (nickel plated)

1	-	LS2 <input type="checkbox"/> P11B11-P <input type="checkbox"/>	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 11R32 <input type="checkbox"/>	0.125
1	-	LS2 <input type="checkbox"/> P11B11-U <input type="checkbox"/>	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 11R38 <input type="checkbox"/>	0.125
-	1	LS2 <input type="checkbox"/> P11D11-P <input type="checkbox"/>	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 11R33 <input type="checkbox"/>	0.125
-	1	LS2 <input type="checkbox"/> P11D11-U <input type="checkbox"/>	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 11R39 <input type="checkbox"/>	0.125

### Steel roller plunger (zinc plated)

1	-	LS2 <input type="checkbox"/> P12B11-P <input type="checkbox"/>	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 12R32 <input type="checkbox"/>	0.130
1	-	LS2 <input type="checkbox"/> P12B11-U <input type="checkbox"/>	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 12R38 <input type="checkbox"/>	0.130
-	1	LS2 <input type="checkbox"/> P12D11-P <input type="checkbox"/>	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 12R33 <input type="checkbox"/>	0.130
-	1	LS2 <input type="checkbox"/> P12D11-U <input type="checkbox"/>	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 12R39 <input type="checkbox"/>	0.130

### Brass plain plunger (nickel plated) with dust protection

1	-	LS2 <input type="checkbox"/> P16B11-P <input type="checkbox"/>	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 16R32 <input type="checkbox"/>	0.125
1	-	LS2 <input type="checkbox"/> P16B11-U <input type="checkbox"/>	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 16R38 <input type="checkbox"/>	0.125
-	1	LS2 <input type="checkbox"/> P16D11-P <input type="checkbox"/>	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 16R33 <input type="checkbox"/>	0.125
-	1	LS2 <input type="checkbox"/> P16D11-U <input type="checkbox"/>	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 16R39 <input type="checkbox"/>	0.125

### Brass plain plunger (zinc plated) with fixing nuts

1	-	LS2 <input type="checkbox"/> P21B11-P <input type="checkbox"/>	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 21R32 <input type="checkbox"/>	0.140
1	-	LS2 <input type="checkbox"/> P21B11-U <input type="checkbox"/>	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 21R38 <input type="checkbox"/>	0.140
-	1	LS2 <input type="checkbox"/> P21D11-P <input type="checkbox"/>	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 21R33 <input type="checkbox"/>	0.140
-	1	LS2 <input type="checkbox"/> P21D11-U <input type="checkbox"/>	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 21R39 <input type="checkbox"/>	0.140

### Steel roller plunger (zinc plated) with fixing nuts

1	-	LS2 <input type="checkbox"/> P22B11-P <input type="checkbox"/>	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 22R32 <input type="checkbox"/>	0.145
1	-	LS2 <input type="checkbox"/> P22B11-U <input type="checkbox"/>	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 22R38 <input type="checkbox"/>	0.145
-	1	LS2 <input type="checkbox"/> P22D11-P <input type="checkbox"/>	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 22R33 <input type="checkbox"/>	0.145
-	1	LS2 <input type="checkbox"/> P22D11-U <input type="checkbox"/>	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 22R39 <input type="checkbox"/>	0.145

### ø14 plastic (polyacetal) roller lever

1	-	LS2 <input type="checkbox"/> P41B11-P <input type="checkbox"/>	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 41R32 <input type="checkbox"/>	0.175
1	-	LS2 <input type="checkbox"/> P41B11-U <input type="checkbox"/>	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 41R38 <input type="checkbox"/>	0.175
-	1	LS2 <input type="checkbox"/> P41D11-P <input type="checkbox"/>	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 41R33 <input type="checkbox"/>	0.175
-	1	LS2 <input type="checkbox"/> P41D11-U <input type="checkbox"/>	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 41R39 <input type="checkbox"/>	0.175

### Adjustable ø18 plastic (polyacetal) roller lever

1	-	LS2 <input type="checkbox"/> P51B11-P <input type="checkbox"/>	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 51R32 <input type="checkbox"/>	0.190
1	-	LS2 <input type="checkbox"/> P51B11-U <input type="checkbox"/>	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 51R38 <input type="checkbox"/>	0.190
-	1	LS2 <input type="checkbox"/> P51D11-P <input type="checkbox"/>	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 51R33 <input type="checkbox"/>	0.190
-	1	LS2 <input type="checkbox"/> P51D11-U <input type="checkbox"/>	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 51R39 <input type="checkbox"/>	0.190

### Spring rod

1	-	LS2 <input type="checkbox"/> P91B11-P <input type="checkbox"/>	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 91R32 <input type="checkbox"/>	0.190
1	-	LS2 <input type="checkbox"/> P91B11-U <input type="checkbox"/>	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 91R38 <input type="checkbox"/>	0.190
-	1	LS2 <input type="checkbox"/> P91D11-P <input type="checkbox"/>	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 91R33 <input type="checkbox"/>	0.190
-	1	LS2 <input type="checkbox"/> P91D11-U <input type="checkbox"/>	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 91R39 <input type="checkbox"/>	0.190

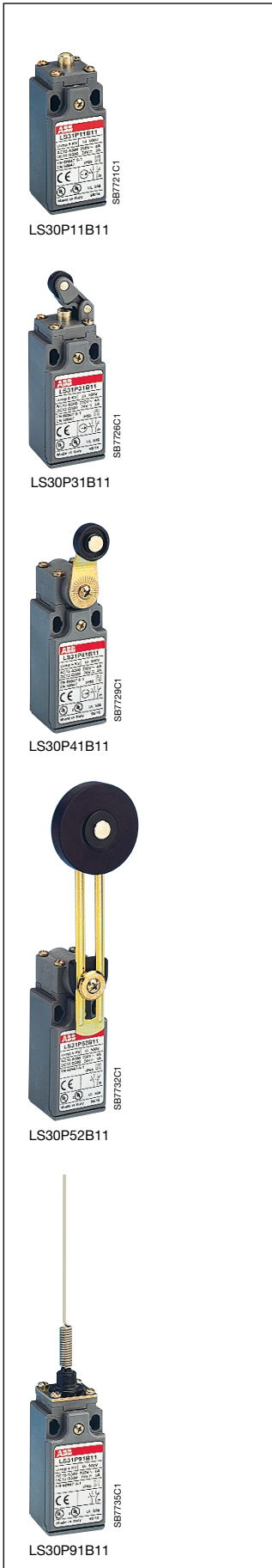
(1) With LS25 & LS26 add extra 0.005 kg - (2) With 1 m of cable (add 0.07 kg by extra meter length)

Length cable code		(Other length on request)
Cable length	Code	Code
1 m	0 1	0 1
2 m	0 2	0 2
5 m	0 5	0 5
10 m	1 0	1 0

Note: -P   = cable IEC 20/22 II PVC, -U   = cable UL 62 PVC maxi. 10 m

# LS3..P.. Limit Switches

Double Insulation  - Plastic Casing IP65 - 30 mm Width



LS30P: 1 cable inlet for Pg 13.5 cable gland ..... 0 ..... 0 2  
 LS31P: 1 cable inlet for Pg 11 cable gland ..... 1 ..... 0 1  
 LS32P: 1 cable inlet for ISO 16 cable gland ..... 2 ..... 0 3  
 LS33P: 1 cable inlet for ISO 20 cable gland ..... 3 ..... 2 2  
 LS35P: 1 cable inlet by 1/2" NPT plastic adaptor .. 5 ..... 2 1

## Ordering Details

Contact blocks	Type	Order code	Weight kg (1)	Pack <sup>(1)</sup> 1 piece
 B11	 D11	state cable inlet code <input type="checkbox"/>	state cable inlet code <input type="checkbox"/>	

### Steel plain plunger (zinc plated)

1	-	LS3 <input type="checkbox"/> P11B11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 11R1211	0.070
-	1	LS3 <input type="checkbox"/> P11D11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 11R1411	0.070

### ø11 plastic (polyacetal) roller plunger

1	-	LS3 <input type="checkbox"/> P13B11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 13R1211	0.070
-	1	LS3 <input type="checkbox"/> P13D11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 13R1411	0.070

### ø12.5 plastic (polyacetal) roller lever on steel plunger (zinc plated) horizontal action

1	-	LS3 <input type="checkbox"/> P31B11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 31R1211	0.070
-	1	LS3 <input type="checkbox"/> P31D11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 31R1411	0.070

### ø12.5 plastic (polyacetal) roller lever on steel plunger (zinc plated) vertical action

1	-	LS3 <input type="checkbox"/> P32B11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 32R1211	0.075
-	1	LS3 <input type="checkbox"/> P32D11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 32R1411	0.075

### ø18 plastic (polyacetal) roller lever

1	-	LS3 <input type="checkbox"/> P41B11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 41R1211	0.090
-	1	LS3 <input type="checkbox"/> P41D11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 41R1411	0.090

### ø50 rubber roller lever

1	-	LS3 <input type="checkbox"/> P42B11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 42R1211	0.120
-	1	LS3 <input type="checkbox"/> P42D11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 42R1411	0.120

### Adjustable ø18 plastic (polyacetal) roller lever

1	-	LS3 <input type="checkbox"/> P51B11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 51R1211	0.100
-	1	LS3 <input type="checkbox"/> P51D11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 51R1411	0.100

### Adjustable ø50 rubber roller lever

1	-	LS3 <input type="checkbox"/> P52B11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 52R1211	0.130
-	1	LS3 <input type="checkbox"/> P52D11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 52R1411	0.130

### Adjustable ø3 fibre-glass rod lever

1	-	LS3 <input type="checkbox"/> P72B11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 72R1211	0.100
-	1	LS3 <input type="checkbox"/> P72D11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 72R1411	0.100

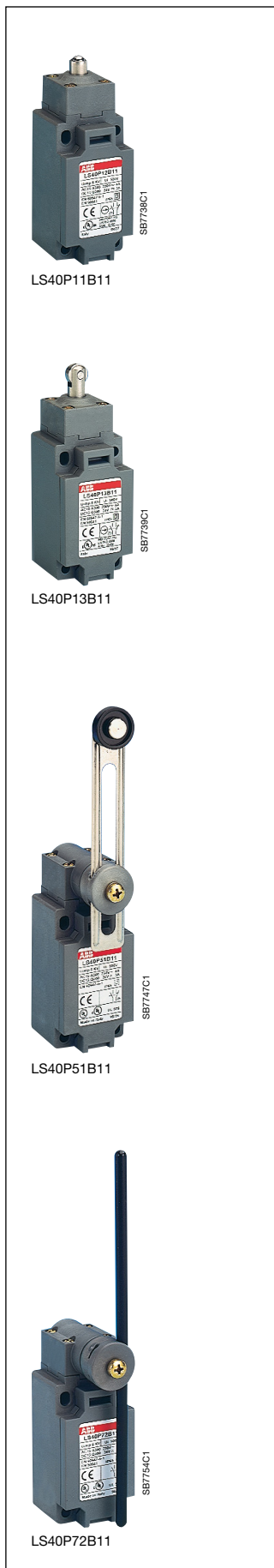
### Spring rod

1	-	LS3 <input type="checkbox"/> P91B11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 91R1211	0.080
-	1	LS3 <input type="checkbox"/> P91D11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 91R1411	0.080

(1) For LS35P add 0.007 kg

# LS4..P.. Limit Switches

Double Insulation □ - Plastic Casing IP65 - 40 mm Width



LS40P: 1 cable inlet for Pg 13.5 cable gland ..... 0 ..... 0 5  
 LS43P: 1 cable inlet for ISO 20 cable gland ..... 3 ..... 0 7  
 LS45P: 1 cable inlet for 1/2" NPT cable gland ..... 5 ..... 2 4

## Ordering Details

Contact blocks	Type	Order code	Weight kg
 B11	 D11	state cable inlet code □ □	Pack <sup>ing</sup> 1 piece

### Steel plain plunger (zinc plated)

1	-	LS4 □ P11B11	1SBV01 □ □ 11R1211	0.140
-	1	LS4 □ P11D11	1SBV01 □ □ 11R1411	0.140

### ø12 stainless steel roller plunger

1	-	LS4 □ P13B11	1SBV01 □ □ 13R1211	0.145
-	1	LS4 □ P13D11	1SBV01 □ □ 13R1411	0.145

### ø22 plastic (polyacetal) roller lever on steel plunger

1	-	LS4 □ P31B11	1SBV01 □ □ 31R1211	0.175
-	1	LS4 □ P31D11	1SBV01 □ □ 31R1411	0.175

### ø22 plastic (polyacetal) roller lever

1	-	LS4 □ P41B11	1SBV01 □ □ 41R1211	0.185
-	1	LS4 □ P41D11	1SBV01 □ □ 41R1411	0.185

### ø50 rubber roller lever

1	-	LS4 □ P44B11	1SBV01 □ □ 44R1211	0.205
-	1	LS4 □ P44D11	1SBV01 □ □ 44R1411	0.205

### Adjustable ø22 plastic (polyacetal) roller lever

1	-	LS4 □ P51B11	1SBV01 □ □ 51R1211	0.190
-	1	LS4 □ P51D11	1SBV01 □ □ 51R1411	0.190

### Adjustable ø50 rubber roller lever

1	-	LS4 □ P54B11	1SBV01 □ □ 54R1211	0.200
-	1	LS4 □ P54D11	1SBV01 □ □ 54R1411	0.200

### Adjustable ø6 plastic (polyacetal) rod lever

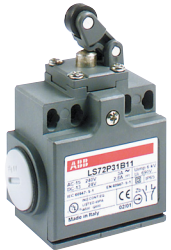
1	-	LS4 □ P72B11	1SBV01 □ □ 72R1211	0.185
-	1	LS4 □ P72D11	1SBV01 □ □ 72R1411	0.185

# LS7..P.. Limit Switches

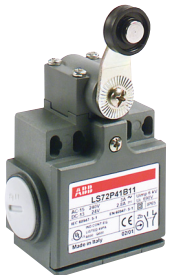
Double Insulation  - Plastic Casing IP65 - 60 mm Width



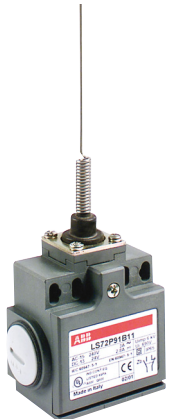
LS72P11B11



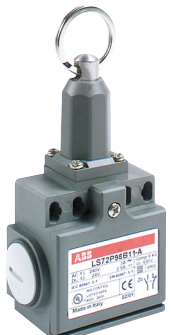
LS72P31B11



LS72P41B11



LS72P91B11



LS72P98B11-A

LS70P: 2 cable inlets for Pg 13.5 cable gland .....0..... 09  
 LS71P: 2 cable inlets for Pg 11 cable gland .....1..... 08  
 LS72P: 2 cable inlets for ISO 16 cable gland .....2..... 10  
 LS73P: 2 cable inlets for ISO 20 cable gland .....3..... 28  
 LS75P: 1 cable inlet by 1/2" NPT plastic adaptor + 1 cable inlet Pg 11  
 for additional 1/2" NPT plastic adaptor .....5..... 27

## Ordering Details

Contact blocks	Type	Order code	Weight kg (1)	Pack <sup>(1)</sup>
B11	D11	state cable inlet code <input type="checkbox"/>	state cable inlet code <input type="checkbox"/>	1 piece

### Steel plain plunger (zinc plated)

1	-	LS7 <input type="checkbox"/> P11B11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 11R1211	0.100
-	1	LS7 <input type="checkbox"/> P11D11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 11R1411	0.100

### ø11 plastic (polyacetal) roller plunger

1	-	LS7 <input type="checkbox"/> P13B11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 13R1211	0.100
-	1	LS7 <input type="checkbox"/> P13D11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 13R1411	0.100

### ø12.5 plastic (polyacetal) roller lever on steel plunger (zinc plated)

1	-	LS7 <input type="checkbox"/> P31B11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 31R1211	0.105
-	1	LS7 <input type="checkbox"/> P31D11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 31R1411	0.105

### ø18 plastic (polyacetal) roller lever

1	-	LS7 <input type="checkbox"/> P41B11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 41R1211	0.125
-	1	LS7 <input type="checkbox"/> P41D11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 41R1411	0.125

### ø50 rubber roller lever

1	-	LS7 <input type="checkbox"/> P42B11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 42R1211	0.145
-	1	LS7 <input type="checkbox"/> P42D11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 42R1411	0.145

### Adjustable ø18 plastic (polyacetal) roller lever

1	-	LS7 <input type="checkbox"/> P51B11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 51R1211	0.135
-	1	LS7 <input type="checkbox"/> P51D11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 51R1411	0.135

### Adjustable ø50 rubber roller lever

1	-	LS7 <input type="checkbox"/> P52B11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 52R1211	0.155
-	1	LS7 <input type="checkbox"/> P52D11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 52R1411	0.155

### Adjustable ø3 fibre-glass rod lever

1	-	LS7 <input type="checkbox"/> P72B11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 72R1211	0.120
-	1	LS7 <input type="checkbox"/> P72D11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 72R1411	0.120

### Spring rod

1	-	LS7 <input type="checkbox"/> P91B11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 91R1211	0.110
-	1	LS3 <input type="checkbox"/> P91D11	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 91R1411	0.110

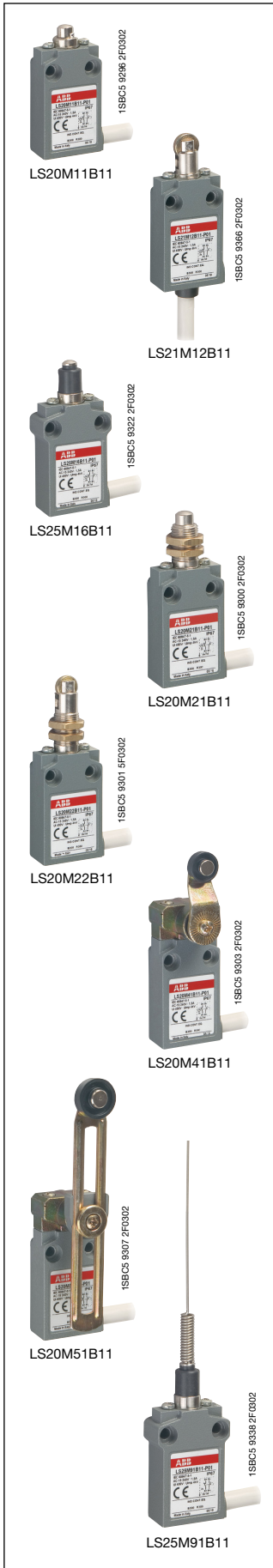
### Pull action with ring

1	-	LS7 <input type="checkbox"/> P98B11-A	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 98R1211	0.145
-	1	LS7 <input type="checkbox"/> P98D11-A	1SBV01 <input type="checkbox"/> <input type="checkbox"/> 98R1411	0.145

(1) For LS75P add 0.007 kg

# LS2..M.. Limit Switches

Metal Casing IP67 - 30 mm and 35 mm Width



LS20M: 1 cable output left / right	0	5	5	Metal Casing - IP67 <b>30 mm Width</b>
LS21M: 1 cable output bottom	1	5	6	
LS25M: 1 cable output left / right	5	6	3	Metal Casing - IP67 <b>35 mm Width</b>
LS26M: 1 cable output bottom	6	6	4	

## Ordering Details

Contact blocks	Type	Order code	Weight kg (1)(2)	Pack <sup>ing</sup> 1 piece
 B11	 D11	see table below state cable output code		

### Brass plain plunger (nickel plated)

1	-	LS2 □ M11B11-P □ □	1SBV01 □ □ 11R20 □ □	0.175
1	-	LS2 □ M11B11-U □ □	1SBV01 □ □ 11R26 □ □	0.175
-	1	LS2 □ M11D11-P □ □	1SBV01 □ □ 11R21 □ □	0.175
-	1	LS2 □ M11D11-U □ □	1SBV01 □ □ 11R27 □ □	0.175

### Steel roller plunger (zinc plated)

1	-	LS2 □ M12B11-P □ □	1SBV01 □ □ 12R20 □ □	0.180
1	-	LS2 □ M12B11-U □ □	1SBV01 □ □ 12R26 □ □	0.180
-	1	LS2 □ M12D11-P □ □	1SBV01 □ □ 12R21 □ □	0.180
-	1	LS2 □ M12D11-U □ □	1SBV01 □ □ 12R27 □ □	0.180

### Brass plain plunger (nickel plated) with dust protection

1	-	LS2 □ M16B11-P □ □	1SBV01 □ □ 16R20 □ □	0.175
1	-	LS2 □ M16B11-U □ □	1SBV01 □ □ 16R26 □ □	0.175
-	1	LS2 □ M16D11-P □ □	1SBV01 □ □ 16R21 □ □	0.175
-	1	LS2 □ M16D11-U □ □	1SBV01 □ □ 16R27 □ □	0.175

### Brass plain plunger (nickel plated) with fixing nuts

1	-	LS2 □ M21B11-P □ □	1SBV01 □ □ 21R20 □ □	0.190
1	-	LS2 □ M21B11-U □ □	1SBV01 □ □ 21R26 □ □	0.190
-	1	LS2 □ M21D11-P □ □	1SBV01 □ □ 21R21 □ □	0.190
-	1	LS2 □ M21D11-U □ □	1SBV01 □ □ 21R27 □ □	0.190

### Steel roller plunger (zinc plated) with fixing nuts

1	-	LS2 □ M22B11-P □ □	1SBV01 □ □ 22R20 □ □	0.195
1	-	LS2 □ M22B11-U □ □	1SBV01 □ □ 22R26 □ □	0.195
-	1	LS2 □ M22D11-P □ □	1SBV01 □ □ 22R21 □ □	0.195
-	1	LS2 □ M22D11-U □ □	1SBV01 □ □ 22R27 □ □	0.195

### ø14 plastic (polyacetal) roller lever

1	-	LS2 □ M41B11-P □ □	1SBV01 □ □ 41R20 □ □	0.225
1	-	LS2 □ M41B11-U □ □	1SBV01 □ □ 41R26 □ □	0.225
-	1	LS2 □ M41D11-P □ □	1SBV01 □ □ 41R21 □ □	0.225
-	1	LS2 □ M41D11-U □ □	1SBV01 □ □ 41R27 □ □	0.225

### Adjustable ø18 plastic (polyacetal) roller lever

1	-	LS2 □ M51B11-P □ □	1SBV01 □ □ 51R20 □ □	0.240
1	-	LS2 □ M51B11-U □ □	1SBV01 □ □ 51R26 □ □	0.240
-	1	LS2 □ M51D11-P □ □	1SBV01 □ □ 51R21 □ □	0.240
-	1	LS2 □ M51D11-U □ □	1SBV01 □ □ 51R27 □ □	0.240

### Spring rod

1	-	LS2 □ M91B11-P □ □	1SBV01 □ □ 91R20 □ □	0.240
1	-	LS2 □ M91B11-U □ □	1SBV01 □ □ 91R26 □ □	0.240
-	1	LS2 □ M91D11-P □ □	1SBV01 □ □ 91R21 □ □	0.240
-	1	LS2 □ M91D11-U □ □	1SBV01 □ □ 91R27 □ □	0.240

(1) For LS25 & LS26 add extra 0.005 kg - (2) With 1 m of cable (add 0.1 kg by extra meter length)

Length cable code		(Other length on request)	
Cable length	Code	Code	Code
1 m	0 1	0 1	0 1
2 m	0 2	0 2	0 2
5 m	0 5	0 5	0 5
10 m	1 0	1 0	1 0

Note: -P □ □ = cable IEC 20/22 II PVC, -U □ □ = cable UL 62 PVC maxi. 10 m

# LS3..M.. Limit Switches

## Metal Casing IP66 - 30 mm Width



LS32M11B11

1SBC5 8587 3F0302



LS32M12B11

1SBC5 8589 3F0302



LS32M38B11

1SBC5 8572 3F0302



LS32M41B11

1SBC5 8573 3F0302



LS32M51B11

1SBC5 8576 3F0302

LS30M: 1 cable inlet for Pg 13.5 cable gland .....	0	.....	1	8
LS31M: 1 cable inlet for Pg 11 cable gland .....	1	.....	1	7
LS32M: 1 cable inlet for ISO 16 cable gland.....	2	.....	1	9
LS33M: 1 cable inlet for ISO 20 cable gland.....	3	.....	3	8
LS35M: 1 cable inlet for 1/2" NPT cable gland.....	5	.....	3	7

### Ordering Details

Contact blocks	Type	Order code	Weight kg
 B11	 D11	state cable inlet code □ □	Pack <sup>ing</sup> 1 piece

#### Steel plain plunger (zinc plated)

1	-	LS3 □ M11B11	1SBV01 □ □ 11R1211	0.180
-	1	LS3 □ M11D11	1SBV01 □ □ 11R1411	0.180

#### Steel roller plunger (zinc plated)

1	-	LS3 □ M12B11	1SBV01 □ □ 12R1211	0.185
-	1	LS3 □ M12D11	1SBV01 □ □ 12R1411	0.185

#### ø12.5 plastic (polyacetal) roller lever on steel plunger (zinc plated) horizontal action

1	-	LS3 □ M31B11	1SBV01 □ □ 31R1211	0.175
-	1	LS3 □ M31D11	1SBV01 □ □ 31R1411	0.175

#### ø12.5 plastic (polyacetal) roller lever on steel plunger (zinc plated) vertical action

1	-	LS3 □ M32B11	1SBV01 □ □ 32R1211	0.175
-	1	LS3 □ M32D11	1SBV01 □ □ 32R1411	0.175

#### ø22 plastic (polyacetal) roller lever on steel plunger (zinc plated)

1	-	LS3 □ M38B11	1SBV01 □ □ 38R1211	0.180
-	1	LS3 □ M38D11	1SBV01 □ □ 38R1411	0.180

#### ø18 plastic (polyacetal) roller lever

1	-	LS3 □ M41B11	1SBV01 □ □ 41R1211	0.230
-	1	LS3 □ M41D11	1SBV01 □ □ 41R1411	0.230

#### ø50 rubber roller lever

1	-	LS3 □ M42B11	1SBV01 □ □ 42R1211	0.255
-	1	LS3 □ M42D11	1SBV01 □ □ 42R1411	0.255

#### Adjustable ø18 plastic (polyacetal) roller lever

1	-	LS3 □ M51B11	1SBV01 □ □ 51R1211	0.240
-	1	LS3 □ M51D11	1SBV01 □ □ 51R1411	0.240

#### Adjustable ø50 rubber roller lever

1	-	LS3 □ M52B11	1SBV01 □ □ 52R1211	0.265
-	1	LS3 □ M52D11	1SBV01 □ □ 52R1411	0.265

#### Spring rod

1	-	LS3 □ M91B11	1SBV01 □ □ 91R1211	0.180
-	1	LS3 □ M91D11	1SBV01 □ □ 91R1411	0.180

# LS4..M.. Limit Switches

Metal Casing IP66 - 40 mm Width



LS40M: 1 cable inlet for Pg 13.5 cable gland ..... 0 ..... 1 1  
 LS43M: 1 cable inlet for ISO 20 cable gland ..... 3 ..... 1 6  
 LS45M: 1 cable inlet for 1/2" NPT cable gland ..... 5 ..... 3 1

## Ordering Details

Contact blocks	Type	Order code	Weight kg
 B11	 D11	state cable inlet code □ □	Pack <sup>ing</sup> 1 piece

### Stainless steel plain plunger

1	-	LS4 □ M11B11	1SBV01 □ □ 11R1211	0.240
-	1	LS4 □ M11D11	1SBV01 □ □ 11R1411	0.240

### ø12 stainless steel roller plunger

1	-	LS4 □ M13B11	1SBV01 □ □ 13R1211	0.240
-	1	LS4 □ M13D11	1SBV01 □ □ 13R1411	0.240

### ø22 plastic (polyacetal) roller lever on stainless steel plunger

1	-	LS4 □ M31B11	1SBV01 □ □ 31R1211	0.275
-	1	LS4 □ M31D11	1SBV01 □ □ 31R1411	0.275

### ø22 plastic (polyacetal) roller lever

1	-	LS4 □ M41B11	1SBV01 □ □ 41R1211	0.280
-	1	LS4 □ M41D11	1SBV01 □ □ 41R1411	0.280

### ø22 stainless steel roller lever

1	-	LS4 □ M42B11	1SBV01 □ □ 42R1211	0.280
-	1	LS4 □ M42D11	1SBV01 □ □ 42R1411	0.280

### Adjustable ø22 plastic (polyacetal) roller lever

1	-	LS4 □ M51B11	1SBV01 □ □ 51R1211	0.290
-	1	LS4 □ M51D11	1SBV01 □ □ 51R1411	0.290

### Adjustable ø6 plastic (polyacetal) rod lever

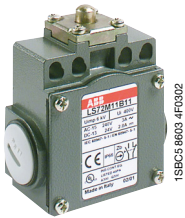
1	-	LS4 □ M72B11	1SBV01 □ □ 72R1211	0.285
-	1	LS4 □ M72D11	1SBV01 □ □ 72R1411	0.285

### Spring rod

1	-	LS4 □ M91B11	1SBV01 □ □ 91R1211	0.235
-	1	LS4 □ M91D11	1SBV01 □ □ 91R1411	0.235

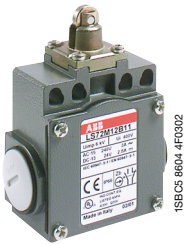
# LS7..M.. Limit Switches

## Metal Casing IP66 - 60 mm Width



LS72M11B11

1SBC5 8603 4F0302



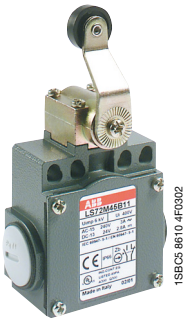
LS72M12B11

1SBC5 8604 4F0302



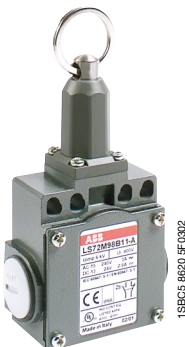
LS72M38B11

1SBC5 8607 4F0302



LS72M45B11

1SBC5 8610 4F0302



LS72M98B11-A

1SBC5 8620 4F0302

LS70M: 3 cable inlets for Pg 13.5 cable gland .....0 ..... 4|2  
 LS71M: 3 cable inlets for Pg 11 cable gland .....1 ..... 4|1  
 LS72M: 3 cable inlets for ISO 16 cable gland .....2 ..... 4|3  
 LS73M: 3 cable inlets for ISO 20 cable gland .....3 ..... 5|2  
 LS75M: 3 cable inlets for 1/2" NPT cable gland .....5 ..... 5|1

### Ordering Details

Contact blocks	Type	Order code	Weight kg
 B11	 D11	state cable inlet code □ □	Pack <sup>ing</sup> 1 piece

#### Steel plain plunger (zinc plated)

1	-	LS7 □ M11B11	1SBV01 □ □ 11R1211	0.270
-	1	LS7 □ M11D11	1SBV01 □ □ 11R1411	0.270

#### Steel roller plunger (zinc plated)

1	-	LS7 □ M12B11	1SBV01 □ □ 12R1211	0.280
-	1	LS7 □ M12D11	1SBV01 □ □ 12R1411	0.280

#### ø12.5 plastic (polyacetal) roller lever on steel plunger (zinc plated) horizontal action

1	-	LS7 □ M31B11	1SBV01 □ □ 31R1211	0.265
-	1	LS7 □ M31D11	1SBV01 □ □ 31R1411	0.265

#### ø22 plastic (polyacetal) roller lever on steel plunger (zinc plated)

1	-	LS7 □ M38B11	1SBV01 □ □ 38R1211	0.270
-	1	LS7 □ M38D11	1SBV01 □ □ 38R1411	0.270

#### ø18 plastic (polyacetal) roller with bent lever

1	-	LS7 □ M45B11	1SBV01 □ □ 45R1211	0.335
-	1	LS7 □ M45D11	1SBV01 □ □ 45R1411	0.335

#### Adjustable ø3 stainless steel rod lever

1	-	LS7 □ M71B11	1SBV01 □ □ 71R1211	0.380
-	1	LS7 □ M71D11	1SBV01 □ □ 71R1411	0.380

#### Spring rod

1	-	LS7 □ M91B11	1SBV01 □ □ 91R1211	0.315
-	1	LS7 □ M91D11	1SBV01 □ □ 91R1411	0.315

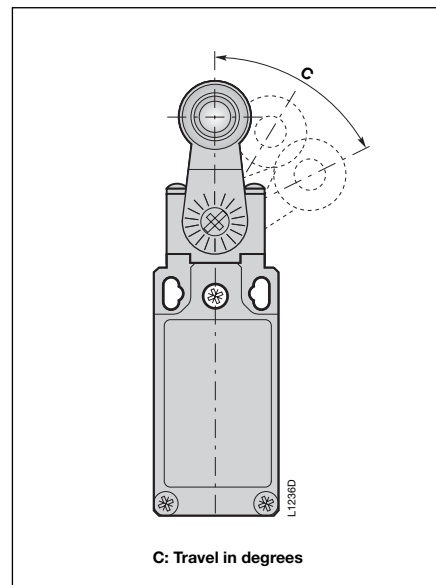
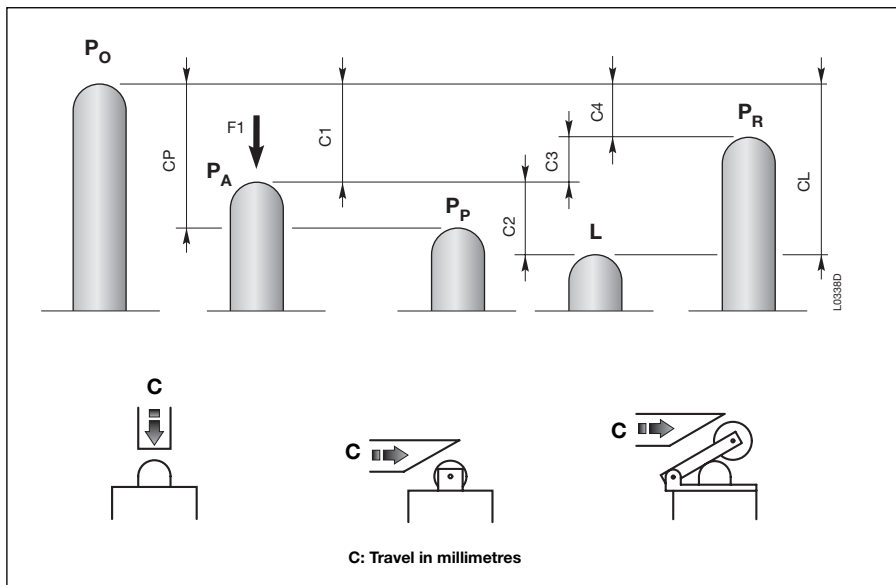
#### Pull action with ring

1	-	LS7 □ M98B11-A	1SBV01 □ □ 98R1211	0.350
-	1	LS7 □ M98D11-A	1SBV01 □ □ 98R1411	0.350



# Limit Switches Plastic or Metal Casing

## Travel and Operation Diagrams



**P<sub>O</sub> Free position:**

position of the switch actuator when no external force is exerted on it.

**P<sub>A</sub> Operating position:**

position of the switch actuator, under the effect of force **F1**, when the contacts leave their initial free position.

**P<sub>P</sub> Positive opening position:**

position of the switch actuator from which positive opening is ensured.

**L Max. travel position:**

maximum acceptable travel position of the switch actuator under the effect of a force **F1**.

**P<sub>R</sub> Release position:**

position of the switch actuator when the contacts return to their initial free position.

**C<sub>1</sub> Pre-travel (average travel):**

distance between the free position **P<sub>O</sub>** and the operating position **P<sub>A</sub>**.

**C<sub>p</sub> Positive opening travel:**

minimum travel of the switch actuator, from the free position, to ensure positive opening operation of the normally closed contact (N.C.).

**C<sub>2</sub> Over-travel (average travel):**

distance between the operating position **P<sub>A</sub>** and the max. travel position **L**.

**C<sub>1</sub> Max. travel (maximum travel):**

distance between the free position **P<sub>O</sub>** and the max. travel position **L**.

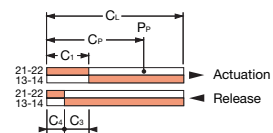
**C<sub>3</sub> Differential travel (C1-C4) (average travel):**

travel difference of the switch actuator between the operating position **P<sub>A</sub>** and the release position **P<sub>R</sub>**.

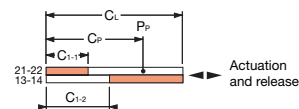
**C<sub>4</sub> Release travel (average travel):**

distance between the release position **P<sub>R</sub>** and the free position **P<sub>O</sub>**.

**Diagram for snap action contacts:**



**Diagram for non-overlapping slow action contacts:**

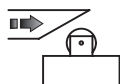


**Contacts position**      21-22 █ Contact closed  
 21-22  Contact open  
 ↑  
 Contacts identification (example)

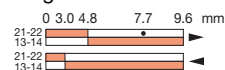
**Note:** for slow action contacts, **C<sub>3</sub> = 0**, **C<sub>1-1</sub>** = pre-travel of contact 21-22, **C<sub>1-2</sub>** = pre-travel of contact 13-14.

**Examples:**

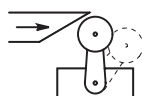
LS32M13B11  
(snap action contacts)



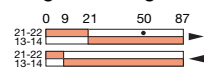
**Diagram in millimetres/cam travel**



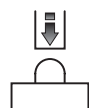
LS32M41B11  
(snap action contacts)



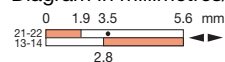
**Diagram in degrees/lever rotation**



LS32M11D11  
(non-overlapping slow action contacts)



**Diagram in millimetres/plunger travel**



# LS20 ... LS26 Prewired Limit Switches

Plastic Casing  IP67 and Metal Casing IP67  
 Technical Data

## General Technical Data

	Plastic Casing	Metal Casing
<b>Standards</b>	IEC 60947-1, IEC 60947-5-1, EN 60947-1, EN 60947-5-1, UL 508 and CSA C22-2 n° 14	
<b>Certifications - Approvals</b>	UL - CSA (only with UL62-1581 cable)	
<b>Air temperature</b> near the device		
- during operation	°C - 25 ... + 70	- 25 ... + 70
- for storage	°C - 40 ... + 70	- 40 ... + 70
<b>Climatic withstand</b>	According to IEC 68-2-3 and salty mist according to IEC 68-2-11	
<b>Mounting positions</b>	All positions are authorized	
<b>Shock withstand</b> (according to IEC 68-2-27 and EN 60068-2-27)	25g* (1/2 sinusoidal shock for 11 ms) no change in contact position	
<b>Resistance to vibrations</b> (acc. to IEC 68-2-6 and EN 60068-2-6)	25g** (10 ... 500 Hz) no change in position of contacts greater than 100 µs	
<b>Protection against electrical shocks</b> (acc. to IEC 536)	Class II	Class I
<b>Degree of protection</b> (according to IEC 529 and EN 60529)	IP67	
<b>Degree of protection</b> (according to UL 50 and NEMA)	Type 1 Enclosure (indoor use)	Type 4 - 4x - 6 Enclosure (Outdoor use)
<b>Consistency</b> (measured over 1 million operations)	0.1 mm (upon closing point)	

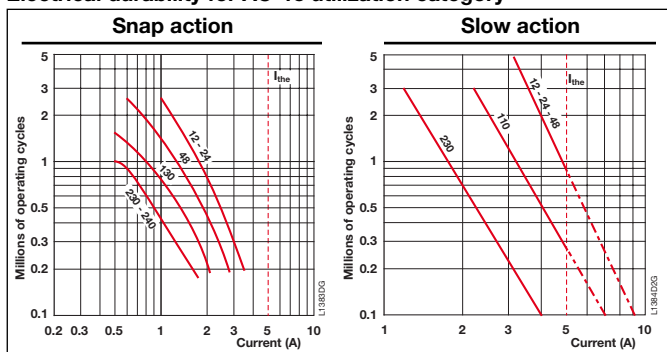
## Electrical Data

<b>Rated insulation voltage <math>U_i</math></b>		V	400 (degree of pollution 3)
- according to IEC 60947-1 and EN 60947-1		V	300
- according to UL 508, CSA C22-2 n° 14			
<b>Rated impulse withstand voltage <math>U_{imp}</math></b>		kV	4
(according to IEC 60947-1 and EN 60947-1)			
<b>Conventional enclosed thermal current <math>I_{the}</math></b>		A	5
(according to IEC 60947-5-1 and EN 60947-5-1) $\theta \leq 40$ °C			
<b>Short-circuit protection gG type fuses</b>		A	6
<b>Rated operational current</b>			
<b><math>I_e</math> / AC-15</b> - acc. to IEC 60947-5-1	24 V - 50/60 Hz	A	5.0
	120 V - 50/60 Hz	A	3.0
	240 V - 50/60 Hz	A	1.5
- acc. to UL 508, CSA C22 n° 14			B 300
<b><math>I_e</math> / DC-13</b> - acc. to IEC 60947-5-1	24 V - d.c.	A	1.1
	125 V - d.c.	A	0.22
	250 V - d.c.	A	0.1
- acc. to UL 508, CSA C22 n° 14			R 300
<b>Positivity</b>	Contacts with positive opening operation as per IEC 60947-5-1 chapter 3 and EN 60947-5-1		
<b>Resistance between contacts</b>		mΩ	25
<b>Pre-wired connection</b>		mm <sup>2</sup> / AWG	4 x 0.75 mm <sup>2</sup> / 4 x AWG 18
			5 x 0.75 mm <sup>2</sup> / 5 x AWG 18
<b>Type of cable</b>			
- UL 62-1581 (PVC)	Black - Ø ext. 7.20 ± 0.2		Black - Ø ext. 8.20 ± 0.2
- IEC 20/22 II (PVC) (no flame propagation)	Black - Ø ext. 7.20 ± 0.2		Grey - Ø ext. 8.20 ± 0.2
<b>Terminal marking</b>	According to EN 50013		
<b>Mechanical durability</b>	10 Millions of operations		
<b>Electrical durability</b> (according to IEC 60947-5-1 appendix C)	Utilization categories AC-15 and DC-13 (See curves and values below)		
- max. switching frequency		Cycles/h	3600
- load factor			0.5

\* Shock: 25g for LS20P/M..., ... LS26P/M.. with D11 contact block  
 5g for LS20P/M..., ... LS26P/M.. with B11 contact block

\*\* Vibrations: except for LS20P/M93 ... LS26P/M93 : 15 g

### Electrical durability for AC-15 utilization category



### Electrical durability for DC-13 utilization category

	Snap action	Slow action
Power breaking for a durability of 5 million operating cycles		
Voltage 24 V	5.7 W	7.2 W
Voltage 48 V	4.1 W	5.4 W
Voltage 110 V	2.2 W	3.6 W

# LS3..., LS4... and LS7... Limit Switches

Plastic Casing  IP65 and Metal Casing IP66  
Technical Data

## General Technical Data

	Plastic Casing	Metal Casing
<b>Standards</b>	IEC 60947-1, IEC 60947-5-1, EN 60947-1, EN 60947-5-1, UL 508 and CSA C22-2 n° 14	
<b>Certifications - Approvals</b>	UL - CSA - CCC	
<b>Air temperature</b> near the device		
– during operation	°C	– 25 ... + 70
– for storage	°C	– 30 ... + 80
<b>Climatic withstand</b>	According to IEC 68-2-3 and salty mist according to IEC 68-2-11	
<b>Mounting positions</b>	All positions are authorized	
<b>Shock withstand</b> (according to IEC 68-2-27 and EN 60068-2-27)	50g* (1/2 sinusoidal shock for 11 ms) no change in contact position	
<b>Resistance to vibrations</b> (acc. to IEC 68-2-6 and EN 60068-2-6)	25g (10 ... 500 Hz) no change in position of contacts greater than 100 µs	
<b>Protection against electrical shocks</b> (acc. to IEC 536)	Class II	Class I
<b>Degree of protection</b> (according to IEC 529 and EN 60529)	IP65	IP66 **
<b>Consistency</b> (measured over 1 million operations)	0.1 mm (upon closing point)	0.1 mm (upon closing point)

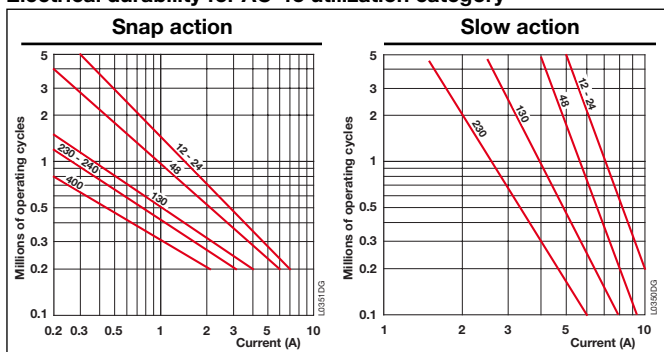
## Electrical Data

<b>Rated insulation voltage <math>U_i</math></b>			
– according to IEC 60947-1 and EN 60947-1	V	500 (degree of pollution 3)	400 (LS3..M. & LS7..M.), 500 (LS4xM.) - (degree of pollution 3)
– according to UL 508, CSA C22-2 n° 14	V	600	300 (LS3..M. & LS7..M.), 600 (LS4..M.)
<b>Rated impulse withstand voltage <math>U_{imp}</math></b> (according to IEC 60947-1 and EN 60947-1)	kV	6	
<b>Conventional enclosed thermal current <math>I_{the}</math></b> (according to IEC 60947-5-1 and EN 60947-5-1) $\theta \leq 40$ °C	A	10	
<b>Short-circuit protection</b> gG type fuses	A	10	
<b>Rated operational current</b>			
<b><math>I_e</math> / AC-15</b> – acc. to IEC 60947-5-1			
24 V - 50/60 Hz	A	10	
130 V - 50/60 Hz	A	5.5	
230 V - 50/60 Hz	A	3.1	
240 V - 50/60 Hz	A	3	
400 V - 50/60 Hz	A	1.8	
– acc. to UL 508, CSA C22 n° 14		A 600	A 300 (LS3..M. & LS7..M.), A 600 (LS4..M.)
<b><math>I_e</math> / DC-13</b> – acc. to IEC 60947-5-1			
24 V - d.c.	A	2.8	
110 V - d.c.	A	0.6	
250 V - d.c.	A	0.27	
– acc. to UL 508, CSA C22 n° 14		Q 600	Q 300 (LS3..M. & LS7..M.), Q 600 (LS4..M.)
<b>Positivity</b>		Contacts with positive opening operation as per IEC 60947-5-1 chapter 3 and EN 60947-5-1	
<b>Resistance between contacts</b>	mΩ	25	
<b>Mechanical durability</b>	Millions of operations	15 } 3x } P { 10...12 ; 30...38 10 } LS } P { 13 ; 41...46 ; 51...55 ; 61...78 > 5 } 7x } P { 14 ; 91...92 ; 98	15 } 3x } M { 11...12 ; 31...38 10 } LS } M { 13 ; 41...46 ; 51...55 ; 61...78 > 5 } 7x } M { 14 ; 91...92 ; 98
	Millions of operations	15 } 4x } P { 11 ; 12 ; 31...33 10 } LS } P { 13 ; 41...44 ; 51...55 ; 61...74 > 5 } 4x } P { 14 ; 19 ; 34...36 ; 91...93	30 } 4x } M { 11...13 ; 21...23 ; 31...33 25 } LS } M { 41...44 ; 51...55 ; 61...74 10 } 4x } M { 91...93
<b>Electrical durability</b> (according to IEC 60947-5-1 appendix C)		Utilization categories AC-15 and DC-13 (see curves and values below)	
– max. switching frequency	Cycles/h	3600	
– load factor		0.5	
<b>Connecting data of contact blocks</b>			
Connecting terminals		M3.5 (+,-) pozidriv 2 screw with cable clamp	
Connecting capacity	1 or 2 x mm <sup>2</sup> / AWG	0.5 mm <sup>2</sup> / AWG 20 to 2.5 mm <sup>2</sup> / AWG 14	
Terminal marking		According to EN 50013	

\* Except for LS3..M42, M52 and M55 - LS3..P42, P52 and P55 - LS7..M42, M52 and M55 - LS7..P42, P52 and P55: 25g

\*\* Except for LS3..M52, M55, M73, M74 and M92 - LS7..M52, M55, M73, M74 and M92 - LS4..M54, M72, M92 and M93 : the degree of protection is IP65.

### Electrical durability for AC-15 utilization category



### Electrical durability for DC-13 utilization category

	Snap action	Slow action
	Power breaking for a durability of 5 million operating cycles	
Voltage 24 V	9.5 W	12 W
Voltage 48 V	6.8 W	9 W
Voltage 110 V	3.6 W	6 W

# LS2..P.. and LS2..M.. Limit Switches

Plastic Casing  and Metal Casing - IP67 - 30 mm Width  
Prewired

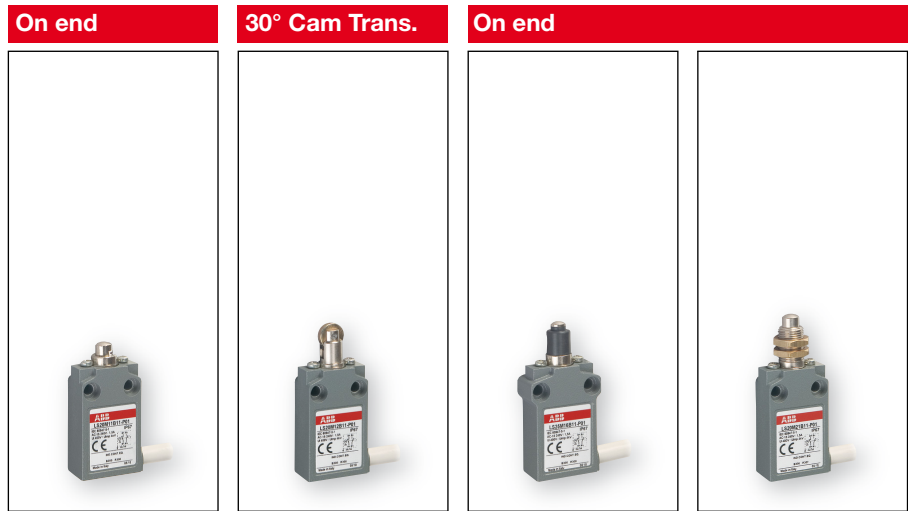
Movement to be detected:

**For Plastic Casing:**

Cable: 4 x 0.75 mm<sup>2</sup> / 4 x AWG 18  
Length: 1 m  
(Other lengths see ordering details)

**For Metal Casing:**

Cable: 5 x 0.75 mm<sup>2</sup> / 5 x AWG 18  
Length: 1 m  
(Other lengths see ordering details)



**Actuator**

	Metal plunger	Metal Roller plunger	Metal plunger (with dust protection cup)	Metal plunger with fixing nuts
↻ (N.C. contact with positive opening operation)	↻	↻	↻	↻
Maximum actuation speed	0.5 m/s	0.1 m/s	0.5 m/s	0.5 m/s
Min. force / torque: - actuation	15 N	10 N	15 N	15 N
- positive opening operation	30 N	30 N	30 N	30 N

**Additional Technical Data**

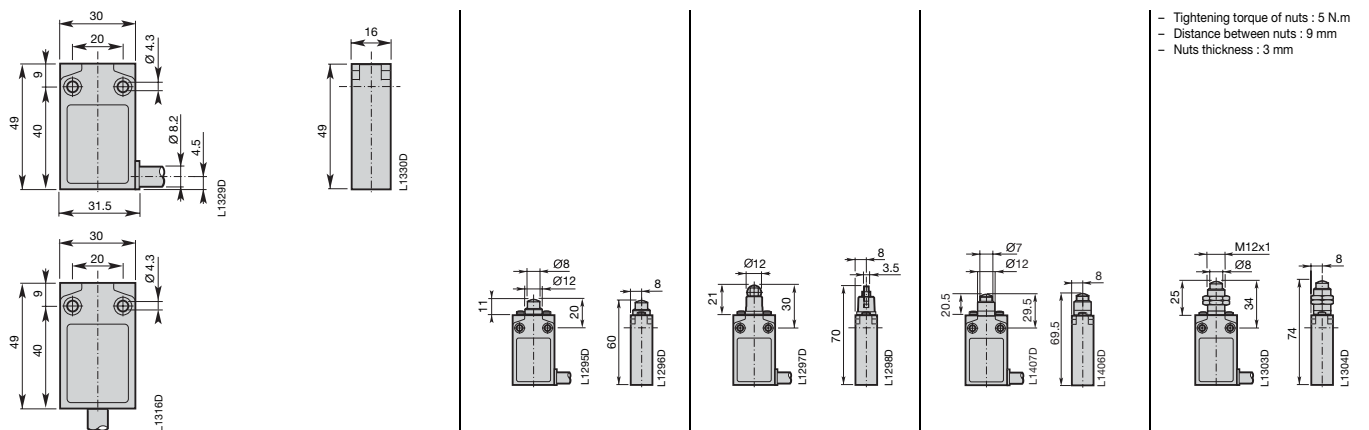
Cable output left / right code.....	0
Cable output bottom code.....	1
Plastic casing.....	P
Metal casing.....	M
IEC 20/22 II PVC cable code.....	P
UL 62 PVC cable code.....	U

Type to be completed with the above codes <input type="checkbox"/>					
<b>Snap action contacts</b>	<b>Type</b>	<b>LS2□□11B11-□01</b>	<b>LS2□□12B11-□01</b>	<b>LS2□□16B11-□01</b>	<b>LS2□□21B11-□01</b>
	<b>Operation diagram</b>				
<b>Non-overlapping Slow action contacts</b>	<b>Type</b>	<b>LS2□□11D11-□01</b>	<b>LS2□□12D11-□01</b>	<b>LS2□□16D11-□01</b>	<b>LS2□□21D11-□01</b>
	<b>Operation diagram</b>				
<b>Weight (1) (packing per unit)</b>	<b>kg</b>	0.125	0.130	0.125	0.140

(1) add 0.050 kg with metal casing.

Closed contact / Open contact

**Dimensions (mm)**



# LS2..P.. and LS2..M.. Limit Switches

Plastic Casing  and Metal Casing - IP67 - 30 mm Width  
Prewired

Movement to be detected:

30° Cam Translation Movement

Multidirectional

**For Plastic Casing:**

Cable: 4 x 0.75 mm<sup>2</sup> / 4 x AWG 18  
Length: 1 m  
(Other lengths see ordering details)

**For Metal Casing:**

Cable: 5 x 0.75 mm<sup>2</sup> / 5 x AWG 18  
Length: 1 m  
(Other lengths see ordering details)



Actuator	Metal Roller plunger with fixing nuts	ø14 plastic roller lever	Adjustable ø18 plastic roller lever	Spring rod
↻ (N.C. contact with positive opening operation)	↻	↻	↻	-
Maximum actuation speed	0.1 m/s	1.5 m/s	1.5 m/s	1.0 m/s
Min. force / torque: - actuation	10 N	0.08 N.m	0.08 N.m	0.10 N.m
- positive opening operation	30 N	0.28 N.m	0.28 N.m	-

## Additional Technical Data

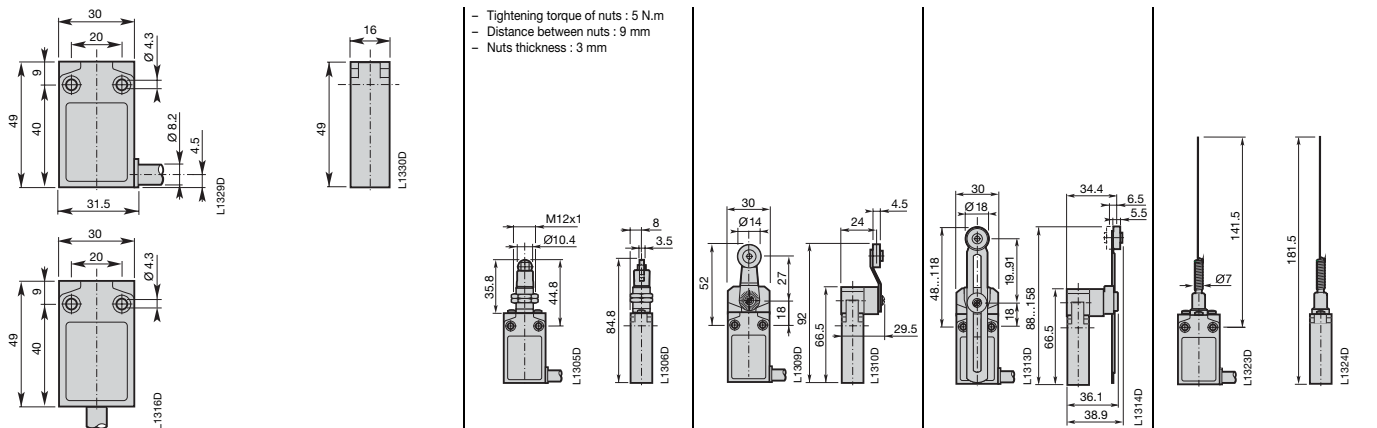
Cable output left / right code.....	<input type="checkbox"/> 0
Cable output bottom code.....	<input type="checkbox"/> 1
Plastic casing.....	<input type="checkbox"/> P
Metal casing.....	<input type="checkbox"/> M
IEC 20/22 II PVC cable code.....	<input type="checkbox"/> P
UL 62 PVC cable code.....	<input type="checkbox"/> U

Type to be completed with the above codes <input type="checkbox"/>					
Snap action contacts	Type	LS2□□22B11-□01	LS2□□41B11-□01	LS2□□51B11-□01	LS2□□91B11-□01
	Operation diagram				
Non-overlapping Slow action contacts	Type	LS2□□22D11-□01	LS2□□41D11-□01	LS2□□51D11-□01	-
	Operation diagram				-
Weight (1) (packing per unit)	kg	0.145	0.175	0.190	0.190

(1) add 0.050 kg with metal casing.

Closed contact / Open contact

## Dimensions (mm)



# LS2..P.. and LS2..M.. Limit Switches

Plastic Casing  and Metal Casing - IP67 - 35 mm Width  
Prewired

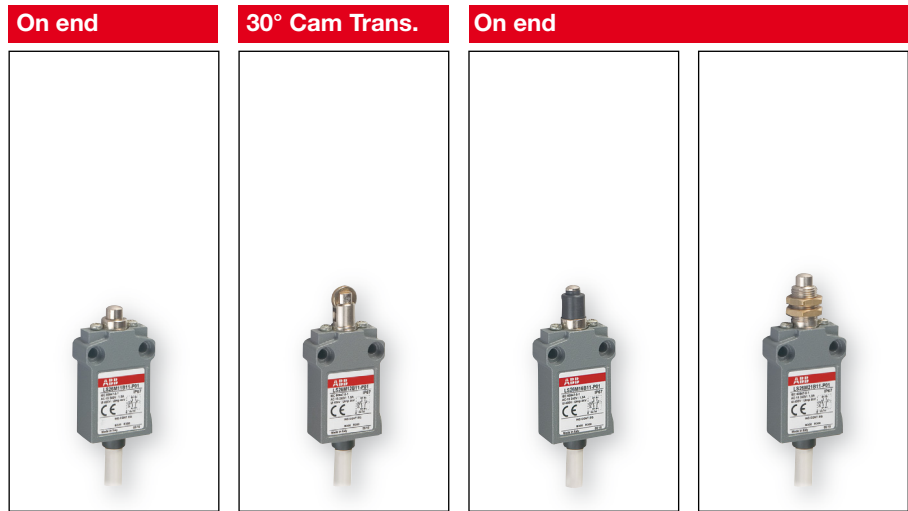
Movement to be detected:

**For Plastic Casing:**

Cable: 4 x 0.75 mm<sup>2</sup> / 4 x AWG 18  
Length: 1 m  
(Other lengths see ordering details)

**For Metal Casing:**

Cable: 5 x 0.75 mm<sup>2</sup> / 5 x AWG 18  
Length: 1 m  
(Other lengths see ordering details)



**Actuator**

	Metal plunger	Metal Roller plunger	Metal plunger (with dust protection cup)	Metal plunger with fixing nuts
⊕ (N.C. contact with positive opening operation)	⊕	⊖	⊕	⊖
Maximum actuation speed	0.5 m/s	0.1 m/s	0.5 m/s	0.5 m/s
Min. force / torque: - actuation	15 N	10 N	15 N	15 N
- positive opening operation	30 N	30 N	30 N	30 N

**Additional Technical Data**

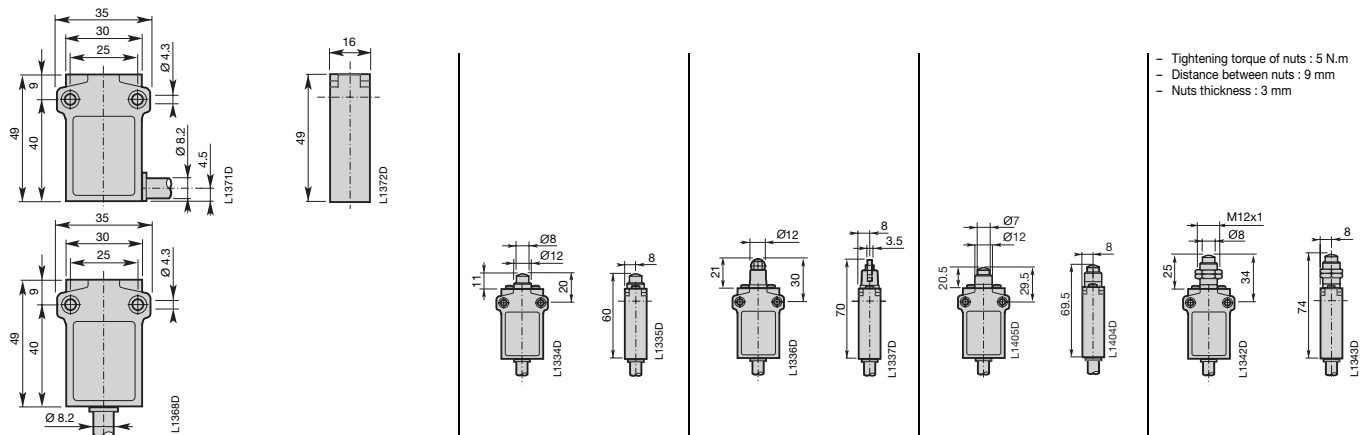
Cable output left / right code.....	<input type="checkbox"/> 5
Cable output bottom code.....	<input type="checkbox"/> 6
Plastic casing.....	<input type="checkbox"/> P
Metal casing.....	<input type="checkbox"/> M
IEC 20/22 II PVC cable code.....	<input type="checkbox"/> P
UL 62 PVC cable code.....	<input type="checkbox"/> U

Type to be completed with the above codes <input type="checkbox"/>					
<b>Snap action contacts</b>	<b>Type</b>	<b>LS2□□11B11-□01</b>	<b>LS2□□12B11-□01</b>	<b>LS2□□16B11-□01</b>	<b>LS2□□21B11-□01</b>
	<b>Operation diagram</b>				
<b>Non-overlapping Slow action contacts</b>	<b>Type</b>	<b>LS2□□11D11-□01</b>	<b>LS2□□12D11-□01</b>	<b>LS2□□16D11-□01</b>	<b>LS2□□21D11-□01</b>
	<b>Operation diagram</b>				
<b>Weight (1) (packing per unit)</b>	<b>kg</b>	0.125	0.130	0.125	0.140

(1) add 0.050 kg with metal casing.

Closed contact / Open contact

**Dimensions (mm)**



# LS2..P.. and LS2..M.. Limit Switches

Plastic Casing  and Metal Casing - IP67 - 35 mm Width  
Prewired

Movement to be detected:

30° Cam Translation

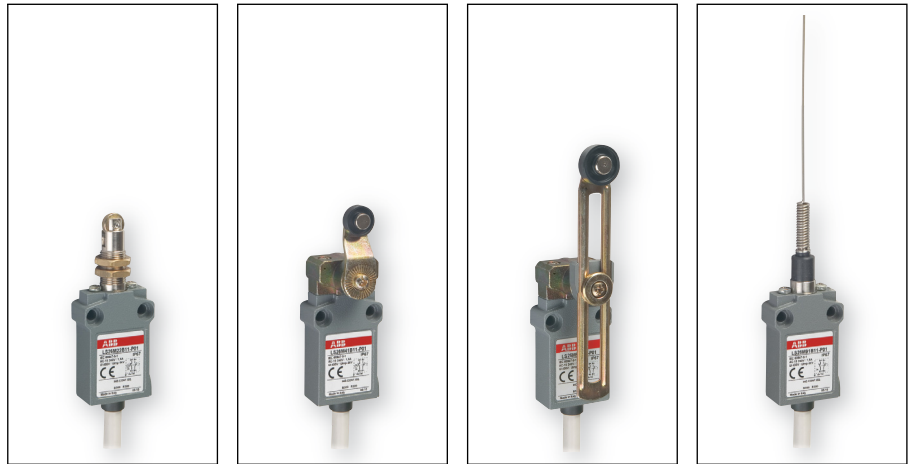
Multidirectional

**For Plastic Casing:**

Cable: 4 x 0.75 mm<sup>2</sup> / 4 x AWG 18  
Length: 1 m  
(Other lengths see ordering details)

**For Metal Casing:**

Cable: 5 x 0.75 mm<sup>2</sup> / 5 x AWG 18  
Length: 1 m  
(Other lengths see ordering details)



**Actuator**

	Metal Roller plunger with fixing nuts	ø14 plastic roller lever	Adjustable ø18 plastic roller lever	Spring rod
↻ (N.C. contact with positive opening operation)	↻	↻	↻	-
Maximum actuation speed	0.1 m/s	1.5 m/s	1.5 m/s	1.0 m/s
Min. force / torque: - actuation	10 N	0.08 N.m	0.08 N.m	0.10 N.m
- positive opening operation	30 N	0.28 N.m	0.28 N.m	-

**Additional Technical Data**

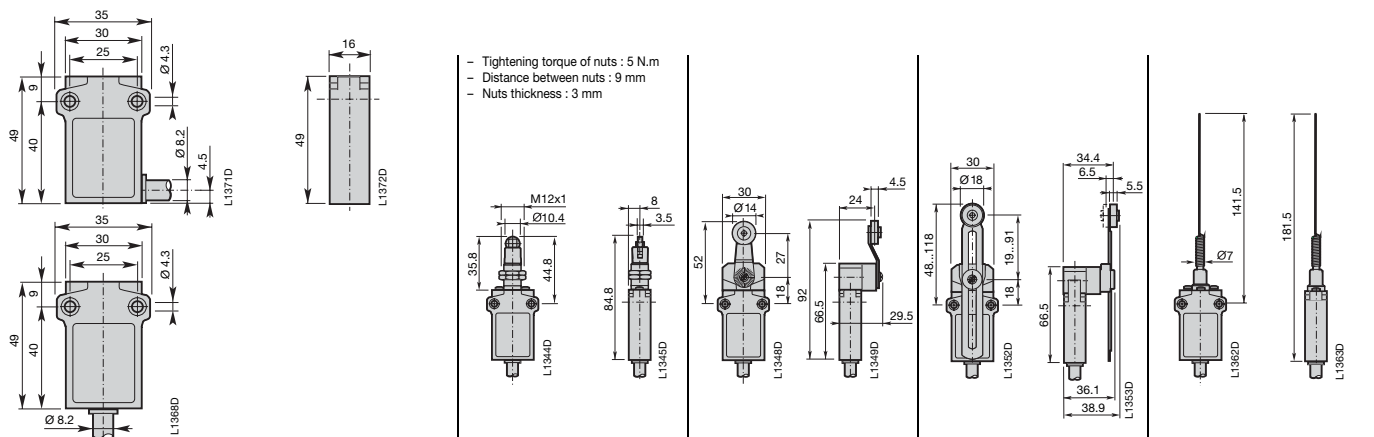
Cable output left / right code.....	5
Cable output bottom code.....	6
Plastic casing.....	P
Metal casing.....	M
IEC 20/22 II PVC cable code.....	P
UL 62 PVC cable code.....	U

Type to be completed with the above codes <input type="checkbox"/>					
<b>Snap action contacts</b>	<b>Type</b>	<b>LS2□□22B11-□01</b>	<b>LS2□□41B11-□01</b>	<b>LS2□□51B11-□01</b>	<b>LS2□□91B11-□01</b>
	<b>Operation diagram</b>				
<b>Non-overlapping Slow action contacts</b>	<b>Type</b>	<b>LS2□□22D11-□01</b>	<b>LS2□□41D11-□01</b>	<b>LS2□□51D11-□01</b>	-
	<b>Operation diagram</b>				-
<b>Weight (1) (packing per unit)</b>	<b>kg</b>	0.200	0.200	0.230	0.235

(1) add 0.050 kg with metal casing.

Closed contact / Open contact

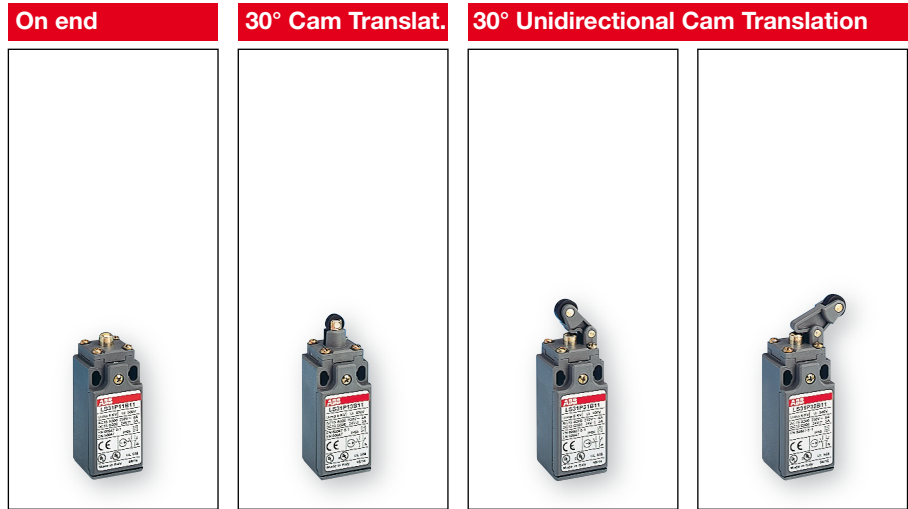
**Dimensions (mm)**








# LS3..P.. Limit Switches

Double Insulation  - Plastic Casing IP65 - 30 mm Width  
1 Cable Inlet for Cable Gland

Movement to be detected:

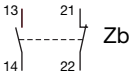




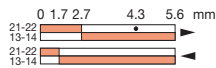
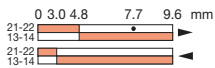
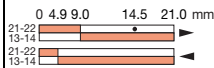
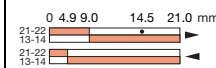
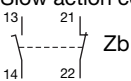




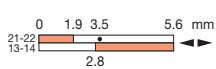
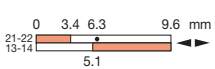
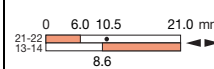
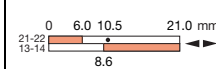


Actuator

	Metal plunger	Ø11 plastic roller plunger	Ø12.5 plastic roller lever on steel plunger	Ø12.5 plastic roller lever on steel plunger
Conformity /  (N.C. contact with positive opening operation)	EN 50047 (B shape) 	EN 50047 (C shape) 	EN 50047 (E shape) 	- 
Maximum actuation speed	0.5 m/s	0.3 m/s	1 m/s	1 m/s
Min. force / torque: - actuation	15 N	12 N	7 N	7 N
- positive opening operation	45 N	41 N	24 N	24 N

## Additional Technical Data

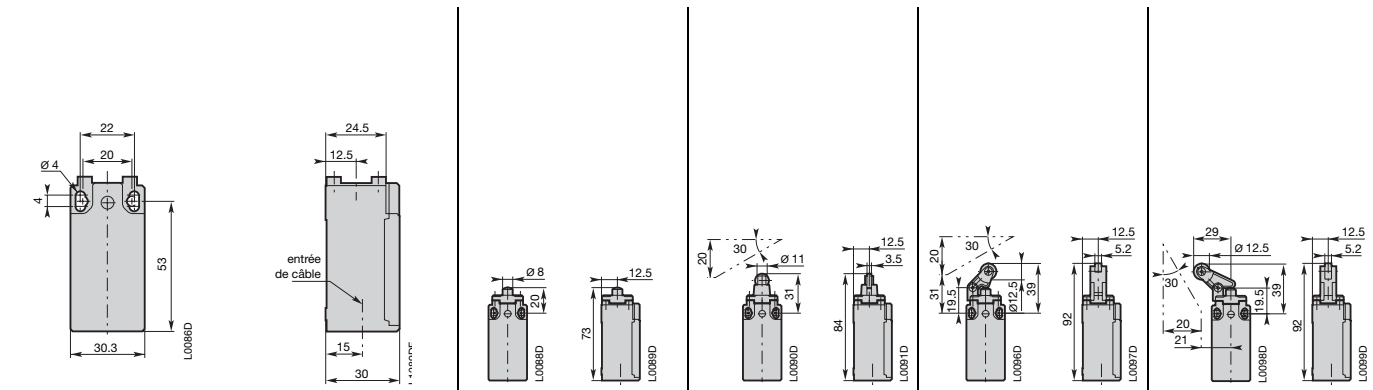
LS type code to be complete with the cable inlet code .....  
 0 = Pg 13.5  
 1 = Pg 11  
 2 = M16 x 1.5  
 3 = M20 x 1.5  
 5 = 1/2" NPT (by plastic adaptor)

Snap action contacts 	Type	LS3  P11B11	LS3  P13B11	LS3  P31B11	LS3  P32B11
Operation diagram					
Non-overlapping Slow action contacts 	Type	LS3  P11D11	LS3  P13D11	LS3  P31D11	LS3  P32D11
Operation diagram					
Weight (packing per unit)	kg	0.070	0.070	0.070	0.075

Special heads, accessories and special contact arrangement or particular function: please consult us.

 Closed contact /  Open contact

## Dimensions (mm)











# LS3..P.. Limit Switches

Double Insulation □ - Plastic Casing IP65 - 30 mm Width  
1 Cable Inlet for Cable Gland

## 30° Cam Translation Movement

## Fully Direction Trans.

## Multidirectional

					
<b>ø18 plastic roller lever</b>	<b>ø50 rubber roller lever</b>	<b>Adjustable ø18 plastic roller lever</b>	<b>Adjustable ø50 rubber roller lever</b>	<b>Adjustable ø3 fibre-glass rod lever</b>	<b>Spring rod lever</b>
EN 50047 (A shape) → 1.5 m/s 0.1 N.m 0.32 N.m	→ 1.5 m/s 0.1 N.m 0.32 N.m	→ 1.5 m/s 0.1 N.m 0.32 N.m	→ 1.5 m/s 0.1 N.m 0.32 N.m	→ 1.5 m/s 0.1 N.m 0.32 N.m	→ 1 m/s 0.12 N.m -

LS type code to be complete with the cable inlet code ..... 0 = Pg 13.5

1 = Pg 11

2 = M16 x 1.5

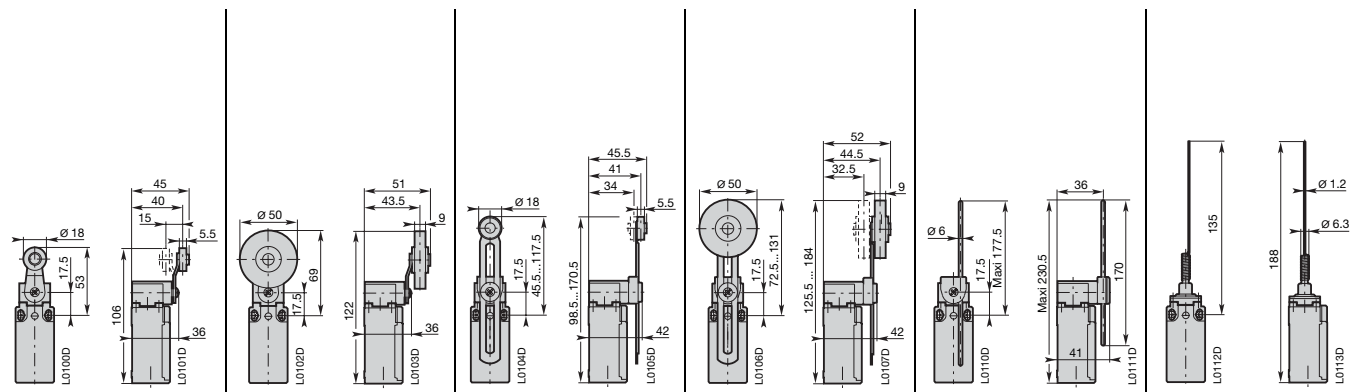
3 = M20 x 1.5

5 = 1/2" NPT (by plastic adaptor)

<b>LS3 □ P41B11</b> 0 17° 31° 47° 74° 21-22 13-14 21-22 13-14	<b>LS3 □ P42B11</b> 0 17° 31° 47° 74° 21-22 13-14 21-22 13-14	<b>LS3 □ P51B11</b> 0 17° 31° 47° 74° 21-22 13-14 21-22 13-14	<b>LS3 □ P52B11</b> 0 17° 31° 47° 74° 21-22 13-14 21-22 13-14	<b>LS3 □ P72B11</b> 0 17° 31° 47° 74° 21-22 13-14 21-22 13-14	<b>LS3 □ P91B11</b> 0 12° 23° 36° 21-22 13-14 21-22 13-14
<b>LS3 □ P41D11</b> 0 21° 37° 74° 21-22 13-14 30°	<b>LS3 □ P42D11</b> 0 21° 37° 74° 21-22 13-14 30°	<b>LS3 □ P51D11</b> 0 21° 37° 74° 21-22 13-14 30°	<b>LS3 □ P52D11</b> 0 21° 37° 74° 21-22 13-14 30°	<b>LS3 □ P72D11</b> 0 21° 37° 74° 21-22 13-14 30°	<b>LS3 □ P91D11</b> 0 14° 36° 21-22 13-14 21°
0.090	0.120	0.100	0.130	0.100	0.080

Special heads, accessories and special contact arrangement or particular function: please consult us.

■ Closed contact / □ Open contact



# LS4..P.. Limit Switches

Double Insulation □ - Plastic Casing IP65 - 40 mm Width  
1 Cable Inlet for Cable Gland

Movement to be detected:



Actuator

	Metal plunger	Ø12 stainless steel roller plunger	Polyamide roller lever on steel plunger	Ø22 plastic roller lever
Conformity / (N.C. contact with positive opening operation)	EN 50041 (B shape)	EN 50041 (C shape)	-	EN 50041 (A shape)
Maximum actuation speed	0.5 m/s	0.5 m/s	1 m/s	1.5 m/s
Min. force / torque: - actuation	14 N	14 N	8 N	0.15 N.m
- positive opening operation	45 N	40 N	40 N	0.30 N.m

## Additional Technical Data

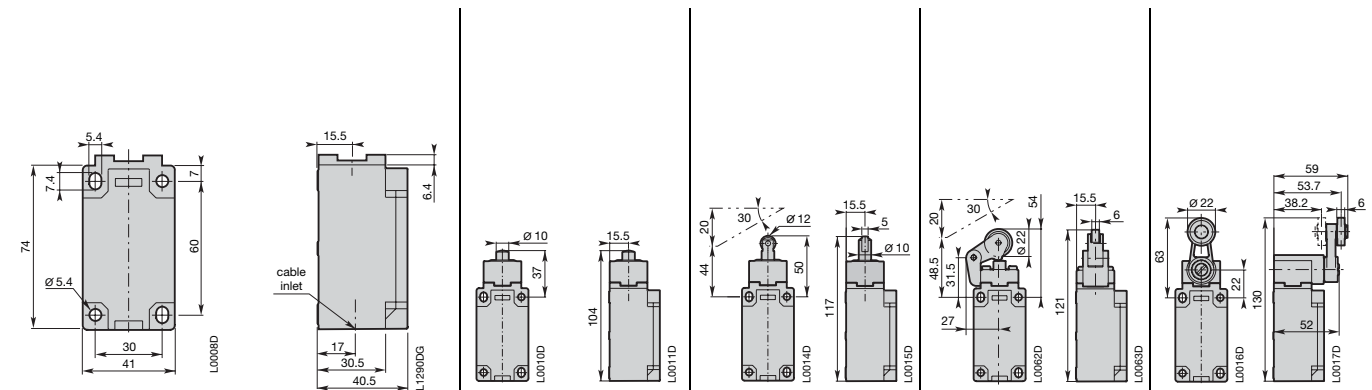
LS type code to be complete with the cable inlet code .....  
 □ = Pg 13.5  
 3 = M20 x 1.5  
 5 = 1/2" NPT

Snap action contacts	Type	LS4 □ P11B11	LS4 □ P13B11	LS4 □ P31B11	LS4 □ P41B11
	Operation diagram				
Non-overlapping Slow action contacts	Type	LS4 □ P11D11	LS4 □ P13D11	LS4 □ P31D11	LS4 □ P41D11
	Operation diagram				
Weight (packing per unit)	kg	0.140	0.145	0.175	0.185

Special heads, accessories and special contact arrangement or particular function: please consult us.

Closed contact / Open contact

## Dimensions (mm)



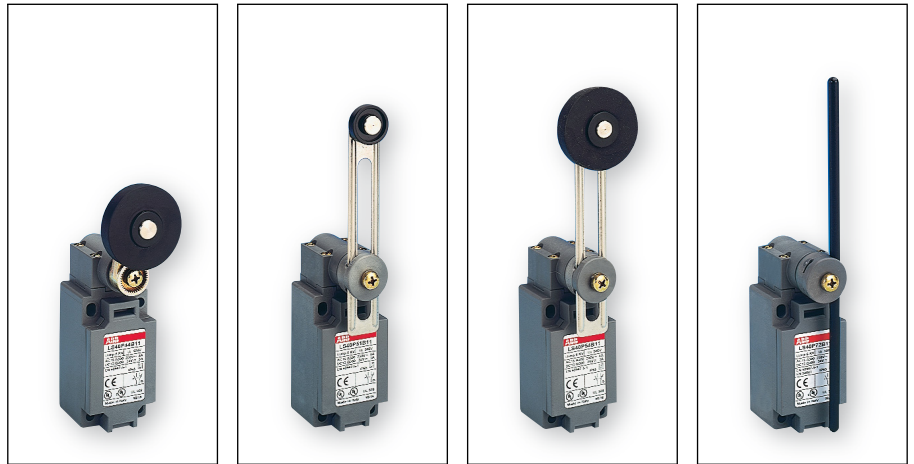
# LS4..P.. Limit Switches






Double Insulation  - Plastic Casing IP65 - 40 mm Width  
1 Cable Inlet for Cable Gland

Movement to be detected:




**30° Cam Translation Movement**






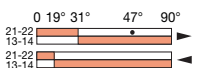
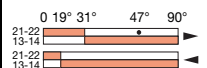
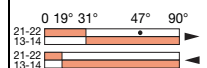
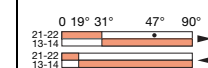

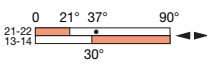
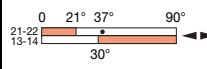
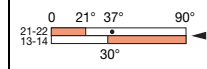
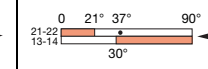
**Fully Direction Trans.**




Actuator	ø50 rubber roller lever	Adjustable ø22 plastic roller lever	Adjustable ø50 rubber roller lever	Adjustable ø6 plastic rod lever
Conformity /  (N.C. contact with positive opening operation)	- 	- 	- 	EN 50041 (D shape) 
Maximum actuation speed	1.5 m/s	1.5 m/s	1.5 m/s	1.5 m/s
Min. force / torque: - actuation	0.15 N.m	0.15 N.m	0.15 N.m	0.15 N.m
- positive opening operation	0.30 N.m	0.30 N.m	0.30 N.m	0.30 N.m

## Additional Technical Data

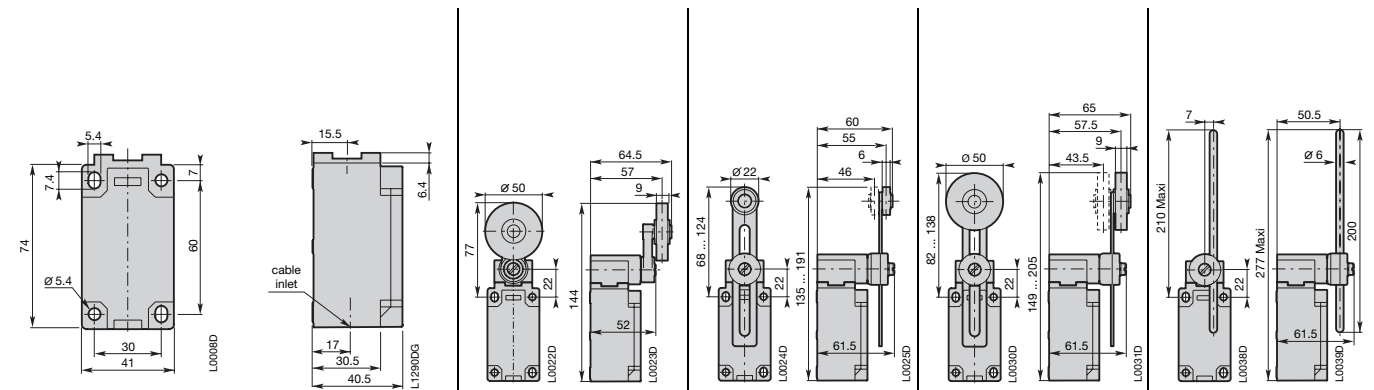
LS type code to be complete with the cable inlet code .....  = Pg 13.5  
 = M20 x 1.5  
 = 1/2" NPT

Contacts	Type	LS4  P44B11	LS4  P51B11	LS4  P54B11	LS4  P72B11
Snap action contacts 	Operation diagram				
Non-overlapping Slow action contacts 	Operation diagram				
Weight (packing per unit)	kg	0.205	0.190	0.200	0.185

Special heads, accessories and special contact arrangement or particular function: please consult us.

 Closed contact /  Open contact

## Dimensions (mm)



# LS7..P.. Limit Switches

Double Insulation □ - Plastic Casing IP65 - 60 mm Width  
2 Cable Inlets for Cable Gland

Movement to be detected:



Actuator

	Metal plunger	ø11 plastic roller plunger	ø12.5 plastic roller lever on steel plunger	ø18 plastic roller lever
Conformity / (N.C. contact with positive opening operation)	-	-	-	-
Maximum actuation speed	0.5 m/s	0.3 m/s	1 m/s	1.5 m/s
Min. force / torque: - actuation	15 N	12 N	7 N	0.1 N.m
- positive opening operation	45 N	41 N	24 N	0.32 N.m

## Additional Technical Data

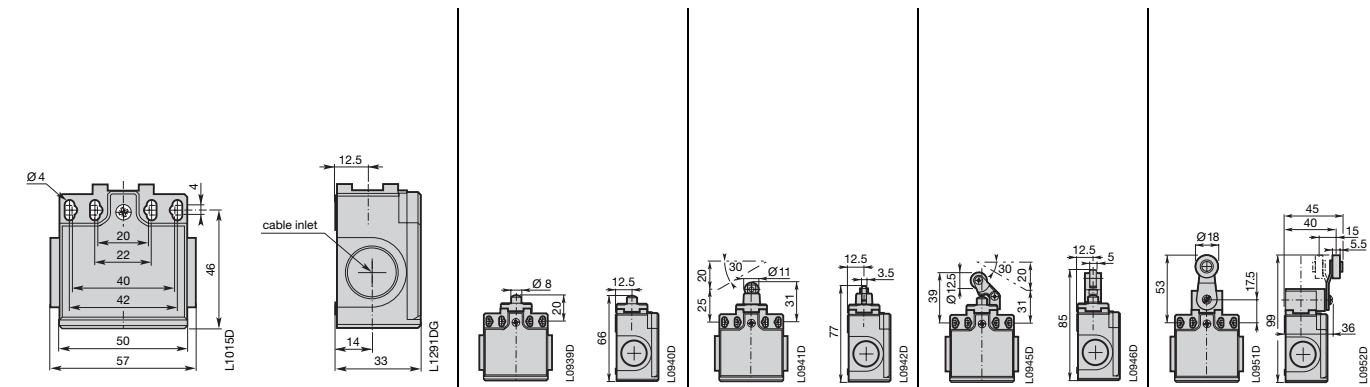
LS type code to be complete with the cable inlet code .....  
 0 = Pg 13.5  
 1 = Pg 11  
 2 = M16 x 1.5  
 3 = M20 x 1.5  
 5 = 1/2" NPT

Snap action contacts	Type	LS7 □ P11B11	LS7 □ P13B11	LS7 □ P31B11	LS7 □ P41B11
	Operation diagram				
Non-overlapping Slow action contacts	Type	LS7 □ P11D11	LS7 □ P13D11	LS7 □ P31D11	LS7 □ P41D11
	Operation diagram				
Weight (packing per unit)	kg	0.100	0.100	0.105	0.125

Special heads, accessories and special contact arrangement or particular function: please consult us.

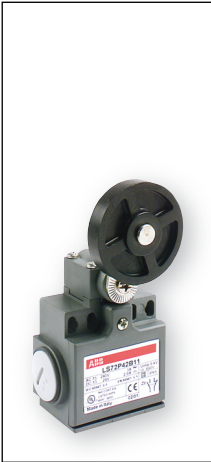
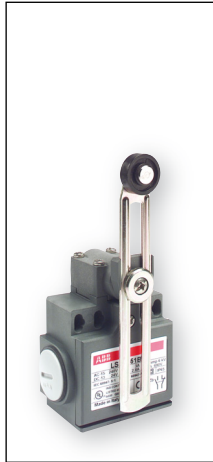
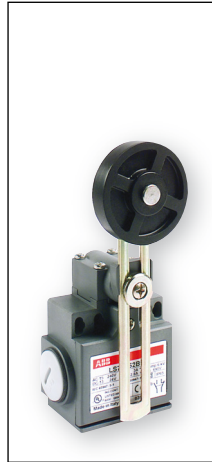
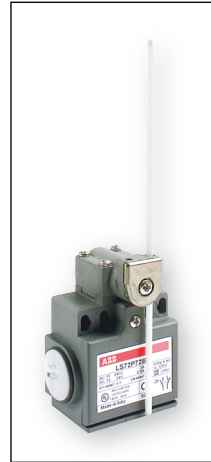
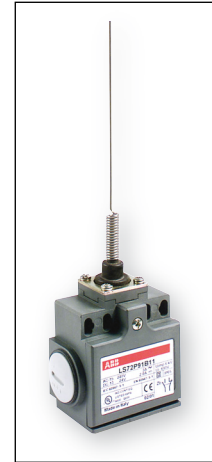
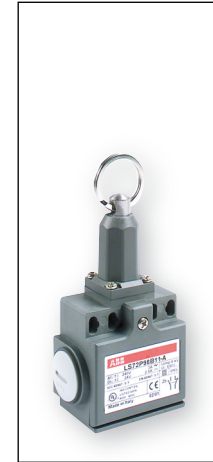
Closed contact / Open contact

## Dimensions (mm)



# LS7..P.. Limit Switches

Double Insulation □ - Plastic Casing IP65 - 60 mm Width  
2 Cable Inlets for Cable Gland

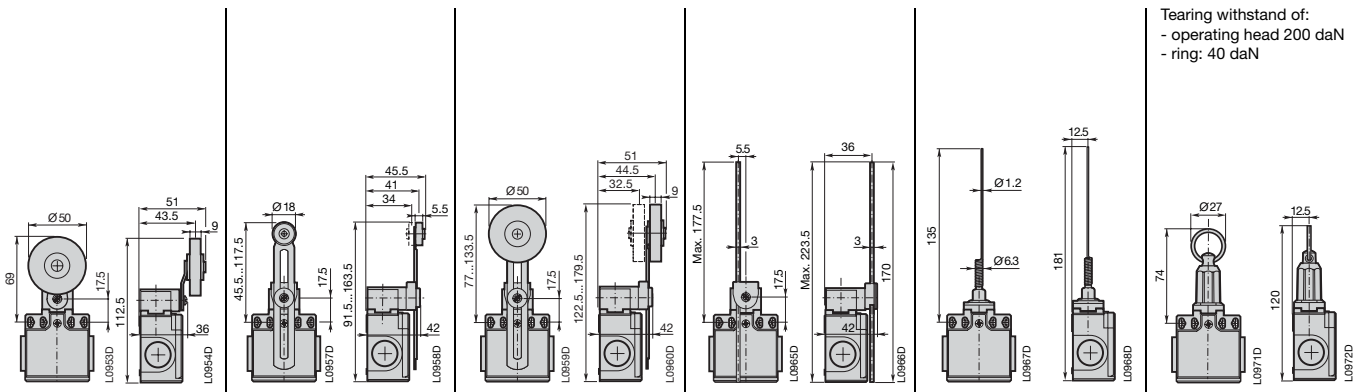
30° Cam Translation Movement		Fully Direction Trans.		Multidirectional	Pull action
					
<b>ø50 rubber roller lever</b>	<b>Adjustable ø18 plastic roller lever</b>	<b>Adjustable ø50 rubber roller lever</b>	<b>Adjustable ø3 fibre-glass rod lever</b>	<b>Spring rod lever</b>	<b>Pull action with ring</b>
1.5 m/s 0.1 N.m 0.32 N.m	1.5 m/s 0.1 N.m 0.32 N.m	1.5 m/s 0.1 N.m 0.32 N.m	1.5 m/s 0.1 N.m 0.32 N.m	1 m/s 0.12 N.m -	0.5 m/s 30 N -

LS type code to be complete with the cable inlet code ..... 0 = Pg 13.5  
1 = Pg 11  
2 = M16 x 1.5  
3 = M20 x 1.5  
5 = 1/2" NPT

<b>LS7 □ P42B11</b> 0 17° 31° 47° 74° 21-22 13-14 21-22 13-14	<b>LS7 □ P51B11</b> 0 17° 31° 47° 74° 21-22 13-14 21-22 13-14	<b>LS7 □ P52B11</b> 0 17° 31° 47° 74° 21-22 13-14 21-22 13-14	<b>LS7 □ P72B11</b> 0 17° 31° 47° 74° 21-22 13-14 21-22 13-14	<b>LS7 □ P91B11</b> 0 12° 23° 36° 21-22 13-14 21-22 13-14	<b>LS7 □ P98B11-A</b> 0 0.9 2.0 5.6 mm 21-22 13-14 21-22 13-14
<b>LS7 □ P42D11</b> 0 21° 37° 74° 21-22 13-14 30°	<b>LS7 □ P51D11</b> 0 21° 37° 74° 21-22 13-14 30°	<b>LS7 □ P52D11</b> 0 21° 37° 74° 21-22 13-14 30°	<b>LS7 □ P72D11</b> 0 21° 37° 74° 21-22 13-14 30°	<b>LS7 □ P91D11</b> 0 14° 36° 21-22 13-14 21°	<b>LS73 □ P98D11-A</b> 0 1.0 5.6 mm 21-22 13-14 1.9
0.145	0.135	0.155	0.120	0.110	0.145

Special heads, accessories and special contact arrangement or particular function: please consult us.

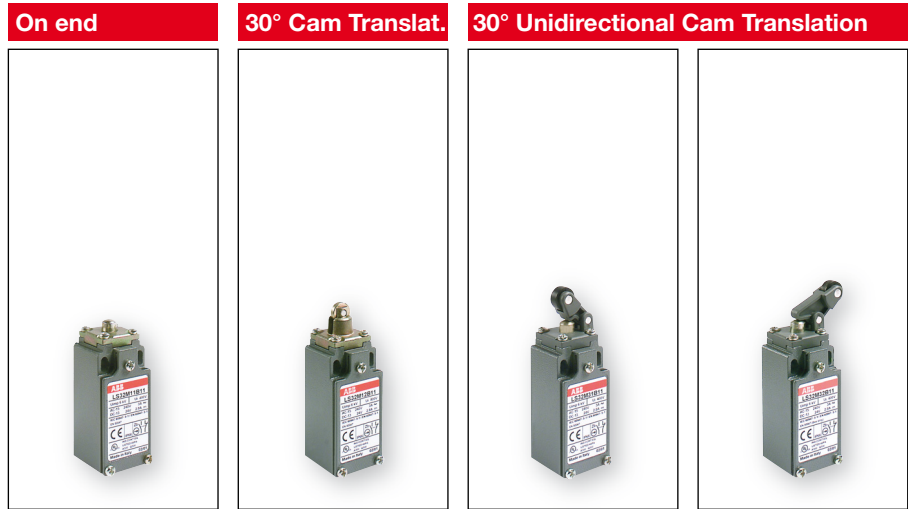
■ Closed contact / □ Open contact



# LS3..M.. Limit Switches

Metal Casing IP66 - 30 mm Width  
1 Cable Inlet for Cable Gland

Movement to be detected:



Actuator

	Metal plunger	Metal roller plunger	ø12.5 plastic roller lever on steel plunger	ø12.5 plastic roller lever on steel plunger
Conformity / $\rightarrow$ (N.C. contact with positive opening operation)	EN 50047 (B shape) $\rightarrow$	EN 50047 (C shape) $\rightarrow$	EN 50047 (E shape) $\rightarrow$	- $\rightarrow$
Maximum actuation speed	0.5 m/s	0.3 m/s	1 m/s	1 m/s
Min. force / torque: - actuation	15 N	12 N	7 N	7 N
- positive opening operation	45 N	41 N	24 N	24 N

## Additional Technical Data

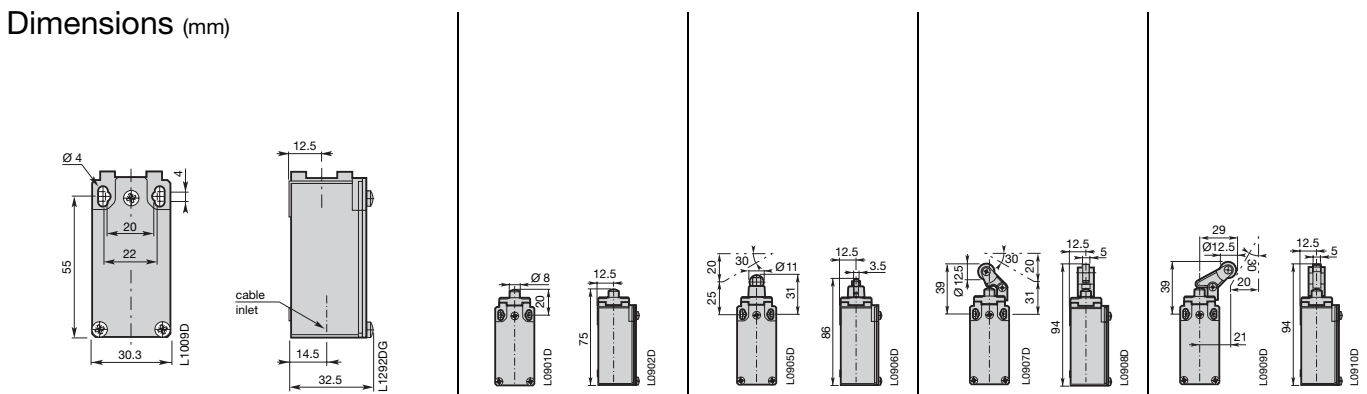
LS type code to be complete with the cable inlet code ..... [0] = Pg 13.5  
 [1] = Pg 11  
 [2] = M16 x 1.5  
 [3] = M20 x 1.5  
 [5] = 1/2" NPT

Snap action contacts	Type	LS3 □ M11B11	LS3 □ M12B11	LS3 □ M31B11	LS3 □ M32B11
	Operation diagram				
Non-overlapping Slow action contacts	Type	LS3 □ M11D11	LS3 □ M12D11	LS3 □ M31D11	LS3 □ M32D11
	Operation diagram				
Weight (packing per unit)	kg	0.180	0.185	0.175	0.175

Special heads, accessories and special contact arrangement or particular function: please consult us.







Closed contact / Open contact

## Dimensions (mm)



# LS3..M.. Limit Switches

Metal Casing IP66 - 30 mm Width  
1 Cable Inlet for Cable Gland

Unidirectional	30° Cam Translation Movement				Multidirectional
					
<b>ø22 plastic roller lever on steel plunger</b>	<b>ø18 plastic roller lever</b>	<b>ø50 rubber roller lever</b>	<b>Adjustable ø18 plastic roller lever</b>	<b>Adjustable ø50 rubber roller lever</b>	<b>Spring rod lever</b>
1 m/s 7 N 24 N	EN 50047 (A shape) 1.5 m/s 0.1 N.m 0.32 N.m	1.5 m/s 0.1 N.m 0.32 N.m	1.5 m/s 0.1 N.m 0.32 N.m	1.5 m/s 0.1 N.m 0.32 N.m	1 m/s 0.12 N.m -

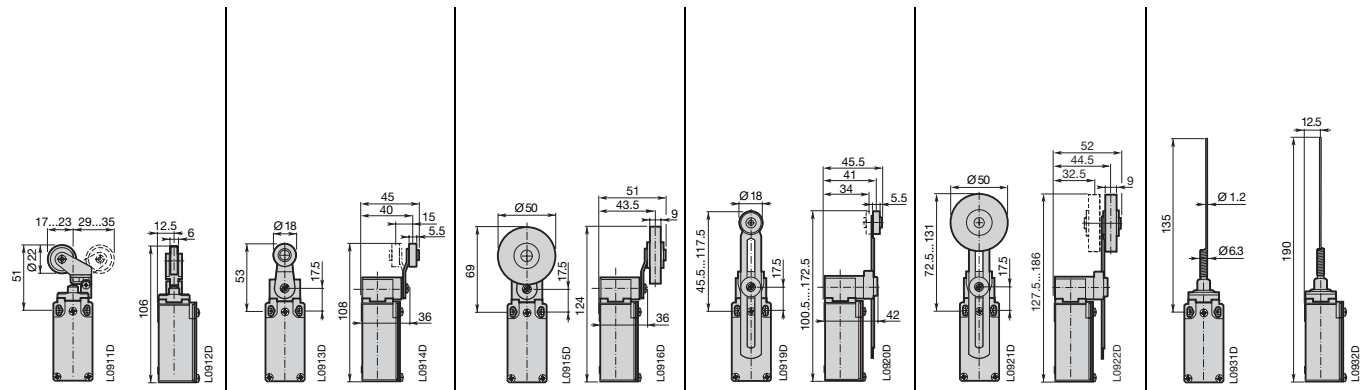
LS type code to be complete with the cable inlet code ..... 0 = Pg 13.5

- 1 = Pg 11
- 2 = M16 x 1.5
- 3 = M20 x 1.5
- 5 = 1/2" NPT

<b>LS3 □ M38B11</b> 0 8.8 15.0 23.2 32.0 mm 21-22 13-14	<b>LS3 □ M41B11</b> 0 17° 31° 47° 74° 21-22 13-14	<b>LS3 □ M42B11</b> 0 17° 31° 47° 74° 21-22 13-14	<b>LS3 □ M51B11</b> 0 17° 31° 47° 74° 21-22 13-14	<b>LS3 □ M52B11</b> 0 17° 31° 47° 74° 21-22 13-14	<b>LS3 □ M91B11</b> 0 12° 23° 36° 21-22 13-14
<b>LS3 □ M38D11</b> 0 10.6 18.5 32.0 mm 15.1 21-22 13-14	<b>LS3 □ M41D11</b> 0 21° 37° 74° 30° 21-22 13-14	<b>LS3 □ M42D11</b> 0 21° 37° 74° 30° 21-22 13-14	<b>LS3 □ M51D11</b> 0 21° 37° 74° 30° 21-22 13-14	<b>LS3 □ M52D11</b> 0 21° 37° 74° 30° 21-22 13-14	<b>LS3 □ M91D11</b> 0 14° 36° 21° 21-22 13-14
0.180	0.230	0.255	0.240	0.265	0.180

Special heads, accessories and special contact arrangement or particular function: please consult us.

■ Closed contact / □ Open contact



# LS4..M.. Limit Switches

Metal Casing IP66 - 40 mm Width  
1 Cable Inlet for Cable Gland

Movement to be detected:



Actuator

	Stainless steel plunger	ø12 stainless steel roller plunger	ø22 plastic roller lever on stainless steel plunger	ø22 plastic roller lever
Conformity / $\rightarrow$ (N.C. contact with positive opening operation)	EN 50041 (B shape) $\rightarrow$	EN 50041 (C shape) $\rightarrow$	- $\rightarrow$	EN 50041 (A shape) $\rightarrow$
Maximum actuation speed	0.5 m/s	0.5 m/s	1.5 m/s	1.5 m/s
Min. force / torque: - actuation	30 N	22 N	12 N	0.15 N.m
- positive opening operation	45 N	40 N	40 N	0.30 N.m

## Additional Technical Data

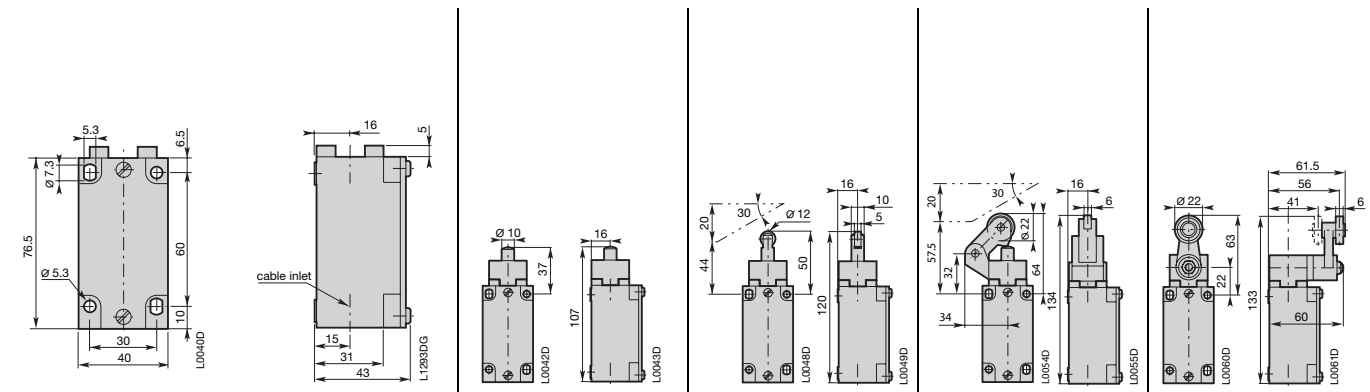
LS type code to be complete with the cable inlet code .....  
 0 = Pg 13.5  
 3 = M20 x 1.5  
 5 = 1/2" NPT

Snap action contacts	Type	LS4 □ M11B1	LS4 □ M13B1	LS4 □ M31B1	LS4 □ M41B1
	Operation diagram				
Non-overlapping Slow action contacts	Type	LS4 □ M11D1	LS4 □ M13D1	LS4 □ M31D1	LS4 □ M41D1
	Operation diagram				
Weight (packing per unit)	kg	0.240	0.240	0.275	0.280

Special heads, accessories and special contact arrangement or particular function: please consult us.

Closed contact / Open contact

## Dimensions (mm)





# LS4..M.. Limit Switches

Metal Casing IP66 - 40 mm Width  
1 Cable Inlet for Cable Gland

Movement to be detected:

**30° Cam Translation Movement**

**Fully Direction Trans.**

**Multidirectional**



Actuator

	<b>ø22 stainless steel roller lever</b>	<b>Adjustable ø22 plastic roller lever</b>	<b>Adjustable ø6 plastic rod lever</b>	<b>Spring rod</b>
Conformity / (N.C. contact with positive opening operation)	EN 50041 (A shape)	-	EN 50041 (D shape)	-
Maximum actuation speed	1.5 m/s	1.5 m/s	1.5 m/s	1 m/s
Min. force / torque: - actuation	0.15 N.m	0.15 N.m	0.15 N.m	0.18 N.m
- positive opening operation	0.30 N.m	0.30 N.m	0.30 N.m	-

## Additional Technical Data

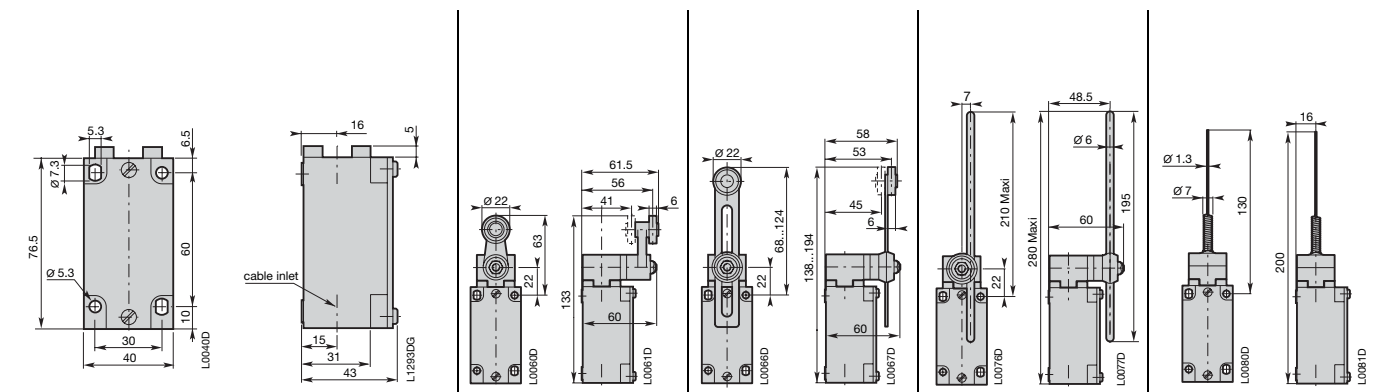
LS type code to be complete with the cable inlet code ..... 0 = Pg 13.5  
3 = M20 x 1.5  
5 = 1/2" NPT

	Type	<b>LS4 □ M42B11</b>	<b>LS4 □ M51B11</b>	<b>LS4 □ M72B11</b>	<b>LS4 □ M91B11</b>
Snap action contacts 	Operation diagram				
Non-overlapping Slow action contacts 	Operation diagram				
Weight (packing per unit)	kg	0.280	0.290	0.285	0.235

Special heads, accessories and special contact arrangement or particular function: please consult us.

Closed contact / Open contact

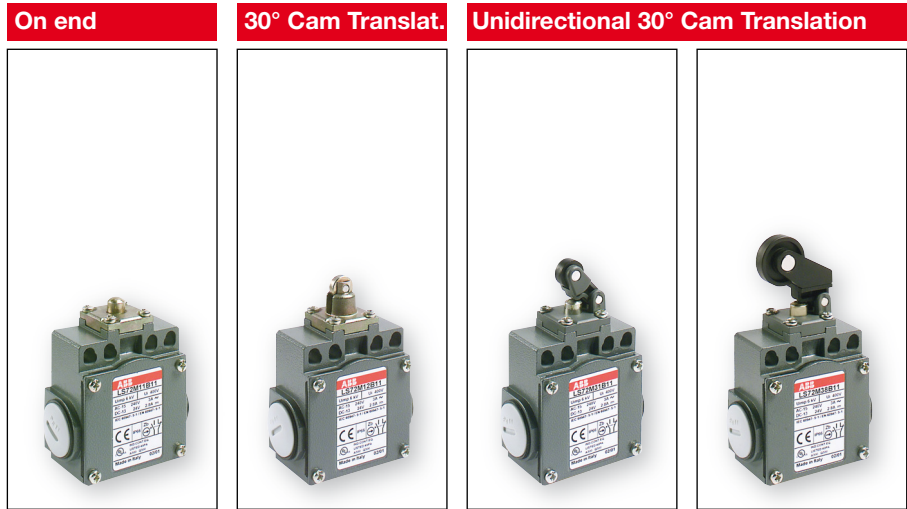
## Dimensions (mm)



# LS7..M.. Limit Switches

Metal Casing IP66 - 60 mm Width  
3 Cable Inlets for Cable Gland

Movement to be detected:



Actuator

	Metal plunger	Ø11 metal roller plunger	Ø12.5 plastic roller lever on steel plunger	Ø22 plastic roller lever on steel plunger
Conformity / (N.C. contact with positive opening operation)	-	-	-	-
Maximum actuation speed	0.5 m/s	0.3 m/s	1 m/s	1 m/s
Min. force / torque: - actuation	15 N	12 N	7 N	7 N
- positive opening operation	45 N	41 N	24 N	24 N

## Additional Technical Data

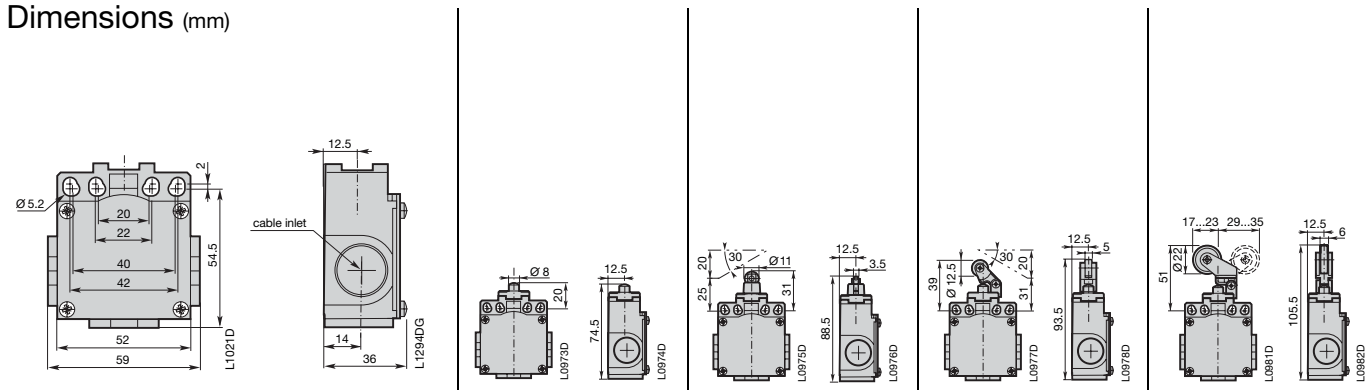
LS type code to be complete with the cable inlet code ..... [0] = Pg 13.5  
 [1] = Pg 11  
 [2] = M16 x 1.5  
 [3] = M20 x 1.5  
 [5] = 1/2" NPT

Snap action contacts	Type	LS7 □ M11B11	LS7 □ M12B11	LS7 □ M31B11	LS7 □ M38B11
	Operation diagram				
Non-overlapping Slow action contacts	Type	LS7 □ M11D11	LS7 □ M12D11	LS7 □ M31D11	LS7 □ M38D11
	Operation diagram				
Weight (packing per unit)	kg	0.270	0.280	0.265	0.270

Special heads, accessories and special contact arrangement or particular function: please consult us.

Closed contact / Open contact

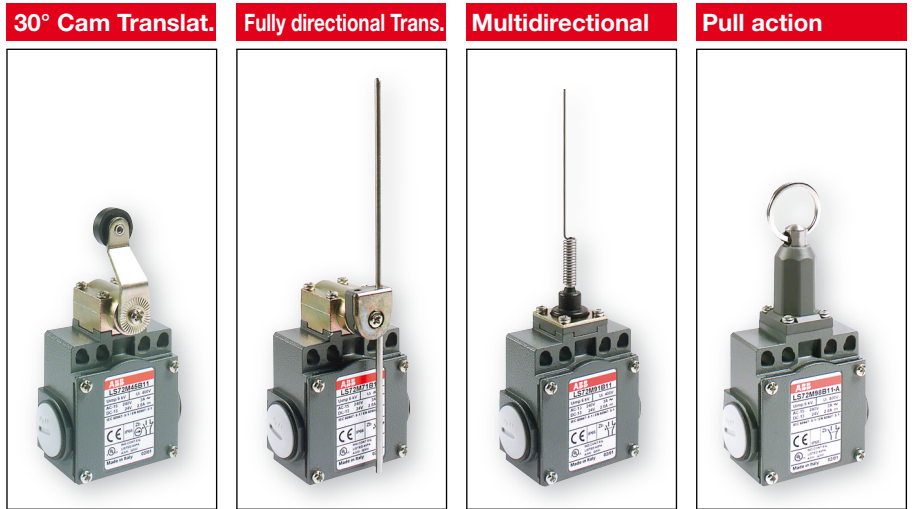
## Dimensions (mm)



# LS7..M.. Limit Switches

Metal Casing IP66 - 60 mm Width  
3 Cable Inlets for Cable Gland

Movement to be detected:



Actuator	ø18 plastic roller with bent lever	Adjustable ø3 stainless steel rod lever	Spring rod	Pull action with ring
Conformity / $\rightarrow$ (N.C. contact with positive opening operation)	- $\rightarrow$	- $\rightarrow$	-	-
Maximum actuation speed	1.5 m/s	1.5 m/s	1 m/s	0.5 m/s
Min. force / torque: - actuation	0.1 N.m	0.1 N.m	0.12 N.m	30 N
- positive opening operation	0.32 N.m	0.32 N.m	-	-

## Additional Technical Data

LS type code to be complete with the cable inlet code ..... 0 = Pg 13.5

1 = Pg 11

2 = M16 x 1.5

3 = M20 x 1.5

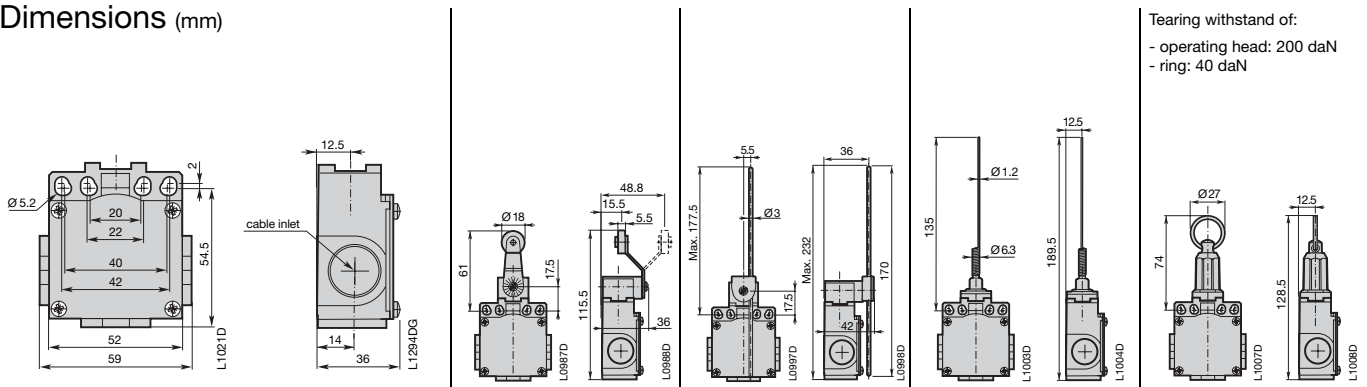
5 = 1/2" NPT

Snap action contacts	Type	LS7 □ M45B11	LS7 □ M71B11	LS7 □ M91B11	LS7 □ M98B11-A
	Operation diagram				
Non-overlapping Slow action contacts	Type	LS7 □ M45D11	LS7 □ M71D11	LS7 □ M91D11	LS7 □ M98D11-A
	Operation diagram				
Weight (packing per unit)	kg	0.335	0.380	0.315	0.350

Special heads, accessories and special contact arrangement or particular function: please consult us.

Closed contact / Open contact

## Dimensions (mm)



# Safety Limit Switches with Small Latch (Key)

Double Insulation - Plastic Casing IP65 - 30 and 40 mm Width  
Metal Casing IP66 - 30 and 40 mm Width

## Applications

Easy to use, the limit switches with small latch (key) offer specific qualities:

- Visible operation.
- Capability for strong current switching (conventional thermal current 10 A).
- Opening guaranteed of the "N.C." contact(s) when the small latch is withdrawn from the limit switch.
- Contact blocks with dependent action and positive opening operation of the "N.C." normally closed contact(s) (symbol ⊖).
- Electrically separated contacts.
- Precision on operation positions (consistency).
- Immunity to electromagnetic disturbances.

These specific features make the limit switches ideal for monitoring and protection of industrial machines without inertia in which down-time is less than access time to the dangerous area. Use on sliding or pivoting protectors (covers, cases, doors, grids, etc.).

- They contribute to protection of operators working on dangerous machines, by opening the control circuit. Withdrawal of the small latch (key) by opening the mobile protector causes immediate stopping of the machine drive.
- Associated with other standard limit switches and safety switching devices, they produce automatic control circuits meeting standard EN 954-1.
- They comply with the requirements of European Directives (Low Voltage, Machines and Electromagnetic Compatibility) and are conform to European and international standards.

## Description

**LS3..P.-S** (30 mm width) and **LS4..P.-S** (40 mm width) safety limit switches with key, which are made of fibre-glass reinforced UL-V0 thermo-plastic material, offer double insulation  $\square$  and a degree of protection IP65.

**LS3..M.-S** (30 mm width) safety limit switches with key, which are made of zinc alloy (zamak), have a degree of protection IP66.

**LS4..M.-S** (40 mm width) safety limit switches with key, which are made of aluminium alloy, have a degree of protection IP66.

**2 operating head options:**

- Adjustable every 90° assembled using 4 x ø 3 screws (L3..P), 4 x ø 4 screws (L4..P), 4 x M3 screws (L3..M) and 4 x M4 screws (L4..M)
- Pivoting from 0° to 360° with 1 x M3 screw (LS3..P81 or LS3..M81 only)

**Casing:**

- 30 mm width with standardized dimensions according to EN 50047
- 40 mm width with standardized dimensions according to EN 50041

**Block of 2 or 3 contacts**

- Contact configuration: 1 N.O. + 1 N.C., 2 N.C., 1 N.O. + 2 N.C. or 3 N.C. (LS4..P/M only)
- Positive opening operation ⊖
- Snap action (only for blocks of 2 contacts)
- Slow action
- The contacts are electrically separated

**Connecting terminals**

- M3.5 (+, -) pozidriv 2 screw (Screw head with captive cable clamp)
- Marking conform to IEC 60947-1, IEC 60947-5-1, EN 50005 and EN 50013 standards

**Terminal for protective conductor placed near the cable inlet and marked:**  $\ominus$  (LS3..M & LS4..M only)

- M3.5 (+, -) pozidriv 2 screw (Screw head with captive cable clamp)

**7 small latch (key) options (for LS3..P or LS3..M) and 5 small latch (key) options (for LS4..P or LS4..M) to be ordered separately:**

- Right angle key (13 or 22 mm fixing)
- Straight key (13 or 22 mm fixing)
- Straight key or right angle key with shock absorber
- Adjustable right angle key

**Mounting the casing:**

- 2 x M4 screws in top part for 30 mm width
- 2 or 4 x M5 screws for 40 mm width

**Cover**

- Closed using 1 x ø 3 screw for LS3..P.-S
- Closed using 3 x M3 screws for LS3..M.-S
- Self clipping for LS4..P.-S
- Closed using 2 x M4 screws for LS4..M.-S

One piece sealing gasket to ensure tightness

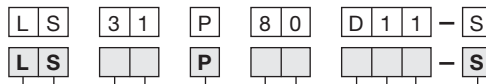
**Electrical connection:**

- 1 (LS30P/M & LS40P/M) cable inlet for Pg 13.5 cable gland
- 1 (LS31P/M) cable inlet for Pg 11 cable gland
- 1 (LS32P/M) cable inlet for ISO 16 cable gland
- 1 (LS33P/M & LS43P/M) cable inlet for ISO 20 cable gland
- 1 (LS35P) cable inlet by 1/2" NPT plastic adaptor
- 1 (LS35M & LS45P/M) cable inlet for 1/2" NPT cable gland

Suitable for conduit connection only with use of adaptor sleeve optionally provided by manufacturer (on request)

## Type

Example :



<p>Limit Switch ..... <b>LS</b></p> <p>Casing width: 30 mm ..... <b>3</b></p> <p>1 cable inlet for Pg 13.5 cable gland ..... <b>0</b></p> <p>1 cable inlet for Pg 11 cable gland ..... <b>1</b></p> <p>1 cable inlet for ISO 16 cable gland ..... <b>2</b></p> <p>1 cable inlet for ISO 20 cable gland ..... <b>3</b></p> <p>1 cable inlet by 1/2" NPT plastic adaptor (LS35P) or 1/2" NPT for cable gland (LS35M) ..... <b>5</b></p> <p>Casing width: 40 mm ..... <b>4</b></p> <p>1 cable inlet for Pg 13.5 cable gland ..... <b>0</b></p> <p>1 cable inlet for ISO 20 cable gland ..... <b>3</b></p> <p>1 cable inlet for 1/2" NPT cable gland ..... <b>5</b></p> <p>Plastic casing ..... <b>P</b></p> <p>Metal casing ..... <b>M</b></p>	<p><b>S</b> ..... Safety device</p> <p>Contact types:</p> <p><b>11</b> ..... 1 N.O. + 1 N.C. contacts</p> <p><b>12</b> ..... 1 N.O. + 2 N.C. contacts (LS4..P. or LS4..M. only)</p> <p><b>02</b> ..... 2 N.C. contacts</p> <p><b>03</b> ..... 3 N.C. contacts (LS4..P. or LS4..M. only)</p> <p>Snap action:</p> <p><b>B</b> ..... Zb Snap (for 1 N.O. + 1 N.C. and 2 N.C. contacts only)</p> <p>Dependent (slow) action:</p> <p><b>L</b> ..... Slow / Simultaneous</p> <p><b>D</b> ..... Zb Non-overlapping late make</p> <p><b>C</b> ..... Zb Overlapping early make (for 1 N.O. + 1 N.C. contacts only)</p> <p>Operating heads: (see panorama)</p> <p><b>80</b> ..... Adjustable every 90°</p> <p><b>81</b> ..... Continuously pivoting from 0° to 360° (LS3..P &amp; LS3..M only)</p>
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# Safety Limit Switches with Axis or Lever

Double Insulation - Plastic Casing IP65 - 30 mm Width  
Metal Casing IP66 - 30 mm Width

## Applications

Easy to use, the limit switches with rotative axis or lever offer specific qualities:

- Visible operation.
- Capability for strong current switching (conventional thermal current 10 A).
- Opening of the "N.C." contact(s) for a very small rotation angle: 7°.
- Contact blocks with dependent action and positive opening operation of the "N.C." normally closed contact(s) (symbol ⊖).
- Electrically separated contacts.
- Precision on operating positions (consistency).
- Immunity to electromagnetic disturbances.

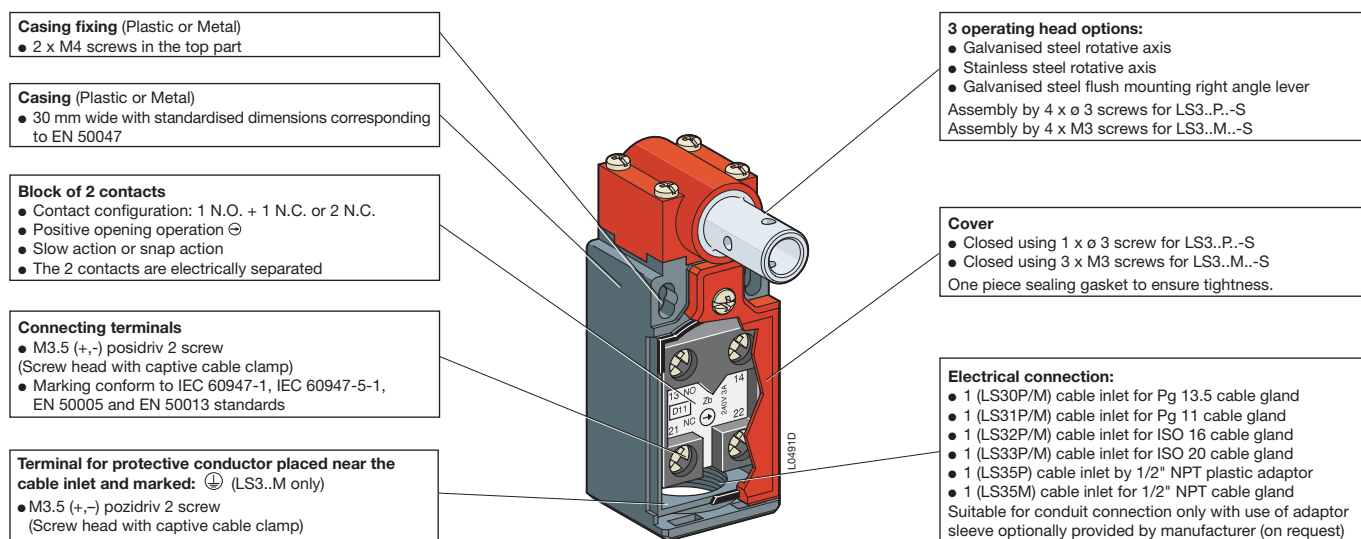
These specific features make the limit switches ideal for monitoring and protection of light industrial machines without inertia equipped with angular movement protectors (doors, hinged grids, rotative covers or cases, etc.). Detection by the rotative axis or by means of a lever.

- Opening of the mobile protector guarantees operator protection by immediately stopping the machine drive.
- These switches are suitable for conformity of the existing installed machine base, as they can be mounted on protection devices already installed.
- Associated with other standard limit switches and safety switching devices, they produce automatic control circuits meeting standard EN 954-1.
- They comply with the requirements of European Directives (Low Voltage, Machines and Electromagnetic Compatibility) and are conform to European and international standards.

## Description

LS3..P75..-S to LS3..P77..-S safety limit switches, which made of fibre-glass reinforced UL-V0 thermoplastic material, offer double insulation □ and a degree of protection IP65.

LS3..M75..-S to LS3..M77..-S safety limit switches, which made of zinc alloy (zamack), have a degree of protection IP66.



## Type

Example : 

L	S	3	1	P	7	5	D	1	1	-	S
L	S			P						-	S

Limit Switch.....LS										S .....Safety device
Casing width: 30 mm.....3										
1 cable inlet for Pg 13.5 cable gland.....0										
1 cable inlet for Pg 11 cable gland.....1										
1 cable inlet M16 x 1.5 for ISO 16 cable gland.....2										
1 cable inlet M20 x 1.5 for ISO 20 cable gland.....3										
1 cable inlet by 1/2" NPT plastic adaptor (LS35P) or 1/2" NPT for cable gland (LS35M).....5										
Plastic casing.....P										
Metal casing.....M										
Operating heads: (see panorama)										
Galvanised steel rotative axis.....75										
Stainless steel rotative axis.....76										
Galvanised steel flush mounting right angle lever.....77										
Contact types:										
11 ..... 1 N.O. + 1 N.C. contacts										
02 ..... 2 N.C. contacts										
Snap action:										
B .....Zb Snap										
Dependent (slow) action:										
L .....Slow / Simultaneous										
D .....Zb Non-overlapping late make										
C .....Zb Overlapping early make										

# Safety Limit Switches with Pulling Cable

Double Insulation - Plastic Casing IP65 - 30 mm Width  
Metal Casing IP66 - 30, 40 and 60 mm Width

## Applications

Easy to use, the safety limit switches with pulling cable for emergency stop with latching and manual reset offer specific qualities:

- Visible operation.
- Capability for strong current switching (conventional thermal current 10 A)
- Contact blocks with dependent action and positive opening operation of the "N.C." normally closed contact(s) (symbol ⇨)
- Electrically separated contacts.
- Precision on operation positions (consistency).
- Immunity to electromagnetic disturbances.

These specific features make the limit switches ideal for monitoring and protection in the technical premises (testing-station, painting lines,...) and on the industrial machines (presses, conveyor belts, transfer machines,...) being able to present risks or dangerous phenomena under operation.

In any point of his working area, the operator must be able to easily actuate (to pull) the cable to order the stop of the machine or the work in progress.

- Associated with safety switching devices, they produce automatic control circuits meeting standard EN 954-1.
- They comply with the requirements of European Directives (Low Voltage, Machines and Electromagnetic Compatibility) and are conform to European an international standards.

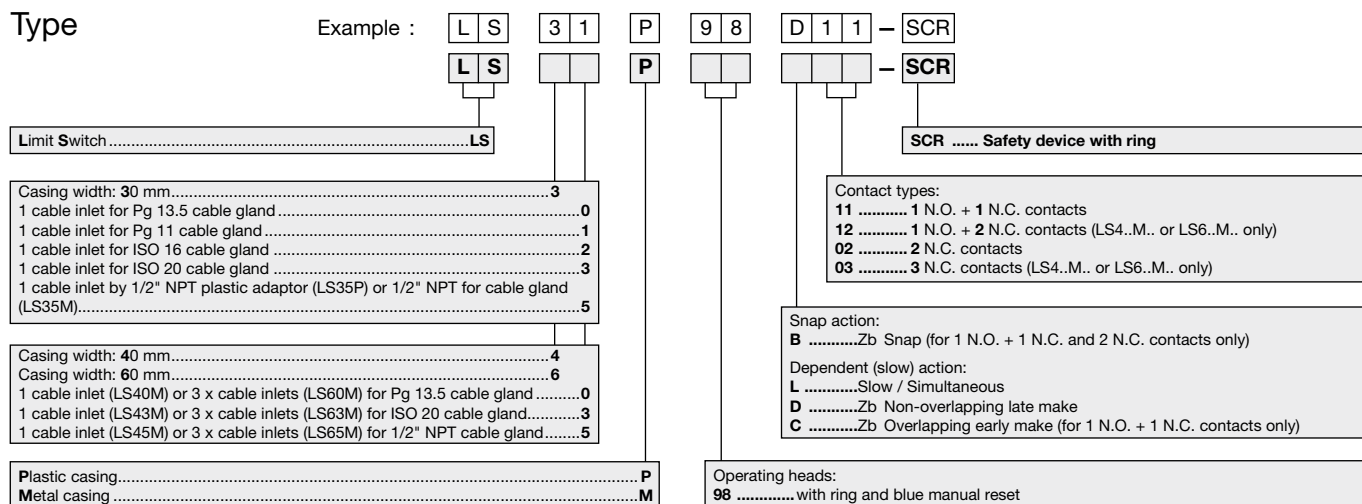
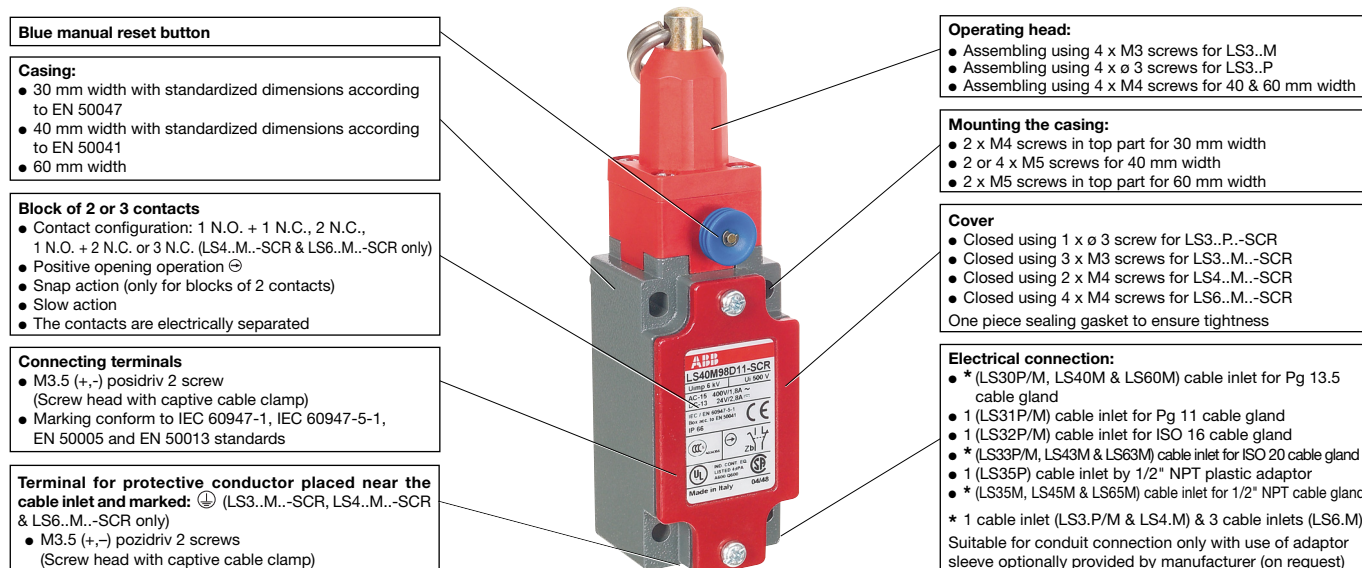
## Description

Safety limit switches with pulling cable for emergency stop with Latching and manual reset :

**LS3..P.-SCR** (30 mm width), which are made of fibre-glass reinforced UL-V0 thermoplastic material, offer double insulation □ and a degree of protection IP65.

**LS3..M.-SCR** (30 mm width), which are made of zinc alloy (zamak), have a degree of protection IP66.

**LS4..M.-SCR** (40 mm width) and **LS6..M.-SCR** (60 mm width), which are made of aluminium alloy, have a degree of protection IP66.



# Double Insulation - Plastic Casing IP65 - 30 and 40 mm Width

## Metal Casing IP66 - 30 and 40 mm Width



LS30P80D11-S



LS32M80D11-S



LS40P80D12-S



LS40M80D12-S



LSA30P08

LS30P: 1 cable inlet for Pg 13.5 cable gland	0	0	2
LS31P: 1 cable inlet for Pg 11 cable gland	1	0	1
LS32P: 1 cable inlet for ISO 16 cable gland	2	0	3
LS33P: 1 cable inlet for ISO 20 cable gland	3	2	2
LS35P: 1 cable inlet by 1/2" NPT plastic adaptor	5	2	1
LS30M: 1 cable inlet for Pg 13.5 cable gland	0	1	8
LS31M: 1 cable inlet for Pg 11 cable gland	1	1	7
LS32M: 1 cable inlet for ISO 16 cable gland	2	1	9
LS33M: 1 cable inlet for ISO 20 cable gland	3	3	8
LS35M: 1 cable inlet for 1/2" NPT cable gland	5	3	7

Plastic Casing - 30 mm Width  
IP65

Metal Casing - 30 mm Width  
IP66

### Ordering Details - Product without Small Latch (Key)

Contact blocks	Type	Order code	Weight kg (1)
 D11	 L02	state cable inlet code <input type="checkbox"/>	Pack <sup>ing</sup> 1 piece

### Plastic Limit Switches with Adjustable Head Every 90°

1	-	LS3 <input type="checkbox"/> P80D11-S	1SBV03 <input type="checkbox"/> <input type="checkbox"/> 80R1411	0.080
-	1	LS3 <input type="checkbox"/> P80L02-S	1SBV03 <input type="checkbox"/> <input type="checkbox"/> 80R1302	0.080

### Metal Limit Switches with Adjustable Head Every 90°

1	-	LS3 <input type="checkbox"/> M80D11-S	1SBV03 <input type="checkbox"/> <input type="checkbox"/> 80R1411	0.180
-	1	LS3 <input type="checkbox"/> M80L02-S	1SBV03 <input type="checkbox"/> <input type="checkbox"/> 80R1302	0.180

(1) For LS35P add 0.007 kg.

LS40P: 1 cable inlet for Pg 13.5 cable gland	0	0	5
LS43P: 1 cable inlet for ISO 20 cable gland	3	0	7
LS45P: 1 cable inlet by 1/2" NPT plastic adaptor	5	2	4
LS40M: 1 cable inlet for Pg 13.5 cable gland	0	1	1
LS43M: 1 cable inlet for ISO 20 cable gland	3	1	6
LS45M: 1 cable inlet for 1/2" NPT cable gland	5	3	1

Plastic Casing - 40 mm Width  
IP65

Metal Casing - 40 mm Width  
IP66

### Ordering Details - Product without Small Latch (Key)

Contact blocks	Type	Order code	Weight kg
 D12	 L03	state cable inlet code <input type="checkbox"/>	Pack <sup>ing</sup> 1 piece

### Plastic Limit Switches with Adjustable Head Every 90°

1	-	LS4 <input type="checkbox"/> P80D12-S	1SBV03 <input type="checkbox"/> <input type="checkbox"/> 80R1412	0.155
-	1	LS4 <input type="checkbox"/> P80L03-S	1SBV03 <input type="checkbox"/> <input type="checkbox"/> 80R1303	0.155

### Metal Limit Switches with Adjustable Head Every 90°

1	-	LS4 <input type="checkbox"/> M80D12-S	1SBV03 <input type="checkbox"/> <input type="checkbox"/> 80R1412	0.210
-	1	LS4 <input type="checkbox"/> M80L03-S	1SBV03 <input type="checkbox"/> <input type="checkbox"/> 80R1303	0.210

### Ordering Details - Small Latch (Key)

Description of key	Fixing mm	Type	Order code	Weight kg Pack <sup>ing</sup> 1 piece
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#### Small Latch (Keys) for LS3..P.. or LS3..M..

Right angle key	13	LSA30P05	1SBV 048 605 R1000	0.011
Straight key	13	LSA30P06	1SBV 048 606 R1000	0.011
Right angle key with shock absorber	15	LSA30P07	1SBV 048 607 R1000	0.014
Straight key with shock absorber	15	LSA30P08	1SBV 048 608 R1000	0.014
Adjustable angle key	40	LSA30P09	1SBV 048 609 R1000	0.022

#### Small Latch (Keys) for LS4..P.. or LS4..M..

Right angle key	13	LSA40X05	1SBV 048 805 R1000	0.014
Straight key	13	LSA40X06	1SBV 048 806 R1000	0.014
Right angle key with shock absorber	15	LSA40X07	1SBV 048 807 R1000	0.017
Straight key with shock absorber	15	LSA40X08	1SBV 048 808 R1000	0.017
Adjustable angle key	40	LSA40X09	1SBV 048 809 R1000	0.025

# Safety Limit Switches with Axis or Lever

Double Insulation - Plastic Casing IP65 - 30 mm Width  
Metal Casing IP66 - 30 mm Width



LS30P75D11-S



LS32M76D11-S



LS30P77D11-S

LS30P: 1 cable inlet for Pg 13.5 cable gland .....	0	0 2
LS31P: 1 cable inlet for Pg 11 cable gland .....	1	0 1
LS32P: 1 cable inlet for ISO 16 cable gland .....	2	0 3
LS33P: 1 cable inlet for ISO 20 cable gland .....	3	2 2
LS35P: 1 cable inlet by 1/2" NPT plastic adaptor ..	5	2 1
LS30M: 1 cable inlet for Pg 13.5 cable gland .....	0	1 8
LS31M: 1 cable inlet for Pg 11 cable gland .....	1	1 7
LS32M: 1 cable inlet for ISO 16 cable gland .....	2	1 9
LS33M: 1 cable inlet for ISO 20 cable gland .....	3	3 8
LS35M: 1 cable inlet for 1/2" NPT cable gland .....	5	3 7

Plastic Casing - 30 mm Width  
IP65

Metal Casing - 30 mm Width  
IP66

## Ordering Details

Contact blocks	Type	Order code	Weight kg (1)
 D11	 L02	state cable inlet code <input type="checkbox"/>	state cable inlet code <input type="checkbox"/>
			Pack <sup>ing</sup> 1 piece

### Plastic Limit Switches with Rotative Axis (zinc plated)

1	-	LS3 <input type="checkbox"/> P75D11-S	1SBV03 <input type="checkbox"/> <input type="checkbox"/> 75R1411	0.090
-	1	LS3 <input type="checkbox"/> P75L02-S	1SBV03 <input type="checkbox"/> <input type="checkbox"/> 75R1302	0.090

### Plastic Limit Switches with Stainless Steel Rotative Axis

1	-	LS3 <input type="checkbox"/> P76D11-S	1SBV03 <input type="checkbox"/> <input type="checkbox"/> 76R1411	0.090
-	1	LS3 <input type="checkbox"/> P76L02-S	1SBV03 <input type="checkbox"/> <input type="checkbox"/> 76R1302	0.090

### Metal Limit Switches with Rotative Axis (zinc plated)

1	-	LS3 <input type="checkbox"/> M75D11-S	1SBV03 <input type="checkbox"/> <input type="checkbox"/> 75R1411	0.190
-	1	LS3 <input type="checkbox"/> M75L02-S	1SBV03 <input type="checkbox"/> <input type="checkbox"/> 75R1302	0.190

### Metal Limit Switches with Stainless Steel Rotative Axis

1	-	LS3 <input type="checkbox"/> M76D11-S	1SBV03 <input type="checkbox"/> <input type="checkbox"/> 76R1411	0.190
-	1	LS3 <input type="checkbox"/> M76L02-S	1SBV03 <input type="checkbox"/> <input type="checkbox"/> 76R1302	0.190

### Plastic Limit Switches with Lever (zinc plated)

1	-	LS3 <input type="checkbox"/> P77D11-S	1SBV03 <input type="checkbox"/> <input type="checkbox"/> 77R1411	0.110
-	1	LS3 <input type="checkbox"/> P77L02-S	1SBV03 <input type="checkbox"/> <input type="checkbox"/> 77R1302	0.110

### Metal Limit Switches with Lever (zinc plated)

1	-	LS3 <input type="checkbox"/> M77D11-S	1SBV03 <input type="checkbox"/> <input type="checkbox"/> 77R1411	0.210
-	1	LS3 <input type="checkbox"/> M77L02-S	1SBV03 <input type="checkbox"/> <input type="checkbox"/> 77R1302	0.210

(1) For LS 35P add 0.007 kg.



# Safety Limit Switches with Pulling Cable

Double Insulation - Plastic Casing IP65 - 30 mm Width  
Metal Casing IP66 - 30, 40 and 60 mm Width



LS30P: 1 cable inlet for Pg 13.5 cable gland .....0	0	2	<b>Plastic Casing - 30 mm Width</b> IP65 <input type="checkbox"/>
LS31P: 1 cable inlet for Pg 11 cable gland .....1	0	1	
LS32P: 1 cable inlet for ISO 16 cable gland .....2	0	3	
LS33P: 1 cable inlet for ISO 20 cable gland .....3	2	2	
LS35P: 1 cable inlet by 1/2" NPT plastic adaptor ..5	2	1	
LS30M: 1 cable inlet for Pg 13.5 cable gland .....0	1	8	<b>Metal Casing - 30 mm Width</b> IP66
LS31M: 1 cable inlet for Pg 11 cable gland .....1	1	7	
LS32M: 1 cable inlet for ISO 16 cable gland .....2	1	9	
LS33M: 1 cable inlet for ISO 20 cable gland .....3	3	8	
LS35M: 1 cable inlet for 1/2" NPT cable gland .....5	3	7	

Contact blocks	Type	Order code	Weight kg (1)
 D11	 L02	state cable inlet code <input type="checkbox"/>	Pack <sup>ing</sup> 1 piece

### Plastic Safety Limit Switches with Pulling Cable for Emergency Stop with Latching and Manual Reset

1	-	LS3 <input type="checkbox"/> P98D11-SCR	1SBV03 <input type="checkbox"/> <input type="checkbox"/> 98R1411	0.115
-	1	LS3 <input type="checkbox"/> P98L02-SCR	1SBV03 <input type="checkbox"/> <input type="checkbox"/> 98R1302	0.115

### Metal Safety Limit Switches with Pulling Cable for Emergency Stop with Latching and Manual Reset

1	-	LS3 <input type="checkbox"/> M98D11-SCR	1SBV03 <input type="checkbox"/> <input type="checkbox"/> 98R1411	0.270
-	1	LS3 <input type="checkbox"/> M98L02-SCR	1SBV03 <input type="checkbox"/> <input type="checkbox"/> 98R1302	0.270

(1) For LS 35P add 0.007 kg.

LS40M: 1 cable inlet for Pg 13.5 cable gland .....0	1	1	<b>Metal Casing - 40 mm Width</b> IP66
LS43M: 1 cable inlet for ISO 20 cable gland .....1	1	6	
LS45M: 1 cable inlet for 1/2" NPT cable gland .....2	3	1	
LS60M: 3 cable inlets for Pg 13.5 cable gland .....0	1	3	<b>Metal Casing - 60 mm Width</b> IP66
LS63M: 3 cable inlets for ISO 20 cable gland .....1	1	5	
LS65M: 3 cable inlets for 1/2" NPT cable gland .....2	3	3	

Contact blocks	Type	Order code	Weight kg
 D12	 L03	state cable inlet code <input type="checkbox"/>	Pack <sup>ing</sup> 1 piece

### Metal Safety Limit Switches with Pulling Cable for Emergency Stop with Latching and Manual Reset

1	-	LS4 <input type="checkbox"/> M98D12-SCR	1SBV03 <input type="checkbox"/> <input type="checkbox"/> 98R1412	0.270
-	1	LS4 <input type="checkbox"/> M98L03-SCR	1SBV03 <input type="checkbox"/> <input type="checkbox"/> 98R1303	0.270

### Metal Safety Limit Switches with Pulling Cable for Emergency Stop with Latching and Manual Reset

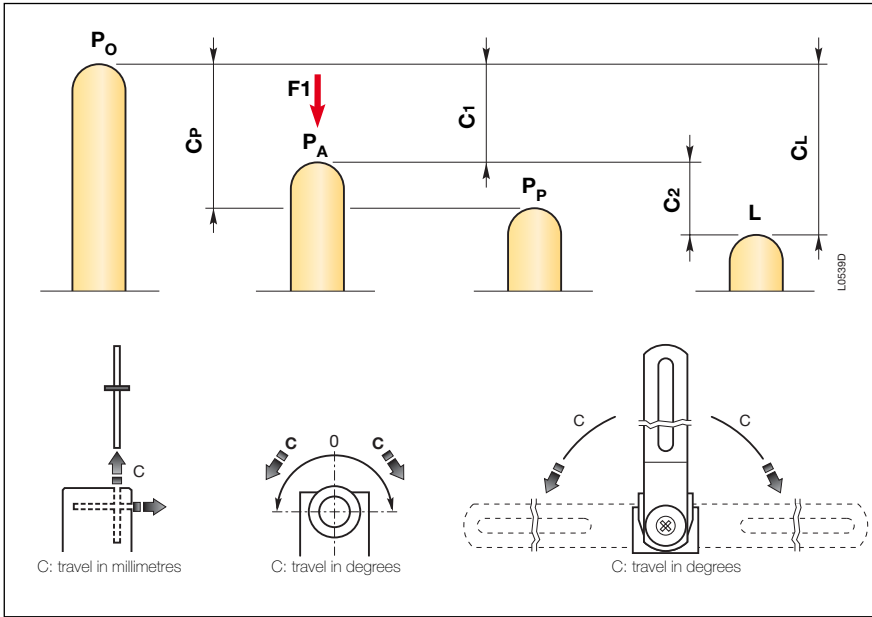
1	-	LS6 <input type="checkbox"/> M98D12-SCR	1SBV03 <input type="checkbox"/> <input type="checkbox"/> 98R1412	0.300
-	1	LS6 <input type="checkbox"/> M98L03-SCR	1SBV03 <input type="checkbox"/> <input type="checkbox"/> 98R1303	0.300

## Accessories

Description of accessories	Type	Order code	Weight kg
Cable grip D5	LSR5242	1SBV 047 800 R5242	0.060
Cable end protector D5	LSR5343	1SBV 047 800 R5343	0.005
Cable support M8 x 59	LSR5444	1SBV 047 800 R5444	0.080
Turnbuckle M6	LSR5141	1SBV 047 800 R5141	0.080
End spring (LS3...P, LS3...M)	LSR5845	1SBV 047 800 R5845	0.050
End spring (LS4...M, LS6...M)	LSR5846	1SBV 047 800 R5846	0.050
D5 red cable: length 10.50 meters	LSR5547	1SBV 047 800 R5547	0.580
15.50 meters	LSR5548	1SBV 047 800 R5548	0.860
25.50 meters	LSR5549	1SBV 047 800 R5549	1.410
51.00 meters	LSR5550	1SBV 047 800 R5550	2.790
102.00 meters	LSR5551	1SBV 047 800 R5551	5.600

# Safety Limit Switches

## Travel and Operating diagrams



**P<sub>0</sub> Free position:**  
position of the switch actuator when no external force is exerted on it.

**P<sub>A</sub> Operating position:**  
position of the switch actuator, under the effect of force **F<sub>1</sub>**, when the contacts leave their initial free position.

**P<sub>P</sub> Positive opening position:**  
position of the switch actuator from which positive opening is ensured.

**L Max. travel position:**  
maximum acceptable travel position of the switch actuator under the effect of a force **F<sub>1</sub>**.

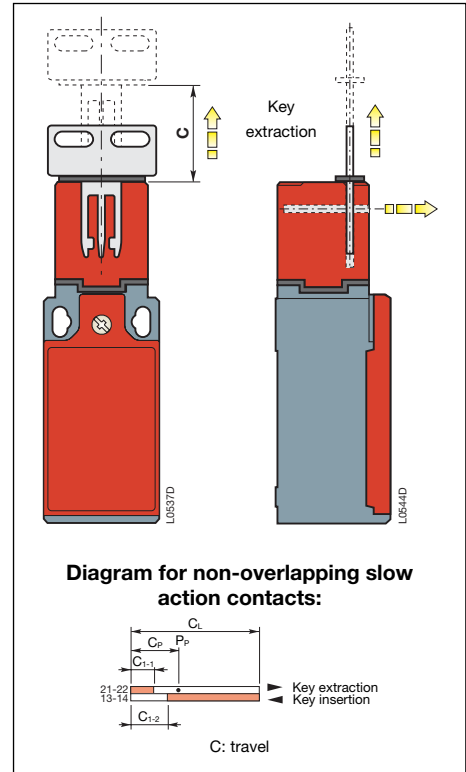
**C<sub>1</sub> Pre-travel (average travel):**  
distance between the free position **P<sub>0</sub>** and the operating position **P<sub>A</sub>**.

**C<sub>P</sub> Positive opening travel:**  
minimum travel of the switch actuator, from the free position, to ensure positive opening operation of the normally closed contact (N.C.).

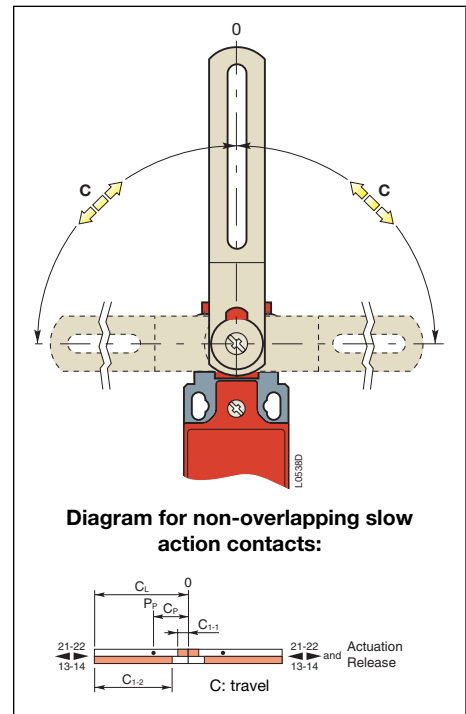
**C<sub>2</sub> Over-travel (average travel):**  
distance between the operating position **P<sub>A</sub>** and the max. travel position **L**.

**C<sub>L</sub> Max. travel (maximum travel):**  
distance between the free position **P<sub>0</sub>** and the max. travel position **L**.

**Note:** C<sub>1-1</sub> = pre-travel of contact 21-22,  
C<sub>1-2</sub> = pre-travel of contact 13-14.



**Diagram for non-overlapping slow action contacts:**



**Diagram for non-overlapping slow action contacts:**

Examples:

### LS30P80L02-S

Simultaneous slow action contacts

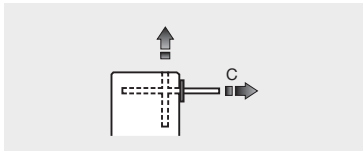
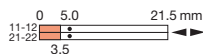


Diagram  
in millimetres / key travel



### LS30P76D11-S

non-overlapping slow action contacts

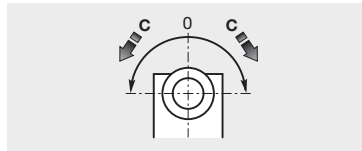
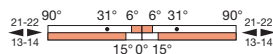


Diagram  
in degrees / lever rotation

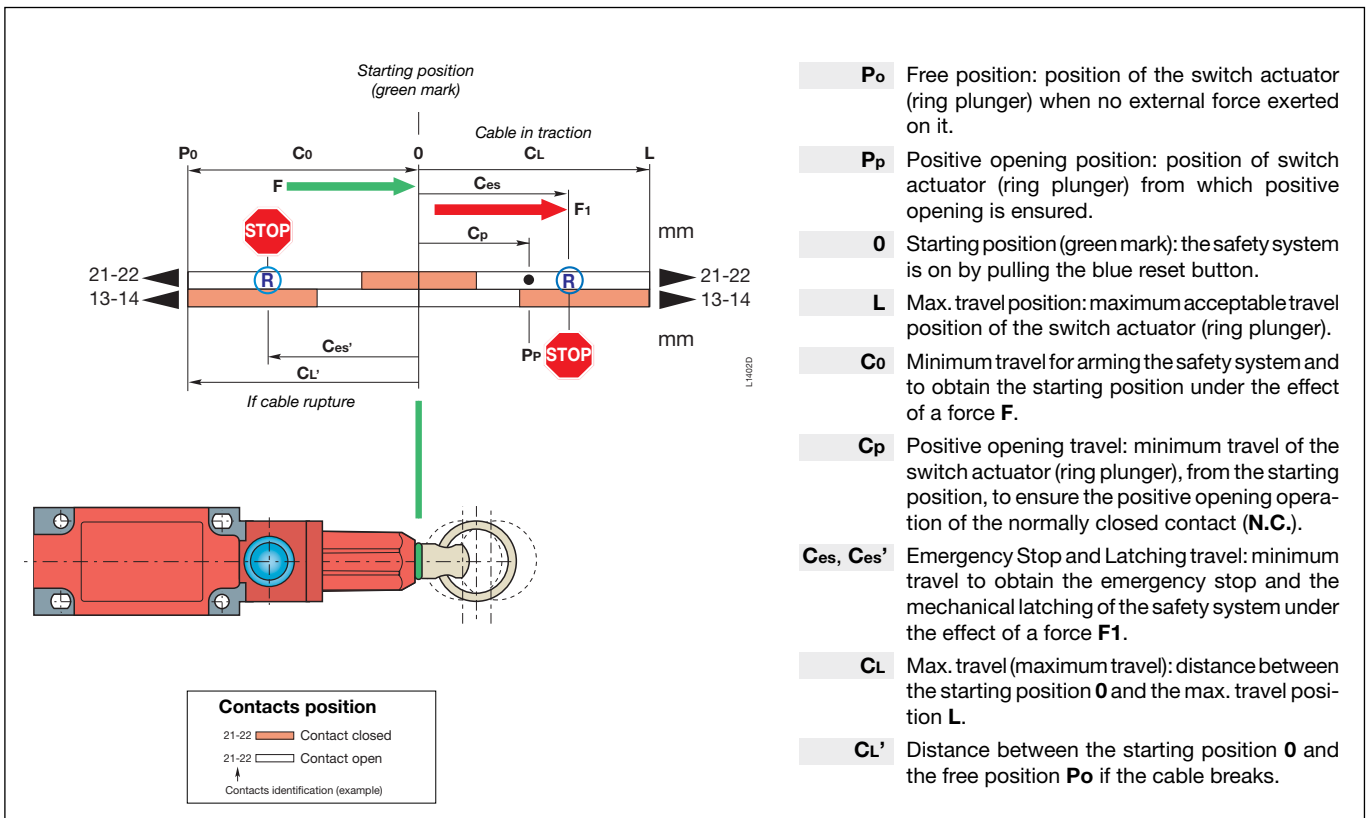


### Contacts position

21-22 Contact closed  
21-22 Contact open  
↑  
Contacts identification (example)

# Safety Limit Switches with Pulling Cable for Emergency Stop with Latching and Manual Reset

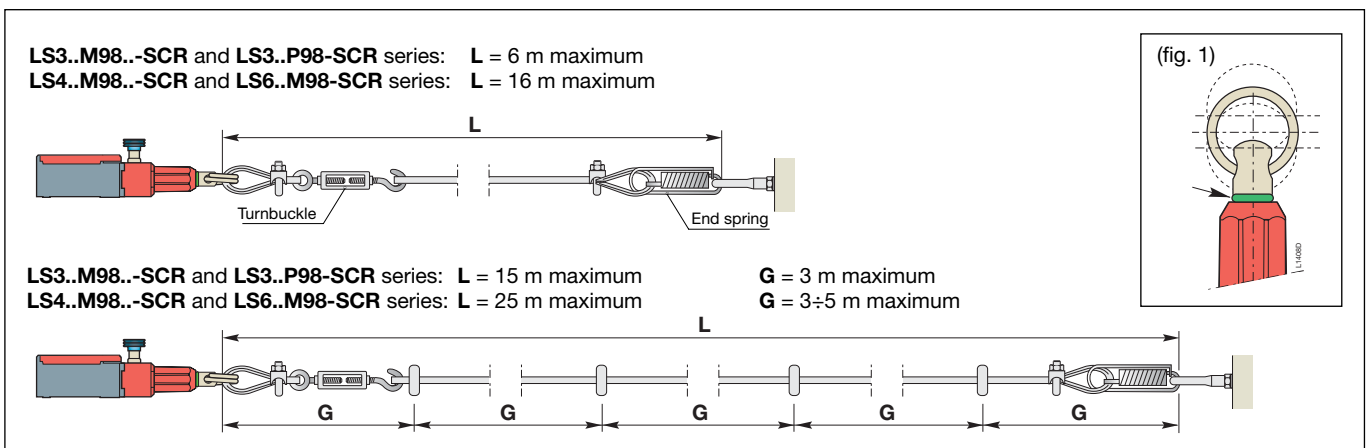
## Travel and Operating diagrams and Installation



## Installation

To obtain the right operation of the apparatus, please follow carefully below instructions:

- If necessary, according to the Limit Switch position turn the head by unscrewing the 4 fixing screws in order that the blue reset button become accessible. When the head is well place, re-screw the 4 screws with a tightening torque of 0.8 Nm.
- In order to have the cable correctly guided, fix tightly the apparatus and the cable support on rigid elements. Insert on the side of the Limit Switch a turnbuckle, and in the other side of the cable an extremity spring. Put the cable in tension by using the turnbuckle till the green mark appear on the metal plunger at the extremity of the red head (fig. 1).
- Pull the blue reset button to arm the safety system and close the safety contacts.
- The inside contacts of the Limit Switch will always change of position each time the cable will be operated (by pulling) as shown on the above diagram.
- Check that the apparatus operate correctly before to switch on the machine by following the below test procedure :
  - pull slowly the cable, the blue reset button doesn't change of position but the **N.C.** contact open and operate the "normal" stop of the machine.
  - Pull the cable with an **F<sub>1</sub>** force, the blue reset button change of position and operate the emergency stop of the machine with latching of the safety system.
  - In order to switch on again the device, please come back to point n° 2 and repeat the operation (if necessary).
- The use of those apparatus involve the respect of following standard: EN 1088, EN 292, EN 954-1



# Safety Limit Switches

Plastic Casing  IP65 and Metal Casing IP66  
Technical Data

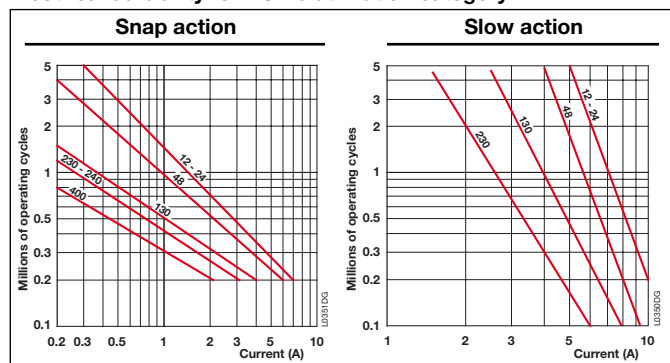
## General Technical Data

	Plastic Casing	Metal Casing
<b>Standards</b>	IEC 60947-1, IEC 60947-5-1, EN 60947-1, EN 60947-5-1, UL 508, and CSA C22-2 No. 14	
<b>Certifications - Approvals</b>	UL - CSA - CCC	
<b>Air temperature near the device</b>		
- during operation	°C -25 ... +70	
- for storage	°C -30 ... +80	
<b>Climatic withstand</b>	According to IEC 68-2-3 and salty mist according to IEC 68-2-11	
<b>Mounting positions</b>	All positions are authorised	
<b>Shock withstand</b> (according to IEC 68-2-27 and EN 60068-2-27) (1/2 sinusoidal shock for 11 ms) no change in contact position	Limit switch with <b>small latch</b> (key): 10 g Limit switch with <b>rotative axis</b> or <b>lever</b> and Limit switch <b>with pulling cable</b> : 40 g	
<b>Resistance to vibrations</b> (acc. to IEC 68-2-6 and EN 60068-2-6)	5 g (10 ... 500 Hz) no change in position of contacts > 100 µs	
<b>Protection against electrical shocks</b> (acc. to IEC 536)	Class II	Class I
<b>Degree of protection</b> (according to IEC 529 and EN 60529)	IP65	IP66

## Electrical Data

<b>Rated insulation voltage <math>U_i</math></b>			
- according to IEC 60947-1 and EN 60947-1	V	500 (degree of pollution 3)	500 (LS4..M.), (LS6..M.), 400 (LS3..M.) - (degree of pollution 3)
- according to UL 508, CSA C22-2 No. 14		600	600 (LS4..M.), (LS6..M.), 300 (LS3..M.)
<b>Rated impulse withstand voltage <math>U_{imp}</math></b> (according to IEC 60947-1 and EN 60947-1)	kV	6	
<b>Conventional enclosed thermal current <math>I_{the}</math></b> (according to IEC 60947-5-1 and EN 60947-5-1) ( $\theta \leq 40$ °C)	A	10	
<b>Short-circuit protection - gG type fuses</b>	A	10	
<b>Rated operational current</b>			
<b><math>I_e</math> / AC-15</b> - acc. to IEC 60947-5-1	24 V - 50/60 Hz	A 10	
	130 V - 50/60 Hz	A 5.5	
	230 V - 50/60 Hz	A 3.1	
	240 V - 50/60 Hz	A 3	
	400 V - 50/60 Hz	A 1.8	
	- according to UL 508, CSA C22 No.14	A 600	A 600 (LS4..M), (LS6..M) - A 300 (LS3..M)
<b><math>I_e</math> / DC-13</b> - acc. to IEC 60947-5-1	24 V - d.c.	A 2.8	
	110 V - d.c.	A 0.6	
	250 V - d.c.	A 0.27	
	- according to UL 508, CSA C22 No.14	Q 600	Q 600 (LS4..M), (LS6..M) - Q 300 (LS3..M)
<b>Positivity</b>	Contacts with positive opening operation as per IEC 60947-5-1 chapter 3 and EN 60947-5-1		
<b>Resistance between contacts</b>	mΩ	25	
<b>Mechanical durability</b>	Millions of operations	> 1 million	
<b>Max. switching frequency</b>	Cycles/h	600	
<b>Electrical durability</b> (according to IEC 60947-5-1 appendix C)	Utilization categories AC-15 and DC-13 (see curves and values below)		
- Max. switching frequency	Cycles/h	3600	
- Load factor		0.5	
<b>Connecting data of contact blocks</b>			
Connecting terminals	M3.5 (+,-) pozidriv 2 screw with cable clamp		
Connecting capacity	1 or 2 x mm <sup>2</sup> / AWG	0.5 mm <sup>2</sup> / AWG 20 to 2.5 mm <sup>2</sup> / AWG 14	
Terminal marking	According to EN 50013		

### Electrical durability for AC-15 utilization category



### Electrical durability for DC-13 utilization category

	Snap action	Slow action
Power breaking for a durability of 5 million operating cycles		
Voltage 24 V	9.5 W	12 W
Voltage 48 V	6.8 W	9 W
Voltage 110 V	3.6 W	6 W

# LS3..P80..-S and LS3..M80..-S Limit Switches with Small Latch (Key) and adjustable Head

1 Cable Inlet for Cable Gland

Movement to be detected:

**Small Latch (Key), Front or Vertical Translation**

Casing 30 mm width

- Plastic: Degree of protection IP65
- Metal: Degree of protection IP66



**Actuator**

Conformity /  $\rightarrow$  (N.C. contact with positive opening operation)  
 Actuation speed: maximal / minimal  
 Min. force / torque: - for insertion of the key  
 - for extraction of the key  
 - positive opening operation

**Key**

$\rightarrow$   
 0.5 / 0.01 m/s  
 15 N  
 15 N  
 30 N

**Key**

$\rightarrow$   
 0.5 / 0.01 m/s  
 15 N  
 15 N  
 30 N

## Additional Technical Data (Operating diagrams with keys inserted)

LS type code to be complete with the cable inlet code .....0 = Pg 13.5

1 = Pg 11

2 = M16 x 1.5

3 = M20 x 1.5

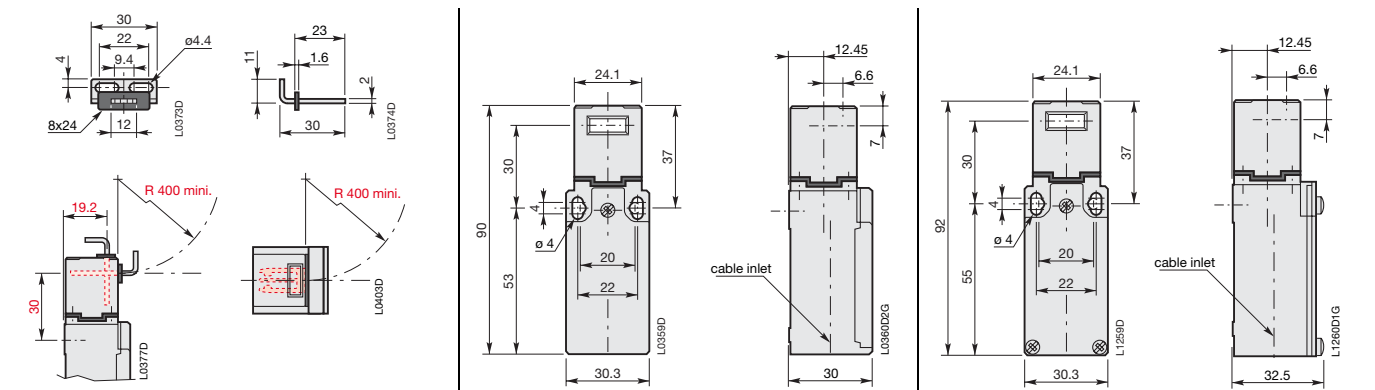
5 = 1/2" NPT (by plastic adaptor for LS3..P80..-S)

	Type	LS3 □ P80D11-S	LS3 □ M80D11-S
Snap action contacts slow action contacts 	Operation diagram		
Simultaneous Slow action contacts 	Operation diagram		
Weight (packing per unit)	kg	0.080	0.180

Special heads, accessories and special contact arrangement or particular function: please consult us.

Closed contact / Open contact

## Dimensions (mm)



# LS4..P80..-S and LS4..M80..-S Limit Switches with Small Latch (Key) and adjustable Head

1 Cable Inlet for Cable Gland

Movement to be detected:

**Small Latch (Key), Front or Vertical Translation**

Casing 40 mm width

- Plastic: Degree of protection IP65
- Metal: Degree of protection IP66



## Actuator

Conformity /  $\rightarrow$  (N.C. contact with positive opening operation)  
 Actuation speed: maximal / minimal  
 Min. force / torque: - for insertion of the key  
 - for extraction of the key  
 - positive opening operation

**Key**

$\rightarrow$   
 0.5 / 0.01 m/s  
 30 N  
 30 N  
 45 N

**Key**

$\rightarrow$   
 0.5 / 0.01 m/s  
 30 N  
 30 N  
 45 N

## Additional Technical Data (Operating diagrams with keys inserted)

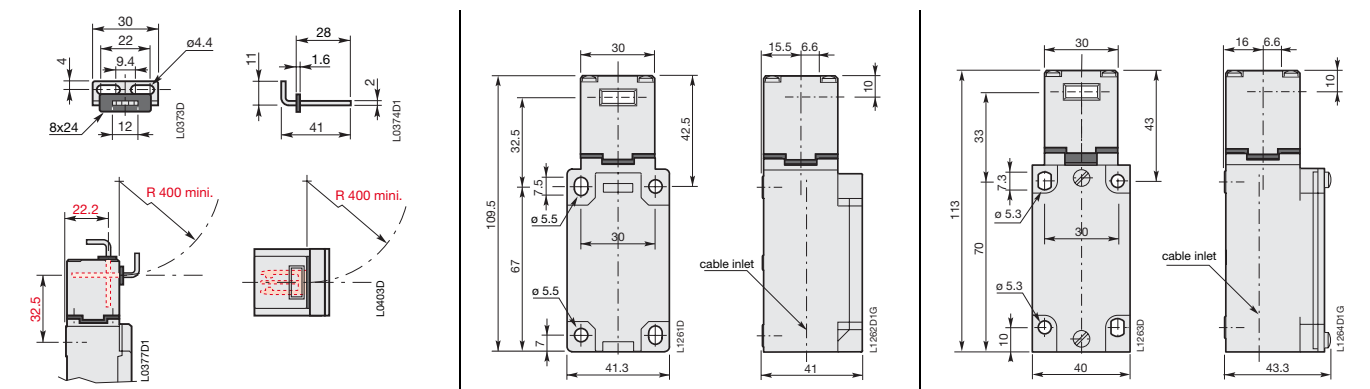
LS type code to be complete with the cable inlet code .....0 = Pg 13.5  
 3 = M20 x 1.5  
 5 = 1/2" NPT

	Type	LS4 □ P80D12-S	LS4 □ M80D12-S
Non-overlapping slow action contacts 	Operation diagram		
Simultaneous Slow action contacts 	Operation diagram		
<b>Weight (packing per unit)</b>	<b>kg</b>	0.155	0.210

Special heads, accessories and special contact arrangement or particular function: please consult us.

Closed contact / Open contact

## Dimensions (mm)



# LS3..P7..-S and LS3..M7..-S Limit Switches with Rotative Axis and adjustable Head

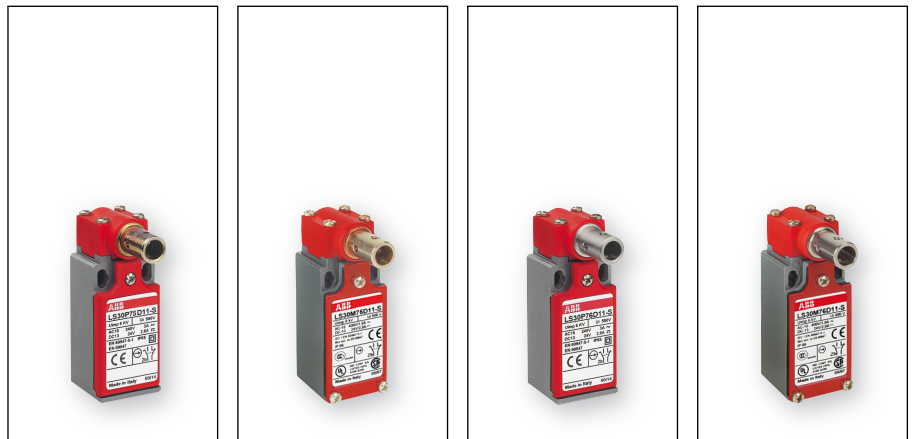
1 Cable Inlet for Cable Gland

Movement to be detected:

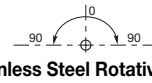
Angular Around Rotative Axis

Casing 30 mm width

- Plastic: Degree of protection IP65
- Metal: Degree of protection IP66



Actuator



Conformity /  $\ominus$  (N.C. contact with positive opening operation)  
 Actuation speed: maximal / minimal  
 Min. force / torque: - actuation  
 - positive opening operation

0.5 / 0.01 m/s  
 0.12 N.m  
 0.60 N.m

0.5 / 0.01 m/s  
 0.12 N.m  
 0.60 N.m

## Additional Technical Data

LS type code to be complete with the cable inlet code

- 0 = Pg 13.5
- 1 = Pg 11
- 2 = M16 x 1.5
- 3 = M20 x 1.5
- 5 = 1/2" NPT (by plastic adaptor for LS3..P7..-S)

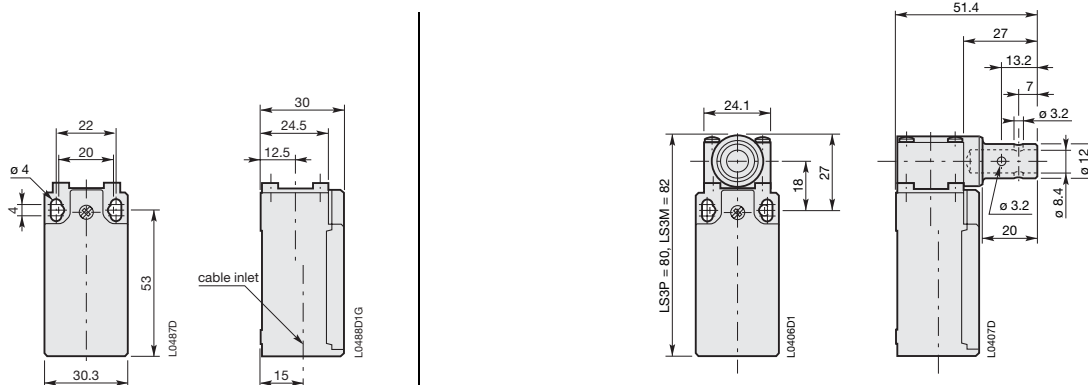
	Type	LS3 □ P75D11-S	LS3 □ M75D11-S	LS3 □ P76D11-S	LS3 □ M76D11-S
Non-overlapping slow action contacts 	Operation diagram				
Simultaneous Slow action contacts 	Operation diagram				
Weight (packing per unit)	kg	0.090	0.190	0.090	0.190

Special heads, accessories and special contact arrangement or particular function: please consult us.

Closed contact / Open contact

## Dimensions (mm)

Plastic Casing  
 (for Metal Casing see page 54)



# LS3..P7..-S and LS3..M7..-S Limit Switches with Right Angle Lever and Adjustable Head

1 Cable Inlet for Cable Gland

Movement to be detected:

**Angular with Lever**

Casing 30 mm width

- Plastic: Degree of protection IP65
- Metal: Degree of protection IP66



Lever adjusted to the left (by user)

Lever in central position (factory assembled)

Lever adjusted to the right (by user)

Galvanized steel flush mounting right angle lever

Actuator

Conformity /  $\ominus$  (N.C. contact with positive opening operation)  
 Actuation speed: maximal/minimal  
 Min. force / torque: - actuation  
 - positive opening operation

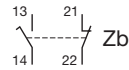
$\ominus$   
 0.5 / 0.01 m/s  
 0.12 N.m  
 0.60 N.m

## Additional Technical Data

LS type code to be complete with the cable inlet code .....

- 0 = Pg 13.5
- 1 = Pg 11
- 2 = M16 x 1.5
- 3 = M20 x 1.5
- 5 = 1/2" NPT (by plastic adaptor for LS..P7..-S)

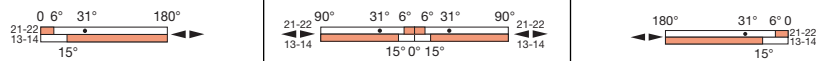
Non-overlapping slow action contacts



Type

LS3 □ P77D11-S / LS3 □ M77D11-S

Operation diagram



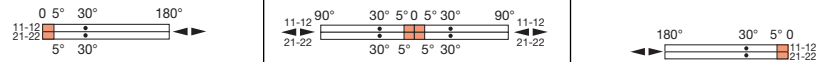
Simultaneous Slow action contacts



Type

LS3 □ P77L02-S / LS3 □ M77L02-S

Operation diagram



Weight (packing per unit)

kg

LS3..P77..-S = 0.110 kg / LS3..M77..-S = 0.210 kg

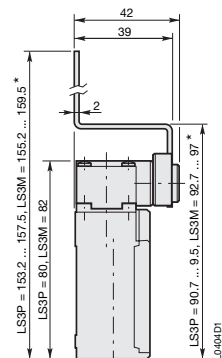
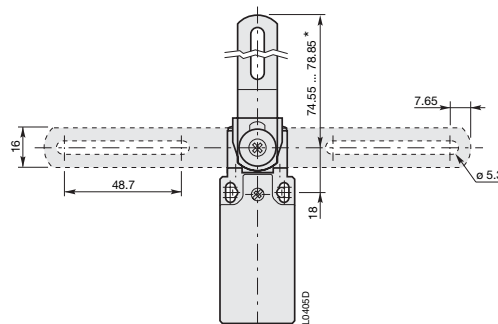
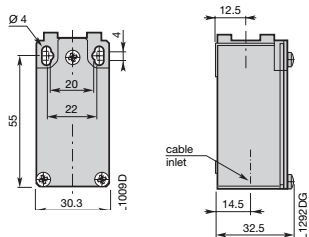
Special heads, accessories and special contact arrangement or particular function: please consult us.

■ Closed contact / □ Open contact

## Dimensions (mm)

Metal Casing

(for Plastic Casing see page 53)



\* Adjusted to maximum by factory





# Limit Switches with Latch and Manual Reset

Plastic Casing IP65  and Metal Casing IP66 - 30 mm Width

## Applications

Easy to use, the limit switches for safety applications with latch and manual reset offer specific qualities:


- Visible operation (fault memorisation).
- Capability for strong current switching (conventional thermal current 10 A).
- Contact blocks with positive opening operation of the "N.C." normally closed contact(s) (symbol ⊕).
- Electrically separated contacts.
- Precision on operating positions (consistency).
- Immunity to electromagnetic disturbances.

These specific features make the limit switches ideal for detection and monitoring of faults in hoisting machines, electric lifts, freight elevators, escalators, conveyor belts, etc.

Limit switches with latch and manual reset comply with the requirements of standard EN 81-1: safety rules for the construction and installations of electric lifts. In this application they detect or monitor: cabin overtravel, cabin speed by means of a speed limiting device, energisation of the parachute block on detection of excessive speed with respect to the set-point value, etc.

They comply with the requirements of European Directives (Low Voltage, Machines and Electromagnetic Compatibility) and are conform to European and international standards.

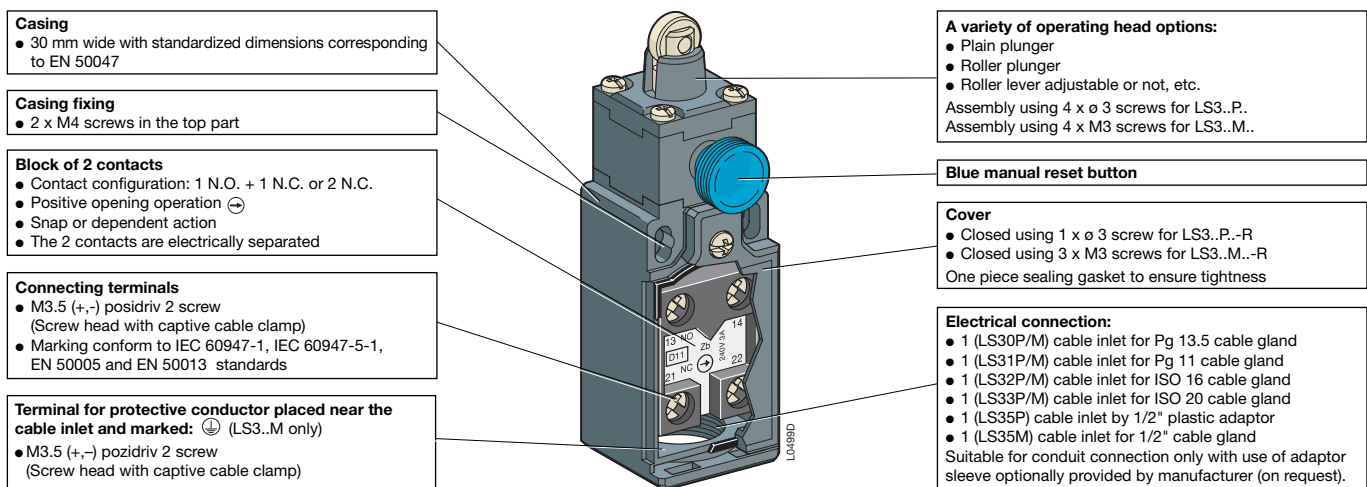
## Description

LS3..P.-R (plastic casing, 30 mm width) limit switches with latch and manual reset, which are made of fibreglass reinforced UL-V0 thermoplastic material, offer double insulation  and a degree of protection IP65.

LS3..M.-R (metal casing, 30 mm width) limit switches, which are made of zinc alloy (zamack), have a degree of protection IP66.

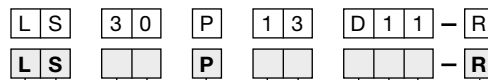
Limit switches with latch and manual reset are equipped with 1 N.C. + 1 N.O. or 2 N.C. contact blocks with positive opening operation of the "N.C." contact(s). After actuating the control device and overshooting the latching point, the N.C. safety contact(s) remain in the open position.

Return to the initial operating state takes place by voluntary action on the reset button.



## Type

Example :



Limit Switch ..... LS

R ..... Reset Device

Casing width: 30 mm ..... 3  
 1 cable inlet for Pg 13.5 cable gland ..... 0  
 1 cable inlet for Pg 11 cable gland ..... 1  
 1 cable inlet M16 x 1.5 for ISO 16 cable gland ..... 2  
 1 cable inlet M20 x 1.5 for ISO 20 cable gland ..... 3  
 1 cable inlet by 1/2" NPT plastic adaptor (LS35P) or 1/2" NPT for cable gland (LS35M) ..... 5

Contact types:  
 11 ..... 1 N.O. + 1 N.C. contacts  
 02 ..... 2 N.C. contacts

Snap action:  
 B ..... Zb Snap  
 Dependent (slow) action:  
 L ..... Slow / Simultaneous  
 D ..... Zb Non-overlapping late make  
 C ..... Zb Overlapping early make

Plastic casing ..... P  
 Metal casing ..... M

Operating heads: (see panorama)  
 11 ... 55 and 71 ... 74, 78 ..... codes

# LS3..P..-R and LS3..M..-R Limit Switches with Latch and Manual Reset

Plastic Casing IP65  and Metal Casing IP66 - 30 mm Width



LS31P11D11-R



LS31P13D11-R



LS32M31D11-R



LS32M41D11-R

LS30P: 1 cable inlet for Pg 13.5 cable gland .....	0	0	2
LS31P: 1 cable inlet for Pg 11 cable gland .....	1	0	1
LS32P: 1 cable inlet for ISO 16 cable gland .....	2	0	3
LS33P: 1 cable inlet for ISO 20 cable gland .....	3	2	2
LS35P: 1 cable inlet by 1/2" NPT plastic adaptor ..	5	2	1
LS30M: 1 cable inlet for Pg 13.5 cable gland .....	0	1	8
LS31M: 1 cable inlet for Pg 11 cable gland .....	1	1	7
LS32M: 1 cable inlet for ISO 16 cable gland .....	2	1	9
LS33M: 1 cable inlet for ISO 20 cable gland .....	3	3	8
LS35M: 1 cable inlet by 1/2" NPT plastic adaptor ..	5	3	7

Plastic Casing - 30 mm Width  
IP65

Metal Casing - 30 mm Width  
IP66

## Ordering Details

Contact blocks	Type	Order code	Weight kg (1)
 D11	state cable inlet code <input type="checkbox"/>	state cable inlet code <input type="checkbox"/> <input type="checkbox"/>	Pack <sup>ing</sup> 1 piece
 B02			

### Plastic Limit Switches with steel plain plunger (zinc plated)

1	-	LS3 <input type="checkbox"/> P11D11-R	1SBV02 <input type="checkbox"/> <input type="checkbox"/> 11R1411	0.090
-	1	LS3 <input type="checkbox"/> P11B02-R	1SBV02 <input type="checkbox"/> <input type="checkbox"/> 11R1202	0.090

### Plastic Limit Switches with plastic (polyacetal) roller plunger

1	-	LS3 <input type="checkbox"/> P13D11-R	1SBV02 <input type="checkbox"/> <input type="checkbox"/> 13R1411	0.090
-	1	LS3 <input type="checkbox"/> P13B02-R	1SBV02 <input type="checkbox"/> <input type="checkbox"/> 13R1202	0.090

### Plastic Limit Switches with plastic roller (polyacetal) lever

1	-	LS3 <input type="checkbox"/> P41D11-R	1SBV02 <input type="checkbox"/> <input type="checkbox"/> 41R1411	0.095
-	1	LS3 <input type="checkbox"/> P41B02-R	1SBV02 <input type="checkbox"/> <input type="checkbox"/> 41R1202	0.095

### Metal Limit Switches with steel plain plunger (zinc plated)

1	-	LS3 <input type="checkbox"/> M11D11-R	1SBV02 <input type="checkbox"/> <input type="checkbox"/> 11R1411	0.190
-	1	LS3 <input type="checkbox"/> M11B02-R	1SBV02 <input type="checkbox"/> <input type="checkbox"/> 11R1202	0.190

### Metal Limit Switches with plastic (polyacetal) roller lever on steel plunger (zinc plated)

1	-	LS3 <input type="checkbox"/> M31D11-R	1SBV02 <input type="checkbox"/> <input type="checkbox"/> 31R1411	0.195
-	1	LS3 <input type="checkbox"/> M31B02-R	1SBV02 <input type="checkbox"/> <input type="checkbox"/> 31R1202	0.195

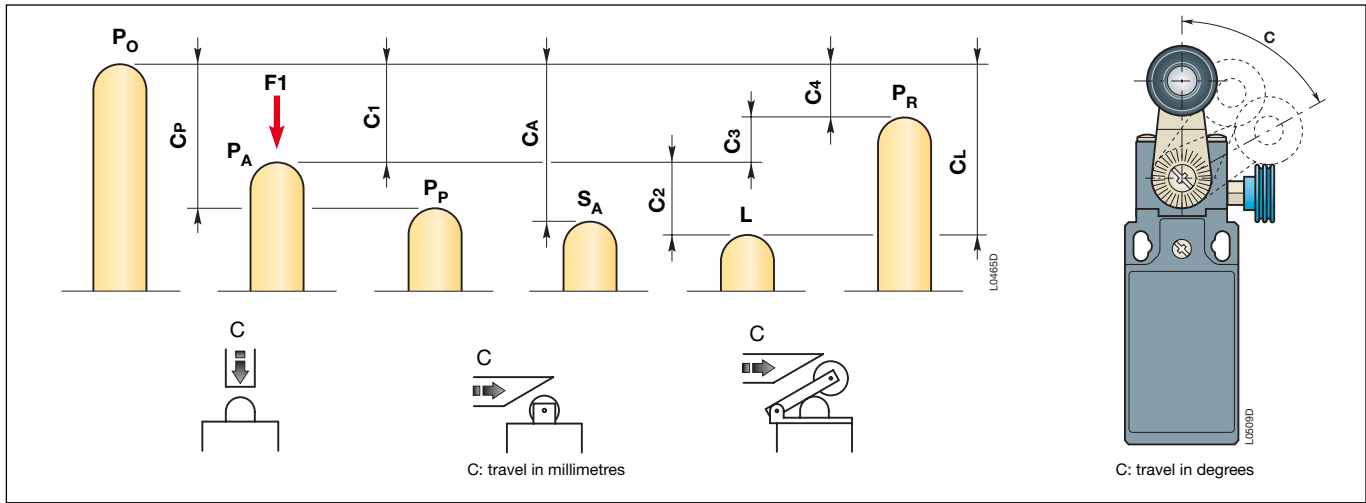
### Metal Limit Switches with plastic roller (polyacetal) lever

1	-	LS3 <input type="checkbox"/> M41D11-R	1SBV02 <input type="checkbox"/> <input type="checkbox"/> 41R1411	0.195
-	1	LS3 <input type="checkbox"/> M41B02-R	1SBV02 <input type="checkbox"/> <input type="checkbox"/> 41R1202	0.195

(1) For LS 35P add 0.007 kg

# Limit Switches with Latch and Manual Reset

## Travel and Operation diagrams



### $P_0$ Free position:

position of the switch actuator when no external force is exerted on it.

### $P_A$ Operating position:

position of the switch actuator, under the effect of force  $F_1$ , when the contacts leave their initial free position.

### $P_P$ Positive opening position:

position of the switch actuator from which positive opening is ensured.

### $S_A$ Latching point:

point of no return of the switch actuator beyond which the opened status of the (N.C.) contact(s) is maintained. Unlocking will only occur after deliberate action on the reset button.

### $L$ Max. travel position:

maximum acceptable travel position of the switch actuator under the effect of a force  $F_1$ .

### $P_R$ Release position:

position of the switch actuator when the contacts return to their initial free position.

### $C_1$ Pre-travel (average travel):

distance between the free position  $P_0$  and the operating position  $P_A$ .

### $C_P$ Positive opening travel:

minimum travel of the switch actuator, from the free position, to ensure positive opening operation of the normally closed contact (N.C.).

### $C_A$ Latching travel (average travel):

distance between the free position  $P_0$  and the latching point  $S_A$ .

### $C_2$ Over-travel (average travel):

distance between the operating position  $P_A$  and the max. travel position  $L$ .

### $C_L$ Max. travel (maximum travel):

distance between the free position  $P_0$  and the max. travel position  $L$ .

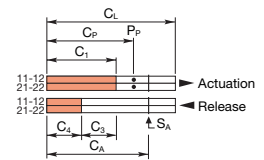
### $C_3$ Differential travel ( $C_1 - C_4$ ) (average travel):

travel difference of the switch actuator between the operating position  $P_A$  and the release position  $P_R$ .

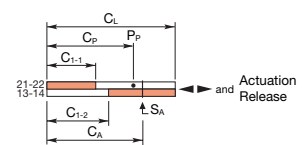
### $C_4$ Release travel (average travel):

distance between the release position  $P_R$  and the free position  $P_0$ .

### Diagram for snap action contacts:



### Diagram for non-overlapping slow action contacts:



### Contacts position

21-22 Contact closed  
21-22 Contact open  
↑ Contacts identification (example)

**Note:** for slow action contacts,  $C_3 = 0$ ,  $C_{1-1}$  = pre-travel of contact 21-22,  $C_{1-2}$  = pre-travel of contact 13-14.

### Examples:

#### LS30P13D11-R

non-overlapping slow action contacts

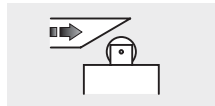
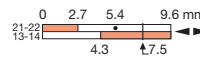


Diagram in millimetres / cam travel



#### LS30P41L02-R

simultaneous slow action contacts

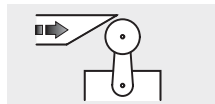
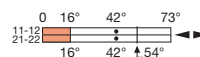


Diagram in degrees / lever rotation



#### LS30P11B02-R

snap action contacts

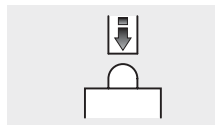
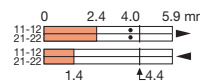


Diagram in millimetres / plunger travel



# Limit Switches with Latch and Manual Reset

## Technical Data

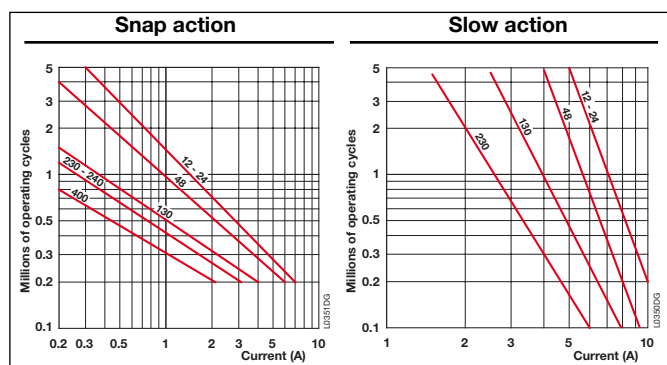
### General Technical Data

	Plastic Casing	Metal Casing
<b>Standards</b>	IEC 60947-1, IEC 60947-5-1, EN 60947-1, EN 60947-5-1, UL 508, CSA C22-2 No.14	
<b>Certifications - Approvals</b>	UL - CSA - CCC	
<b>Air temperature near the device</b>		
– during operation	°C -25 ... +70	
– for storage	°C -30 ... +80	
<b>Climatic withstand</b>	According to IEC 68-2-3 and salty mist according to IEC 68-2-11	
<b>Mounting positions</b>	All positions are authorised	
<b>Shock withstand</b> (according to IEC 68-2-27 and EN 60068-2-27)	g 50 g (1/2 sinusoidal shock for 11 ms) no change in contact position	
<b>Resistance to vibrations</b> (acc. to IEC 68-2-6 and EN 60068-2-6)	g 25 g (10 ... 500 Hz) no change in position of contacts > 100 µs	
<b>Protection against electrical shocks</b> (acc. to IEC 536)	Class II	Class I
<b>Degree of protection</b> (according to IEC 529 and EN 60529)	IP65	IP66
<b>Consistency</b>	0.1 mm upon closing points	

### Electrical Data

<b>Rated insulation voltage <math>U_i</math></b>			
– according to IEC 60947-1 and EN 60947-1	V	500 (degree of pollution 3)	400 (degree of pollution 3)
– according to UL 508, CSA C22-2 No.14	V	600	300
<b>Rated impulse withstand voltage <math>U_{imp}</math></b>	kV	6	
(according to IEC 60947-1 and EN 60947-1)			
<b>Conventional enclosed thermal current <math>I_{the}</math></b>	A	10	
(according to IEC 60947-5-1 and EN 60947-5-1) ( $\theta \leq 40$ °C)			
<b>Short-circuit protection gG type fuses</b>	A	10	
<b>Rated operational current</b>			
<b><math>I_e</math> / AC-15</b> – acc. to IEC 60947-5-1			
24 V - 50/60 Hz	A	10	
130 V - 50/60 Hz	A	5.5	
230 V - 50/60 Hz	A	3.1	
240 V - 50/60 Hz	A	3	
400 V - 50/60 Hz	A	1.8	
– according to UL 508, CSA C22 No.14		A 600	A 300
<b><math>I_e</math> / DC-13</b> – according to IEC 60947-5-1			
24 V - d.c.	A	2.8	
110 V - d.c.	A	0.6	
250 V - d.c.	A	0.27	
– according to UL 508, CSA C22 No.14		Q 600	Q 300
<b>Positivity</b>		Contacts with positive opening operation as per IEC 60947-5-1 chapter 3 and EN 60947-5-1	
<b>Resistance between contacts</b>	mΩ	25	
<b>Mechanical durability</b>	Millions of operations	> 1 million	
<b>Max. switching frequency</b>	Cycles/h	600	
<b>Electrical durability</b> (according to IEC 60947-5-1 appendix C)		Utilization categories AC-15 and DC-13 (see curves and values below)	
– Max. switching frequency	Cycles/h	3600	
– Load factor		0.5	
<b>Connecting data of contact blocks</b>			
Connecting terminals		M3.5 (+,-) pozidriv 2 screw with cable clamp	
Connecting capacity	1 or 2 x mm <sup>2</sup> / AWG	0.5 mm <sup>2</sup> / AWG 20 to 2.5 mm <sup>2</sup> / AWG 14	
Terminal marking		According to EN 50013	

Electrical durability for AC-15 utilization category



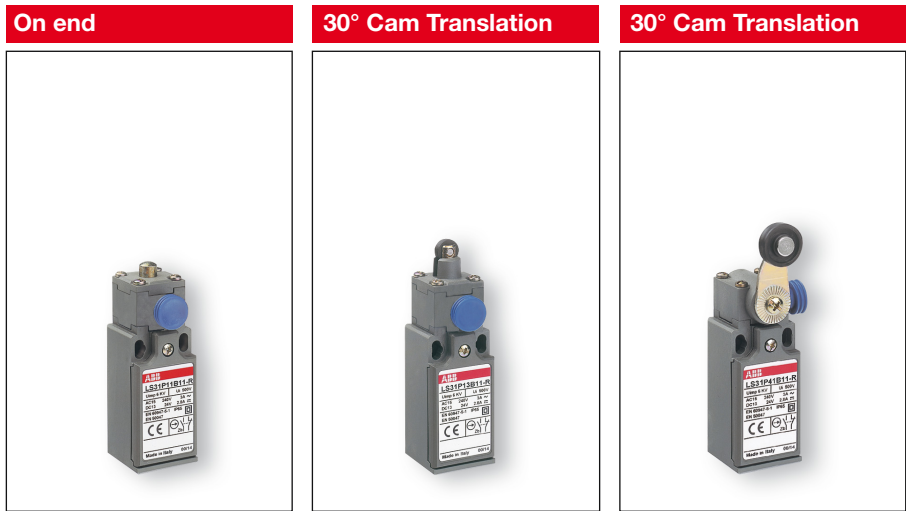
Electrical durability for DC-13 utilization category

	Snap action	Slow action
	Power breaking for a durability of 5 million operating cycles	
Voltage 24 V	9.5 W	12 W
Voltage 48 V	6.8 W	9 W
Voltage 110 V	3.6 W	6 W

# LS3..P.-R Limit Switches with Latch and Manual Reset

1 Cable Inlet for Cable Gland

Movement to be detected:



## Casing

- Plastic
- 30 mm width
- Degree of protection IP65

## Actuator

	Steel plain plunger	ø11 Plastic roller plunger	ø18 Rotary lever with plastic roller
Conformity /  (N.C. contact with positive opening operation)			
Maximum actuation speed	0.5 m/s	0.3 m/s	1.5 m/s
Min. force / torque: - actuation	9 N	12 N	0.10 N.m
- positive opening operation	44 N	41 N	0.32 N.m

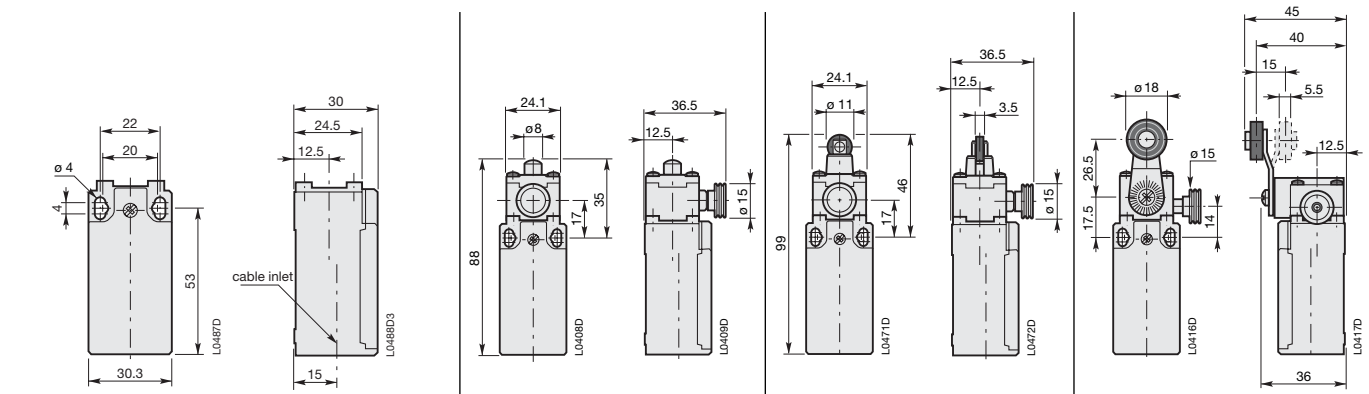
## Additional Technical Data

LS type code to be complete with the cable inlet code .....  
 0 = Pg 13.5  
 1 = Pg 11  
 2 = M16 x 1.5  
 3 = M20 x 1.5  
 5 = 1/2" NPT (by plastic adaptor)

Non-overlapping slow action contacts	Type	LS3 □ P11D11-R	LS3 □ P13D11-R	LS3 □ P41D11-R
	Operation diagram			
Snap action contacts	Type	LS3 □ P11B02-R	LS3 □ P13B02-R	LS3 □ P41B02-R
	Operation diagram			
Weight (packing per unit)	kg	0.090	0.090	0.95

Closed contact / Open contact

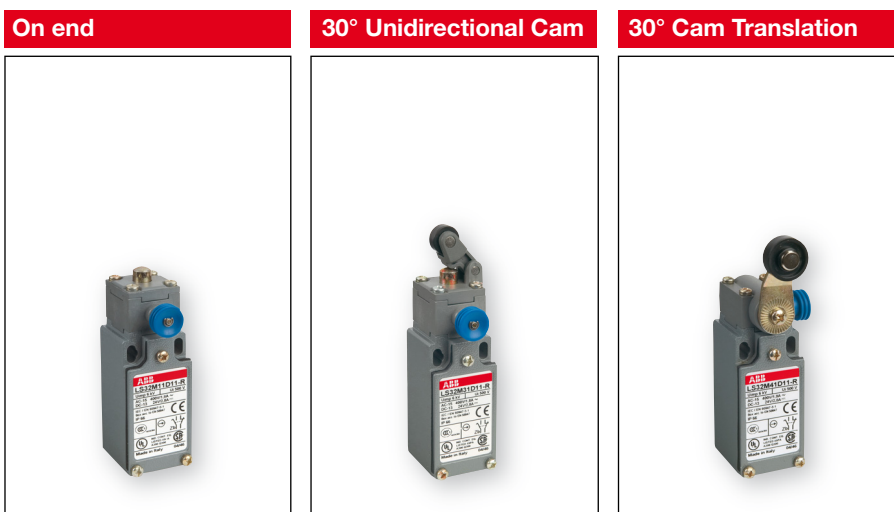
## Dimensions (mm)



# LS3..M..-R Limit Switches with Latch and Manual Reset

1 Cable Inlet for Cable Gland

Movement to be detected:



## Casing

- Metal
- 30 mm width
- Degree of protection IP66

## Actuator

	Steel plain plunger	ø12.5 Plastic roller plunger on galvanized steel plunger	ø18 Rotary lever with plastic roller
Conformity / $\rightarrow$ (N.C. contact with positive opening operation)	$\rightarrow$	$\rightarrow$	$\rightarrow$
Maximum actuation speed	0.5 m/s	1 m/s	1.5 m/s
Min. force / torque: - actuation - positive opening operation	9 N 44 N	7 N 24 N	0.10 N.m 0.32 N.m

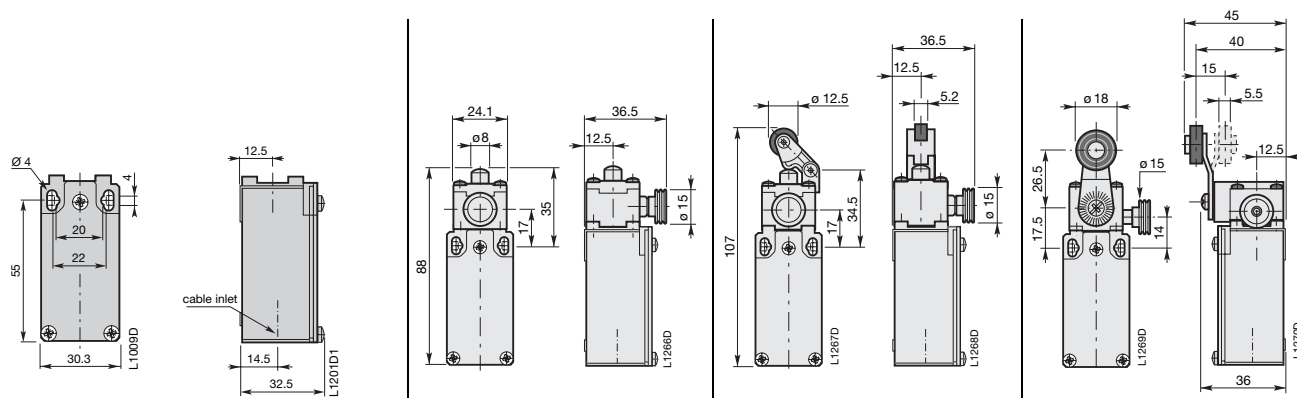
## Additional Technical Data

LS type code to be complete with the cable inlet code .....  
 0 = Pg 13.5  
 1 = Pg 11  
 2 = M16 x 1.5  
 3 = M20 x 1.5  
 5 = 1/2" NPT

	Type	LS3 □ M11D11-R	LS3 □ M31D11-R	LS3 □ M41D11-R
Non-overlapping slow action contacts 	Operation diagram			
Simultaneous slow action contacts 	Operation diagram			
Weight (packing per unit)	<b>kg</b>	0.190	0.195	0.195

Closed contact / Open contact

## Dimensions (mm)



# Foot Switches

## IPS Foot Switches with Covers, IPM Mini Foot Switches Description

### Application

Foot switch operated machines such as: shearing machines, folding machines, spinning lathes, machine tools, wrapping machines, riveting presses, etc.

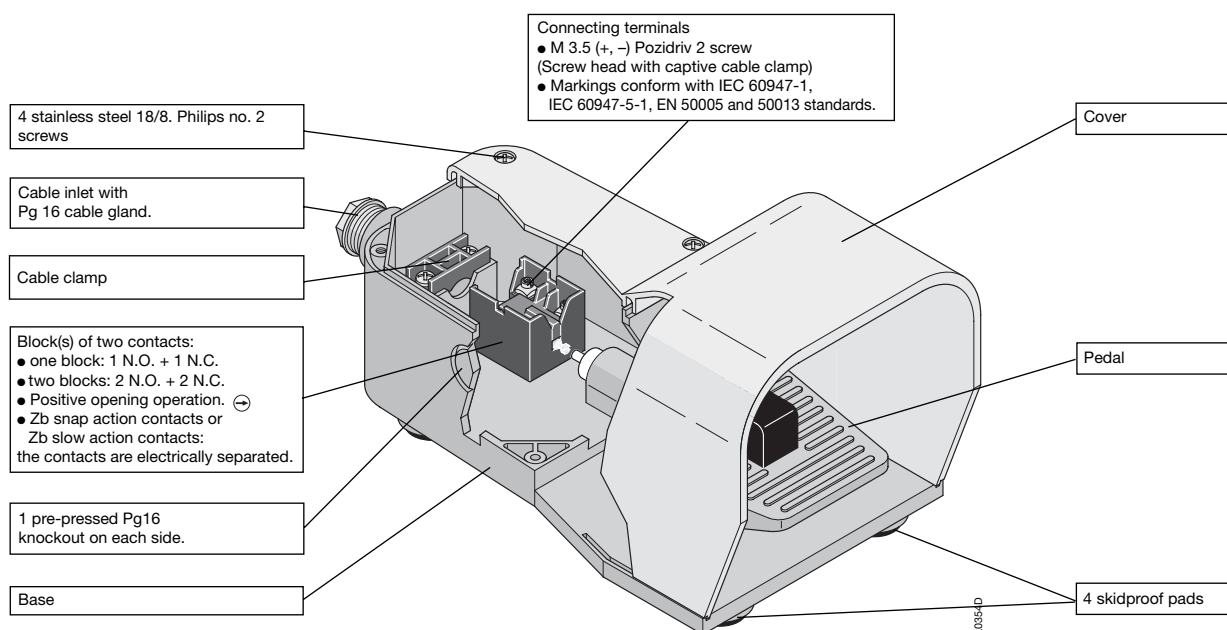
Foot switches with covers come in three operation formats:

- **Free movement:** contact position follows pedal movement: actuated when the pedal is pushed down, released when pedal is in a state of rest.
- **Foot switch locked in neutral position:** same operation as above, after unlocking the pedal with the end of the foot.
- **Foot switch latched in low position:** same operation as free movement, except that a state of rest is obtained only after having unlatched the pedal with the end of the foot.

### Description of IPS Foot Switches with Covers

- **Dimensions:** 285 x 140 x 145.
- **Materials:** base, cover and pedal made of shock resistant Bayblend® FR 90 material (alloyed polycarbonate and ABS).
- **Colour choice:** grey base; grey, yellow or red cover.
- **Variations:** grey base, half-red cover. Especially used for emergency stop function.

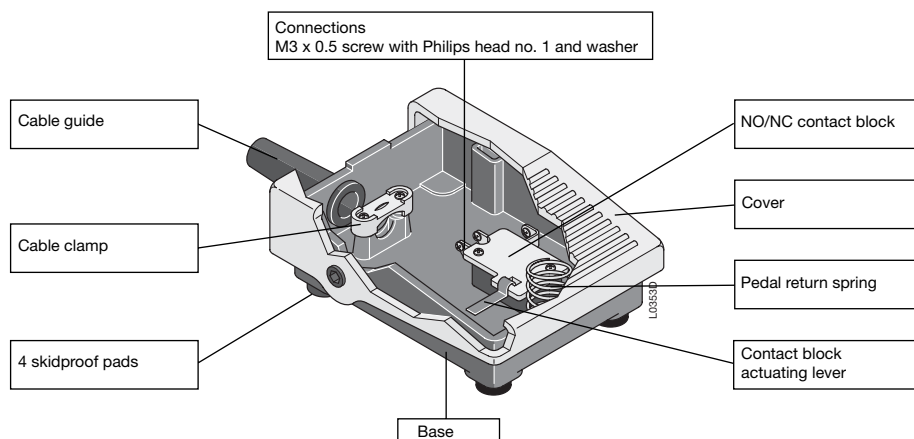
**Note:** this emergency stop function must never contain the «locked in neutral position» device.



**On request:** Foot switches with covers can be assembled on a plate and equipped with a transportation handle. Instead of the handle an emergency stop button can be installed above a tube that allows for connection cable passage. (see the catalogue of separate elements)

### Description of IPM Mini Foot Switches

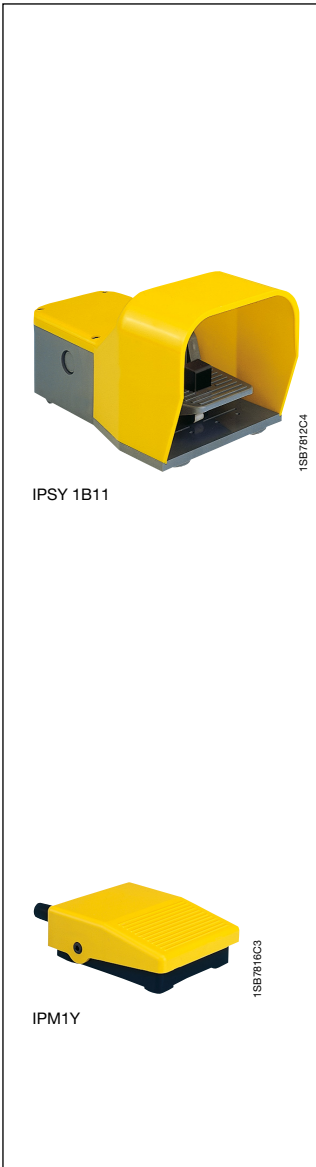
- **Reduced dimensions:** 100 x 75 x 34 mm.
- **Materials:** cover and base made of self-extinguishing ABS.
- **Colour choice:** black or grey base; black, grey, yellow or red cover.





# Foot Switches

## IPS Foot Switches with Covers IPM Mini Foot Switches



IPSY: Yellow Cover ..... **Y** ..... **5**  
 IPSG: Grey Cover ..... **G** ..... **6**  
 IPSR: Red Cover ..... **R** ..... **8**

### Ordering Details

Contact blocks	Type	Order code	Weight kg (1)
Snap action	state colour code <input type="checkbox"/>	state colour code <input type="checkbox"/>	Pack <sup>ing</sup> 1 piece
Non-overlapping Slow action			
 <b>B11</b>			
 <b>D11</b>			

### Free Movement

1	-	IPS <input type="checkbox"/> 1B11	1SBV 002 10 <input type="checkbox"/> R1211	1.100
-	1	IPS <input type="checkbox"/> 1D11	1SBV 002 10 <input type="checkbox"/> R1411	1.100

### Locked in Neutral Position

1	-	IPS <input type="checkbox"/> 2B11	1SBV 002 20 <input type="checkbox"/> R1211	1.100
-	1	IPS <input type="checkbox"/> 2D11	1SBV 002 20 <input type="checkbox"/> R1411	1.100

### Latched in Low Position

1	-	IPS <input type="checkbox"/> 3B11	1SBV 002 30 <input type="checkbox"/> R1211	1.100
-	1	IPS <input type="checkbox"/> 3D11	1SBV 002 30 <input type="checkbox"/> R1411	1.100

### Ordering Details

Contact blocks	Cover colour	Type	Order code	Weight kg (1)
 N.O. / N.C.				Pack <sup>ing</sup> 1 piece

### Black Base

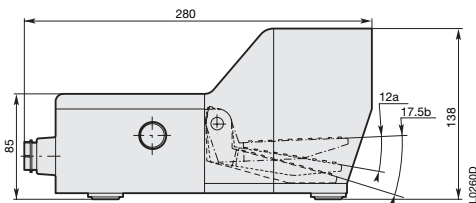
1	Yellow	IPM1Y	1SBV 001 101 R1823	0.130
1	Grey	IPM1G	1SBV 001 102 R1823	0.130

### Grey Base

1	Yellow	IPM2Y	1SBV 001 105 R1823	0.130
1	Grey	IPM2G	1SBV 001 106 R1823	0.130

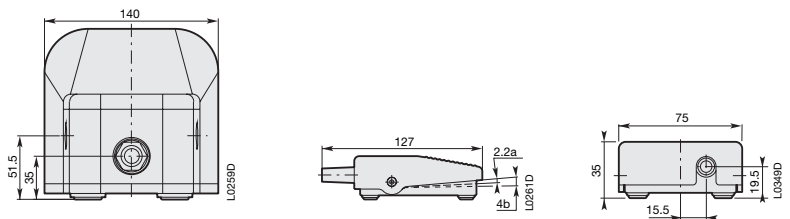
## Dimensions (mm)

### Foot Switches with cover



Plain foot switch - a = pre-travel, b = total travel

### Mini Foot Switches



# Foot Switches

## Technical Data

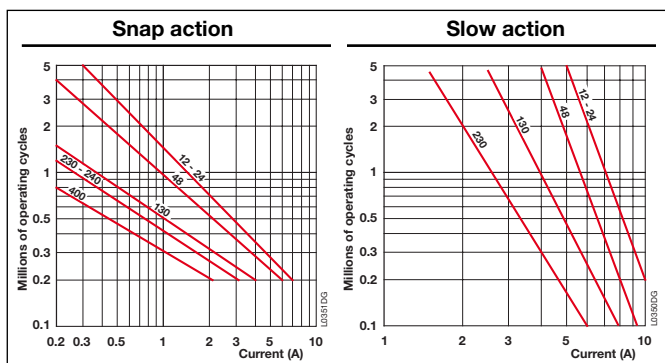
### General Technical Data

	Mini Foot Switch	Foot Switch with cover
<b>Standards</b>	IEC 1058-1	IEC 60947-1, IEC 60947-5-1, EN 60947-1, EN 60947-5-1, UL 508, CSA C22-2 No.14
<b>Certifications - Approvals</b>	–	UL - CSA - BG - CCC
<b>Air temperature near the device</b>		
– during operation	°C -10 ... +70	-10 ... +70
– for storage	°C -25 ... +80	-30 ... +80
<b>Climatic withstand</b>	–	According to IEC 68-2-3 and salty mist according to IEC 68-2-11
<b>Shock withstand</b> (according to IEC 68-2-27 and EN 60068-2-27)	g –	50 g (1/2 sinusoidal shock for 11 ms) no change in contact position
<b>Resistance to vibrations</b> (acc. to IEC 68-2-6 and EN 60068-2-6)	g –	25 g (10 ... 500 Hz) no change in position of contacts > 100 µs
<b>Protection against electrical shocks</b> (acc. to IEC 536)	Class II	Class II
<b>Degree of protection</b> (according to IEC 529 et EN 60529)	IP40	IP65
<b>Operating angle</b>	Degree 2 to 4	15
<b>Actuation torque</b>	N.m. 1.2	0.25

### Electrical Data

<b>Rated insulation voltage <math>U_i</math></b>	V	250	–
– according to IEC 60947-1 and EN 60947-1	V	–	500 (degree of pollution 3)
– according to UL 508, CSA C22-2 No.14	V	–	600
<b>Rated impulse withstand voltage <math>U_{imp}</math></b>	kV	1	6 (according to IEC 60947-1 and EN 60947-1)
<b>Conventional free air thermal current <math>I_{th}</math></b>	A	15	10 (according to IEC 60947-5-1 and EN 60947-5-1) ( $\theta \leq 40^\circ\text{C}$ )
<b>Short-circuit protection gG type fuses</b>	A	10	10
<b>Rated operational current</b>			
250 V - a.c.	A	3	–
230 V - d.c.	A	0.06	–
<b><math>I_e</math> / AC-15</b> – acc. to IEC 60947-5-1			
24 V - 50/60 Hz	A	–	10
130 V - 50/60 Hz	A	–	5.5
230 V - 50/60 Hz	A	–	3.1
240 V - 50/60 Hz	A	–	3
400 V - 50/60 Hz	A	–	1.8
– according to UL 508, CSA C22 No.14			A 600
<b><math>I_e</math> / DC-13</b> – according to IEC 60947-5-1			
24 V - d.c.	A	–	2.8
110 V - d.c.	A	–	0.6
250 V - d.c.	A	–	0.27
– according to UL 508, CSA C22 No.14			Q 600
<b>Positivity</b>			Contacts with positive opening operation as per IEC 60947-5-1 chapter 3 and EN 60947-5-1
<b>Resistance between contacts</b>	mΩ	30	25
<b>Mechanical durability</b>	Millions of operations	10	30
<b>Max. switching frequency</b>	Cycles/h	–	600
<b>Electrical durability</b>	Operations	100000	(according to IEC 60947-5-1 appendice C) Utilization categories AC-15 and DC-13 (see curves and values below)
– Max. switching frequency	Cycles/h	–	3600
– Load factor		–	0.5
<b>Connecting data of contact blocks</b>			
Connecting terminals		M3 x 0.5 screw with Philips head	M3.5 (+,-) pozidriv 2 screw with cable clamp
Connecting capacity	1 or 2 x mm <sup>2</sup> / AWG	–	0.5 mm <sup>2</sup> / AWG 20 to 2.5 mm <sup>2</sup> / AWG 14
Terminal marking		refer to contact block	According to EN 50013

### Electrical durability for AC-15 utilization category



### Electrical durability for DC-13 utilization category

	Snap action	Slow action
Power breaking for a durability of 5 million operating cycles		
Voltage	24 V	9.5 W
Voltage	48 V	6.8 W
Voltage	110 V	3.6 W
		12 W
		9 W
		6 W





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