

# Limit Switches - Limit Type Metal Body IP66



- High mechanical resistance
- Degree of protection IP66
- Zinc alloy (Zamack) body
- Positive Opening Operation (↻)
- Minimum Actuation Force/Torque
- Minimum Force to achieve Positive Opening Operation
- Precise operating points (consistency)
- Immune to electromagnetic disturbances
- Zb type contact blocks
- Current Ith = 10A
- Rated insulation voltage Ui = 500V
- UL, CSA, CE
- Conform with IEC 947-5-1 (EN 60947-5-1)

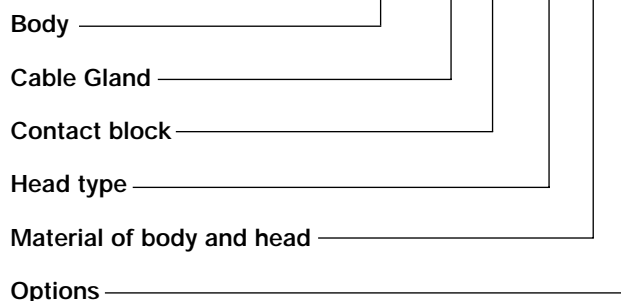
## Product Description

They are developed in order to be used for following operations:

- Presence/Absence
- Positioning and travel limit
- Objects passing/counting

## Ordering Key

**PS31L-PS11RT-M00**



## Description of the key codes

### Body

PS31L | PS 40mm (fix 30mm) 1 cable inlet for General Purpose

### Cable Gland

M | M20  
P | PG13.5  
N | 1/2 NPT

### Contact block

O11 | 1NO+1NC overlap slow(+)  
S02 | 2NC snap(+)  
S11 | 1NO+1NC snap(+)  
T02 | 2NC slow(+)  
T03 | 3NC slow(+)  
T11 | 1NO+1NC slow(+)  
T12 | 1NO+2NC slow(+)  
T20 | 2NO slow  
T21 | 2NO+1NC slow(+)  
T30 | 3NO slow

### Material of body and head

M | Metal Body and Metal head

### Options

00 | no option

### Head type

L3 | adj square (3x3) steel rod LEVER  
LA | adj Ø3 rod LEVER stainless steel rod  
LB | nylon actuator with stainless steel spring  
LF | adj fiberglass rod LEVER Ø3  
LG | adj fiberglass rod LEVER Ø6  
LN | adj nylon rod LEVER  
LP | multidir nylon actuator with stainless steel spring  
LS | stainless steel spring multidir actuator  
LW | Stainless steel spring multidir actuator (cat Whisker)  
LZ | Stainless steel spring actuator  
N6 | pull wire for simple stop  
P0 | metal plain PLUNGER  
PB | steel ball PLUNGER  
PR | metal roller PLUNGER  
R1 | adj LEVER with nylon roller  
R2 | adj LEVER with stainless steel roller  
R3 | adj LEVER with steel ball bearing  
RB | one way LEVER steel ball bearing  
RH | plastic roller LEVER on metal PLUNGER (left)  
RK | one way LEVER stainless steel roller  
RO | roller LEVER steel ball bearing  
RS | metal roller LEVER  
RT | nylon roller LEVER  
SH | stainless steel lateral PLUNGER with horizontal roller  
SP | stainless steel lateral plain PLUNGER  
SV | stainless steel lateral PLUNGER with vertical roller  
W0 | Ø50 rubber roller LEVER  
W1 | adj LEVER with Ø50 rubber roller

## Technical Data

### Standards

### Certifications – Approvals

Air temperature near the device

- during operation °C  
- for storage °C

### Climatic withstand

### Mounting positions

Shock withstand (according to IEC 68-2-27 and 60068-2-27) g  
(1/2sinusoidal shock for 11 ms) no change in contact position

Resistance to vibrations (acc.to IEC 68-2-6 and EN 60068-2-6) g

Protection against electrical shocks (acc.to IEC 536)

Degree of protection (according to IEC 529 and EN 60529)

Consistency (measured over 1 million operations)

IEC 60947-1, IEC 60947-5-1, EN 60947-1, EN 60947-5-1, UL508 and CSA C22-2 n°14

UL – CSA

-25 ... +70

-30 ... +80

According to IEC 68-2-3 and salty mist according to IEC 68-2-11

All positions are authorized

50g\*

25g (10...500Hz) no change in position of contacts greater than 100µs

Class I

IP66

0.1 mm (upon closing point)

\* except for PS21/PS42 with head type W0, W1: 25g.

## Electrical Data

### Rated insulation voltage $U_i$

-according to IEC 60947-1 and EN 60947-1

-according to UL 508, CSA C22-2 n°14

Rated impulse withstand voltage  $U_{imp}$  kV

(according to IEC 60947-1 and EN 60947-1)

Conventional enclosed thermal current  $I_{the}$  A

(according to IEC 60947-5-1 and EN 60947-5-1) ( $\theta \leq 40^\circ\text{C}$ )

Short-circuit protection - gG type fuses A

### Rated operational current

$I_e$  / AC-15 - acc.to IEC 60947-5-1 24Vac (50/60 Hz) A

130Vac (50/60 Hz) A

230Vac (50/60 Hz) A

240Vac (50/60 Hz) A

400Vac (50/60 Hz) A

- acc.to UL 508, CSA C22 n°14

$I_e$  / DC-13 - acc.to IEC 60947-5-1 24Vdc A

110Vdc A

250Vdc A

- acc.to UL 508, CSA C22 n°14

### Electrical durability (according to IEC 60497-5-1 annex C)

- max. switching frequency Cycles/h

- load factor

### Connecting data of contact blocks

Connecting terminals

Connecting capacity 1 or 2 x mm<sup>2</sup> / AWG

Terminal marking

### Positivity

400V (PS21, PS42), 500V (PS31, PS43) (degree of pollution 3)

A 300 Q 300 (PS21, PS42), A 600 Q 600 (PS31, PS43)

6

10

10

10

5.5

3.1

3

1.8

A 300 (PS21, PS42), A 600 (PS31, PS43)

2.8

0.6

0,27

Q 300 (PS21, PS42), Q 600 (PS31, PS43)

Utilization categories AC-15 and DC-13 (see curves and value below)

3600

0,5

M3,5 (+,-) pozidriv 2 screw with cable clamp

0,5mm<sup>2</sup> / AWG 20 to 2,5mm<sup>2</sup> / AWG 14

According to EN 50013

Contacts with positive opening operation as per IEC 60947-5-1 chapter 3

Diagram for snap action contact:

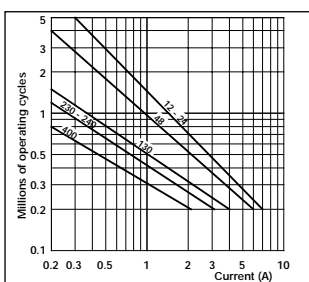
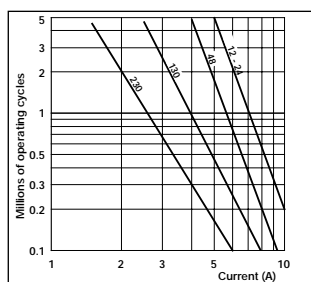


Diagram for slow action contact:



### Electrical durability for DC-13 utilization category

Power breaking for a durability of 5 million operating cycles

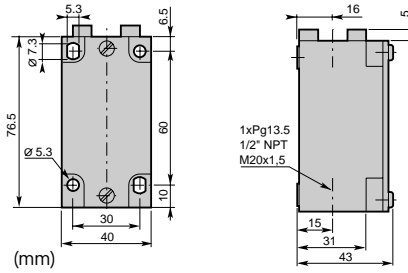
	Snap action	Slow action
Voltage 24V	9,5W	12W
Voltage 48V	6,8W	9W
Voltage 110V	3,6W	6W

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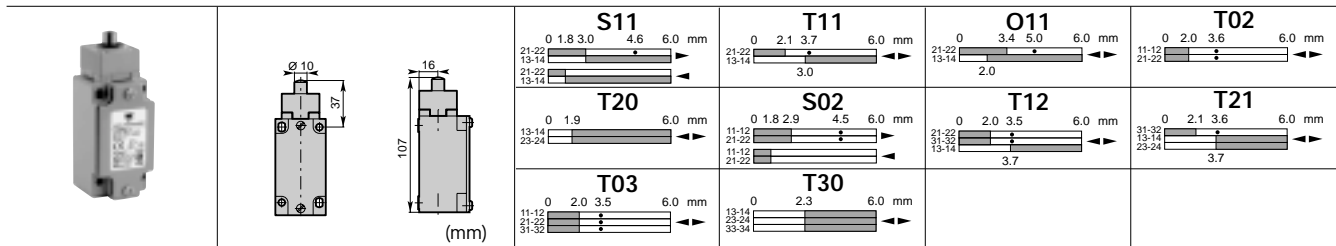
## ■ Cable Gland

- P = one cable inlet PG13.5 cable gland
- M = one cable inlet M20x1.5 cable gland
- N = one cable inlet 1/2" NPT cable gland

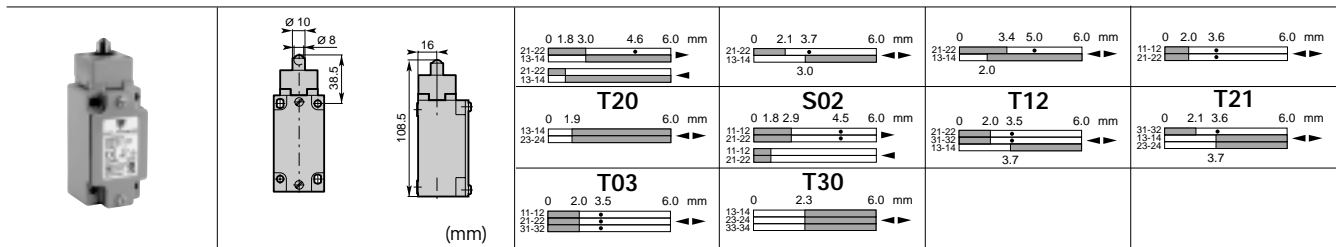


## ▲ Contact block (Zb type)

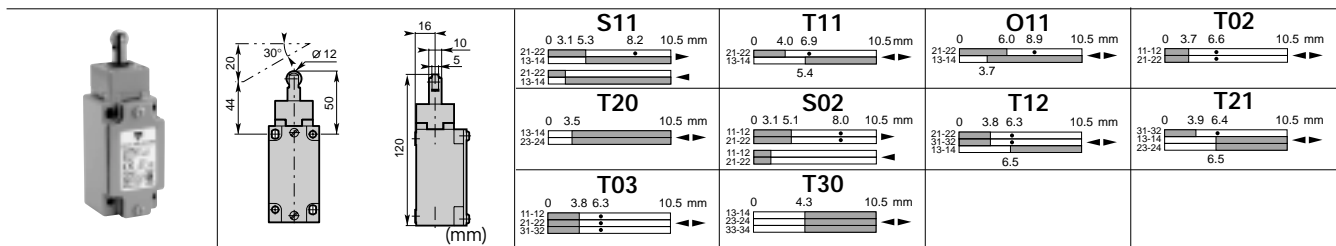
<b>S11</b> (1NO+1NC) Snap action		<b>T11</b> (1NO+1NC) Non overlapping Slow action		<b>O11</b> (1NO+1NC) Overlapping Slow action		<b>T02</b> (2NC) Slow Action		<b>T20</b> (2NO) Slow action	
<b>S02</b> (2NC) Snap action		<b>T12</b> (1NO+2NC) Non overlapping Slow action		<b>T21</b> (2NO+1NC) Non overlapping Slow action		<b>T03</b> (3NC) Simultaneous Slow action		<b>T30</b> (3NO) Simultaneous Slow action	



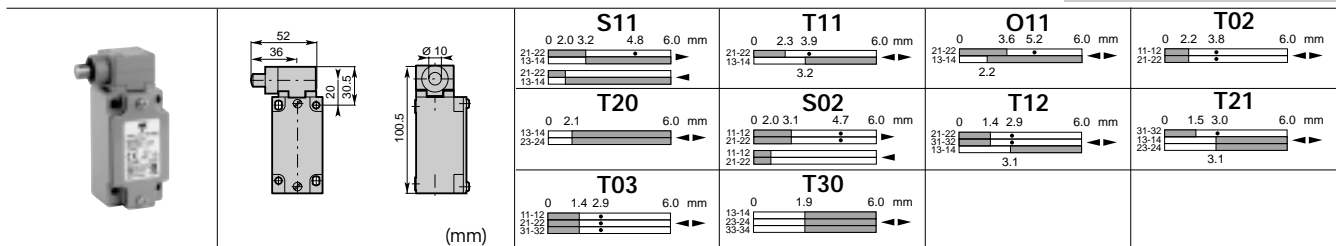
Conformity / (NC) EN 50041 / (NC) **Stainless steel plain plunger**  
 Max. Actuation speed 0.5ms  
 Min. force or torque 30N / 45Nm  
 Weight 240g  
**Code PS31L-▲P0-M00**



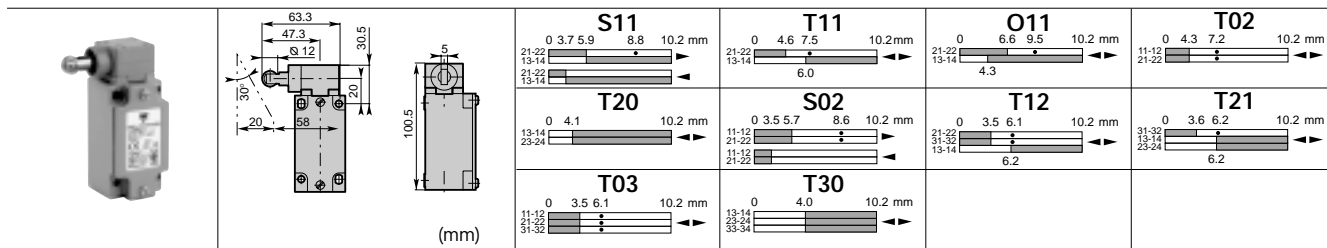
Conformity / (NC) EN 50041 / (NC) **Stainless steel ball plunger**  
 Max. Actuation speed 0.5ms  
 Min. force or torque 30N / 45Nm  
 Weight 240g  
**Code PS31L-▲PB-M00**



Conformity / (NC) EN 50041 / (NC) **Stainless steel Ø22 roller plunger**  
 Max. Actuation speed 0.5ms  
 Min. force or torque 22N / 40Nm  
 Weight 245g  
**Code PS31L-▲PR-M00**

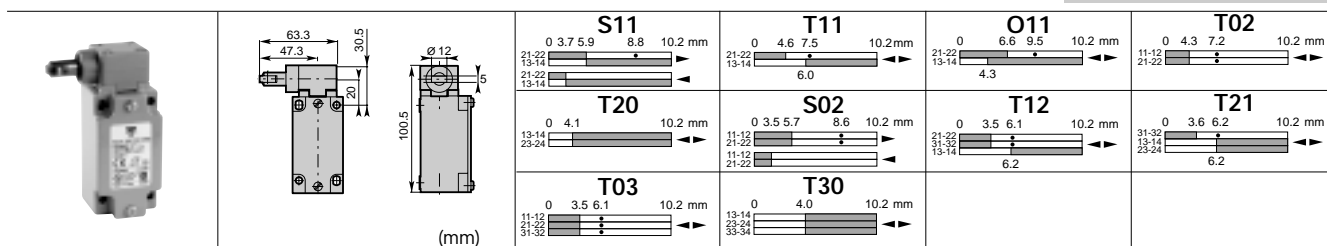


Conformity / (NC) EN 50041 / (NC) **Stainless steel lateral plain plunger**  
 Max. Actuation speed 0.5ms  
 Min. force or torque 30N / 50Nm  
 Weight 260g  
**Code PS31L-▲SP-M00**



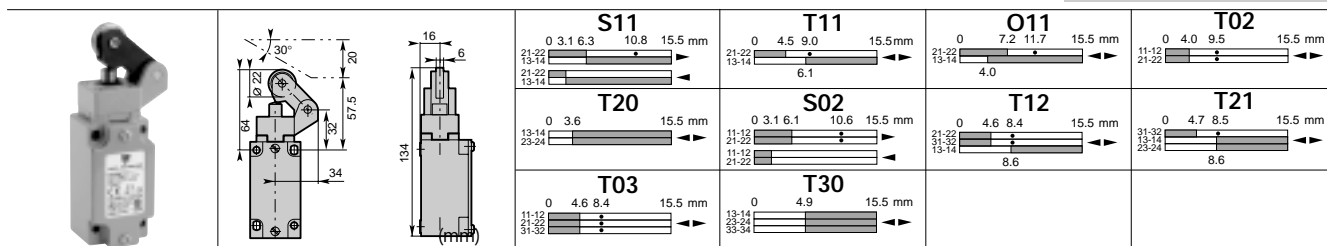
Conformity / (NC) EN 50041 / (NC)  
 Max. Actuation speed 0.5ms  
 Min. force or torque 30N / 50Nm  
 Weight 265g

Stainless steel lateral plunger with Ø12 vertical roller  
 Code PS31L-   SV-M00



Conformity / (NC) EN 50041 / (NC)  
 Max. Actuation speed 0.5ms  
 Min. force or torque 30N / 50Nm  
 Weight 265g

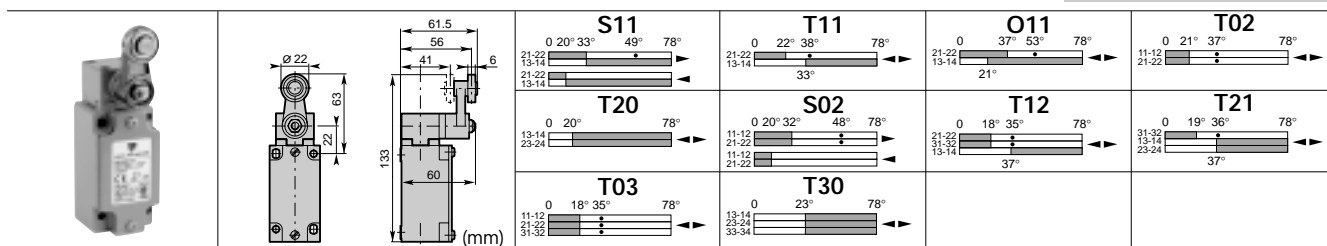
Stainless steel lateral plunger with Ø12 horizontal roller  
 Code PS31L-   SH-M00



Conformity / (NC) EN 50041 / (NC)  
 Max. Actuation speed 1.5ms  
 Min. force or torque 12N / 40Nm  
 Weight 280g

One way lever  
 Code Ø22 nylon roller  
 Ø22 stainless steel roller  
 Ø22 steel ball bearing

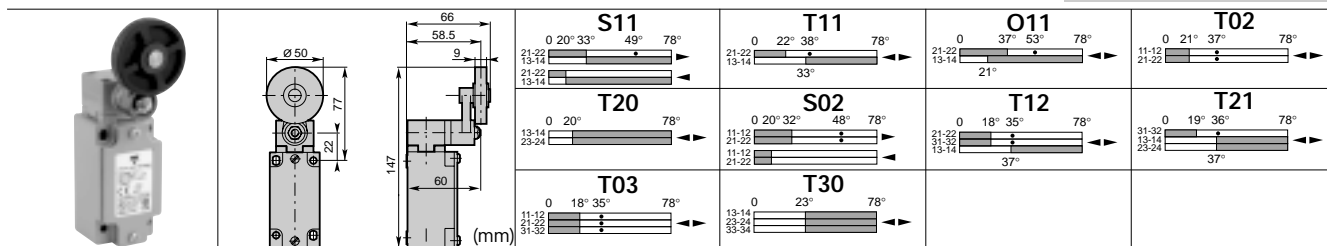
PS31L-   RH-M00  
 PS31L-   RK-M00  
 PS31L-   RB-M00



Conformity / (NC) EN 50041 / (NC)  
 Max. Actuation speed 1.5ms  
 Min. force or torque 0.15N / 0.30Nm  
 Weight 300g

Ø22 Roller lever  
 Code nylon roller  
 stainless steel roller  
 steel ball bearing

PS31L-   RT-M00  
 PS31L-   RS-M00  
 PS31L-   RO-M00



Conformity / (NC) EN 50041 / (NC)  
 Max. Actuation speed 1.5ms  
 Min. force or torque 0.15N / 0.30Nm  
 Weight 315g

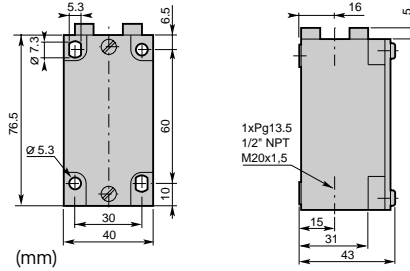
Ø50 Rubber roller lever  
 Code PS31L-   W0-M00

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CARLO GAVAZZI

## ■ Cable Gland

- P = one cable inlet PG13.5 cable gland
- M = one cable inlet M20x1.5 cable gland
- N = one cable inlet 1/2" NPT cable gland



## ▲ Contact block (Zb type)

<b>S11 (1NO+1NC)</b> Snap action	<b>T11 (1NO+1NC)</b> Non overlapping Slow action	<b>O11 (1NO+1NC)</b> Overlapping Slow action	<b>T02 (2NC)</b> Slow Action	<b>T20 (2NO)</b> Slow action
<b>S02 (2NC)</b> Snap action	<b>T12 (1NO+2NC)</b> Non overlapping Slow action	<b>T21 (2NO+1NC)</b> Non overlapping Slow action	<b>T03 (3NC)</b> Simultaneous Slow action	<b>T30 (3NO)</b> Simultaneous Slow action

<b>S11</b>	<b>T11</b>	<b>O11</b>	<b>T02</b>	<b>T20</b>	<b>T12</b>
<b>T20</b>	<b>S02</b>	<b>T12</b>	<b>T21</b>	<b>T03</b>	<b>T30</b>

Conformity / $\Rightarrow$ (NC)	Adjustable $\varnothing 22$ roller lever	PS31L- <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> R1-M00
Max. Actuation speed	Code nylon lever	PS31L- <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> R2-M00
Min. force or torque	Code stainless steel roller	PS31L- <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> R3-M00
Weight	Code steel ball bearing	

<b>S11</b>	<b>T11</b>	<b>O11</b>	<b>T02</b>	<b>T20</b>	<b>T12</b>
<b>T20</b>	<b>S02</b>	<b>T12</b>	<b>T21</b>	<b>T03</b>	<b>T30</b>

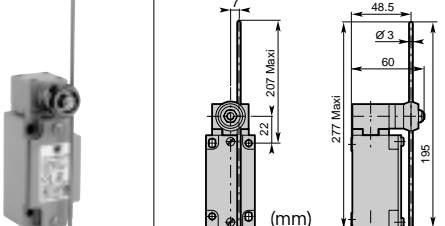
Conformity / $\Rightarrow$ (NC)	Adjustable $\varnothing 50$ rubber roller lever	PS31L- <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> W1-M00
Max. Actuation speed	Code	
Min. force or torque		
Weight		

<b>S11</b>	<b>T11</b>	<b>O11</b>	<b>T02</b>	<b>T20</b>	<b>T12</b>
<b>T20</b>	<b>S02</b>	<b>T12</b>	<b>T21</b>	<b>T03</b>	<b>T30</b>

Conformity / $\Rightarrow$ (NC)	Nylon actuator with stainless steel spring	PS31L- <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> LB-M00
Max. Actuation speed	Code	
Min. force or torque		
Weight		

<b>S11</b>	<b>T11</b>	<b>O11</b>	<b>T02</b>	<b>T20</b>	<b>T12</b>
<b>T20</b>	<b>S02</b>	<b>T12</b>	<b>T21</b>	<b>T03</b>	<b>T30</b>

Conformity / $\Rightarrow$ (NC)	Stainless steel spring actuator	PS31L- <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> LZ-M00
Max. Actuation speed	Code	
Min. force or torque		
Weight		



<b>S11</b> 0 20° 33° 49° 78° 21-22 13-14 13-14	<b>T11</b> 0 22° 38° 78° 21-22 13-14 33°	<b>O11</b> 0 37° 53° 78° 21-22 13-14 21°	<b>T02</b> 0 21° 37° 78° 11-12 21-22
<b>T20</b> 0 20° 78° 13-14 23-24	<b>S02</b> 0 20° 32° 48° 78° 11-12 21-22 11-12 21-22	<b>T12</b> 0 18° 35° 78° 21-22 13-14 37°	<b>T21</b> 0 19° 36° 78° 31-32 13-14 23-24 37°
<b>T03</b> 0 18° 35° 78° 11-12 21-22 31-32	<b>T30</b> 0 23° 78° 13-14 23-24 33-34		

**Conformity / (NC)** EN50041 / (NC)

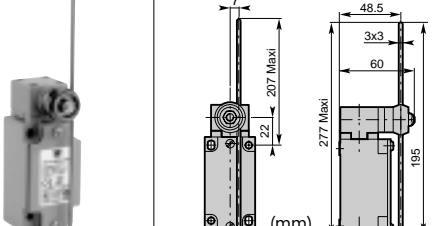
**Max. Actuation speed** 1.5ms

**Min. force or torque** 0.15N / 0.30

**Weight** 305g

**Adjustable rod lever**  
Code stainless steel rod Ø3  
fiberglass rod Ø3

PS31L-  LA-M00  
PS31L-  LF-M00



<b>S11</b> 0 20° 33° 49° 78° 21-22 13-14 13-14	<b>T11</b> 0 22° 38° 78° 21-22 13-14 33°	<b>O11</b> 0 37° 53° 78° 21-22 13-14 21°	<b>T02</b> 0 21° 37° 78° 11-12 21-22
<b>T20</b> 0 20° 78° 13-14 23-24	<b>S02</b> 0 20° 32° 48° 78° 11-12 21-22 11-12 21-22	<b>T12</b> 0 18° 35° 78° 21-22 13-14 37°	<b>T21</b> 0 19° 36° 78° 31-32 13-14 23-24 37°
<b>T03</b> 0 18° 35° 78° 11-12 21-22 31-32	<b>T30</b> 0 23° 78° 13-14 23-24 33-34		

**Conformity / (NC)** EN50041 / (NC)

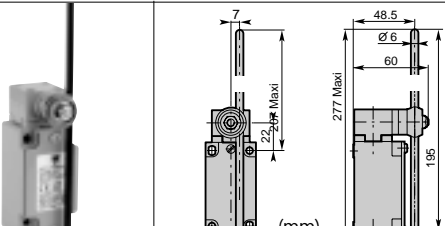
**Max. Actuation speed** 1.5ms

**Min. force or torque** 0.15N / 0.30

**Weight** 305g

**Adjustable rod lever**  
Code square steel rod 3x3

PS31L-  L3-M00



<b>S11</b> 0 20° 33° 49° 78° 21-22 13-14 13-14	<b>T11</b> 0 22° 38° 78° 21-22 13-14 33°	<b>O11</b> 0 37° 53° 78° 21-22 13-14 21°	<b>T02</b> 0 21° 37° 78° 11-12 21-22
<b>T20</b> 0 20° 78° 13-14 23-24	<b>S02</b> 0 20° 32° 48° 78° 11-12 21-22 11-12 21-22	<b>T12</b> 0 18° 35° 78° 21-22 13-14 37°	<b>T21</b> 0 19° 36° 78° 31-32 13-14 23-24 37°
<b>T03</b> 0 18° 35° 78° 11-12 21-22 31-32	<b>T30</b> 0 23° 78° 13-14 23-24 33-34		

**Conformity / (NC)** EN50041 / (NC)

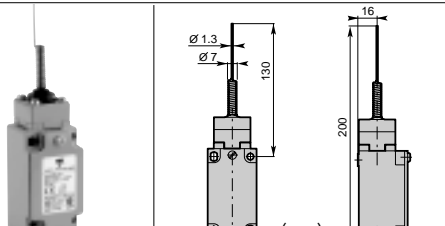
**Max. Actuation speed** 1.5ms

**Min. force or torque** 0.15N / 0.30Nm

**Weight** 300g

**Adjustable rod lever**  
Code nylon rod  
fiberglass rod

PS31L-  LN-M00  
PS31L-  LG-M00



<b>S11</b> 0 9° 21° 21-22 13-14 13-14	<b>T11</b> 0 12° 19° 21-22 13-14	<b>O11</b> 0 23° 11° 21-22 13-14	<b>T02</b> 0 11° 11-12 21-22
<b>T20</b> 0 10° 13-14 23-24	<b>S02</b> 0 9° 20° 11-12 21-22 11-12 21-22	<b>T12</b> 0 12° 27° 21-22 13-14	<b>T21</b> 0 13° 27° 31-32 13-14 23-24
<b>T03</b> 0 12° 11-12 21-22 31-32	<b>T30</b> 0 16° 13-14 23-24 33-34		

**Conformity / (NC)** /

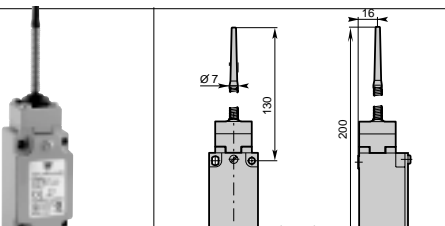
**Max. Actuation speed** 1.0ms

**Min. force or torque** 0.18N / -

**Weight** 230g

**Stainless steel spring multidirectional actuator**  
Code

PS31L-  LW-M00



<b>S11</b> 0 9° 21° 21-22 13-14 13-14	<b>T11</b> 0 12° 19° 21-22 13-14	<b>O11</b> 0 23° 11° 21-22 13-14	<b>T02</b> 0 11° 11-12 21-22
<b>T20</b> 0 10° 13-14 23-24	<b>S02</b> 0 9° 20° 11-12 21-22 11-12 21-22	<b>T12</b> 0 12° 27° 21-22 13-14	<b>T21</b> 0 13° 27° 31-32 13-14 23-24
<b>T03</b> 0 12° 11-12 21-22 31-32	<b>T30</b> 0 16° 13-14 23-24 33-34		

**Conformity / (NC)** /

**Max. Actuation speed** 1.0ms

**Min. force or torque** 0.18N / -

**Weight** 230g

**Multidirectional nylon actuator with stainless steel spring**  
Code

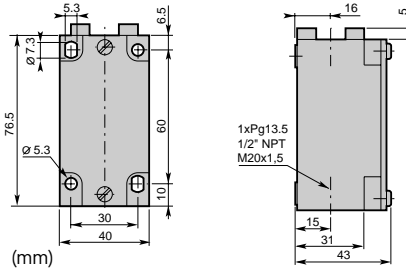
PS31L-  LP-M00

# Limit Switches - Limit Type (PS31) Metal Body IP66



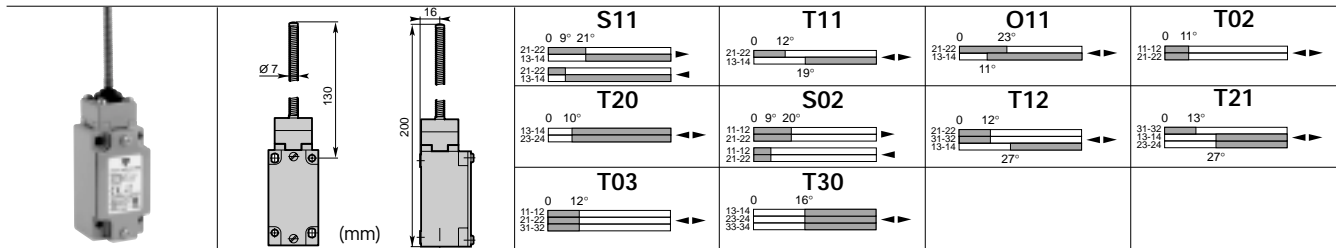
## ■ Cable Gland

- P = one cable inlet PG13.5 cable gland
- M = one cable inlet M20x1.5 cable gland
- N = one cable inlet 1/2" NPT cable gland



## ▲ Contact block (Zb type)

<b>S11</b> (1NO+1NC) Snap action		<b>T11</b> (1NO+1NC) Non overlapping Slow action		<b>O11</b> (1NO+1NC) Overlapping Slow action		<b>T02</b> (2NC) Slow Action		<b>T20</b> (2NO) Slow action	
<b>S02</b> (2NC) Snap action		<b>T12</b> (1NO+2NC) Non overlapping Slow action		<b>T21</b> (2NO+1NC) Non overlapping Slow action		<b>T03</b> (3NC) Simultaneous Slow action		<b>T30</b> (3NO) Simultaneous Slow action	

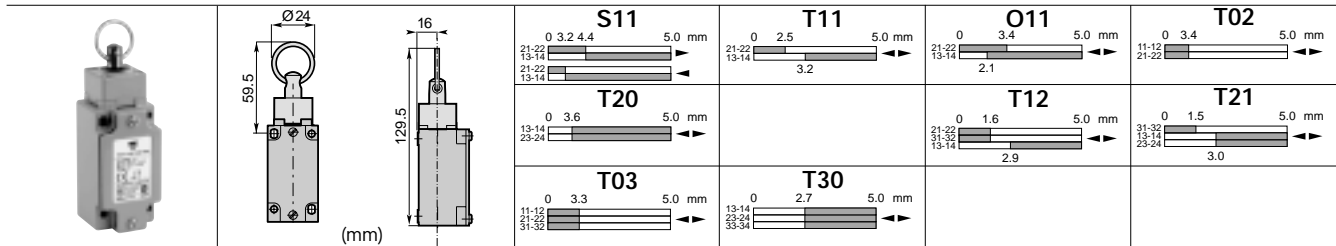


Conformity / (NC)

Max. Actuation speed	1.0ms
Min. force or torque	0.18N / -
Weight	235g

Stainless steel spring multidirectional actuator

Code PS31L-   LS-M00



Conformity / (NC)

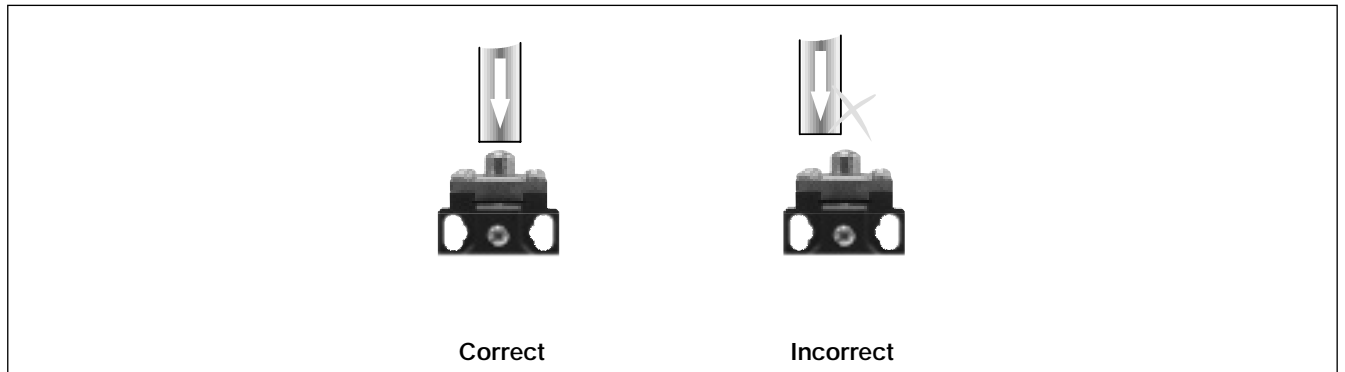
Max. Actuation speed	0.5ms
Min. force or torque	25N / -
Weight	245g

Pull action with ring

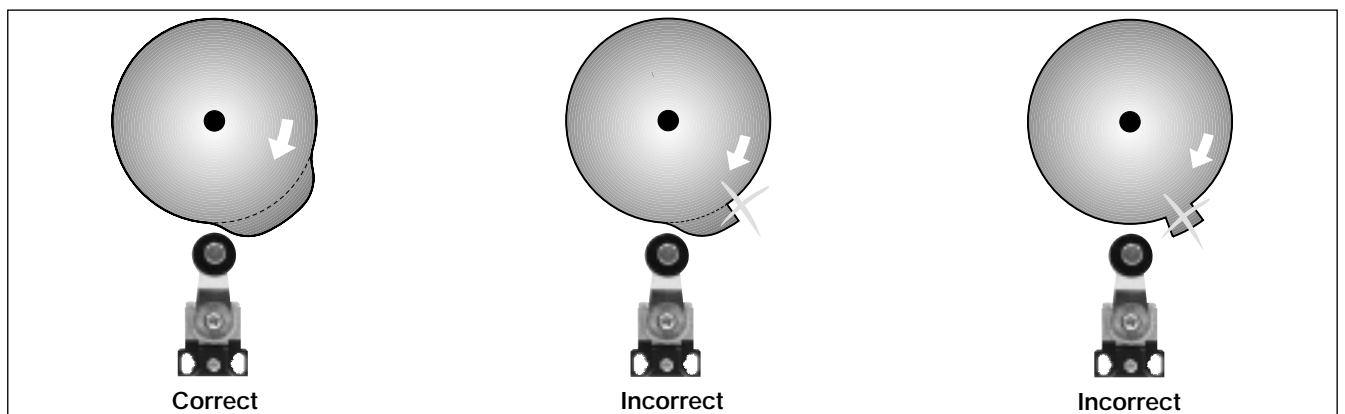
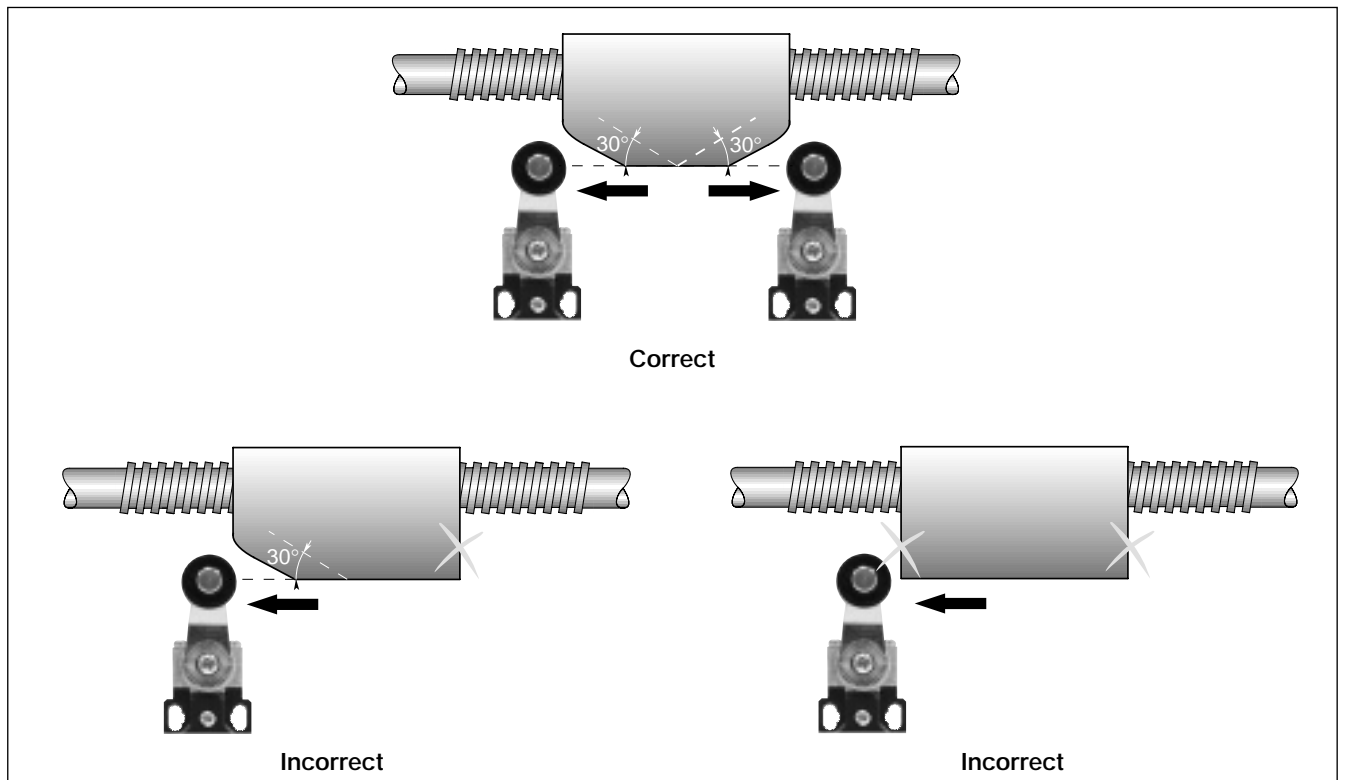
Code PS31L-   N6-M00

## Utilization precautions

### Plain plunger

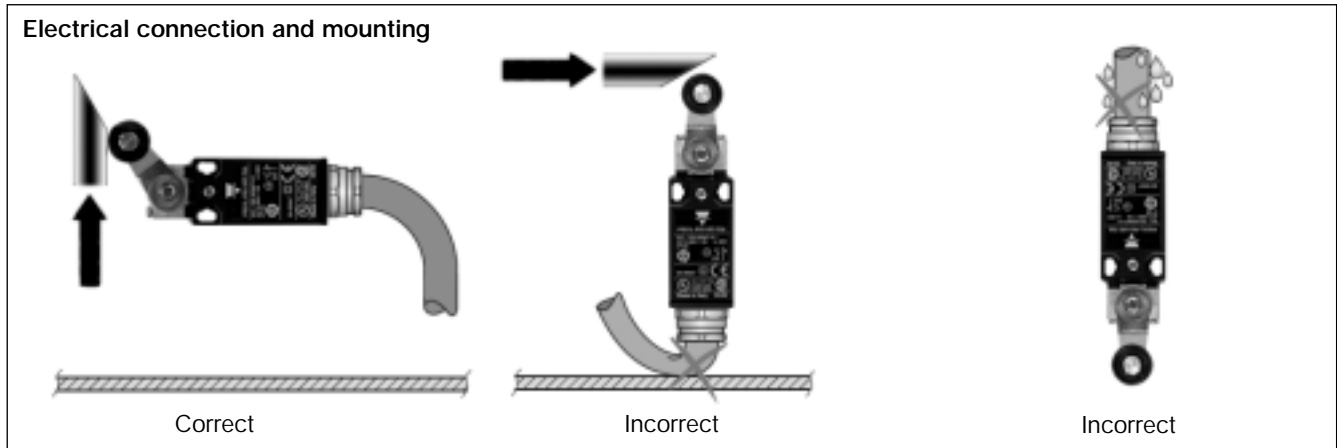


### Roller plunger or Roller lever





## Utilization precautions



## Adjustement

