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 developped in order to be used for following operations:
- Presence/Absence
- Positioning and travel limit
- Objects passing/counting

Ordering Key

PS31L-PS11RT-M00

Body
Cable Gland
Contact block
Head type
Material of body and head
Options

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 stell spring multidir actuator (cat Whisker)
LZ	Stainless stell 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 stell roller
R3	adj LEVER with stell 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		**IEC 60947-1, IEC 60947-5-1, EN 60947-1, EN 60947-5-1, UL508 and CSA C22-2 n°14**
Certifications – Approvals		**UL – CSA**
Air temperature near the device		
- during operation	°C	**-25 … +70**
- for storage	°C	**-30 … +80**
Climatic withstand		**According to IEC 68-2-3 and salty mist according to IEC 68-2-11**
Mounting positions		**All positions are authorized**
Shock withstand (according to IEC 68-2-27 and 60068-2-27) (1/2sinusoidal shock for 11 ms) no change in contact position	g	**50g***
Resistance to vibrations (acc.to IEC 68-2-6 and EN 60068-2-6)	g	**25g (**10…500Hz) no change in position of contacts greater than 100µs
Protection against electrical shocks (acc.to IEC 536)		**Class I**
Degree of protection (according to IEC 529 and EN 60529)		**IP66**
Consistency (measured over 1 milion operations)		**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				**400V** (PS21, PS42), **500V** (PS31, PS43) (degree of pollution 3)
-according to UL 508, CSA C22-2 n°14				**A 300 Q 300** (PS21, PS42), **A 600 Q 600** (PS31, PS43)
Rated impulse withstand voltage U_{imp} (according to IEC 60947-1 and EN 60947-1)			kV	**6**
Conventional enclosed thermal current I_{the} (according to IEC 60947-5-1 and EN 60947-5-1) (θ≤40°C)			A	**10**
Short-circuit protection - gG type fuses			A	**10**
Rated operational current				
I_e / AC-15	- acc.to IEC 60947-5-1	24Vac (50/60 Hz)	A	**10**
		130Vac (50/60 Hz)	A	**5.5**
		230Vac (50/60 Hz)	A	**3.1**
		240Vac (50/60 Hz)	A	**3**
		400Vac (50/60 Hz)	A	**1.8**
	- acc.to UL 508, CSA C22 n°14			**A 300** (PS21, PS42), **A 600** (PS31, PS43)
I_e / DC-13	- acc.to IEC 60947-5-1	24Vdc	A	**2.8**
		110Vdc	A	**0.6**
		250Vdc	A	**0,27**
	- acc.to UL 508, CSA C22 n°14			**Q 300** (PS21, PS42), **Q 600** (PS31, PS43)
Electrical durability (according to IEC 60497-5-1 annex C)				Utilization categories AC-15 and DC-13 (see curves and value below)
- max. switching frequency Cycles/h				**3600**
- load factor				**0,5**
Connecting data of contact blocks				
Connecting terminals				**M3,5 (+,-) pozidriv 2 screw with cable clamp**
Connecting capacity 1 or 2 x mm2 / AWG				**0,5mm2 / AWG 20 to 2,5mm2 / AWG 14**
Terminal marking				**According to EN 50013**
Positivity				Contacts with positive opening operation as per IEC 60947-5-1 chapter 3

Diagram for snap action contact:

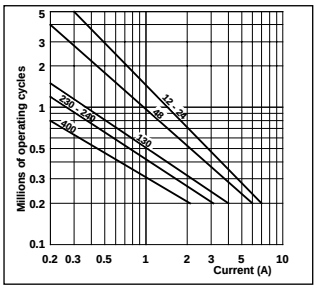
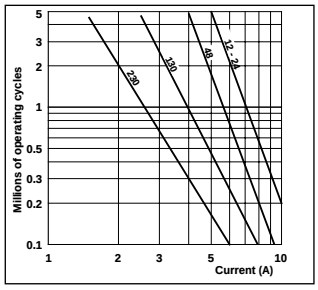


Diagram for slow action contact:



Electrical durability for DC-13 utilization category

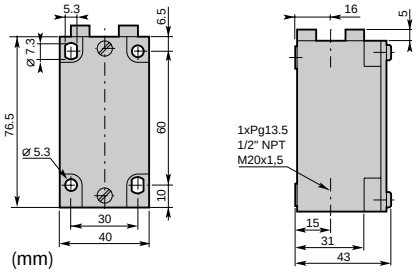
Power breaking for a durability of 5 million operating cycles		
	Snap action	Slow action
Voltage 24V	9,5W	12W
Voltage 48V	6,8W	9W
Voltage 110V	3,6W	6W

Limit Switches - Limit Type (PS31)
Metal Body IP66

CARLO GAVAZZI

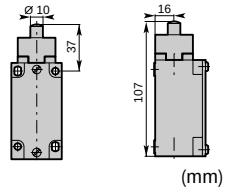
● Cable Gland

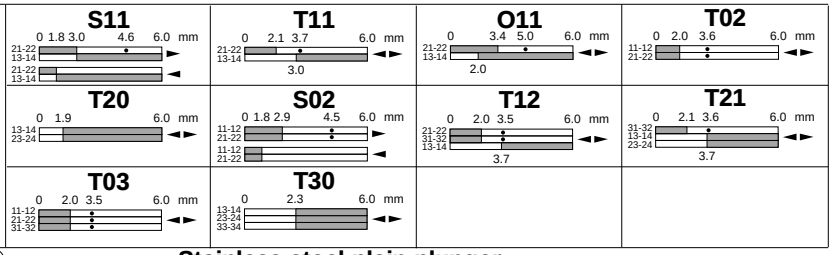
P = one cable inlet PG13.5 cable gland
M = one cable inlet M20x1.5 cable gland
N = one cable inlet 1/2" NPT cable gland



▲ Contact block (Zb type)

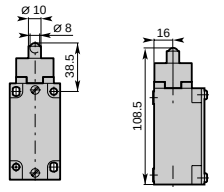
S11 (1NO+1NC) Snap action	**T11** (1NO+1NC) Non overlapping Slow action	**O11** (1NO+1NC) Overlapping Slow action	**T02** (2NC) Slow Action	**T20** (2NO) Slow action
S02 (2NC) Snap action	**T12** (1NO+2NC) Non overlapping Slow action	**T21** (2NO+1NC) Non overlapping Slow action	**T03** (3NC) Simultanous Slow action	**T30** (3NO) Simultanous Slow action

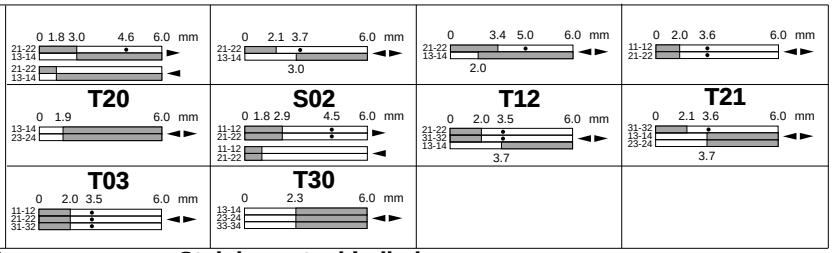




Conformity / ⊖ (NC)	EN 50041 / ⊖
Max. Actuation speed	0.5ms
Min. force or torque	30N / 45Nm
Weight	240g

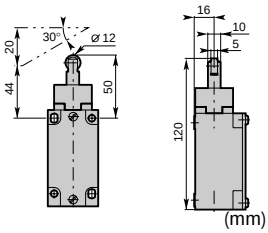
Stainless steel plain plunger
Code **PS31L-●▲P0-M00**

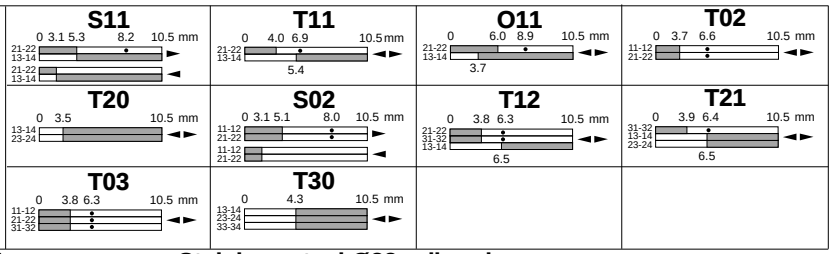




Conformity / ⊖ (NC)	EN 50041 / ⊖
Max. Actuation speed	0.5ms
Min. force or torque	30N / 45Nm
Weight	240g

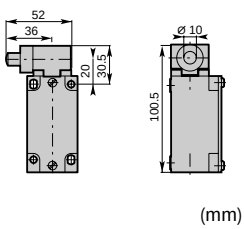
Stainless steel ball plunger
Code **PS31L-●▲PB-M00**

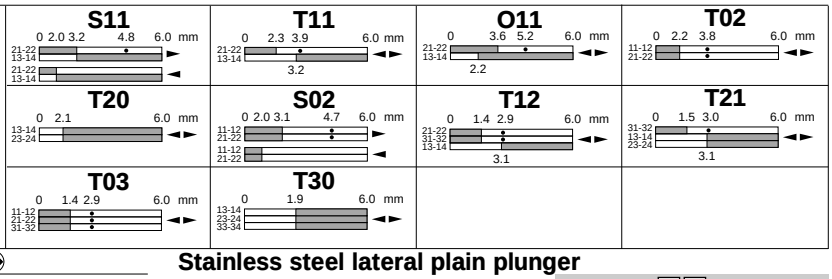




Conformity / ⊖ (NC)	EN 50041 / ⊖
Max. Actuation speed	0.5ms
Min. force or torque	22N / 40Nm
Weight	245g

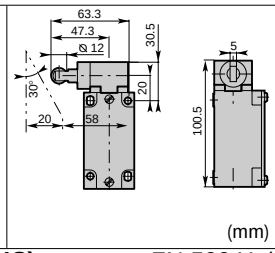
Stainless steel Ø22 roller plunger
Code **PS31L-●▲PR-M00**

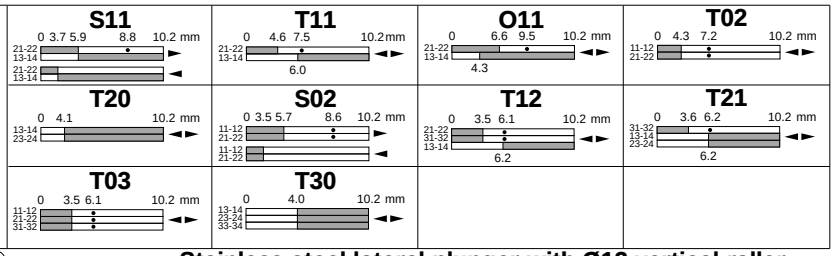




Conformity / ⊖ (NC)	EN 50041 / ⊖
Max. Actuation speed	0.5ms
Min. force or torque	30N / 50Nm
Weight	260g

Stainless steel lateral plain plunger
Code **PS31L-●▲SP-M00**

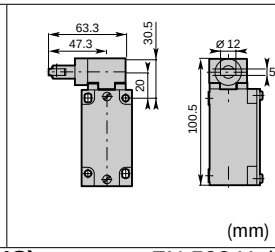


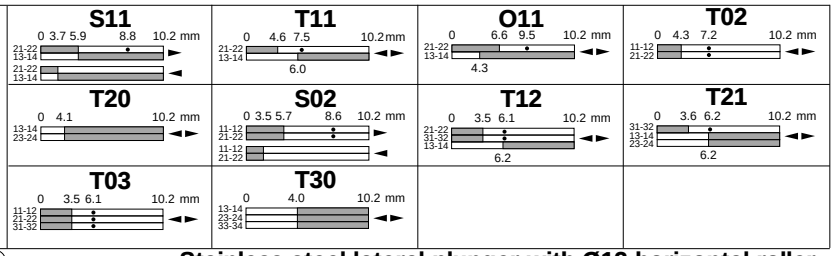


Conformity / ⊖ (NC)	EN 50041 / ⊖
Max. Actuation speed	0.5ms
Min. force or torque	30N / 50Nm
Weight	265g

Stainless steel lateral plunger with Ø12 vertical roller

Code **PS31L-●▲SV-M00**

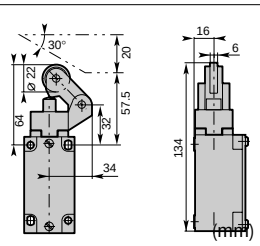


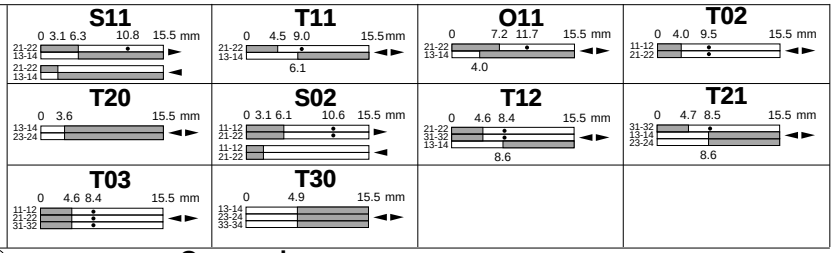


Conformity / ⊖ (NC)	EN 50041 / ⊖
Max. Actuation speed	0.5ms
Min. force or torque	30N / 50Nm
Weight	265g

Stainless steel lateral plunger with Ø12 horizontal roller

Code **PS31L-●▲SH-M00**

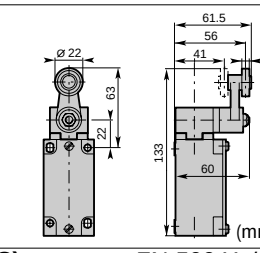


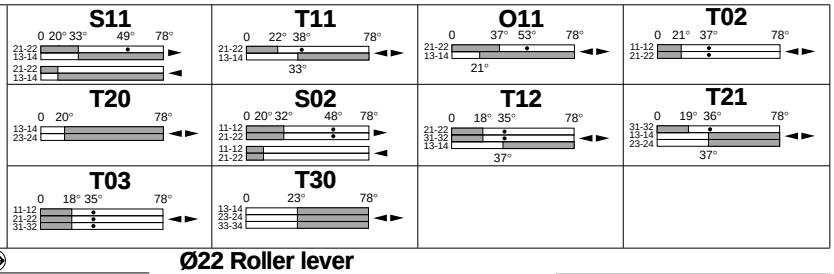


Conformity / ⊖	/ ⊖
Max. Actuation speed	1.5ms
Min. force or torque	12N / 40Nm
Weight	280g

One way lever

Code Ø22 nylon roller **PS31L-●▲RH-M00**
Ø22 stainless steel roller **PS31L-●▲RK-M00**
Ø22 steel ball bearing **PS31L-●▲RB-M00**

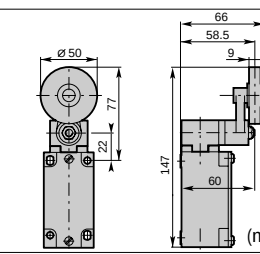


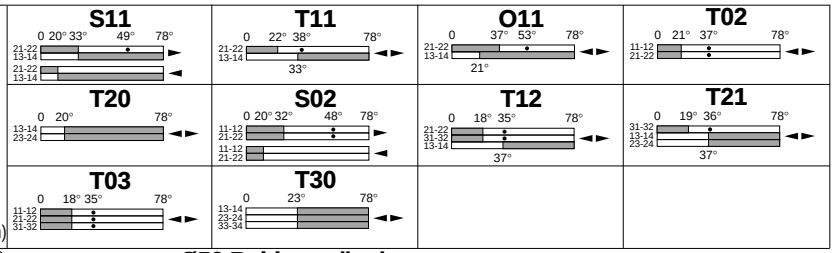


Conformity / ⊖ (NC)	EN 50041 / ⊖
Max. Actuation speed	1.5ms
Min. force or torque	0.15N / 0.30Nm
Weight	300g

Ø22 Roller lever

Code nylon roller **PS31L-●▲RT-M00**
stainless steel roller **PS31L-●▲RS-M00**
steel ball bearing **PS31L-●▲RO-M00**





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

Ø50 Rubber roller lever

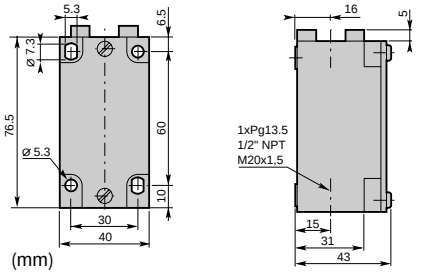
Code **PS31L-●▲W0-M00**

Limit Switches - Limit Type (PS31)
Metal Body IP66

CARLO GAVAZZI

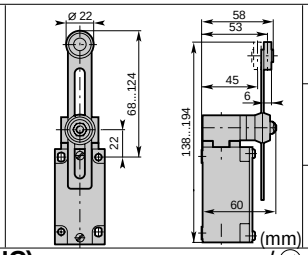
● Cable Gland

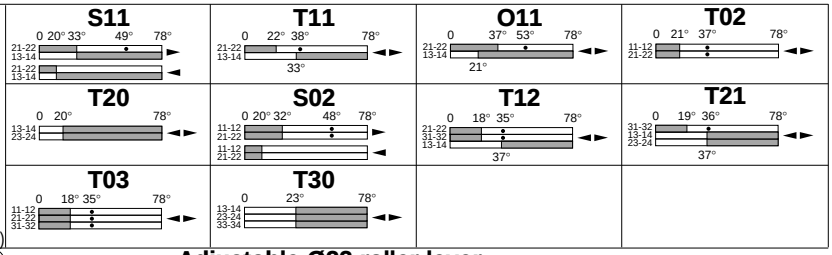
P = one cable inlet PG13.5 cable gland
M = one cable inlet M20x1.5 cable gland
N = one cable inlet 1/2" NPT cable gland



▲ Contact block (Zb type)

S11 (1NO+1NC) Snap action	**T11** (1NO+1NC) Non overlapping Slow action	**O11** (1NO+1NC) Overlapping Slow action	**T02** (2NC) Slow Action	**T20** (2NO) Slow action
S02 (2NC) Snap action	**T12** (1NO+2NC) Non overlapping Slow action	**T21** (2NO+1NC) Non overlapping Slow action	**T03** (3NC) Simultanous Slow action	**T30** (3NO) Simultanous Slow action

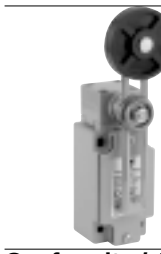


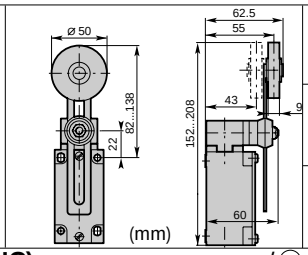


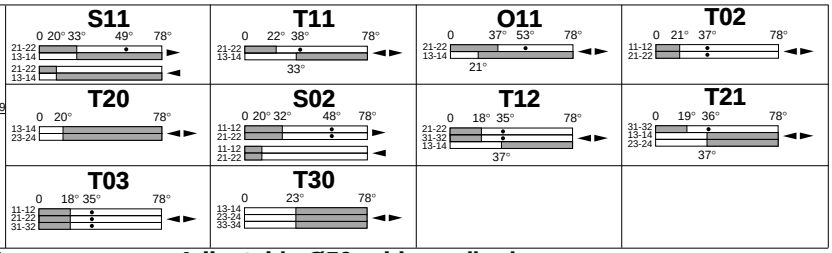
Conformity / ⊖ (NC)	/ ⊖
Max. Actuation speed	1.5ms
Min. force or torque	0.15N / 0.30Nm
Weight	320g

Adjustable Ø22 roller lever

Code	nylon lever	**PS31L-●▲R1-M00**
	stainless steel roller	**PS31L-●▲R2-M00**
	steel ball bearing	**PS31L-●▲R3-M00**



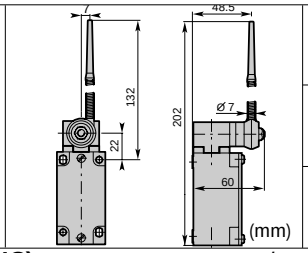


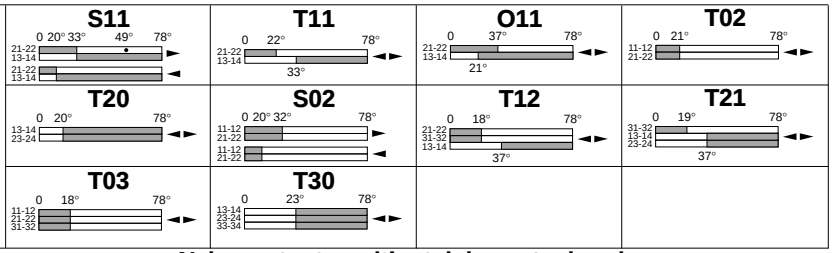


Conformity / ⊖ (NC)	/ ⊖
Max. Actuation speed	1.5ms
Min. force or torque	0.15N / 0.30Nm
Weight	325g

Adjustable Ø50 rubber roller lever

Code **PS31L-●▲W1-M00**

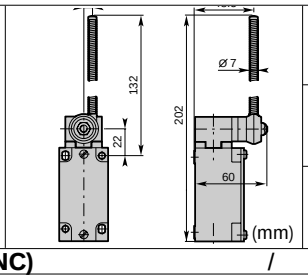


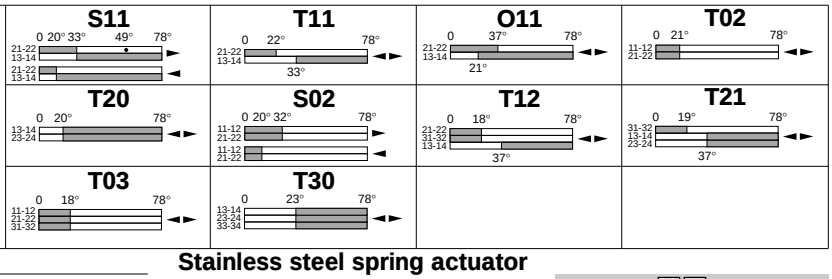


Conformity / ⊖ (NC)	/
Max. Actuation speed	1.5ms
Min. force or torque	0.15N / -
Weight	305g

Nylon actuator with stainless steel spring

Code **PS31L-●▲LB-M00**

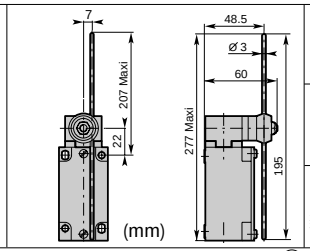


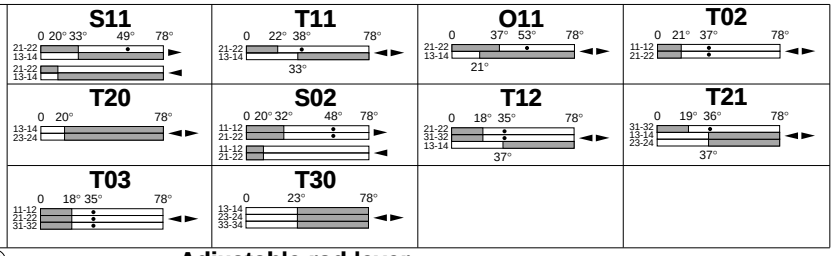


Conformity / ⊖ (NC)	/
Max. Actuation speed	1.5ms
Min. force or torque	0.15N / -
Weight	310g

Stainless steel spring actuator

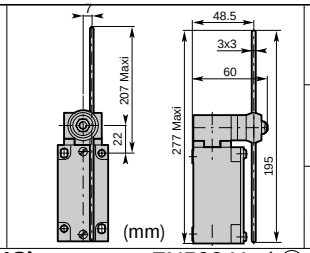
Code **PS31L-●▲LZ-M00**

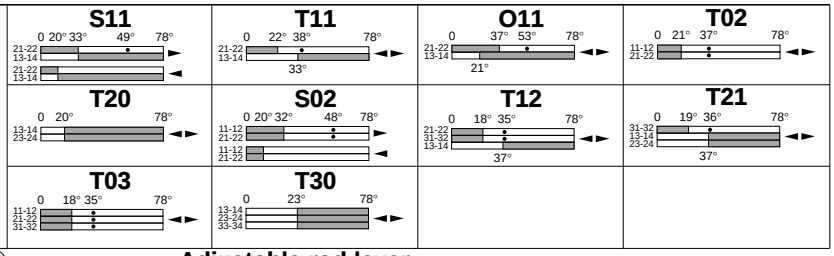




Conformity / ⊖ (NC)	EN50041 / ⊖
Max. Actuation speed	1.5ms
Min. force or torque	0.15N / 0.30
Weight	305g

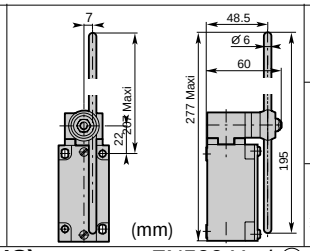
Adjustable rod lever
Code stainless steel rod Ø3 — **PS31L-●▲LA-M00**
fiberglass rod Ø3 — **PS31L-●▲LF-M00**

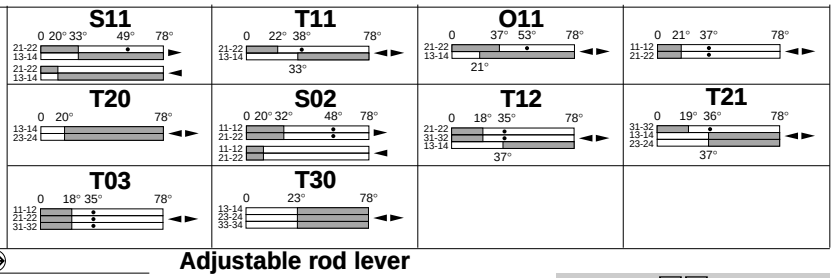




Conformity / ⊖ (NC)	EN50041 / ⊖
Max. Actuation speed	1.5ms
Min. force or torque	0.15N / 0.30
Weight	305g

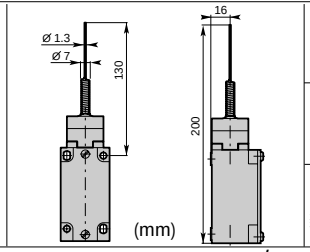
Adjustable rod lever
Code square steel rod 3x3 — **PS31L-●▲L3-M00**

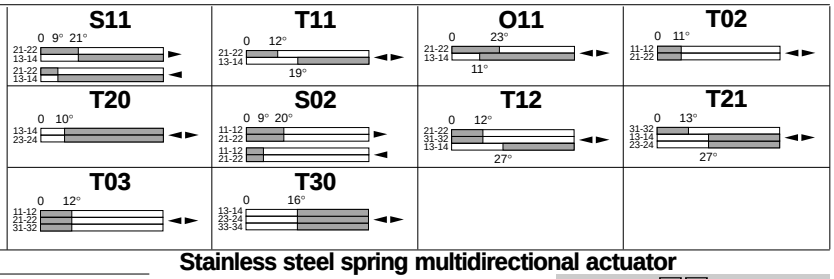




Conformity / ⊖ (NC)	EN50041 / ⊖
Max. Actuation speed	1.5ms
Min. force or torque	0.15N / 0.30Nm
Weight	300g

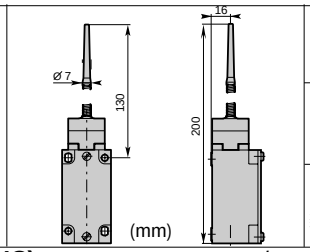
Adjustable rod lever
Code nylon rod — **PS31L-●▲LN-M00**
fiberglass rod — **PS31L-●▲LG-M00**

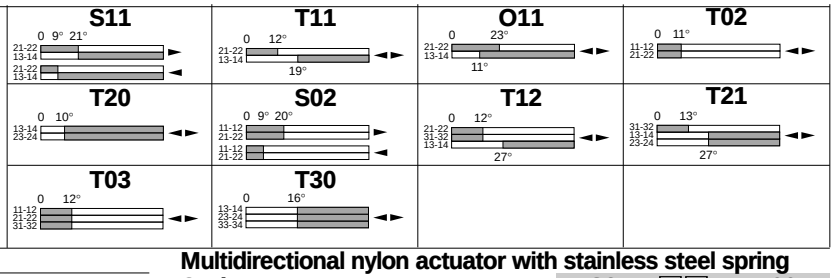




Conformity / ⊖	/
Max. Actuation speed	1.0ms
Min. force or torque	0.18N / -
Weight	230g

Stainless steel spring multidirectional actuator
Code **PS31L-●▲LW-M00**





Conformity / ⊖ (NC)	/
Max. Actuation speed	1.0ms
Min. force or torque	0.18N / -
Weight	230g

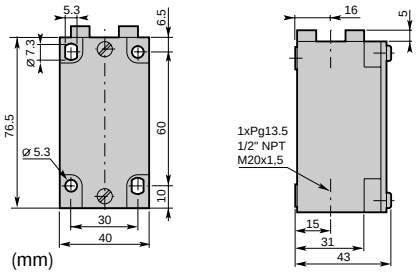
Multidirectional nylon actuator with stainless steel spring
Code **PS31L-●▲LP-M00**

Limit Switches - Limit Type (PS31)
Metal Body IP66

CARLO GAVAZZI

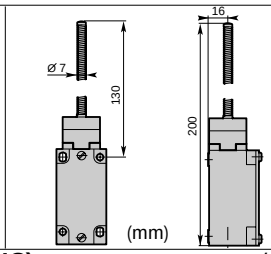
● Cable Gland

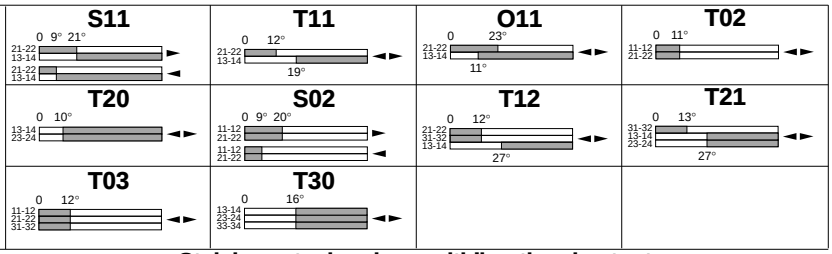
P = one cable inlet PG13.5 cable gland
M = one cable inlet M20x1.5 cable gland
N = one cable inlet 1/2" NPT cable gland



▲ Contact block (Zb type)

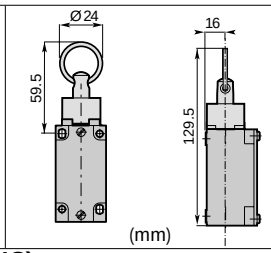
S11 (1NO+1NC) Snap action	**T11** (1NO+1NC) Non overlapping Slow action	**O11** (1NO+1NC) Overlapping Slow action	**T02** (2NC) Slow Action	**T20** (2NO) Slow action
S02 (2NC) Snap action	**T12** (1NO+2NC) Non overlapping Slow action	**T21** (2NO+1NC) Non overlapping Slow action	**T03** (3NC) Simultanous Slow action	**T30** (3NO) Simultanous Slow action

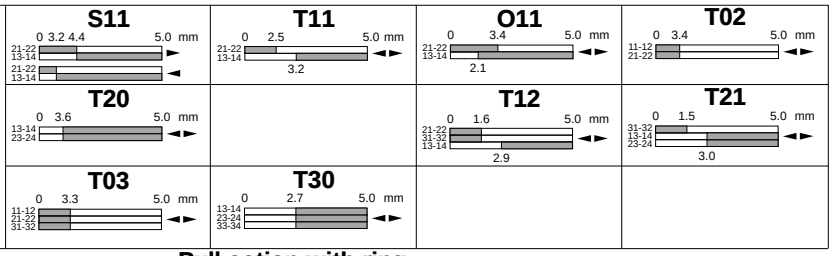




Conformity / ⊖ (NC)	/
Max. Actuation speed	1.0ms
Min. force or torque	0.18N / -
Weight	235g

Stainless steel spring multidirectional actuator
Code **PS31L-●▲LS-M00**





Conformity / ⊖ (NC)	/
Max. Actuation speed	0.5ms
Min. force or torque	25N / -
Weight	245g

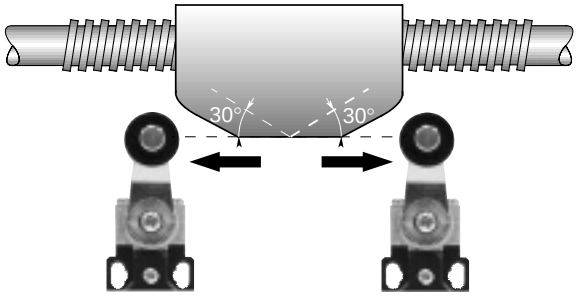
Pull action with ring
Code **PS31L-●▲N6-M00**

Utilization precautions

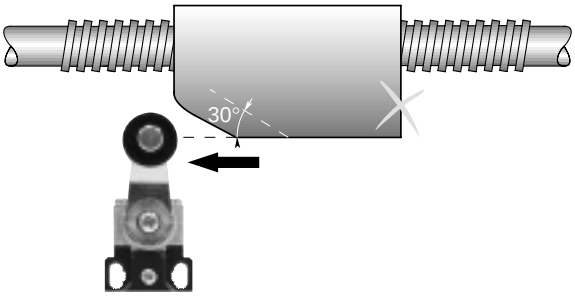
Plain plunger

Correct Incorrect

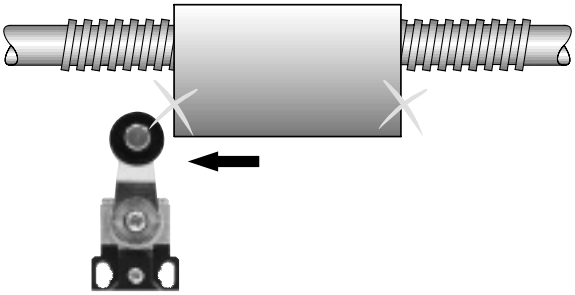
Roller plunger or Roller lever



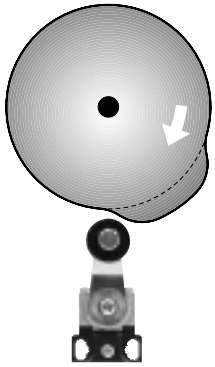
Correct



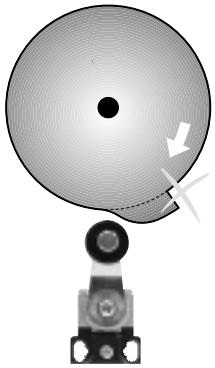
Incorrect



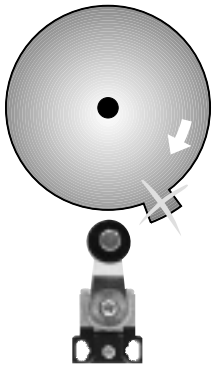
Incorrect



Correct



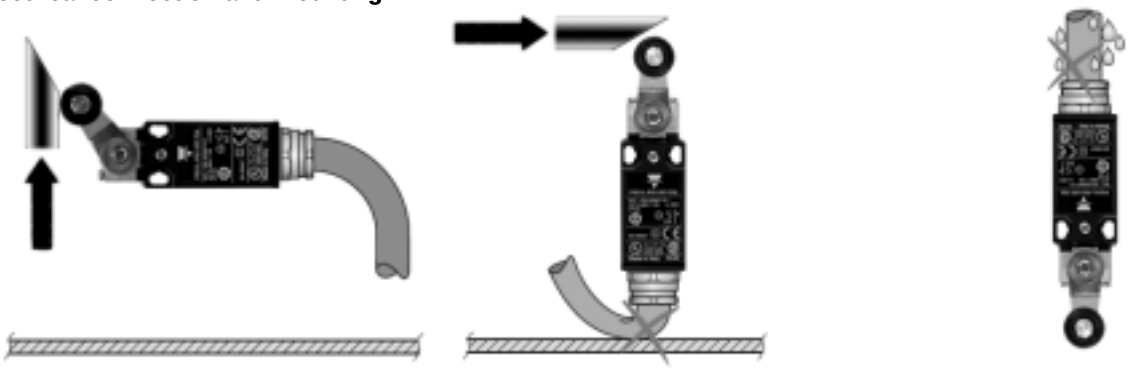
Incorrect



Incorrect

Utilization precautions

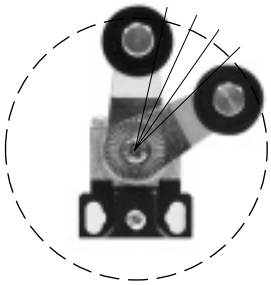
Electrical connection and mounting



Correct | Incorrect | Incorrect

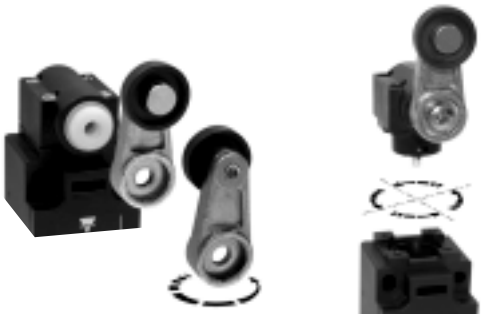
Adjustement

Position adjustement of lever

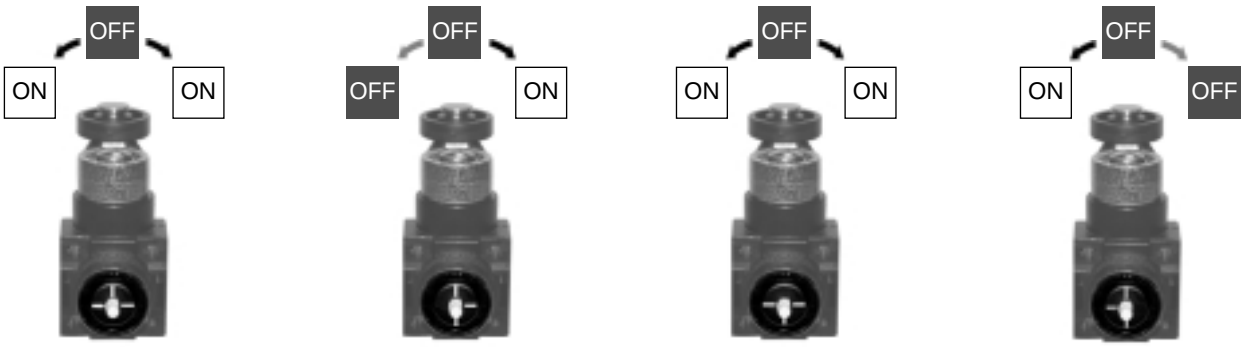


Free position adjustement 10 in 10° of lever

Position adjustement of lever and head



Different operating of head



Mouser Electronics

Authorized Distributor

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Carlo Gavazzi:

PS31L-NS02W1-MC2 PS31L-NS11LS-M00 PS31L-NO11LW-M00 PS31L-NT02R1-M00 PS31L-NS11N6-M00 PS31L-PT12LS-M00 PS31L-NO11PR-M00 PS31L-NO11LZ-M00 PS31L-NO11RK-M00 PS31L-NS11RS-M00 PS31L-NS02LB-M00 PS31L-NS02LZ-M00 PS31L-NO11R1-M00 PS31L-NO11N6-M00 PS31L-NS02LF-M00 PS31L-NO11P0-M00 PS31L-NS11PR-M00 PS31L-PS11RH-M00 PS31L-NS02LW-M00 PS31L-NS11LF-M00 PS31L-NO11PB-M00 PS31L-NT21LS-M00 PS31L-NT21R1-M00 PS31L-NS11L3-M00 PS31L-NO11R3-M00 PS31L-NT11R1-M00 PS31L-NS11R2-M00 PS31L-NO11W0-M00 PS31L-NS02LN-M00 PS31L-NO11RB-M00 PS31L-NT21PR-M00 PS31L-NO11SH-M00 PS31L-NS11LW-M00 PS31L-NS02LA-M00 PS31L-NO11SV-M00 PS31L-NO11RT-M00 PS31L-NO11LB-M00 PS31L-NT21RT-M00 PS31L-NS11LA-M00 PS31L-NS02P0-M00 PS31L-NS02W1-M00 PS31L-NO11LP-M00 PS31L-NS11PB-M00 PS31L-NS02LP-M00 PS31L-NS11LG-M00 PS31L-NS11RT-M00 PS31L-PS11R1-M00 PS31L-NS11SH-M00 PS31L-NO11RO-M00 PS31L-NS11LN-M00 PS31L-NO11L3-M00 PS31L-NS02N6-M00 PS31L-NO11LF-M00 PS31L-NO11W1-M00 PS31L-NS11RK-M00 PS31L-NS02L3-M00 PS31L-NS11LB-M00 PS31L-NS11W0-M00 PS31L-NO11RH-M00 PS31L-NT12R1-M00 PS31L-NO11LA-M00 PS31L-NO11LN-M00 PS31L-PS11RT-M00 PS31L-NS11SP-M00 PS31L-NS11LZ-M00 PS31L-NS11P0-M00 PS31L-NO11LG-M00 PS31L-NO11SP-M00 PS31L-NO11RS-M00 PS31L-NT02W1-M00 PS31L-NT12PR-M00 PS31L-NT12PB-M00 PS31L-NT11PR-M00 PS31L-NS11LP-M00 PS31L-NS11SV-M00 PS31L-NS11R1-M00 PS31L-NS02LG-M00 PS31L-PS11W1-M00 PS31L-NO11LS-M00 PS31L-PS11LP-M00 PS31L-NS11W1-M00 PS31L-NO11R2-M00 PS31L-NS02LS-M00 PS31L-NS11RH-M00 PS31L-NS02W1-MC4