

# Limit Switches - Limit Type Metal Body IP66

CARLO GAVAZZI



- High mechanical resistance
- Degree of protection IP66
- Aluminium 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)

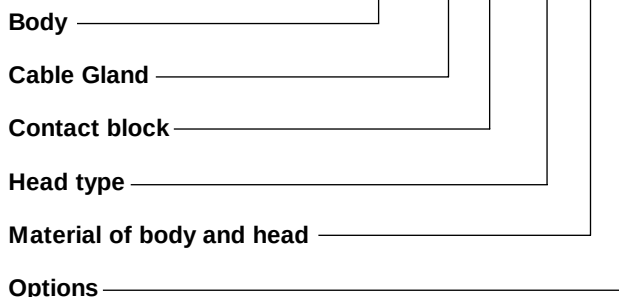
## Product Description

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

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

## Ordering Key

**PS42L-PS11RT-M00**



## Description of the key codes

### Body

PS42L | PS 50mm (fix 40/42mm) 2 cable inlet for General Purpose

### Cable Gland

|   |         |
|---|---------|
| M | M20     |
| P | PG13.5  |
| B | PG11    |
| A | M16     |
| N | 1/2 NPT |

### Contact block

|     |                         |
|-----|-------------------------|
| O11 | 1NO+1NC overlap slow(+) |
| S02 | 2NC snap(+)             |
| S11 | 1NO+1NC snap(+)         |
| T02 | 2NC slow(+)             |
| T11 | 1NO+1NC slow(+)         |
| T20 | 2NO slow                |

### Material of body and head

|   |                                   |
|---|-----------------------------------|
| H | Thermoplastic Body and Metal head |
| M | Metal Body and Metal head         |

### Options

|    |           |
|----|-----------|
| 00 | no option |
|----|-----------|

### Head type

|    |                                            |
|----|--------------------------------------------|
| BE | nylon roller ext bent LEVER                |
| BR | nylon roller int bent LEVER                |
| BM | metal roller bent LEVER                    |
| BO | ball roller bent LEVER                     |
| 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                        |
| LZ | Stainless stell spring actuator            |
| P0 | metal plain PLUNGER                        |
| PR | metal roller PLUNGER                       |
| R1 | adj LEVER with nylon roller                |
| RM | metal roller LEVER                         |
| RO | roller LEVER steel ball bearing            |
| RT | nylon roller LEVER                         |
| W0 | Ø50 rubber roller LEVER                    |
| W1 | adj LEVER with Ø50 rubber roller           |
| W2 | adj LEVER with adj 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

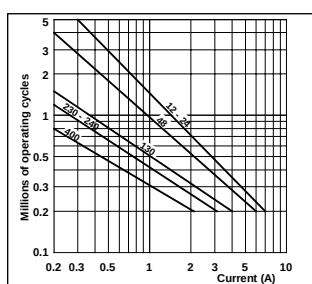
M3,5 (+,-) pozidriv 2 screw with cable clamp

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

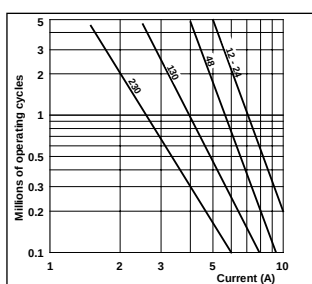
According to EN 50013

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

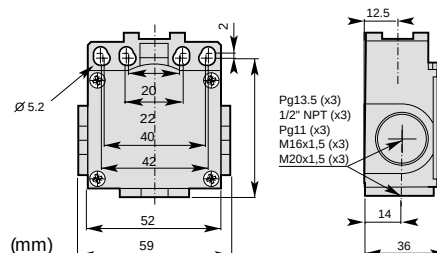
|              | Snap action | Slow action |
|--------------|-------------|-------------|
| Voltage 24V  | 9,5W        | 12W         |
| Voltage 48V  | 6,8W        | 9W          |
| Voltage 110V | 3,6W        | 6W          |

# Limit Switches - Limit Type (PS42) Metal Body IP66

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## ■ Cable Gland

**P** = three cable inlet PG13.5 cable gland  
**M** = three cable inlet M20x1.5 cable gland  
**N** = three cable inlet 1/2" NPT cable gland  
**B** = three cable inlet PG11 cable gland  
**A** = three cable inlet M16x1.5 cable gland



## ▲ Contact block (Zb type)

|                                     |  |                                                        |  |                                                    |  |
|-------------------------------------|--|--------------------------------------------------------|--|----------------------------------------------------|--|
| <b>S11</b> (1NO+1NC)<br>Snap Action |  | <b>T11</b> (1NO+1NC)<br>Non overlapping<br>Slow action |  | <b>O11</b> (1NO+1NC)<br>Overlapping<br>Slow Action |  |
| <b>T02</b> (2NC)<br>Slow Action     |  | <b>T20</b> (2NO)<br>Slow Action                        |  | <b>S02</b> (2NC)<br>Snap Action                    |  |

|  |  |  |                                    |                                |                                    |
|--|--|--|------------------------------------|--------------------------------|------------------------------------|
|  |  |  | <b>S11</b><br>0 1.3 2.5 4.1 5.6 mm | <b>T11</b><br>0 1.6 3.2 5.6 mm | <b>O11</b><br>0 2.9 4.5 5.6 mm     |
|  |  |  | <b>T02</b><br>0 1.5 3.1 5.6 mm     | <b>T20</b><br>0 1.4 5.6 mm     | <b>S02</b><br>0 1.3 2.4 4.0 5.6 mm |

Conformity /  $\Rightarrow$  (NC) /  $\Rightarrow$   
 Max. Actuation speed 0.5ms  
 Min. force or torque 15N / 30Nm  
 Weight 270g

Plain Metal Plunger  
Code

PS42L-□▲P0-M00

|  |  |  |                                    |                                |                                    |
|--|--|--|------------------------------------|--------------------------------|------------------------------------|
|  |  |  | <b>S11</b><br>0 2.5 4.7 7.6 9.6 mm | <b>T11</b><br>0 3.2 6.0 9.6 mm | <b>O11</b><br>0 5.3 8.2 9.6 mm     |
|  |  |  | <b>T02</b><br>0 3.0 5.9 9.6 mm     | <b>T20</b><br>0 2.8 9.6 mm     | <b>S02</b><br>0 2.5 4.5 7.4 9.6 mm |

Conformity /  $\Rightarrow$  (NC) /  $\Rightarrow$   
 Max. Actuation speed 0.3ms  
 Min. force or torque 12N / 30Nm  
 Weight 280g

Metal roller Plunger  
Code

PS42L-□▲PR-M00

|  |  |  |                                 |                             |                                 |
|--|--|--|---------------------------------|-----------------------------|---------------------------------|
|  |  |  | <b>S11</b><br>0 17° 31° 47° 74° | <b>T11</b><br>0 21° 37° 74° | <b>O11</b><br>0 35° 51° 74°     |
|  |  |  | <b>T02</b><br>0 19° 37° 74°     | <b>T20</b><br>0 18° 74°     | <b>S02</b><br>0 17° 30° 46° 74° |

Conformity /  $\Rightarrow$  (NC) /  $\Rightarrow$   
 Max. Actuation speed 1.5ms  
 Min. force or torque 0.10N / 0.32Nm  
 Weight 325g

Ø 18 Nylon roller lever  
Code nylon roller  
metal roller

PS42L-□▲RT-M00  
 PS42L-□▲RM-M00

|  |  |  |                                 |                             |                                 |
|--|--|--|---------------------------------|-----------------------------|---------------------------------|
|  |  |  | <b>S11</b><br>0 17° 31° 47° 74° | <b>T11</b><br>0 21° 37° 74° | <b>O11</b><br>0 35° 51° 74°     |
|  |  |  | <b>T02</b><br>0 19° 37° 74°     | <b>T20</b><br>0 18° 74°     | <b>S02</b><br>0 17° 30° 46° 74° |

Conformity /  $\Rightarrow$  (NC) /  $\Rightarrow$   
 Max. Actuation speed 1.5ms  
 Min. force or torque 0.10N / 0.32Nm  
 Weight 345g

Ø 50 Rubber roller lever  
Code

PS42L-□▲W0-M00

|  |  |                |                |                |
|--|--|----------------|----------------|----------------|
|  |  | <b>S11</b><br> | <b>T11</b><br> | <b>O11</b><br> |
|  |  | <b>T02</b><br> | <b>T20</b><br> | <b>S02</b><br> |

Conformity /  $\Rightarrow$  (NC) /  $\Rightarrow$   
 Max. Actuation speed 1.5ms  
 Min. force or torque 0.10N / 0.32Nm  
 Weight 340g

**Ø 18 Roller lever**  
 Code nylon roller  
 metal roller

PS42L- BR-M00  
 PS42L- BM-M00

|  |  |                |                |                |
|--|--|----------------|----------------|----------------|
|  |  | <b>S11</b><br> | <b>T11</b><br> | <b>O11</b><br> |
|  |  | <b>T02</b><br> | <b>T20</b><br> | <b>S02</b><br> |

Conformity /  $\Rightarrow$  (NC) /  $\Rightarrow$   
 Max. Actuation speed 1.5ms  
 Min. force or torque 0.10N / 0.32Nm  
 Weight 340g

**Ø 18 Nylon roller lever**  
 Code

PS42L- BE-M00

|  |  |                |                |                |
|--|--|----------------|----------------|----------------|
|  |  | <b>S11</b><br> | <b>T11</b><br> | <b>O11</b><br> |
|  |  | <b>T02</b><br> | <b>T20</b><br> | <b>S02</b><br> |

Conformity /  $\Rightarrow$  (NC) /  $\Rightarrow$   
 Max. Actuation speed 1.5ms  
 Min. force or torque 0.10N / 0.32Nm  
 Weight 335g

**Adjustable lever with Ø 18 nylon roller**  
 Code

PS42L- R1-M00

|  |  |                |                |                |
|--|--|----------------|----------------|----------------|
|  |  | <b>S11</b><br> | <b>T11</b><br> | <b>O11</b><br> |
|  |  | <b>T02</b><br> | <b>T20</b><br> | <b>S02</b><br> |

Conformity /  $\Rightarrow$  (NC) /  $\Rightarrow$   
 Max. Actuation speed 1.5ms  
 Min. force or torque 0.10N / 0.32Nm  
 Weight 355g

**Adjustable lever with Ø 50 rubber roller**  
 Code

PS42L- W1-M00

|  |  |                |                |                |
|--|--|----------------|----------------|----------------|
|  |  | <b>S11</b><br> | <b>T11</b><br> | <b>O11</b><br> |
|  |  | <b>T02</b><br> | <b>T20</b><br> | <b>S02</b><br> |

Conformity /  $\Rightarrow$  (NC) /  $\Rightarrow$   
 Max. Actuation speed 1.5ms  
 Min. force or torque 0.10N / 0.32Nm  
 Weight 355g

**Adjustable lever with adjustable Ø 50 rubber roller**  
 Code

PS42L- W2-M00

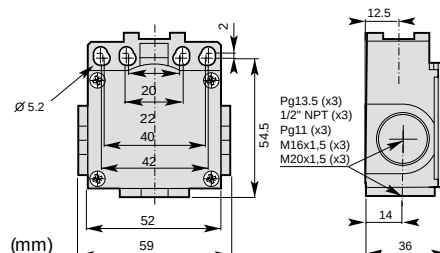
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## ▲ Contact block (Zb type)



|                                     |  |                                                        |  |                                                    |  |
|-------------------------------------|--|--------------------------------------------------------|--|----------------------------------------------------|--|
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| <b>T02</b> (2NC)<br>Slow Action     |  | <b>T20</b> (2NO)<br>Slow Action                        |  | <b>S02</b> (2NC)<br>Snap Action                    |  |

|  |  |            |            |            |
|--|--|------------|------------|------------|
|  |  | <b>S11</b> | <b>T11</b> | <b>O11</b> |
|  |  |            |            |            |
|  |  | <b>T02</b> | <b>T20</b> | <b>S02</b> |
|  |  |            |            |            |

Conformity / (NC)

Max. Actuation speed 1.5ms

Min. force or torque 0.10N / -

Weight 305g

Nylon actuator with stainless steel spring

Code

PS42L-01LB-M00

|  |  |            |            |            |
|--|--|------------|------------|------------|
|  |  | <b>S11</b> | <b>T11</b> | <b>O11</b> |
|  |  |            |            |            |
|  |  | <b>T02</b> | <b>T20</b> | <b>S02</b> |
|  |  |            |            |            |

Conformity / (NC)

Max. Actuation speed 1.5ms

Min. force or torque 0.10N / 0.32

Weight 380g

Adjustable rod lever

Code

stainless steel rod Ø3

fiberglass rod Ø3

square steel rod 3x3

PS42L-01LA-M00

PS42L-01LF-M00

PS42L-01L3-M00

|  |  |            |            |            |
|--|--|------------|------------|------------|
|  |  | <b>S11</b> | <b>T11</b> | <b>O11</b> |
|  |  |            |            |            |
|  |  | <b>T02</b> | <b>T20</b> | <b>S02</b> |
|  |  |            |            |            |

Conformity / (NC)

Max. Actuation speed 1.5ms

Min. force or torque 0.10N / 0.32Nm

Weight 390g

Adjustable Ø6 rod lever

Code

nylon rod

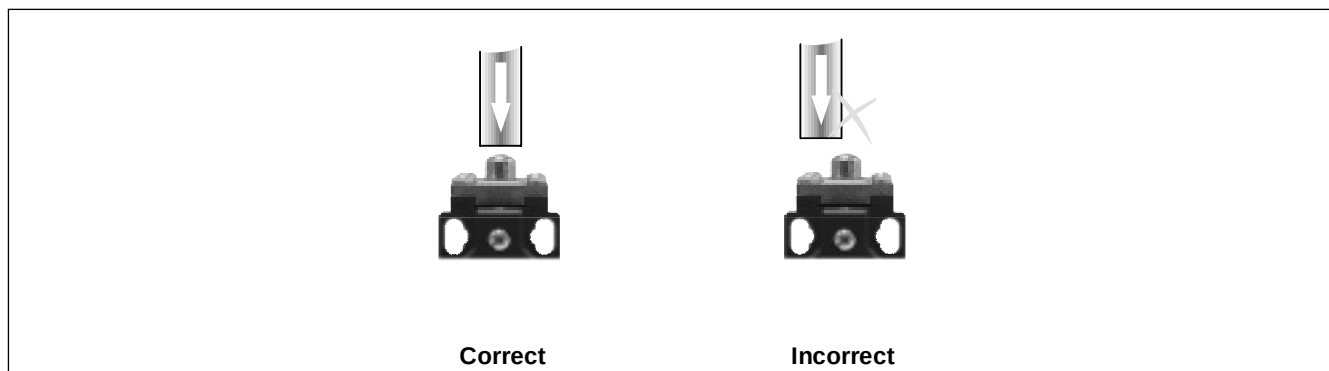
fiberglass rod

PS42L-01LN-M00

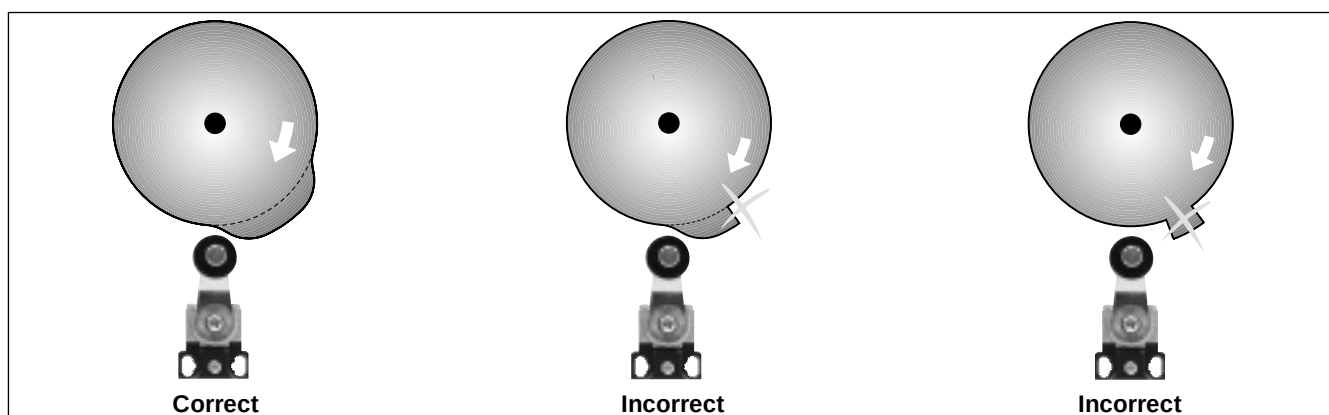
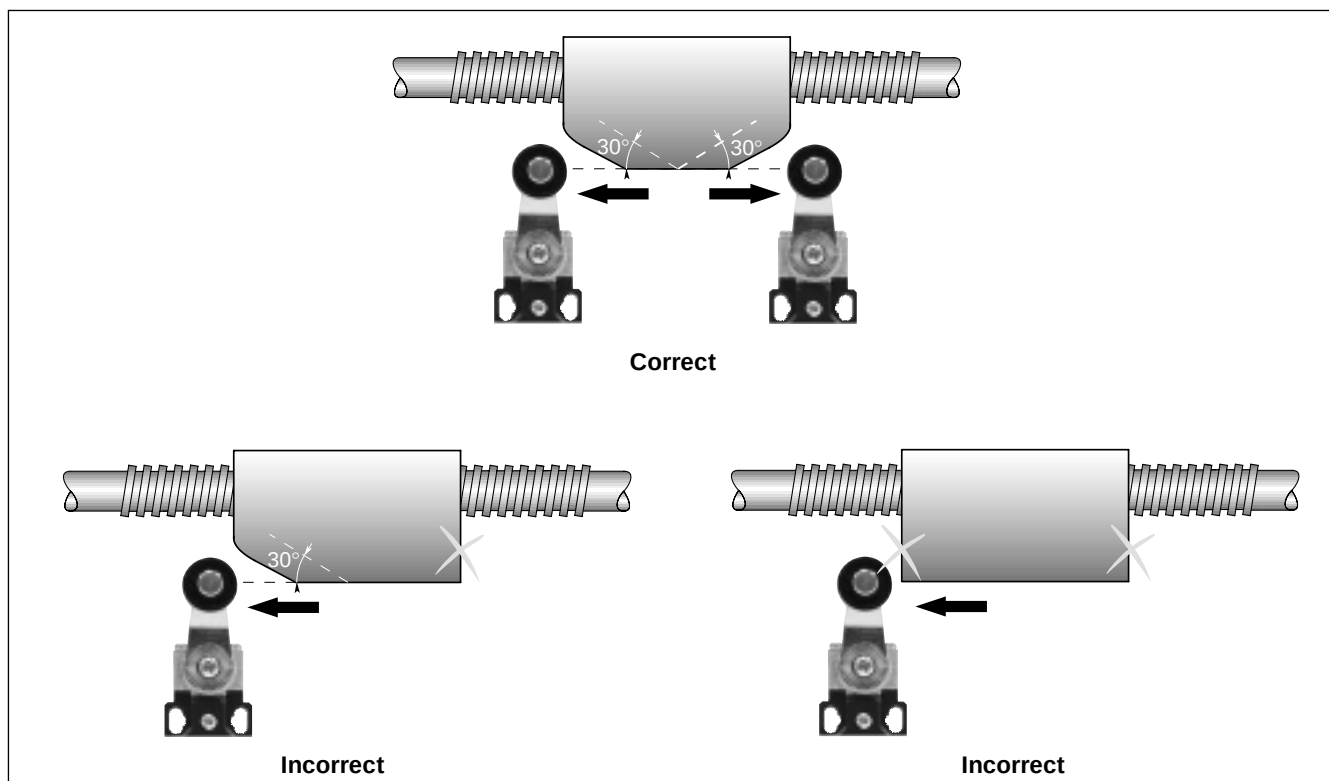
PS42L-01LG-M00

## Utilization precautions

### Plain plunger

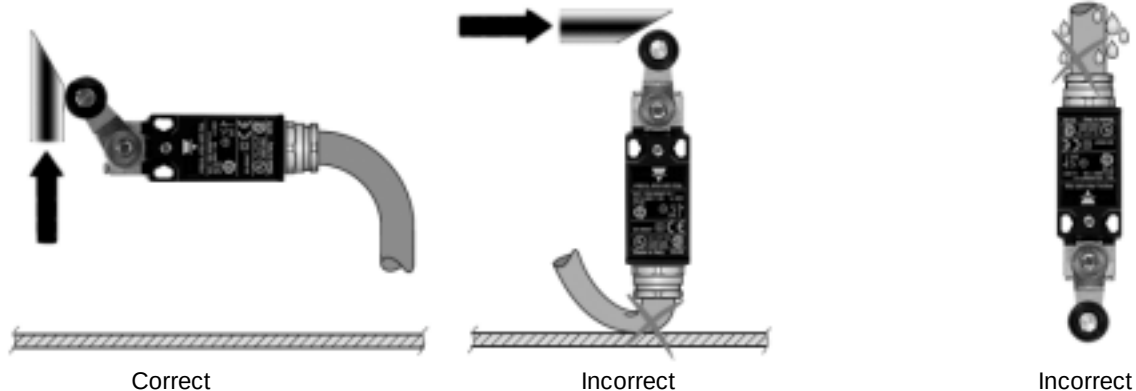


### Roller plunger or Roller lever



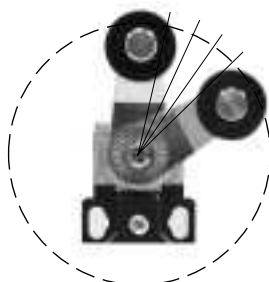
## Utilization precautions

### Electrical connection and mounting



## Adjustement

### Position adjustement of lever



Free position adjustement 10 in 10° of lever

### Position adjustement of lever and head

