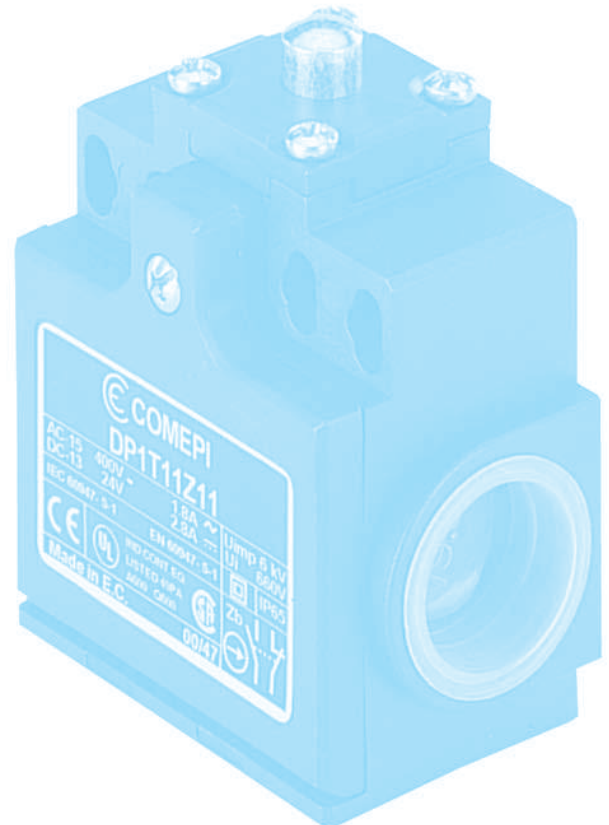
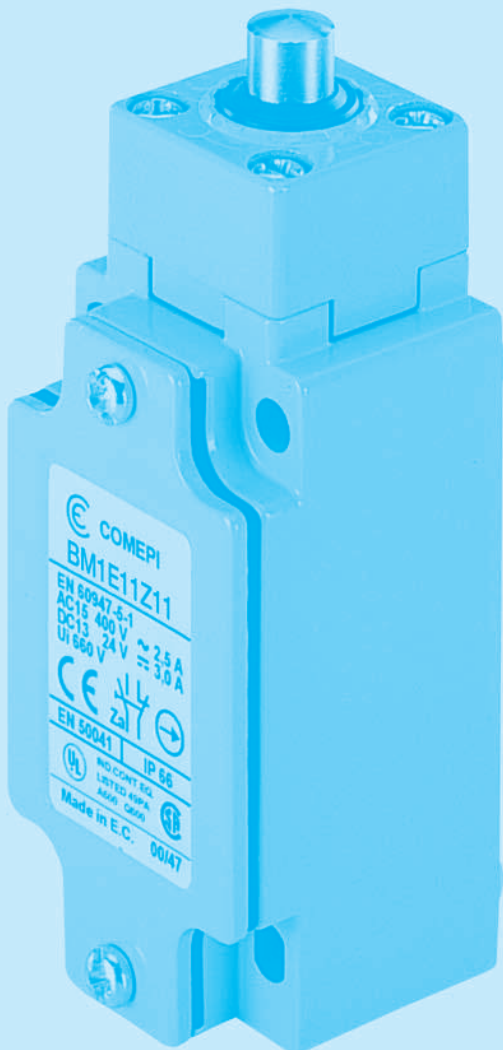
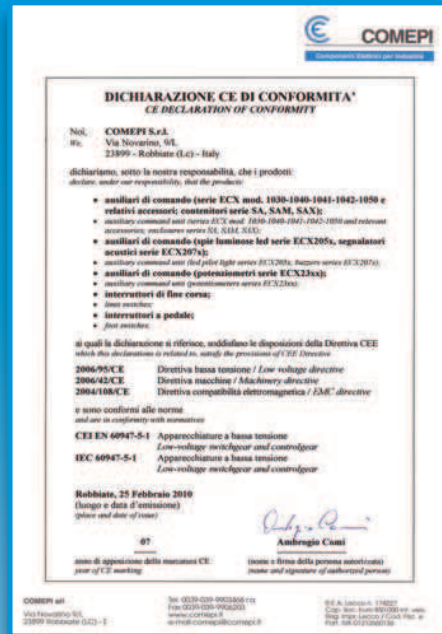




LIMIT SWITCHES



Quality certifications



As ever watchful for quality, since 1998, Comepi is qualified ISO 9002 thus offering its domestic and foreign interlocutors a deeper warranty of its ability to adequately answer the ever increasing need of effective and fruitful relationship.

The update to ISO 9001:2008, made in 2009, confirms the Comepi quality politics. The control of full application of ISO 9000 norms and its timely updating is guaranteed by well tested procedures ranging from control of the process up to the use of statistic techniques.

Comepi personnel, at any given level, is involved in this process in order to achieve the highest end-user satisfaction besides growth of image, competitiveness and profits for the firm.

Limit Switches

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Safety Limit Switches

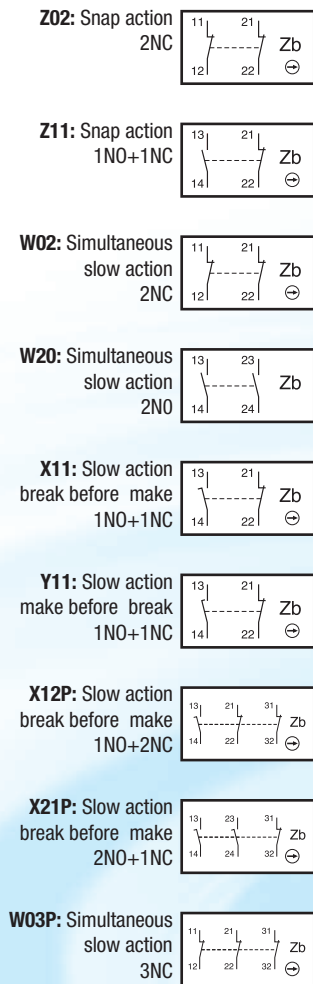
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SUMMARY LIMIT SWITCHES



Adapter G Type

AP series (Plastic)



T head type (Plastic)

DP series (Plastic)



T head type (Plastic)

AM series (Metal)



F head type (Metal)
T head type (Plastic)

DM series (Metal)



F head type (Metal)
T head type (Plastic)

BP series (Plastic)



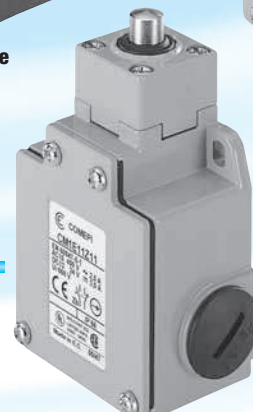
H head type (Plastic)

BM series (Aluminium)



E head type (Aluminium)

Serie CM (alluminio)

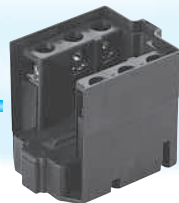
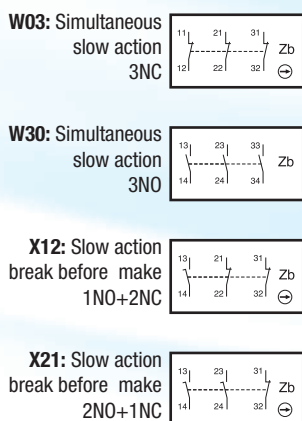


E head type (Aluminium)

Contact blocks

Zb type: double break, electrically separated

Approvals: UL 508 / CSA C22-2 n. 14



The **Comepi** products listed in this catalogue are developed and manufactured according to the rules set out in IEC international publications and EN European standard.

Specifications

- **International Specifications**

The International Electrotechnical Commission, IEC, which is part of the International Standards Organization, ISO, publishes IEC publications which act as a basis for the world market.

- **European Specifications**

The European Committee for Electrotechnical Standardisation (CENELEC), grouping 18 European countries, publishes EN standards for low voltage industrial apparatus.

These European standards differ very little from IEC international standards and use a similar numbering system. The same is true of national standards. Contradicting national standards are withdrawn.

- **Harmonised European Specifications**

The European Committees for Standardisation (CEN and CENELEC), grouping 18 European countries, publish EN standards relating to safety of machinery.

- **Specifications in Canada and the USA**

These are equivalent, but differ markedly from IEC, UTE, VDE and BS specifications.

UL Underwriters Laboratories (USA)

CSA Canadian Standards Association (Canada)

Remark concerning the label issued by the UL (USA). Two levels of acceptance between devices must be distinguished.

“Recognized” Authorised to be included in equipment, if the equipment in question has been entirely mounted and wired by qualified personnel. They are not valid for use as “General purpose products” as their possibilities are limited.

They bear the mark: 

“Listed” Authorised to be included in equipment and for separate sale are “General purpose products” components in the USA.

They bear the mark: 

European Directives

The guarantee of free movement of goods within the European Community assumes elimination of any regulatory differences between the member states. European Directives set up common rules that are included in the legislation of each state while contradictory regulations are cancelled.

There are three main directives:

- **Low Voltage Directive 2006/95/CE** concerning electrical equipment from 50 to 1000 V a.c. and from 75 to 1500 V d.c.

This specifies that compliance with the requirements that it sets out **is acquired** once the equipment conforms to the standards harmonised at European level: EN 60947-1 and EN-60947-5-1 for **limit switches**.

- **Machines Directives - 2006/42/CE** defining main safety and health requirements concerning design and manufacture of the machines and other equipment including safety components in European Union countries.

- **Electromagnetic Compatibility Directive 2004/108/CE** concerning all electrical devices likely to create electromagnetic disturbances.

Signification of CE marking:

CE marking must not be confused with a quality label.

CE marking placed on a product is proof of conformity with the European Directives concerning the product.

CE marking is part of an administrative procedure and guarantees free movement of the product within the European Community.

Standards

- **International Standards**

IEC 947-1 Low-voltage switchgear and controlgear - Part 1: General Rules (CEI EN 60947-1).

IEC 947-5-1 Low-voltage switchgear and controlgear - Part 5: Control circuit devices and switching elements - Section 1: Electromechanical control circuit devices (CEI EN 60947-5-1) - Chapter 3: Special requirements for control switches with positive opening operation.

IEC 204-1 Electrical equipment on industrial machines - Part 1: General requirements (CEI EN 60204-1).

IEC 204-2 Electrical equipment on industrial machines - Part 2: Item designation and examples of drawings, diagrams, tables and instructions.

IEC 529 Degrees of protection provided by enclosure (IP code) (CEI EN 60529).

- **European Standards**

- EN 50005** Low-voltage switchgear and controlgear for industrial use - Terminal marking and distinctive number: General rules (CEI 17-17).
- EN 50013** Low-voltage switchgear and controlgear for industrial use - Terminal marking and distinctive number for particular control switches (CEI 17-17).
- EN 50041** Low-voltage switchgear and controlgear for industrial use - Control switches - Position switches 42,5 x 80 - Dimensions and characteristics.
- EN 50047** Low-voltage switchgear and controlgear for industrial use - Control switches - Position switches 30 x 55 - Dimensions and characteristics.
- EN 60947-1** Low-voltage switchgear and controlgear for industrial use - Part 1: General rules (CEI EN 60947-1).
- EN 60947-5-1** Low-voltage switchgear and controlgear for industrial use - Part 5: Control circuit devices and switching elements - Section 1: Electromechanical control circuit devices (CEI EN 60947-5-1) - Chapter 3: Special requirements for control switches with positive opening operation.
- EN 60529** Degrees of protection provided by enclosures (IP code).
- EN 61058-1** Switches for appliances. Part. 1: general requirements.

- **American Standards**

- UL 508** Standard for safety. Industrial control equipment.
- CSA - C22.2 No. 14-95** Industrial control equipment. Industrial products.

Double Insulation

Class II materials, according to IEC 536, are designed with double insulation. This measure consists in doubling the functional insulation with an additional layer of insulation so as to eliminate the risk of electric shock and thus not having to protect elsewhere. No conductive part of "double insulated" material should be connected to a protective conductor.

Positive Opening Operation

A control switch, with one or more break-contact elements, has a positive opening operation when the switch actuator ensures full contact opening of the break-contact. For the part of travel that separates the contacts, there must be a positive drive, with no resilient member (e.g. springs), between the moving contacts and the point of the actuator to which the actuating force is applied.

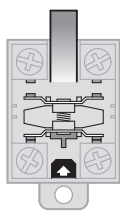
The positive opening operation does not deal with N.O. contacts.

Control switches with positive opening operation may be provided with either snap action or slow action contact elements. To use several contacts on the same control switch with positive opening operation, they must be electrically separated from each other, if not, only one may be used.

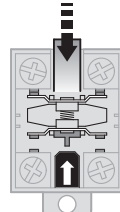
Every control switch with positive opening operation must be indelibly marked on the outside with the symbol: .

Snap Action

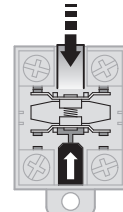
Snap action contacts are characterised by a release position that is distinct from the operating position (differential travel). Snap breaking of moving contacts is independent of the switch actuator's speed and contributes to regular electric performance even for slow switch actuator speeds.



State of rest



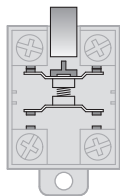
Contact change



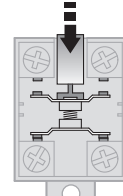
Positive opening

Slow Action

Slow action contacts are characterised by a release position that is the same as the operating position. The switch actuator's speed directly conditions the travel speed of contacts.



State of rest



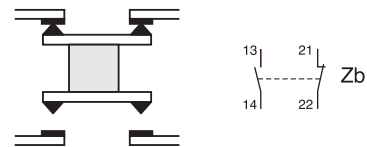
Completely closed

Contact shape according to IEC 947-5-1.

Change-over contact elements with 4 terminals must be indelibly marked with the corresponding Za or Zb symbol as in the diagrams below.



Contacts with the same polarity



The 2 moving contacts are electrically separated

Utilization Category

AC-15: switching of electromagnetic loads of electromagnets using an alternating current (>72 VA).

DC-13: switching of electromagnets using a direct current.

Terminals

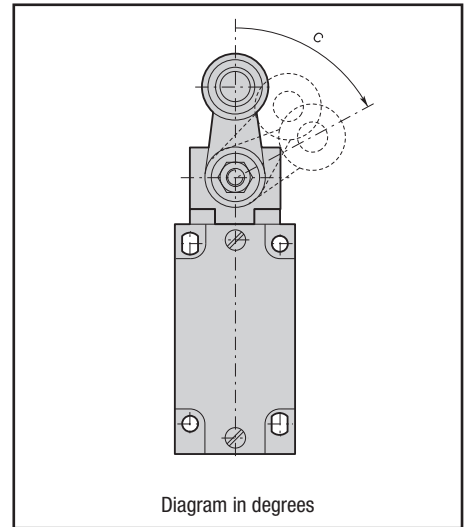
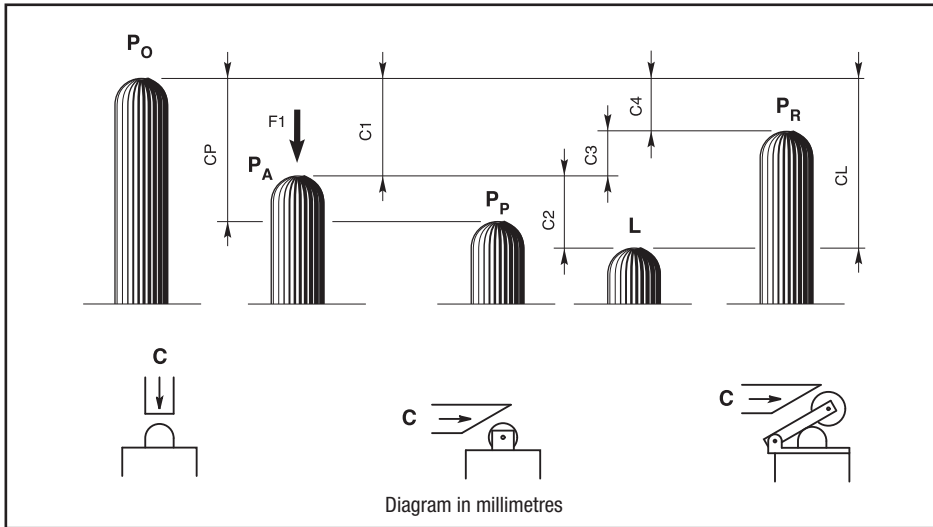
Limit switches with metal casings must have a terminal, for a protective conductor, that is placed inside the casing very close to the cable inlet and must be indelibly marked.

Minimum Actuation Force/Torque

The minimum amount of force/torque that is to be applied to the switch actuator to produce a change in contact position.

Minimum Force/Torque to achieve Positive Opening Operation

The minimum amount of force/torque that is to be applied to the switch actuator to ensure positive opening operation of the N.C. contact.



P₀ 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 F₁, when the contacts leave their initial free position.

P_P 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_R Release position:

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

C₁ Pre-travel:

distance between the free position P₀ 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.

C₂ Over-travel:

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

C_L Max. travel:

distance between the free position P₀ and the max. travel position L.

C₃ Differential travel (C₁-C₄):

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

C₄ Release travel:

distance between the release position P_R and the free position P₀.

Diagram for snap action contacts:

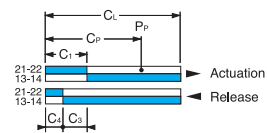
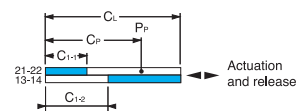


Diagram for non-overlapping slow action contacts:



Note: for slow action contacts, C₃ = 0, C₁₋₁ = pre-travel of contact 21-22, C₁₋₂ = pre-travel of contact 13-14

Examples:

BM1E13Z11

(snap action contacts)

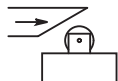
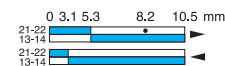


Diagram in millimetres/cam travel



BM1E41Z11

(snap action contacts)

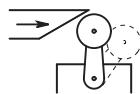
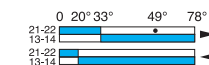


Diagram in degrees/lever rotation



BM1E11X11

(non-overlapping slow action contacts)

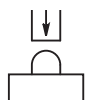
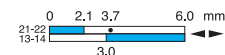


Diagram in millimetres/plunger travel



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.
- Precise operating points (consistency).
- Immune to electromagnetic disturbances.

They are purpose-built detection devices thanks to these characteristics:

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

Description

Limit switches, which are made of reinforced UL-V0 thermoplastic fiber-glass, offer double insulation and a degree of protection of IP65.

The casing come in 3 dimension: – AP... 30 mm. width – BP... 40 mm. width – DP... 50 mm. width

Casing

- 30 mm. width with standardized dimensions acc. to EN 50047
- 40 mm. width with standardized dimensions acc. to EN 50041
- 50 mm. width

Mounting the casing

- 2 x M4 screws on top part for 30 mm. width
- 2 or 4 x M5 screws for 40 mm. width
- 2 or 4 x M4 screws on top part for 50 mm. width

Contact Block:

- Contact configuration: NO + NC, 2 NO, 2 NC, 2NO + 1NC, 1NO + 2NC, 3NC, 3NO (only for BP series)
- Positive opening operation
- Snap action or slow action
- Zb shape: the 2 contacts are electrically separated

Connecting terminals:

- Block of 2 contacts: M3.5 (+, -) pozidriv 2 screw
- Block of 3 contacts: M3 (+, -) screw
- Screw head with captive cable clamp
- Markings conform with IEC 947-1, IEC 947-5-1 EN 50005 and 50013 standards

A variety of operating heads:

- Plain plunger
- Roller plunger
- Roller lever, adjustable or not, etc.
- Assembled using 4 x ø 3 screws for 30 and 50 mm width.
- Assembled using 4 x ø 4 screws for 40 mm width.

Cover:

- Closed using ø 3 screw for 30 and 50 mm width.
- Self clipping closure for 40 mm width.
- One piece sealing gasket to ensure tightness.

Electrical connection:

- 1 x cable gland for AP series
- 1 x cable gland for BP series
- 2 x cable gland for DP series

Symbols

Example:

A	P	1	T	41	Z	1	1
---	---	---	---	----	---	---	---

Structure:

	P						
--	---	--	--	--	--	--	--

<p>Casing width:</p> <p>A = 30 mm width + 1 cable inlet</p> <p>B = 40 mm width + 1 cable inlet</p> <p>D = 50 mm width + 2 cable inlets</p>	<p>Plastic casing</p>	<p>Contact block</p> <p>11: 1 NO + 1 NC contacts</p> <p>20: 2 NO contacts</p> <p>02: 2 NC contacts</p> <p>12P: 1 NO + 2 NC contacts</p> <p>21P: 2 NO + 1 NC contacts</p> <p>03P: 3 NC contacts</p> <p>Only for BP series:</p> <p>12: 1 NO + 2NC contacts</p> <p>21: 2 NO + 1 NC contacts</p> <p>03: 3 NC contacts</p> <p>30: 3 NO contacts</p> <p>Z: Zb Snap action</p> <p>W: Zb Slow action (contact dependent)</p> <p>X: Zb Slow action non-overlapping late make</p> <p>Y: Zb Slow action overlapping early make</p>
<p>Electrical connection</p> <p>1: cable inlets for PG13.5 cable gland</p> <p>2: cable inlets for 1/2 NPT cable gland *</p> <p>3: cable inlets for PG11 cable gland (only for AP and DP series)</p> <p>4: cable inlets for M16 x 1,5 cable gland (only for AP and DP series)</p> <p>5: cable inlets for M20 x 1,5 cable gland</p>	<p>Plastic heads</p> <p>T: for AP and DP series</p> <p>H: for BP series only</p>	
<p>Operating heads: codes 10 - 9999</p>		

* In AP... and DP... series, the 1/2" NPT thread is obtained by the use of a plastic adapter (delivered not mounted).

General Technical Data

Standards		Plastic Casing	
Certifications - Approvals		UL - CSA - IMQ	
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 authorised	
Shock withstand (according to IEC 68-2-27 and EN 60 068-2-27)		50g* (1/2 sinusoidal shock for 11 ms) no change in contact position	
Resistance to vibrations (acc. to IEC 68-2-6 and EN 60 068-2-6)		25g (10 ... 500 Hz) no change in position of contacts greater than 100 µs	
Protection against electrical shocks (acc. to IEC 536)		Class II	
Degree of protection (according to IEC 529 and EN 60 529)		IP 65	
Consistency (measured over 1 million operations)		0.1 mm (upon closing point)	
Minimum actuation speed		m/s	
		Slow action contacts 0.060 / Snap action contacts 0.001	

Electrical Data

Rated insulation voltage U_i		500 V (degree of pollution 3) (400 V for contacts type X12P, X21P, W03P) A 600, Q 600 (A 300, Q 300 for contacts type X12P, X21P, W03P)																			
- according to IEC 947-1 and EN 60-947-1 - according to UL 508 and CSA C22-2 n° 14																					
Rated impulse withstand voltage U_{imp} (according to IEC 947-1 and EN 60 947-1)		kV	6																		
Conventional free air thermal current I_{th} (according to IEC 947-5-1) $\theta < 40$ °C		A	10																		
Short-circuit protection		A	10																		
$U_e < 500$ V a.c. - gG (gl) type fuses																					
Rated operational current																					
I_e / AC-15 (according to IEC 947-5-1)	24 V - 50/60 Hz	A	10																		
	120 V - 50/60 Hz	A	6																		
	230 V - 50/60 Hz	A	3.1																		
	240 V - 50/60 Hz	A	3																		
	400 V - 50/60 Hz	A	1.8																		
I_e / DC-13 (according to IEC 947-5-1)	24 V - d.c.	A	2.8																		
	125 V - d.c.	A	0.55																		
	250 V - d.c.	A	0.27																		
Switching frequency		Cycles/h	3600																		
Load factor			0.5																		
Resistance between contacts		mΩ	25																		
Connecting terminals		M3.5 (+, -) pozidriv 2 screw with cable clamp (M3 for 3 poles contacts type)																			
Terminal for protective conductor		-																			
Connecting capacity		1 or 2 x mm ²	0.75 ... 2.5 (0.34... 1.5 for 3 poles contacts type)																		
Terminal marking		According to EN 50 013																			
Mechanical durability		Millions of operations	<table border="0"> <tr> <td>15</td> <td>AP•T</td> <td>{ 10...12; 30...34; 38</td> <td>30</td> <td>BP•H</td> <td>{ 11...13; 31...33</td> </tr> <tr> <td>10</td> <td>DP•T</td> <td>{ 13; 41...48; 51...55; 61...75</td> <td>25</td> <td></td> <td>{ 41...44; 51...54; 61...75</td> </tr> <tr> <td>>5</td> <td></td> <td>{ 14; 35; 36; 39; 91...93; 98</td> <td>10</td> <td></td> <td>{ 14; 19; 35...37; 91...93</td> </tr> </table>	15	AP•T	{ 10...12; 30...34; 38	30	BP•H	{ 11...13; 31...33	10	DP•T	{ 13; 41...48; 51...55; 61...75	25		{ 41...44; 51...54; 61...75	>5		{ 14; 35; 36; 39; 91...93; 98	10		{ 14; 19; 35...37; 91...93
15	AP•T	{ 10...12; 30...34; 38	30	BP•H	{ 11...13; 31...33																
10	DP•T	{ 13; 41...48; 51...55; 61...75	25		{ 41...44; 51...54; 61...75																
>5		{ 14; 35; 36; 39; 91...93; 98	10		{ 14; 19; 35...37; 91...93																

Electrical durability (according to IEC 947-5-1)

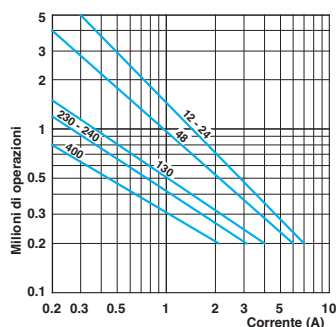
Utilization categories AC-15 and DC-13 (Load factor of 0.5 according to curves below)

* except for AP/DP•T42, T52, T5200, T55 and T5500: 25 g.

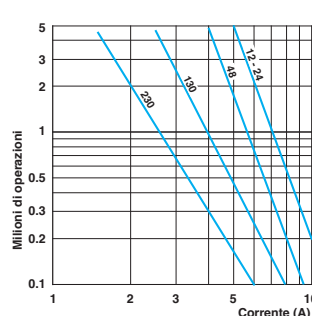
IMQ listed values

For the complete list of approved products, contact our technical department

AC-15 - Snap action



AC-15 - Slow action



DC-13	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

General Technical Data

Standards		Metal Casing	
Certifications - Approvals		UL - CSA - IMQ	
Air temperature near the device		- 25 ... + 70	
- during operation		°C	
- for storage		°C	
Climatic withstand		According to IEC 68-2-3 and salty mist according to IEC 68-2-11	
Mounting positions		All positions are authorised	
Shock withstand (according to IEC 68-2-27 and EN 60 068-2-27)		50g* (1/2 sinusoidal shock for 11 ms) no change in contact position	
Resistance to vibrations (acc. to IEC 68-2-6 and EN 60 068-2-6)		25g (10 ... 500 Hz) no change in position of contacts greater than 100 µs	
Protection against electrical shocks (acc. to IEC 536)		Class I	
Degree of protection (according to IEC 529 and EN 60 529)		IP 66**	
Consistency (measured over 1 million operations)		0.05 mm (upon closing point)	
Minimum actuation speed		m/s	
		Slow action contacts 0.060 / Snap action contacts 0.001	

Electrical Data

Rated insulation voltage U_i		500 V (degree of pollution 3) (400 V for contacts type X12P, X21P, W03P)	
- according to IEC 947-1 and EN 60-947-1		A 600, Q 600 (A 300, Q 300 for AM... and DM... series and contacts type X12P, X21P, W03P)	
- according to UL 508 and CSA C22-2 n° 14			
Rated impulse withstand voltage U_{imp}		6	
(according to IEC 947-1 and EN 60 947-1)		kV	
Conventional free air thermal current I_{th}		10	
(according to IEC 947-5-1) $\theta < 40$ °C		A	
Short-circuit protection		10	
$U_e < 500$ V a.c. - gG (gl) type fuses		A	
Rated operational current		10	
I_e / AC-15 (according to IEC 947-5-1)		24 V - 50/60 Hz	
		A	
		120 V - 50/60 Hz	
		A	
		230 V - 50/60 Hz	
		A	
		240 V - 50/60 Hz	
		A	
		400 V - 50/60 Hz	
		A	
		1.8	
I_e / DC-13 (according to IEC 947-5-1)		24 V - d.c.	
		A	
		2.8	
		125 V - d.c.	
		A	
		0.55	
		250 V - d.c.	
		A	
		0.27	
Switching frequency		Cycles/h	
		3600	
Load factor		0.5	
Resistance between contacts		mΩ	
		25	
Connecting terminals		M3.5 (+, -) pozidriv 2 screw with cable clamp (M3 for 3 poles contacts type)	
Terminal for protective conductor		M3.5 (+, -) pozidriv 2 screw with cable clamp	
Connecting capacity		1 or 2 x mm ²	
		0.75 ... 2.5 (0.34... 1.5 for 3 poles contact type)	
Terminal marking		According to EN 50 013	
Mechanical durability		Millions of operations	
		15 } AM•F/T { 11; 12; 30...34; 38	
		10 } DM•F/T { 41...46; 51...55; 61...75	
		>5 } { 14; 35; 36; 39; 91...93; 98	
		30 } BM•E { 11...13; 21...23; 31...33	
		25 } CM•E { 41...44; 51...54; 61...75	
		10 } { 91...93; 99	

Electrical durability (according to IEC 947-5-1)

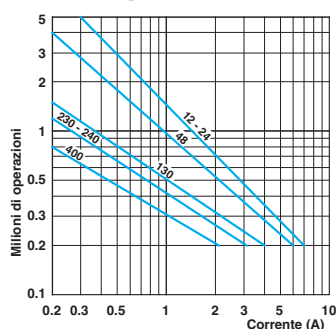
Utilization categories AC-15 and DC-13 (Load factor of 0.5 according to curves below)

* except for AM/DM•F42, F52, F55: 25 g. - ** except for AM/DM•F52, F55, F73, F74 and BM/CM•E54, P92, P93, E92, E93: the degree of protection is IP65

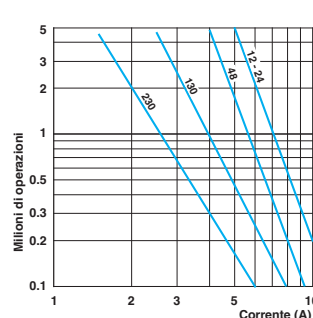
IMQ listed values

For the complete list of approved products, contact our technical department

AC-15 - Snap action



AC-15 - Slow action



DC-13	Power breaking for a durability of 5 million operating cycles	
	Snap action	Slow action
Voltage 24 V	9.5 W	12 W
Voltage 48 V	6.8 W	9 W
Voltage 110 V	3.6 W	6 W

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.
- Precise operating points (consistency).
- Immune to electromagnetic disturbances.

They are purpose-built detection devices thanks to these characteristics:

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

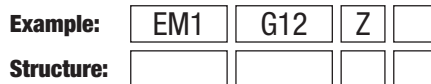
Description

These limit switches, made in thermoplastic material (EP... series) or diecast zinc alloy (EM... series), sealed with epoxy resin at the base on the box, offer a degree of protection IP67

The casing come in 2 dimensions: – EP1... / EM1... 30 mm. width
 – EP2... / EM2... 35 mm. width



Symbols



Casing:
EP1 = plastic casing 30 mm width
EP2 = plastic casing 35 mm width
EM1 = metal casing 30 mm width
EM2 = metal casing 35 mm width

Operating heads: codes G11 - G9999

Electrical connection
 – : Standard with cable
M: M12 connector

Contact block
Z: Zb Snap action 1NO + 1NC
X: Zb Slow action non-overlapping late make 1NO + 1NC

General Technical Data

Standards	Plastic Casing	Metal Casing
	Devices conform with international IEC 947-5-1 and European EN 60 947-5-1 standards	
Certifications - Approvals	UL (upon request)	
Air temperature near the device	- 25 ... + 70	
- during operation	°C	
- for storage	°C	
Mounting positions	All positions are authorised	
Protection against electrical shocks (acc. to IEC 536)	Class II	Class I
Degree of protection (according to IEC 529 and EN 60 529)	IP 67	
Degree of protection (according to UL50)	Type 1 enclosure ("indoor use only")	Type 4 - 4X - 6 enclosure ("outdoor use - raintight - watertight corrosion resistant")

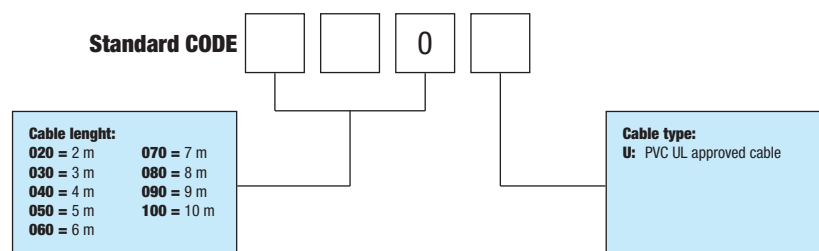
Electrical Data

Rated insulation voltage U_i - according to IEC 947-1 and EN 60-947-1 - according to UL 508 and CSA C22-2 n° 14		400 V (degree of pollution 3) (250 V for M12 connector) B 300, R 300
Rated impulse withstand voltage U_{imp} (according to IEC 947-1 and EN 60 947-1)	kV	4
Conventional free air thermal current I_{th} (according to IEC 947-5-1) $\theta < 40$ °C	A	5 (4 A for M12 connector)
Short-circuit protection $U_e < 500$ V a.c. - gG (gl) type fuses	A	6
Rated operational current I_e / AC-15 (according to IEC 947-5-1)	24 V - 50/60 Hz A 120 V - 50/60 Hz A 240 V - 50/60 Hz A	5.0 (4 A for M12 connector) 3.0 (4 A for M12 connector) 1.5 (4 A for M12 connector)
I_e / DC-13 (according to IEC 947-5-1)	24 V - d.c. A 125 V - d.c. A 250 V - d.c. A	1.1 (2.8 A for M12 connector) 0.22 0.1 (0.27 A for M12 connector)
Switching frequency	Cycles/h	3600
Load factor		0.5
Resistance between contacts	mΩ	25
Mechanical durability		10 Millions of operations

Electrical connection:

Standard: 1 m. PVC cable 4 x 0,75 mm² (EP... series)
1 m. PVC cable 5 x 0,75 mm² (EM... series)

On request: All EP.../EM... limit switches can be supplied with different cable types and lengths according to the following ordering details

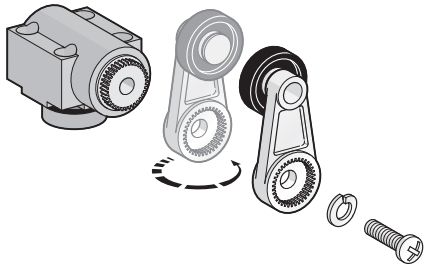


Examples

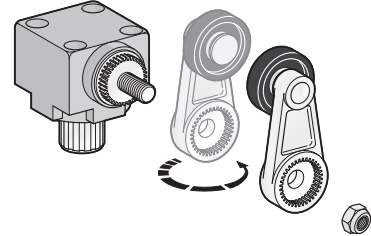
EM1G11Z030: 30 mm. width limit switch - plain plunger - snap action contact block - 3 m. standard cable.

EM1G11ZU: 30 mm. limit switch - plain plunger - snap action contact block - 1 m. UL cable.

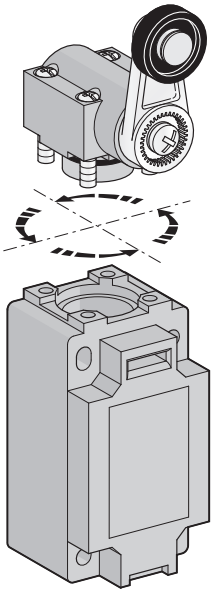
EM1G11Z040U: 30 mm. width limit switch - plain plunger - snap action contact block - 4 m. UL cable.



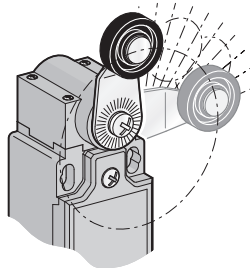
Lever round turning: AP...; BP...; DP...; AM...; DM...; EP...; EM...



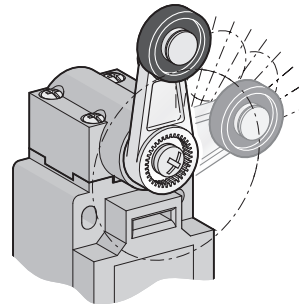
Lever round turning: BM...; CM...



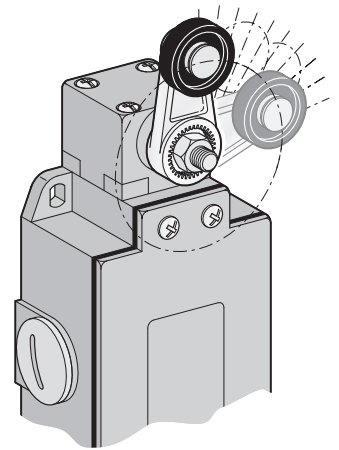
Head orientation: all series
(EP and EM series: 180° only)



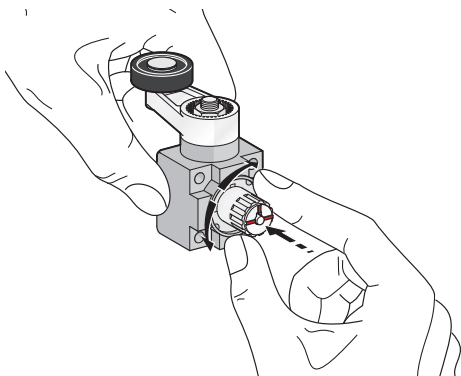
Free position adjustment 10 in 10° of lever:
AP...; DP...; AM...; DM...; EP...; EM...



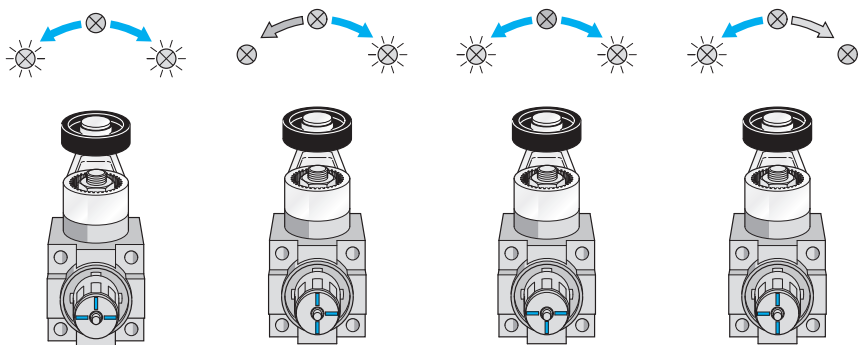
Free position adjustment 9 in 9° of lever:
BP...



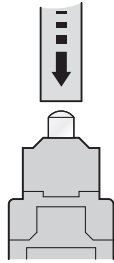
Free position adjustment 9 in 9° of lever:
BM...; CM...



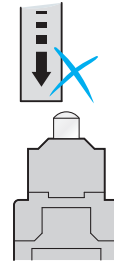
BP...; BM...; CM... operating mode selection only



Plain Plunger

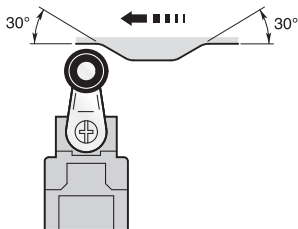


Correct

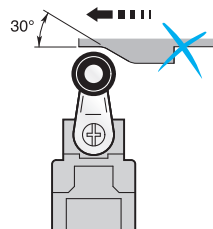


Incorrect

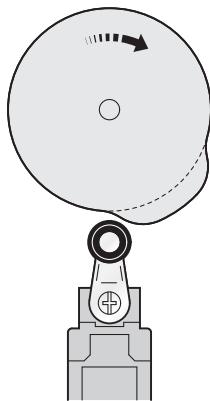
Roller Plunger or Roller Lever



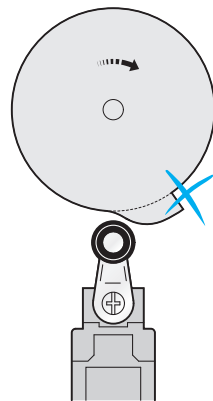
Correct



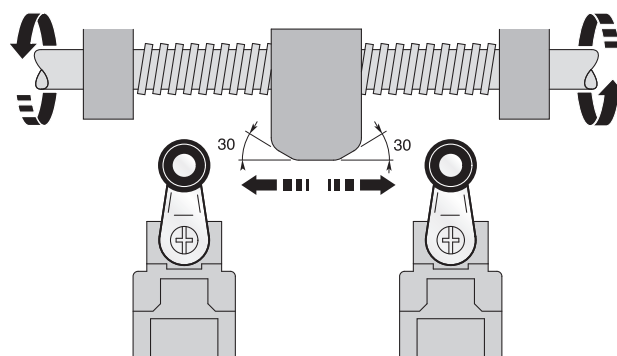
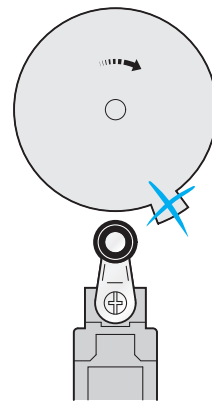
Incorrect



Correct



Incorrect



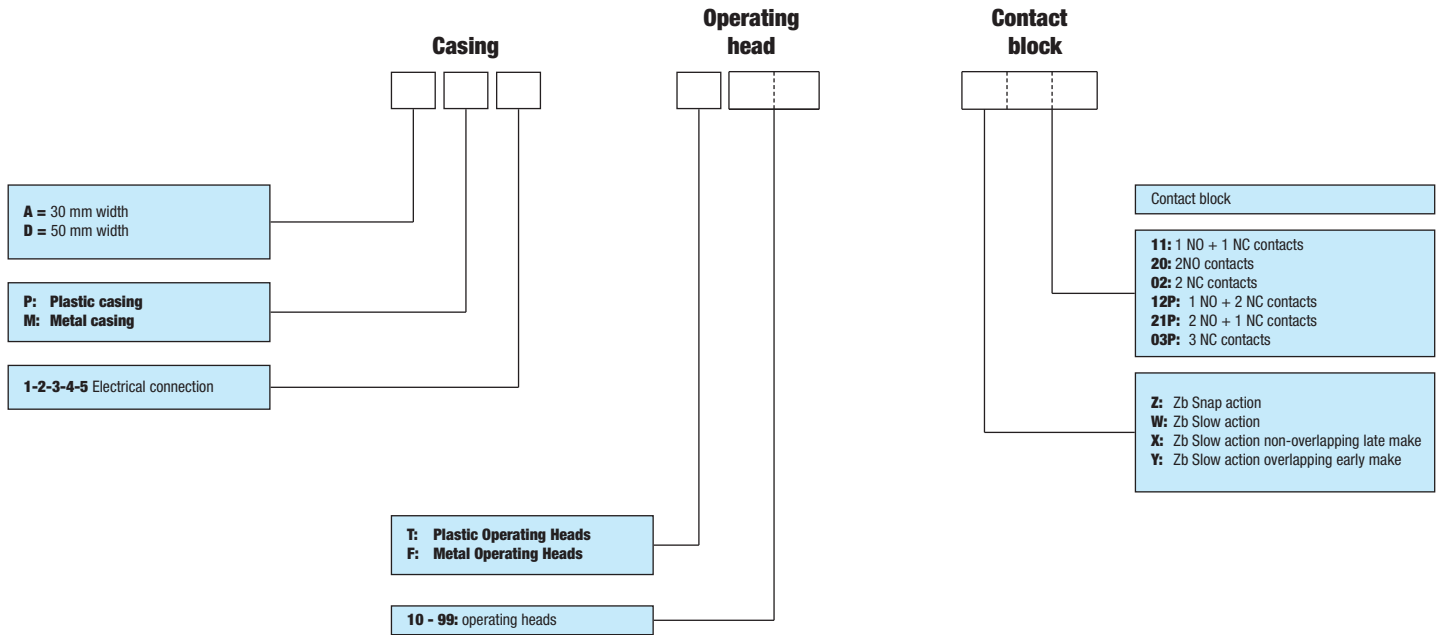
For a relatively slow movement of the switch actuator, a limit switch with a snap action contact block is preferred.

AP... / AM... / DP... / DM... special versions

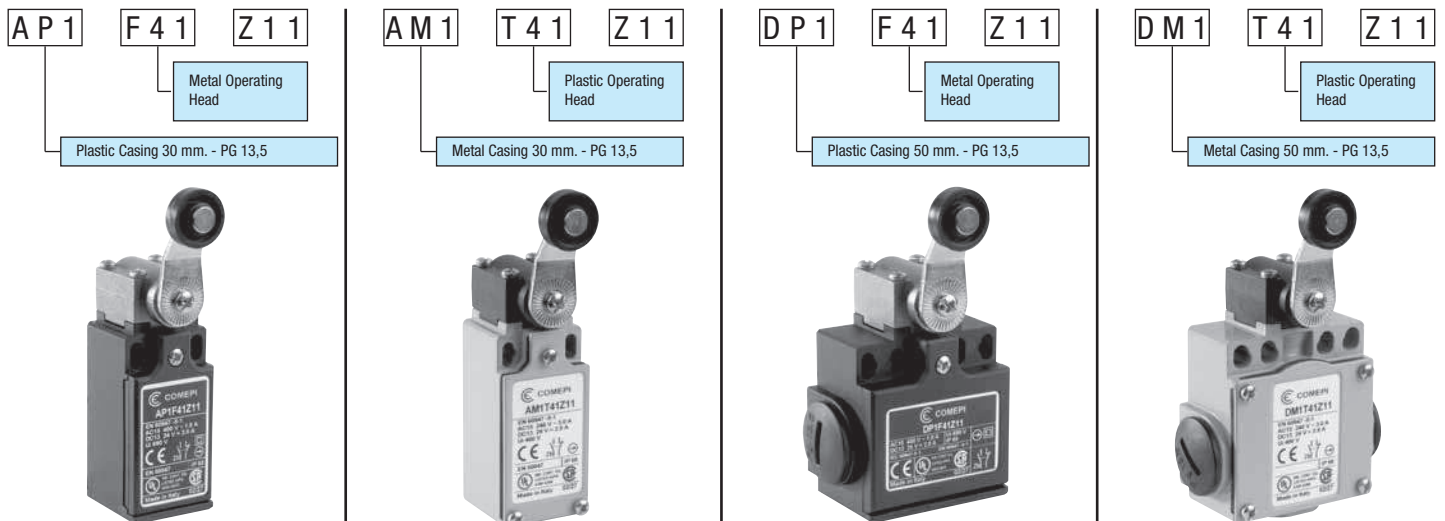
The operating heads used in plastic limit switches AP and DP series have the same dimensions of the ones used in the corresponding metal AM and DM series. It is therefore possible to supply "mixed" versions, that is:

- plastic operating head on metal casing
- metal operating head on plastic casing

These "mixed" versions can be demanded as follows



Esempi:



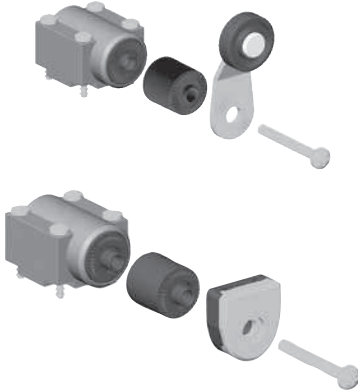
For further information, please contact our technical department.

Spare parts

Spare components can be supplied upon request.

Spacers

This accessory, made of polymer glass-reinforced resin, allows the lever to operate with a different offset.



Order Code	Compatible Heads
PL 1531 PI 	T41 ÷ T46 F41 ÷ F46 G41 ÷ G45
PL 1532 PI 	T51 ÷ T75 F51 ÷ F75 G51 ÷ G75

In order to install this accessory a longer screw is needed (delivered along with their spacer).

Cable glands - Blanking plugs - Thread adapters



The use of correct cable gland (or blanking plug in case of unused cable inlets) is recommended if the product is installed in an environmental place in which a protection degree against water or dust is needed. Comepi's cable glands and blanking plugs are realized to guarantee protection degree of IP 66.

Thread adapters are available in order to reach the customers' request. The adapters must always be used in case a conduit connection directly on the limit switch is needed. Different adapters can be supplied upon request.

	Order Code	Description	Dimensions					
			A	B	C	D	E	F
Cable Gland 	XX 1029 CO	PG 13.5 Plastic Cable Gland	24	-	PG 13.5	10	24-29	ø 7-12
	XX 1028 CO	PG 11 Plastic Cable Gland	22	-	PG 11	10	23-28	ø 5-10
	XX 1032 CO	M 16 x 1,5 Plastic Cable Gland	19	-	M 16 x 1,5	8	23-28	ø 7-10
	XX 1033 CO	M20 x 1,5 Plastic Cable Gland	25	-	M 20 x 1,5	9	24-29	ø 8-13
	XX 1020 CO	PG 16 Plastic Cable Gland	27	-	PG 16	10	26-31	ø 10-14
Blanking Plug 	PL 2029 PI	PG 13.5 Plastic Blanking Plug	25	PG 13.5	6	3,5	-	-
	XT 007	PG 11 Plastic Blanking Plug	22	PG 11	6	3	-	-
	XX 1030 CO	M 16 x 1,5 Plastic Blanking Plug	20	M 16 x 1,5	6	3	-	-
	XX 1031 CO	M 20 x 1,5 Plastic Blanking Plug	24	M 20 x 1,5	6	3,5	-	-
	XX 1019 CO	PG 16 Plastic Blanking Plug	27	PG 16	6	3,5	-	-
Thread Adapters 	PL 2000 PI	PG 11 1/2" NPT Plastic Adapter	24	26	1/2" NPT	17	8	PG 11
	TO 2000 PE	Brass Intermediary Connection 1/2" NPT - 1/2" NPT	24	26	1/2" NPT	17	6	1/2" NPT

Electrical Connection

- AP1:** one cable inlet for PG 13,5 Cable Gland
- AP2:** one cable inlet by 1/2" NPT Plastic Adapter
- AP3:** one cable inlet for PG11 Cable Gland
- AP4:** one cable inlet for M16 x 1,5 Cable Gland
- AP5:** one cable inlet for M20 x 1,5 Cable Gland



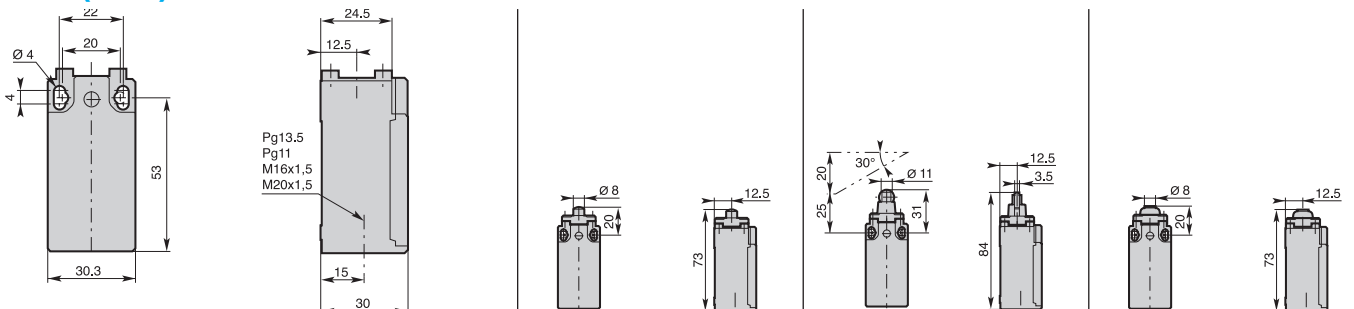
Operating Head Type

	T1• - Plain plunger T10: nylon plunger T11: metal plunger	T1• - Roller plunger T12: metal roller T13: nylon roller	T14 - Metal plunger with dust protection cup
Conformity / (N.C. contact with positive opening operation)	EN 50047	EN 50047	EN 50047
Max actuation speed [m/s]	0,5	0,3	0,5
Min. force [N] or torque [Nm]: actuation / positive opening operation	15 / 30	12 / 30	15 / 30

Additional Technical Datas

	AP•T1•Z11	AP•T1•X11	AP•T1•Y11	AP•T1•W02	AP•T1•W20	AP•T1•Z02	AP•T1•X12P	AP•T1•X21P	AP•T1•W03P
Z11 Snap Action Contacts (1NO + 1NC)									
X11 Non overlapping Slow Action Contacts (1NO + 1NC)									
Y11 Overlapping Slow Action Contacts (1NO + 1NC)									
W02 Slow Action Contacts (2NC)									
W20 Slow Action Contacts (2NO)									
Z02 Snap Action Contacts (2NC)									
X12P Non overlapping Slow Action Contacts (1NO + 2NC)									
X21P Non overlapping Slow Action Contacts (2NO + 1NC)									
W03P Slow Action Contacts (3NC)									
Weight (packing per unit)	[kg]	0,070	0,075	0,070	0,075	0,070	0,075	0,075	0,070

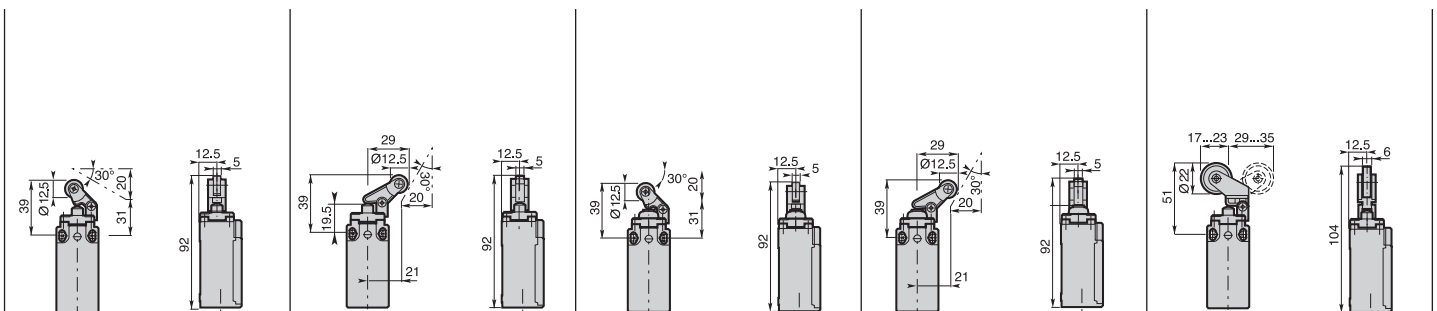
Dimensions (in mm)





T30 - Plastic roller lever T30: on plastic plunger T31: on metal plunger	T32 - Plastic roller lever T32: on metal plunger T34: on plastic plunger	T35 - Plastic roller lever on metal plunger with dust protection cup	T36 - Plastic roller lever on metal plunger with dust protection cup	T38 - Adjustable plastic roller lever on metal plunger T39 - Same as above with dust protection cup
EN 50047	EN 50047	EN 50047	EN 50047	EN 50047
1,0 7 / 24	1,0 7 / 24	1,0 7 / 24	1,0 7 / 24	1,0 7 / 24

AP•T3•Z11 0 4,9 9,0 14,5 21,0 mm 21-22 13-14 21-22 13-14	AP•T3•Z11 0 4,9 9,0 14,5 21,0 mm 21-22 13-14 21-22 13-14	AP•T35Z11 0 4,9 9,0 14,5 21,0 mm 21-22 13-14 21-22 13-14	AP•T36Z11 0 4,9 9,0 14,5 21,0 mm 21-22 13-14 21-22 13-14	AP•T3•Z11 0 8,8 15,0 23,2 32,0 mm 21-22 13-14 21-22 13-14
AP•T3•X11 0 6,0 10,5 21,0 mm 21-22 13-14 8,6	AP•T3•X11 0 6,0 10,5 21,0 mm 21-22 13-14 8,6	AP•T35X11 0 6,0 10,5 21,0 mm 21-22 13-14 8,6	AP•T36X11 0 6,0 10,5 21,0 mm 21-22 13-14 8,6	AP•T3•X11 0 10,6 18,5 32,0 mm 21-22 13-14 15,1
AP•T3•Y11 0 10,2 14,6 21,0 mm 21-22 13-14 5,4	AP•T3•Y11 0 10,2 14,6 21,0 mm 21-22 13-14 5,4	AP•T35Y11 0 10,2 14,6 21,0 mm 21-22 13-14 5,4	AP•T36Y11 0 10,2 14,6 21,0 mm 21-22 13-14 5,4	AP•T3•Y11 0 16,8 25,1 32,0 mm 21-22 13-14 9,4
AP•T3•W02 0 5,7 10,2 21,0 mm 11-12 21-22	AP•T3•W02 0 10,2 14,6 21,0 mm 21-22 13-14 5,4	AP•T35W02 0 10,2 14,6 21,0 mm 21-22 13-14 5,4	AP•T36W02 0 10,2 14,6 21,0 mm 21-22 13-14 5,4	AP•T3•W02 0 9,6 17,8 32,0 mm 11-12 21-22
AP•T3•W20 0 5,3 21,0 mm 13-14 23-24	AP•T3•W20 0 5,3 21,0 mm 13-14 23-24	AP•T35W20 0 5,3 21,0 mm 13-14 23-24	AP•T36W20 0 5,3 21,0 mm 13-14 23-24	AP•T3•W20 0 9,2 32,0 mm 13-14 23-24
AP•T3•Z02 0 5,1 8,6 13,1 21,0 mm 11-12 21-22 11-22 21-22	AP•T3•Z02 0 5,1 8,6 13,1 21,0 mm 11-12 21-22 11-22 21-22	AP•T35Z02 0 5,1 8,6 13,1 21,0 mm 11-12 21-22 11-22 21-22	AP•T36Z02 0 5,1 8,6 13,1 21,0 mm 11-12 21-22 11-22 21-22	AP•T3•Z02 0 6,8 14,6 22,8 32,0 mm 11-12 21-22 11-22 21-22
AP•T3•X12P 0 6,8 11,8 21,0 mm 31-32 13-14 10,7	AP•T3•X12P 0 6,8 11,8 21,0 mm 31-32 13-14 10,7	AP•T35X12P 0 6,8 11,8 21,0 mm 31-32 13-14 10,7	AP•T36X12P 0 6,8 11,8 21,0 mm 31-32 13-14 10,7	AP•T3•X12P 0 11,9 19,7 32,0 mm 31-32 13-14 18,7
AP•T3•X21P 0 6,8 11,8 21,0 mm 31-32 13-14 10,7	AP•T3•X21P 0 6,8 11,8 21,0 mm 31-32 13-14 10,7	AP•T35X21P 0 6,8 11,8 21,0 mm 31-32 13-14 10,7	AP•T36X21P 0 6,8 11,8 21,0 mm 31-32 13-14 10,7	AP•T3•X21P 0 11,9 19,7 32,0 mm 31-32 13-14 18,7
AP•T3•W03P 0 6,8 11,8 21,0 mm 11-12 31-32 10,7	AP•T3•W03P 0 6,8 11,8 21,0 mm 11-12 31-32 10,7	AP•T35W03P 0 6,8 11,8 21,0 mm 11-12 31-32 10,7	AP•T36W03P 0 6,8 11,8 21,0 mm 11-12 31-32 10,7	AP•T3•W03P 0 11,9 19,7 32,0 mm 11-12 31-32 18,7
0,075	0,080	0,075	0,080	0,080



Electrical Connection

AP1: one cable inlet for PG 13,5 Cable Gland

AP2: one cable inlet by 1/2" NPT Plastic Adapter

AP3: one cable inlet for PG11 Cable Gland

AP4: one cable inlet for M16 x 1,5 Cable Gland

AP5: one cable inlet for M20 x 1,5 Cable Gland



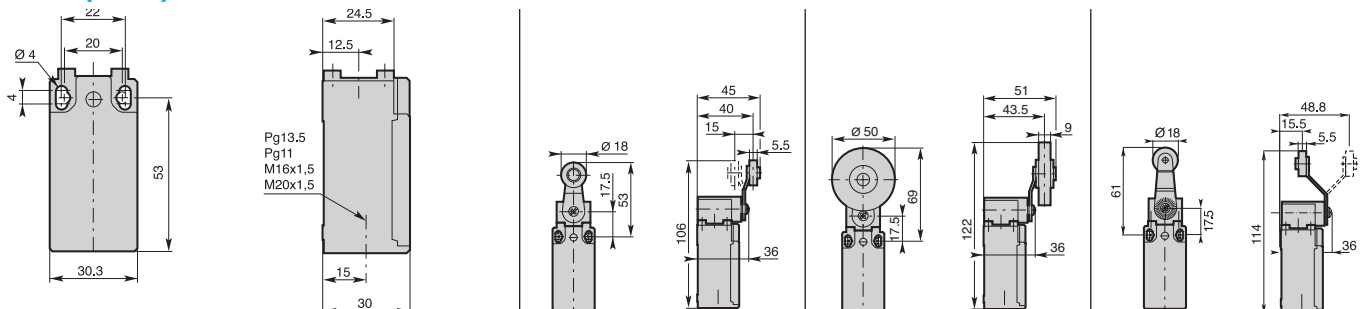
Operating Head Type

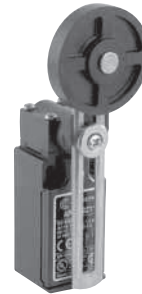
	T4• - Ø 18 roller lever T41: nylon roller T43: metal roller	T42 - Ø 50 rubber roller lever	T4• - Ø 18 roller lever T45: nylon roller T46: metal roller
Conformity / (N.C. contact with positive opening operation)	EN 50047		
Max actuation speed [m/s]	1,5	1,5	1,5
Min. force [N] or torque [Nm]: actuation / positive opening operation	0,10 / 0,32	0,10 / 0,32	0,10 / 0,32

Additional Technical Datas

		AP•T4•Z11	AP•T42Z11	AP•T4•Z11
Z11 Snap Action Contacts (1NO + 1NC)				
X11 Non overlapping Slow Action Contacts (1NO + 1NC)				
Y11 Overlapping Slow Action Contacts (1NO + 1NC)				
W02 Slow Action Contacts (2NC)				
W20 Slow Action Contacts (2NO)				
Z02 Snap Action Contacts (2NC)				
X12P Non overlapping Slow Action Contacts (1NO + 2NC)				
X21P Non overlapping Slow Action Contacts (2NO + 1NC)				
W03P Slow Action Contacts (3NC)				
Weight (packing per unit)	[kg]	0,095	0,115	0,095

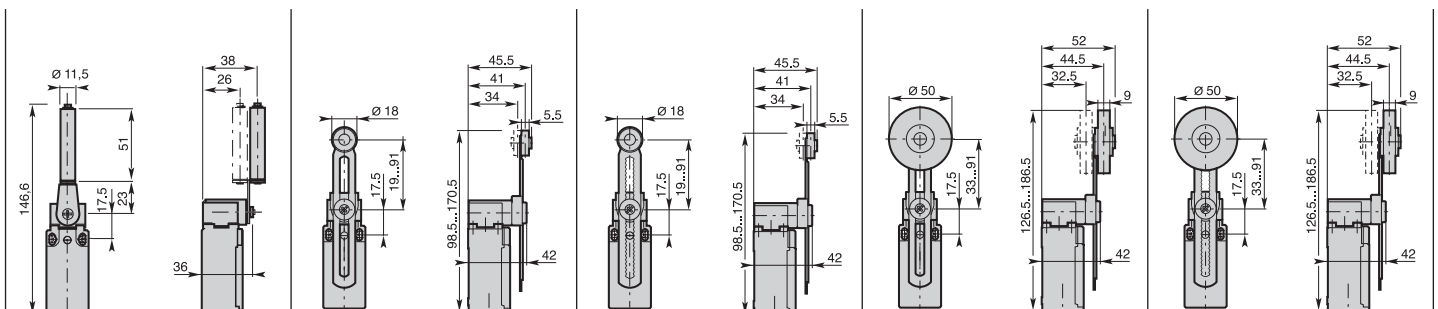
Dimensions (in mm)





T48 - Ceramic rod lever	T5 - Adjustable lever with Ø 18 roller T51: nylon roller T53: metal roller	T5100 - Adjustable toothed lever (step 2 mm) with Ø 18 nylon roller	T52 - Adjustable lever with Ø 50 rubber roller	T5200 - Adjustable toothed lever (step 2 mm) with Ø 50 rubber roller
1,5 0,10 / 0,32	1,5 0,10 / 0,32	1,5 0,10 / 0,32	1,5 0,10 / 0,32	1,5 0,10 / 0,32

AP•T48Z11 0 10° 22° 38° 74° 21-22 13-14	AP•T5•Z11 0 17° 31° 47° 74° 21-22 13-14	AP•T5100Z11 0 17° 31° 47° 74° 21-22 13-14	AP•T52Z11 0 17° 31° 47° 74° 21-22 13-14	AP•T5200Z11 0 17° 31° 47° 74° 21-22 13-14
AP•T48X11 0 14° 28° 74° 21-22 13-14 21°	AP•T5•X11 0 21° 37° 74° 21-22 13-14 30°	AP•T5100X11 0 21° 37° 74° 21-22 13-14 30°	AP•T52X11 0 21° 37° 74° 21-22 13-14 30°	AP•T5200X11 0 21° 37° 74° 21-22 13-14 30°
AP•T48Y11 0 26° 42° 74° 21-22 13-14 11°	AP•T5•Y11 0 35° 51° 74° 21-22 13-14 18°	AP•T5100Y11 0 35° 51° 74° 21-22 13-14 18°	AP•T52Y11 0 35° 51° 74° 21-22 13-14 18°	AP•T5200Y11 0 35° 51° 74° 21-22 13-14 18°
AP•T48W02 0 12° 28° 74° 11-12 21-22	AP•T5•W02 0 19° 37° 74° 11-12 21-22	AP•T5100W02 0 19° 37° 74° 11-12 21-22	AP•T52W02 0 19° 37° 74° 11-12 21-22	AP•T5200W02 0 19° 37° 74° 11-12 21-22
AP•T48W20 0 11° 74° 13-14 23-24	AP•T5•W20 0 18° 74° 13-14 23-24	AP•T5100W20 0 18° 74° 13-14 23-24	AP•T52W20 0 18° 74° 13-14 23-24	AP•T5200W20 0 18° 74° 13-14 23-24
AP•T48Z02 0 10° 31° 37° 74° 11-12 21-22	AP•T5•Z02 0 17° 30° 46° 74° 11-12 21-22	AP•T5100Z02 0 17° 30° 46° 74° 11-12 21-22	AP•T52Z02 0 17° 30° 46° 74° 11-12 21-22	AP•T5200Z02 0 17° 30° 46° 74° 11-12 21-22
AP•T48X12P 0 17° 31° 74° 21-22 31-32 13-14 29°	AP•T5•X12P 0 24° 40° 74° 21-22 31-32 13-14 38°	AP•T5100X12P 0 24° 40° 74° 21-22 31-32 13-14 38°	AP•T52X12P 0 24° 40° 74° 21-22 31-32 13-14 38°	AP•T5200X12P 0 24° 40° 74° 21-22 31-32 13-14 38°
AP•T48X21P 0 17° 31° 74° 31-32 13-14 23-24 29°	AP•T5•X21P 0 24° 40° 74° 31-32 13-14 23-24 38°	AP•T5100X21P 0 24° 40° 74° 31-32 13-14 23-24 38°	AP•T52X21P 0 24° 40° 74° 31-32 13-14 23-24 38°	AP•T5200X21P 0 24° 40° 74° 31-32 13-14 23-24 38°
AP•T48W03P 0 17° 31° 74° 11-12 21-22 31-32	AP•T5•W03P 0 24° 40° 74° 11-12 21-22 31-32	AP•T5100W03P 0 24° 40° 74° 11-12 21-22 31-32	AP•T52W03P 0 24° 40° 74° 11-12 21-22 31-32	AP•T5200W03P 0 24° 40° 74° 11-12 21-22 31-32
0,100	0,105	0,105	0,125	0,125



Electrical Connection

- AP1:** one cable inlet for PG 13,5 Cable Gland
- AP2:** one cable inlet by 1/2" NPT Plastic Adapter
- AP3:** one cable inlet for PG11 Cable Gland
- AP4:** one cable inlet for M16 x 1,5 Cable Gland
- AP5:** one cable inlet for M20 x 1,5 Cable Gland



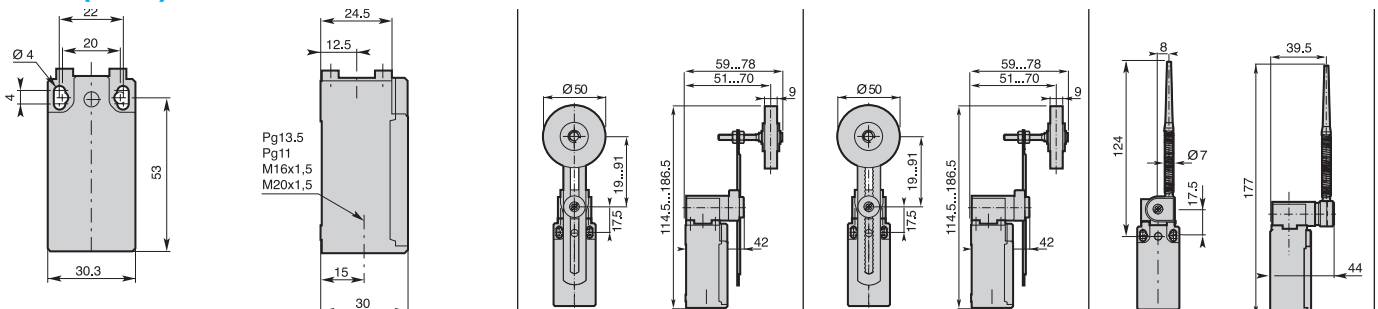
Operating Head Type

	T55 - Adjustable lever with adjustable Ø 50 Rubber roller	T5500 - Adjustable toothed lever (step 2 mm) with adjustable Ø 50 Rubber roller	T61 - Nylon actuator with stainless steel spring
Conformity /			
Max actuation speed [m/s]	1,5	1,5	1,5
Min. force [N] or torque [Nm]: actuation / positive opening operation	0,10 / 0,32	0,10 / 0,32	0,10 / -

Additional Technical Datas

		AP•T55Z11	AP•T5500Z11	AP•T61Z11
Z11 Snap Action Contacts (1NO + 1NC)				
X11 Non overlapping Slow Action Contacts (1NO + 1NC)				
Y11 Overlapping Slow Action Contacts (1NO + 1NC)				
W02 Slow Action Contacts (2NC)				
W20 Slow Action Contacts (2NO)				
Z02 Snap Action Contacts (2NC)				
X12P Non overlapping Slow Action Contacts (1NO + 2NC)				
X21P Non overlapping Slow Action Contacts (2NO + 1NC)				
W03P Slow Action Contacts (3NC)				
Weight (packing per unit)	[kg]	0,130	0,130	0,105

Dimensions (in mm)





T62 - Stainless steel spring actuator



T7• - Adjustable Ø 3 rod lever
T71: stainless steel rod
T72: fiberglass rod



T7• - Adjustable Ø 6 rod lever
T73: nylon rod
T74: fiberglass rod



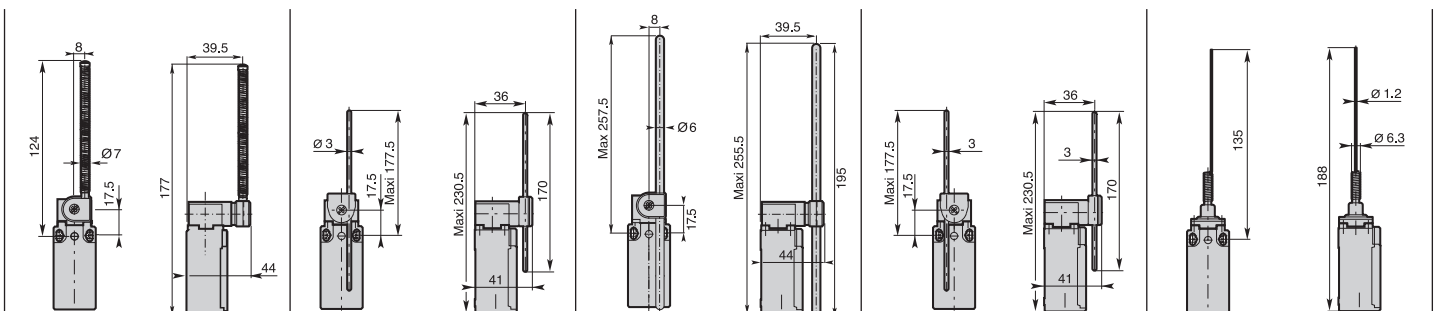
T75 - Adjustable square steel rod lever



T91: Stainless steel spring multidirectional actuator

1,5 0,10 / -	1,5 0,10 / 0,32	1,5 0,10 / 0,32	1,5 0,10 / 0,32	1,0 0,12 / -
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<p>AP•T62Z11</p>	<p>AP•T7•Z11</p>	<p>AP•T7•Z11</p>	<p>AP•T75Z11</p>	<p>AP•T91Z11</p>
<p>AP•T62X11</p>	<p>AP•T7•X11</p>	<p>AP•T7•X11</p>	<p>AP•T75X11</p>	<p>AP•T91X11</p>
<p>AP•T62Y11</p>	<p>AP•T7•Y11</p>	<p>AP•T7•Y11</p>	<p>AP•T75Y11</p>	<p>AP•T91Y11</p>
<p>AP•T62W02</p>	<p>AP•T7•W02</p>	<p>AP•T7•W02</p>	<p>AP•T75W02</p>	<p>AP•T91W02</p>
<p>AP•T62W20</p>	<p>AP•T7•W20</p>	<p>AP•T7•W20</p>	<p>AP•T75W20</p>	<p>AP•T91W20</p>
<p>AP•T62Z02</p>	<p>AP•T7•Z02</p>	<p>AP•T7•Z02</p>	<p>AP•T75Z02</p>	<p>AP•T91Z02</p>
<p>AP•T62•X12P</p>	<p>AP•T7•X12P</p>	<p>AP•T7•X12P</p>	<p>AP•T75X12P</p>	<p>AP•T91X12P</p>
<p>AP•T62•X21P</p>	<p>AP•T7•X21P</p>	<p>AP•T7•X21P</p>	<p>AP•T75X21P</p>	<p>AP•T91X21P</p>
<p>AP•T62•W03P</p>	<p>AP•T7•W03P</p>	<p>AP•T7•W03P</p>	<p>AP•T75W03P</p>	<p>AP•T91W03P</p>
0,105	0,105	0,115	0,105	0,080



Electrical Connection

- AP1:** one cable inlet for PG 13,5 Cable Gland
- AP2:** one cable inlet by 1/2" NPT Plastic Adapter
- AP3:** one cable inlet for PG11 Cable Gland
- AP4:** one cable inlet for M16 x 1,5 Cable Gland
- AP5:** one cable inlet for M20 x 1,5 Cable Gland



Operating Head Type

T92: Multidirectional nylon actuator with stainless steel spring

T93: Stainless steel spring multidirectional actuator

T98: Pull action with ring

Conformity / Ⓢ (N.C. contact with positive opening operation)
Max actuation speed [m/s]
Min. force [N] or torque [Nm]: actuation / positive opening operation

1,0
0,12 / -

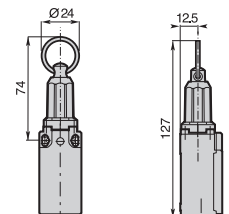
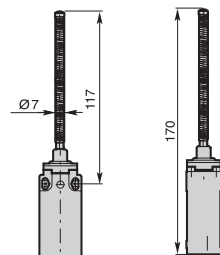
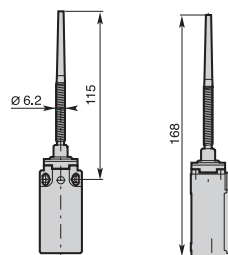
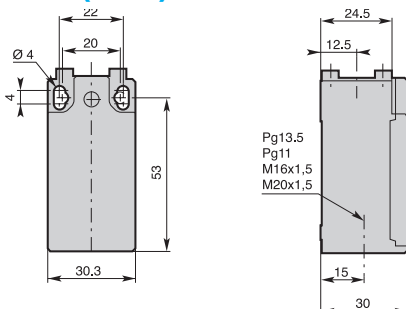
1,0
0,12 / -

0,5
30 / -

Additional Technical Datas

Order Code	Operation Diagram	AP•T92Z11	AP•T93Z11	AP•T98Z11A
Z11 Snap Action Contacts (1NO + 1NC)				
X11 Non overlapping Slow Action Contacts (1NO + 1NC)				
Y11 Overlapping Slow Action Contacts (1NO + 1NC)				
W02 Slow Action Contacts (2NC)				
W20 Slow Action Contacts (2NO)				
Z02 Snap Action Contacts (2NC)				
X12P Non overlapping Slow Action Contacts (1NO + 2NC)				
X21P Non overlapping Slow Action Contacts (2NO + 1NC)				
W03P Slow Action Contacts (3NC)				
Weight (packing per unit)	[kg]	0,085	0,090	0,115

Dimensions (in mm)



Electrical Connection

DP1: two cable inlets for PG 13,5 Cable Gland

DP2: two cable inlets for PG11 Cable Gland with one plastic adapter PG11 - 1/2" NPT

DP3: two cable inlets for PG11 Cable Gland

DP4: two cable inlets for M16 x 1,5 Cable Gland

DP5: two cable inlets for M20 x 1,5 Cable Gland



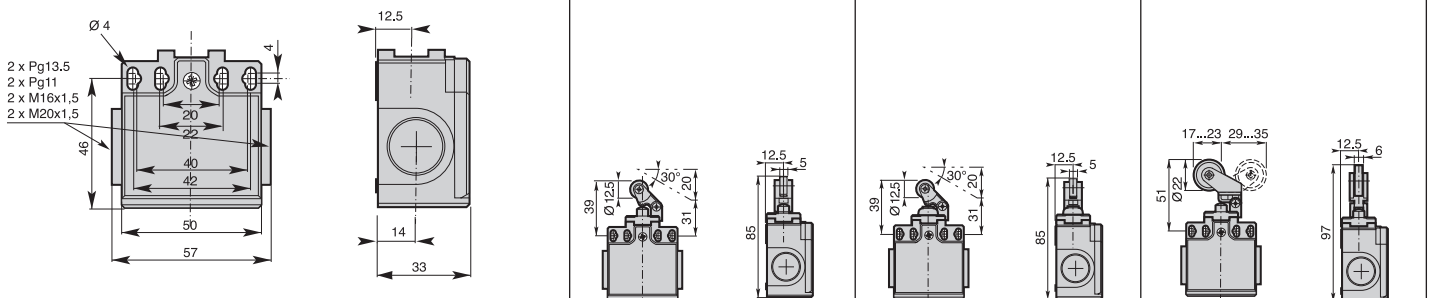
Operating Head Type

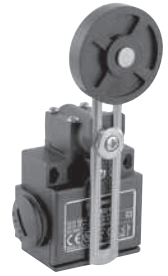
	T30 - Plastic roller lever T30: on plastic plunger T31: on metal plunger	T35 - Plastic roller lever on metal plunger with dust protection cup	T38 - Adjustable plastic roller lever on metal plunger T39 - Same as above with dust protection cup
Conformity /	1,0	1,0	1,0
Max actuation speed [m/s]	7 / 24	7 / 24	7 / 24
Min. force [N] or torque [Nm]: actuation / positive opening operation			

Additional Technical Datas

		DP•T3•Z11	DP•T35Z11	DP•T3•Z11
Z11 Snap Action Contacts (1NO + 1NC)				
X11 Non overlapping Slow Action Contacts (1NO + 1NC)				
Y11 Overlapping Slow Action Contacts (1NO + 1NC)				
W02 Slow Action Contacts (2NC)				
W20 Slow Action Contacts (2NO)				
Z02 Snap Action Contacts (2NC)				
X12P Non overlapping Slow Action Contacts (1NO + 2NC)				
X21P Non overlapping Slow Action Contacts (2NO + 1NC)				
W03P Slow Action Contacts (3NC)				
Weight (packing per unit)	[kg]	0,105	0,105	0,110

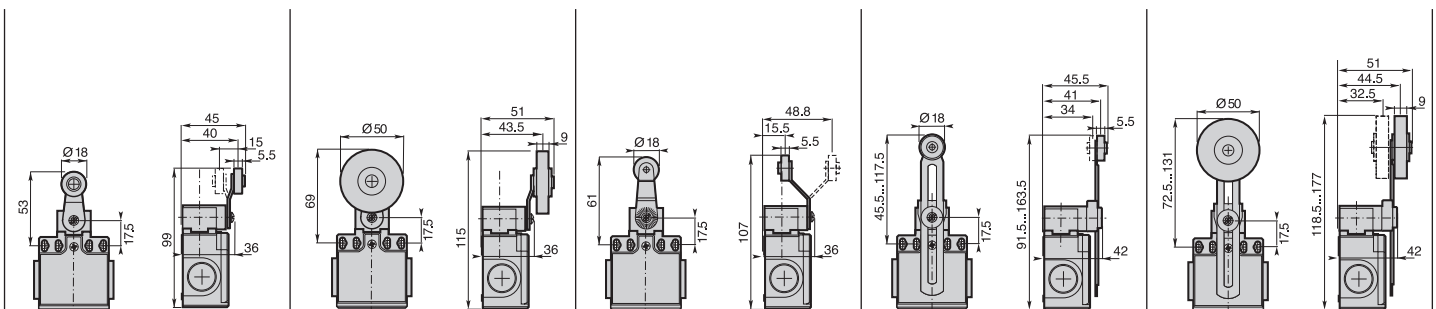
Dimensions (in mm)





T4• - Ø 18 roller lever T41: nylon roller T43: metal roller	T42 - Ø 50 rubber roller lever	T4• - Ø 18 roller lever T45: nylon roller T46: metal roller	T5• - Adjustable lever with Ø 18 roller T51: nylon roller T53: metal roller	T52 - Adjustable Ø 50 rubber roller lever
1,5 0,10 / 0,32	1,5 0,10 / 0,32	1,5 0,10 / 0,32	1,5 0,10 / 0,32	1,5 0,10 / 0,32

DP•T4•Z11 0 17° 31° 47° 74° 21-22 13-14 13-14	DP•T42Z11 0 17° 31° 47° 74° 21-22 13-14 13-14	DP•T4•Z11 0 17° 31° 47° 74° 21-22 13-14 13-14	DP•T5•Z11 0 17° 31° 47° 74° 21-22 13-14 13-14	DP•T52Z11 0 17° 31° 47° 74° 21-22 13-14 13-14
DP•T4•X11 0 21° 37° 74° 21-22 13-14 30°	DP•T42X11 0 21° 37° 74° 21-22 13-14 30°	DP•T4•X11 0 21° 37° 74° 21-22 13-14 30°	DP•T5•X11 0 21° 37° 74° 21-22 13-14 30°	DP•T52X11 0 21° 37° 74° 21-22 13-14 30°
DP•T4•Y11 0 35° 51° 74° 21-22 13-14 18°	DP•T42Y11 0 21° 37° 74° 21-22 13-14 30°	DP•T4•Y11 0 21° 37° 74° 21-22 13-14 30°	DP•T5•Y11 0 21° 37° 74° 21-22 13-14 30°	DP•T52Y11 0 21° 37° 74° 21-22 13-14 30°
DP•T4•W02 0 19° 37° 74° 11-12 21-22	DP•T42W02 0 19° 37° 74° 11-12 21-22	DP•T4•W02 0 19° 37° 74° 11-12 21-22	DP•T5•W02 0 19° 37° 74° 11-12 21-22	DP•T52W02 0 19° 37° 74° 11-12 21-22
DP•T4•W20 0 18° 74° 13-14 23-24	DP•T42W20 0 18° 74° 13-14 23-24	DP•T4•W20 0 18° 74° 13-14 23-24	DP•T5•W20 0 18° 74° 13-14 23-24	DP•T52W20 0 18° 74° 13-14 23-24
DP•T4•Z02 0 17° 30° 46° 74° 11-12 21-22 11-12	DP•T42Z02 0 17° 30° 46° 74° 11-12 21-22 11-12	DP•T4•Z02 0 17° 30° 46° 74° 11-12 21-22 11-12	DP•T5•Z02 0 17° 30° 46° 74° 11-12 21-22 11-12	DP•T52Z02 0 17° 30° 46° 74° 11-12 21-22 11-12
DP•T4•X12P 0 24° 40° 74° 21-22 31-32 13-14 38°	DP•T42X12P 0 24° 40° 74° 21-22 31-32 13-14 38°	DP•T4•X12P 0 24° 40° 74° 21-22 31-32 13-14 38°	DP•T5•X12P 0 24° 40° 74° 21-22 31-32 13-14 38°	DP•T52X12P 0 24° 40° 74° 21-22 31-32 13-14 38°
DP•T4•X21P 0 24° 40° 74° 31-32 13-14 23-24 38°	DP•T42X21P 0 24° 40° 74° 31-32 13-14 23-24 38°	DP•T4•X21P 0 24° 40° 74° 31-32 13-14 23-24 38°	DP•T5•X21P 0 24° 40° 74° 31-32 13-14 23-24 38°	DP•T52X21P 0 24° 40° 74° 31-32 13-14 23-24 38°
DP•T4•W03P 0 24° 40° 74° 11-12 21-22 31-32	DP•T42W03P 0 24° 40° 74° 11-12 21-22 31-32	DP•T4•W03P 0 24° 40° 74° 11-12 21-22 31-32	DP•T5•W03P 0 24° 40° 74° 11-12 21-22 31-32	DP•T52W03P 0 24° 40° 74° 11-12 21-22 31-32
0,125	0,145	0,125	0,135	0,155



Electrical Connection

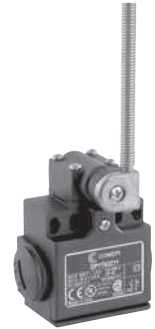
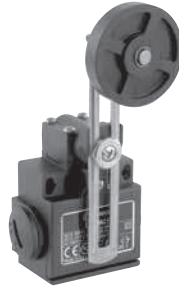
DP1: two cable inlets for PG 13,5 Cable Gland

DP2: two cable inlets for PG11 Cable Gland with one plastic adapter PG11 - 1/2" NPT

DP3: two cable inlets for PG11 Cable Gland

DP4: two cable inlets for M16 x 1,5 Cable Gland

DP5: two cable inlets for M20 x 1,5 Cable Gland



Operating Head Type

T55 - Adjustable lever with adjustable Ø 50 rubber roller

T61 - Nylon actuator with stainless steel spring

T62 - Stainless steel spring actuator

Conformity / Ⓢ (N.C. contact with positive opening operation)

Max actuation speed [m/s]

Min. force [N] or torque [Nm]: actuation / positive opening operation

1,5
0,10 / 0,32

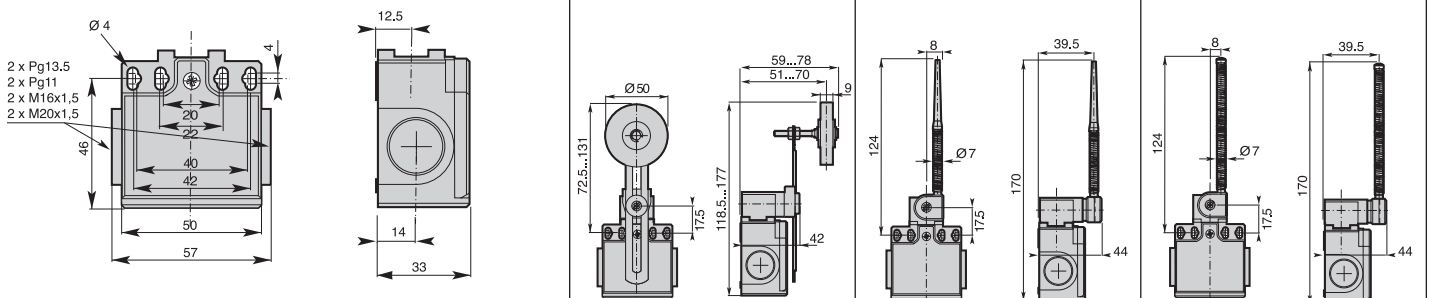
1,5
0,10 / -

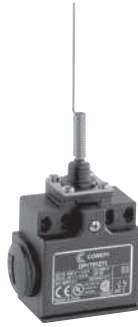
1,5
0,10 / -

Additional Technical Datas

		Order Code	DP•T55Z11	DP•T61Z11	DP•T62Z11
Z11 Snap Action Contacts (1NO + 1NC)		Operation Diagram			
X11 Non overlapping Slow Action Contacts (1NO + 1NC)		Operation Diagram			
Y11 Overlapping Slow Action Contacts (1NO + 1NC)		Operation Diagram			
W02 Slow Action Contacts (2NC)		Operation Diagram			
W20 Slow Action Contacts (2NO)		Operation Diagram			
Z02 Snap Action Contacts (2NC)		Operation Diagram			
X12P Non overlapping Slow Action Contacts (1NO + 2NC)		Operation Diagram			
X21P Non overlapping Slow Action Contacts (2NO + 1NC)		Operation Diagram			
W03P Slow Action Contacts (3NC)		Operation Diagram			
Weight (packing per unit)	[kg]		0,155	0,135	0,135

Dimensions (in mm)





T7 - Adjustable rod lever

T71: stainless steel rod Ø3
T72: fiberglass rod Ø3
T75: square steel rod 3x3

T7 - Adjustable Ø 6 rod lever

T73: nylon rod
T74: fiberglass rod

T91: Stainless steel spring multidirectional actuator

T92: Multidirectional nylon actuator with stainless steel spring

T98: Pull action with ring

1,5
0,10 / 0,32

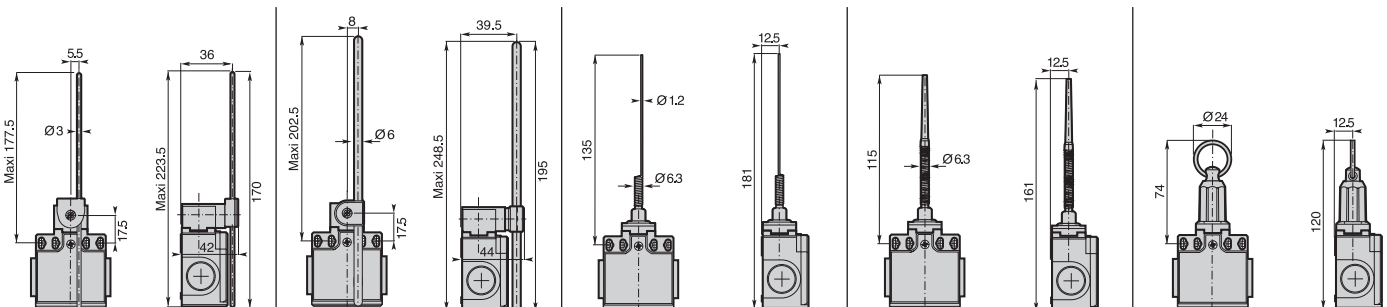
1,5
0,10 / 0,32

1,0
0,12 / -

1,0
0,12 / -

0,5
30 / -

DP•T7•Z11 0 17° 31° 47° 74° 	DP•T7•Z11 0 17° 31° 47° 74° 	DP•T91Z11 0 12° 23° 	DP•T92Z11 0 12° 23° 	DP•T98Z11A 0 0,9 2,0 5,6 mm
DP•T7•X11 0 21° 37° 74° 	DP•T7•X11 0 21° 37° 74° 	DP•T91X11 0 14° 	DP•T92X11 0 14° 	DP•T98X11A 0 1,0 5,6 mm
DP•T7•Y11 0 35° 51° 74° 	DP•T7•Y11 0 21° 	DP•T91Y11 0 14° 	DP•T92Y11 0 25° 	DP•T98Y11A 0 2,0 5,6 mm
DP•T7•W02 0 19° 37° 74° 	DP•T7•W02 0 19° 37° 74° 	DP•T91W02 0 14° 	DP•T92W02 0 14° 	DP•T98W02A 0 2,0 5,6 mm
DP•T7•W20 0 18° 74° 	DP•T7•W20 0 18° 74° 	DP•T91W20 0 13° 	DP•T92W20 0 13° 	DP•T98W20A 0 1,8 5,6 mm
DP•T7•Z02 0 17° 30° 46° 74° 	DP•T7•Z02 0 17° 30° 46° 74° 	DP•T91Z02 0 12° 22° 	DP•T92Z02 0 12° 22° 	
DP•T7•X12P 0 24° 40° 74° 	DP•T7•X12P 0 24° 40° 74° 	DP•T91X12P 0 16° 	DP•T92X12P 0 16° 	
DP•T7•X21P 0 24° 40° 74° 	DP•T7•X21P 0 24° 40° 74° 	DP•T91X21P 0 16° 	DP•T92X21P 0 16° 	
DP•T7•W03P 0 24° 40° 74° 	DP•T7•W03P 0 24° 40° 74° 	DP•T91W03P 0 16° 	DP•T92W03P 0 16° 	
0,130	0,145	0,110	0,115	0,145



Electrical Connection

AM1: one cable inlet for PG 13,5 Cable Gland

AM2: one cable inlet for 1/2" NPT Cable Gland

AM3: one cable inlet for PG11 Cable Gland

AM4: one cable inlet for M16 x 1,5 Cable Gland

AM5: one cable inlet for M20 x 1,5 Cable Gland



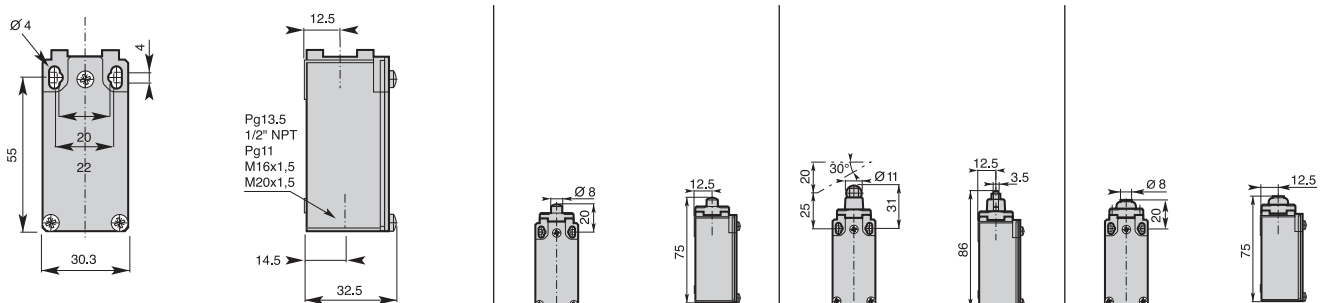
Operating Head Type

	F11 - Plain Metal plunger	F12 - Metal roller plunger	T14 - Metal plunger with dust protection cup
Conformity / (N.C. contact with positive opening operation)	EN 50047	EN 50047	EN 50047
Max actuation speed [m/s]	0,5	0,3	0,5
Min. force [N] or torque [Nm]: actuation / positive opening operation	15 / 30	12 / 30	15 / 30

Additional Technical Datas

		AM-F11Z11	AM-F12Z11	AM-T14Z11
Z11 Snap Action Contacts (1NO + 1NC)				
X11 Non overlapping Slow Action Contacts (1NO + 1NC)				
Y11 Overlapping Slow Action Contacts (1NO + 1NC)				
W02 Slow Action Contacts (2NC)				
W20 Slow Action Contacts (2NO)				
Z02 Snap Action Contacts (2NC)				
X12P Non overlapping Slow Action Contacts (1NO + 2NC)				
X21P Non overlapping Slow Action Contacts (2NO + 1NC)				
W03P Slow Action Contacts (3NC)				
Weight (packing per unit)	[kg]	0,180	0,190	0,165

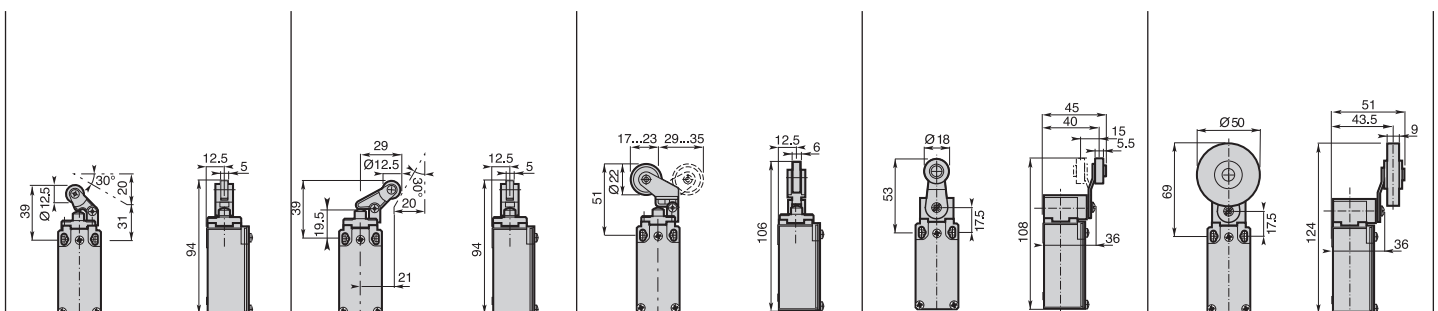
Dimensions (in mm)





T3 - Plastic roller lever T30: on plastic plunger T31: on metal plunger	T3 - Plastic roller lever T32: on metal plunger T34: on plastic plunger	T38 - Adjustable plastic roller lever on metal plunger T39 - Same as above with dust protection cup	F4 - Ø 18 roller lever F41: nylon roller F43: metal roller	F42 - Ø 50 rubber roller lever
EN 50047	EN 50047	EN 50047	EN 50047	EN 50047
1,0 7/24	1,0 7/24	1,0 7/24	1,5 0,10 / 0,32	1,5 0,10 / 0,32

AM-T3-Z11 0 4,9 9,0 14,5 21,0 mm 21-22 13-14 21-22 13-14	AM-T3-Z11 0 4,9 9,0 14,5 21,0 mm 21-22 13-14 21-22 13-14	AM-T3-Z11 0 8,8 15,0 23,2 32,0 mm 21-22 13-14 21-22 13-14	AM-F4-Z11 0 17° 31° 47° 74° 21-22 13-14 21-22 13-14	AM-F42Z11 0 17° 31° 47° 74° 21-22 13-14 21-22 13-14
AM-T3-X11 0 6,0 10,5 21,0 mm 21-22 13-14 8,6	AM-T3-X11 0 6,0 10,5 21,0 mm 21-22 13-14 8,6	AM-T3-X11 0 6,0 10,5 21,0 mm 21-22 13-14 15,1	AM-F4-X11 0 21° 37° 74° 21-22 13-14 30°	AM-F42X11 0 21° 37° 74° 21-22 13-14 30°
AM-T3-Y11 0 10,2 14,6 21,0 mm 21-22 13-14 5,4	AM-T3-Y11 0 10,2 14,6 21,0 mm 21-22 13-14 5,4	AM-T3-Y11 0 16,8 25,1 32,0 mm 21-22 13-14 9,4	AM-F4-Y11 0 35° 51° 74° 21-22 13-14 18°	AM-F42Y11 0 35° 51° 74° 21-22 13-14 18°
AM-T3-W02 0 5,7 10,2 21,0 mm 11-12 21-22	AM-T3-W02 0 5,7 10,2 21,0 mm 11-12 21-22	AM-T3-W02 0 9,6 17,8 32,0 mm 11-12 21-22	AM-F4-W02 0 19° 37° 74° 11-12 21-22	AM-F42W02 0 19° 37° 74° 11-12 21-22
AM-T3-W20 0 5,3 21,0 mm 13-14 23-24	AM-T3-W20 0 5,3 21,0 mm 13-14 23-24	AM-T3-W20 0 9,2 32,0 mm 13-14 23-24	AM-F4-W20 0 18° 74° 13-14 23-24	AM-F42W20 0 18° 74° 13-14 23-24
AM-T3-Z02 0 5,1 8,6 13,1 21,0 mm 11-12 21-22 11-12 21-22	AM-T3-Z02 0 5,1 8,6 13,1 21,0 mm 11-12 21-22 11-12 21-22	AM-T3-Z02 0 8,8 14,6 22,8 32,0 mm 11-12 21-22 11-12 21-22	AM-F4-Z02 0 17° 30° 46° 74° 11-12 21-22 11-12 21-22	AM-F42Z02 0 17° 30° 46° 74° 11-12 21-22 11-12 21-22
AM-T3-X12P 0 6,8 11,8 21,0 mm 31-32 13-14 10,7	AM-T3-X12P 0 6,8 11,8 21,0 mm 31-32 13-14 10,7	AM-T3-X12P 0 11,9 19,7 32,0 mm 31-32 13-14 18,7	AM-F4-X12P 0 24° 40° 74° 31-32 13-14 38°	AM-F42X12P 0 24° 40° 74° 31-32 13-14 38°
AM-T3-X21P 0 6,8 11,8 21,0 mm 31-32 13-14 10,7	AM-T3-X21P 0 6,8 11,8 21,0 mm 31-32 13-14 10,7	AM-T3-X21P 0 11,9 19,7 32,0 mm 31-32 13-14 18,7	AM-F4-X21P 0 24° 40° 74° 31-32 13-14 38°	AM-F42X21P 0 24° 40° 74° 31-32 13-14 38°
AM-T3-W03P 0 6,8 11,8 21,0 mm 11-12 21-22 31-32	AM-T3-W03P 0 6,8 11,8 21,0 mm 11-12 21-22 31-32	AM-T3-W03P 0 11,9 19,7 32,0 mm 11-12 21-22 31-32	AM-F4-W03P 0 24° 40° 74° 11-12 21-22 31-32	AM-F42W03P 0 24° 40° 74° 11-12 21-22 31-32
0,170	0,175	0,175	0,235	0,255



Electrical Connection

AM1: one cable inlet for PG 13,5 Cable Gland

AM2: one cable inlet for 1/2" NPT Cable Gland

AM3: one cable inlet for PG11 Cable Gland

AM4: one cable inlet for M16 x 1,5 Cable Gland

AM5: one cable inlet for M20 x 1,5 Cable Gland

Operating Head Type

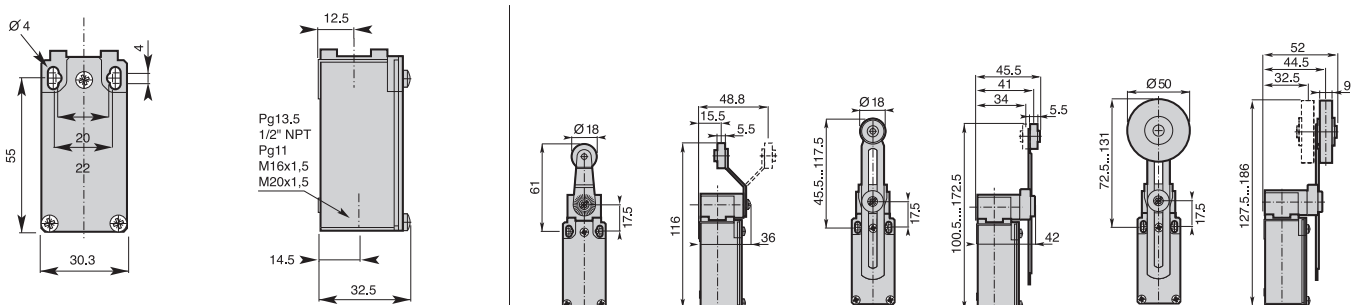


	F4• - Ø 18 roller lever F45: nylon roller F46: metal roller	F5• - Adjustable lever with Ø 18 roller F51: nylon roller F53: metal roller	F52 - Adjustable Ø 50 rubber roller lever
Conformity /			
Max actuation speed [m/s]	1,5	1,5	1,5
Min. force [N] or torque [Nm]: actuation / positive opening operation	0,10 / 0,32	0,10 / 0,32	0,10 / 0,32

Additional Technical Datas

		AM•F4•Z11	AM•F5•Z11	AM•F52Z11
Z11 Snap Action Contacts (1NO + 1NC)				
X11 Non overlapping Slow Action Contacts (1NO + 1NC)				
Y11 Overlapping Slow Action Contacts (1NO + 1NC)				
W02 Slow Action Contacts (2NC)				
W20 Slow Action Contacts (2NO)				
Z02 Snap Action Contacts (2NC)				
X12P Non overlapping Slow Action Contacts (1NO + 2NC)				
X21P Non overlapping Slow Action Contacts (2NO + 1NC)				
W03P Slow Action Contacts (3NC)				
Weight (packing per unit)	[kg]	0,250	0,250	0,265

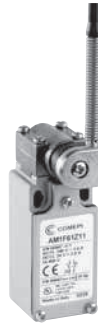
Dimensions (in mm)





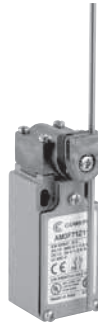
F55 - Adjustable lever with adjustable Ø 50 rubber roller

1,5
0,10 / 0,32



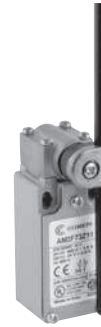
F61 - Nylon actuator with stainless steel spring

1,5
0,10 / -



F7 - Adjustable rod lever
F71: stainless steel rod Ø3
F72: fiberglass rod Ø3
F75: square steel rod 3x3

1,5
0,10 / 0,32



F7 - Adjustable Ø 6 rod lever
F73: nylon rod
F74: fiberglass rod

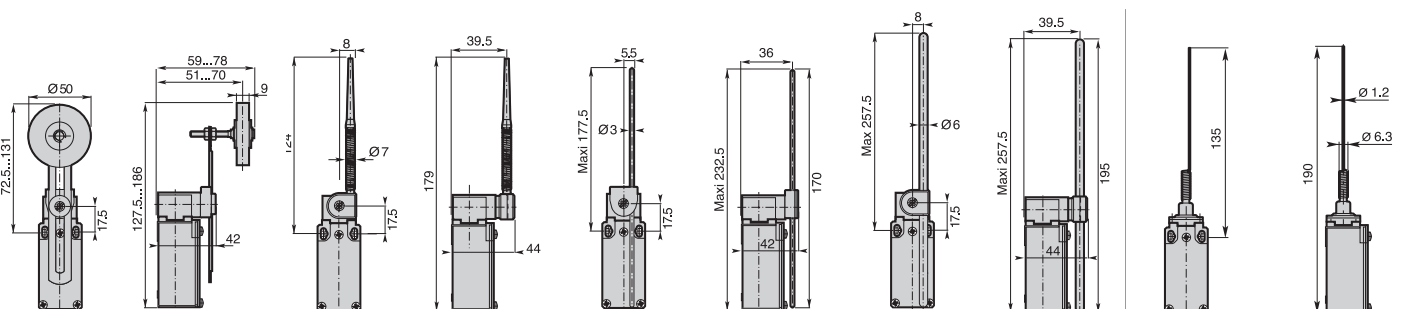
1,5
0,10 / 0,32



T91: Stainless steel spring multidirectional actuator

1,0
0,12 / -

 AM-F55Z11 0 17° 31° 47° 74° 21-22 13-14 21-22 13-14	 AM-F61Z11 0 17° 31° 74° 21-22 13-14 21-22 13-14	 AM-F7-Z11 0 17° 31° 47° 74° 21-22 13-14 21-22 13-14	 AM-F7-X11 0 17° 31° 47° 74° 21-22 13-14 21-22 13-14	 AM-F91Z11 0 12° 23° 21-22 13-14 21-22 13-14
 AM-F55X11 0 21° 37° 74° 21-22 13-14 30°	 AM-F61X11 0 21° 74° 21-22 13-14 30°	 AM-F7-X11 0 21° 37° 74° 21-22 13-14 30°	 AM-F7-X11 0 21° 37° 74° 21-22 13-14 30°	 AM-F91X11 0 14° 21-22 13-14 21°
 AM-F55Y11 0 35° 51° 74° 21-22 13-14 18°	 AM-F61Y11 0 35° 74° 21-22 13-14 18°	 AM-F7-Y11 0 35° 51° 74° 21-22 13-14 18°	 AM-F7-Y11 0 35° 51° 74° 21-22 13-14 18°	 AM-F91Y11 0 25° 21-22 13-14 12°
 AM-F55W02 0 19° 37° 74° 11-12 21-22	 AM-F61W02 0 19° 74° 11-12 21-22	 AM-F7-W02 0 19° 37° 74° 11-12 21-22	 AM-F7-W02 0 19° 37° 74° 11-12 21-22	 AM-F91W02 0 14° 11-12 21-22
 AM-F55W20 0 18° 74° 13-14 23-24	 AM-F61W20 0 18° 74° 13-14 23-24	 AM-F7-W20 0 18° 74° 13-14 23-24	 AM-F7-W20 0 18° 74° 13-14 23-24	 AM-F91W20 0 13° 13-14 23-24
 AM-F55Z02 0 17° 30° 46° 74° 11-12 21-22 11-12 21-22	 AM-F61Z02 0 17° 30° 74° 11-12 21-22 11-12 21-22	 AM-F7-Z02 0 17° 30° 46° 74° 11-12 21-22 11-12 21-22	 AM-F7-Z02 0 17° 30° 46° 74° 11-12 21-22 11-12 21-22	 AM-F91Z02 0 12° 22° 11-12 21-22 11-12 21-22
 AM-F55X12P 0 24° 40° 74° 21-22 13-14 38°	 AM-F61X12P 0 24° 74° 21-22 13-14 38°	 AM-F7-X12P 0 24° 40° 74° 21-22 13-14 38°	 AM-F7-X12P 0 24° 40° 74° 21-22 13-14 38°	 AM-F91X12P 0 16° 21-22 13-14 26°
 AM-F55X21P 0 24° 40° 74° 31-32 13-14 23-24 38°	 AM-F61X21P 0 24° 74° 31-32 13-14 23-24 38°	 AM-F7-X21P 0 24° 40° 74° 31-32 13-14 23-24 38°	 AM-F7-X21P 0 24° 40° 74° 31-32 13-14 23-24 38°	 AM-F91X21P 0 16° 31-32 13-14 23-24 26°
 AM-F55W03P 0 24° 40° 74° 11-12 21-22 31-32	 AM-F61W03P 0 24° 74° 11-12 21-22 31-32	 AM-F7-W03P 0 24° 40° 74° 11-12 21-22 31-32	 AM-F7-W03P 0 24° 40° 74° 11-12 21-22 31-32	 AM-F91W03P 0 16° 11-12 21-22 31-32
0,265	0,245	0,245	0,255	0,175



Electrical Connection

- AM1:** one cable inlet for PG 13,5 Cable Gland
- AM2:** one cable inlet for 1/2" NPT Cable Gland
- AM3:** one cable inlet for PG11 Cable Gland
- AM4:** one cable inlet for M16 x 1,5 Cable Gland
- AM5:** one cable inlet for M20 x 1,5 Cable Gland



Operating Head Type

T92: Multidirectional nylon actuator with stainless steel spring

T93: Stainless steel spring multidirectional actuator

T98: Pull action with ring

Conformity / Ⓢ (N.C. contact with positive opening operation)
 Max actuation speed [m/s]
 Min. force [N] or torque [Nm]: actuation / positive opening operation

1,0
0,12 / -

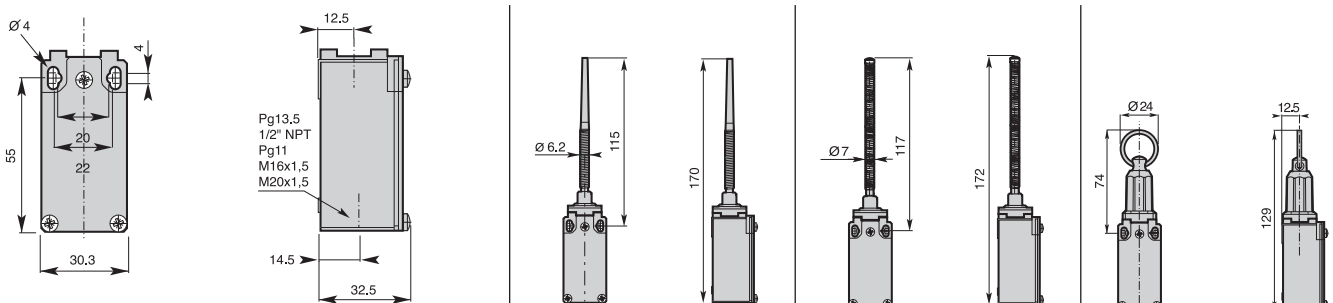
1,0
0,12 / -

0,5
30 / -

Additional Technical Datas

		Order Code	AM-T92Z11	AM-T93Z11	AM-T98Z11A
Z11 Snap Action Contacts (1NO + 1NC)		Operation Diagram			
X11 Non overlapping Slow Action Contacts (1NO + 1NC)		Operation Diagram			
Y11 Overlapping Slow Action Contacts (1NO + 1NC)		Operation Diagram			
W02 Slow Action Contacts (2NC)		Operation Diagram			
W20 Slow Action Contacts (2NO)		Operation Diagram			
Z02 Snap Action Contacts (2NC)		Operation Diagram			
X12P Non overlapping Slow Action Contacts (1NO + 2NC)		Operation Diagram			
X21P Non overlapping Slow Action Contacts (2NO + 1NC)		Operation Diagram			
W03P Slow Action Contacts (3NC)		Operation Diagram			
Weight (packing per unit)	[kg]		0,180	0,185	0,210

Dimensions (in mm)



Electrical Connection

- DM1:** three cable inlets for PG 13,5 Cable Gland
- DM2:** three cable inlets for 1/2" NPT Cable Gland
- DM3:** three cable inlets for PG11 Cable Gland
- DM4:** three cable inlets for M16 x 1,5 Cable Gland
- DM5:** three cable inlets for M20 x 1,5 Cable Gland



Operating Head Type

F11 - Plain Metal plunger

F12 - Metal roller plunger

T14 - Metal plunger with dust protection cup

Conformity / (N.C. contact with positive opening operation)
 Max actuation speed [m/s]
 Min. force [N] or torque [Nm]: actuation / positive opening operation

0,5
15 / 30

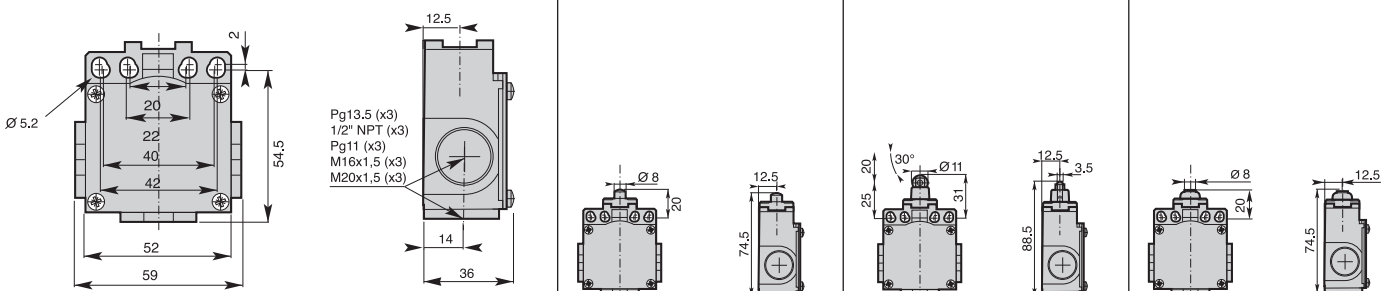
0,3
12 / 30

0,5
15 / 30

Additional Technical Datas

		Order Code	DM-F11Z11	DM-F12Z11	DM-T14Z11
Z11 Snap Action Contacts (1NO + 1NC)		Operation Diagram			
X11 Non overlapping Slow Action Contacts (1NO + 1NC)		Operation Diagram			
Y11 Overlapping Slow Action Contacts (1NO + 1NC)		Operation Diagram			
W02 Slow Action Contacts (2NC)		Operation Diagram			
W20 Slow Action Contacts (2NO)		Operation Diagram			
Z02 Snap Action Contacts (2NC)		Operation Diagram			
X12P Non overlapping Slow Action Contacts (1NO + 2NC)		Operation Diagram			
X21P Non overlapping Slow Action Contacts (2NO + 1NC)		Operation Diagram			
W03P Slow Action Contacts (3NC)		Operation Diagram			
Weight (packing per unit)	[kg]		0,270	0,280	0,255

Dimensions (in mm)



Electrical Connection

- DM1:** three cable inlets for PG 13,5 Cable Gland
- DM2:** three cable inlets for 1/2" NPT Cable Gland
- DM3:** three cable inlets for PG11 Cable Gland
- DM4:** three cable inlets for M16 x 1,5 Cable Gland
- DM5:** three cable inlets for M20 x 1,5 Cable Gland



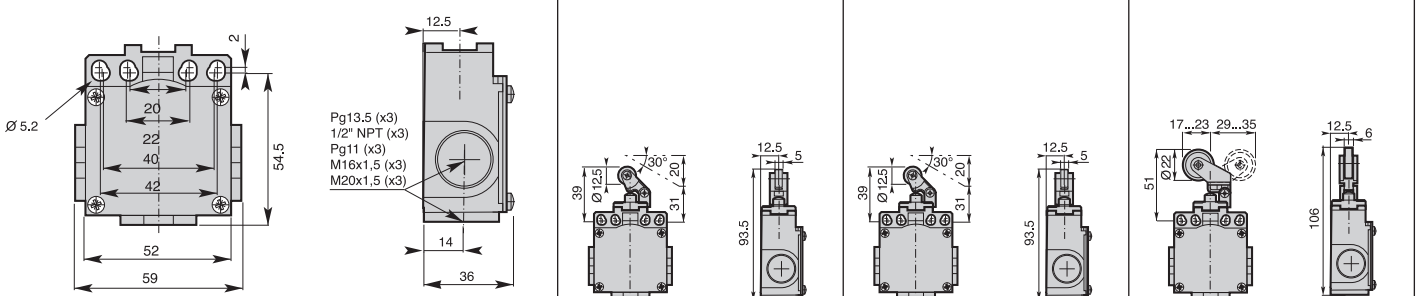
Operating Head Type

	T30 - Plastic roller lever T30: on plastic plunger T31: on metal plunger	T35 - Plastic roller lever on metal plunger with dust protection cup	T38 - Adjustable plastic roller lever on metal plunger T39 - Same as above with dust protection cup
Conformity /			
Max actuation speed [m/s]	1,0	1,0	1,0
Min. force [N] or torque [Nm]: actuation / positive opening operation	7 / 24	7 / 24	7 / 24

Additional Technical Datas

Configuration	Order Code	DM-T3-Z11	DM-T35Z11	DM-T3-Z11
Z11 Snap Action Contacts (1NO + 1NC) 	Operation Diagram			
X11 Non overlapping Slow Action Contacts (1NO + 1NC) 	Operation Diagram			
Y11 Overlapping Slow Action Contacts (1NO + 1NC) 	Operation Diagram			
W02 Slow Action Contacts (2NC) 	Operation Diagram			
W20 Slow Action Contacts (2NO) 	Operation Diagram			
Z02 Snap Action Contacts (2NC) 	Operation Diagram			
X12P Non overlapping Slow Action Contacts (1NO + 2NC) 	Operation Diagram			
X21P Non overlapping Slow Action Contacts (2NO + 1NC) 	Operation Diagram			
W03P Slow Action Contacts (3NC) 	Operation Diagram			
Weight (packing per unit) [kg]		0,260	0,260	0,265

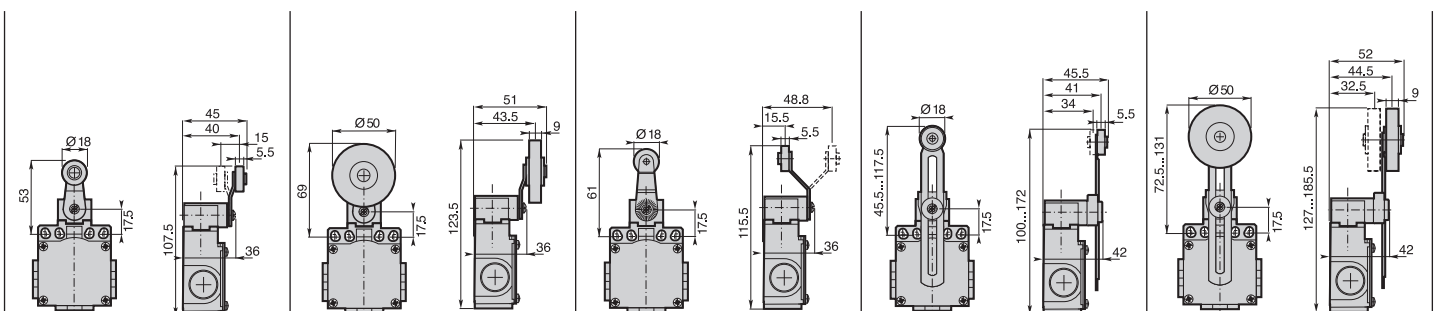
Dimensions (in mm)





F4• - Ø 18 roller lever F41: nylon roller F43: metal roller	F42 - Ø 50 rubber roller lever	F4• - Ø 18 roller lever F45: nylon roller F46: metal roller	F5• - Adjustable lever with Ø 18 roller F51: nylon roller F53: metal roller	F52 - Adjustable lever with Ø 50 rubber roller
1,5 0,10 / 0,32	1,5 0,10 / 0,32	1,5 0,10 / 0,32	1,5 0,10 / 0,32	1,5 0,10 / 0,32

DM•F4•Z11 0 17° 31° 47° 74° 21-22 13-14 13-14	DM•F42Z11 0 17° 31° 47° 74° 21-22 13-14 13-14	DM•F4•Z11 0 17° 31° 47° 74° 21-22 13-14 13-14	DM•F5•Z11 0 17° 31° 47° 74° 21-22 13-14 13-14	DM•F52Z11 0 17° 31° 47° 74° 21-22 13-14 13-14
DM•F4•X11 0 21° 37° 74° 21-22 13-14 30°	DM•F42X11 0 21° 37° 74° 21-22 13-14 30°	DM•F4•X11 0 21° 37° 74° 21-22 13-14 30°	DM•F5•X11 0 21° 37° 74° 21-22 13-14 30°	DM•F52X11 0 21° 37° 74° 21-22 13-14 30°
DM•F4•Y11 0 35° 51° 74° 21-22 13-14 18°	DM•F42Y11 0 35° 51° 74° 21-22 13-14 18°	DM•F4•Y11 0 35° 51° 74° 21-22 13-14 18°	DM•F5•Y11 0 35° 51° 74° 21-22 13-14 18°	DM•F52Y11 0 35° 51° 74° 21-22 13-14 18°
DM•F4•W02 0 19° 37° 74° 11-12 21-22	DM•F42W02 0 19° 37° 74° 11-12 21-22	DM•F4•W02 0 19° 37° 74° 11-12 21-22	DM•F5•W02 0 19° 37° 74° 11-12 21-22	DM•F52W02 0 19° 37° 74° 11-12 21-22
DM•F4•W20 0 18° 74° 13-14 23-24	DM•F42W20 0 18° 74° 13-14 23-24	DM•F4•W20 0 18° 74° 13-14 23-24	DM•F5•W20 0 18° 74° 13-14 23-24	DM•F52W20 0 18° 74° 13-14 23-24
DM•F4•Z02 0 17° 30° 46° 74° 11-12 21-22 11-12	DM•F42Z02 0 17° 30° 46° 74° 11-12 21-22 11-12	DM•F4•Z02 0 17° 30° 46° 74° 11-12 21-22 11-12	DM•F5•Z02 0 17° 30° 46° 74° 11-12 21-22 11-12	DM•F52Z02 0 17° 30° 46° 74° 11-12 21-22 11-12
DM•F4•X12P 0 24° 40° 74° 31-32 13-14 38°	DM•F42X12P 0 24° 40° 74° 31-32 13-14 38°	DM•F4•X12P 0 24° 40° 74° 31-32 13-14 38°	DM•F5•X12P 0 24° 40° 74° 31-32 13-14 38°	DM•F52X12P 0 24° 40° 74° 31-32 13-14 38°
DM•F4•X21P 0 24° 40° 74° 31-32 13-14 23-24 38°	DM•F42X21P 0 24° 40° 74° 31-32 13-14 23-24 38°	DM•F4•X21P 0 24° 40° 74° 31-32 13-14 23-24 38°	DM•F5•X21P 0 24° 40° 74° 31-32 13-14 23-24 38°	DM•F52X21P 0 24° 40° 74° 31-32 13-14 23-24 38°
DM•F4•W03P 0 24° 40° 74° 11-12 21-22 31-32	DM•F42W03P 0 24° 40° 74° 11-12 21-22 31-32	DM•F4•W03P 0 24° 40° 74° 11-12 21-22 31-32	DM•F5•W03P 0 24° 40° 74° 11-12 21-22 31-32	DM•F52W03P 0 24° 40° 74° 11-12 21-22 31-32
0,325	0,345	0,340	0,335	0,355



Electrical Connection

- DM1:** three cable inlets for PG 13,5 Cable Gland
- DM2:** three cable inlets for 1/2" NPT Cable Gland
- DM3:** three cable inlets for PG11 Cable Gland
- DM4:** three cable inlets for M16 x 1,5 Cable Gland
- DM5:** three cable inlets for M20 x 1,5 Cable Gland



Operating Head Type

F55 - Adjustable lever with adjustable Ø 50 rubber roller

F61 - Nylon actuator with stainless steel spring

F7 - Adjustable rod lever
 F71: stainless steel rod Ø3
 F72: fiberglass rod Ø3
 F75: square steel rod 3x3

Conformity / (N.C. contact with positive opening operation)
 Max actuation speed [m/s]
 Min. force [N] or torque [Nm]: actuation / positive opening operation

1,5
0,10 / 0,32

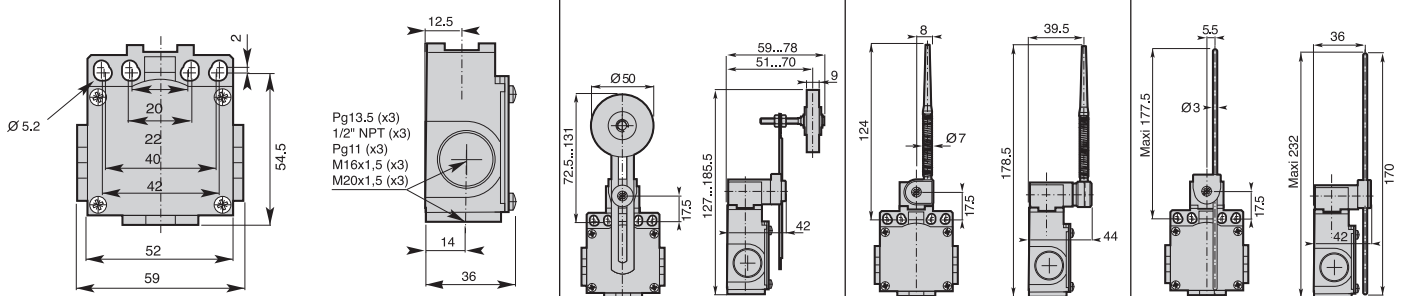
1,5
0,10 / -

1,5
0,10 / 0,32

Additional Technical Datas

Order Code	DM-F55Z11	DM-F61Z11	DM-F7-Z11
Z11 Snap Action Contacts (1NO + 1NC)			
X11 Non overlapping Slow Action Contacts (1NO + 1NC)			
Y11 Overlapping Slow Action Contacts (1NO + 1NC)			
W02 Slow Action Contacts (2NC)			
W20 Slow Action Contacts (2NO)			
Z02 Snap Action Contacts (2NC)			
X12P Non overlapping Slow Action Contacts (1NO + 2NC)			
X21P Non overlapping Slow Action Contacts (2NO + 1NC)			
W03P Slow Action Contacts (3NC)			
Weight (packing per unit) [kg]	0,355	0,305	0,380

Dimensions (in mm)





F7 - Adjustable
Ø 6 rod lever

F73: nylon rod
F74: fiberglass rod



T91: Stainless steel spring multidirectional actuator



T92: Multidirectional nylon actuator with stainless steel spring



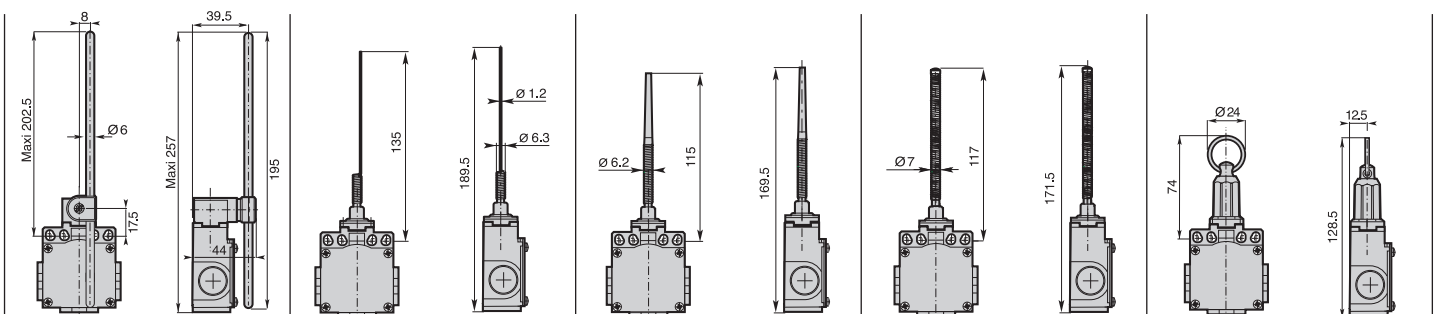
T93: Stainless steel spring multidirectional actuator



T98: Pull action with ring

1,5 0,10 / 0,32	1,0 0,12 / -	1,0 0,12 / -	1,0 0,12 / -	0,5 30 / -
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DM-F7-Z11 0 17° 31° 47° 74° 21-22 13-14	DM-T91Z11 0 12° 23° 21-22 13-14	DM-T92Z11 0 12° 23° 21-22 13-14	DM-T93Z11 0 12° 23° 21-22 13-14	DM-T98Z11A 0 0,9 2,0 5,6 mm 21-22 13-14
DM-F7-X11 0 21° 37° 74° 21-22 13-14 30°	DM-T91X11 0 14° 21-22 13-14 21°	DM-T92X11 0 14° 21-22 13-14 21°	DM-T93X11 0 14° 21-22 13-14 21°	DM-T98X11A 0 1,0 5,6 mm 21-22 13-14 1,9
DM-F7-Y11 0 35° 51° 74° 21-22 13-14 16°	DM-T91Y11 0 25° 21-22 13-14 12°	DM-T92Y11 0 25° 21-22 13-14 12°	DM-T93Y11 0 25° 21-22 13-14 12°	DM-T98Y11A 0 2,0 5,6 mm 21-22 13-14 0,6
DM-F7-W02 0 19° 37° 74° 11-12 21-22	DM-T91W02 0 14° 11-12 21-22	DM-T92W02 0 14° 11-12 21-22	DM-T93W02 0 14° 11-12 21-22	DM-T98W02A 0 2,0 5,6 mm 11-12 21-22
DM-F7-W20 0 18° 74° 13-14 23-24	DM-T91W20 0 13° 13-14 23-24	DM-T92W20 0 13° 13-14 23-24	DM-T93W20 0 13° 13-14 23-24	DM-T98W20A 0 1,8 5,6 mm 13-14 23-24
DM-F7-Z02 0 17° 30° 46° 74° 11-12 21-22 11-12 21-22	DM-T91Z02 0 12° 22° 11-12 21-22	DM-T92Z02 0 12° 22° 11-12 21-22	DM-T93Z02 0 12° 22° 11-12 21-22	
DM-F7-X12P 0 24° 40° 74° 21-22 31-32 13-14 38°	DM-T91X12P 0 16° 21-22 31-32 13-14 26°	DM-T92X12P 0 16° 21-22 31-32 13-14 26°	DM-T93X12P 0 16° 21-22 31-32 13-14 26°	
DM-F7-X21P 0 24° 40° 74° 31-32 13-14 23-24 38°	DM-T91X21P 0 16° 31-32 13-14 23-24 26°	DM-T92X21P 0 16° 31-32 13-14 23-24 26°	DM-T93X21P 0 16° 31-32 13-14 23-24 26°	
DM-F7-W03P 0 24° 40° 74° 11-12 21-22 31-32	DM-T91W03P 0 16° 11-12 21-22 31-32	DM-T92W03P 0 16° 11-12 21-22 31-32	DM-T93W03P 0 16° 11-12 21-22 31-32	
0,390	0,265	0,270	0,275	0,300



Electrical Connection

BP1: one cable inlet for PG 13,5 Cable Gland

BP2: one cable inlet for 1/2" NPT Cable Gland

BP5: one cable inlet for M20 x 1,5 Cable Gland



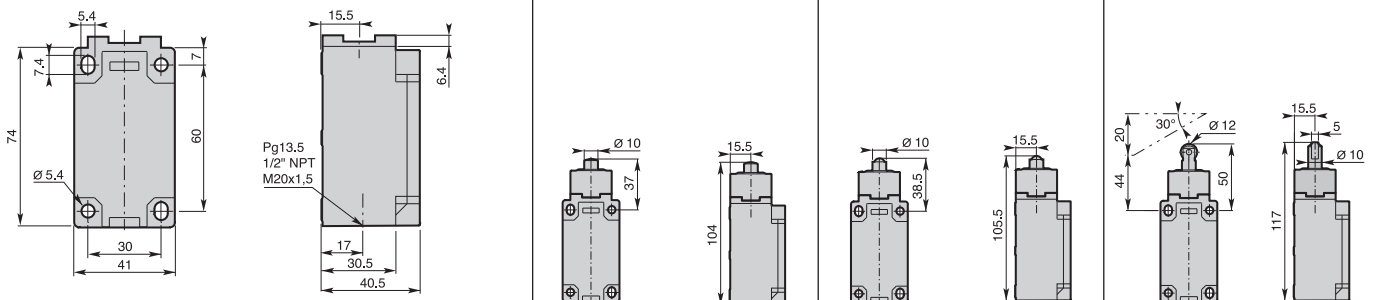
Operating Head Type

	H11 - Plain steel plunger	H12 - Steel ball plunger	H13 - Steel roller plunger
Conformity / \odot (N.C. contact with positive opening operation)	EN 50041	EN 50041	EN 50041
Max actuation speed [m/s]	0,5	0,5	0,5
Min. force [N] or torque [Nm]: actuation / positive opening operation	14 / 40	14 / 40	14 / 40

Additional Technical Datas

Order Code	Operation Diagram	BP•H11Z11	BP•H12Z11	BP•H13Z11
Z11 Snap Action Contacts (1NO + 1NC)				
X11 Non overlapping Slow Action Contacts (1NO + 1NC)				
Y11 Overlapping Slow Action Contacts (1NO + 1NC)				
W02 Slow Action Contacts (2NC)				
W20 Slow Action Contacts (2NO)				
Z02 Snap Action Contacts (2NC)				
X12 Non overlapping Slow Action Contacts (1NO + 2NC)				
X21 Non overlapping Slow Action Contacts (2NO + 1NC)				
W03 Simultaneous Slow Action Contacts (3NC)				
W30 Simultaneous Slow Action Contacts (3NO)				
Weight (packing per unit)	[kg]	0,145	0,145	0,150

Dimensions (in mm)





H14 - Plain steel plunger with dust protection cup

H19 - Steel roller plunger with dust protection cup

H3 - One way lever

H3 - One way lever with dust protection cup

H4 - Ø 22 roller lever

H31: Ø22 nylon roller
H32: Ø22 stainless steel roller
H33: Ø22 steel ball bearing

H35: Ø22 nylon roller
H36: Ø22 stainless steel roller
H37: Ø22 steel ball bearing

H41: nylon roller
H42: stainless steel roller
H43: steel ball bearing

EN 50041

0,5
14 / 40



EN 50041

0,5
14 / 40



1,0

8 / 30



1,0

8 / 30

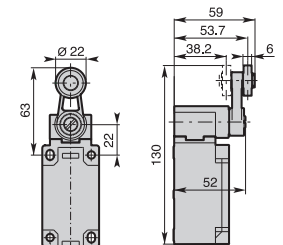
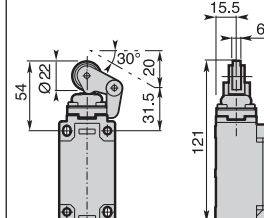
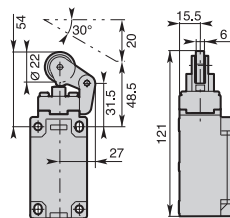
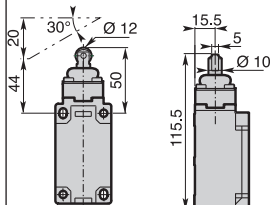
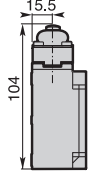
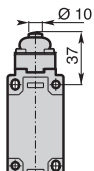


EN 50041

1,5
0,15 / 0,30



<p>BP-H14Z11</p>	<p>BP-H19Z11</p>	<p>BP-H3-Z11</p>	<p>BP-H3-Z11</p>	<p>BP-H4-Z11</p>
<p>BP-H14X11</p>	<p>BP-H19X11</p>	<p>BP-H3-X11</p>	<p>BP-H3-X11</p>	<p>BP-H4-X11</p>
<p>BP-H14Y11</p>	<p>BP-H19Y11</p>	<p>BP-H3-Y11</p>	<p>BP-H3-Y11</p>	<p>BP-H4-Y11</p>
<p>BP-H14W02</p>	<p>BP-H19W02</p>	<p>BP-H3-W02</p>	<p>BP-H3-W02</p>	<p>BP-H4-W02</p>
<p>BP-H14W20</p>	<p>BP-H19W20</p>	<p>BP-H3-W20</p>	<p>BP-H3-W20</p>	<p>BP-H4-W20</p>
<p>BP-H14Z02</p>	<p>BP-H19Z02</p>	<p>BP-H3-Z02</p>	<p>BP-H3-Z02</p>	<p>BP-H4-Z02</p>
<p>BP-H14X12</p>	<p>BP-H19X12</p>	<p>BP-H3-X12</p>	<p>BP-H3-X12</p>	<p>BP-H4-X12</p>
<p>BP-H14X21</p>	<p>BP-H19X21</p>	<p>BP-H3-X21</p>	<p>BP-H3-X21</p>	<p>BP-H4-X21</p>
<p>BP-H14W03</p>	<p>BP-H19W03</p>	<p>BP-H3-W03</p>	<p>BP-H3-W03</p>	<p>BP-H4-W03</p>
<p>BP-H14W30</p>	<p>BP-H19W30</p>	<p>BP-H3-W30</p>	<p>BP-H3-W30</p>	<p>BP-H4-W30</p>
0,145	0,150	0,185	0,180	0,200

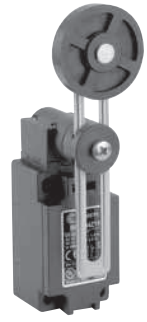


Electrical Connection

BP1: one cable inlet for PG 13,5 Cable Gland

BP2: one cable inlet for 1/2" NPT Cable Gland

BP5: one cable inlet for M20 x 1,5 Cable Gland



Operating Head Type

H44 - Ø 50 rubber roller lever

H5 - Adjustable Ø 22 roller lever

H54 - Adjustable Ø 50 rubber roller lever

H51: nylon roller
H52: stainless steel roller
H53: steel ball bearing

Conformity / (N.C. contact with positive opening operation)

Max actuation speed [m/s]

Min. force [N] or torque [Nm]: actuation / positive opening operation

1,5
0,15 / 0,30

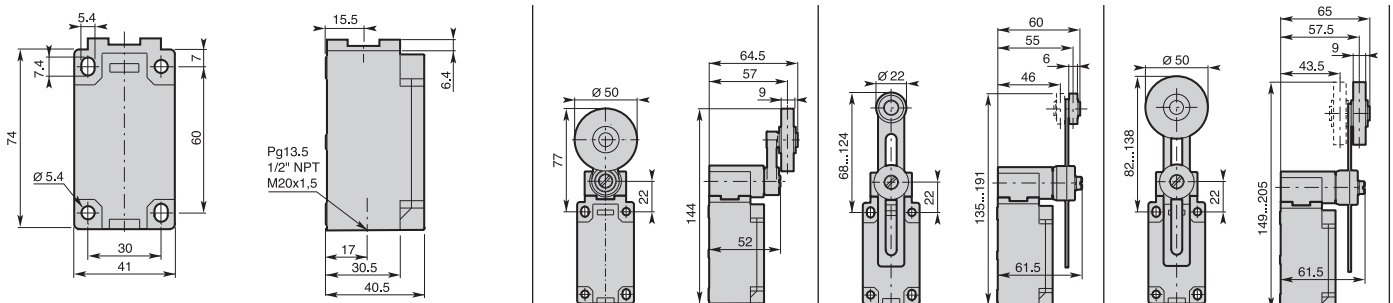
1,5
0,15 / 0,30

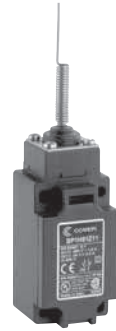
1,5
0,15 / 0,30

Additional Technical Datas

Order Code	BP•H44Z11	BP•H5•Z11	BP•H54Z11
Z11 Snap Action Contacts (1NO + 1NC)			
X11 Non overlapping Slow Action Contacts (1NO + 1NC)			
Y11 Overlapping Slow Action Contacts (1NO + 1NC)			
W02 Slow Action Contacts (2NC)			
W20 Slow Action Contacts (2NO)			
Z02 Snap Action Contacts (2NC)			
X12 Non overlapping Slow Action Contacts (1NO + 2NC)			
X21 Non overlapping Slow Action Contacts (2NO + 1NC)			
W03 Simultaneous Slow Action Contacts (3NC)			
W30 Simultaneous Slow Action Contacts (3NO)			
Weight (packing per unit) [kg]	0,205	0,195	0,205

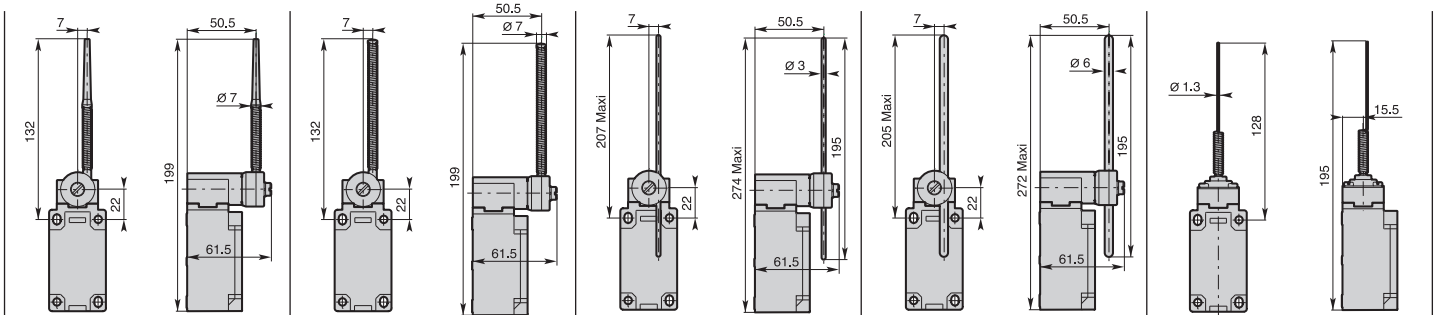
Dimensions (in mm)





H61 - Nylon actuator with stainless steel spring	H62 - Stainless steel spring actuator	H7 - Adjustable rod lever H71: stainless steel rod Ø3 H73: fiberglass rod Ø3 H75: square steel rod 3x3	H7 - Adjustable Ø 6 rod lever H72: nylon rod H74: fiberglass rod	H91 - Stainless steel spring multidirectional actuator
1,5 0,15 / -	1,5 0,15 / -	1,5 0,15 / 0,30	1,5 0,15 / 0,30	1,0 0,18 / -

BP•H61Z11 0 19° 31° 90° 21-22 13-14 19-14	BP•H62Z11 0 19° 31° 90° 21-22 13-14 19-14	BP•H7•Z11 0 19° 31° 47° 90° 21-22 13-14 19-14	BP•H7•Z11 0 19° 31° 47° 90° 21-22 13-14 19-14	BP•H91Z11 0 15° 27° 21-22 13-14 19-14
BP•H61X11 0 21° 90° 21-22 13-14 30°	BP•H62X11 0 21° 90° 21-22 13-14 30°	BP•H7•X11 0 21° 37° 90° 21-22 13-14 30°	BP•H7•X11 0 21° 37° 90° 21-22 13-14 30°	BP•H91X11 0 18° 90° 21-22 13-14 25°
BP•H61Y11 0 34° 90° 21-22 13-14 19°	BP•H62Y11 0 34° 90° 21-22 13-14 19°	BP•H7•Y11 0 34° 50° 90° 21-22 13-14 19°	BP•H7•Y11 0 34° 50° 90° 21-22 13-14 19°	BP•H91Y11 0 30° 90° 21-22 13-14 17°
BP•H61W02 0 19° 90° 21-22 13-14	BP•H62W02 0 19° 90° 21-22 13-14	BP•H7•W02 0 19° 35° 90° 21-22 13-14	BP•H7•W02 0 19° 35° 90° 21-22 13-14	BP•H91W02 0 17° 90° 21-22 13-14
BP•H61W20 0 18° 90° 13-14 23-24	BP•H62W20 0 18° 90° 13-14 23-24	BP•H7•W20 0 18° 90° 13-14 23-24	BP•H7•W20 0 18° 90° 13-14 23-24	BP•H91W20 0 16° 90° 13-14 23-24
BP•H61Z02 0 19° 30° 90° 11-12 21-22 21-25	BP•H62Z02 0 19° 30° 90° 11-12 21-22 21-25	BP•H7•Z02 0 19° 30° 46° 90° 11-12 21-22 21-25	BP•H7•Z02 0 19° 30° 46° 90° 11-12 21-22 21-25	BP•H91Z02 0 15° 26° 11-12 21-22 21-25
BP•H61X12 0 16° 90° 21-22 13-14 35°	BP•H62X12 0 16° 90° 21-22 13-14 35°	BP•H7•X12 0 16° 33° 90° 21-22 13-14 35°	BP•H7•X12 0 16° 33° 90° 21-22 13-14 35°	BP•H91X12 0 15° 90° 21-22 13-14 32°
BP•H61X21 0 17° 90° 31-32 13-14 23-24 35°	BP•H62X21 0 17° 90° 31-32 13-14 23-24 35°	BP•H7•X21 0 17° 34° 90° 31-32 13-14 23-24 35°	BP•H7•X21 0 17° 34° 90° 31-32 13-14 23-24 35°	BP•H91X21 0 16° 90° 31-32 13-14 23-24 32°
BP•H61W03 0 16° 90° 11-12 21-22 21-25 35°	BP•H62W03 0 16° 90° 11-12 21-22 21-25 35°	BP•H7•W03 0 16° 33° 90° 11-12 21-22 21-25 35°	BP•H7•W03 0 16° 33° 90° 11-12 21-22 21-25 35°	BP•H91W03 0 15° 90° 11-12 21-22 21-25 35°
BP•H61W30 0 21° 90° 13-14 23-24	BP•H62W30 0 21° 90° 13-14 23-24	BP•H7•W30 0 21° 90° 13-14 23-24	BP•H7•W30 0 21° 90° 13-14 23-24	BP•H91W30 0 19° 90° 13-14 23-24
0,190	0,195	0,185	0,185	0,150



Electrical Connection

BP1: one cable inlet for PG 13,5 Cable Gland

BP2: one cable inlet for 1/2" NPT Cable Gland

BP5: one cable inlet for M20 x 1,5 Cable Gland



Operating Head Type

H92 - Multidirectional nylon actuator with stainless steel spring

H93 - Stainless steel spring multidirectional actuator

Conformity / (N.C. contact with positive opening operation)

Max actuation speed [m/s]

Min. force [N] or torque [Nm]: actuation / positive opening operation

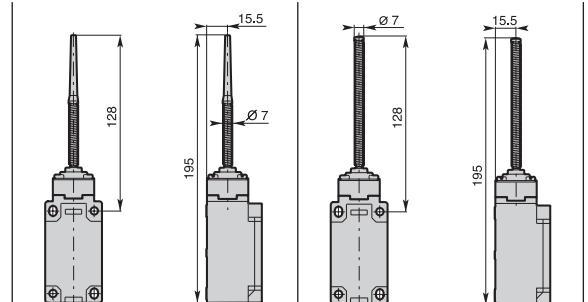
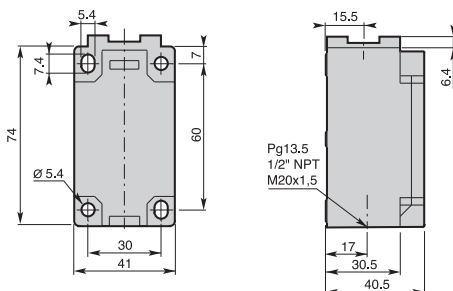
1,0
0,18 / -

1,0
0,18 / -

Additional Technical Datas

Z11 Snap Action Contacts (1NO + 1NC)		Order Code Operation Diagram	BP•H92Z11 	BP•H93Z11
X11 Non overlapping Slow Action Contacts (1NO + 1NC)		Order Code Operation Diagram	BP•H92X11 	BP•H93X11
Y11 Overlapping Slow Action Contacts (1NO + 1NC)		Order Code Operation Diagram	BP•H92Y11 	BP•H93Y11
W02 Slow Action Contacts (2NC)		Order Code Operation Diagram	BP•H92W02 	BP•H93W02
W20 Slow Action Contacts (2NO)		Order Code Operation Diagram	BP•H92W20 	BP•H93W20
Z02 Snap Action Contacts (2NC)		Order Code Operation Diagram	BP•H92Z02 	BP•H93Z02
X12 Non overlapping Slow Action Contacts (1NO + 2NC)		Order Code Operation Diagram	BP•H92X12 	BP•H93X12
X21 Non overlapping Slow Action Contacts (2NO + 1NC)		Order Code Operation Diagram	P•H92X21 	BP•H93X21
W03 Simultaneous Slow Action Contacts (3NC)		Order Code Operation Diagram	BP•H92W03 	BP•H93W03
W30 Simultaneous Slow Action Contacts (3NO)		Order Code Operation Diagram	BP•H92W30 	BP•H93W30
Weight (packing per unit)		[kg]	0,155	0,160

Dimensions (in mm)



Electrical Connection

BM1: one cable inlet for PG 13,5 Cable Gland

BM2: one cable inlet for 1/2" NPT Cable Gland

BM5: one cable inlet for M20 x 1,5 Cable Gland



Operating Head Type

P11 - Plain plunger

P92 - Multidirectional nylon actuator with stainless steel spring

P93 - Stainless steel spring multidirectional actuator

Conformity / (N.C. contact with positive opening operation)
 Max actuation speed [m/s]
 Min. force [N] or torque [Nm]: actuation / positive opening operation

0,5
30 / 45

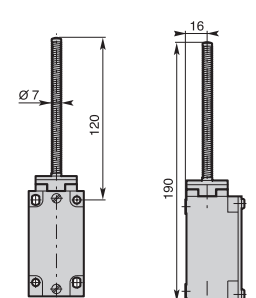
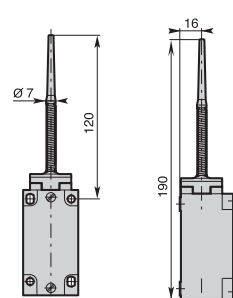
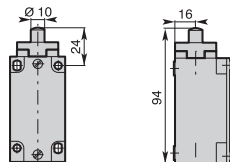
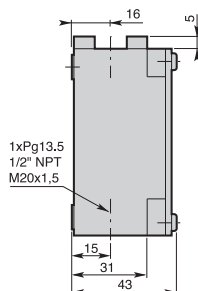
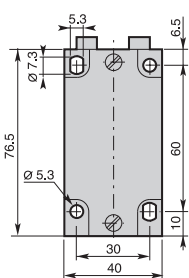
1,0
0,18 / -

1,0
0,18 / -

Additional Technical Datas

Order Code	BM•P11Z11	BM•P92Z11	BM•P93Z11
Z11 Snap Action Contacts (1NO + 1NC)			
X11 Non overlapping Slow Action Contacts (1NO + 1NC)			
Y11 Overlapping Slow Action Contacts (1NO + 1NC)			
W02 Slow Action Contacts (2NC)			
W20 Slow Action Contacts (2NO)			
Z02 Snap Action Contacts (2NC)			
X12 Non overlapping Slow Action Contacts (1NO + 2NC)			
X21 Non overlapping Slow Action Contacts (2NO + 1NC)			
W03 Simultaneous Slow Action Contacts (3NC)			
W30 Simultaneous Slow Action Contacts (3NO)			
Weight (packing per unit) [kg]	0,220	0,210	0,215

Dimensions (in mm)



Electrical Connection

CM1: three cable inlets for PG 13,5 Cable Gland

CM2: three cable inlets for 1/2" NPT Cable Gland

CM5: three cable inlets for M20 x 1,5 Cable Gland



Operating Head Type

P11 - Plain plunger

P92 - Multidirectional nylon actuator with stainless steel spring

P93 - Stainless steel spring multidirectional actuator

Conformity / \odot (N.C. contact with positive opening operation)
 Max actuation speed [m/s]
 Min. force [N] or torque [Nm]: actuation / positive opening operation

0,5
30 / 45

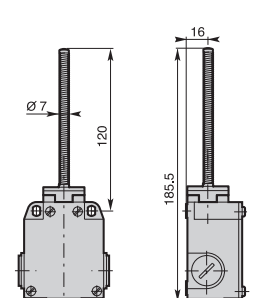
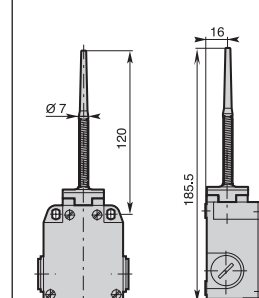
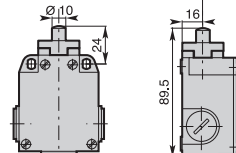
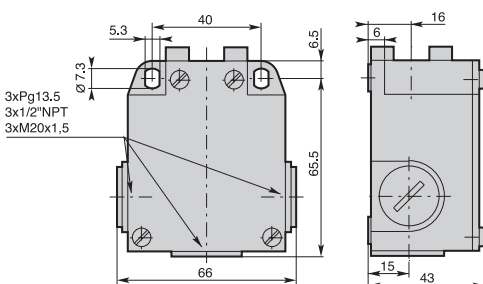
1,0
0,18 / -

1,0
0,18 / -

Additional Technical Datas

Order Code	Operation Diagram	CM-P11Z11	CM-P92Z11	CM-P93Z11
Z11 Snap Action Contacts (1NO + 1NC)				
X11 Non overlapping Slow Action Contacts (1NO + 1NC)				
Y11 Overlapping Slow Action Contacts (1NO + 1NC)				
W02 Slow Action Contacts (2NC)				
W20 Slow Action Contacts (2NO)				
Z02 Snap Action Contacts (2NC)				
X12 Non overlapping Slow Action Contacts (1NO + 2NC)				
X21 Non overlapping Slow Action Contacts (2NO + 1NC)				
W03 Simultaneous Slow Action Contacts (3NC)				
W30 Simultaneous Slow Action Contacts (3NO)				
Weight (packing per unit) [kg]		0,245	0,245	0,250

Dimensions (in mm)



Electrical Connection

BM1: one cable inlet for PG 13,5 Cable Gland

BM2: one cable inlet for 1/2" NPT Cable Gland

BM5: one cable inlet for M20 x 1,5 Cable Gland



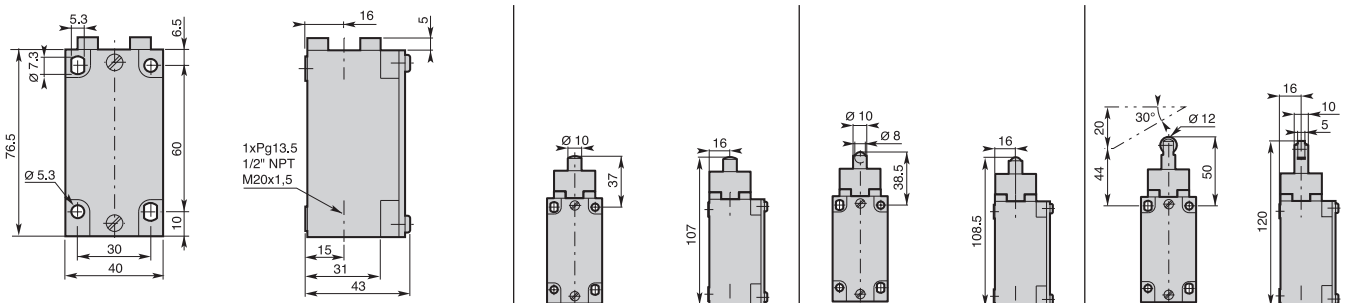
Operating Head Type

	E11 - Stainless steel plain plunger	E12 - Stainless steel ball plunger	E13 - Stainless steel Ø 12 roller plunger
Conformity / (N.C. contact with positive opening operation)	EN 50041	EN 50041	EN 50041
Max actuation speed [m/s]	0,5	0,5	0,5
Min. force [N] or torque [Nm]: actuation / positive opening operation	30 / 45	30 / 45	22 / 40

Additional Technical Datas

	Order Code	BM-E11Z11	BM-E12Z11	BM-E13Z11
Z11 Snap Action Contacts (1NO + 1NC)	Operation Diagram			
X11 Non overlapping Slow Action Contacts (1NO + 1NC)	Operation Diagram			
Y11 Overlapping Slow Action Contacts (1NO + 1NC)	Operation Diagram			
W02 Slow Action Contacts (2NC)	Operation Diagram			
W20 Slow Action Contacts (2NO)	Operation Diagram			
Z02 Snap Action Contacts (2NC)	Operation Diagram			
X12 Non overlapping Slow Action Contacts (1NO + 2NC)	Operation Diagram			
X21 Non overlapping Slow Action Contacts (2NO + 1NC)	Operation Diagram			
W03 Simultaneous Slow Action Contacts (3NC)	Operation Diagram			
W30 Simultaneous Slow Action Contacts (3NO)	Operation Diagram			
Weight (packing per unit)	[kg]	0,240	0,240	0,245

Dimensions (in mm)



Electrical Connection

BM1: one cable inlet for PG 13,5 Cable Gland

BM2: one cable inlet for 1/2" NPT Cable Gland

BM5: one cable inlet for M20 x 1,5 Cable Gland



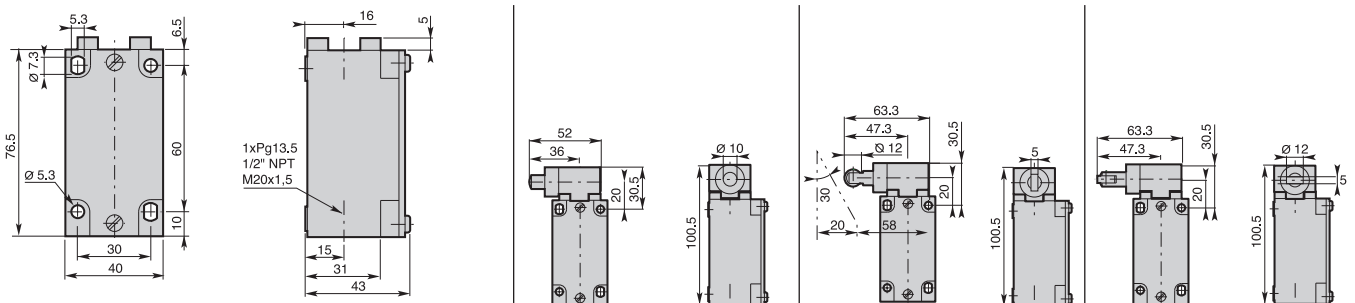
Operating Head Type

	E21 - Stainless steel lateral plain plunger	E22 - Stainless steel lateral plunger with Ø 12 vertical roller	E23 - Stainless steel lateral plunger with Ø 12 horizontal roller
Conformity / (N.C. contact with positive opening operation)	EN 50041	EN 50041	EN 50041
Max actuation speed [m/s]	0,5	0,5	0,5
Min. force [N] or torque [Nm]: actuation / positive opening operation	30 / 50	30 / 50	30 / 50

Additional Technical Datas

	Order Code	BM-E21Z11	BM-E22Z11	BM-E23Z11
Z11 Snap Action Contacts (1NO + 1NC)	Operation Diagram			
X11 Non overlapping Slow Action Contacts (1NO + 1NC)	Operation Diagram			
Y11 Overlapping Slow Action Contacts (1NO + 1NC)	Operation Diagram			
W02 Slow Action Contacts (2NC)	Operation Diagram			
W20 Slow Action Contacts (2NO)	Operation Diagram			
Z02 Snap Action Contacts (2NC)	Operation Diagram			
X12 Non overlapping Slow Action Contacts (1NO + 2NC)	Operation Diagram			
X21 Non overlapping Slow Action Contacts (2NO + 1NC)	Operation Diagram			
W03 Simultaneous Slow Action Contacts (3NC)	Operation Diagram			
W30 Simultaneous Slow Action Contacts (3NO)	Operation Diagram			
Weight (packing per unit)	[kg]	0,260	0,265	0,265

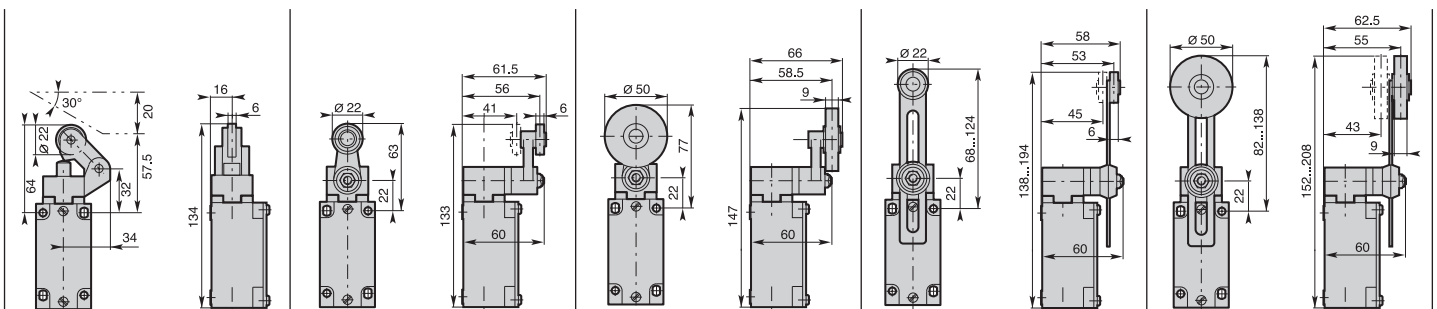
Dimensions (in mm)





<p>E3 - One way lever</p> <p>E31: Ø22 nylon roller E32: Ø22 stainless steel roller E33: Ø22 steel ball bearing</p>	<p>E4 - Ø 22 roller lever</p> <p>E41: nylon roller E42: stainless steel roller E43: steel ball bearing</p>	<p>E44 - Ø 50 rubber roller lever</p>	<p>E5 - Adjustable Ø 22 roller lever</p> <p>E51: nylon roller E52: stainless steel roller E53: steel ball bearing</p>	<p>E54 - Adjustable Ø 50 rubber roller lever</p>
1,5 12 / 40	1,5 0,15 / 0,30	1,5 0,15 / 0,30	1,5 0,15 / 0,30	1,5 0,15 / 0,30

<p>BM-E3-Z11</p> <p>0 3,1 6,3 10,8 15,5 mm</p>	<p>BM-E4-Z11</p> <p>0 20° 33° 49° 78°</p>	<p>BM-E44Z11</p> <p>0 20° 33° 49° 78°</p>	<p>BM-E5-Z11</p> <p>0 20° 33° 49° 78°</p>	<p>BM-E54Z11</p> <p>0 20° 33° 49° 78°</p>
<p>BM-E3-X11</p> <p>0 4,5 9,0 15,5 mm</p> <p>6,1</p>	<p>BM-E4-X11</p> <p>0 22° 38° 78°</p> <p>33°</p>	<p>BM-E44X11</p> <p>0 22° 38° 78°</p> <p>33°</p>	<p>BM-E5-X11</p> <p>0 22° 38° 78°</p> <p>33°</p>	<p>BM-E54X11</p> <p>0 22° 38° 78°</p> <p>33°</p>
<p>BM-E3-Y11</p> <p>0 7,2 11,7 15,5 mm</p> <p>4,0</p>	<p>BM-E4-Y11</p> <p>0 37° 53° 78°</p> <p>21°</p>	<p>BM-E44Y11</p> <p>0 37° 53° 78°</p> <p>21°</p>	<p>BM-E5-Y11</p> <p>0 37° 53° 78°</p> <p>21°</p>	<p>BM-E54Y11</p> <p>0 37° 53° 78°</p> <p>21°</p>
<p>BM-E3-W02</p> <p>0 4,0 9,5 15,5 mm</p>	<p>BM-E4-W02</p> <p>0 21° 37° 78°</p>	<p>BM-E44W02</p> <p>0 21° 37° 78°</p>	<p>BM-E5-W02</p> <p>0 21° 37° 78°</p>	<p>BM-E54W02</p> <p>0 21° 37° 78°</p>
<p>BM-E3-W20</p> <p>0 3,6 15,5 mm</p>	<p>BM-E4-W20</p> <p>0 20° 78°</p>	<p>BM-E44W20</p> <p>0 20° 78°</p>	<p>BM-E5-W20</p> <p>0 20° 78°</p>	<p>BM-E54W20</p> <p>0 20° 78°</p>
<p>BM-E3-Z02</p> <p>0 3,1 6,1 10,6 15,5 mm</p>	<p>BM-E4-Z02</p> <p>0 20° 32° 48° 78°</p>	<p>BM-E44Z02</p> <p>0 20° 32° 48° 78°</p>	<p>BM-E5-Z02</p> <p>0 20° 32° 48° 78°</p>	<p>BM-E54Z02</p> <p>0 20° 32° 48° 78°</p>
<p>BM-E3-X12</p> <p>0 4,6 8,4 15,5 mm</p> <p>8,6</p>	<p>BM-E4-X12</p> <p>0 18° 35° 78°</p> <p>37°</p>	<p>BM-E44X12</p> <p>0 18° 35° 78°</p> <p>37°</p>	<p>BM-E5-X12</p> <p>0 18° 35° 78°</p> <p>37°</p>	<p>BM-E54X12</p> <p>0 18° 35° 78°</p> <p>37°</p>
<p>BM-E3-X21</p> <p>0 4,7 8,5 15,5 mm</p> <p>8,6</p>	<p>BM-E4-X21</p> <p>0 19° 36° 78°</p> <p>37°</p>	<p>BM-E44X21</p> <p>0 19° 36° 78°</p> <p>37°</p>	<p>BM-E5-X21</p> <p>0 19° 36° 78°</p> <p>37°</p>	<p>BM-E54X21</p> <p>0 19° 36° 78°</p> <p>37°</p>
<p>BM-E3-W03</p> <p>0 4,6 8,4 15,5 mm</p>	<p>BM-E4-W03</p> <p>0 18° 35° 78°</p>	<p>BM-E44W03</p> <p>0 18° 35° 78°</p>	<p>BM-E5-W03</p> <p>0 18° 35° 78°</p>	<p>BM-E54W03</p> <p>0 18° 35° 78°</p>
<p>BM-E3-W30</p> <p>0 4,9 15,5 mm</p>	<p>BM-E4-W30</p> <p>0 23° 78°</p>	<p>BM-E44W30</p> <p>0 23° 78°</p>	<p>BM-E5-W30</p> <p>0 23° 78°</p>	<p>BM-E54W30</p> <p>0 23° 78°</p>
0,280	0,300	0,315	0,320	0,325



Electrical Connection

BM1: one cable inlet for PG 13,5 Cable Gland

BM2: one cable inlet for 1/2" NPT Cable Gland

BM5: one cable inlet for M20 x 1,5 Cable Gland



Operating Head Type

E61 - Nylon actuator with stainless steel spring

E62 - Stainless steel spring actuator

E7 - Adjustable rod lever
 E71: stainless steel rod Ø3
 E73: fiberglass rod Ø3
 E75: square steel rod 3x3

Conformity / (N.C. contact with positive opening operation)

Max actuation speed [m/s]

Min. force [N] or torque [Nm]: actuation / positive opening operation

1,5
0,15 / -

1,5
0,15 / -

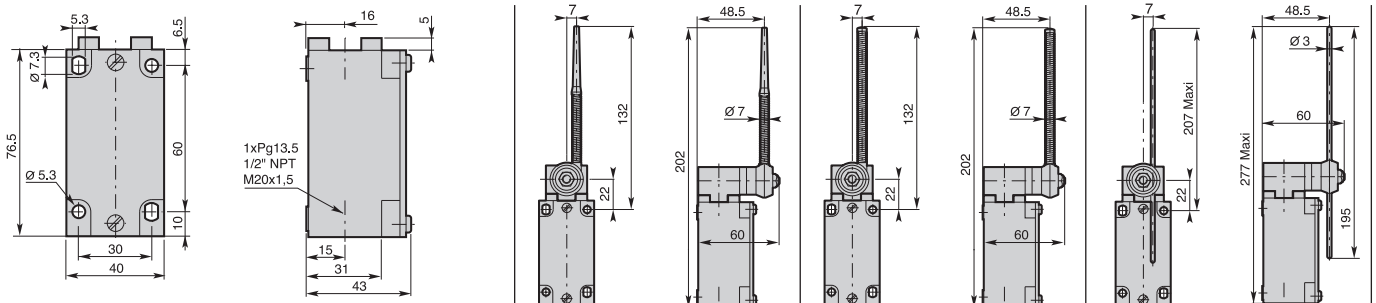
EN50041

1,5
0,15 / 0,30

Additional Technical Datas

		Order Code	BM•E61Z11	BM•E62Z11	BM•E7•Z11
Z11 Snap Action Contacts (1NO + 1NC)		Operation Diagram			
X11 Non overlapping Slow Action Contacts (1NO + 1NC)		Operation Diagram			
Y11 Overlapping Slow Action Contacts (1NO + 1NC)		Operation Diagram			
W02 Slow Action Contacts (2NC)		Operation Diagram			
W20 Slow Action Contacts (2NO)		Operation Diagram			
Z02 Snap Action Contacts (2NC)		Operation Diagram			
X12 Non overlapping Slow Action Contacts (1NO + 2NC)		Operation Diagram			
X21 Non overlapping Slow Action Contacts (2NO + 1NC)		Operation Diagram			
W03 Simultaneous Slow Action Contacts (3NC)		Operation Diagram			
W30 Simultaneous Slow Action Contacts (3NO)		Operation Diagram			
Weight (packing per unit)	[kg]		0,305	0,310	0,305

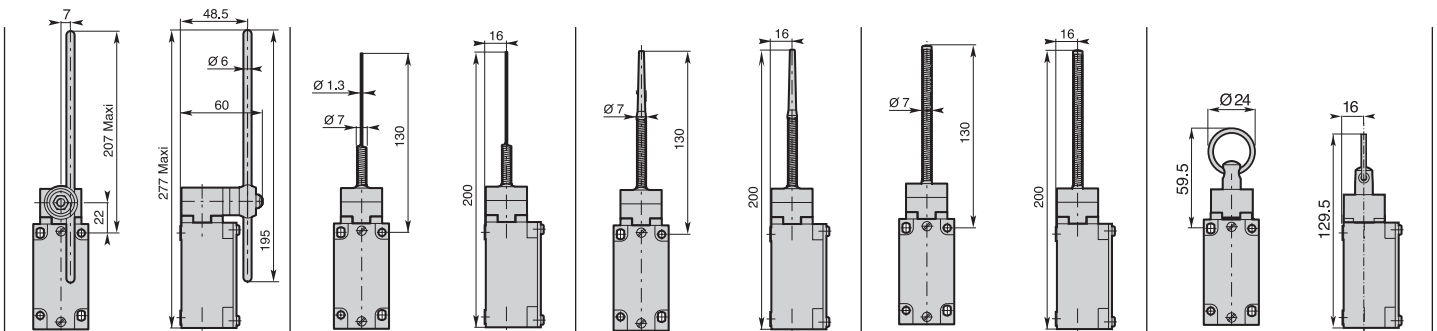
Dimensions (in mm)





E7 - Adjustable rod lever E72: nylon rod E74: fiberglass rod	E91 - Stainless steel spring multidirectional actuator	E92 - Multidirectional nylon actuator with stainless steel spring	E93 - Stainless steel spring multidirectional actuator	E99 - Pull action with ring
EN 50041				
1,5 0,15 / 0,30	1,0 0,18 / -	1,0 0,18 / -	1,0 0,18 / -	0,5 25 / -

BM-E7-Z11 	BM-E91Z11 	BM-E92Z11 	BM-E93Z11 	BM-E99Z11A
BM-E7-X11 	BM-E91X11 	BM-E92X11 	BM-E93X11 	BM-E99X11A
BM-E7-Y11 	BM-E91Y11 	BM-E92Y11 	BM-E93Y11 	BM-E99Y11A
BM-E7-W02 	BM-E91W02 	BM-E92W02 	BM-E93W02 	BM-E99W02A
BM-E7-W20 	BM-E91W20 	BM-E92W20 	BM-E93W20 	BM-E99W20A
BM-E7-Z02 	BM-E91Z02 	BM-E92Z02 	BM-E93Z02 	
BM-E7-X12 	BM-E91X12 	BM-E92X12 	BM-E93X12 	BM-E99X12A
BM-E7-X21 	BM-E91X21 	BM-E92X21 	BM-E93X21 	BM-E99X21A
BM-E7-W03 	BM-E91W03 	BM-E92W03 	BM-E93W03 	BM-E99W03A
BM-E7-W30 	BM-E91W30 	BM-E92W30 	BM-E93W30 	BM-E99W30A
0,300	0,230	0,230	0,235	0,245



Electrical Connection

CM1: three cable inlets for PG 13,5 Cable Gland

CM2: three cable inlets for 1/2" NPT Cable Gland

CM5: three cable inlets for M20 x 1,5 Cable Gland



Operating Head Type

E11 - Stainless steel plain plunger

E12 - Stainless steel ball plunger

E13 - Stainless steel Ø 12 roller plunger

Conformity / (N.C. contact with positive opening operation)

Max actuation speed [m/s]

Min. force [N] or torque [Nm]: actuation / positive opening operation

0,5
30 / 45

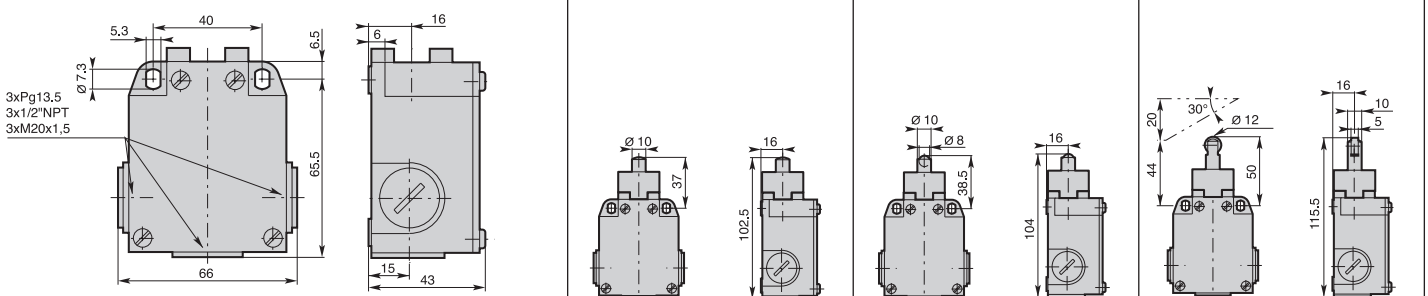
0,5
30 / 45

0,5
22 / 40

Additional Technical Datas

Order Code	CM-E11Z11	CM-E12Z11	CM-E13Z11
Z11 Snap Action Contacts (1NO + 1NC)			
X11 Non overlapping Slow Action Contacts (1NO + 1NC)			
Y11 Overlapping Slow Action Contacts (1NO + 1NC)			
W02 Slow Action Contacts (2NC)			
W20 Slow Action Contacts (2NO)			
Z02 Snap Action Contacts (2NC)			
X12 Non overlapping Slow Action Contacts (1NO + 2NC)			
X21 Non overlapping Slow Action Contacts (2NO + 1NC)			
W03 Simultaneous Slow Action Contacts (3NC)			
W30 Simultaneous Slow Action Contacts (3NO)			
Weight (packing per unit) [kg]	0,265	0,265	0,270

Dimensions (in mm)





E21 - Stainless steel lateral plain plunger

E22 - Stainless steel lateral plunger with Ø 12 vertical roller

E23 - Stainless steel lateral plunger with Ø 12 horizontal roller

E3 - One way lever

E4 - Ø 22 roller lever

E31: Ø22 nylon roller
E32: Ø22 stainless steel roller
E33: Ø22 steel ball bearing

E41: nylon roller
E42: stainless steel roller
E43: steel ball bearing

0,5
30 / 50

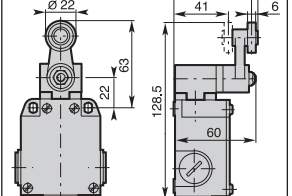
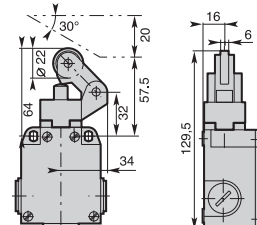
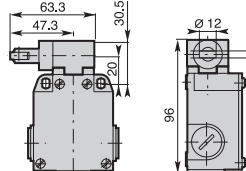
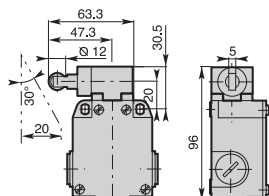
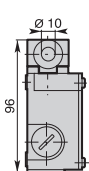
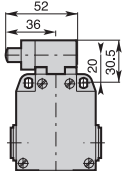
0,5
30 / 50

0,5
30 / 50

1,5
12 / 30

1,5
0,15 / 0,30

<p>CM•E21Z11</p>	<p>CM•E22Z11</p>	<p>CM•E23Z11</p>	<p>CM•E3•Z11</p>	<p>CM•E4•Z11</p>
<p>CM•E21X11</p>	<p>CM•E22X11</p>	<p>CM•E23X11</p>	<p>CM•E3•X11</p>	<p>CM•E4•X11</p>
<p>CM•E21Y11</p>	<p>CM•E22Y11</p>	<p>CM•E23Y11</p>	<p>CM•E3•Y11</p>	<p>CM•E4•Y11</p>
<p>CM•E21W02</p>	<p>CM•E22W02</p>	<p>CM•E23W02</p>	<p>CM•E3•W02</p>	<p>CM•E4•W02</p>
<p>CM•E21W20</p>	<p>CM•E22W20</p>	<p>CM•E23W20</p>	<p>CM•E3•W20</p>	<p>CM•E4•W20</p>
<p>CM•E21Z02</p>	<p>CM•E22Z02</p>	<p>CM•E23Z02</p>	<p>CM•E3•Z02</p>	<p>CM•E4•Z02</p>
<p>CM•E21X12</p>	<p>CM•E22X12</p>	<p>CM•E23X12</p>	<p>CM•E3•X12</p>	<p>CM•E4•X12</p>
<p>CM•E21X21</p>	<p>CM•E22X21</p>	<p>CM•E23X21</p>	<p>CM•E3•X21</p>	<p>CM•E4•X21</p>
<p>CM•E21W03</p>	<p>CM•E22W03</p>	<p>CM•E23W03</p>	<p>CM•E3•W03</p>	<p>CM•E4•W03</p>
<p>CM•E21W30</p>	<p>CM•E22W30</p>	<p>CM•E23W30</p>	<p>CM•E3•W30</p>	<p>CM•E4•W30</p>
0,285	0,290	0,290	0,305	0,305



Electrical Connection

CM1: three cable inlets for PG 13,5 Cable Gland

CM2: three cable inlets for 1/2" NPT Cable Gland

CM5: three cable inlets for M20 x 1,5 Cable Gland



Operating Head Type

E44 - Ø 50 rubber roller lever

E5 - Adjustable Ø 22 roller lever

E54 - Adjustable Ø 50 rubber roller lever

E51: nylon roller
E52: stainless steel roller
E53: steel ball bearing

Conformity / (N.C. contact with positive opening operation)

Max actuation speed [m/s]

Min. force [N] or torque [Nm]: actuation / positive opening operation

1,5
0,15 / 0,30

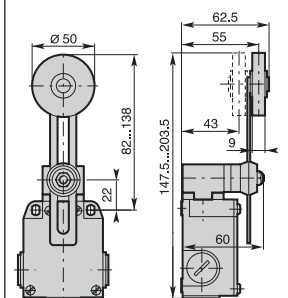
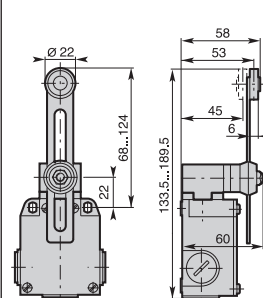
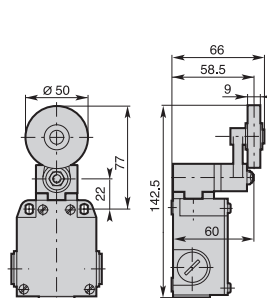
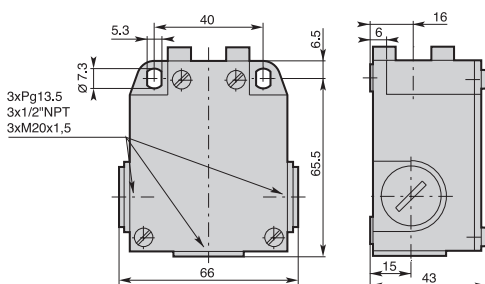
1,5
0,15 / 0,30

1,5
0,15 / 0,30

Additional Technical Datas

Order Code	CM-E44Z11	CM-E5-Z11	CM-E54Z11
Z11 Snap Action Contacts (1NO + 1NC)			
X11 Non overlapping Slow Action Contacts (1NO + 1NC)			
Y11 Overlapping Slow Action Contacts (1NO + 1NC)			
W02 Slow Action Contacts (2NC)			
W20 Slow Action Contacts (2NO)			
Z02 Snap Action Contacts (2NC)			
X12 Non overlapping Slow Action Contacts (1NO + 2NC)			
X21 Non overlapping Slow Action Contacts (2NO + 1NC)			
W03 Simultaneous Slow Action Contacts (3NC)			
W30 Simultaneous Slow Action Contacts (3NO)			
Weight (packing per unit) [kg]	0,315	0,325	0,330

Dimensions (in mm)





E61 - Nylon actuator with stainless steel spring

E62 - Stainless steel spring actuator

E7• - Adjustable rod lever
E71: stainless steel rod Ø3
E73: fiberglass rod Ø3
E75: square steel rod 3x3

E7• - Adjustable Ø 6 rod lever
F72: nylon rod
F74: fiberglass rod

E91 - Stainless steel spring multidirectional actuator

1,5
0,15 / -

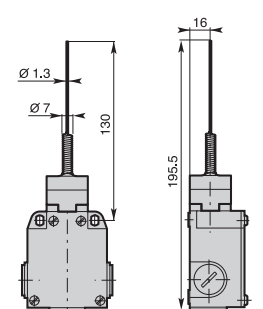
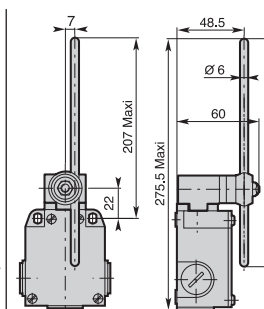
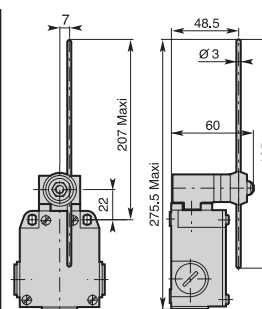
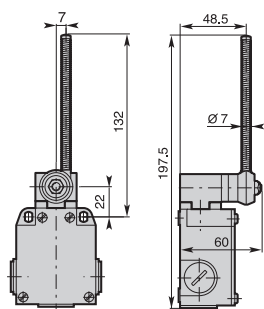
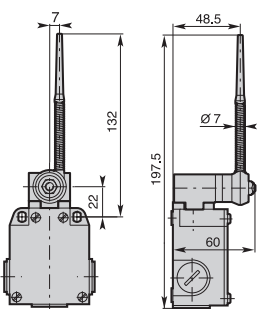
1,5
0,15 / -

1,5
0,15 / 0,30

1,5
0,15 / 0,30

1,0
0,18 / -

CM•E61Z11 0 20° 33° 78° 21-22 13-14 13-14	CM•E62Z11 0 20° 33° 78° 21-22 13-14 13-14	CM•E7•Z11 0 20° 33° 49° 78° 21-22 13-14 13-14	CM•E7•Z11 0 20° 33° 49° 78° 21-22 13-14 13-14	CM•E91Z11 0 9° 21° 21-22 13-14 13-14
CM•E61X11 0 22° 78° 21-22 13-14 33°	CM•E62X11 0 22° 78° 21-22 13-14 33°	CM•E7•X11 0 22° 38° 78° 21-22 13-14 33°	CM•E7•X11 0 22° 38° 78° 21-22 13-14 33°	CM•E91X11 0 12° 21-22 13-14 19°
CM•E61Y11 0 37° 78° 21-22 13-14 21°	CM•E62Y11 0 37° 78° 21-22 13-14 21°	CM•E7•Y11 0 37° 53° 78° 21-22 13-14 21°	CM•E7•Y11 0 37° 53° 78° 21-22 13-14 21°	CM•E91Y11 0 23° 21-22 13-14 11°
CM•E61W02 0 21° 78° 21-22 13-14	CM•E62W02 0 21° 78° 21-22 13-14	CM•E7•W02 0 21° 37° 78° 21-22 13-14	CM•E7•W02 0 21° 37° 78° 21-22 13-14	CM•E91W02 0 11° 21-22 13-14
CM•E61W20 0 20° 78° 13-14 23-24	CM•E62W20 0 20° 78° 13-14 23-24	CM•E7•W20 0 20° 78° 13-14 23-24	CM•E7•W20 0 20° 78° 13-14 23-24	CM•E91W20 0 10° 13-14 23-24
CM•E61Z02 0 20° 32° 78° 11-12 21-22 11-14 21-25	CM•E62Z02 0 20° 32° 78° 11-12 21-22 11-14 21-25	CM•E7•Z02 0 20° 32° 48° 78° 11-12 21-22 11-14 21-25	CM•E7•Z02 0 20° 32° 48° 78° 11-12 21-22 11-14 21-25	CM•E91Z02 0 9° 20° 11-12 21-22 11-14 21-25
CM•E61X12 0 18° 78° 21-22 13-14 37°	CM•E62X12 0 18° 78° 21-22 13-14 37°	CM•E7•X12 0 18° 35° 78° 21-22 13-14 37°	CM•E7•X12 0 18° 35° 78° 21-22 13-14 37°	CM•E91X12 0 12° 21-22 13-14 27°
CM•E61X21 0 19° 78° 31-32 13-14 23-24 37°	CM•E62X21 0 19° 78° 31-32 13-14 23-24 37°	CM•E7•X21 0 19° 36° 78° 31-32 13-14 23-24 37°	CM•E7•X21 0 19° 36° 78° 31-32 13-14 23-24 37°	CM•E91X21 0 13° 31-32 13-14 23-24 27°
CM•E61W03 0 18° 78° 11-12 21-22 31-32	CM•E62W03 0 18° 78° 11-12 21-22 31-32	CM•E7•W03 0 18° 35° 78° 11-12 21-22 31-32	CM•E7•W03 0 18° 35° 78° 11-12 21-22 31-32	CM•E91W03 0 12° 11-12 21-22 31-32
CM•E61W30 0 23° 78° 13-14 23-24	CM•E62W30 0 23° 78° 13-14 23-24	CM•E7•W30 0 23° 78° 13-14 23-24	CM•E7•W30 0 23° 78° 13-14 23-24	CM•E91W30 0 16° 13-14 23-24
0,330	0,330	0,330	0,330	0,265



Electrical Connection

CM1: three cable inlets for PG 13,5 Cable Gland

CM2: three cable inlets for 1/2" NPT Cable Gland

CM5: three cable inlets for M20 x 1,5 Cable Gland



Operating Head Type

E92 - Multidirectional nylon activator with stainless steel spring

E93 - Stainless steel spring multidirectional actuator

E99 - Pull action with ring

Conformity / (N.C. contact with positive opening operation)
 Max actuation speed [m/s]
 Min. force [N] or torque [Nm]: actuation / positive opening operation

1,0
0,18 / -

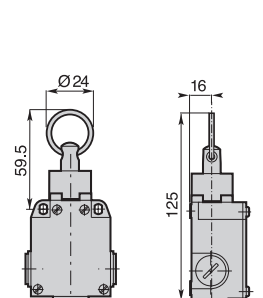
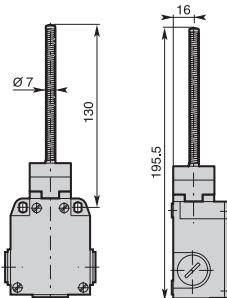
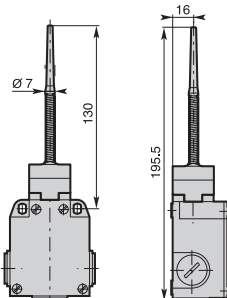
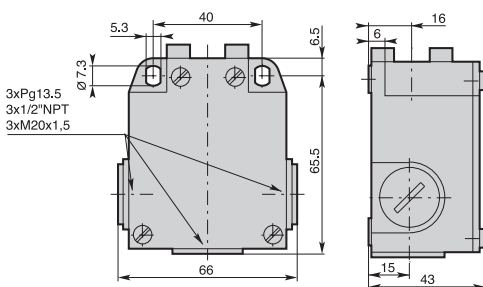
1,0
0,18 / -

0,5
25 / -

Additional Technical Datas

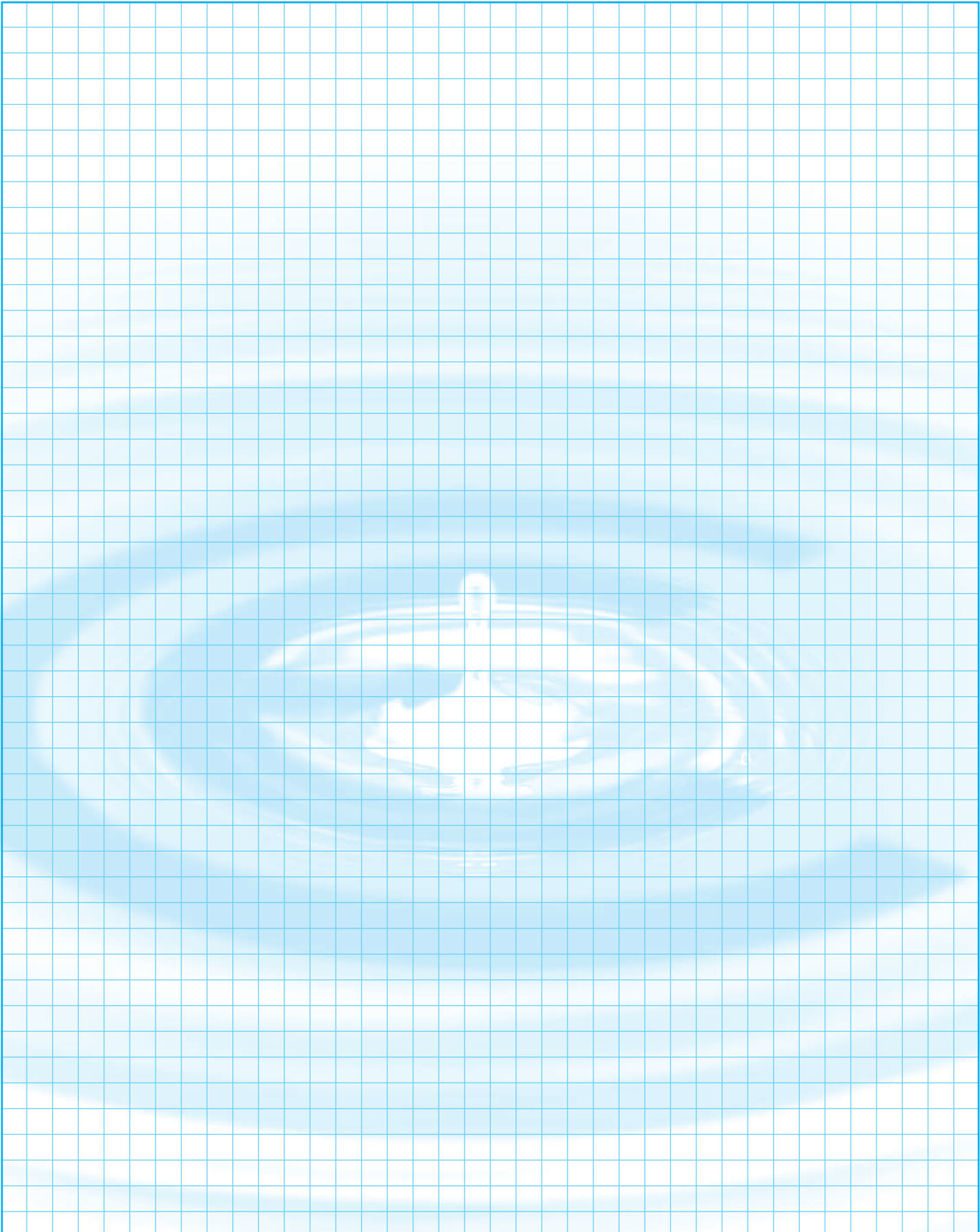
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Z11 Snap Action Contacts (1NO + 1NC)		Operation Diagram			
X11 Non overlapping Slow Action Contacts (1NO + 1NC)		Operation Diagram			
Y11 Overlapping Slow Action Contacts (1NO + 1NC)		Operation Diagram			
W02 Slow Action Contacts (2NC)		Operation Diagram			
W20 Slow Action Contacts (2NO)		Operation Diagram			
Z02 Snap Action Contacts (2NC)		Operation Diagram			
X12 Non overlapping Slow Action Contacts (1NO + 2NC)		Operation Diagram			
X21 Non overlapping Slow Action Contacts (2NO + 1NC)		Operation Diagram			
W03 Simultaneous Slow Action Contacts (3NC)		Operation Diagram			
W30 Simultaneous Slow Action Contacts (3NO)		Operation Diagram			
Weight (packing per unit)	[kg]		0,265	0,270	0,270

Dimensions (in mm)





NOTES

A large rectangular area filled with a light blue grid pattern, intended for taking notes. The grid lines are thin and evenly spaced.

Electrical Connection

Pre-Wired

Cable: PVC 4 x 0,75 mm²

Length: 1 m.

(Different cables or lengths, page 13)



Operating Head Type

G11 - Plain plunger

G1 - Roller plunger

G12: metal roller
G13: nylon roller

G1 - Cross roller plunger

G14: metal roller
G15: nylon roller

Conformity / Ⓢ (N.C. contact with positive opening operation)

Max actuation speed [m/s]

Min. force [N] or torque [Nm]: actuation / positive opening operation

0,5

15 / 30

0,1

10 / 30

0,1

10 / 30

Additional Technical Datas

Z

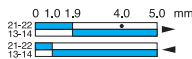
Snap Action
Contacts
(1NO + 1NC)



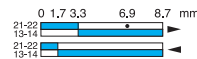
Order Code

Operation Diagram

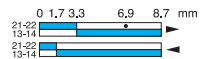
EP1G11Z



EP1G1•Z



EP1G1•Z



X

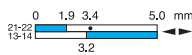
Non overlapping
Slow Action
Contacts
(1NO + 1NC)



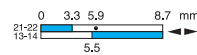
Order Code

Operation Diagram

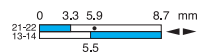
EP1G11X



EP1G1•X



EP1G1•X



Weight (packing per unit)

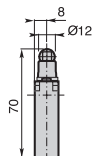
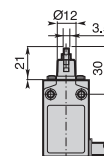
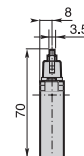
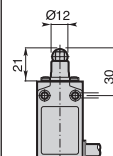
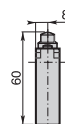
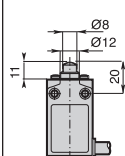
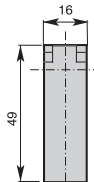
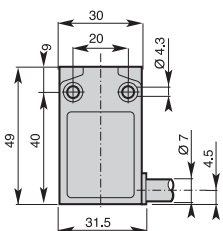
[kg]

0,125

0,130

0,130

Dimensions (in mm)

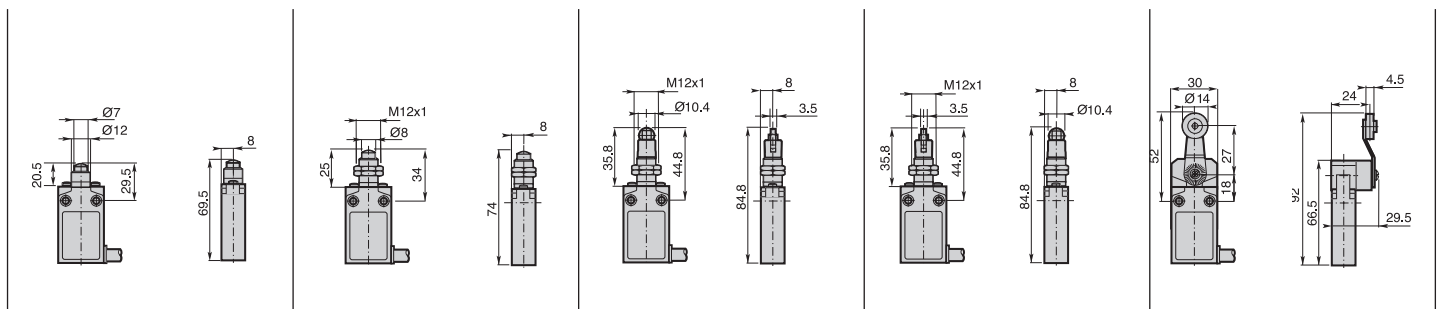




G16 - Plain plunger with dust protection cup	G21 - Plain plunger with fixing nuts	G2• - Roller plunger with fixing nuts G22: Metal roller G23: Nylon roller	G2• - Cross roller plunger with fixing nuts G24: metal roller G25: nylon roller	G4• - Ø 14 roller lever G41: nylon roller G42: metal roller G43: ball bearing
0,5 15 / 30	0,5 15 / 30	0,1 10 / 30	0,1 10 / 30	1,5 0,08 / 0,28

EP1G16Z 0 1.0 1.9 4.0 5.0 mm 21-22 13-14	EP1G21Z 0 1.0 1.9 4.0 5.0 mm 21-22 13-14	EP1G2•Z 0 1.7 3.3 6.9 8.7 mm 21-22 13-14	EP1G2•Z 0 1.7 3.3 6.9 8.7 mm 21-22 13-14	EP1G4•Z 0 14° 26° 58° 74° 21-22 13-14
EP1G16X 0 1.9 3.4 5.0 mm 21-22 13-14 3.2	EP1G21X 0 1.9 3.4 5.0 mm 21-22 13-14 3.2	EP1G2•X 0 3.3 5.9 8.7 mm 21-22 13-14 5.5	EP1G2•X 0 3.3 5.9 8.7 mm 21-22 13-14 5.5	EP1G4•X 0 27° 49° 74° 21-22 13-14 45°

0,130	0,140	0,145	0,145	0,175
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Electrical Connection

Pre-Wired

Cable: PVC 4 x 0,75 mm²

Length: 1 m.

(Different cables or lengths, page 13)



Operating Head Type

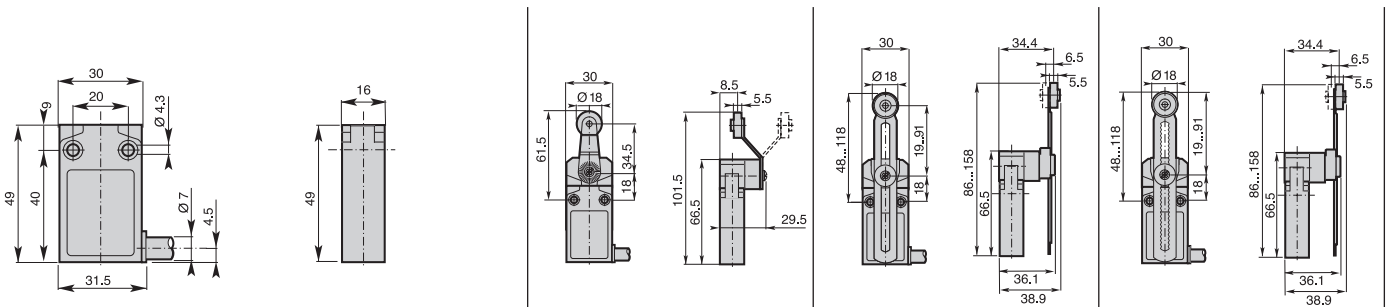
	G45 - Ø 18 nylon roller lever	G51 - Adjustable lever with Ø 18 nylon roller	G5100 - Adjustable toothed lever (step 2 mm) with Ø 18 nylon roller
Conformity / Ⓢ (N.C. contact with positive opening operation)			
Max actuation speed [m/s]	1,5	1,5	1,5
Min. force [N] or torque [Nm]: actuation / positive opening operation	0,08 / 0,28	0,08 / 0,28	0,08 / 0,28

Additional Technical Datas

Z Snap Action Contacts (1NO + 1NC)	Order Code	EP1G45Z	EP1G51Z	EP1G5100Z
	Operation Diagram			
X Non overlapping Slow Action Contacts (1NO + 1NC)	Order Code	EP1G45X	EP1G51X	EP1G5100X
	Operation Diagram			

Weight (packing per unit)	[kg]	0,180	0,190	0,190
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Dimensions (in mm)





G61 - Nylon actuator with stainless steel spring	G7 - Adjustable rod lever G71: stainless steel rod Ø3 G72: fiberglass rod Ø3 G75: square steel rod 3x3	G7 - Adjustable Ø 6 rod lever G73: nylon rod G74: fiberglass rod	G92: Multidirectional nylon actuator with stainless steel spring	G93: Multidirectional actuator with stainless steel spring
1,5 0,08 / -	1,5 0,08 / 0,28	1,5 0,08 / 0,28	1,0 0,10 / -	1,0 0,10 / -

EP1G61Z 	EP1G7•Z 	EP1G7•Z 	EP1G92Z 	EP1G93Z
EP1G61X 	EP1G7•X 	EP1G7•X 		

0,190	0,185	0,200	0,195	0,200

Electrical Connection

Pre-Wired

Cable: PVC 4 x 0,75 mm²

Length: 1 m.

(Different cables or lengths, page 13)



G11 - Plain plunger



G1 - Roller plunger

G12: metal roller
G13: nylon roller



G1 - Cross roller plunger

G14: metal roller
G15: nylon roller

Operating Head Type

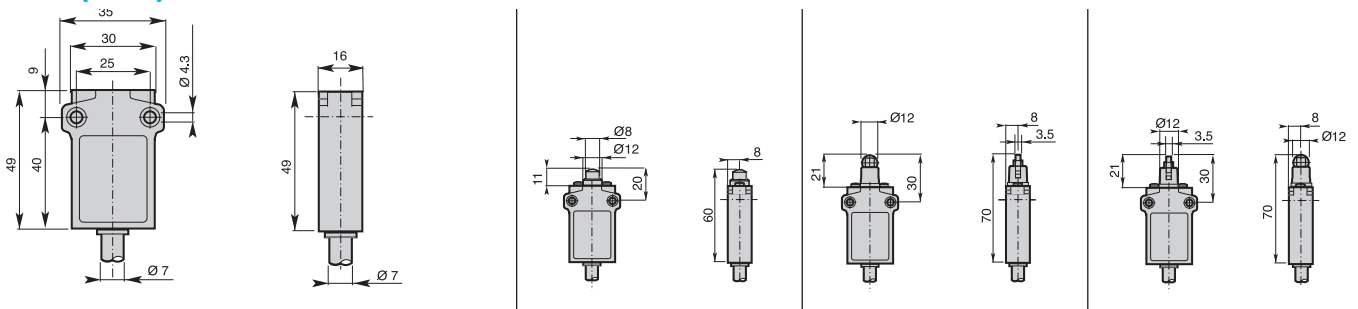
Conformity / Ⓢ (N.C. contact with positive opening operation)
Max actuation speed [m/s]
Min. force [N] or torque [Nm]: actuation / positive opening operation

Additional Technical Datas

Z	Order Code	EP2G11Z	EP2G1•Z	EP2G1•Z
Snap Action Contacts (1NO + 1NC)	Operation Diagram			
X	Order Code	EP2G11X	EP2G1•X	EP2G1•X
Non overlapping Slow Action Contacts (1NO + 1NC)	Operation Diagram			

Weight (packing per unit)	[kg]	0,125	0,130	0,130
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Dimensions (in mm)





G16 - Plain plunger with dust protection cup



G21 - Plain plunger with fixing nuts



G2 - Roller plunger with fixing nuts

G22: Metal roller
G23: Nylon roller



G2 - Cross roller plunger with fixing nuts

G24: metal roller
G25: nylon roller



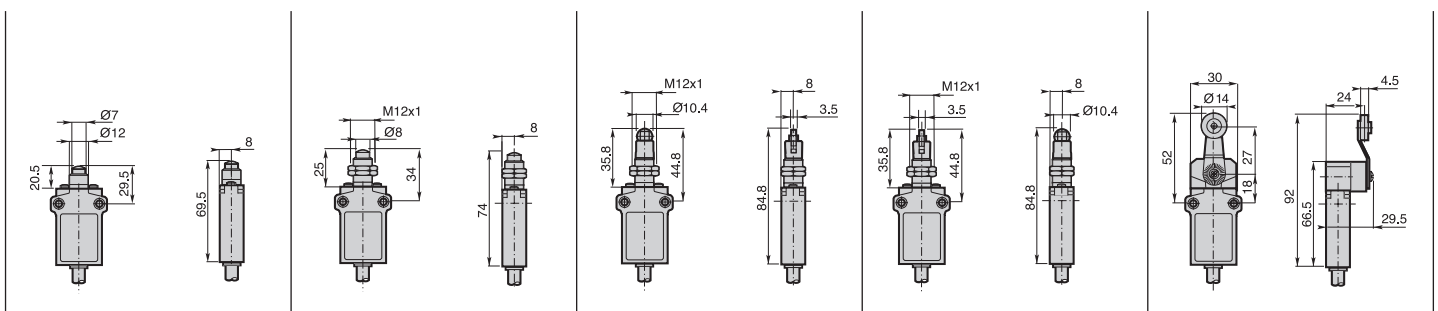
G4 - Ø 14 roller lever

G41: nylon roller
G42: metal roller
G43: ball bearing

0,5 15 / 30	0,5 15 / 30	0,1 10 / 30	0,1 10 / 30	1,5 0,08 / 0,28
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<p>EP2G16Z</p>	<p>EP2G21Z</p>	<p>EP2G2-Z</p>	<p>EP2G2-Z</p>	<p>EP2G4-Z</p>
<p>EP2G16X</p>	<p>EP2G21X</p>	<p>EP2G2-X</p>	<p>EP2G2-X</p>	<p>EP2G4-X</p>

0,130	0,140	0,145	0,145	0,175
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Electrical Connection

Pre-Wired

Cable: PVC 4 x 0,75 mm²

Length: 1 m.

(Different cables or lengths, page 13)



Operating Head Type

G45 - Ø 18 nylon roller lever

G51 - Adjustable lever with Ø 18 nylon roller

G5100 - Adjustable toothed lever (step 2 mm) with Ø 18 nylon roller

Conformity / \ominus (N.C. contact with positive opening operation)
Max actuation speed [m/s]
Min. force [N] or torque [Nm]: actuation / positive opening operation

1,5
0,08 / 0,28

1,5
0,08 / 0,28

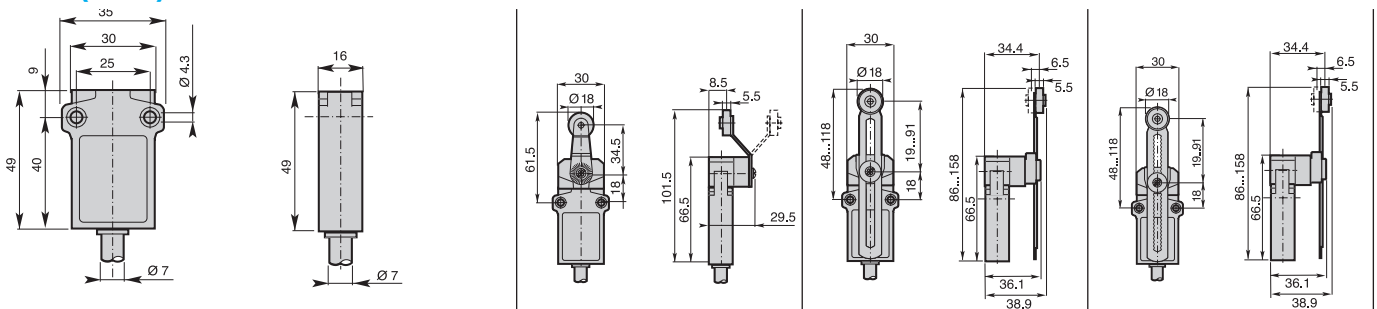
1,5
0,08 / 0,28

Additional Technical Datas

Z	Order Code	EP2G45Z	EP2G51Z	EP2G5100Z
Snap Action Contacts (1NO + 1NC)	Operation Diagram			
Non overlapping Slow Action Contacts (1NO + 1NC)	Operation Diagram			

Weight (packing per unit)	[kg]	0,180	0,190	0,190
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Dimensions (in mm)





G61 - Nylon actuator with stainless steel spring



G7• - Adjustable rod lever

G71: stainless steel rod Ø3
G72: fiberglass rod Ø3
G75: square steel rod 3x3



G7• - Adjustable Ø 6 rod lever

G73: nylon rod
G74: fiberglass rod



G92: Multidirectional nylon actuator with stainless steel spring



G93: Multidirectional actuator with stainless steel spring

1,5 0,08 / -	1,5 0,08 / 0,28	1,5 0,08 / 0,28	1,0 0,10 / -	1,0 0,10 / -
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<p>EP2G61Z</p>	<p>EP2G7•Z</p>	<p>EP2G7•Z</p>	<p>EP2G92Z</p>	<p>EP2G93Z</p>
<p>EP2G61X</p>	<p>EP2G7•X</p>	<p>EP2G7•X</p>		

0,190	0,185	0,200	0,195	0,200

Electrical Connection

Pre-Wired

Cable: PVC 5 x 0,75 mm²

Length: 1 m.

(Different cables or lengths, page 13)



Operating Head Type

G11 - Plain plunger

G1• - Roller plunger

G12: metal roller
G13: nylon roller

G1• - Cross roller plunger

G14: metal roller
G15: nylon roller

Conformity / \rightarrow (N.C. contact with positive opening operation)

Max actuation speed [m/s]

Min. force [N] or torque [Nm]: actuation / positive opening operation

0,5
15 / 30

0,1
10 / 30

0,1
10 / 30

Additional Technical Datas

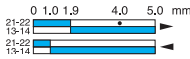
Z Snap Action Contacts
(1NO + 1NC)



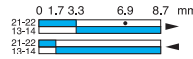
Order Code

Operation Diagram

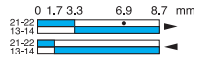
EM1G11Z



EM1G1•Z



EM1G1•Z



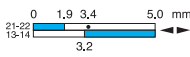
X Non overlapping
Slow Action Contacts
(1NO + 1NC)



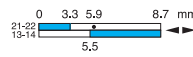
Order Code

Operation Diagram

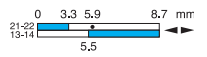
EM1G11X



EM1G1•X



EM1G1•X



Weight (packing per unit)

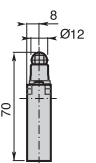
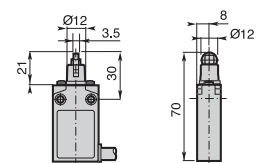
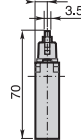
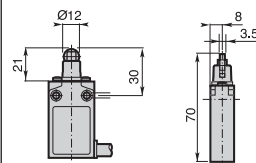
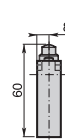
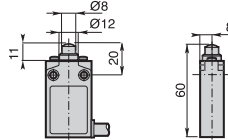
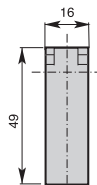
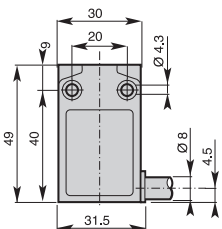
[kg]

0,175

0,180

0,180

Dimensions (in mm)

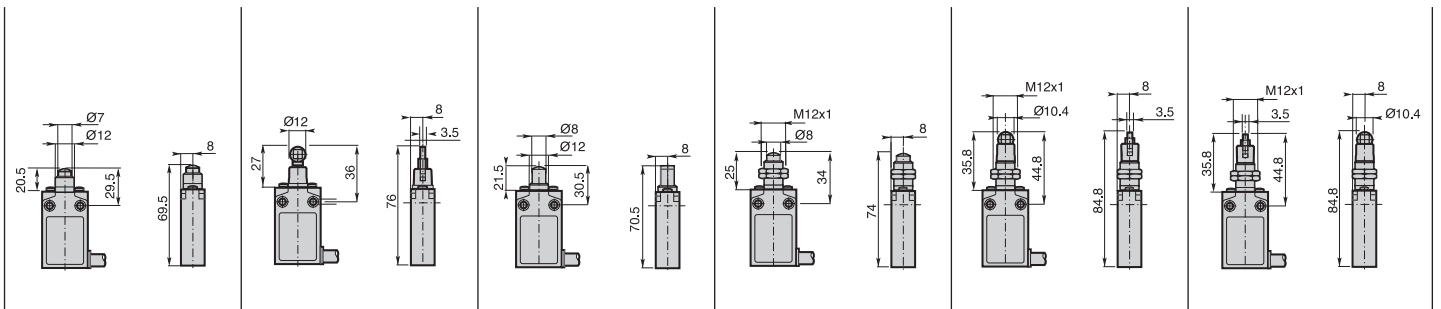




G16 - Plain plunger with dust protection cup	G17 - Metal roller plunger with dust protection cup	G18 - Bevel plunger	G21 - Plain plunger with fixing nuts	G22 - Roller plunger with fixing nuts G22: Metal roller G23: Nylon roller	G24 - Cross roller plunger with fixing nuts G24: metal roller G25: nylon roller
0,5 15 / 30	0,1 10 / 30	0,5 10 / 30	0,5 15 / 30	0,1 10 / 30	0,1 10 / 30

EM1G16Z 0 1.0 1.9 4.0 5.0 mm 21-22 13-14	EM1G17Z 0 1.7 3.3 6.9 8.7 mm 21-22 13-14	EM1G18Z 0 1.7 3.3 6.9 8.7 mm 21-22 13-14	EM1G21Z 0 1.0 1.9 4.0 5.0 mm 21-22 13-14	EM1G2•Z 0 1.7 3.3 6.9 8.7 mm 21-22 13-14	EM1G2•Z 0 1.7 3.3 6.9 8.7 mm 21-22 13-14
EM1G16X 0 1.9 3.4 5.0 mm 21-22 13-14	EM1G17X 0 3.3 5.9 8.7 mm 21-22 13-14	EM1G18X 0 3.3 5.9 8.7 mm 21-22 13-14	EM1G21X 0 1.9 3.4 5.0 mm 21-22 13-14	EM1G2•X 0 3.3 5.9 8.7 mm 21-22 13-14	EM1G2•X 0 3.3 5.9 8.7 mm 21-22 13-14

0,180	0,190	0,185	0,190	0,195	0,195
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Electrical Connection

Pre-Wired

Cable: PVC 5 x 0,75 mm²

Length: 1 m.

(Different cables or lengths, page 13)



Operating Head Type

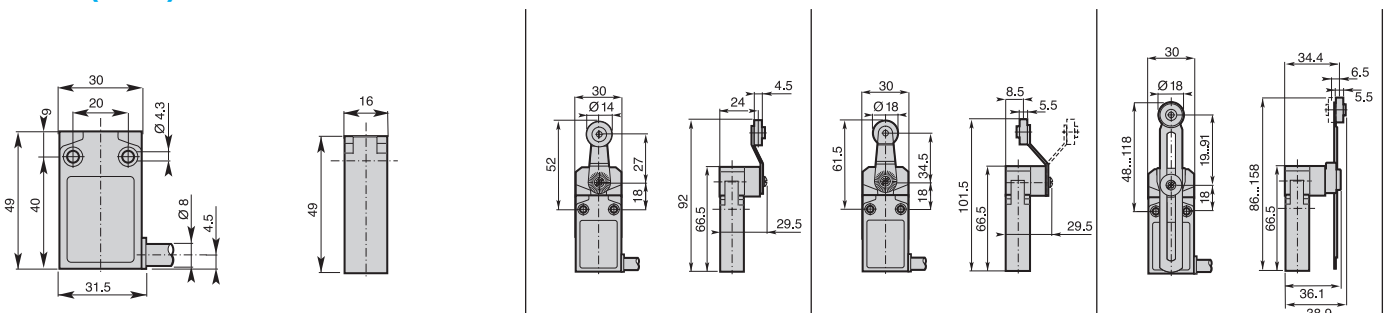
	G4• - Ø 14 roller lever G41: nylon roller G42: metal roller G43: ball bearing	G4• - Ø 18 roller lever G45: nylon roller G46: metal roller	G5• - Adjustable lever with Ø 18 roller G51: nylon roller G53: metal roller
Conformity / Ⓢ (N.C. contact with positive opening operation)			
Max actuation speed [m/s]	1,5	1,5	1,5
Min. force [N] or torque [Nm]: actuation / positive opening operation	0,08 / 0,28	0,08 / 0,28	0,08 / 0,28

Additional Technical Datas

Z Snap Action Contacts (1NO + 1NC)	Order Code	EM1G4•Z	EM1G4•Z	EM1G5•Z
		Operation Diagram		
X Non overlapping Slow Action Contacts (1NO + 1NC)	Order Code	EM1G4•X	EM1G4•X	EM1G5•X
		Operation Diagram		

Weight (packing per unit)	[kg]	0,225	0,230	0,240
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Dimensions (in mm)





G5100 - Adjustable toothed lever (step 2 mm) with Ø 18 nylon roller	G61 - Nylon actuator with stainless steel spring	G7• - Adjustable rod lever G71: stainless steel rod Ø3 G72: fiberglass rod Ø3 G75: square steel rod 3x3	G7• - Adjustable Ø 6 rod lever G73: nylon rod G74: fiberglass rod	G92: Multidirectional nylon actuator with stainless steel spring	G93: Multidirectional actuator with stainless steel spring
1,5 0,08 / 0,28	1,5 0,08 / -	1,5 0,08 / 0,28	1,5 0,08 / 0,28	1,0 0,10 / -	1,0 0,10 / -

EM1G5100Z 0 14° 26° 58° 74° 21-22 13-14 21-22 13-14 21-22 13-14	EM1G61Z 0 14° 26° 74° 21-22 13-14 21-22 13-14 21-22 13-14	EM1G7•Z 0 14° 26° 58° 74° 21-22 13-14 21-22 13-14 21-22 13-14	EM1G7•Z 0 14° 26° 58° 74° 21-22 13-14 21-22 13-14 21-22 13-14	EM1G92Z 0 5° 14° 21-22 13-14 21-22 13-14 21-22 13-14	EM1G93Z 0 5° 14° 21-22 13-14 21-22 13-14 21-22 13-14
EM1G5100X 0 27° 49° 74° 21-22 13-14 45°	EM1G61X 0 27° 74° 21-22 13-14 45°	EM1G7•X 0 27° 49° 74° 21-22 13-14 45°	EM1G7•X 0 27° 49° 74° 21-22 13-14 45°		

0,240	0,240	0,235	0,250	0,245	0,250

Electrical Connection

Pre-Wired

Cable: PVC 5 x 0,75 mm²

Length: 1 m.

(Different cables or lengths, page 13)



Operating Head Type

G11 - Plain plunger

G1• - Roller plunger

G12: metal roller
G13: nylon roller

G1• - Cross roller plunger

G14: metal roller
G15: nylon roller

Conformity / Ⓢ (N.C. contact with positive opening operation)

Max actuation speed [m/s]

Min. force [N] or torque [Nm]: actuation / positive opening operation

0,5
15 / 30

0,1
10 / 30

0,1
10 / 30

Additional Technical Datas

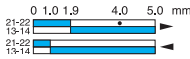
Z Snap Action Contacts
(1NO + 1NC)



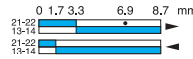
Order Code

Operation Diagram

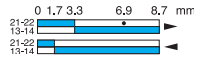
EM2G11Z



EM2G1•Z



EM2G1•Z



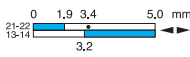
X Non overlapping
Slow Action Contacts
(1NO + 1NC)



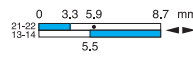
Order Code

Operation Diagram

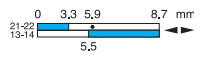
EM2G11X



EM2G1•X



EM2G1•X



Weight (packing per unit)

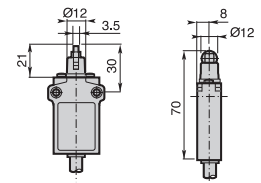
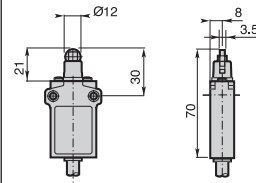
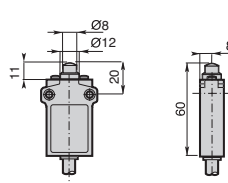
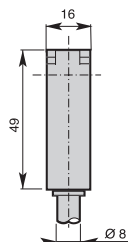
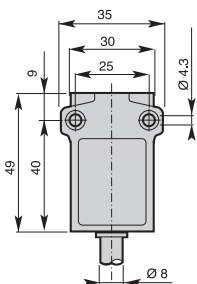
[kg]

0,180

0,185

0,185

Dimensions (in mm)

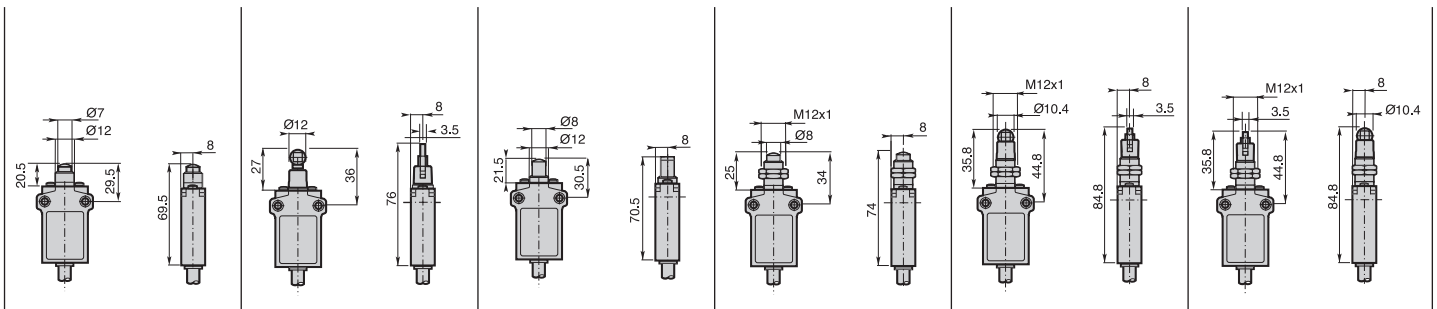




G16 - Plain plunger with dust protection cup	G17 - Metal roller plunger with dust protection cup	G18 - Bevel plunger	G21 - Plain plunger with fixing nuts	G22 - Metal roller plunger with fixing nuts G22: Metal roller G23: Nylon roller	G24 - Cross roller plunger with fixing nuts G24: metal roller G25: nylon roller
0,5 15 / 30	0,1 10 / 30	0,5 10 / 30	0,5 15 / 30	0,1 10 / 30	0,1 10 / 30

EM2G16Z 0 1.0 1.9 4.0 5.0 mm 21-22 13-14 21-22 13-14	EM2G17Z 0 1.7 3.3 6.9 8.7 mm 21-22 13-14 21-22 13-14	EM2G18Z 0 1.7 3.3 6.9 8.7 mm 21-22 13-14 21-22 13-14	EM2G21Z 0 1.0 1.9 4.0 5.0 mm 21-22 13-14 21-22 13-14	EM2G2•Z 0 1.7 3.3 6.9 8.7 mm 21-22 13-14 21-22 13-14	EM2G2•Z 0 1.7 3.3 6.9 8.7 mm 21-22 13-14 21-22 13-14
EM2G16X 0 1.9 3.4 5.0 mm 21-22 13-14 3.2	EM2G17X 0 3.3 5.9 8.7 mm 21-22 13-14 5.5	EM2G18X 0 3.3 5.9 8.7 mm 21-22 13-14 5.5	EM2G21X 0 1.9 3.4 5.0 mm 21-22 13-14 3.2	EM2G2•X 0 3.3 5.9 8.7 mm 21-22 13-14 5.5	EM2G2•X 0 3.3 5.9 8.7 mm 21-22 13-14 5.5

0,185	0,195	0,190	0,195	0,200	0,200
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Electrical Connection

Pre-Wired

Cable: PVC 5 x 0,75 mm²

Length: 1 m.

(Different cables or lengths, page 13)



Operating Head Type

G4• - Ø 14 roller lever G41: nylon roller G42: metal roller G43: ball bearing	G4• - Ø 18 roller lever G45: metal roller G46: nylon roller	G5• - Adjustable lever with Ø 18 roller G51: nylon roller G53: metal roller
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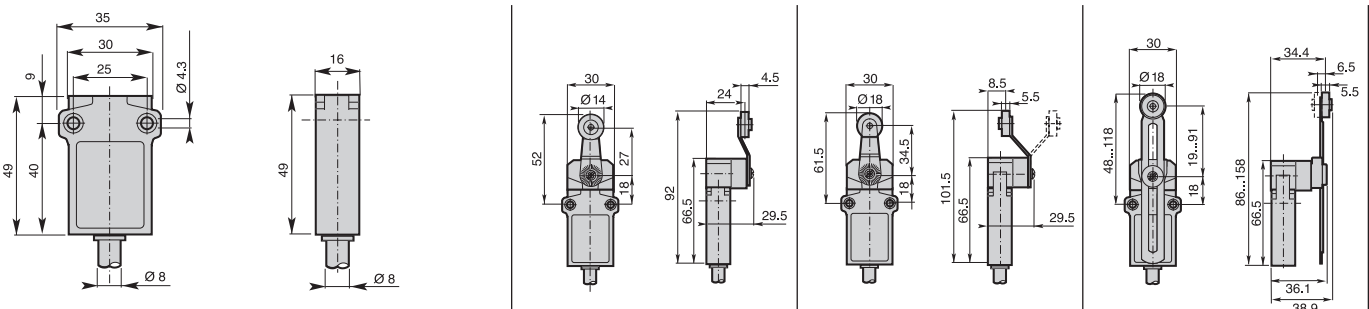
Conformity / (N.C. contact with positive opening operation) Max actuation speed [m/s] Min. force [N] or torque [Nm]: actuation / positive opening operation	1,5 0,08 / 0,28	1,5 0,08 / 0,28	1,5 0,08 / 0,28
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Additional Technical Datas

Z Snap Action Contacts (1NO + 1NC)	Order Code Operation Diagram	EM2G4•Z 	EM2G4•Z 	EM2G5•Z
		EM2G4•X 	EM2G4•X 	EM2G5•X
X Non overlapping Slow Action Contacts (1NO + 1NC)	Order Code Operation Diagram	EM2G4•X 	EM2G4•X 	EM2G5•X

Weight (packing per unit)	[kg]	0,230	0,235	0,245
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Dimensions (in mm)





G5100 - Adjustable toothed lever (step 2 mm) with Ø 18 nylon roller

G61 - Nylon actuator with stainless steel spring

G7• - Adjustable rod lever
G71: stainless steel rod Ø3
G72: fiberglass rod Ø3
G75: square steel rod 3x3

G7• - Adjustable Ø 6 rod lever
G73: nylon rod
G74: fiberglass rod

G92: Multidirectional nylon actuator with stainless steel spring

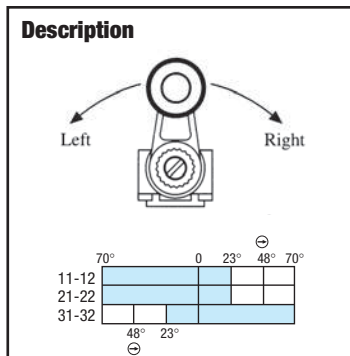
G93: Multidirectional actuator with stainless steel spring

1,5 0,08 / 0,28	1,5 0,08 / -	1,5 0,08 / 0,28	1,5 0,08 / 0,28	1,0 0,10 / -	1,0 0,10 / -
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EM2G5100Z 	EM2G61Z 	EM2G7•Z 	EM2G7•Z 	EM2G92Z 	EM2G93Z
EM2G5100X 	EM2G61X 	EM2G7•X 	EM2G7•X 		

0,245	0,245	0,240	0,255	0,250	0,255

BP•U series 40 mm. polymeric limit switches - IP 65 □ - EN 50041 - 1 cables entry



- The lever on the right open contacts 11-12 and 21-22
- The lever on the left open contacts 31-32
- Positive opening of the contacts on both the directions
- Other levers available

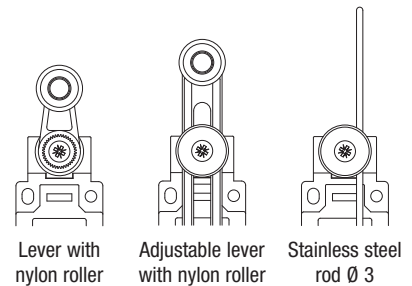
Cable inlets

Replace the symbol • with the number of the required thread

BP1: PG 13.5

BP2: 1/2" NPT

BP5: M 20 x 1,5



Contacts elements

J03 (3NC)

↻ U41	↻ U51	↻ U71
BP•U41J03	BP•U51J03	BP•U71J03

AP• series 30 mm. polymeric limit switches - IP 65 □ - EN 50047 - 1 cables entry

Cable inlets Replace the symbol • with the number of the required thread

AP1: PG 13.5

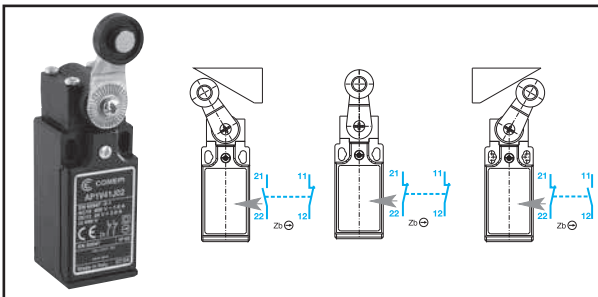
AP2: 1/2" NPT (with adapter)

AP3: PG 11

AP4: M 16 x 1,5

AP5: M 20 x 1,5

AP•V41J02 series

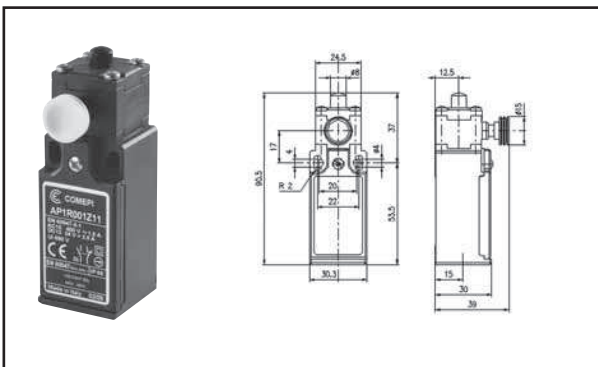


Description

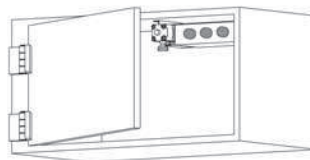
The Switch is settled with 2NC contacts in free position.

The actuation of the lever causes the opening of the contact related to the actuating direction, leaving unchanged the status of the second contact. Both contacts have positive opening operation according to IEC/EN 60947-5-1 standards.

AP•R001Z11 series



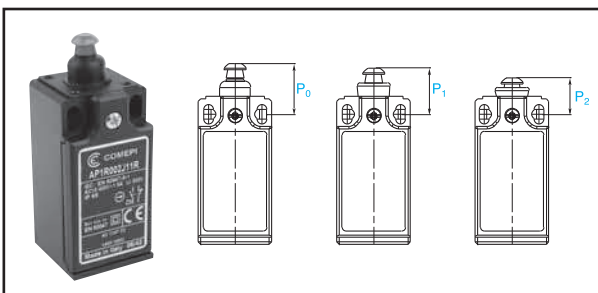
Example of application



Description

This particular limit switch has been developed in order to fulfill all the requests coming from applications in which there is the necessity to simulate the change over in contacts position without acting directly, on the plunger of the switch. The use of this device is particularly useful in the realization of electrical boards in order to simulate the closing of the door simply by pushing the yellow button on the limit switch; the assigned staff will then be able to work on the internal circuit to make modifications, maintenance, etc... The conditions of normal operation are automatically restored once the door of the electric board is closed.

AP•R002J11R series



Description

The switch has been designed specifically for applications on over-speed devices; by actuating the plunger until the operating position P1, the electrical contacts switch and simultaneously the plunger reaches position P2 automatically. The device is restored by pulling the blue plunger until the free position P0. The switch can be supplied with 1NO+1NC contacts (AP•R002J11R) or with 2NC contacts (AP•R002J02R); all the NC contacts have positive opening operation..