

Applications

Easy to use, electromechanical limit switches offer specific qualities:

- Visible operation.
- Able to switch strong currents (up to 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:

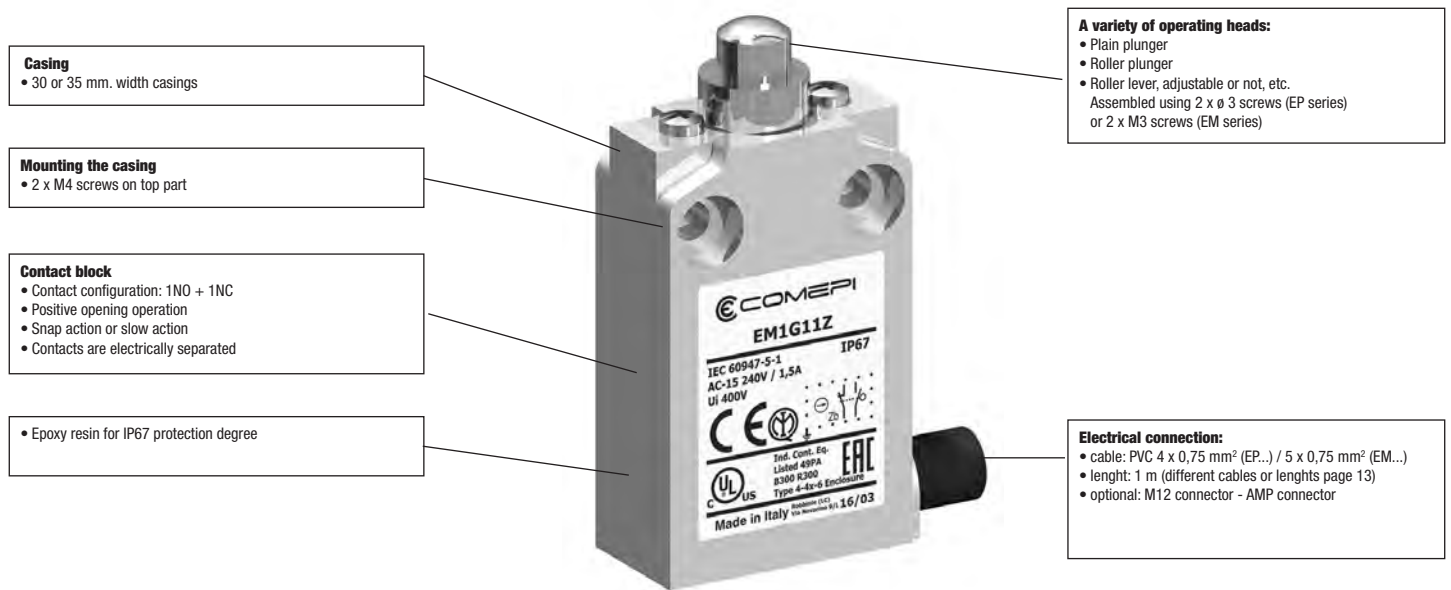
- Presence/absence.
- Positioning and travel limit.
- Objects passing/counting.

Description

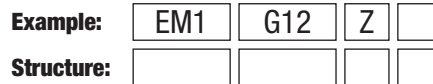
These limit switches, made in thermoplastic material (EP... series) or diecast zinc alloy (EM... series), sealed with epoxy resin at the base on the box, offer a degree of protection IP67

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
U : Standard with UL cable
M: M12 connector
A: AMP connector

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

General Technical Data

	Plastic Casing	Metal Casing
Standards	Devices conform with international IEC 60947-5-1 and European EN 60947-5-1 standards	
Certifications - Approvals	IMQ - UL - EAC	
Air temperature near the device		
- during operation	°C - 25 ... + 70	
- for storage	°C - 40 ... + 70	
Mounting positions	All positions are authorised	
Protection against electrical shocks (acc. to IEC 60536)	Class II	Class I
Degree of protection (according to IEC 60529 and EN 60529)	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 60947-1 and EN 60947-1 - according to UL 508 and CSA C22-2 n° 14	400 V (degree of pollution 3) (250 V for M12 and AMP connectors) B 300, R 300	
Conventional free air thermal current I_{th} (according to IEC 60947-5-1) $\theta < 40$ °C	A	10 (4 A for M12 and AMP connectors)
Short-circuit protection $U_e < 500$ V a.c. - gG (gl) type fuses	A	10
Rated operational current I_e / AC-15 (according to IEC 60947-5-1)	24 V - 50/60 Hz A 120 V - 50/60 Hz A 240 V - 50/60 Hz A	10 (4 A for M12 and AMP connectors) 6 (4 A for M12 and AMP connectors) 3
I_e / DC-13 (according to IEC 60947-5-1)	24 V - d.c. A 125 V - d.c. A 250 V - d.c. A	2.8 0.55 0.27
Switching frequency	Cycles/h	3600
Load factor		0.5
Resistance between contacts	mΩ	25
Mechanical durability		10 Millions of operations

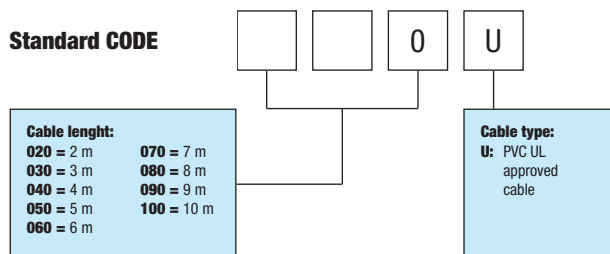
IMQ listed values

Electrical connection:

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

1 m. UL PVC cable 5 x 0,75 mm² (EM... series)

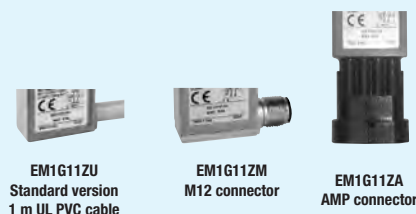
On request: All EP.../EM... limit switches can be supplied with different cable types and lengths according to the following ordering details



EP/EM series with connectors

All the models can be supplied with M12 connector by adding "M" suffix to the ordering code, and with AMP connector by adding suffix "A".

EXAMPLE



Examples

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

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

EM1G11ZM: 30 mm. width limit switch - plain plunger - snap action contact block - M12 connector

EM1G11ZA: 30 mm. width limit switch - plain plunger - snap action contact block - AMP connector

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	G16 - Plain plunger with dust protection cup
Conformity / (N.C. contact with positive opening operation)				
Max actuation speed [m/s]	0,5	0,1	0,1	0,5
Min. force [N] or torque [Nm]: actuation / positive opening operation	15 / 30	10 / 30	10 / 30	15 / 30

Additional Technical Datas

Z	Order Code	EM1G11ZU	EM1G1•ZU	EM1G1•ZU	EM1G16ZU
Snap Action Contacts (1NO + 1NC)					
X	Order Code	EM1G11XU	EM1G1•XU	EM1G1•XU	EM1G16XU
Non overlapping Slow Action Contacts (1NO + 1NC)					

EM1G series with connectors

All the models can be supplied with M12 connector by replacing "U" suffix with "M" suffix to the ordering code, and with AMP connector by using "A" suffix.

EXAMPLE



EM1G11ZU Standard version
1 m PVC cable



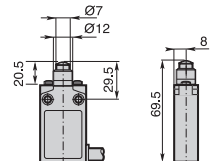
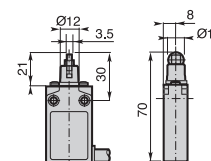
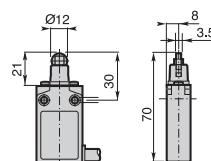
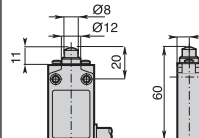
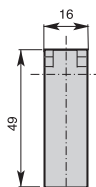
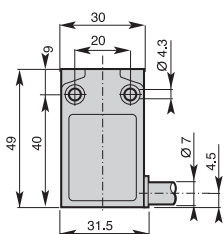
EM1G11ZM
M12 connector



EM1G11ZA
AMP connector

Weight (packing per unit)	[kg]	0,175	0,180	0,180	0,180
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Dimensions (in mm)

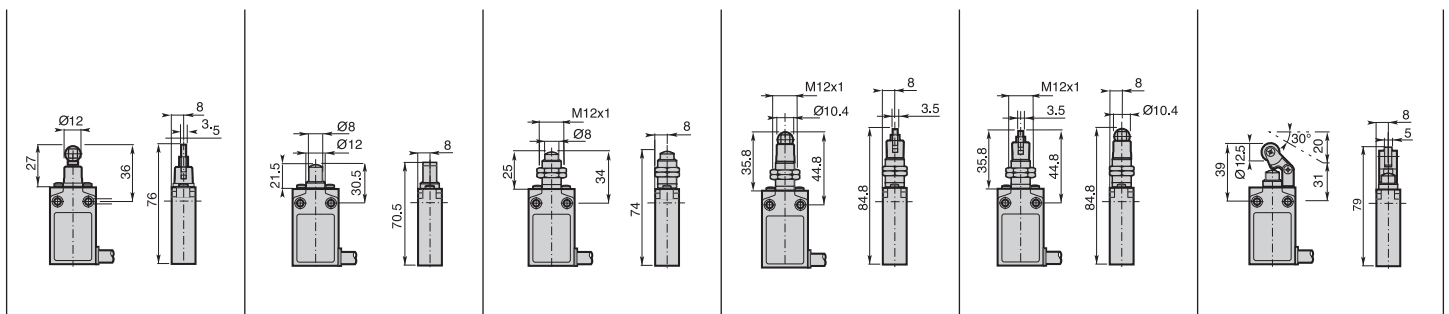




G17 - Metal roller plunger with dust protection cup	G18 - Bevel plunger	G21 - Plain plunger with fixing nuts	G22 - Roller plunger with fixing nuts G22: Metal roller G23: Nylon roller	G25 - Cross roller plunger with fixing nuts G24: metal roller G25: nylon roller	G31 - Nylon roller lever
0,1 10 / 30	0,5 10 / 30	0,5 15 / 30	0,1 10 / 30	0,1 10 / 30	1,0 7 / 24

EM1G17ZU 	EM1G18ZU 	EM1G21ZU 	EM1G22ZU 	EM1G25ZU 	EM1G31ZU
EM1G17XU 	EM1G18XU 	EM1G21XU 	EM1G22XU 	EM1G25XU 	EM1G31XU

0,190	0,185	0,190	0,195	0,195	0,180
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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

	G38 - Adjustable nylon roller lever	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]	1,0	1,5	1,5	1,5
Min. force [N] or torque [Nm]: actuation / positive opening operation	7 / 24	0,08 / 0,28	0,08 / 0,28	0,08 / 0,28

Additional Technical Datas

Z	Order Code	EM1G38ZU	EM1G4•ZU	EM1G4•ZU	EM1G5•ZU
Snap Action Contacts (1NO + 1NC)					
X	Order Code	EM1G38XU	EM1G4•XU	EM1G4•XU	EM1G5•XU
Non overlapping Slow Action Contacts (1NO + 1NC)					

EM1G series with connectors

All the models can be supplied with M12 connector by replacing "U" suffix with "M" suffix to the ordering code, and with AMP connector by using "A" suffix.

EXAMPLE



EM1G11ZU Standard version
1 m PVC cable



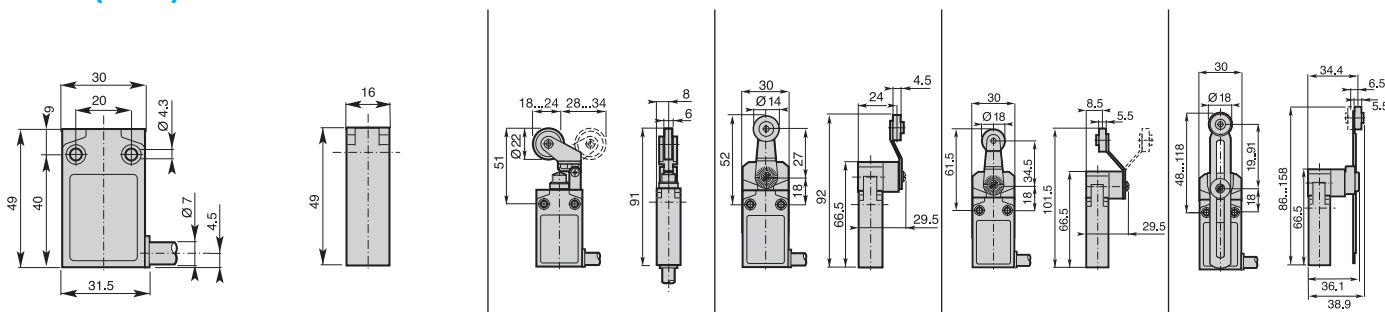
EM1G11ZM
M12 connector



EM1G11ZA
AMP connector

Weight (packing per unit)	[kg]	0,185	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	0,1 10 / 30	1,0 0,10 / -

EM1G5100ZU 	EM1G61ZU 	EM1G7•ZU 	EM1G7•ZU 	EM1G92ZU 	EM1G93ZU
EM1G5100XU 	EM1G61XU 	EM1G7•XU 	EM1G7•XU 		

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

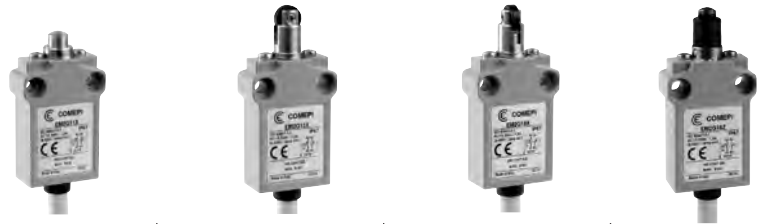
Electrical Connection

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	G16 - Plain plunger with dust protection cup
Conformity / (N.C. contact with positive opening operation)				
Max actuation speed [m/s]	0,5	0,1	0,1	0,5
Min. force [N] or torque [Nm]: actuation / positive opening operation	15 / 30	10 / 30	10 / 30	15 / 30

Additional Technical Datas

Z	Order Code	EM2G11ZU	EM2G1•ZU	EM2G1•ZU	EM2G16ZU
Snap Action Contacts (1NO + 1NC)					
X	Order Code	EM2G11XU	EM2G1•XU	EM2G1•XU	EM2G16XU
Non overlapping Slow Action Contacts (1NO + 1NC)					

EM2G series with connectors

All the models can be supplied with M12 connector by replacing "U" suffix with "M" suffix to the ordering code, and with AMP connector by using "A" suffix.

EXAMPLE



EM2G11ZU Standard version
1 m PVC cable



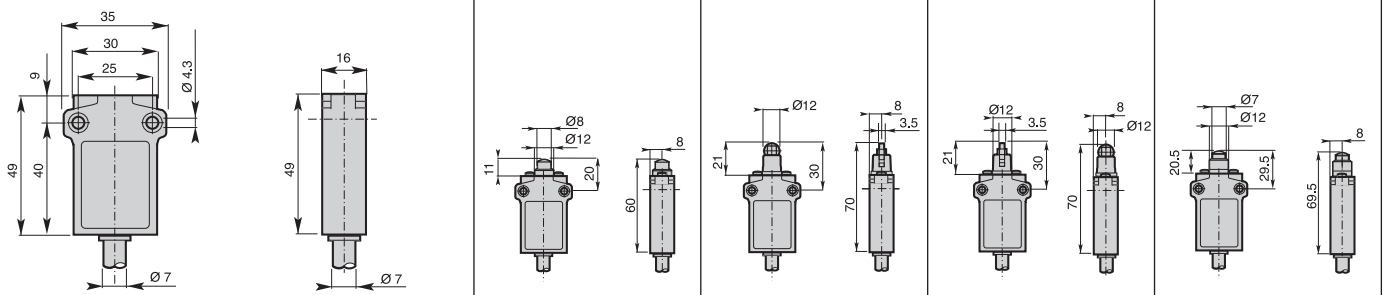
EM2G11ZM
M12 connector



EM2G11ZA
AMP connector

Weight (packing per unit)	[kg]	0,180	0,185	0,185	0,185
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Dimensions (in mm)





G17 - Metal roller plunger with dust protection cup

G18 - Bevel plunger

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

G31 - Nylon roller lever

0,1
10 / 30



0,5
10 / 30



0,5
15 / 30



0,1
10 / 30



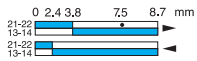
0,1
10 / 30



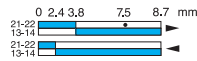
1,0
7 / 24



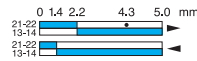
EM2G17ZU



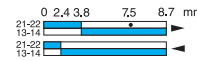
EM2G18ZU



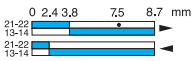
EM2G21ZU



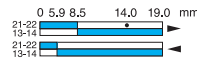
EM2G2•ZU



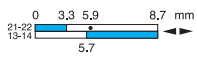
EM2G2•ZU



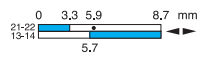
EM2G31ZU



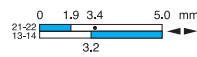
EM2G17XU



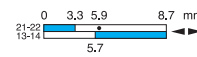
EM2G18XU



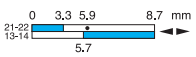
EM2G21XU



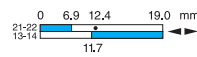
EM2G2•XU



EM2G2•XU



EM2G31XU



0,195

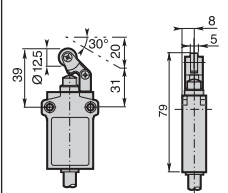
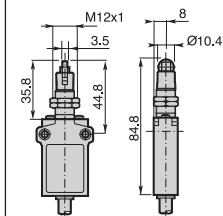
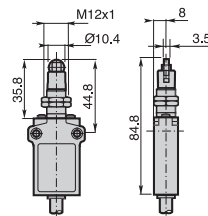
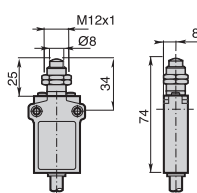
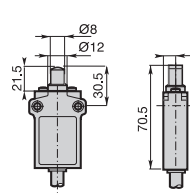
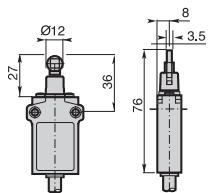
0,190

0,195

0,200

0,200

0,185



Electrical Connection

Pre-Wired

Cable: PVC 5 x 0,75 mm²

Length: 1 m.

(Different cables or lengths, page 13)



Operating Head Type

G38 - Adjustable nylon roller lever

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

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 7 / 24	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	Order Code	EM2G38ZU	EM2G4•ZU	EM2G4•ZU	EM2G5•ZU
Snap Action Contacts (1NO + 1NC)					
X	Order Code	EM2G38XU	EM2G4•XU	EM2G4•XU	EM2G5•XU
Non overlapping Slow Action Contacts (1NO + 1NC)					

EM2G series with connectors

All the models can be supplied with M12 connector by replacing "U" suffix with "M" suffix to the ordering code, and with AMP connector by using "A" suffix.

EXAMPLE



EM2G11ZU Standard version
1 m PVC cable



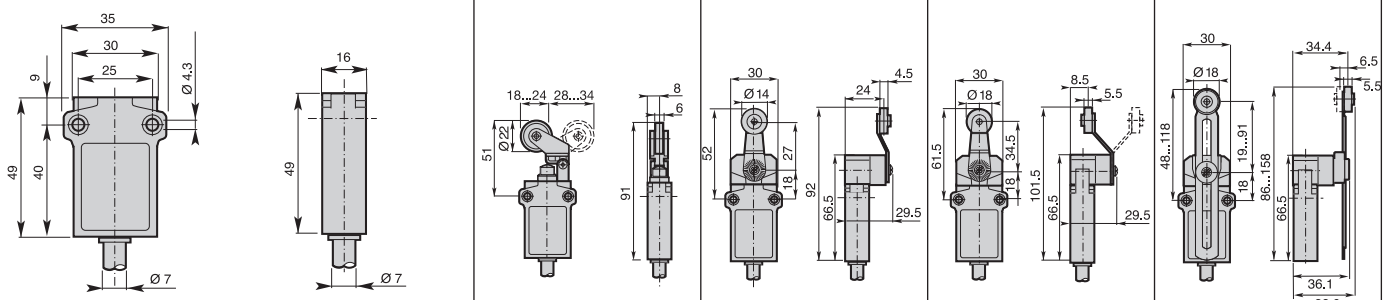
EM2G11ZM
M12 connector



EM2G11ZA
AMP connector

Weight (packing per unit)	[kg]	0,190	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	0,1 10 / 30	1,0 0,10 / -

EM2G5100ZU 	EM2G61ZU 	EM2G7•ZU 	EM2G7•ZU 	EM2G92ZU 	EM2G93ZU
EM2G5100XU 	EM2G61XU 	EM2G7•XU 	EM2G7•XU 		

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