

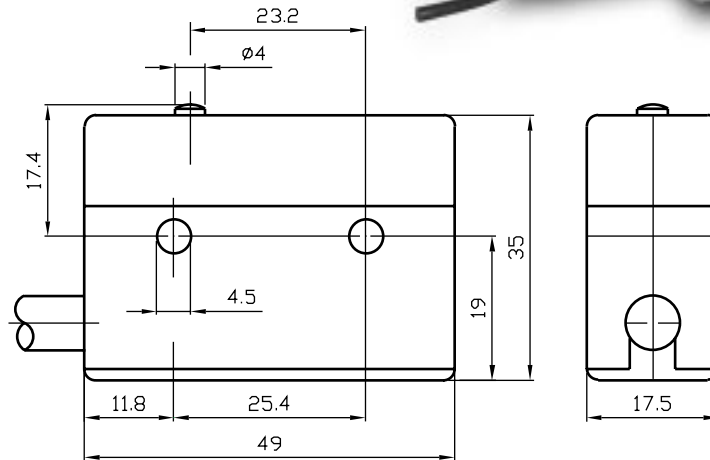
# SERIES MP210 & DERIVATIVES

## MP210


### MICROSWITCHES

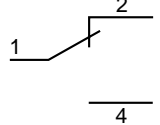
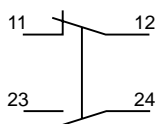
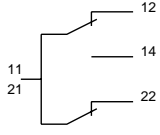
#### IP67 & IP68

The microswitches MP210 & derivatives are snap-action changeovers, simple or double switching action, connection by directly overmoulded cable. By wiring the 5 terminals in different combinations, you can obtain electrical circuits to 3, 4 or 5 wires.



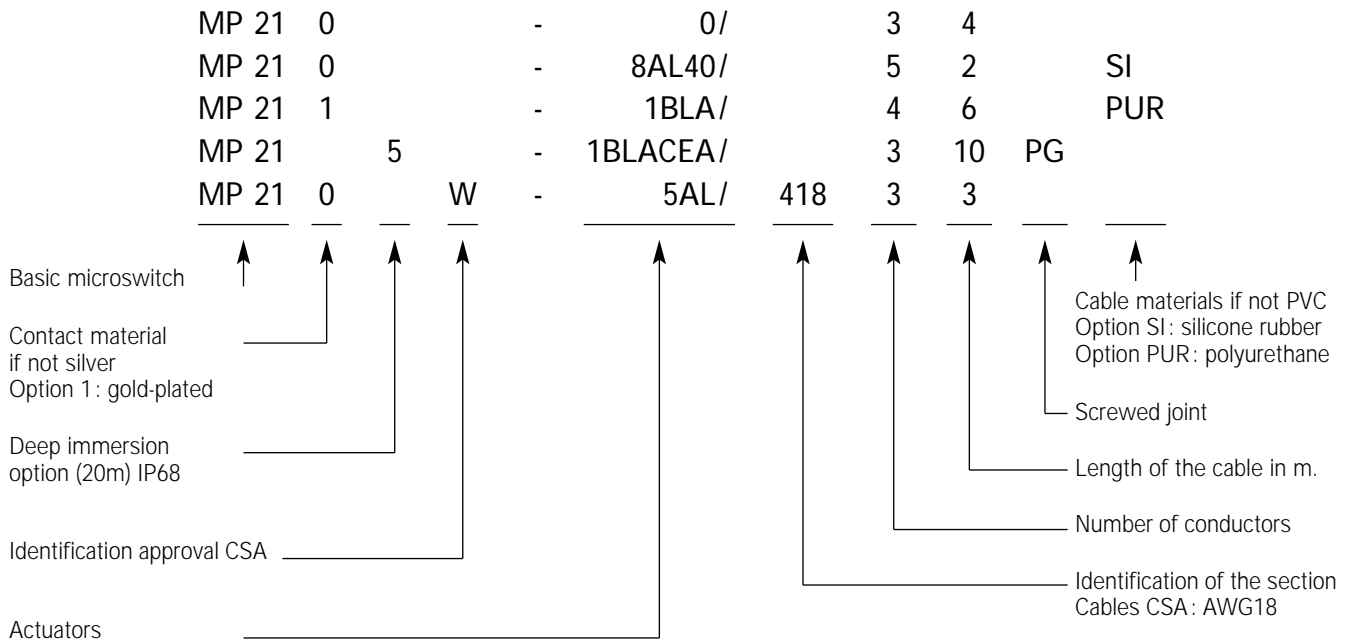
### GENERAL CHARACTERISTICS, MP210 TYPES

Approval,	:	 , 10A (2 x 5) 250VAC
switching rates	:	CSA , 6A 250VAC, 0,5A 125VDC, 0,25A 250VDC
Degree of protection, MP210	:	IP67
MP215	:	IP68
Class of protection	:	II
Micro-switching	:	μ
Contact-gap	:	0,8 mm
Up to standard	:	EN61058-1:92 + A1:93
Frequent functioning	:	50 E3
Mechanical life	:	50 x 10 <sup>6</sup> operations
Snap-action mechanism	:	Beryllium coppers leaf spring with self-cleaning contacts
Actuators	:	Overall dimensions in stainless steel
Dimensions	:	DIN 41 635, E-form

<p><b>CHANGEOVER</b></p> <p>The fixed contact terminals are wired in parallel when the cable is connected. The two closed contacts (12) and (22), on the one hand, and the two open contacts (14) and (24), on the other, form a changeover with terminal (1) in common. this arrangement of parallel contacts doubles the reliability of the switch</p>	<p>Designation: <b>MP210-0/3..</b></p> 
<p><b>OFF-ON CIRCUIT</b></p> <p>Here, the common terminal is not wired producing two separate circuits with no common terminal. The strip merely switches between the fixed contacts. This variant is recommended for heavy loads because of the simultaneous opening of a double contact gap.</p>	<p>Designation: <b>MP210-0/4..</b></p> 
<p><b>GENERAL CIRCUIT</b></p> <p>In this version, the overmoulded cable is wired to all of the connecting terminals thus allowing for all possibilities which makes it particularly suitable for prototype development and testing purposes. However, the cable is more rigid and the diameter approaching 9.0mm.</p>	<p>Designation: <b>MP210-0/5..</b></p> 

# REFERENCE CODE OF THE ARTICLE

# SERIES MP210 & DERIVATIVES



<b>Housing:</b>	PA6T/X reinforced with glass fibre Auto-extinguishing according to UL94V-O Certified temperature	- 40°C to + 130°C
<b>Membrane:</b>	Fluorsilicone rubber MFO	- 40°C to + 175°C
<b>Cable:</b>	PVC <b>SI</b> Silicone rubber <b>PUR</b> polyurethane rubber	- 20°C to + 70°C - 40°C to + 150°C - 40°C to + 90°C

## DESCRIPTION AND MICROSWITCHES SWITCHING DIAGRAMS, SERIES MP210

DESIGNATION OF CONNECTION CABLES	POLYVINYLE CHLORID (PVC)	POLYURETHANE Designation : PUR	SILICONE Designation : SI
<b>Designation</b>	<b>MP210-0/3..</b>	<b>MP210-0/3..PUR</b>	<b>MP210-0/3..SI</b>
<b>Changeover</b>			
<b>Designation</b>	<b>MP210-0/4..</b>	<b>MP210-0/4..PUR</b>	<b>MP210-0/4..SI</b>
<b>OFF-ON Switch</b>			
<b>Designation</b>	<b>MP210-0/5.. or -0/5..PUR</b>		
<b>General Circuit</b> Coloured Leads or Numbered Leads			<p><i>According to the availability of the market we reserve ourselves the right to modify the colors of identification of wire connection.</i></p>

# MP210 MICROSWITCH – REVERSE CABLE OUTLET

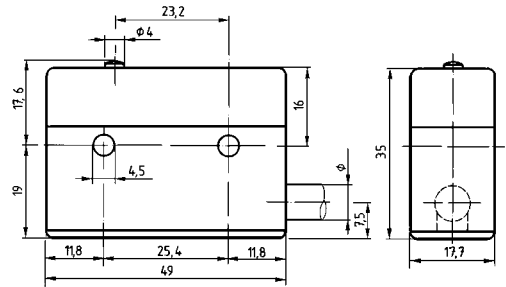
Designation «S»

DESIGNATION: MP210-0/...S

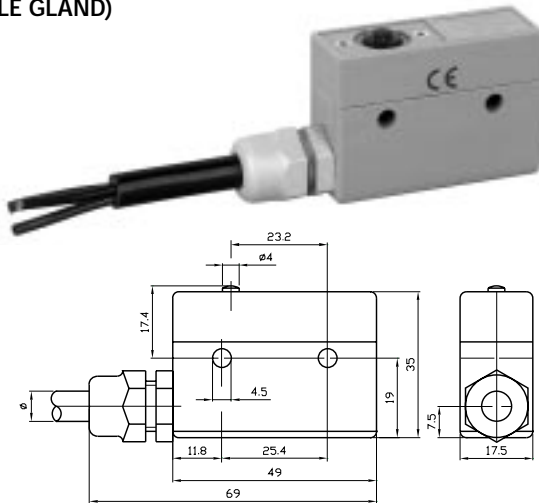
The cable outlet on the MP210 series of microswitches is reversed as compared to that on the MP110-0 + MP100 socket assembly. In order that the two units may be interchangeable, the dimension of the microswitch fixing holes being the same, the cable outlet can be reversed in the MP210 series.

This variation can be effected only with the following models:

- MP210-0/3.. Changeover switch becomes : MP210-0/3..S
- MP210-0/4.. Off-On switch becomes : MP210-0/4..S



## MP210 SERIES SEALED MICROSWITCH + STUFFING BOX (CABLE GLAND)



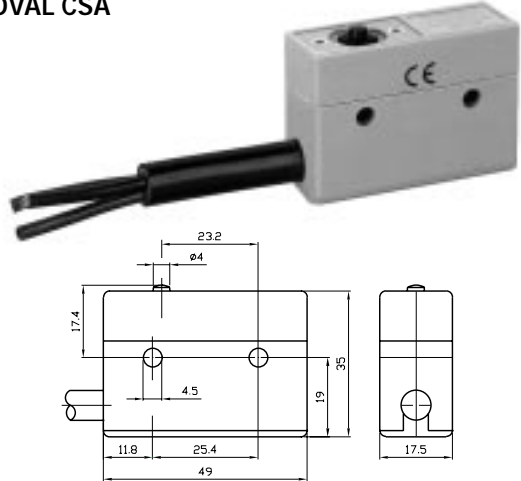
MP210-0/.. PG

For severe operating conditions, when the length of cables used is considerable and the cable is subject to tugging and twisting strains where it leaves the switching housing, we recommend that the switch outlet be fitted with a stuffing box (cable gland). In certain environments (such as attack by chemical agents) where the diameter of the cable may alter, this ensures a constant degree of protection.

**STUFFING BOX:** Type PG7  
 (CABLE GLAND) Glass-fibre reinforced Polyamide, light grey  
 Washer of Perbunan N.  
 Temperature: -20°C to + 80°C

This variant is not possible for cables with a diameter in less of 7.5mm.

## MP210 SERIES SEALED MICROSWITCH APPROVAL CSA



MP210W-0/418/3..

A variant on the standard model overmoulded with a connection cable according to CSA standard. Thus, the whole could be approved according to CSA standard of which we have the certificate at disposal.


The dimension is identical and the MP210W-0/418/3.. can receive the complete range of our actuators.

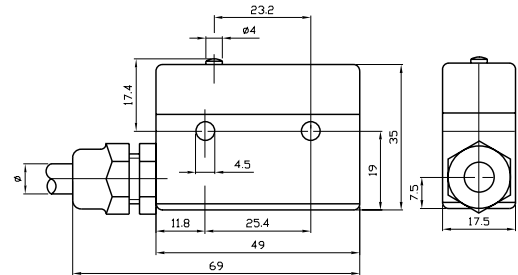
DESCRIPTION DESIGNATION	SWITCHING DIAGRAM	DESCRIPTION DESIGNATION	SWITCHING DIAGRAM
MP210-0/3.PG  For use with standard 3x1mm <sup>2</sup> cables. Switching rating: 10 A 250 VAC		MP210W-0/418/3..  Connecting cable sheath neoprene black, type SJOW conductors AWG18  Switching rating: 6 A 250 VAC  Temperatures -40°C to +90°C	<p>The green conductor is not used</p>
MP210-0/475/4.. PG  For use with standard 4x0.75 mm <sup>2</sup> cables. Switching rating: 6 A 250 VAC		Command characteristics opposite, page 25	

# CHARACTERISTICS OF COMMAND SERIES MP210 – MICROSWITCH MP215 CONTINUOUS IMMERSION IP68

## GENERAL CHARACTERISTICS

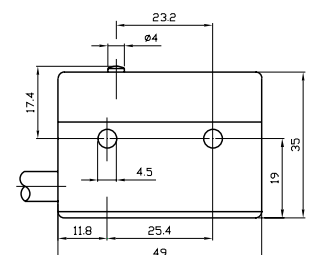
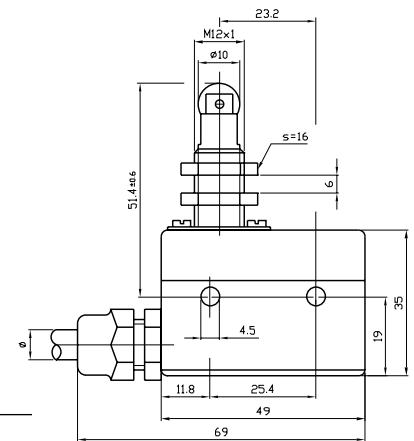
We can supply a microswitch of the same dimensions as the MP210-0/3.PG that is a variant thereon and which requires an increased actuating force making it suitable for operation under several meters of liquid – generally water. The reason for this increased force is that, at a certain depth, the pressure of the water on the membrane can cause a switch with a normal actuating force to operate automatically.

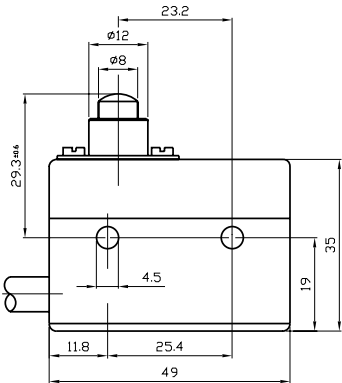
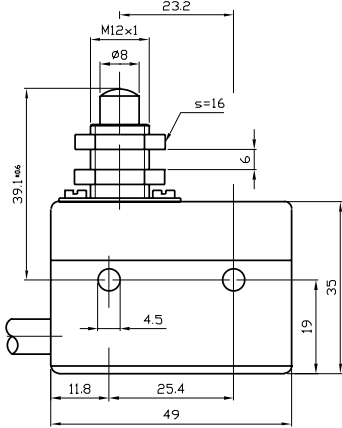
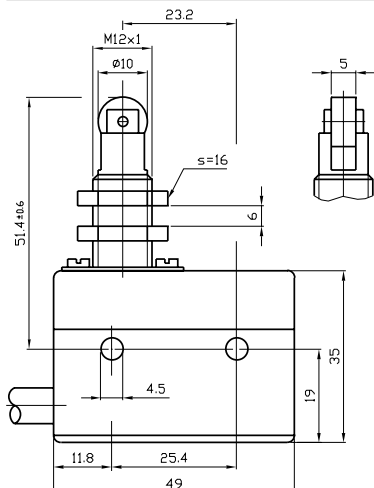
- Approvals : 
- Switching rating : 10A (2x5) 250VAC
- Mechanical life : 10 x 10<sup>6</sup> operations
- Connection : Over-moulded cable with PG7 stuffing box (cable gland).  
Does not exist for general circuit, 5 leads.
- Degree of protection : **IP68**  
Maximum immersion depth of **20 m in water**.
- Actuators : Use only telescopic plungers.  
**ATTENTION**: modified internal mechanism – Code **CEA**  
Amended designation: **1BLACEA, 1ACEA**



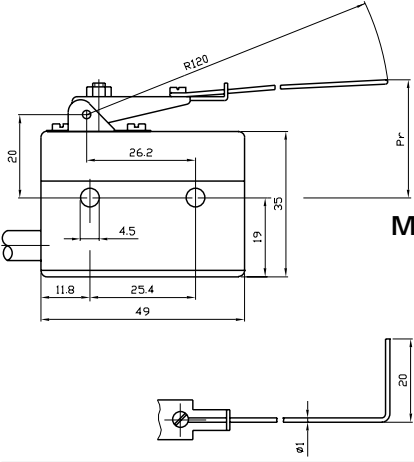
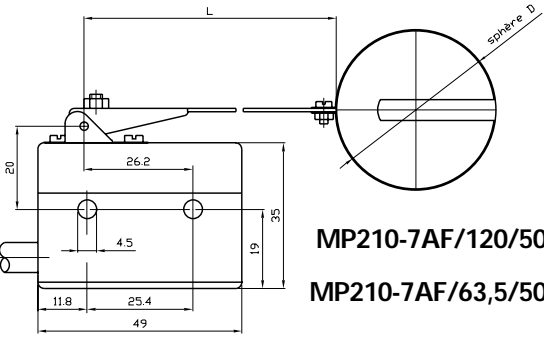
MP215-0/3.PG

ACTUATING FORCE Fa max. (N)	RELEASE FORCE Fr min (N)	FREE POSITION Pr (mm)	OPERATING POSITION Pa (mm)	OVER-TRAVEL sr min. (mm)	DIFFERENTIAL MOVEMENT sd max. (mm)	DESIGNATION
12,5	6,0	51,4 ± 0,6	50,4 ± 0,3	5,0	0,12	MP215-1BLACEA/..PG
12,5	6,0	17,4 ± 0,5	16,5 ± 0,3	0,25	0,10	MP215-0/..
6,0	2,5	17,4 ± 0,5	16,5 ± 0,3	0,25	0,10	MP210W-0/418/3..
6,0	2,2	17,4 ± 0,5	16,5 ± 0,3	0,25	0,10	MP210-0/..



DESIGNATION	ACTUATING FORCE Fa max. (N)	RELEASE FORCE Fr min (N)	FREE POSITION Pr (mm)	OPERATING POSITION Pa (mm)	OVER-TRAVEL sr min. (mm)	DIFFERENTIAL MOVEMENT sd max. (mm)
 <p><b>MP210-1S29/..</b></p>	6,0	2,5	29,3 ± 0,6	28,4 ± 0,3	2,0	0,12
 <p><b>MP210-1A/..</b></p>	6,0	2,5	39,1 ± 0,6	38,3 ± 0,3	5,0	0,12
 <p><b>MP210-1BL/..</b></p>	6,0	2,5	51,4 ± 0,6	50,7 ± 0,3	5,0	0,12

ACTUATING FORCE Fa max. (N)	RELEASE FORCE Fr min (N)	FREE POSITION Pr (mm)	OPERATING POSITION Pa (mm)	OVER-TRAVEL sr min. (mm)	DIFFERENTIAL MOVEMENT sd max. (mm)	DESIGNATION
4,5	1,2	31,1 ± 1,5	29,0 ± 1,5	3,5	0,80	MP210-3A/..
4,5	1,2	35,5 ± 1,5	32,5 ± 1,5	3,5	0,90	MP210-5AL/..
4,5	1,2	41,6 ± 1,5	38,6 ± 1,5	3,5	0,90	MP210-6AL/..

DESIGNATION	ACTUATING FORCE Fa max. (N)	RELEASE FORCE Fr min (N)	FREE POSITION Pr (mm)	OPERATING POSITION Pa (mm)	OVER-TRAVEL sr min. (mm)	DIFFERENTIAL MOVEMENT sd max. (mm)
 <p><b>MP210-7C/..</b></p>	0,2	0,05	-	-	-	5,00
 <p><b>MP210-7AF/120/50/..</b> <b>MP210-7AF/63,5/50/..</b></p>	-	-	-	-	-	4,00 2,00

### ACTUATORS, SERIES 7F – LEVER WITH FLOAT

In this variant, a polypropylene float is mounted in an 18/8 stainless spring steel harness fixed to the end of lever 7.

The assembly is used lever downwards which means that it releases the actuator button of the microswitch by means of its own weight and can thus be used to control the lever of a liquid, to ensure safety of a filling process or to give an alarm in case of overflow.

Adapting the length of the lever or the diameter of the float can vary the sensitivity of the assembly. Regulating the screw on the lever arm can set the final level.

Designation: 7F/63.5/50  
7F/120/50

Temperature max. : 100°C

ACTUATING FORCE Fa max. (N)	RELEASE FORCE Fr min (N)	FREE POSITION Pr (mm)	OPERATING POSITION Pa (mm)	OVER-TRAVEL sr min. (mm)	DIFFERENTIAL MOVEMENT sd max. (mm)	DESIGNATION
0.2	0,05	-	-	-	4,00	<b>MP210-8AL120/..</b>
0.4	0,1	-	-	-	2,00	<b>MP210-8AL63,5/..</b>
0.6	0,2	-	-	-	1,20	<b>MP210-8AL40/..</b>
0.6	0,2	47,5 ± 2,0	-	-	2,00	<b>MP210-8CAL12/..</b>

### ACTUATOR SERIES 8C

Identical to actuators of series 8 except that in this case they are fitted with a diam. 12mm roller and a return spring in the actuator arm the radius of which is set at 65mm. Being of a «U» cross-section, this lever is more rigid over this length than the 8AL 63.5mm. The actuator can be supplied with the following types of roller :

	Designations
Standard	8CL12, 8CT12
Designation «A»	8CLA12, 8CTA12
Designation «BZ»	8CLBZ12

In the case of variants «A» and «BZ», the weight of the roller must be taken into account in calculating switching speed and frequency. The roller must be eased back to the free position to avoid bounce.