



# Microswitch - SERIES MP210/220



Series MP210/220

## MP210/220

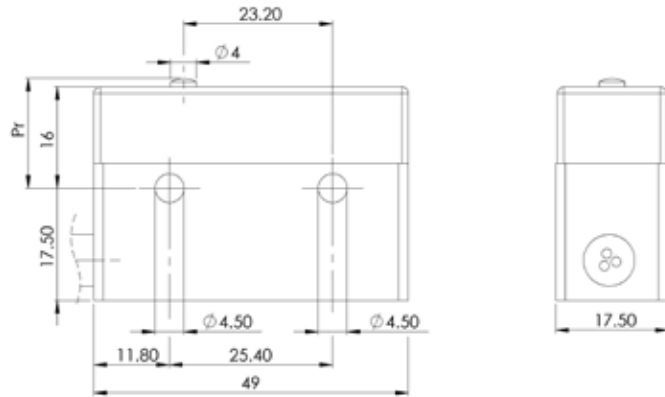
The MP210/220 is an IP67 sealed snap action microswitch with potted cable for demanding industrial applications. All actuators are stainless steel for maximum protection in hazardous industrial environments.

The switch can be supplied with two different electrical circuits.

The MP210 version is a single pole double throw microswitch for a power rating of 250VAC/15A. In its MP220 version a single pole double break circuit can double-break a power line of 250VAC/10A. Operational temperature rating under EN61058 is -40°C to +130°C, but temperature rating as well as the power rating may change based on the selected potted cable material and cross section.



# Description



## MP210

## MP220

<b>Approval</b>	EN 61058-1	250VAC/15A	50'000 cycles	EN 61058-1	250VAC/10A	50'000 cycles
	EN 61058-1	400VAC/10A	50'000 cycles	UL 61058-1	250VAC/10A	50'000 cycles
	UL 61058-1	250VAC/15A	50'000 cycles	Resistive load		
	UL 61058-1	400VAC/10A	50'000 cycles			
	CSA C22.2	250VAC/6A	6'000 cycles*			
*Optional	Resistive load					

<b>Housing</b>	Plastic reinforced with glass fiber (PBT)	Plastic reinforced with glass fiber (PBT)
<b>Pin Button</b>	PC	PC
<b>Membrane</b>	Fluorosilicone - other optional materials available	Fluorosilicone - other optional materials available
<b>Switching Circuit</b>	Change over - snap action with blade spring in copper/beryllium	Double Break - snap action with blade spring in copper/beryllium
<b>Contact</b>	Silver - optional gold	Silver - optional gold
<b>Connection</b>	Cable PVC -20°C to +105°C PVCU -20°C to +105°C (Approval UL) PUR -40°C to +90°C SI -40°C to +130°C Other material optional	Cable PVC -20°C to +105°C PVCU -20°C to +105°C (Approval UL) PUR -40°C to +90°C SI -40°C to +130°C Other material optional
<b>Actuator</b>	Stainless steel	Stainless steel

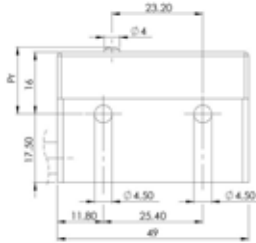
<b>Degree of Protection</b>	Housing IP67 Connection IP67	Housing IP67 Connection IP67
<b>Class of Protection</b>	II	II
<b>Micro-switching</b>	μ	μ
<b>Distance between Contacts</b>	0.80 mm	0.80 mm
<b>Dimensions</b>	DIN 41 635, form E 49 x 35 x 17.5 mm	DIN 41 635, form E 49 x 35 x 17.5 mm

<b>Actuation Force</b>	Between 0.2 to 6.0 N, depending on the lever	Between 0.2 to 6.0 N, depending on the lever
<b>Differential Travel</b>	0.05 mm - Optional 0.02 mm	0.05 mm - Optional 0.02 mm
<b>Temperature Range</b>	EN 61058-1 -40°C to +130°C UL 61058-1 -40°C to +125°C Cable selection may reduce temperature range	EN 61058-1 -40°C to +130°C UL 61058-1 -40°C to +125°C Cable selection may reduce temperature range
<b>Mechanical Life</b>	50 x 10 <sup>6</sup> cycles	50 x 10 <sup>6</sup> cycles

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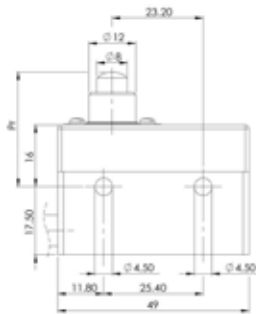
# Actuator

## Type 0: Basic switch - Pin Button



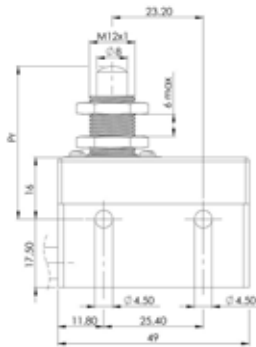
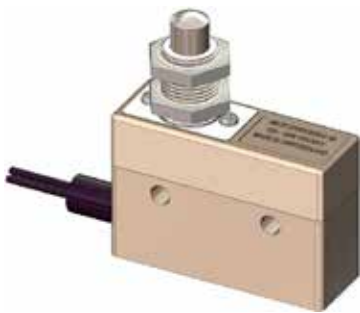
Actuating Force $F_a$ max. (N)	6.0
Release Force $F_r$ min. (N)	2.5
Free Position $P_r$ (mm)	$17.4 \pm 0.5$
Operating Position $P_a$ (mm)	$16.5 \pm 0.3$
Over-Travel $s_r$ min. (mm)	0.25
Differential Travel $s_d$ max. (mm)	0.10

## Type 1S29: Telescopic



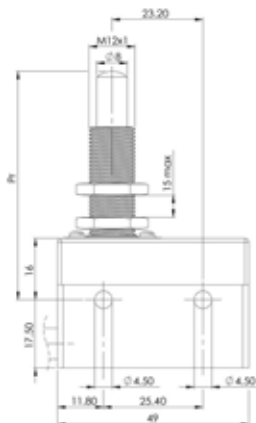
Actuating Force $F_a$ max. (N)	6.0
Release Force $F_r$ min. (N)	2.5
Free Position $P_r$ (mm)	$29.3 \pm 0.6$
Operating Position $P_a$ (mm)	$28.4 \pm 0.3$
Over-Travel $s_r$ min. (mm)	2.0
Differential Travel $s_d$ max. (mm)	0.12

## Type 1A: Telescopic with Short Thread



Actuating Force $F_a$ max. (N)	6.0
Release Force $F_r$ min. (N)	2.5
Free Position $P_r$ (mm)	$39.1 \pm 0.6$
Operating Position $P_a$ (mm)	$38.4 \pm 0.3$
Over-Travel $s_r$ min. (mm)	5.0
Differential Travel $s_d$ max. (mm)	0.12

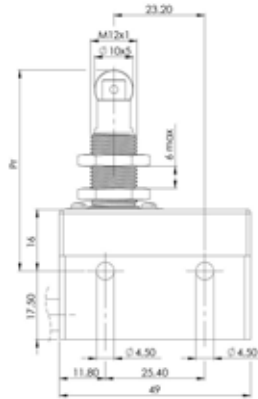
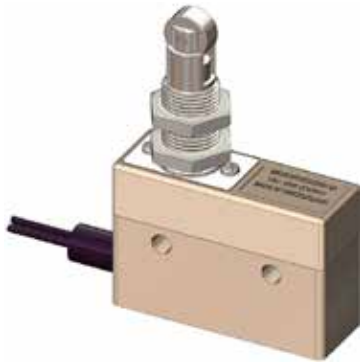
## Type 1A58: Telescopic with Thread



Actuating Force $F_a$ max. (N)	6.0
Release Force $F_r$ min. (N)	2.5
Free Position $P_r$ (mm)	$58.0 \pm 1.0$
Operating Position $P_a$ (mm)	$57.2 \pm 0.3$
Over-Travel $s_r$ min. (mm)	10.0
Differential Travel $s_d$ max. (mm)	0.12

# Actuator

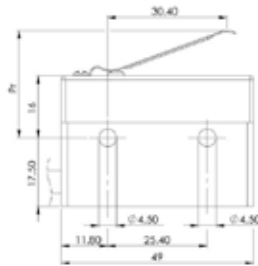
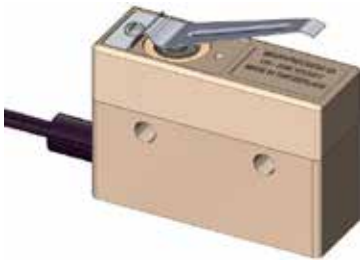
## Type 1BL: Telescopic with Roller



Actuating Force $F_a$ max. (N)	6.0
Release Force $F_r$ min. (N)	2.5
Free Position $P_r$ (mm)	$51.4 \pm 0.6$
Operating Position $P_a$ (mm)	$50.7 \pm 0.3$
Over-Travel $s_r$ min. (mm)	5.0
Differential Travel $s_d$ max. (mm)	0.12

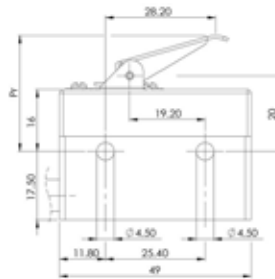
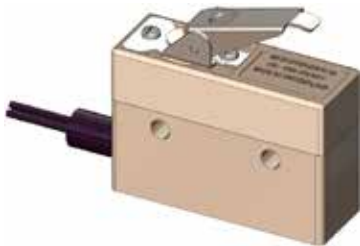
Optional: stainless steel roller, transvers roller

## Type 2A: Simple Lever - Direct Action -



Actuating Force $F_a$ max. (N)	3.5
Release Force $F_r$ min. (N)	1.0
Free Position $P_r$ (mm)	$26.0 \pm 2.0$
Operating Position $P_a$ (mm)	$18.0 \pm 2.0$
Over-Travel $s_r$ min. (mm)	2.0
Differential Travel $s_d$ max. (mm)	0.80

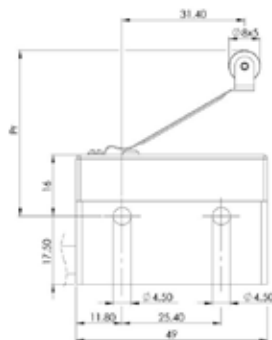
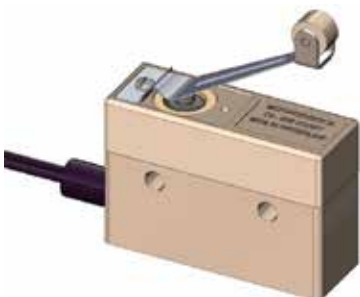
## Type 3A: Simple Lever - Indirect Action -



Actuating Force $F_a$ max. (N)	4.5
Release Force $F_r$ min. (N)	1.2
Free Position $P_r$ (mm)	$31.1 \pm 1.5$
Operating Position $P_a$ (mm)	$29.0 \pm 1.5$
Over-Travel $s_r$ min. (mm)	3.5
Differential Travel $s_d$ max. (mm)	0.80

Optional: lever mounted on opposite side

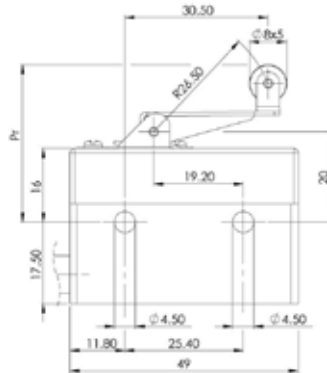
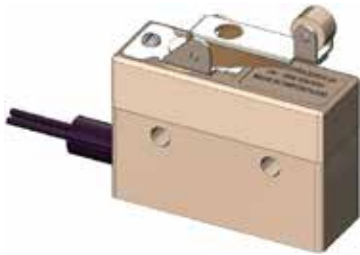
## Type 4AL: Simple Lever with Roller - Direct Action -



Actuating Force $F_a$ max. (N)	3.5
Release Force $F_r$ min. (N)	1.0
Free Position $P_r$ (mm)	$39.0 \pm 2.0$
Operating Position $P_a$ (mm)	$30.0 \pm 2.0$
Over-Travel $s_r$ min. (mm)	2.0
Differential Travel $s_d$ max. (mm)	0.80

# Actuator

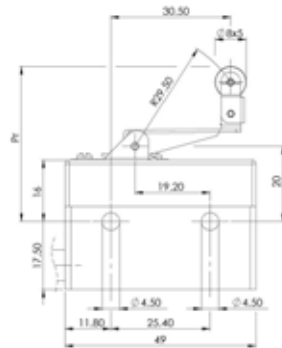
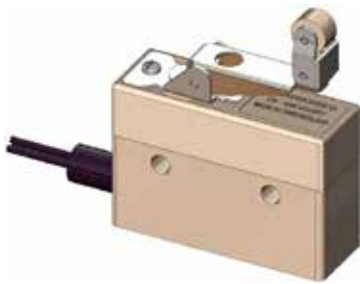
Type **5AL**: Simple Lever with Roller - Indirect Action -



Actuating Force Fa max. (N)	4.5
Release Force Fr min. (N)	1.2
Free Position Pr (mm)	35.5 ± 1.5
Operating Position Pa (mm)	32.5 ± 1.5
Over-Travel sr min. (mm)	3.5
Differential Travel sd max. (mm)	0.90

Optional: lever mounted on opposite side, stainless steel roller, trans-vers roller

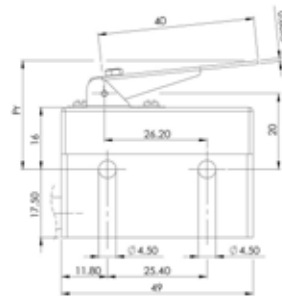
Type **6AL**: Simple Lever with Bending Roller - Indirect Action -



Actuating Force Fa max. (N)	4.5
Release Force Fr min. (N)	1.2
Free Position Pr (mm)	41.6 ± 1.5
Operating Position Pa (mm)	38.6 ± 1.5
Over-Travel sr min. (mm)	3.5
Differential Travel sd max. (mm)	0.90

Optional: lever mounted on opposite side, stainless steel roller, trans-vers roller

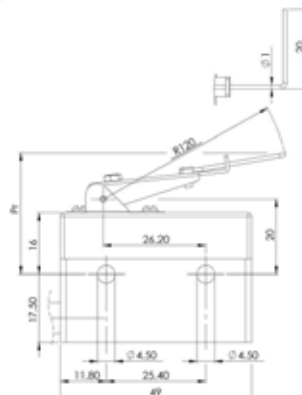
Type **7A40**: Simple Adjustable Lever - Direct Action -



Actuating Force Fa max. (N)	0.6
Release Force Fr min. (N)	0.2
Free Position Pr (mm)	-
Operating Position Pa (mm)	Ajustable
Over-Travel sr min. (mm)	-
Differential Travel sd max. (mm)	1.20

Optional: lever mounted on opposite side

Type **7AC**: Simple Adjustable Lever with Wire - Direct Action -



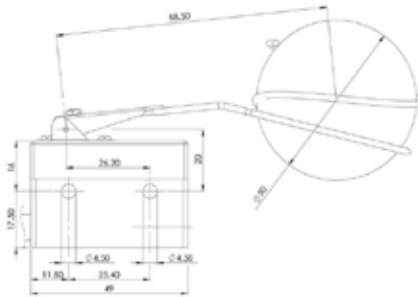
Actuating Force Fa max. (N)	0.2
Release Force Fr min. (N)	0.05
Free Position Pr (mm)	-
Operating Position Pa (mm)	Ajustable
Over-Travel sr min. (mm)	-
Differential Travel sd max. (mm)	5.00

Optional: lever mounted on opposite side

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# Actuator

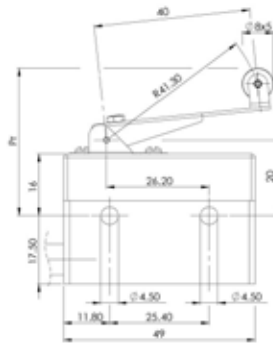
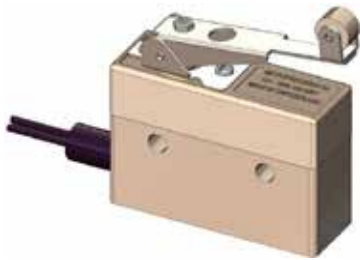
Type **7AF/63.5/50**: Simple Lever with Floater - **Direct Action** -



Actuating Force $F_a$ max. (N)	-
Release Force $F_r$ min. (N)	-
Free Position $P_r$ (mm)	-
Operating Position $P_a$ (mm)	Ajustable
Over-Travel $s_r$ min. (mm)	-
Differential Travel $s_d$ max. (mm)	2.00

Optional: lever mounted on opposite side

Type **8AL40**: Simple Adjustable Lever with Roller - **Direct Action** -



Actuating Force $F_a$ max. (N)	0.6
Release Force $F_r$ min. (N)	0.2
Free Position $P_r$ (mm)	-
Operating Position $P_a$ (mm)	Ajustable
Over-Travel $s_r$ min. (mm)	-
Differential Travel $s_d$ max. (mm)	1.20

Optional: lever mounted opposite side, stainless steel roller, transvers roller

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# Electrical Circuit

	Actuator Code	Circuit	Color
Direct Action	<b>0</b> <b>1S29</b> <b>1A</b> <b>1A58</b> <b>1BL</b> <b>2A</b> <b>4AL</b> <b>7A40</b> <b>7AC</b> <b>7AF/63.5/50</b> <b>8AL40</b>	<b>MP210</b>	<b>PVC / PVCU:</b> 1 / Brown - 2 / Black - 4 / Blue <b>SI:</b> 1 / Red - 2 / White - 4 / Blue <b>PUR:</b> 1 / Red - 2 / White - 4 / Blue
		<b>MP220</b>	<b>PVC/ PVCU:</b> 11/12 - Brown ; 23/24 - Blue <b>SI:</b> 11/12 - White ; 23/24 - Blue <b>PUR:</b> 11/12 - Brown ; 23/24 - Blue
Indirect Action	<b>3A</b> <b>5AL</b> <b>6AL</b>	<b>MP210</b>	<b>PVC / PVCU:</b> 1 / Brown - 2 / Black - 4 / Blue <b>SI:</b> 1 / Red - 2 / White - 4 / Blue <b>PUR:</b> 1 / Red - 2 / White - 4 / Blue
		<b>MP220</b>	<b>PVC / PVCU:</b> 11/12 - Brown ; 23/24 - Blue <b>SI:</b> 11/12 - White ; 23/24 - Blue <b>PUR:</b> 11/12 - Brown ; 23/24 - Blue

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# Ordering Information

**MP2 1 0 - 5AL / 3 100 / 200 SI**

### Circuit

- 1:** Single Break
- 2:** Double Break

### Contact

- 0:** Silver Contact
- 1:** Gold Contact

### Actuator

- 0:** Basic switch - Pin Button
- 1S29:** Telescopic with Thread
- 1A:** Telescopic with Short Thread
- 1A58:** Telescopic with Thread
- 1BL:** Telescopic with Roller
- 2A:** Simple Lever - Direct Action
- 3A:** Simple Lever - Indirect Action
- 4AL:** Simple Lever with Roller - Direct Action
- 5AL:** Simple Lever with Roller - Indirect Action
- 6AL:** Simple Lever with Bending Roller - Indirect Action
- 7A40:** Simple Adjustable Lever - Direct Action
- 7AC:** Simple Adjustable Lever with Wire – Direct Action
- 7AF/63.5/50:** Simple Lever with Floater
- 8AL40:** Simple Adjustable Lever with Roller

### Number of conductors

- 3:** MP210 Single Break
- 4:** MP220 Double Break

### Cross section

- 100:** 1.00 mm<sup>2</sup> - 400VAC / 10A (MP210) ; 250VAC / 10A (MP220)
- 150:** 1.50 mm<sup>2</sup> - 250VAC / 15A (MP210)

### Cable length in centimeters (cm)

### Cable material

- PVC:** Polyvinyl Chloride -20°C to +105°C
- PVCU:** Polyvinyl Chloride -20°C to +105°C (Approval UL)
- PUR:** Polyurethane -40°C to +90°C
- SI:** Silicone -40°C to +130°C

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