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# Panel Actuators and Indicators

## Type PB

### Flush Round Push Buttons



- Ø 22mm (Ø0.87") Standard and bezel style
- Self-hold or spring return
- Button colour choice
- Illuminated version made by LED
- cULus and CE
- IEC/EN 60947-5-1, UL 508, IEC/EN 60073, IEC/EN 60529

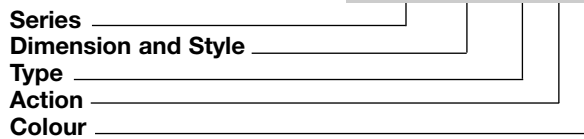
### Product description

Pushbutton switches are mechanical switches that are pushed down to open or to close the electric contacts. They are mostly used to start/stop electric circuits or

devices like lamps, motors, etc. They should be ordered in parts (operator + holder + contact block) and installed in an enclosure.

### Ordering key

**PB 22S IF 0 R**



### Approvals



### Dimensions and styles

22S = Ø22mm (Ø0.87") Standard style  
 22B = Ø22mm (Ø0.87") Bezel style

### Types

F = Flush round  
 IF = Illuminated<sup>1</sup> flush round

<sup>1</sup> = Light function is obtained by the lamp element pg.19

### Actions

0 = Spring return  
 1 = Maintained

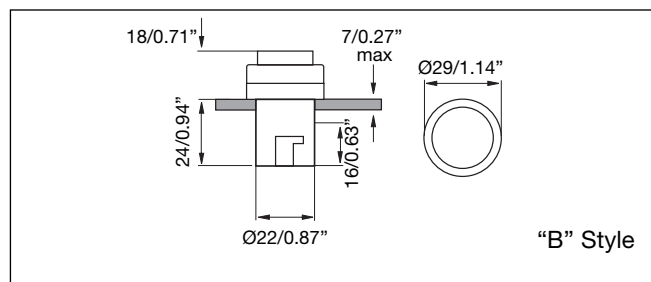
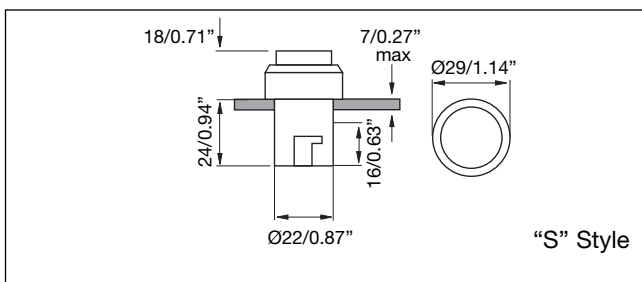
### Colours

R = Red                      B = Blue  
 W = Clear/White          Y = Yellow  
 K = Black                    G = Green

### General data

Peripheral of actuator	AL
Actuator	Pa
Mechanical life	≥3 x 10 <sup>6</sup> cycles
Operating temperature	-25 to +70°C (-13 to +158°F)
Storage temperature	-30 to +80°C (-22 to +176°F)
Degree of protection	IP 65

### Dimensions - Push Buttons mm/inches



## Holders



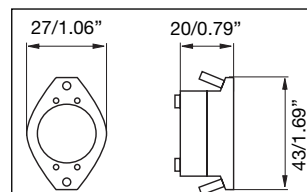
### Holder type "M"

Code

Material

**PB MB M**

**Zn + PBT**



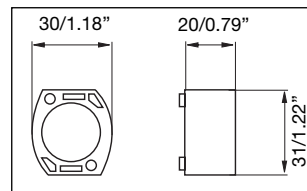
### Holder type "P"

Code

Material

**PB MB P**

**PBT**



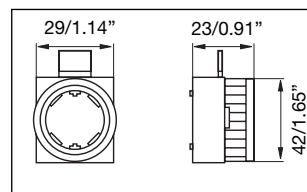
### Holder type "N"

Code

Material

**PB MB N**

**PC**



## Lamp Element



## Ordering key

**PALAMP R 220A**

Type \_\_\_\_\_  
 Colour \_\_\_\_\_  
 Voltage \_\_\_\_\_

## Approvals



## Colours

R = Red  
 W = Clear/White  
 B = Blue

Y = Yellow  
 G = Green

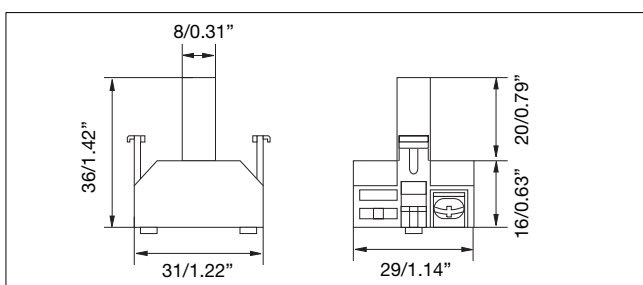
## Voltage

06 = 6VAC/DC	110 = 110VAC/DC
12 = 12VAC/DC	220D = 220VDC
24 = 24VAC/DC	220A = 220VAC
48 = 48VAC/DC	380A = 380VAC

## Technical data

Rated imp. withstand voltage $U_{imp}$	2500VAC 50Hz 1min.
Rated insulation Voltage $U_i$	500VAC
Allowable voltage fluctuation	±20%
Continuous operating life	≥100.000h
Ultrahigh brightness	≥100cd/m <sup>2</sup> (≥9.29ftc)
Applying frequency	50-60Hz
Current consumption (AC/DC)	≤18mA
Operating temperature	-25 to +70°C (-13 to +158°F)
Storage temperature	-30 to +80°C (-22 to +176°F)

## Dimensions mm/inches



## Wiring Notes

- 1) Use 60°C or 75°C copper (CU) conductor and wire size range 18AWG, stranded or solid.
- 2) Terminal tightening torque 0.6Nm (5.3in.lb)
- 3) Recommended external fuse - listed or R/C fuses, Supplemental (JDYX, JDYX2) rated 3A maximum.

# Panel Actuators and Indicators

## Type PA2

### Contact Block

CARLO GAVAZZI



- High switching power
- Double switch
- Industrial applications
- 10A switching capacity
- Up to 500VAC
- Modular mounting (up to 3 elements)
- Screw terminals
- High reliability
- cULus and CE
- According to EN ISO 13850 (only NC slow action)
- IEC/EN 60947-5-1, IEC/EN 60947-5-5, UL 508

## Product description

Switching element equipped with two independent elements. Available in different switching configurations. Pole and throw configurations can be single pole single throw (SPST) or double pole single throw (DPST). Elements can be snapped to each other on the bottom, up to 3.

## Approvals



## Technical data

Contact resistance	≤50mΩ
Travel	5.8 ± 0.2mm (2.28" ± 0.08")
Rated insulation Voltage U <sub>i</sub>	660VAC/DC (acc. to IEC 60947-5-1) 600VAC/DC (acc. to UL508)
Rated imp. withstand voltage U <sub>imp</sub>	2500VAC 50Hz 1min.
Minimum switching power	
Min Current	100mA
Min Voltage	24V
Switch housing	PC
Contact parts	Cu
Contact material	
Standard	Hard silver
Optional	Gold/silver
Optional for aggressive atmospheres	Silver/palladium
Operating temperature	-25 to +70°C (-13 to +158°F)
Storage temperature	-30 to +80°C (-22 to +176°F)

## Terminals

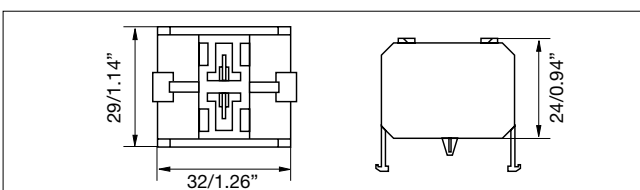
### Screw terminals

Max. section sigle-core wire  
Max. section stranded wire  
Copper conductor wire

2 x 2.5mm<sup>2</sup> (0.004sq.inch)  
2 x 1.5mm<sup>2</sup> (0.002sq.inch)  
14 AWG @ 60°C or 75°C  
CU conductor  
1.2Nm (10.6in.lb.)

Terminal tightening torque

## Dimensions mm/inches



## Ordering key

PA 2 110 / 1

Type \_\_\_\_\_  
Number of contacts \_\_\_\_\_  
Contact code \_\_\_\_\_  
Options ( 1 = Snap action  
2 = Slow action with forced opening ⊕ NC contact)

## Contact code

Contact configuration	Contact code
2 NO contacts (DPST)	200
2 NC contacts (DPST)	020
1 NC contact (SPST)	010
1 NO contact (SPST)	100
1 NC + 1 NO contacts (DPST)	110

## Contact characteristics

Contact Rating AC1	10A @ 250VAC		
Contact Rating	AC15	DC13	
(acc. to IEC 60947-5-1)			
@ 24V	10A	6A	
@ 110V	8A	1A	
@ 220V	6A	0.5A	
@ 380V	4A	-	
@ 500V	2.5A	-	

AC Contact Rating (acc. to UL 508)	A600	B600	
B600 (all snap codes)	@ 120V 6A	3A	
A600 (all slow codes)	@ 240V 3A	1.5A	
	@ 480V 1.5A	0.75A	
	@ 600V 1.2A	0.6A	

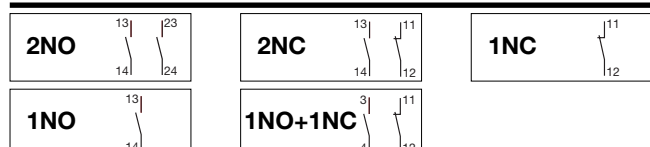
DC Contact Rating (acc. to UL 508)	Q600	Q300	
Q600 (all snap codes)	@ 125V 0.55A	0.55A	
Q600 (100, 200 slow codes)	@ 250V 0.27A	0.27A	
Q300 (010, 020, 110 slow codes)	@ 480V 0.10A	-	
	@ 600V 0.10A	-	

Contact rating code designation	Thermal continuous test current Amperes	Maximum current, amperes (acc. to UL508)								Maximum volt-amperes	
		120V		240V		480V		600V		Make	Break
A600	10	60	6.00	30	3.00	15	1.5	12	1.2	7200	720
B600	5	30	3.00	15	1.50	7.50	0.75	6	0.6	3600	360

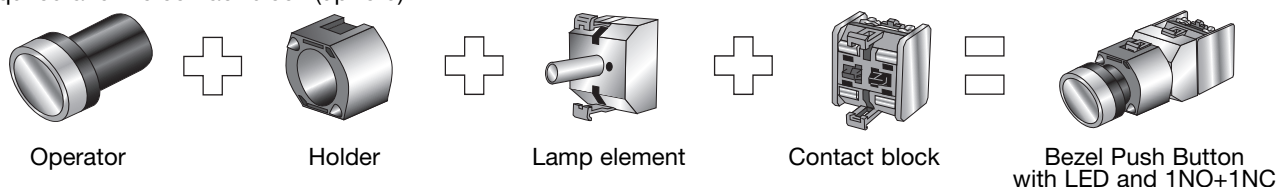
Contact rating code designation	Thermal continuous test current Amperes	Maximum current, amperes (acc. to UL508)			Maximum make or break volt-amperes @ 300V or less
		125V	250V	301 to 600V	
Q600	2.5	0.55	0.27	0.10	69
Q300	2.5	0.55	0.27	-	69

## Wiring diagram

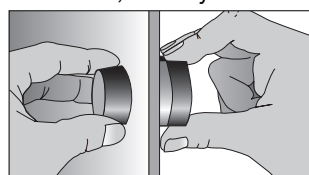


## Assembling and Mounting

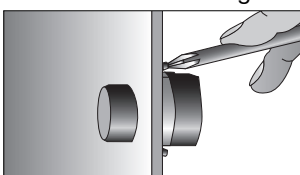
It come easy to get a complete product. Just to choose the operator, the holder, the lamp element if illuminated function is required and the contact block (up to 3).



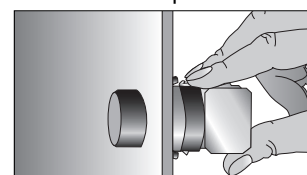
To install it, the only tool needed is a screwdriver. The same used to wiring the contact block can be used to fix the push-button.



The operator will be inserted into the panel.



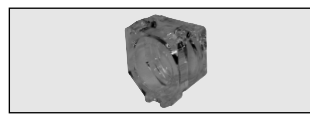
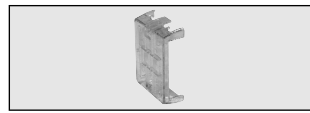




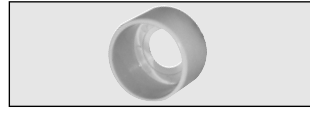



The holder will be secured at the back by two screws or nut.



The contact block is snapped on.

## Accessories for Panel Actuators

	<b>Sealing cover IP67</b> Always on the head of operators, waterproof and dust, IP67.	Silicon rubber	<b>PA SEAL COV</b>
	<b>Shield</b> Always on the head of button, prevent strike and mistaking operation.	Stainless steel	<b>PA PB SHIELD</b>
	<b>Protection cover</b> Always on the head of button, prevent strike and mistaking operation. Lockable.	PC	<b>PA PB COV</b>
	<b>Terminal shield</b> Installed behind the wiring screws of the contact block to avoid electric shock.	PC	<b>PA 2 SHIELD</b>
	<b>Mounting ring Ø22mm (0.87")</b> Installed on plastic panel to strengthen mounting.	FE	<b>PA MR 22</b>
	<b>Mounting ring Ø25mm (0.98")</b> When the mounting hole is Ø25mm (0.98"), it should be add to the panel.	FE	<b>PA MR 25</b>
	<b>Label frame</b> Hang it on the push button or pilot light, for symbol or text explanation.	PC	10mm/0.39" 18mm/0.71" <b>PA LBF 11</b> <b>PA LBF 18</b>
	<b>Warning plate</b> For emergency stop push buttons. Thickness 1.5mm/0.059"	ABS	Ø60mm/Ø2.36" Ø90mm/Ø3.54" <b>PA WP 6</b> <b>PA WP 9</b>
	<b>Yellow protection ring</b> To protect button and to prevent strike or mistaking operation.	ABS Rubber	Ø40mm/Ø1.57" Ø60mm/Ø2.36" <b>PA YPR 4</b> <b>PA YPR 6</b>
	<b>Panel hole cap Ø22mm (0.87")</b> For blocking up prepared or useless holes on the panels.	ABS	<b>PA PHC 22</b>