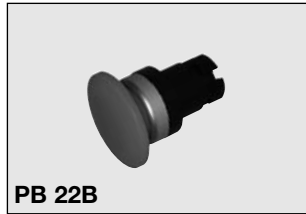


Panel Actuators and Indicators

Type PB

Mushroom Push Buttons

CARLO GAVAZZI



- Ø 22mm (Ø0.87") Standard and bezel style
- Ø 30mm (Ø1.18") Flush style
- Mushroom shape
- Ø 40mm (Ø1.57") or Ø 60mm (Ø2.36") head
- Self-hold or spring return
- Illuminated version made by LED
- cULus and CE
- IEC/EN 60947-5-1, UL 508, IEC/EN 60073, IEC/EN 60529

Product description

Mushroom push button 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.

Approvals



Types

- M4** = Mushroom Ø40mm (Ø1.57")
- M6** = Mushroom Ø60mm (Ø2.36")
- IM4** = Illuminated¹ mushroom Ø40mm (Ø1.57")
- IM6** = Illuminated¹ mushroom Ø60mm (Ø2.36")
- PPM4** = Push-pull mushroom Ø40mm (Ø1.57")
- PPM6** = Push-pull mushroom Ø60mm (Ø2.36")

¹ = Light function is obtained by the lamp element pg.19

Colours

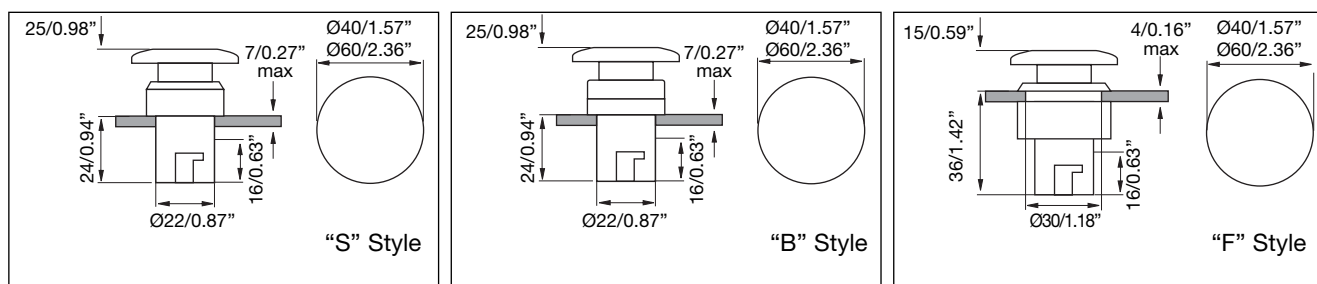
- R** = Red
- W** = Clear/White (only illuminated)
- K** = Black (only not illuminated)
- Y** = Yellow
- G** = Green

Symbols

EMS² = Emergency Stop **RUN**² = Push-Stop-Pull-Run

² = only for PPM4 and PPM6 types

Dimensions - Push Buttons mm/inches



Ordering key

PB 22S IM4 0 R _

Series _____
 Dimension and Style _____
 Type _____
 Action _____
 Colour _____
 Symbols _____

Dimensions and styles

- 22S** = Ø22mm (Ø0.87") Standard style
- 22B** = Ø22mm (Ø0.87") Bezel style
- 30F** = Ø30mm (Ø1.18") Flush style

Actions

- 0** = Spring return (Not available for PPM4/PPM6 Types)
- 1** = Maintained

General data

Peripheral of actuator	AL
Actuator	Pa
Mechanical life	≥3 x 10 ⁶ 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

Holders



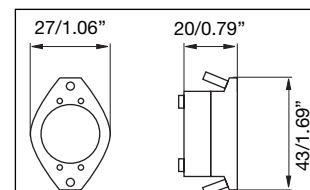
Holder type "M"

Code

Material

PB MB M

Zn + PBT



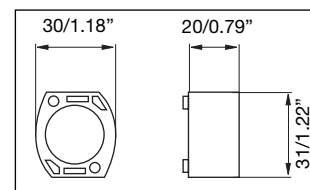
Holder type "P"

Code

Material

PB MB P

PBT



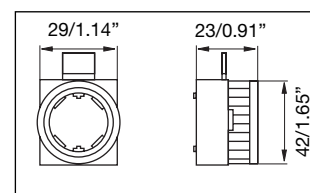
Holder type "N"

Code

Material

PB MB N

PC



Lamp Element



Ordering key

PALAMP R 220A

Type _____
 Colour _____
 Voltage _____

Approvals



Colours

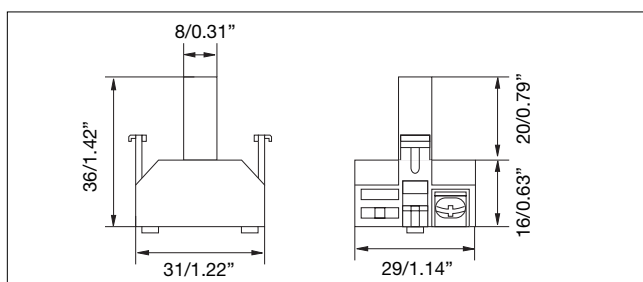
R = Red
 W = Clear/White
 B = Blue

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

Dimensions mm/inches



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 ² (≥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)

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



- 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_i	660VAC/DC (acc. to IEC 60947-5-1) 600VAC/DC (acc. to UL508)
Rated imp. withstand voltage U_{imp}	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

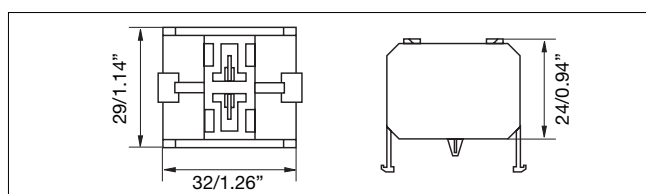
Screw terminals

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

2 x 2.5mm² (0.004sq.inch)
2 x 1.5mm² (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

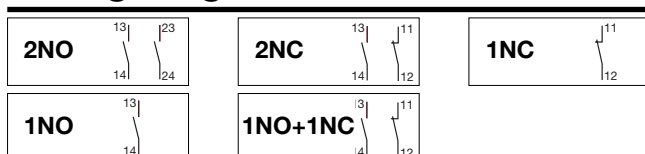
Contact characteristics

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		Maximum make or break volt-amperes @ 300V or less	
		Make	Break	Make	Break	Make	Break	Make	Break	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

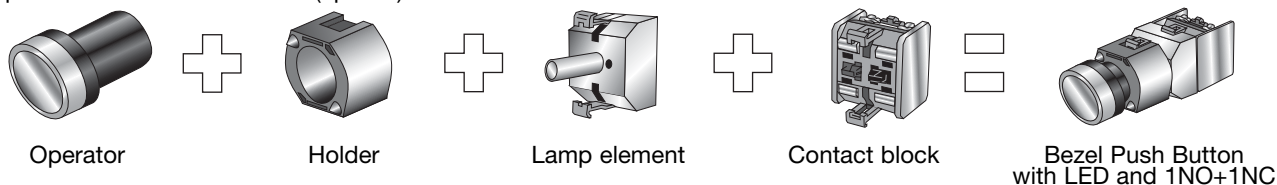
Contact rating code designation	Thermal continuous test current, Amperes	Maximum current, amperes (acc. to UL508)			Maximum make or break volt-amperes @ 300V or less
		125V	250V	301 to 600V	
Q600	2.5	0.55	0.27	0.10	69
Q300	2.5	0.55	0.27	-	69

Wiring diagram

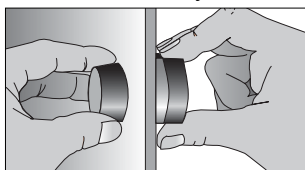


Assembling and Mounting

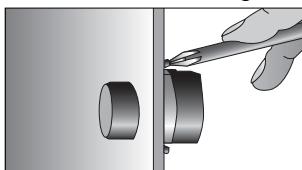
It come easy to get a complete product. Just to choose the operator, the holder, the lamp element if illuminated function is required and the contact block (up to 3).



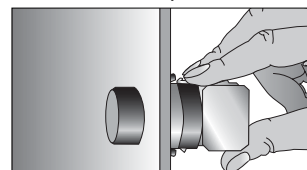
To install it, the only tool needed is a screwdriver. The same used to wiring the contact block can be used to fix the push-button.



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



Terminal shield

Installed behind the wiring screws of the contact block to avoid electric shock. PC

PA 2 SHIELD



Mounting ring Ø22mm (0.87")

Installed on plastic panel to strengthen mounting. FE

PA MR 22



Mounting ring Ø25mm (0.98")

When the mounting hole is Ø25mm (0.98"), it should be add to the panel. FE

PA MR 25



Front bezel set Ø30mm (1.18")

For Ø30mm (1.18") panel hole, to have a thinner effect. AL

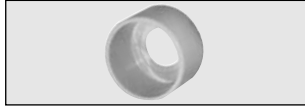
PA FBZL 30



Warning plate

For emergency stop push buttons. Thickness 1.5mm/0.059" ABS

Ø60mm/Ø2.36" PA WP 6
Ø90mm/Ø3.54" PA WP 9



Yellow protection ring

To protect button and to prevent strike or mistaking operation. ABS Rubber

Ø40mm/Ø1.57" PA YPR 4
Ø60mm/Ø2.36" PA YPR 6



Panel hole cap Ø22mm (0.87")

For blocking up prepared or useless holes on the panels. ABS

PA PHC 22

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