Panel Actuators and Indicators
Type PB
Mushroom Push Buttons

CARLO GAVAZZI

PB 22S

PB 22B

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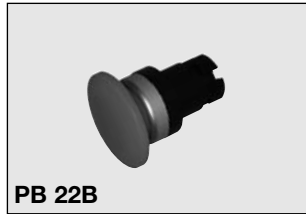
- Ø 22mm (Ø0.87") Standard and bezel style
- Ø 30mm (Ø1.18") Flush style
- Mushroom shape
- Ø 40mm (Ø1.57") or Ø 60mm (Ø2.36") head
- Self-hold or spring return
- Illuminated version made by LED
- cULus and CE
- IEC/EN 60947-5-1, UL 508, IEC/EN 60073, IEC/EN 60529

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

c UL us LISTED 3MHG   CE   RoHS COMPLIANT

Types

M4 = Mushroom Ø40mm (Ø1.57")
M6 = Mushroom Ø60mm (Ø2.36")
IM4 = Illuminated[1] mushroom Ø40mm (Ø1.57")
IM6 = Illuminated[1] mushroom Ø60mm (Ø2.36")
PPM4 = Push-pull mushroom Ø40mm (Ø1.57")
PPM6 = Push-pull mushroom Ø60mm (Ø2.36")

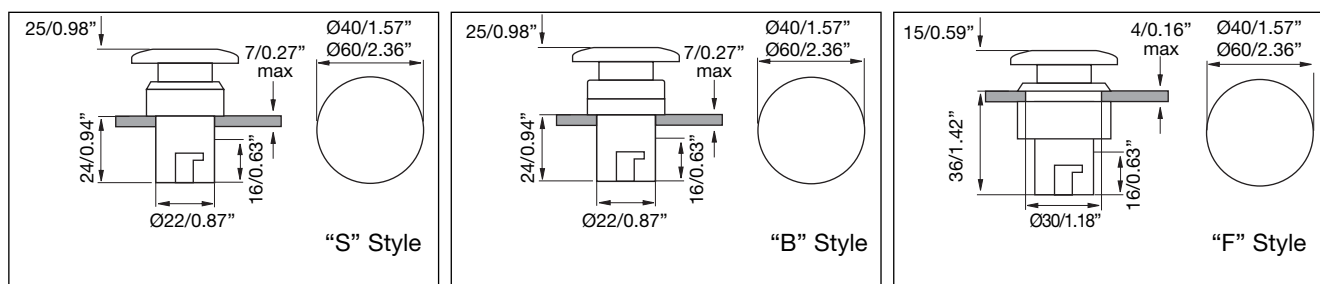[1] = Light function is obtained by the lamp element pg.19

Colours

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

Symbols

EMS[2]**=** Emergency Stop   **RUN**[2]**=** Push-Stop-Pull-Run

[2] = only for PPM4 and PPM6 types

Ordering key

PB 22S IM4 0 R _

Series
Dimension and Style
Type
Action
Colour
Symbols
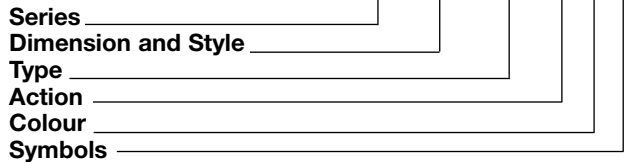
Dimensions and styles

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

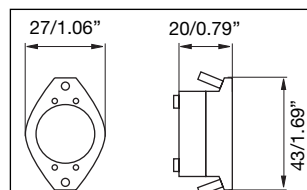| Peripheral of actuator	AL
Actuator	Pa
Mechanical life	≥3 x 10⁶ cycles
Operating temperature	-25 to +70°C (-13 to +158°F)
Storage temperature	-30 to +80°C (-22 to +176°F)
Degree of protection	IP 65

Dimensions - Push Buttons mm/inches

25/0.98"   7/0.27" max   Ø40/1.57" Ø60/2.36"   24/0.94"   16/0.63"   Ø22/0.87"   "S" Style

25/0.98"   7/0.27" max   Ø40/1.57" Ø60/2.36"   24/0.94"   16/0.63"   Ø22/0.87"   "B" Style

15/0.59"   4/0.16" max   Ø40/1.57" Ø60/2.36"   36/1.42"   16/0.63"   Ø30/1.18"   "F" Style

Specifications are subject to change without notice. Pictures are just an example. For special features and/or custumization, please ask to our sales network. 240809

Holders

	Holder type "M"			27/1.06" 20/0.79" 43/1.69"
	Code	**PB MB M**		
	Material	**Zn + PBT**		
	Holder type "P"			30/1.18" 20/0.79" 31/1.22"
	Code	**PB MB P**		
	Material	**PBT**		
	Holder type "N"			29/1.14" 23/0.91" 42/1.65"
	Code	**PB MB N**		
	Material	**PC**		
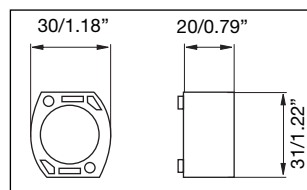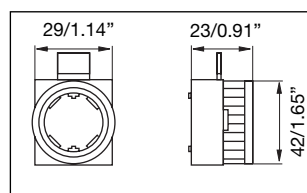
Lamp Element

Ordering key

PALAMP R 220A

Type ——————————————
Colour ——————————————
Voltage ——————————————

Approvals

c(UL)us LISTED 3MHG CE RoHS COMPLIANT

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^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)**

Dimensions mm/inches

8/0.31"
36/1.42"
31/1.22"
29/1.14"
20/0.79"
16/0.63"
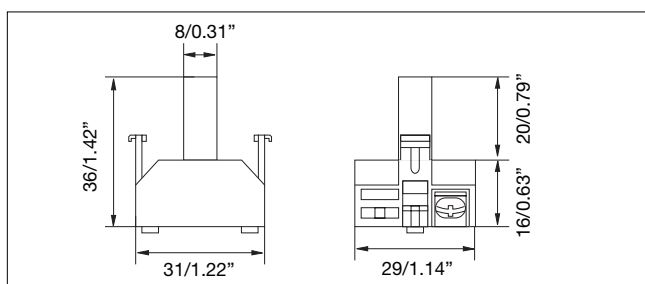
Wiring Notes

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 mmaximum.

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

c UL us LISTED 3MHG   CE   RoHS COMPLIANT

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

Technical data

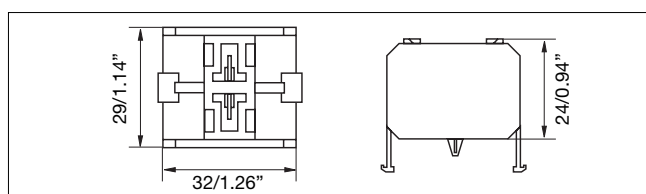|	
Contact resistance	≤50mΩ
Travel	5.8 ± 0.2mm (2.28" ± 0.08")
Rated insulation Voltage U_i	660VAC/DC (acc. to IEC 60947-5-1)
	600VAC/DC (acc. to UL508)
Rated imp. withstand voltage U_{imp}	2500VAC 50Hz 1min.
Minimum switching power	
Min Current	100mA
Min Voltage	24V
Switch housing	PC
Contact parts	Cu
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)

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 continous test current, Amperes	Maximum current, amperes (acc. to UL508)								Maximum volt-amperes	
		120V		240V		480V		600V			
		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 continous 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

Terminals

Screw terminals

Max. section sigle-core wire	2 x 2.5mm² (0.004sq.inch)
Max. section stranded wire	2 x 1.5mm² (0.002sq.inch)
Copper conductor wire	14 AWG @ 60°C or 75°C CU conductor
Terminal tightening torque	1.2Nm (10.6in.lb.)

Dimensions mm/inches

29/1.14"   32/1.26"   24/0.94"

Wiring diagram

2NO   13 23 / 14 24

2NC   13 11 / 14 12

1NC   11 / 12

1NO   13 / 14

1NO+1NC   13 11 / 14 12

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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).

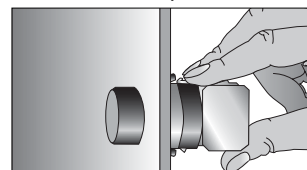| Operator	Holder	Lamp element	Contact block	Bezel Push Button with LED and 1NO+1NC
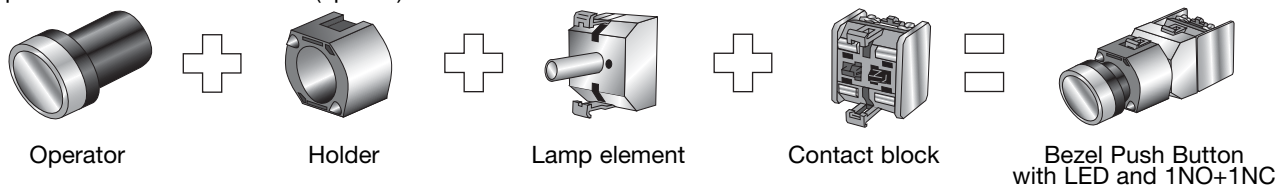
To install it, the only tool needed is a screwdriver. The same used to wiring the contact block can be used to fix the push-button.
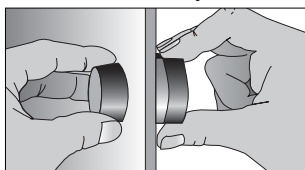
The operator will be inserted into the panel.
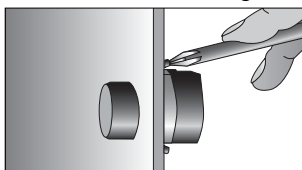
The holder will be secured at the back by two screws or nut.

The contact block is snapped on.

Accessories for Panel Actuators
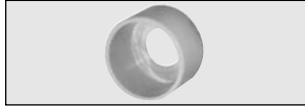
	Terminal shield		
	Installed behind the wiring screws of the contact block to avoid electric shock.	PC	**PA 2 SHIELD**
	Mounting ring Ø22mm (0.87")		
	Installed on plastic panel to strengthen mounting.	FE	**PA MR 22**
	Mounting ring Ø25mm (0.98")		
	When the mounting hole is Ø25mm (0.98"), it should 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**