

Panel Actuators and Indicators

Type PB

Mushroom Push Buttons

CARLO GAVAZZI



- Ø 22mm (Ø0.87") Standard and bezel 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

* Not all configurations available – see page 5 for complete list

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

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

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")

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

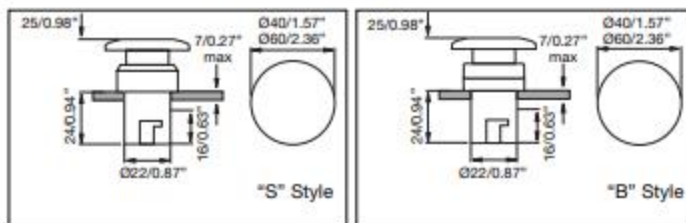
R = Red
 G = Green
 K = Black (only not illuminated)

Symbols

EMS² = Emergency Stop RUN² = Push-Stop-Pull-Run

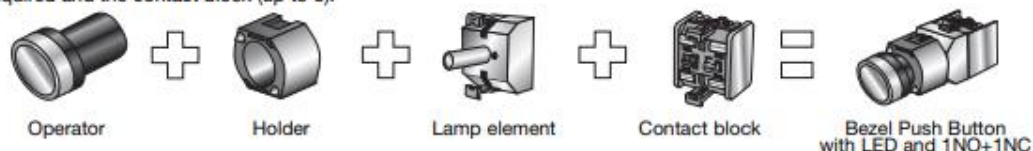
² = only for PPM4 and PPM6 types

Dimensions - Push Buttons mm/inches



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 nuts.



The contact block is snapped on.

Accessories for Panel Actuators



Sealing cover IP67

Always on the head of operators, waterproof and dust, IP67.

Silicon rubber

PA SEAL COV



Protection cover

Always on the head of button, prevent strike and mistaking operation. Lockable.

PC

PA PB COV



Mounting ring Ø22mm (0.87")

Installed on plastic panel to strengthen mounting.

FE

PA MR 22



Reducing ring for Pilot Light Ø22mm (0.87")

To mount the Ø22mm (0.87") pilot light into the hole for Ø25mm (0.98") or Ø30mm (1.18") of the panel.

ABS

Ø30mm/Ø1.18" PA RR 3



Fastening connector for Pilot Light Ø22mm (0.87")

Improve the quality of installation and reduce the time of installations.

PC

PA PL CONN



Label frame

Hang it on the push button or pilot light, for symbol or text explanation.

PC

10mm/0.39" PA LBF 11
18mm/0.71" PA LBF 18



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



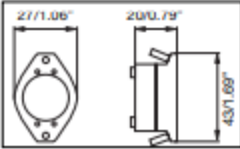
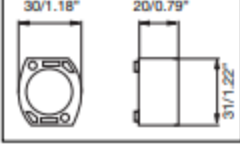
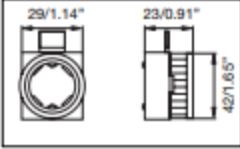
Panel hole cap Ø22mm (0.87")

For blocking up prepared or useless holes on the panels.

ABS

PA PHC 22

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 _____

* Not all configurations available – see page 5 for complete list

Approvals



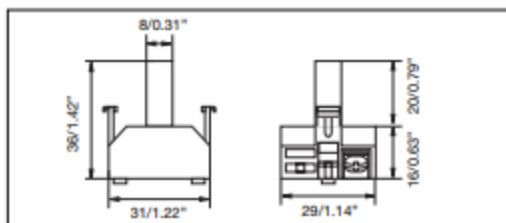
Colours

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

Voltage

12 = 12VAC/DC	110 = 110VAC/DC
24 = 24VAC/DC	220A = 220VAC

Dimensions mm/inches



Technical data

Rated imp. withstand voltage U_{imp}	2500VAC 50Hz 1min.
Rated insulation Voltage U_i	500VAC
Allowable voltage fluctuation	$\pm 20\%$
Continuous operating life	$\geq 100.000h$
Ultrahigh brightness	$\geq 100cd/m^2 (\approx 9.29ftc)$
Applying frequency	50-60Hz
Current consumption (AC/DC)	$\leq 18mA$
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

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

* Not all configurations available – see page 5 for complete list

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



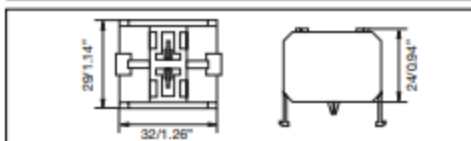
Technical data

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	2 x 2.5mm ² (0.004sq.inch)
Max. section stranded wire	2 x 1.5mm ² (0.002sq.inch)
Copper conductor wire	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

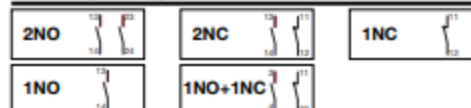
Contact configuration	Contact code
2 NO contacts (DPST)	200
2 NC contacts (DPST)	020
1 NC contact (SPST)	010
1 NO contact (SPST)	100
1 NC + 1 NO contacts (DPST)	110

Contact characteristics

Contact Rating AC1	10A @ 250VAC
Contact Rating (acc. to IEC 60947-5-1)	AC15 DC13
	@ 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	Terminal	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	Terminal	Maximum current, amperes (acc. to UL508)								Maximum make or break volt-amperes @ 300V or less	
		125V		250V		301 to 600V				Make	Break
Q600	2.5	2.5	0.55	0.27	0.10	69					
Q300	2.5	2.5	0.55	0.27	-	69					

Wiring diagram



AVAILABLE PORTFOLIO CONFIGURATIONS

Flush Round Push Buttons

PB22BF0B	PB22BIF0Y
PB22BF0G	PB22SF0B
PB22BF0K	PB22SF0G
PB22BF0R	PB22SF0K
PB22BF0W	PB22SF0R
PB22BF0Y	PB22SF0Y
PB22BIF0B	PB22SIF0G
PB22BIF0G	PB22SIF0R
PB22BIF0R	PB22SIF1G
PB22BIF0W	

Extended Push Buttons

PB22BE0G	PB22BIE0Y
PB22BE0K	PB22SIE0G
PB22BE0R	PB22SIE0R
PB22BIE0R	

Red Emergency Stop Push Buttons

PB22BEM41R	PB22SEM41R
PB22BEM61R	PB22SEM61R
PB22BKEM41R	

Mushroom Push Buttons

PB22BIM41R	PB22SM40K
PB22BM40G	PB22SM40R
PB22BM40R	PB22SM41G
PB22BM41R	PB22SM41R
PB22BM60R	PB22SPPM41R
PB22SIM40R	PB22SPPM61R
PB22SIM41R	

Buzzer and Flashing Buzzer

PL22SBZK110	PL22SFBZR110
PL22SBZK12	PL22SFBZR12
PL22SBZK220A	PL22SFBZR220A
PL22SBZK24	PL22SFBZR24

Two Color Pilot Lights

PL22STCRG110	PL22STCRG24
PL22STCRG220A	

Pilot Lights

PL22CHLB110	PL22SFLG24
PL22CHLB24	PL22SFLR110
PL22CHLG110	PL22SFLR24
PL22CHLG24	PL22SFLW110
PL22CHLR110	PL22SFLW24
PL22CHLR24	PL22SFLY110
PL22CHLW110	PL22SFLY24
PL22CHLW24	PL22SHLG110
PL22CHLY110	PL22SHLG220A
PL22CHLY24	PL22SHLG24
PL22CLLB220A	PL22SHLR110
PL22CLLB24	PL22SHLR12
PL22CLLG110	PL22SHLR220A
PL22CLLG220A	PL22SHLR24
PL22CLLG24	PL22SHLW110
PL22CLLR110	PL22SHLW24
PL22CLLR220A	PL22SHLY110
PL22CLLR24	PL22SHLY24
PL22CLLW110	PL22SLLG110
PL22CLLW220A	PL22SLLG220A
PL22CLLW24	PL22SLLG24
PL22CLLY110	PL22SLLR110
PL22CLLY12	PL22SLLR220A
PL22CLLY220A	PL22SLLR24
PL22CLLY24	PL22SLLW24
PL22CRLB24	PL22SLLY24
PL22SFLB24	PL22SRLR110
PL22SFLG110	

Short-Handle Selector Switches

PB22BSRS21K	PB22SISRS21W
PB22BSRS22K	PB22SISRS31G
PB22BSRS31K	PB22SSRS21K
PB22BSRS33K	PB22SSRS31K
PB22SISRS21R	PB22SSRS32K

Long-Handle Selector Switches

PB22BLRS21K	PB22SLRS31K
PB22BLRS31K	PB22SLRS32K
PB22SLRS21K	

I/O Push Buttons

PB22SIO0RG	PB22SIOL0RG
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Key Selector Switches

PB22SKRS21KL	PB22SKRS21KR
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Push Button Boxes

PBBOX1HBG	PBBOX3HBY
PBBOX1HBY	PBBOX4HBG
PBBOX2HBG	PBBOX4HBY
PBBOX2HBY	PBBOX5HBG
PBBOX3HBG	

Lamp Element

PALAMPB110	PALAMPR24
PALAMPB24	PALAMPW110
PALAMPG110	PALAMPW12
PALAMPG220A	PALAMPW24
PALAMPG24	PALAMPY110
PALAMPR110	PALAMPY24
PALAMPR220A	

Contact Block

PA2010/1	PA2100/2
PA2010/2	PA2110/1
PA2020/1	PA2110/2
PA2020/2	PA2200/1
PA2100/1	PA2200/2

Accessories

PASEALCOV	PAWP6
PAPBCOV	PAWP9
PAMR22	PAPHC22
PALBF11	PARR3
PALBF18	PAPLCONN

Holders

PBMBM	PBMBP
PBMBN	