

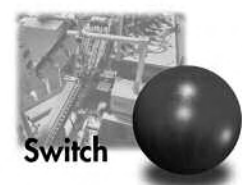
Push Buttons Selector Switches & Pilot Lights





Push Buttons Selector Switches & Pilot Lights





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Switch

Push Buttons







Series	Type PB Flush Round Push Buttons	Type PB Extended Push Buttons	Type PB Red Emergency Stop Push Buttons	Type PB Mushroom Push Buttons
				
Drilling Diameter Ømm/inches	Ø22/0.87" - Ø30/1.18"	Ø22/0.87" - Ø30/1.18"	Ø22/0.87" - Ø30/1.18"	Ø22/0.87" - Ø30/1.18"
Dimensions H x Ømm/inches	37xØ29 / 1.46"xØ1.14" 39xØ35 / 1.54"xØ1.38"	42xØ29 / 1.65"xØ1.14" 44xØ35 / 1.73"xØ1.38"	49-51xØ40-Ø60 1.93"-2"xØ1.57"-Ø2.36"	49-51xØ40-Ø60 1.93"-2"xØ1.57"-Ø2.36"
General Specification				
Spring Returned	Yes	Yes	No	Yes
Maintained	Yes	Yes	Yes (turn to release)	Yes
Available colours	R, W, K, B, Y, G*	R, W, K, B, Y, G*	R*	R, Y, G, W, K*
Lamp add-on possibility	Yes	Yes	No	Yes
Approvals/Marks	CE, cULus	CE, cULus	CE, cULus	CE, cULus
Detailed information				
On page	10	11	12	13





Series	Type PB Short-handle Rotary Switches	Type PB Long-handle Rotary Switches	Type PB Key Switches	Type PB I/O Push Button
				
Drilling Diameter Ømm/inches	Ø22/0.87" - Ø30/1.18"	Ø22/0.87" - Ø30/1.18"	Ø22/0.87" - Ø30/1.18"	Ø22/0.87"
Dimensions H x Ømm/inches	51xØ29 / 2"xØ1.14" 53xØ35 / 2.08"xØ1.38"	51xØ29 / 2"xØ1.14" 53xØ35 / 2.08"xØ1.38"	72 x Ø29 / 2.83"xØ1.14" 64 x Ø35 / 2.52"xØ1.38"	41x 29 x 54 x Ø29 1.61"x1.14"x2.13"xØ1.14"
General Specification				
Spring Returned	Yes	Yes	No	Yes
Two position	Yes	Yes	Yes	No
Three position	Yes	Yes	Yes	No
Available colours	R, Y, G, B, W, K*	R, K, Y, G*	Neutral (metal)	RG*
Lamp add-on possibility	Yes	No	No	Yes
Approvals/Marks	CE, cULus	CE, cULus	CE, cULus	CE, cULus
Detailed information				
On page	14	15	16	17

* R=Red, W=Clear/White, K=Black (not for illuminated versions), B=Blue, Y= Yellow, G=Green

Pilot Lights

CARLO GAVAZZI

Series	Type PL High lens	Type PL Round Lens	Type PL Low Lens	Type PL Teeth Lens
				
Drilling Diameter Ømm/inches	Ø22/0.87"	Ø22/0.87"	Ø22/0.87"	Ø22/0.87"
Dimensions H x Ømm/inches	Ø29 x 52**/67 Ø1.14" x 2.05***/2.64"	Ø29 x 41**/54 Ø1.14" x 1.61***/2.13"	Ø29 x 52**/67 Ø1.14" x 2.05***/2.64"	Ø29 x 52**/67 Ø1.14" x 2.05***/2.64"
Colours	R, W, B, Y, G*	R, W, B, Y, G*	R, W, B, Y, G*	R, W, B, Y, G*
Light source	LED	LED	LED	LED
Brightness	≥100cd/m ² (≥9.29ftc)	≥100cd/m ² (≥9.29ftc)	≥100cd/m ² (≥9.29ftc)	≥100cd/m ² (≥9.29ftc)
Approvals	CE, cULus	CE, cULus	CE, cULus	CE, cULus
Voltage	6VAC/DC 12VAC/DC 24VAC/DC 48VAC/DC 110VAC/DC 220VDC - 220VAC 380VAC	6VAC/DC 12VAC/DC 24VAC/DC 48VAC/DC 110VAC/DC 220VDC - 220VAC 380VAC	6VAC/DC 12VAC/DC 24VAC/DC 48VAC/DC 110VAC/DC 220VDC - 220VAC 380VAC	6VAC/DC 12VAC/DC 24VAC/DC 48VAC/DC 110VAC/DC 220VDC - 220VAC 380VAC
Detailed information On page	20	20	20	20

Series	Type PL Flash Light	Type PL Two Colours	Type PL Flashing Buzzer	Type PL Buzzer
				
Drilling Diameter Ømm/inches	Ø22/0.87"	Ø22/0.87"	Ø22/0.87"	Ø22/0.87"
Dimensions H x Ømm/inches	Ø29 x 52**/67 Ø1.14" x 2.05***/2.64"	Ø29 x 52**/67 Ø1.14" x 2.05***/2.64"	Ø29 x 52**/67 Ø1.14" x 2.05***/2.64"	Ø29 x 52**/67 Ø1.14" x 2.05***/2.64"
Colours	R, W, B, Y, G*	RG*	R*	K*
Light source	LED	LED	LED	-
Brightness / Sound volume	≥100cd/m ² (≥9.29ftc)	≥100cd/m ² (≥9.29ftc)	≥100cd/m ² (≥9.29ftc)	80dB @ 10cm (3.94")
Approvals	CE, cULus	CE, cULus	CE, cULus	CE, cULus
Voltage	6VAC/DC 12VAC/DC 24VAC/DC 48VAC/DC 110VAC/DC 220VDC - 220VAC 380VAC	6VAC/DC 12VAC/DC 24VAC/DC 48VAC/DC 110VAC/DC 220VDC - 220VAC 380VAC	6VAC/DC 12VAC/DC 24VAC/DC 48VAC/DC 110VAC/DC 220VDC - 220VAC 380VAC	6VAC/DC 12VAC/DC 24VAC/DC 48VAC/DC 110VAC/DC 220VDC - 220VAC 380VAC
Detailed information On page	20	21	22	22

* R=Red, W=Clear/White, K=Black (not for illuminated versions), B=Blue, Y= Yellow, G=Green ** Compact Version
Specifications are subject to change without notice. Pictures are just an example.

The Push Buttons and The Selector Switches

Carlo Gavazzi has developed a new range of push buttons, selector switches and pilot lights in order to complete own offer on automation market and give more solutions to own customers.

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/devices like lamps, motors, etc...

Selector switches are mechanical switches that can be turned right, center or left to open or to close the electric contacts.

They are mostly used to start/stop devices or to switch between two/three electric circuits.

The switch function can be maintained or

spring return. In a maintained the actuator stays in thrown position (on-off). In a spring return the switch must be held in position; it reverts to normal position when actuating force is removed.

Different models of operators are available like push-button (also illuminated type), mushroom push-button, red emergency stop push-button, key push-button, selector switch with two or three positions ...

... to meet most of the markets and the customers needs.

They are available with a various selection of colours (6) and a wide range of supply voltages (from 6V to 380V).

The screws (+, - Pozidrive 2) of terminals are

dispatched open to facilitate the work of wiring that can also be done separately, before the contact block is snapped on the holder. Besides, Carlo Gavazzi has developed the contact block with unloseable screws system, so it is impossible to lose screw while unscrewing. The illuminated functions are made by high-brightness pure colour LED. It is a guarantee of more efficiency and reliability.

Infact, the LED technology reach over than 100.000 hours of service life and the power consumption is lower than filament bulb type. The degree of protections is IP65. It allows to install them also in tough environments e.g. wet or dusty conditions.

Buttons style and mounting type

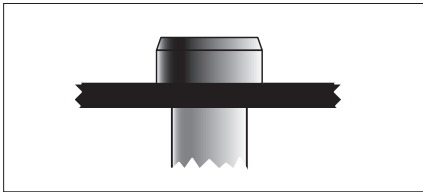
This new range has been developed, thinking to the needs of the installations, with three different styles

of shape of push-buttons and three different types of mounting. By combining the styles and the types of

mounting, it is possible to obtain up to 9 different versions for the same product.

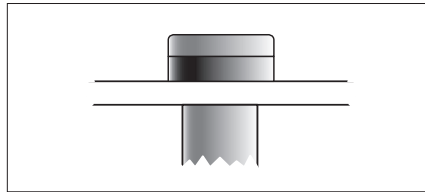
S type operator

It is standard style Ø22 (for panel hole 22mm (0.87")): black plastic head



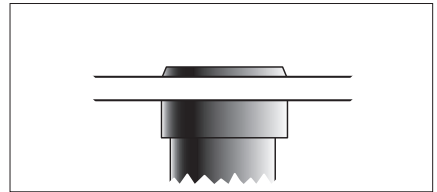
B type operator

It is bezel style Ø22 (for panel hole 22mm (0.87")): black plastic head with metal plated circular bezel



F type operator

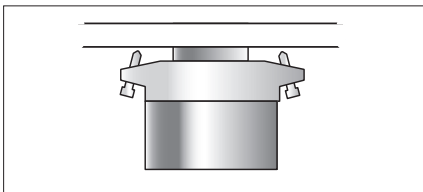
It is flush style Ø30 (for panel hole 30mm (1.18")): black plastic head with metal plated circular bezel for flush mounting



Three different types of mounting are available:

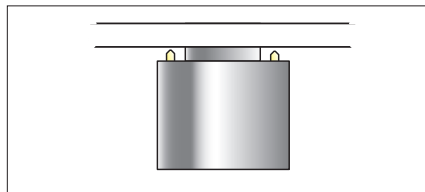
M type holder

It is metal mounting base: installation and fixing are made by diagonal screws; so it is on the safe side.



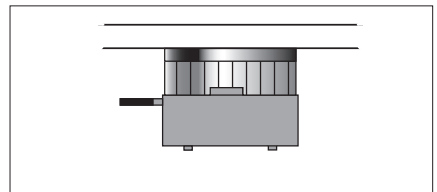
P type holder

It is plastic mounting base: the middle base's material is high strength PBT plastic. The straight screws are used for installation.



N type holder

It is nut mounting base: using nut for clamping, so it makes installation easily and reduce work intensity by big percentages



The contact block

The contact block is the switching element equipped with 2 independent electric contacts. 10 different version of contact blocks are available to meet the needs of the installations and of the customers.

Pole and throw configurations can be single pole single throw (SPST) or double pole single throw (DPST). SPST is a switch that makes or breaks the connection of a

single conductor in a single branch circuit. DPST is a switch that makes or breaks the connection of two circuit conductors in a single branch circuit. A normally open (NO) switch has contacts that are open or disconnected in their unactuated (normal) position. A normally closed (NC) switch has contacts that are closed or connected in their unactuated (normal) position.

They are snap or slow action types with positive opening of NC contact type. The contact rating of 10A @ 250V AC1 allows to reach high operating performance.

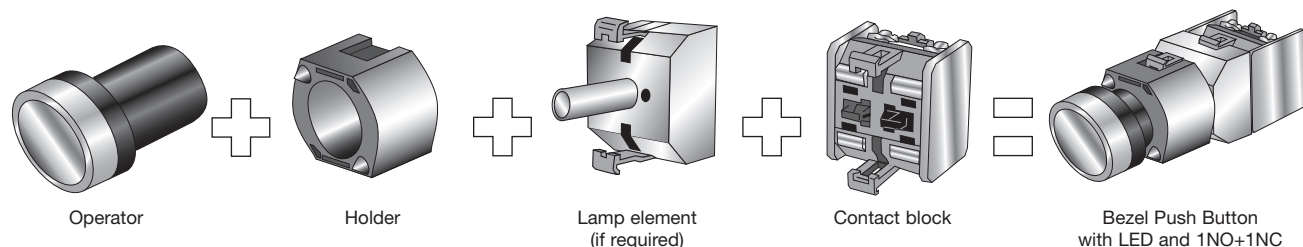
The transparent side allows to see how the single contact works, beside it is clearly identified by the colour (red for normally closed and green for normally open).



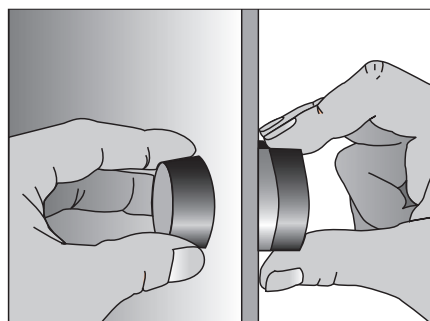
Snap Action	Slow Action	Contact Type
PA2010/1	PA2010/2	1NC
PA2100/1	PA2100/2	1NO
PA2020/1	PA2020/2	2NC
PA2200/1	PA2200/2	2NO
PA2110/1	PA2110/2	1NO+1NC

Simple to choose and to install

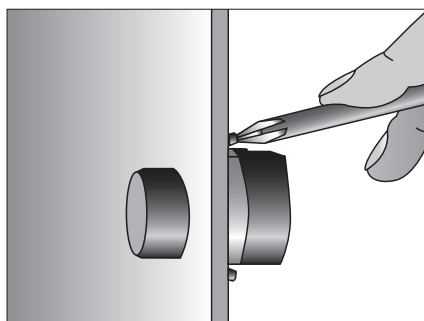
It comes easy to get the right product. Just to choose the operator, the holder, the lamp element (if illuminated function is required) and the contact block (up to 3).



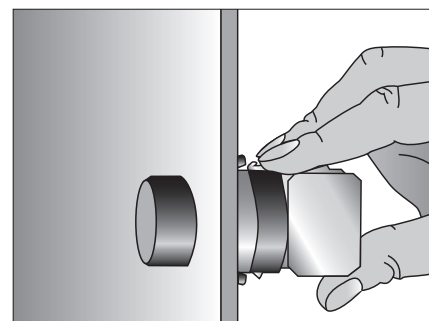
The only tool needed is a screwdriver. The same used to wiring the contact block can be used to fix the push-button.



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.

The Pilot Lights

The main function of a pilot light is to signalize when an event occurs or to indicate a state. For example, the red light is normally used to indicate that there is voltage on the electrical installation or equipment.

Only one code is enough to choose the product. The LED is delivered already installed, so you should only select the rating voltage and the colour.

The source of light is LED. It gives an optimum perception due to the ideal colour rendering. Beside, it is reliable and cost-saving due to its long lifetime.

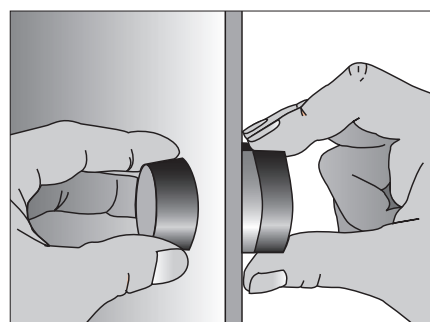
All with dimension of $\varnothing 22$ (for panel hole 22mm (0.87")), they offer different solutions, from the shape of the lens (high, low, rounded, teeth profile) to the type of functions (light, flashing, two-color, buzzer). Different rating voltage are available, either

in AC or in DC, in order to meet all the requirement of the market. A wide selection of colours (red, green, yellow, white and blue) allows to choose the right colour for the right function.

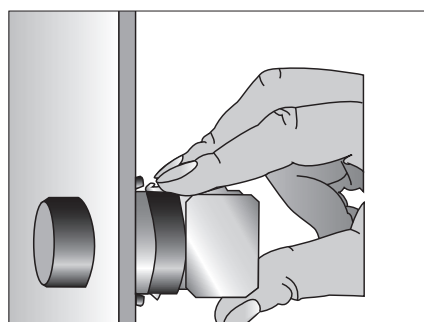
The pilot light can be easily and safely assembled by one person with just a few movements of the hand.

The installations is simply made by plastic nut.

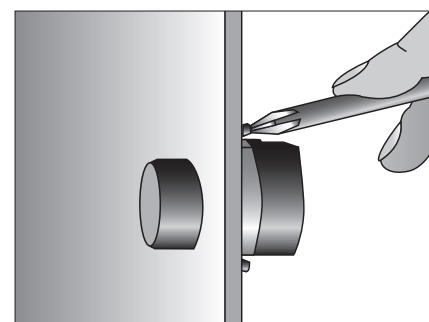
Simple to install



Just to insert the pilot light into the hole of the panel.



The pilot light will be secured at the back by the plastic nut



The pilot light has been installed.

Specifications

International Specifications

The International Electrotechnical Commission, IEC, which is part of the International Standards Organization, ISO, publishes IEC publications which act as a basis for the world market.

European Specifications

The European Committee for Electrotechnical Standardisation (CENELEC), grouping 18 European countries, publishes EN standards for low voltage industrial apparatus.

These European standards differ very little from IEC international standards and use a similar numbering system.

The same is true of national standards. Contradicting national standards are withdrawn.

Harmonised European Specifications

The European Committees for Standardisation (CEN and CENELEC), grouping 18 European countries, publish EN standards relating to safety of machinery.

Specifications in Canada and the USA

These are equivalent, but differ markedly from IEC, UTE, VDE and BS specifications.

UL Underwriters Laboratories (USA)
CSA Canadian Standards Association (Canada)

Remark concerning the label issued by the UL (USA). Two levels of acceptance between devices must be distinguished.

“Recognized” Authorised to be included in equipment, if the equipment in question has

been entirely mounted and wired by qualified personnel. They are not valid for use as “General purpose products” as their possibilities are limited.

They bear the mark:



“Listed” Authorised to be included in equipment and for separate sale are “General purpose products” components in the USA.

They bear the mark :



European Directives

The guarantee of free movement of goods within the European Community assumes elimination of any regulatory differences between the member states. European Directives set up common rules that are included in the legislation of each state while contradictory regulations are cancelled.

There are three main directives :

- **Low Voltage Directive 73/23/EEC**, amended by **Directive 93/68/EEC**

concerning electrical equipment from 50 to 1000 V a.c. and from 75 to 1500 V d.c. This specifies that compliance with the requirements that is sets out **is acquired** once the equipment conforms to the standards harmonised at European level.

- **Machine Directives – 89/392/EEC, 91/368/EEC, 93/44/EEC, 93/68/EEC** – defining main safety and health requirements concerning design and manufacture of the machines and other

equipment including safety components in European Union countries.

- **Electromagnetic Compatibility Directive 89/336/EEC**, amended by **Directive 92/31/EEC** and **Directive 93/68/EEC** concerning all electrical devices likely to create electromagnetic disturbances.

Approvals



Technical Data

Rated capacity acc. to IEC 60947-5-1	AC-15	DC-13
	220V/6A	24V/6A
Rated capacity acc. to UL 508	380V/4A	48V/3A
	500V/2.5A	110V/1A
Contact resistance	660V/2A	220V/0.5A
	A600	440V/0.25A
Rated Impulse withstand Voltage U_{imp}	2500VAC 50Hz 1min.	Q600
Mechanical life	Normal button $\geq 3 \times 10^6$ cycles	
	Selector $\geq 30 \times 10^4$ cycles	
	Key button $\geq 5 \times 10^4$ cycles	
	Emergency button $\geq 5 \times 10^4$ cycles	
Electrical life	$\geq 30 \times 10^4$ cycles	
Rated thermal current I_{th}	10A	
Rated insulation voltage U_i	660VAC (acc. to IEC 60947-5-1)	
	A600, Q600 (acc. to UL 508)	
Operating temperature	-25 ~ +70°C (-13 ~ +158°F)	
Storage temperature	-30 ~ +80°C (-22 ~ +176°F)	
Degree of protection	IP65 (IP40 for the buzzer)	

Standard

IEC/EN 60073
IEC/EN 60529
IEC/EN 60947-1
IEC/EN 60947-5-1, 60947-5-5
UL 508
EN 418

Parts Material

Peripheral of actuator	AL
Holder	Zn or PBT. PC
Actuator	Pa
Contact	AgNi
Switch housing	PC
Contact parts	Cu

Ordering Key

PB 22S IF 1 R ²

Series

- PB** = Push Button (or Selector switch)
PL = Pilot Light

Dimension and Style

- 22S** = Ø 22mm (0.87") Standard design
22B = Ø 22mm (0.87") Bezel design (only for Push Buttons)
30F = Ø 30mm (1.18") Flush design (only for Push Buttons)
22C = Ø 22mm (0.87") Compact design (only for Pilot light)

Push Buttons and Selector Switches types

- F** = Flush round
E = Extended round
IF = Illuminated¹ Flush round
IE = Illuminated¹ Extended round
M4 = Mushroom Ø40mm (Ø1.57")
M6 = Mushroom Ø60mm (Ø2.36")
IM4 = Illuminated¹ Mushroom Ø40mm (Ø1.57")
IM6 = Illuminated¹ Mushroom Ø60mm (Ø2.36")
EM4 = Red Emergency Stop Ø40mm (Ø1.57")
EM6 = Red Emergency Stop Ø60mm (Ø2.36")
KM4 = Key-Reset Emergency Stop Red Ø40mm (Ø1.57")
SRS = Short-handle Selector Switch
ISRS = Illuminated¹ Short-handle Selector Switch (only action 21 or 31)
LRS = Long-handle Selector Switch
KRS = Key Selector Switch (only action 21 or 31)
IO = IO Push Button (ON-OFF type)
IOL = IO Push Button (ON-OFF type) illuminated¹

Pilot Light types

- HL** = High Lens
RL = Round Lens
LL = Low Lens
TC = Two Colours
TL = Teeth Lens
BZ = Buzzer
FBZ = Flashing Buzzer
FL = Flash Light

Actions

- Nil** = Only for Pilot Light
0 = Spring return (not for red emergency stop)
1 = Maintained
21 = Two positions L R
22 = Two positions L ↗C
23 = Two positions C ↘R
31 = Three positions L C R
32 = Three positions L ↗C ↘R
33 = Three positions L ↗C R
34 = Three positions L C ↘R

Colours (only Red for emergency stop types)

- R** = Red
G = Green
Y = Yellow
W = Clear/White
B = Blue
K = Black (not for illuminated versions)

Voltages (only for Pilot Light)

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

Key extraction position (only for Key Selector Switch)

- KL** = on the left position
KC = on the center position
KR = on the right position

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

↗ = Spring return

² = position available only for Pilot Light or Key extraction position

Quick selection

▲ Actions

0 = Spring Return **32*** = Three pos. L↘C↗R
1 = Maintained **33*** = Three pos. L↘C↗R
21 = Two pos. L R **34*** = Three pos. L C↗R
22* = Two pos. L↘C
23* = Two pos. C↗R * : not for illuminated
31 = Three pos. L C R ↘ : spring return

● Colours

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

▼ Voltages

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

Flush round push buttons



PB 22S F ▲ ●
 PB 22S IF ▲ ●



PB 22B F ▲ ●
 PB 22B IF ▲ ●



PB 30F F ▲ ●
 PB 30F IF ▲ ●

Extended push buttons



PB 22S E ▲ ●
 PB 22S IE ▲ ●



PB 22B E ▲ ●
 PB 22B IE ▲ ●



PB 30F E ▲ ●
 PB 30F IE ▲ ●

Mushroom push buttons



PB 22S M4 ▲ ● PB 22S IM4 ▲ ●
 PB 22S M6 ▲ ● PB 22S IM6 ▲ ●



PB 22B M4 ▲ ● PB 22B IM4 ▲ ●
 PB 22B M6 ▲ ● PB 22B IM6 ▲ ●

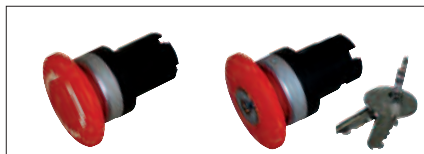


PB 30F M4 ▲ ● PB 30F IM4 ▲ ●
 PB 30F M6 ▲ ● PB 30F IM6 ▲ ●

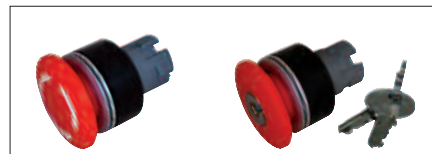
Emergency mushroom push buttons



PB 22S EM4 1R PB 22S KM4 1R
 PB 22S EM6 1R PB 22S KM6 1R



PB 22B EM4 1R PB 22B KM4 1R
 PB 22B EM6 1R PB 22B KM6 1R



PB 30F EM4 1R PB 30F KM4 1R
 PB 30F EM6 1R PB 30F KM6 1R

Short-handle selector switches



PB 22S SRS ▲ ●
 PB 22S ISRS ▲ ●



PB 22B SRS ▲ ●
 PB 22B ISRS ▲ ●



PB 30F SRS ▲ ●
 PB 30F ISRS ▲ ●

Long-handle Selector Switches



PB 22S LRS ▲ ●



PB 22B LRS ▲ ●



PB 30F LRS ▲ ●

Quick selection

▲ Actions

0 = Spring Return 32* = Three pos. L↔C↔R
 1 = Maintained 33* = Three pos. L↔C↔R
 21 = Two pos. L↔R 34* = Three pos. L↔C↔R
 22* = Two pos. L↔C
 23* = Two pos. C↔R * : not for illuminated
 31 = Three pos. L↔C↔R ↗ : spring return

● Colours

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

▼ Voltages

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

Key selector switches



PB 30F KRS ▲ KL
 PB 30F KRS ▲ KC
 PB 30F KRS ▲ KR



PB 22S KRS ▲ KL
 PB 22S KRS ▲ KC
 PB 22S KRS ▲ KR

I/O push buttons



PB 22S IO 0RG
 PB 22S IOL 0RG

Metal holder



PB MB M

Plastic holder



PB MB P

Nut holder



PB MB N

Lamp element



PA LAMP ◻ ▼

Contact blocks



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

Example of a complete product



PB22BIF 0G + PBMBP +
 PALAMP G24 + PA2110/1

High lens pilot light



PL 22C HL ◻ ▼ PL 22S HL ◻ ▼

Round lens pilot light



PL 22C RL ◻ ▼ PL 22S RL ◻ ▼

Low lens pilot light



PL 22S LL ◻ ▼ PL 22C LL ◻ ▼

Teeth lens pilot light



PL 22C TL ◻ ▼ PL 22S TL ◻ ▼

Flash lens pilot light



PL 22S FL ◻ ▼

Two colours pilot light



PL 22S TC RG ▼

Flashing buzzer



PL 22S FBZ R ▼

Buzzer

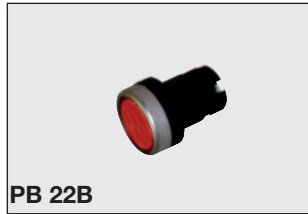


PL 22S BZ K ▼

Panel Actuators and Indicators

Type PB

Flush Round Push Buttons



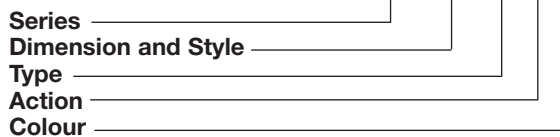
- Ø 22mm (Ø0.87") Standard and bezel style
- Ø 30mm (Ø1.18") Flush style
- Self-hold or spring return
- Button colour choice
- Illuminated version made by LED
- cULus and CE
- IEC/EN 60947-5-1, UL 508, IEC/EN 60073, IEC/EN 60529

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



Types

F = Flush round
IF = Illuminated¹ flush round

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

Colours

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

Dimensions and styles

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

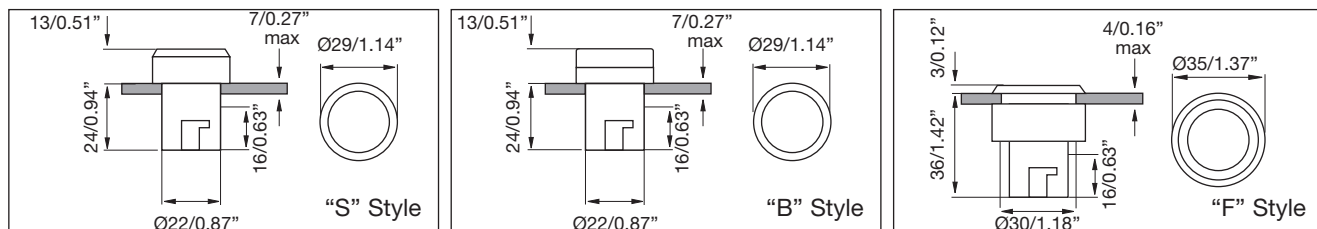
Actions

0 = Spring return
1 = Maintained

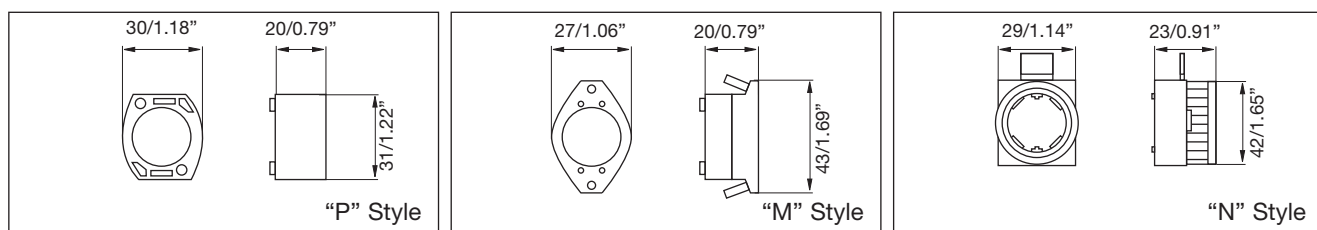
General data

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

Dimensions - Push Buttons mm/inches



Dimensions - Holders mm/inches



Panel Actuators and Indicators

Type PB

Extended Push Buttons

CARLO GAVAZZI



- Ø 22mm (Ø0.87") Standard and bezel style
- Ø 30mm (Ø1.18") Flush 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.

Approvals



Types

E = Extended round
IE = Illuminated¹ extended round

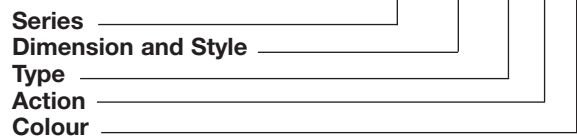
¹ = Light function is obtained by the lamp element pg.19

Colours

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

Ordering key

PB 22S IE 0 R



Dimensions and styles

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

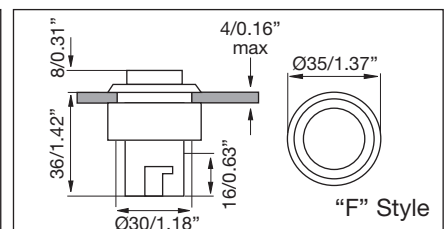
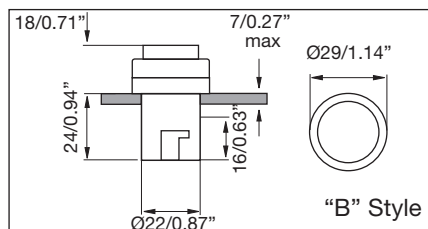
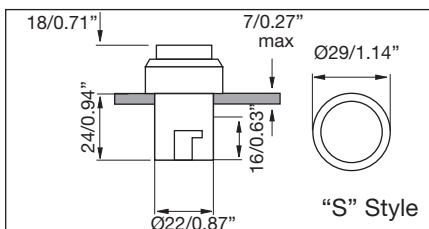
Actions

0 = Spring return
1 = Maintained

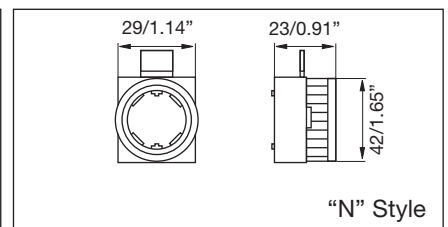
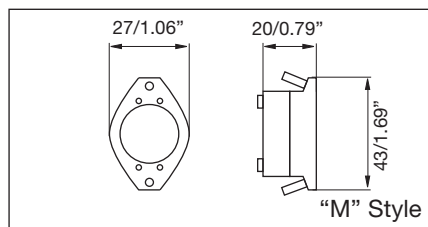
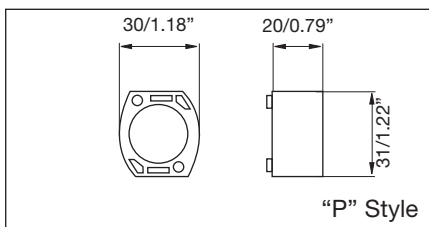
General data

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

Dimensions - Push Buttons mm/inches



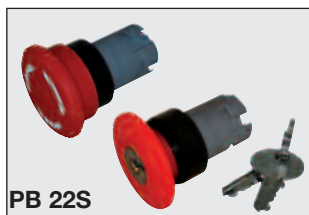
Dimensions - Holders mm/inches



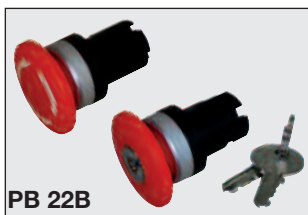
Panel Actuators and Indicators

Type PB

Red Emergency Stop Push Buttons



PB 22S



PB 22B

- Ø 22mm (Ø0.87") Standard and bezel style
- Ø 30mm (Ø1.18") Flush style
- Mushroom shape
- Push to lock, turn clockwise to reset
- Push to lock, unlock by turning the key
- Ø 40mm (Ø1.57") or Ø 60mm (Ø2.36") head
- cULus and CE
- IEC/EN 60947-5-1, UL 508, IEC/EN 60073, IEC/EN 60529
- EN 418
- IEC/EN 60947-5-5



PB 30F

Product description

The STOP function is obtained by pushing the head while the reset is obtained by turning clockwise the head or the key.

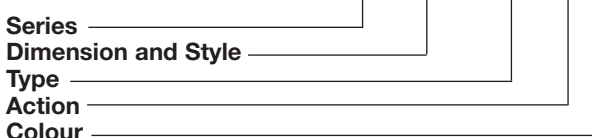
It is used in dangerous situations

when emergency measures are required.

They should be ordered in parts (operator + holder + contact block) and installed in an enclosure.

Ordering key

PB 22S EM4 1 R



Dimensions and styles

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

Action

- 1 = Maintained

General data

Peripheral of actuator	AL
Actuator	Pa
Mechanical life	≥5 x 10 ⁴ 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

Approvals



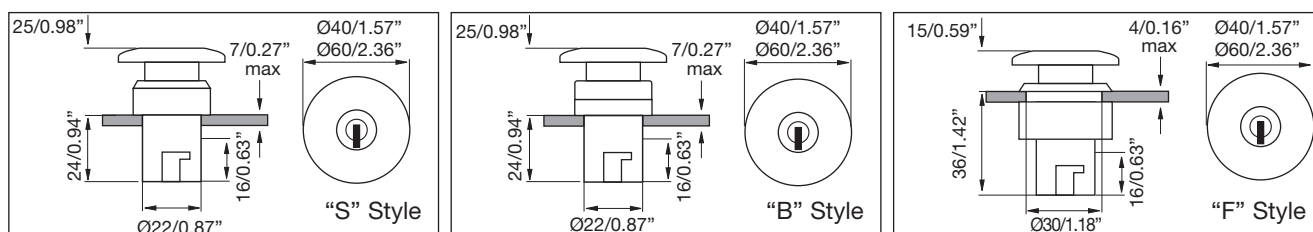
Types

- EM4 = Red emergency stop Ø40mm (Ø1.57")
- EM6 = Red emergency stop Ø60mm (Ø2.36")
- KM4 = Red key-reset emergency stop Ø40mm (Ø1.57")

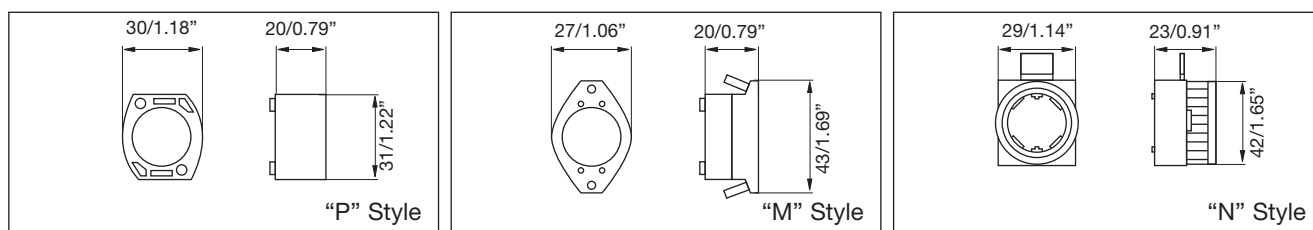
Colour

R = Red

Dimensions - Push Buttons mm/inches



Dimensions - Holders mm/inches



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

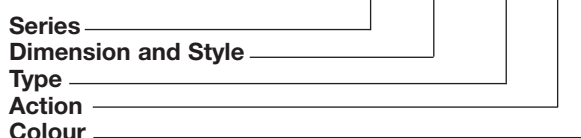
- M4** = Mushroom Ø40mm (Ø1.57")
 - M6** = Mushroom Ø60mm (Ø2.36")
 - IM4** = Illuminated¹ mushroom Ø40mm (Ø1.57")
 - IM6** = Illuminated¹ mushroom Ø60mm (Ø2.36")
- ¹ = Light function is obtained by the lamp element pg.19

Colours

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

Ordering key

PB 22S IM4 0 R



Dimensions and styles

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

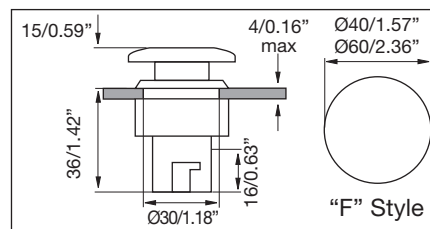
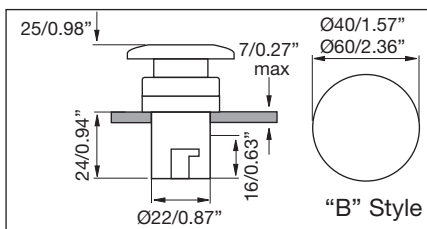
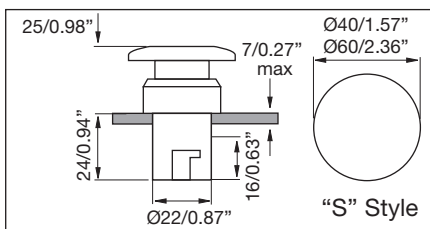
Actions

- 0** = Spring return
- 1** = Maintained

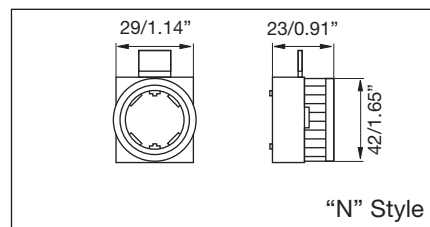
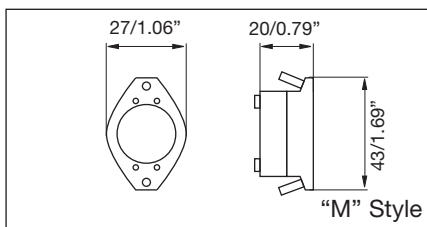
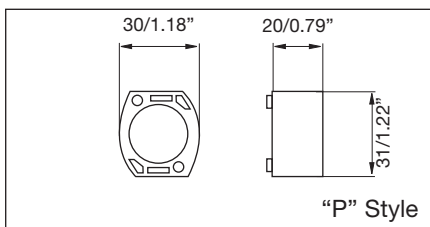
General data

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

Dimensions - Push Buttons mm/inches



Dimensions - Holders mm/inches



Panel Actuators and Indicators

Type PB

Short-handle Selector Switches



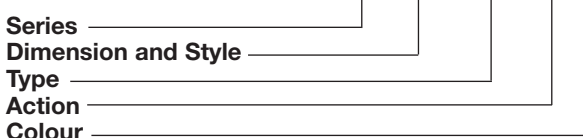
- Ø 22mm (Ø0.87") Standard and bezel style
- Ø 30mm (Ø1.18") Flush style
- Self-hold or spring return
- Knob colour choice
- Two and three positions
- Illuminated version made by LED
- AC and DC voltage
- cULus and CE
- IEC/EN 60947-5-1, UL 508, IEC/EN 60073, IEC/EN 60529

Product description

Selector switches are mechanical switches that can be turned right, center or left to open or to close the electric contacts. They are mostly used to start/stop devices or to switch between two/three electric circuits. They should be ordered in parts (operator + holder + contact block) and installed in an enclosure.

Ordering key

PB 22S ISRS 32 R



Approvals



Types

SRS = Short-handle selector switch
ISRS = Illuminated short-handle selector switch

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

Colours

R = Red
W = Clear/White
K = Black (only not illuminated)

B = Blue (only illuminated)
Y = Yellow
G = Green

Dimensions and styles

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

Actions

(the arrows indicate the spring return function)

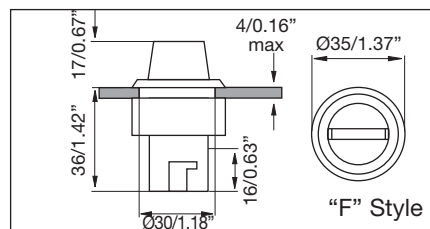
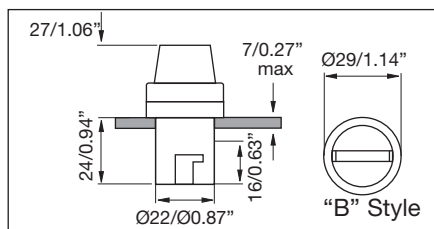
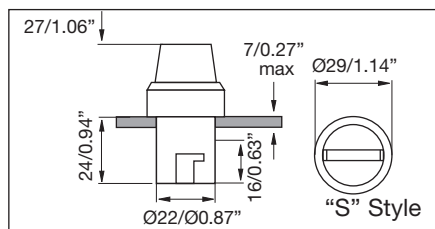
21 = Two positions L R
22 = Two positions L C
23 = Two positions C R
31 = Three positions L C R

32 = Three positions L C R not for illuminated
33 = Three positions L C R not for illuminated
34 = Three positions L C R not for illuminated

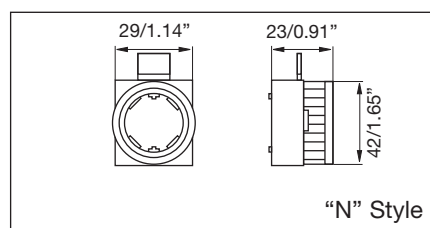
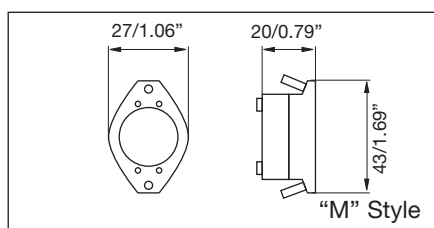
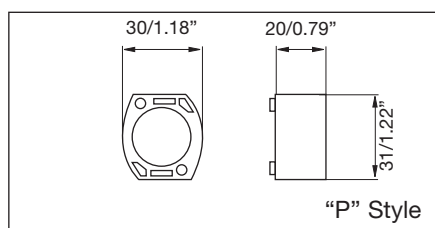
General data

Peripheral of actuator	AL
Actuator	Pa
Mechanical life	≥30 x 10 ⁴ 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



Dimensions - Holders mm/inches



Panel Actuators and Indicators

Type PB

Key Selector Switches



- Ø 22mm (Ø0.87") with Standard key
- Ø 30mm (Ø1.18") with Triangle key
- Two and three positions
- cULus and CE
- IEC/EN 60947-5-1, UL 508



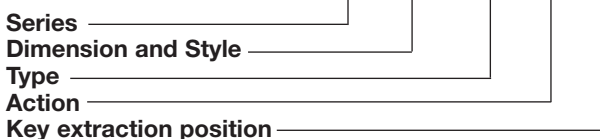
Product description

Key selector switches are mechanical switches that can be turned right, center or left to open or to close the electric contacts. Mostly used to switch between two/three circuits. When the key

is pulled-out no any other action can be done. They should be ordered in parts (operator + holder + contact block) and installed in an enclosure.

Ordering key

PB 22S KRS 31 KC



Approvals



Types

KRS = Key selector switch

Dimensions and styles

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

Actions

21 = Two positions L R
31 = Three positions L C R

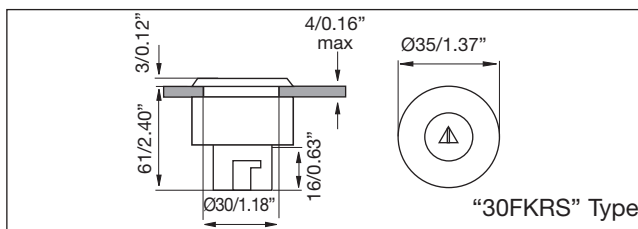
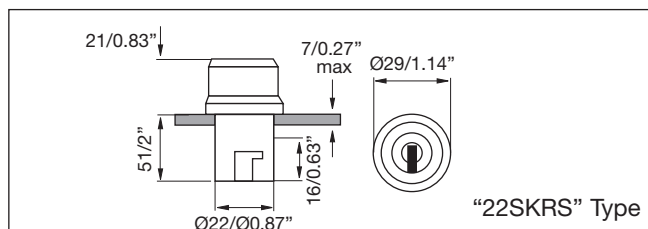
Key extraction position

KL = on the left position
KC = on the center position
KR = on the right position

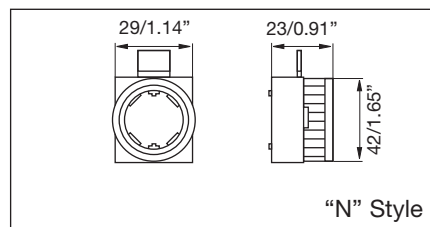
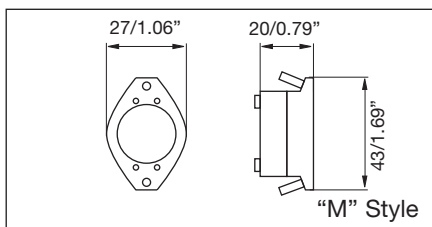
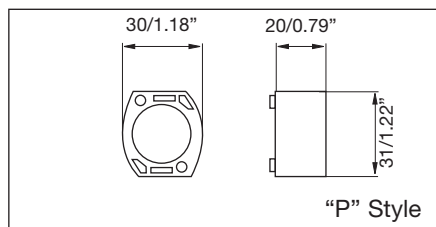
General data

Peripheral of actuator	AL
Actuator	Pa
Mechanical life	≥5 x 10 ⁴ 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



Dimensions - Holders mm/inches

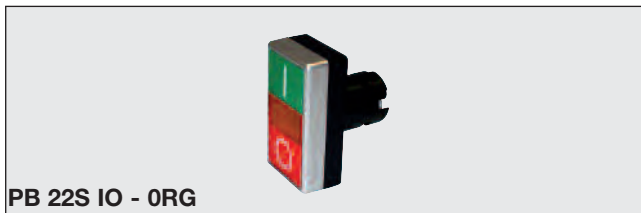


Panel Actuators and Indicators

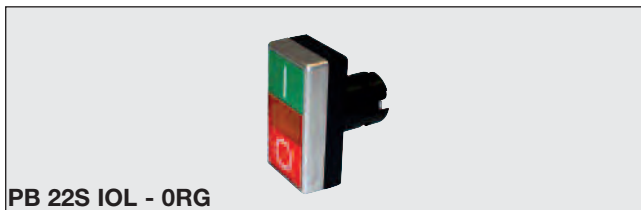
Type PB22

I/O Push Buttons

CARLO GAVAZZI



- Ø 22mm (Ø0.87") Standard style
- Compact design
- ON/OFF function
- I red and O green
- Yellow Light made by LED
- Spring return
- cULus and CE
- IEC/EN 60947-5-1, UL 508, IEC 73, IEC/EN 60529



Product description

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

Approvals



Types

IO = IO Push Button (ON-OFF type)
IOL = IO Push Button (ON-OFF type) illuminated¹

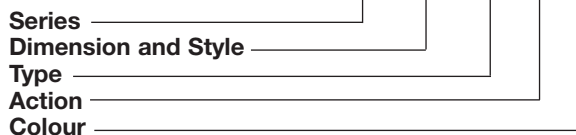
¹ = Light function is obtained by the lamp element pg.19

Colour

RG= Red and Green

Ordering key

PB 22S IOL 0 RG



Dimensions and style

22S = Ø22mm (Ø0.87") Standard style

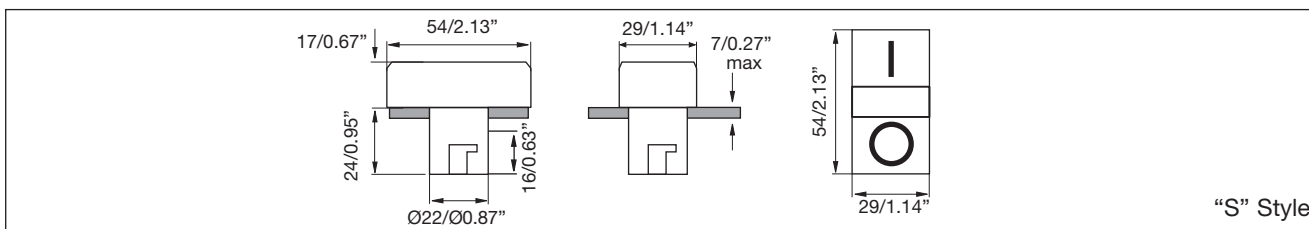
Action

0 = Spring return

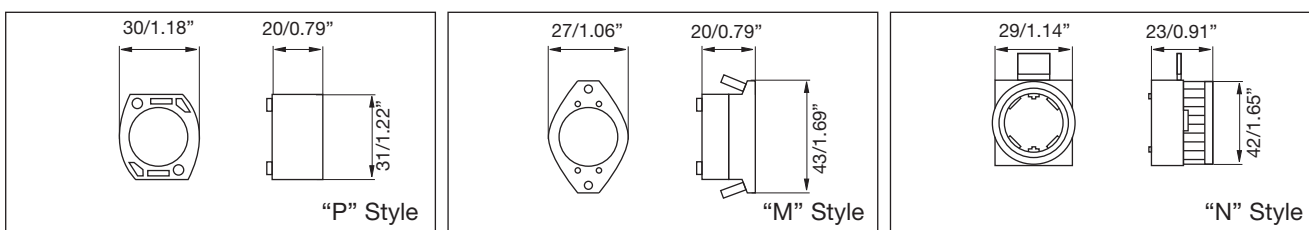
General data

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

Dimensions - Push Buttons mm/inches



Dimensions - Holders mm/inches



Specifications are subject to change without notice. Pictures are just an example. For special features and/or customization, please ask to our sales network. **17**

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
- IEC/EN 60947-5-1, IEC/EN 60947-5-5

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



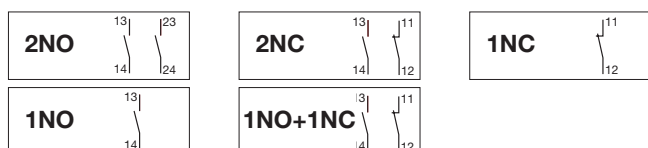
Contact code

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 (acc. to IEC 60947-5-1)	6A - 220VAC 4A - 380VAC 2.5A - 500VAC A600
Contact Rating (acc. to UL 508)	
Contact Rating DC13 (acc. to IEC 60947-5-1)	6A - 24VDC 3A - 48VDC 1A - 110VDC 0.5A - 220VDC 0.25A - 440VDC Q600
Contact Rating (acc. to UL 508)	

Wiring diagram



Ordering key

PA 2 110 / 1

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

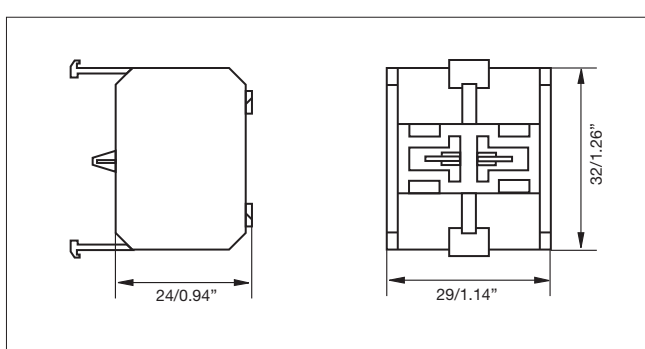
Terminals

Screw terminals	
Max. section single-core wire	2 x 2.5mm² (0.004sq.inch)
Max. section stranded wire	2 x 1.5mm² (0.002sq.inch)

Technical data

Contact resistance	≤50mΩ
Travel	5.8 ± 0.2mm (2.28" ± 0.08")
Rated insulation Voltage U_i	660VAC (acc. to IEC 60947-5-1) A600, Q600 (acc. to UL 508)
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)

Dimensions mm/inches



Panel Actuators and Indicators

Type PALAMP

Lamp Element



PALAMP-R220A

- Different colours choice
- High brightness pure colour LED
- High reliability and durability
- AC and DC voltage
- cULus and CE
- IEC/EN 60947-5-1

Product description

The illuminated function in a push button is obtained using the lamp element. To choose it just to choose two different characteristics : the colour and the supply voltage. It is made by high-brightness

pure colour LED. It is a guarantee of more efficiency and reliability. Infact, the LED technology reach over than 100.000 hours of service life and the power consumption is lower than filament bulb type.

Ordering key

PALAMP R 220A

Type _____
 Colour _____
 Voltage _____

Approvals



Colours

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

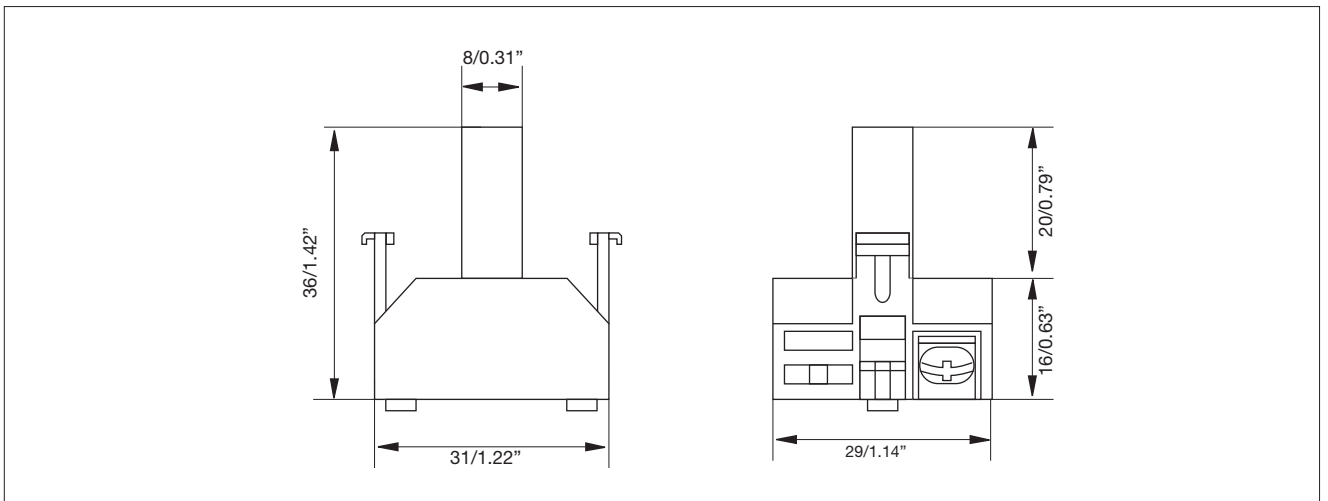
Voltage

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



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

Panel Actuators and Indicators

Type PL 22

Pilot Lights

CARLO GAVAZZI



PL 22C HL



PL 22C RL



PL 22C LL



PL 22C TL

- Ø 22mm (Ø0.87") dimension
- Compact versions
- Different colours choice
- High brightness pure colour LED
- High reliability and durability
- AC and DC voltage
- cULus and CE
- IEC/EN 60947-5-1, IEC/EN 60073, IEC/EN 60529



PL 22S FL

Product description

Pilot lights are panel mounted lamp assemblies consisting of the indicator housing, an internal lamp, terminals, and a lens. Applications include industrial control panels of all types,

equipment indicator panels, status indicators and display lighting. The light source is high brightness pure colour LED.

Ordering key

PL 22C HL R 24

Series _____
 Dimension _____
 Type _____
 Colour _____
 Voltage _____

Approvals



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)
Degree of protection	IP 65

Dimensions

22S = Ø22mm (Ø0.87") standard size
 22C = Ø22mm (Ø0.87") compact size (not for FL type)

Types

HL = High Lens
 RL = Round Lens
 LL = Low Lens
 TL = Teeth Lens
 FL = Flash Light

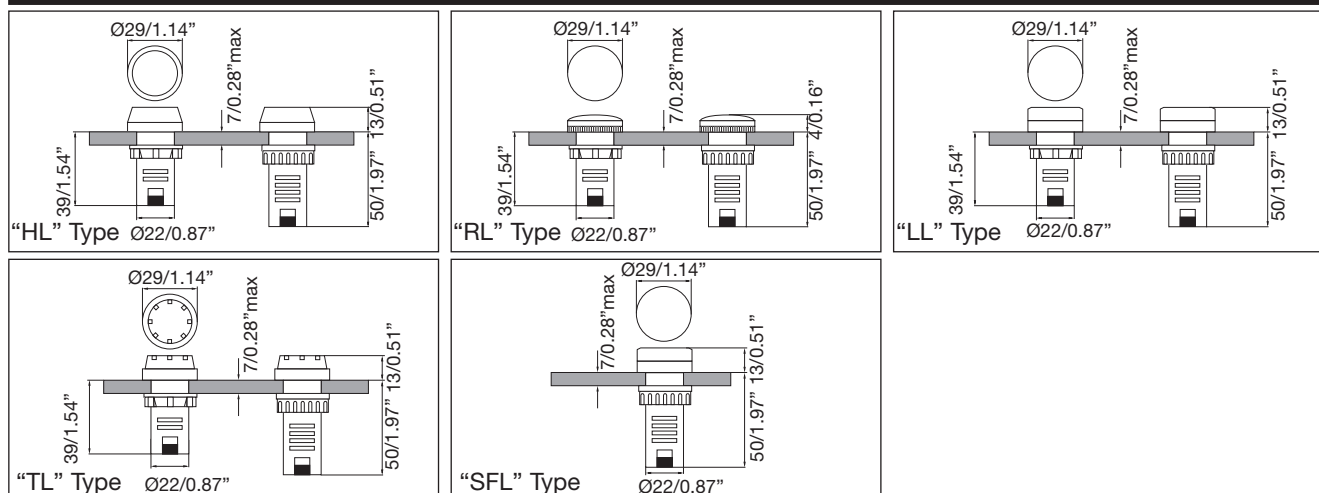
Colours

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

Voltages

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

Dimensions mm/inches



Panel Actuators and Indicators

Type PL 22

Two Colours Pilot Light

CARLO GAVAZZI



PL 22S TC

- Ø 22mm (Ø0.87") dimension
- Two colours lamp
- High brightness pure colour LED
- High reliability and durability
- AC and DC voltage
- cULus and CE
- IEC/EN 60947-5-1, IEC/EN 60073, IEC/EN 60529

Product description

Pilot lights are panel mounted lamp assemblies consisting of the indicator housing, an internal lamp, terminals, and a lens. Applications include industrial control panels of all types,

equipment indicator panels, status indicators and display lighting. The light source is high brightness pure colour LED.

Approvals

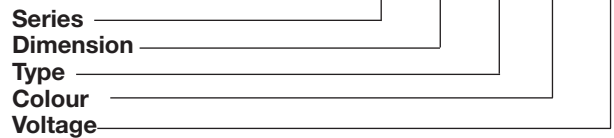


Technical data

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)
Degree of protection	IP 65

Ordering key

PL 22S TC RG 24



Dimension and style

22S = Ø22mm (Ø0.87") standard size

Type

TC = Two colours

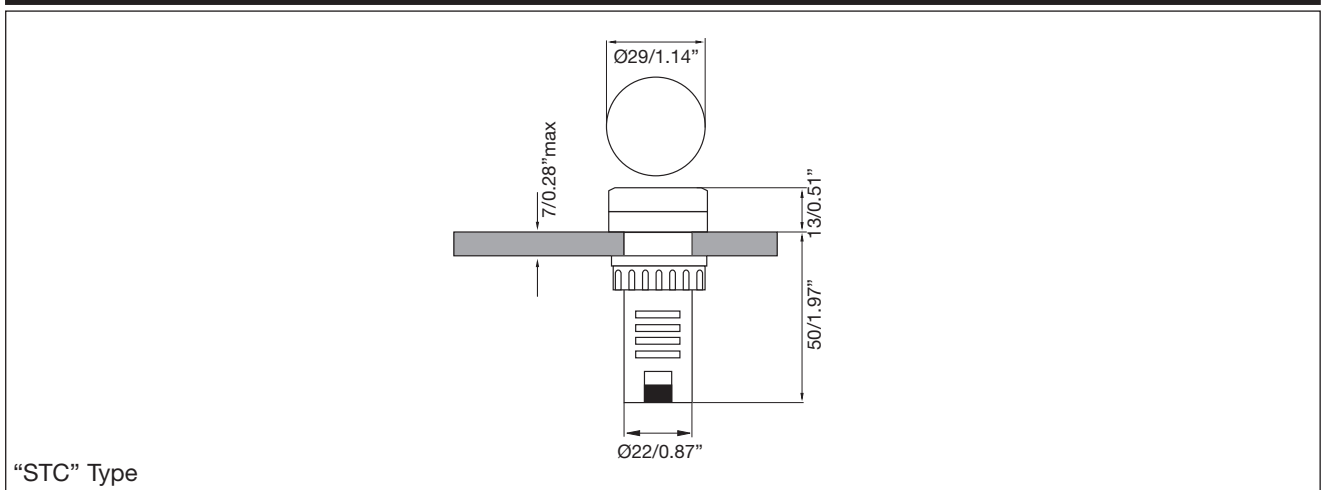
Colour

RG= Red and Green

Voltage

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




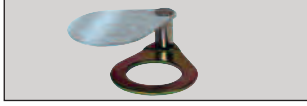


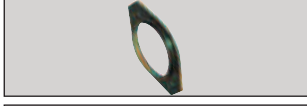



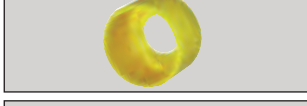



Dimensions mm/inches



"STC" Type

Accessories for Push Buttons, Selector Switches and Pilot Lights



	Holder type "M"	Holder type "P"	Holder type "N"	Sealing cover IP67	Shield	Protection cover	Terminal shield	Mounting ring Ø22mm (0.87")	Mounting ring Ø25mm (0.98")	Front bezel set Ø30mm (1.18")	Label frame	Warning plate	Yellow protection ring	Reducing ring for Pilot Light Ø22mm (0.87")	Fastening connector for Pilot Light Ø22mm (0.87")	Panel hole cap Ø22mm (0.87")
	To install push button															
		To install push button														
			To install push button													
				Always on the head of operators, waterproof and dust, IP67.												
					Always on the head of button, prevent strike and mistaking operation.											
						Always on the head of button, prevent strike and mistaking operation. Lockable.										
							Installed behind the wiring screws of the contact block to avoid electric shock.									
								Installed on plastic panel to strengthen mounting.								
									When the mounting hole is Ø25mm (0.98"), it should be add to the panel.							
										For Ø30mm (1.18") panel hole, to have a thinner effect.						
											Hang it on the push button or pilot light, for symbol or text explanation.					
												For emergency stop push buttons.				
													To protect button and to prevent strike or mistaking operation.			
														To mount the Ø22mm (0.87") pilot light into the hole for Ø25mm (0.98") or Ø30mm (1.18") of the panel.		
															Improve the quality of installation and reduce the time of installations.	
																For blocking up prepared or useless holes on the panels.

OUR SALES NETWORK IN EUROPE

AUSTRIA - Carlo Gavazzi GmbH
Ketzergasse 374, A-1230 Wien
Tel: +43 1 888 4112
Fax: +43 1 889 10 53
office@carlogavazzi.at

BELGIUM - Carlo Gavazzi NV/SA
Schaarbeeklei 213/3, B-1800 Vilvoorde
Tel: +32 2 257 4120
Fax: +32 2 257 41 25
sales@carlogavazzi.be

DENMARK - Carlo Gavazzi Handel A/S
Over Hadstenvej 38, DK-8370 Hadsten
Tel: +45 89 60 6100
Fax: +45 86 98 15 30
handel@gavazzi.dk

FINLAND - Carlo Gavazzi OY AB
Petaksentie 2-4, FI-00630 Helsinki
Tel: +358 9 756 2000
Fax: +358 9 756 20010
myynti@carlogavazzi.fi

FRANCE - Carlo Gavazzi Sarl
Zac de Paris Nord II, 69, rue de la Belle
Etoile, F-95956 Roissy CDG Cedex
Tel: +33 1 49 38 98 60
Fax: +33 1 48 63 27 43
french.team@carlogavazzi.fr

GERMANY - Carlo Gavazzi GmbH
Rudolf-Diesel-Strasse 23,
D-64331 Weiterstadt
Tel: +49 6151 81000
Fax: +49 6151 81 00 40
kontakt@carlogavazzi.de

GREAT BRITAIN - Carlo Gavazzi UK Ltd
7 Springlakes Industrial Estate,
Deadbrook Lane, Hants GU12 4UH,
GB-Aldershot
Tel: +44 1 252 339600
Fax: +44 1 252 326 799
sales@carlogavazzi.co.uk

ITALY - Carlo Gavazzi SpA -
Via Milano 13, I-20020 Lainate
Tel: +39 02 931 761
Fax: +39 02 931 763 01
info@gavazziacbu.it

NETHERLANDS - Carlo Gavazzi BV
Wijkermeerweg 23,
NL-1948 NT Beverwijk
Tel: +31 251 22 9345
Fax: +31 251 22 60 55
info@carlogavazzi.nl

NORWAY - Carlo Gavazzi AS
Melkeveien 13, N-3919 Porsgrunn
Tel: +47 35 93 0800
Fax: +47 35 93 08 01
gavazzi@carlogavazzi.no

PORTUGAL - Carlo Gavazzi Lda
Rua dos Jerónimos 38-B,
P-1400-212 Lisboa
Tel: +351 21 361 7060
Fax: +351 21 362 13 73
carlogavazzi@carlogavazzi.pt

SPAIN - Carlo Gavazzi SA
Avda. Iparraguirre, 80-82,
E-48940 Leioa (Bizkaia)
Tel: +34 94 480 4037
Fax: +34 94 480 10 61
gavazzi@carlogavazzi-sa.es

SWEDEN - Carlo Gavazzi AB
Nattvindsgatan 1, S-65221 Karlstad
Tel: +46 54 85 1125
Fax: +46 54 85 11 77
gavazzi@carlogavazzi.se

SWITZERLAND - Carlo Gavazzi AG
Verkauf Schweiz/Vente Suisse
Sumpfstrasse 32,
CH-632 Steinhausen
Tel: +41 41 747 4535
Fax: +41 41 740 45 40
verkauf_vente@carlogavazzi.ch

OUR SALES NETWORK IN NORTH AMERICA

USA - Carlo Gavazzi Inc.
750 Hastings Lane,
USA-Buffalo Grove, IL 60089,
Tel: +1 847 465 6100
Fax: +1 847 465 7373
sales@carlogavazzi.com

CANADA - Carlo Gavazzi Inc.
2660 Meadowvale Boulevard,
CDN-Mississauga Ontario L5N 6M6,
Tel: +1 905 542 0979
Fax: +1 905 542 22 48
gavazzi@carlogavazzi.com

CANADA - Carlo Gavazzi LTEE
3777 Boulevard du Tricentenaire
Montreal, Quebec H1B 5W3
Tel: +1 514 644 2544
Fax: +1 514 644 2808
gavazzi@carlogavazzi.com

OUR SALES NETWORK IN ASIA AND PACIFIC

SINGAPORE - Carlo Gavazzi Automation
Singapore Pte. Ltd.
No. 178 Paya Lebar Road
#04-01/05 409030 Singapore
Tel: +65 67 466 990
Fax: +65 67 461 980

MALAYSIA - Carlo Gavazzi
Automation (M) Sdn Bhd.
54, Jalan Rugby 13/30,
Tadisma Business Park Seksyen13
40100 Shah Alam, Selangor
Tel: +60 3 55 121162
Fax: +60 3 55 126098

CHINA - Carlo Gavazzi Automation
(China) Co. Ltd.
Rm. 2308 - 2310, 23/F.,
News Building, Block 1,
1002 Shennan Zhong Road,
Shenzhen, China
Tel: +86 755 83699500
Fax: +86 755 83699300

HONG KONG - Carlo Gavazzi Automation
Hong Kong Ltd.
Unit 3 12/F Crown Industrial Bldg.,
106 How Ming St., Kowloon,
Hong Kong
Tel: +852 23041228
Fax: +852 23443689

OUR PRODUCTION SITES

Carlo Gavazzi Industri A/S
Hadsten - **DENMARK**

Carlo Gavazzi Ltd
Zejtun - **MALTA**

Carlo Gavazzi Controls SpA
Controls Division
Belluno - **ITALY**

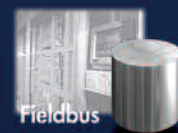
Carlo Gavazzi Controls SpA
Sensors Division
Castel Maggiore (BO) - **ITALY**

Uab Carlo Gavazzi Industri Kaunas
Kaunas - **LITHUANIA**

Carlo Gavazzi Automation
(Kunshan) Co., Ltd.
Kunshan - **CHINA**

HEADQUARTERS

Carlo Gavazzi Automation SpA
Via Milano, 13 - I-20020
Lainate (MI) - **ITALY**
Tel: +39 02 931761
info@gavazzi-automation.com
www.carlogavazzi.com/ac



CARLO GAVAZZI
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Further information on
www.gavazziautomation.com
www.carlogavazzi.com/ac

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