

IP series

Pushbutton switches for harsh environments •
bushing Ø 12 mm • momentary



DISTINCTIVE FEATURES

Illuminated or non-illuminated
Tactile feedback
Wide variety of configurations
Flat round actuator for optional marking
Sealed to IP67 and IP69K



ENVIRONMENTAL SPECIFICATIONS

- Front panel sealing: IP67 according to IEC 60529
IP69K according to DIN 40050-9 (non-illuminated) with cap U5125
- Shock resistance: 100 g according to IEC 512-4, test 6c
- Vibration resistance: 10-500Hz - 10 g according to IEC 512-4, test 6d
- Salt spray: IEC 512-6, test 11f
- Robustness (non-illuminated): IK06 according to EN 62262 (1 joule)
- Operating temperature: -40 °C to +85 °C (-40 °F to +185 °F)



ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load (gold plated silver contacts):
5 A 28 VDC, 70,000 cycles (only function 3)
0.2 A 48 VDC, 500,000 cycles
0.5 A 48 VAC, 500,000 cycles
- Initial contact resistance: 100 mΩ max.
- Insulation resistance: 1 GΩ min. at 500 VDC
- Dielectric strength: 1,500 Vrms
- Contact bounce: 10 ms

For W terminals, current has
to be limited to 400 mA.



LED COMPONENT SPECIFICATIONS

LED color	Forward current	Typ. forward voltage	Max. forward voltage
Super red (L0S)	20 mA	2.1 V	2.3 V
Yellow (L0Y)	20 mA	2.1 V	2.3 V
Green (L0G)	20 mA	2.1 V	2.3 V
Blue (L0B)	20 mA	3.2 V	3.8 V
White (L0W)	20 mA	3.35 V	4.25 V
Red/green (LSG)	20 mA	Red: 1.95 V / green: 2.1 V	2.5 V
Yellow/green (LYG)	20 mA	Yellow: 2 V / green: 2.1 V	2.5 V

A resistor must be series-connected by the user.

$$\text{Resistor value} = \frac{\text{supply voltage} - \text{LED forward voltage}}{\text{LED forward current}}$$

The company reserves the right to change specifications without notice.

IP series

Pushbutton switches for harsh environments •
bushing Ø 12 mm • momentary



GENERAL SPECIFICATIONS

- Panel thickness: 1.5 mm (.059) min.
4 mm (.157 max.)
- Total travel:
Function 3: 1.7 mm (.067) ± 0.3 mm (0.012)
Function 5: 1.3 mm (.051) ± 0.3 mm (0.012)
- Typical operating force: 6 N ± 2 N
- Low level/mech. life: 1,000,000 cycles
- Torque: 1.5 Nm max. applied to nut
- Soldering: 320 °C (608 °F) max. for 3 sec.



MATERIALS

- Case: thermoplastic UL94-V0
- Actuator: polyamide 6/6
- Bushing/bezel: zinc die-cast (zamak), black painted
- Contacts: - silver, gold plated (std)
- brass, gold plated (for option 104)
- Output wires (flying lead terminals):
F version: AWG20, section 0.6 mm²
W version: AWG24, section 0.23 mm²
- LED wires:
F version: AWG26, section 0.12 mm²
W version: AWG24, section 0.23 mm²
- Lens: polycarbonate
- Terminal seal: epoxy

AGENCY APPROVAL

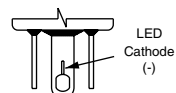


2 A 125 VAC/250 VAC
File E83438
See following pages.

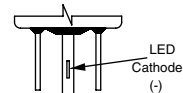


TERMINALS

ILLUMINATED MODELS

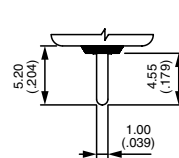


Solder lug **S**

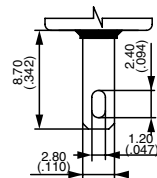


Straight **P**

NON-ILLUMINATED MODELS



Straight **P**

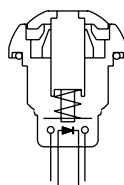


Quick-connect **Z1**



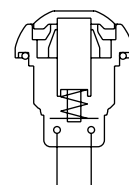
ELECTRICAL FUNCTIONS

ILLUMINATED MODELS

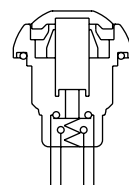


Function 3 (NO)

NON-ILLUMINATED MODELS



Function 3 (NO)

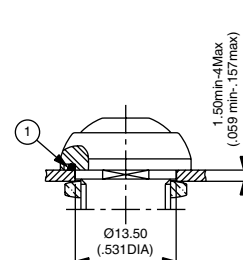
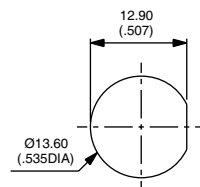


Function 5 (NC/NO)

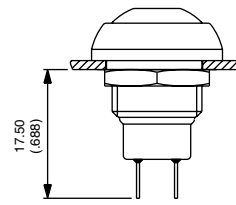
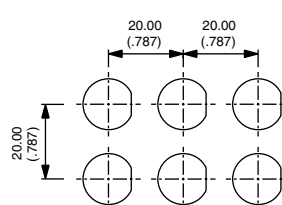


MOUNTING

PANEL CUT-OUT



MATRIX MOUNTING - BACK OF PANEL SPACE REQUIREMENT

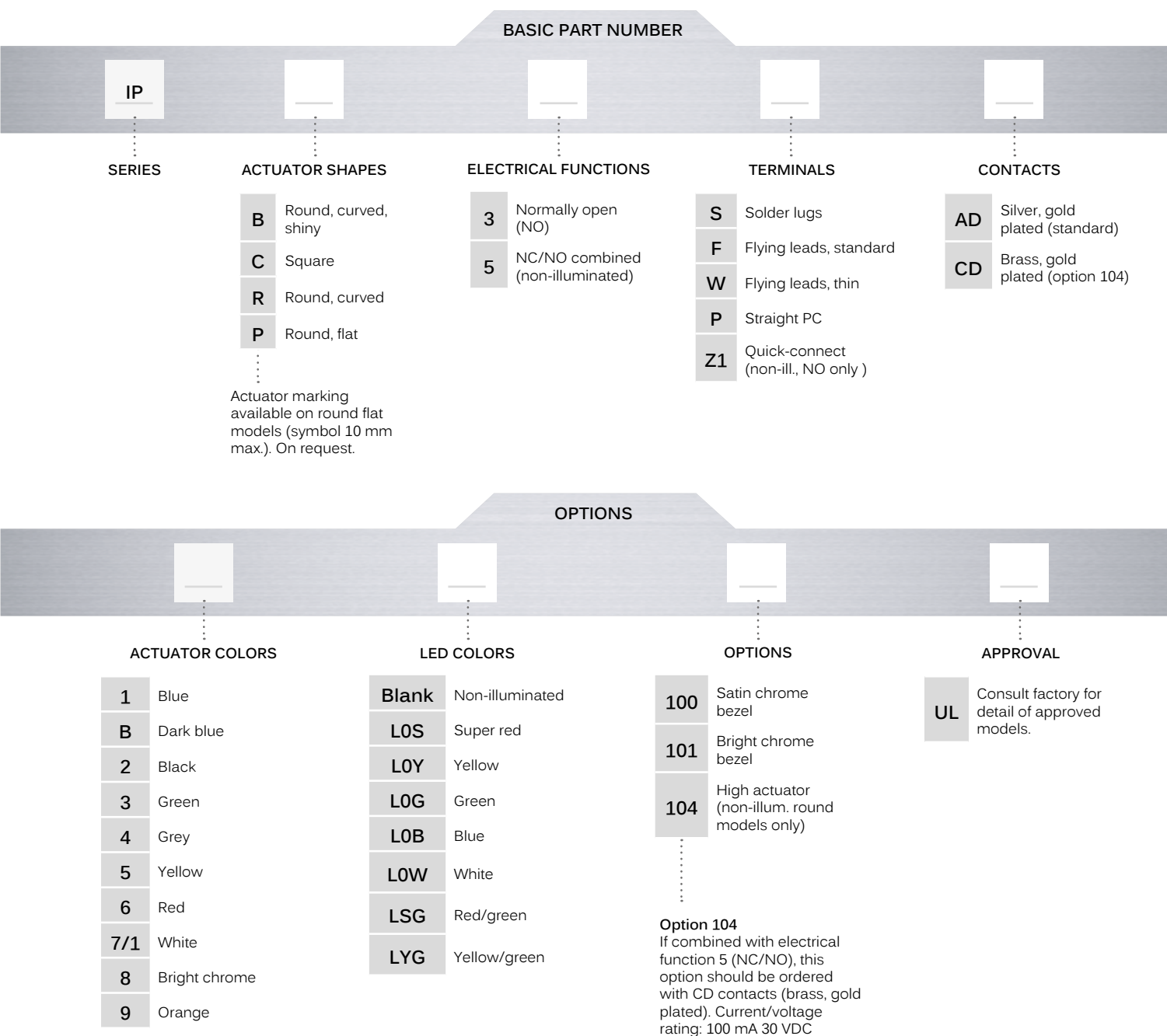


IP series

Pushbutton switches for harsh environments •
bushing Ø 12 mm • momentary



BUILD YOUR PART NUMBER



ABOUT THIS SERIES

On the following pages, you will find successively basic part numbers of switches and options in the same order as in above chart.

- ⚠ **Notice:** please note that not all combinations of above numbers are available. Refer to the following pages for further information.
- 💧 **A sealing boot** is available to protect the switches against frost and sand. See "Sealing Boots" section of website.
- 🔩 **Mounting accessories:** Standard hardware supplied: 1 hex nut 14 mm (.551) across flats and 1 O-ring. Hex nut part number U166.

IP series

Pushbutton switches for harsh environments •
bushing Ø 12 mm • momentary

SQUARE - ILLUMINATED SOLDER LUG TERMINALS



IPC3SAD



Normally Open

Also available with straight PC terminals: **IPC3PAD**
LED color is indicated by the bottom of the switch.

SQUARE - ILLUMINATED FLYING LEAD TERMINALS



IPC3FAD



Normally Open

For THIN flying leads, replace F with W.
Wire colors: black: NO contact, red: LED anode(+), blue: LED cathode(-)
Shown with standard flying lead terminals.

SQUARE - NON ILLUMINATED SOLDER LUG TERMINALS



IPC3SAD



Normally Open

IPC5SAD



Normally Open

Also available with straight PC terminals: **IPC3PAD** (NO) or **IPC5PAD** (NC/NO)
and quick-connect terminals: **IPC3Z1AD** (NO only)

SQUARE - NON ILLUMINATED FLYING LEAD TERMINALS



IPC3FAD



Normally Open

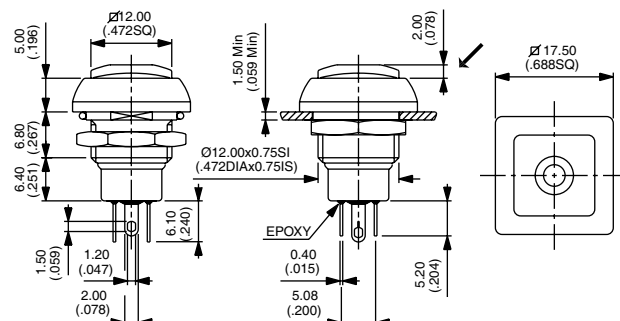
IPC5FAD



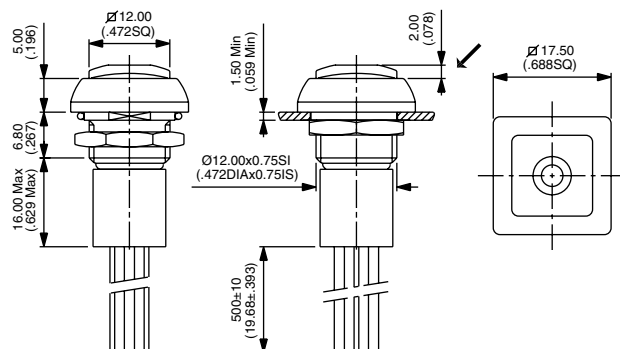
NC/NO combined

For THIN flying leads, replace F with W.
Wire colors (NC/NO): black: NO, blue: NC.
Shown with standard flying lead terminals.

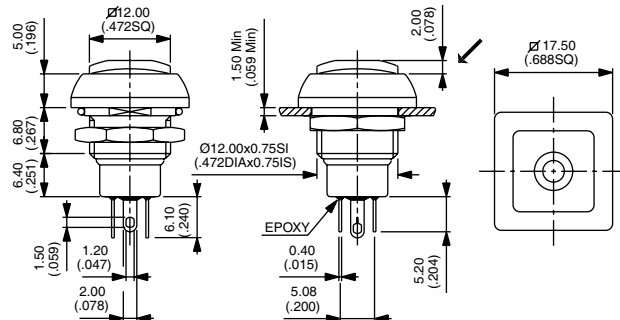
→ FLAT



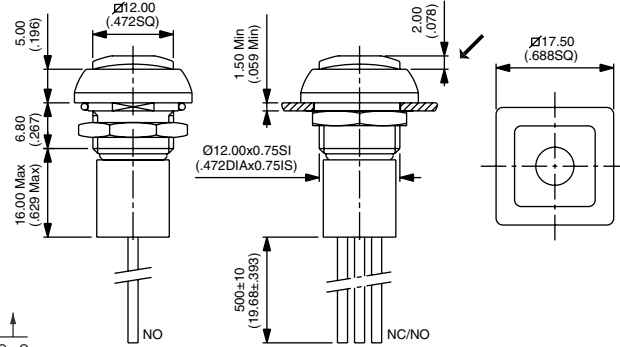
→ FLAT



→ FLAT



→ FLAT



NO

NC/NO

IP series

Pushbutton switches for harsh environments •
bushing Ø 12 mm • momentary

ROUND - ILLUMINATED SOLDER LUG TERMINALS



IPR3SAD



Normally Open

Also available with straight PC terminals: **IPR3PAD**
LED colour is indicated by the bottom of the switch.

ROUND - ILLUMINATED FLYING LEAD TERMINALS



IPR3FAD



Normally Open

For THIN flying leads, replace F with W.
Wire colors: black: NO contact, red: LED anode(+), blue: LED cathode(-)
Shown with standard flying lead terminals.

ROUND - NON ILLUMINATED SOLDER LUG TERMINALS



Curved actuator, NO

IPR3SAD



Curved actuator, NC/NO

IPR5SAD



Flat actuator, NO

IPP3SAD



Flat actuator, NC/NO

IPP5SAD



Also available with straight PC terminals: **IPC3PAD** (NO) or **IPC5PAD** (NC/NO)
and quick-connect terminals: **IPC3Z1AD** (NO only)

ROUND - NON ILLUMINATED FLYING LEAD TERMINALS



Curved actuator, NO

IPR3FAD



Curved actuator, NC/NO

IPR5FAD



Flat actuator, NO

IPP3FAD



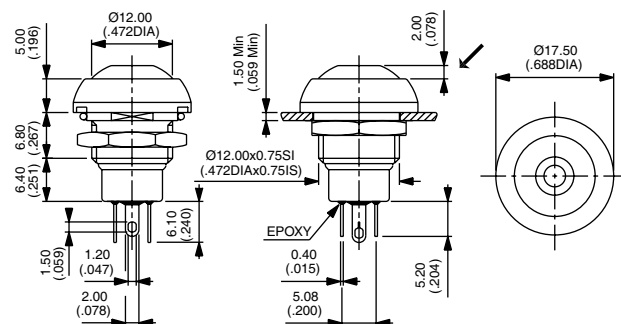
Flat actuator, NC/NO

IPP5FAD

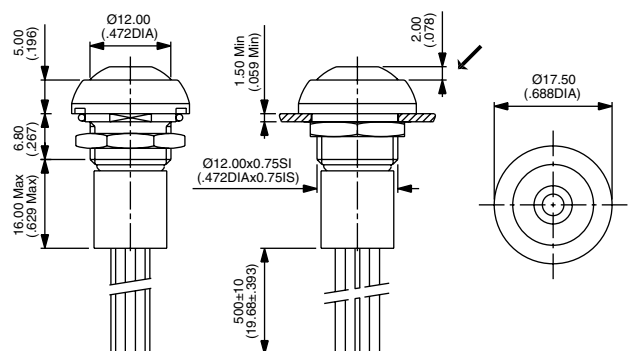


For THIN flying leads, replace F with W.
Wire colors (NC/NO): black: NO, blue: NC
Shown with standard flying lead terminals.

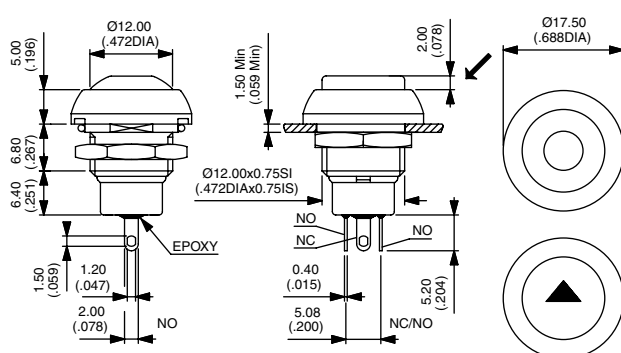
→ FLAT



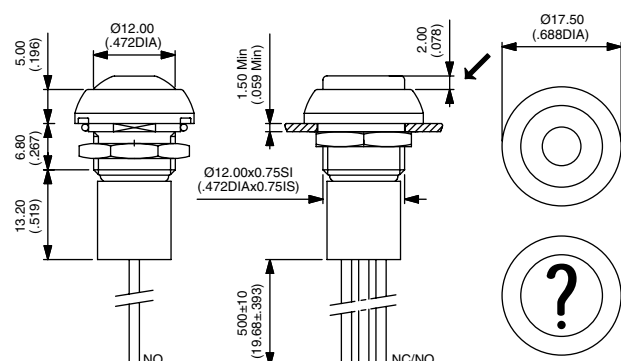
→ FLAT



→ FLAT



→ FLAT



IP series

Pushbutton switches for harsh environments •
bushing Ø 12 mm • momentary

ACTUATOR COLORS

BASIC P/N

1	Blue	6	Red
B	Dark blue	7/1	White
2	Black	8	Bright chrome
3	Green	9	Orange
4	Grey	A	Satin chrome
5	Yellow		

LED COLORS

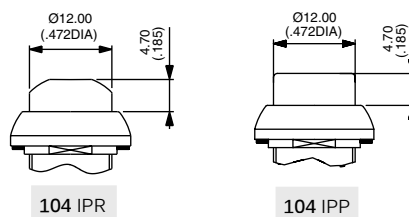
BASIC P/N

Blank	Non-illuminated
L0S	Super red
L0Y	Yellow
L0G	Green
L0B	Blue
L0W	White
LSG	Red/green
LYG	Yellow/green

OPTIONS

BASIC P/N

100	Satin chrome bezel
101	Bright chrome bezel
104	High actuator - For round, non-illuminated only If combined with function 5 (NC/NO), order with CD contacts (instead of AD contacts).



AGENCY APPROVAL

BASIC P/N

UL

Consult factory for details of approved models. To order switches marked UL, complete above box with "UL".