

IP series

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

Distinctive features and specifications

UG1212-A-R1



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

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 50102 (1 joule)
- Operating temperature : -40°C to +85°C

ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load (gold plated silver contacts):
5A 28VDC, 70.000 cycles
0,2A 48VDC, 500.000 cycles
0,5A 48VAC, 500.000 cycles
- Initial contact resistance : 100 mΩ max.
- Insulation resistance : 1 GΩ min. at 500VDC
- Dielectric strength : 1.500 Vrms
- Contact bounce : 10 ms

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

LED COMPONENT SPECIFICATIONS

LED colour	Forward current	Typ. forward voltage	Max. forward voltage
Super red (LOS)	20mA	2,1V	2,3V
Yellow (LOY)	20mA	2,1V	2,3V
Green (LOG)	20mA	2,1V	2,3V
Blue (LOB)	20mA	3,2V	3,8V
White (LOW)	20mA	3,35V	4,25V

A resistor must be series-connected by the user.
Resistor value = $\frac{\text{supply voltage} - \text{LED forward voltage}}{\text{LED forward current}}$

GENERAL SPECIFICATIONS

- Panel thickness : 1,5 mm (.059) min.
4 mm (.157 max.)
- Total travel :
Funct. 3 : 1,7 mm (.067) +/- 0,3 mm
Funct. 5 : 1,3 mm (.051) +/- 0,3 mm
- Typical operating force : 6N +/- 2N
- Low level/mech. life : 1.000.000 cycles
- Torque : 1,5 Nm max. applied to nut
- Soldering : 320°C max. for 3 sec.

MATERIALS

- Case : thermoplastic UL94-V0
- Actuator : polyamide 6/6
- Bushing/bezel : zinc die-cast (zamac), 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

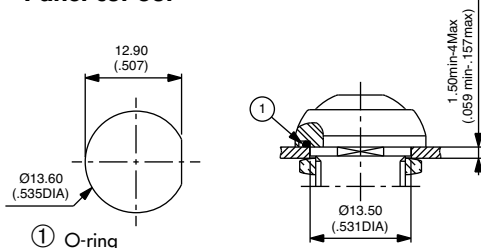


2A 125VAC/250VAC
File E83438

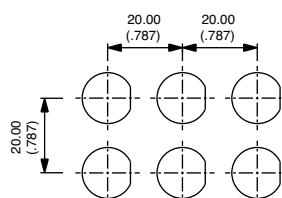
See following pages.

MOUNTING

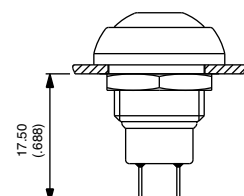
Panel cut-out



Matrix mounting



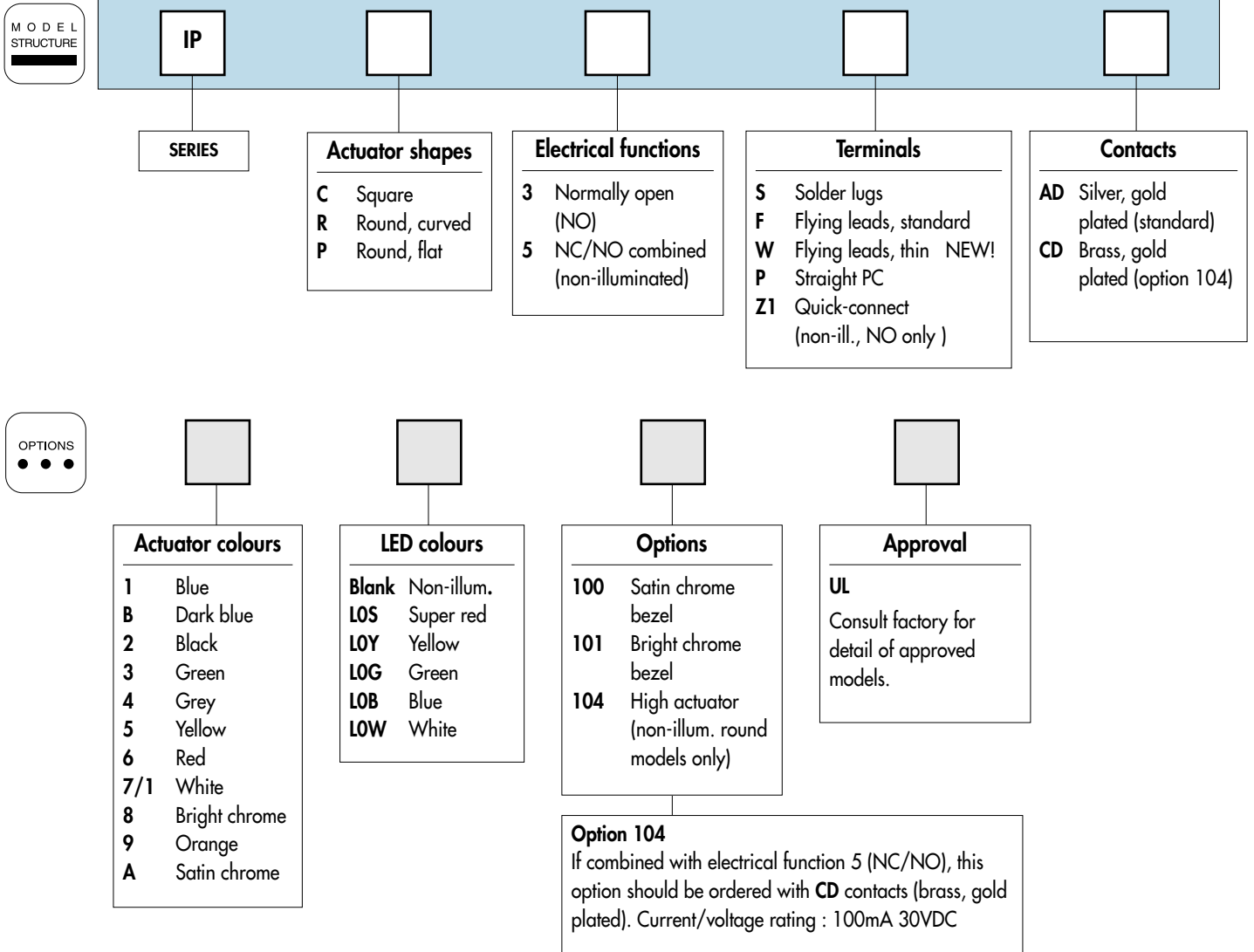
Back of panel space requirement



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Overview



ABOUT THIS SERIES

On the following pages, you will find successively :
model structure of switches and options in the same order as in above chart

Dimensions : first dimensions are in mm while inches are shown as bracketed numbers.



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. It is presented after the IA series and in section H.



Mounting accessories : Standard hardware supplied : 1 hex nut 14 mm (.551) across flats and 1 O-ring. Hex nut part number U166.

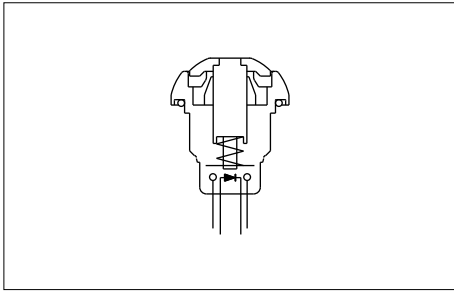


Packaging unit : 25 pieces

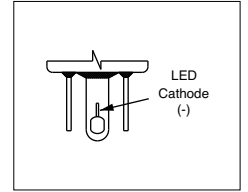
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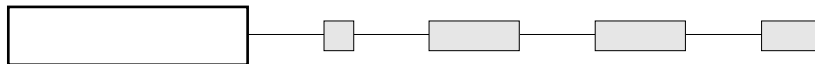
Square - illuminated



- High brightness illumination
- Five LED colours
- Tin plated LED terminals



MODEL STRUCTURE



Shown with standard flying lead terminals.

Solder lug terminals

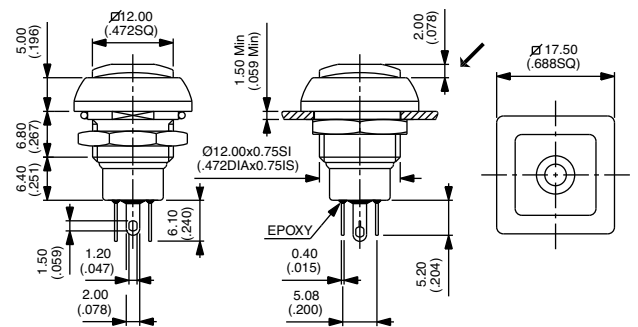


IPC3SAD



Normally Open

→ Flat



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

Sealed flying lead terminals



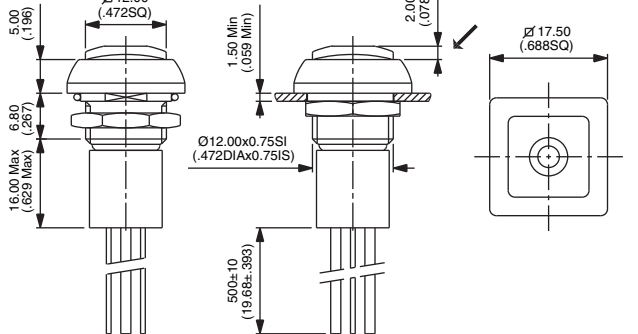
IPC3FAD



Normally Open

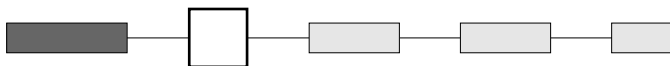
For THIN flying leads, replace F with W.

→ Flat



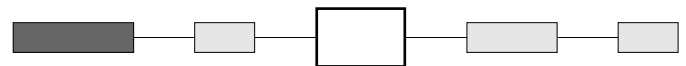
Wire colours : black : NO contact, red : LED anode(+), blue : LED cathode(-)

ACTUATOR COLOURS



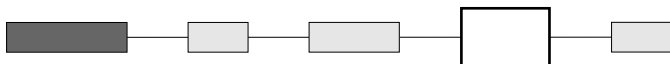
1 : blue - B : dark blue - 2 : black - 3 : green - 4 : grey
5 : yellow - 6 : red - 7/1 : white - 8 : bright chrome
9 : orange - A : satin chrome

LED COLOURS



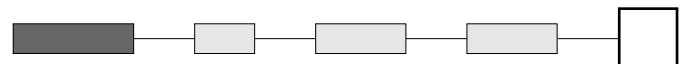
LOS : super red - LOY : yellow - LOG : green - LOB : blue
LOW : white

OPTIONS



100 : Satin chrome bezel
101 : Bright chrome bezel

APPROVAL

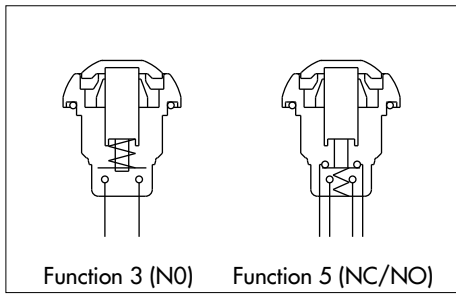


UL
Consult factory for details of approved models. To order switches marked UL, complete above box with "UL".

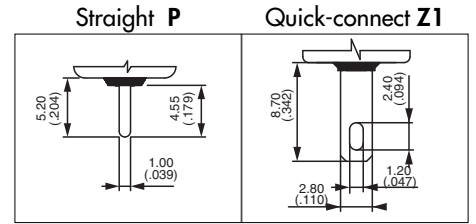
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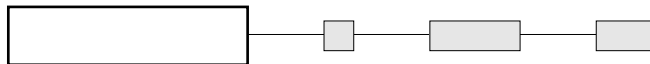
Square - non-illuminated



- Double function (NC/NO combined) with a short behind-panel depth



MODEL STRUCTURE



Shown with standard flying lead terminals.

Solder lug terminals



IPC3SAD



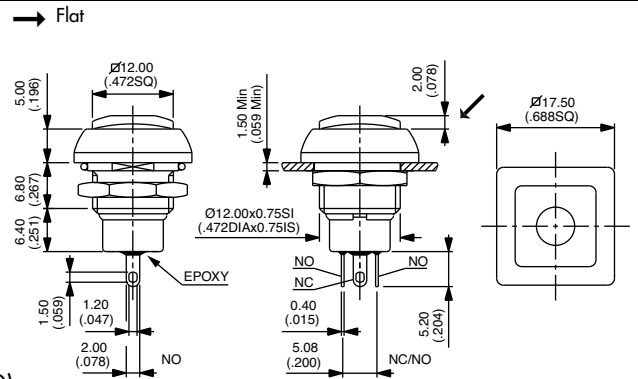
Normally Open

IPC5SAD



NC/NO combined

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



Sealed flying lead terminals



IPC3FAD



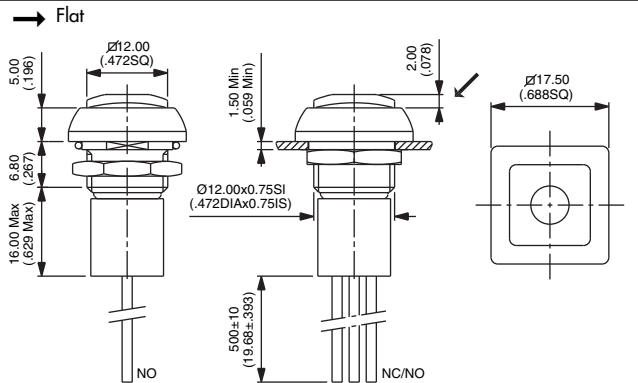
Normally Open

IPC5FAD



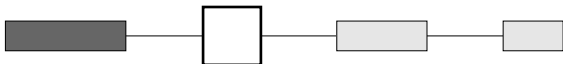
NC/NO combined

For THIN flying leads, replace F with W.



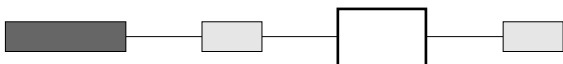
Wire colours (NC/NO) : black : NO, blue : NC

ACTUATOR COLOURS



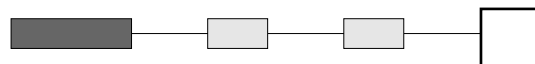
1 : blue - B : dark blue - 2 : black - 3 : green - 4 : grey - 5 : yellow - 6 : red - 7/1 : white - 8 : bright chrome
9 : orange - A : satin chrome

OPTIONS



100 : Satin chrome bezel
101 : Bright chrome bezel

APPROVAL

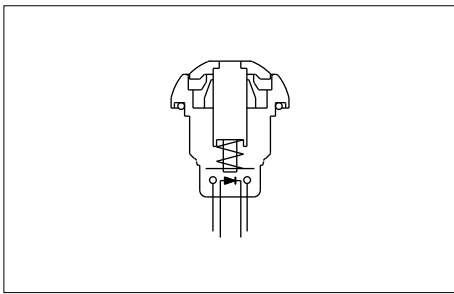


UL
Consult factory for details of approved models. To order switches marked UL, complete above box with "UL".

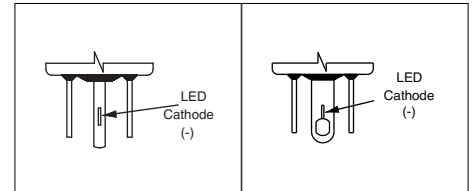
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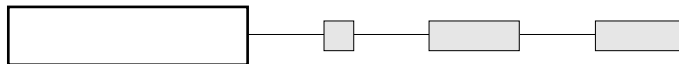
Round - illuminated



- High brightness illumination
- Five LED colours
- Tin plated LED terminals



MODEL STRUCTURE



Shown with standard flying lead terminals.

Solder lug terminals

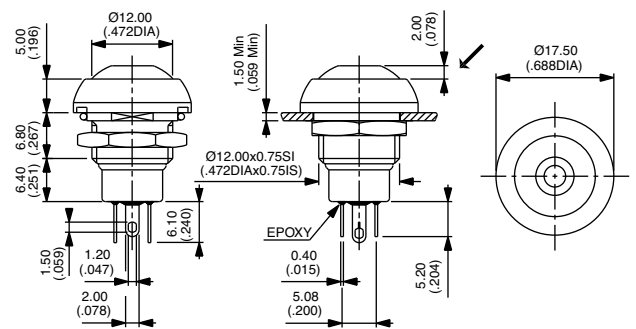


IPR3SAD



Normally Open

→ Flat



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

Sealed flying lead terminals



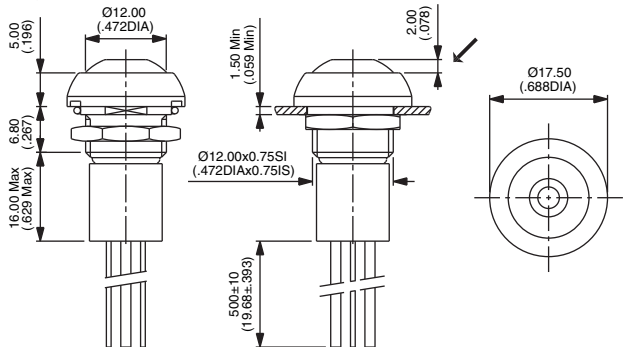
IPR3FAD



Normally Open

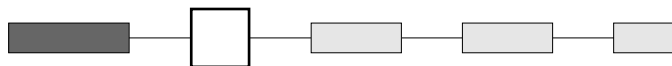
For THIN flying leads, replace F with W.

→ Flat



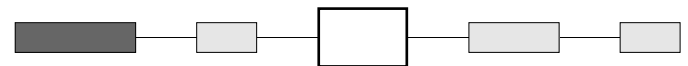
Wire colours : black : NO contact, red : LED anode(+), blue : LED cathode(-)

ACTUATOR COLOURS



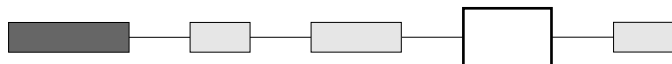
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9 : orange - A : satin chrome

LED COLOURS



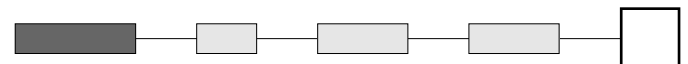
LOS : super red - LOY : yellow - LOG : green - LOB : blue
LOW : white

OPTIONS



100 : Satin chrome bezel
101 : Bright chrome bezel

APPROVAL

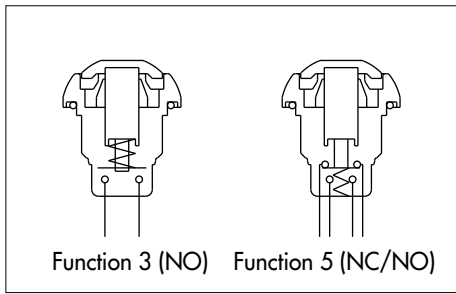


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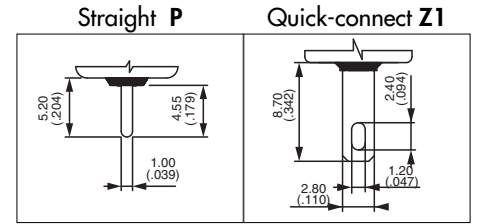
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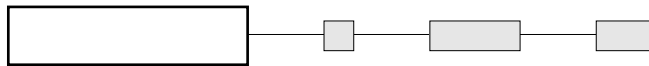
Round - non-illuminated



- Double function (NC/NO combined) with a short behind-panel depth



MODEL STRUCTURE



Shown with standard flying lead terminals.

Actuator marking available on IPP models (symbol 10 mm max.). On request.

B1

Solder lug terminals



Curved actuator, NO
IPR3SAD



Curved actuator, NC/NO
IPR5SAD



Flat actuator, NO
IPP3SAD

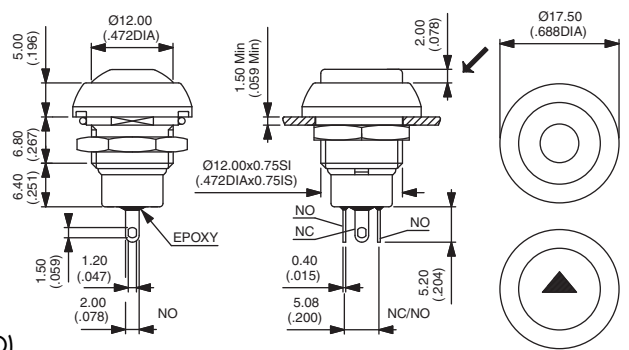


Flat actuator, NC/NO
IPP5SAD



Also available with straight PC terminals : **IP•3PAD** (NO) or **IP•5PAD** (NC/NO) and quick-connect terminals : **IP•3Z1AD** (NO only)

→ Flat



Sealed flying lead terminals



Curved actuator, NO
IPR3FAD



Curved actuator, NC/NO
IPR5FAD



Flat actuator, NO
IPP3FAD

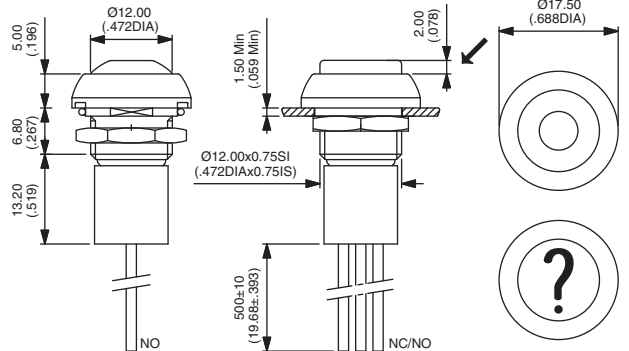


Flat actuator, NC/NO
IPP5FAD



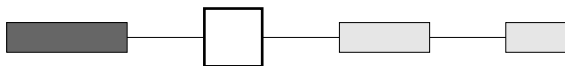
For THIN flying leads, replace F with W.

→ Flat



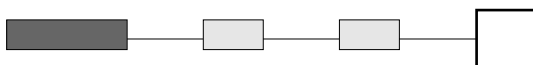
Wire colours (NC/NO) : black : NO, blue : NC

ACTUATOR COLOURS



1 : blue - B : dark blue - 2 : black - 3 : green - 4 : grey
5 : yellow - 6 : red - 7/1 : white - 8 : bright chrome
9 : orange - A : satin chrome

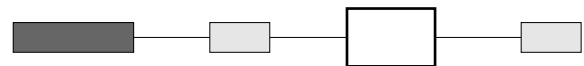
APPROVAL



UL

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

OPTIONS



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

