

IP series

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

Distinctive features and specifications

UG1006-A



- 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

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
- Mechanical 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)
- Multi-wire lead AWG20, section 0,6 mm²
- LED wire : AWG26, section 0,12 mm²
- Lens : polycarbonate
- Terminal seal : epoxy

AGENCY APPROVAL



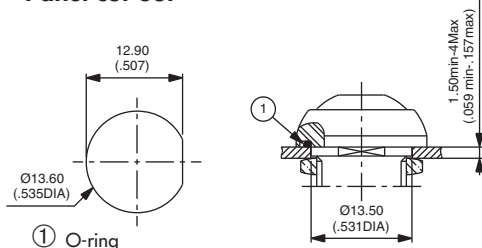
2A 125VAC/250VAC
File E83438

Availability : consult factory for details of approved models.

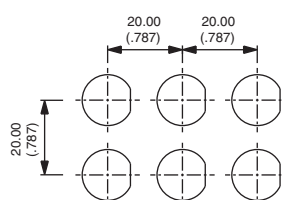
Marking : to order switches marked UL, complete ordering format.

MOUNTING

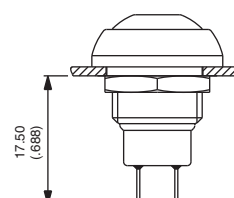
Panel cut-out



Matrix mounting



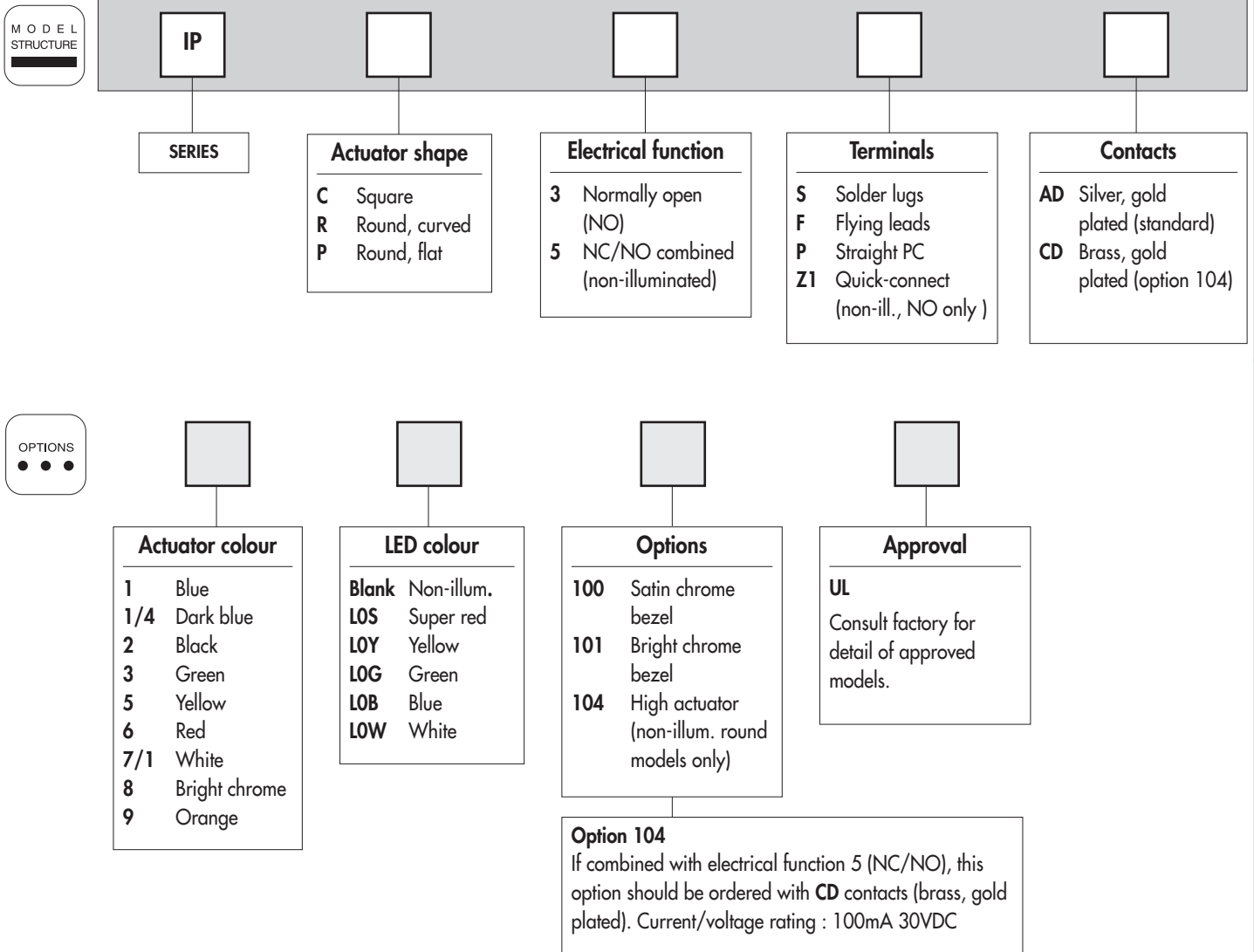
Back of panel space requirement



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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 bracketted 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.

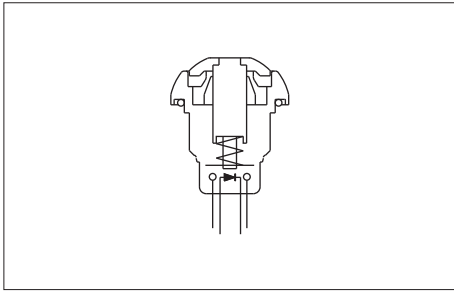


Packaging unit : 25 pieces

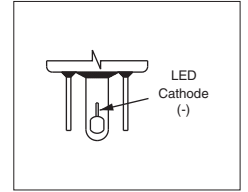
IP series

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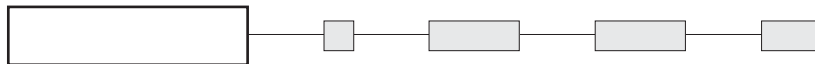
Square - illuminated



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



MODEL STRUCTURE



B

Solder lug terminals

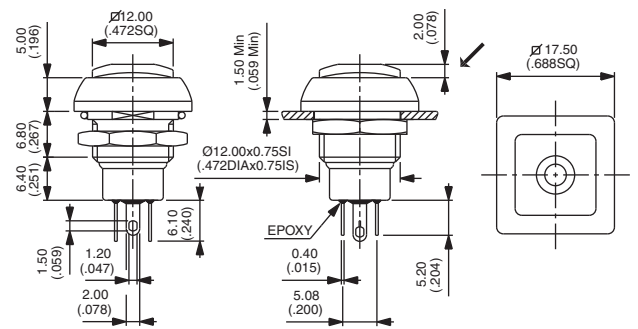


IPC3SAD



Normally Open

→ Flat



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

Sealed flying lead terminals

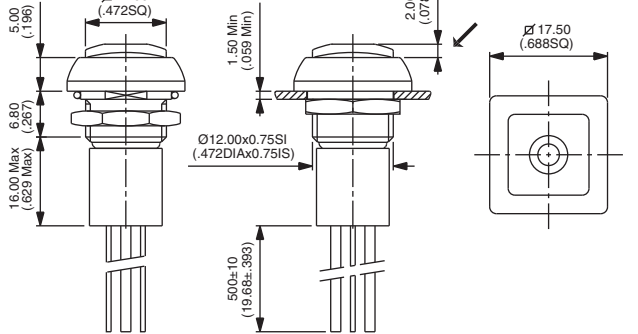


IPC3FAD



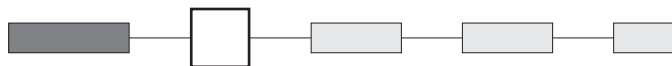
Normally Open

→ Flat



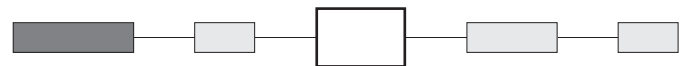
Wire colours : black : NO contact, red : LED anode(+), blue : LED cathode(-)

ACTUATOR COLOUR



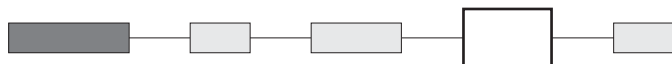
1 : blue - 1/4 : dark blue - 2 : black - 3 : green - 5 : yellow
6 : red - 7/1 : white - 8 : bright chrome - 9 : orange

LED COLOUR



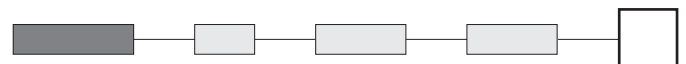
LOS : red - LOY : yellow - LOG : green - LOB : blue
LOW : white

OPTIONS



100 : Satin chrome bezel
101 : Bright chrome bezel

APPROVAL



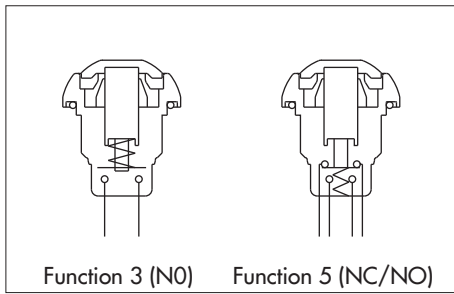
UL

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

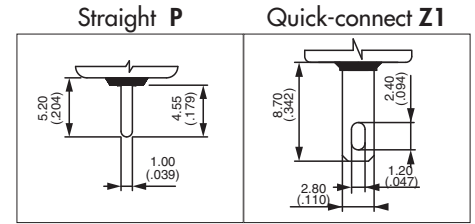
IP series

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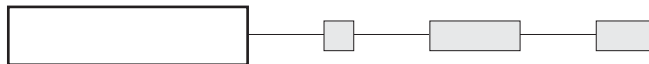
Square - non-illuminated



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



MODEL STRUCTURE



Solder lug terminals



IPC3SAD



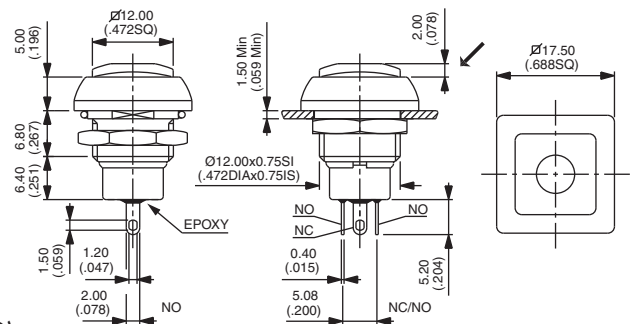
Normally Open

IPC5SAD



NC/NO combined

→ Flat



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

Sealed flying lead terminals



IPC3FAD



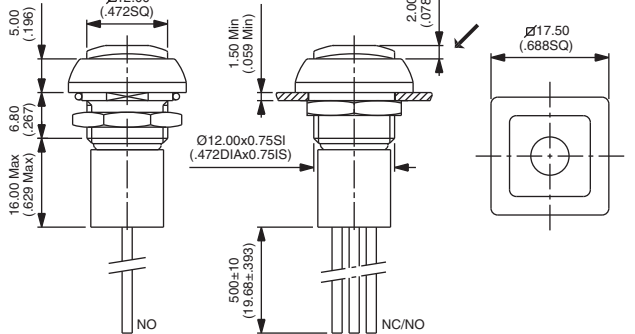
Normally Open

IPC5FAD



NC/NO combined

→ Flat



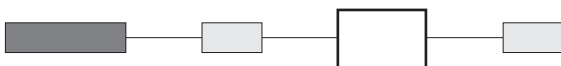
Wire colours (NC/NO) : black : NO, blue : NC

ACTUATOR COLOUR



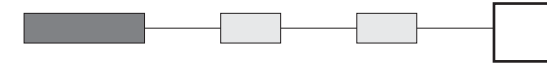
1 : blue - 1/4 : dark blue - 2 : black - 3 : green - 5 : yellow - 6 : red - 7/1 : white - 8 : bright chrome - 9 : orange

OPTIONS



100 : Satin chrome bezel
101 : Bright chrome bezel

APPROVAL



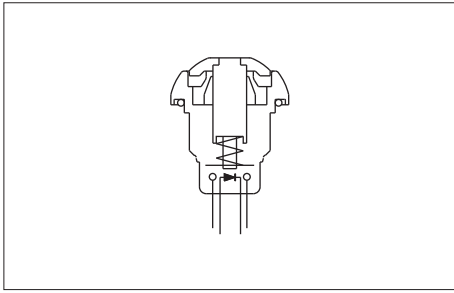
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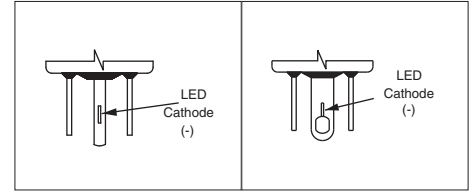
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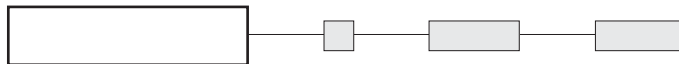
Round - illuminated



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



MODEL STRUCTURE



B

Solder lug terminals

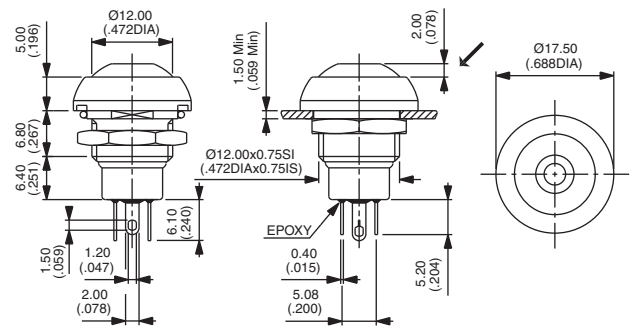


IPR3SAD



Normally Open

→ Flat



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

Sealed flying lead terminals

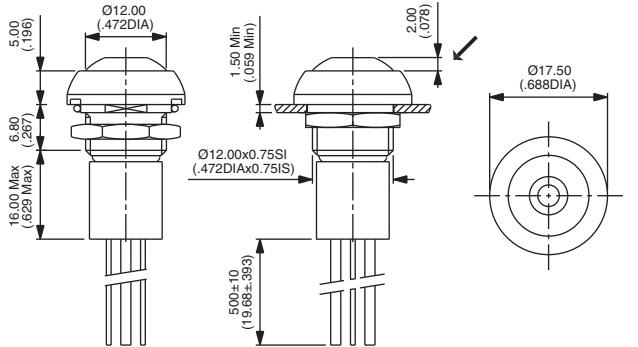


IPR3FAD



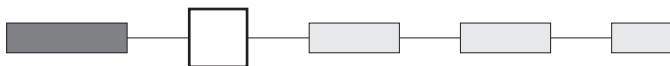
Normally Open

→ Flat



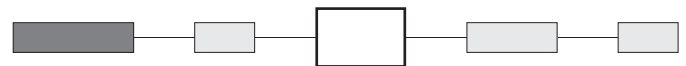
Wire colours : black : NO contact, red : LED anode(+), blue : LED cathode(-)

ACTUATOR COLOUR



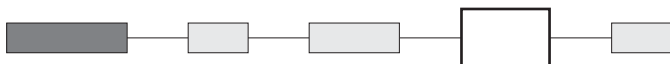
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6 : red - 7/1 : white - 8 : bright chrome - 9 : orange

LED COLOUR



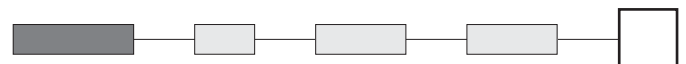
LOS : red - LOY : yellow - LOG : green - LOB : blue
LOW : white

OPTIONS



100 : Satin chrome bezel
101 : Bright chrome bezel

APPROVAL

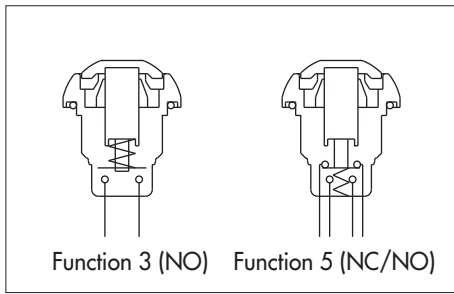


UL
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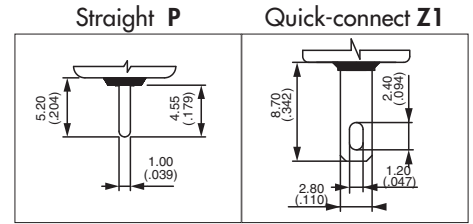
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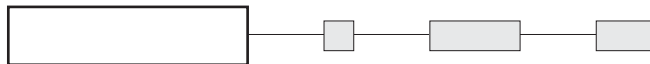
Round - non-illuminated



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



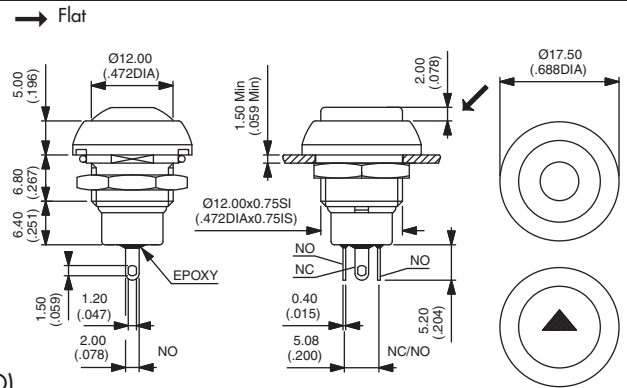
MODEL STRUCTURE



Solder lug terminals



- Curved actuator, NO
IPR3SAD
- Curved actuator, NC/NO
IPR5SAD
- Flat actuator, NO
IPP3SAD
- Flat actuator, NC/NO
IPP5SAD

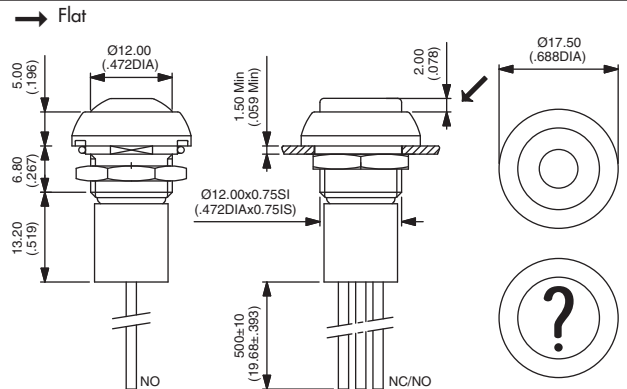


Also available with straight PC terminals : **IP•3PAD** (NO) or **IP•5PAD** (NC/NO) and quick-connect terminals : **IP•3Z1AD** (NO only)

Sealed flying lead terminals

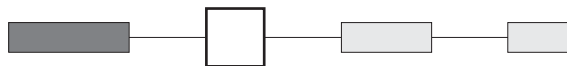


- Curved actuator, NO
IPR3FAD
- Curved actuator, NC/NO
IPR5FAD
- Flat actuator, NO
IPP3FAD
- Flat actuator, NC/NO
IPP5FAD



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

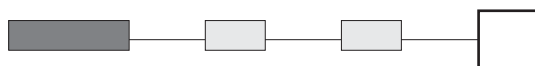
ACTUATOR COLOUR



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

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

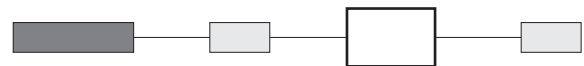
APPROVAL



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).

