

# APEM

## "I" range Sealed pushbutton switches

- Sealed to IP67
- Dia. 12 mm or 16 mm bushing
- Momentary or latching
- Illuminated or non-illuminated
- Custom options



**Comprehensive range**

# “I” range

## Sealed pushbutton switches

*A comprehensive range of matching products*

### The “I” range at a glance

#### Bushing dia. 12 mm (.472)



#### IP series

- For harsh environments
- Momentary or latching
- Square or round actuator
- Illuminated or non-illuminated

Page 5



#### IB and IS series

- Snap-in or with threaded bushing
- Compact, light in weight
- Momentary
- Round actuator

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Hole plug U6640 available on request.

#### Bushing dia. 16 mm (.630)



#### IZ series

- Rear panel mounting
- Metal or plastic bushing
- Momentary or latching
- Round actuator
- Illuminated or non-illuminated

Page 19



#### IR series

- Up to 5A
- Screw version
- Momentary or latching
- Square or round actuator
- Illuminated or non illuminated

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#### IA series

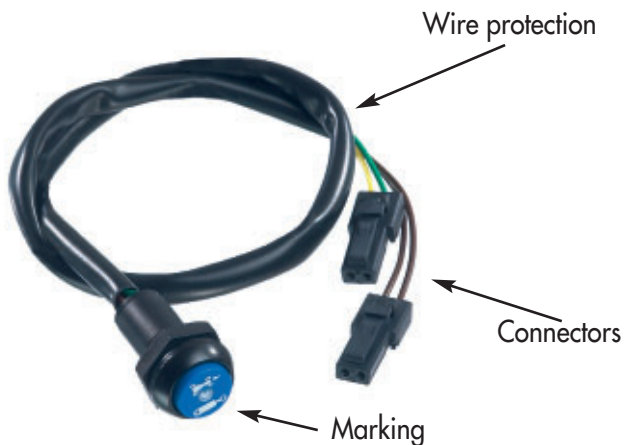
- For harsh environments
- Resistant to frost, sand and hydrocarbons
- Low profile
- Momentary
- Round actuator

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Sealing features Page 58

APEM’s vertical integration and engineering expertise have led to the development of custom switches. Example 1 shows a catalogue product adapted to meet a specific need. Examples 2 & 3 show products entirely developed to customer’s specifications and produced with specific tooling.

#### ❑ Example 1 - Customized product based on an IP pushbutton



#### ❑ Example 2 - IL pushbutton, customized product based on an IS pushbutton

Compared to a standard IS switch, this pushbutton has a longer threaded bushing allowing mounting onto a thicker panel.

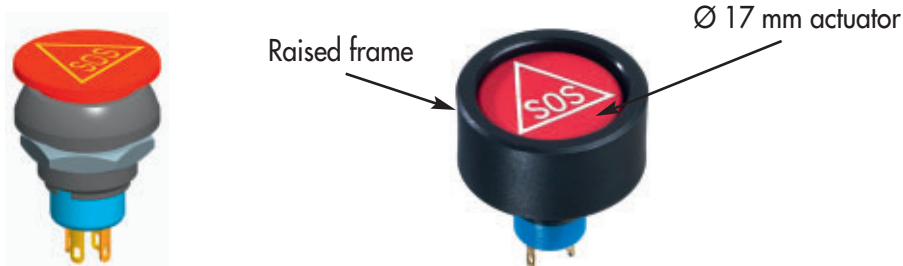
This illuminated pushbutton also features a thinner bezel for compact matrix mounting.



#### ❑ Example 3 - 100 % custom product based on an IP pushbutton : dia. 17 mm actuator

A firm specialized in satellite locating systems asked APEM for a large pushbutton with a **dia. 17 mm actuator**. This emergency pushbutton was intended to be used in trucks and to be the interface of an embedded electronic box. The APEM solution was a normally closed IP-based custom product. Two new parts were created :

- a plunger with a 17 mm diameter
- a raised frame preventing inadvertent actuation or may have the function of a finger-guide.



# “|” range

## Sealed pushbutton switches

### Custom products

Custom configurations can be produced using the following options, combined or not with standard elements, to meet your requirements.

#### ☐ Marking

Pad printing, hot stamping, laser etching



#### ☐ Colours

- “Desert tan” colour for camouflage in desert areas
- Glossy actuator finish
- “Soft feel” painted bushing and actuator



Desert tan



Glossy actuator

#### ☐ Terminals

Colours, length and section

Materials : PVC, teflon, neoprene, external LED resistor

Wire preparation : pre-stripped, tinned, with connector, straight cut



Lead colours



Cable



Flying leads and connector

#### ☐ Sealing

Overmolding (back end total sealing)

Tube + epoxy

Heat shrink sleeves (electrical insulation)



- 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 mm<sup>2</sup>
- LED wire : AWG26, section 0,12 mm<sup>2</sup>
- Lens : polycarbonate
- Terminal seal : epoxy

### AGENCY APPROVAL



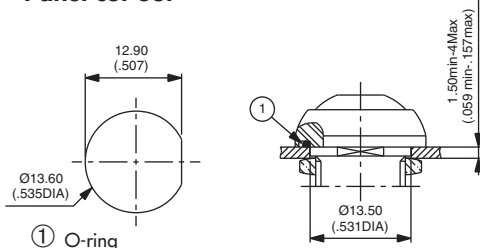
2A 125VAC/250VAC  
File E83438

**Availability** : consult factory for details of approved models.

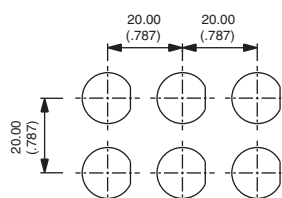
**Marking** : to order switches marked UL, complete ordering format.

### MOUNTING

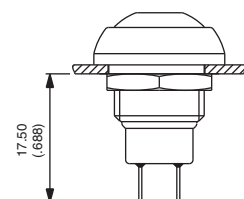
#### Panel cut-out



#### Matrix mounting



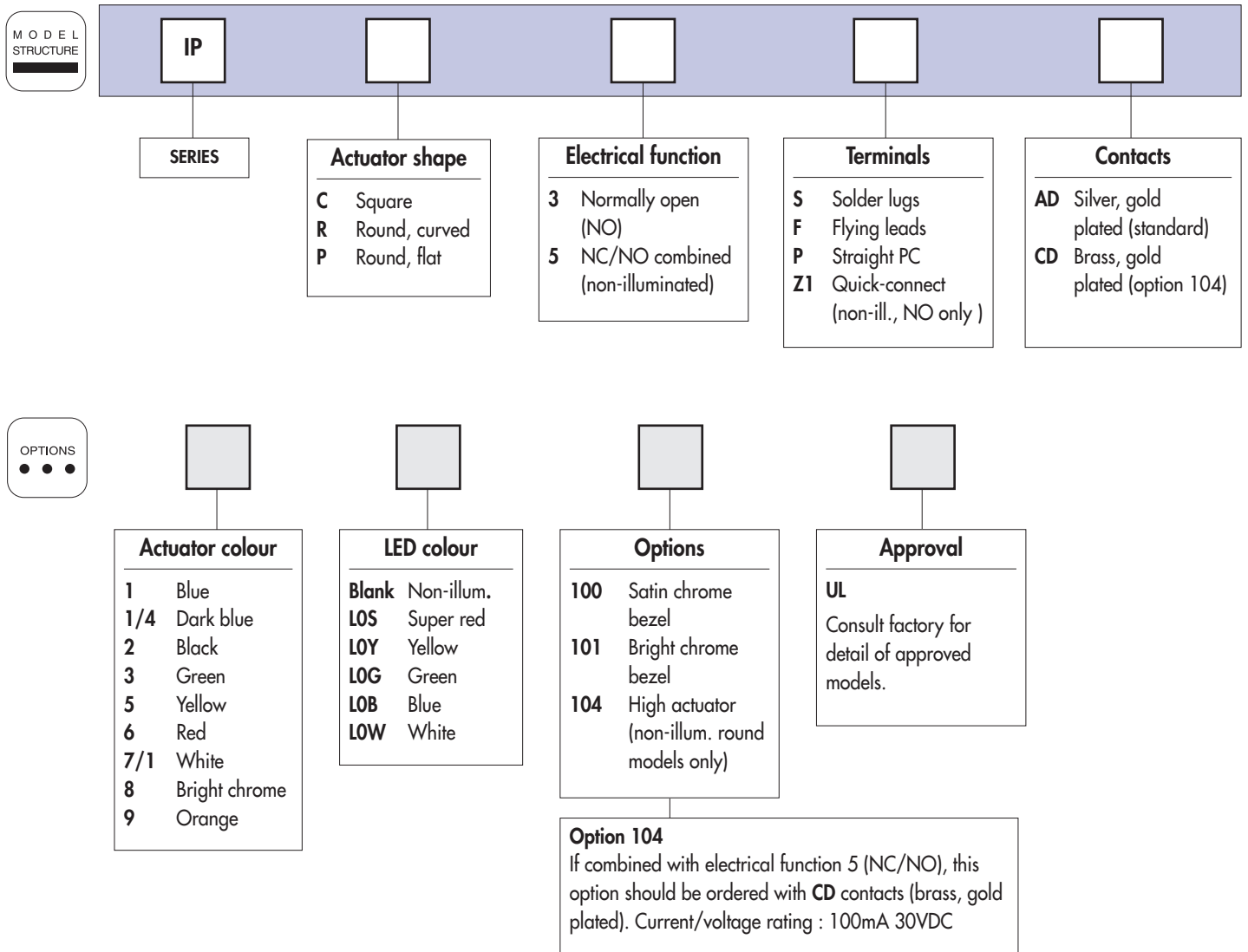
#### Back of panel space requirement



# IP series

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

### 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 at the end of this catalogue.



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

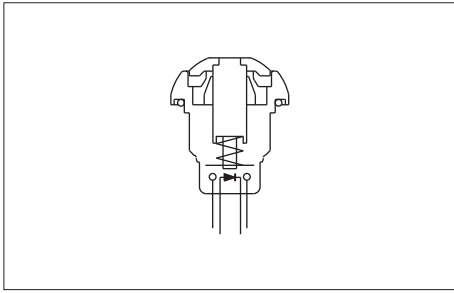


**Packaging unit** : 25 pieces

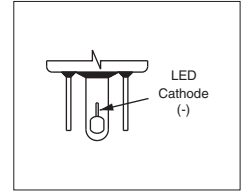
# IP series

## Pushbutton switches for harsh environments - bushing $\varnothing$ 12 mm - momentary

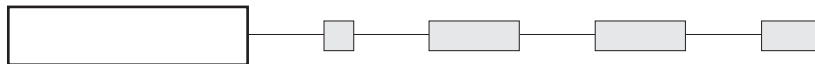
Square - illuminated



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



MODEL  
STRUCTURE



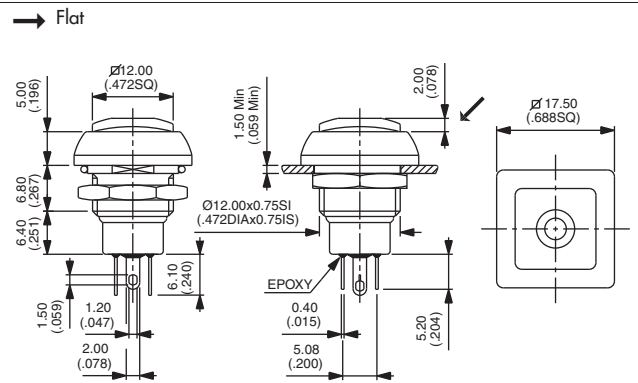
### Solder lug terminals



IPC3SAD



Normally Open



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

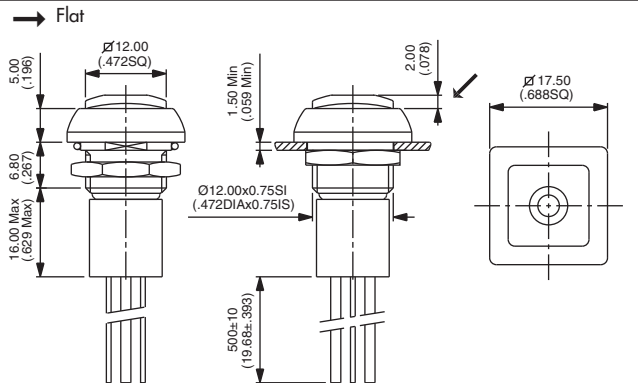
### Sealed flying lead terminals



IPC3FAD

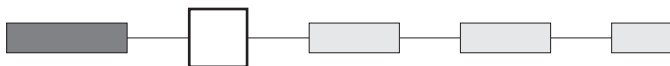


Normally Open



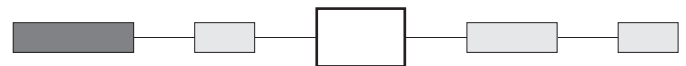
Wire colours : black : NO contact, red : LED anode(+), blue : LED cathode(-)

### ACTUATOR COLOUR



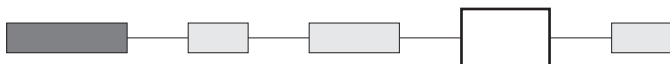
1 : blue - 1/4 : dark blue - 2 : black - 3 : green - 5 : yellow  
6 : red - 7/1 : white - 8 : bright chrome - 9 : orange

### LED COLOUR



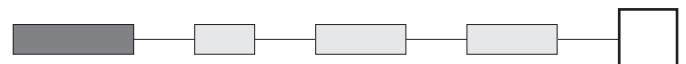
LOS : red - LOY : yellow - LOG : green - LOB : blue  
LOW : white

### OPTIONS



100 : Satin chrome bezel  
101 : Bright chrome bezel

### APPROVAL



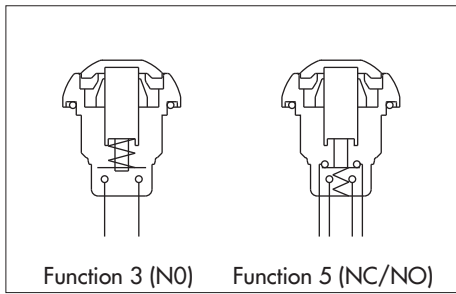
### UL

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

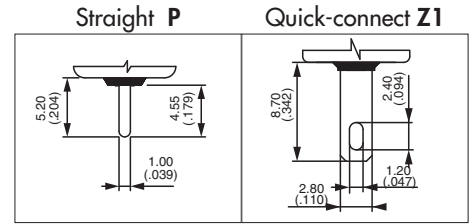
# IP series

Pushbutton switches for harsh environments - bushing  $\varnothing$  12 mm - momentary

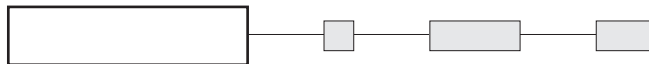
Square - non-illuminated



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



## MODEL STRUCTURE



## Solder lug terminals



IPC3SAD



Normally Open

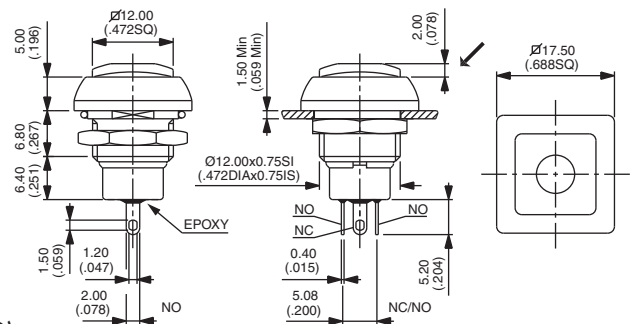
IPC5SAD



NC/NO combined

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

→ Flat



## Sealed flying lead terminals



IPC3FAD



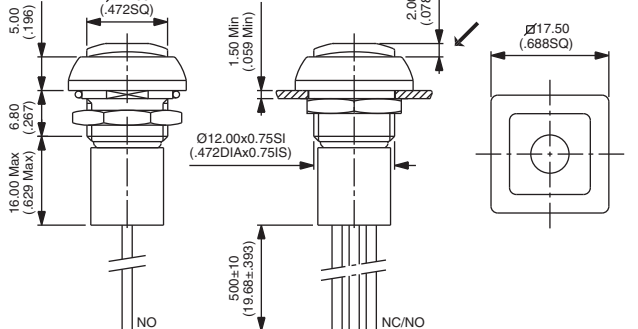
Normally Open

IPC5FAD



NC/NO combined

→ Flat



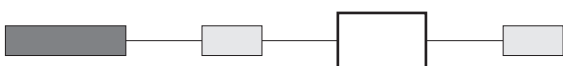
Wire colours (NC/NO) : black : NO, blue : NC

## ACTUATOR COLOUR



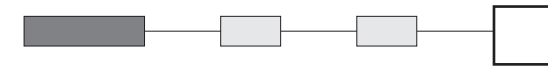
1 : blue - 1/4 : dark blue - 2 : black - 3 : green - 5 : yellow - 6 : red - 7/1 : white - 8 : bright chrome - 9 : orange

## OPTIONS



100 : Satin chrome bezel  
101 : Bright chrome bezel

## APPROVAL



UL

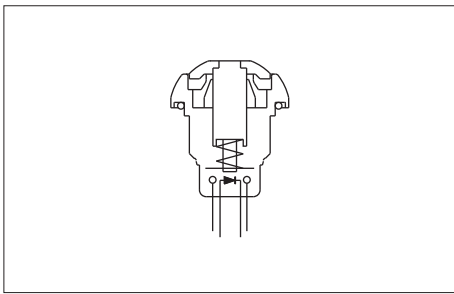
Consult factory for details of approved models. To order switches marked UL, complete above box with "UL".



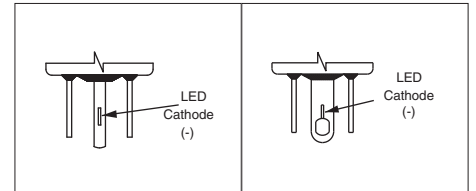
# IP series

## Pushbutton switches for harsh environments - bushing $\varnothing$ 12 mm - momentary

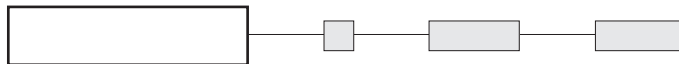
Round - illuminated



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



MODEL  
STRUCTURE



### Solder lug terminals

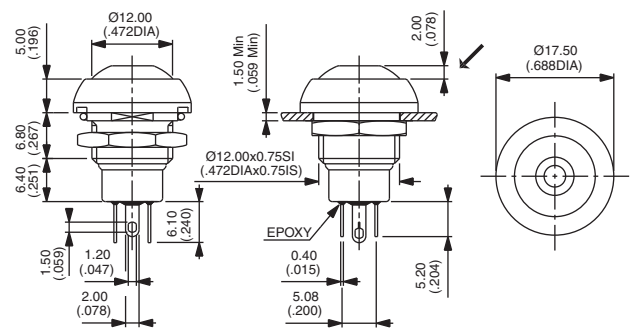


IPR3SAD



Normally Open

→ Flat



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

### Sealed flying lead terminals

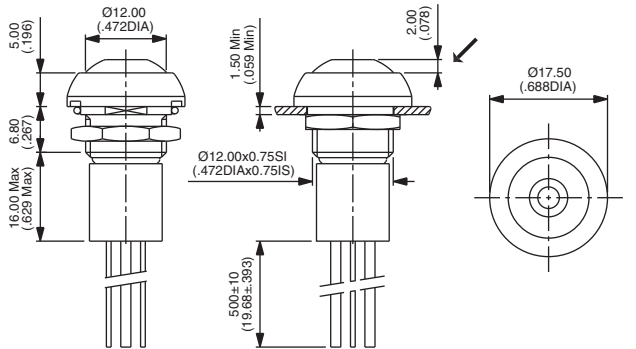


IPR3FAD



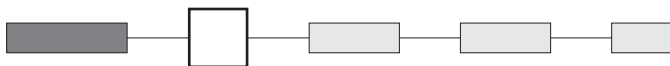
Normally Open

→ Flat



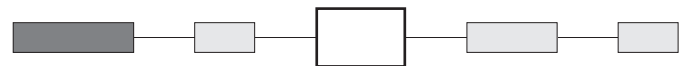
Wire colours : black : NO contact, red : LED anode(+), blue : LED cathode(-)

### ACTUATOR COLOUR



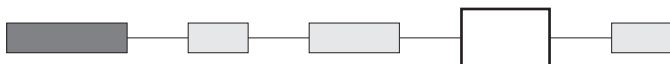
1 : blue - 1/4 : dark blue - 2 : black - 3 : green - 5 : yellow  
6 : red - 7/1 : white - 8 : bright chrome - 9 : orange

### LED COLOUR



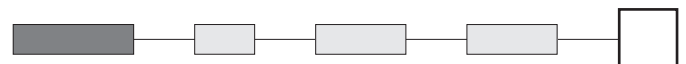
LOS : red - LOY : yellow - LOG : green - LOB : blue  
LOW : white

### OPTIONS



100 : Satin chrome bezel  
101 : Bright chrome bezel

### APPROVAL



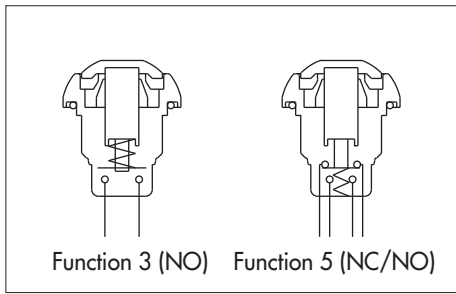
UL

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

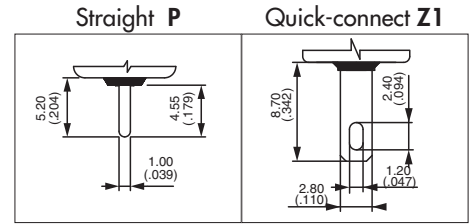
# IP series

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

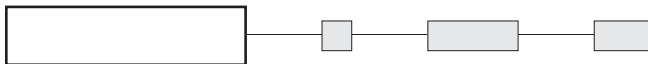
Round - non-illuminated



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



### MODEL STRUCTURE

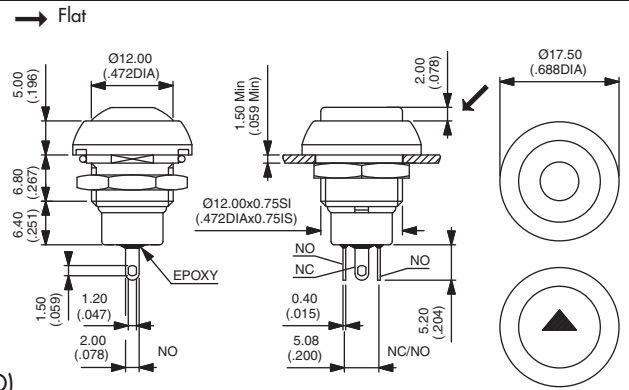


### Solder lug terminals



- 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)

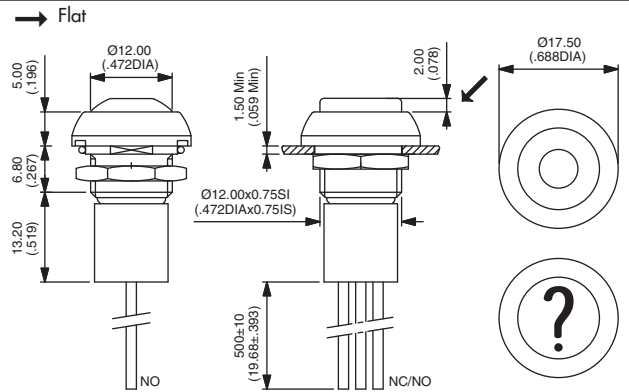


### Sealed flying lead terminals



- 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



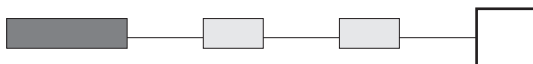
### ACTUATOR COLOUR



- 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.

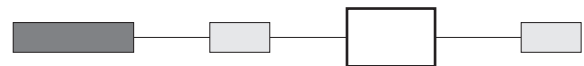
### APPROVAL



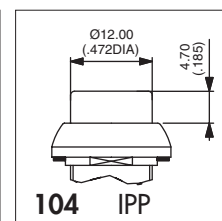
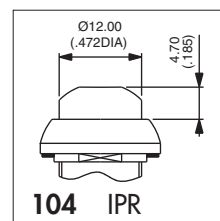
### UL

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).





- Latching action**  
Actuator remains in the low position when "ON".
- Illuminated or non-illuminated**
- Compact**  
Behind-panel depth less than 20 mm (.787)
- Flat round actuator for optional marking**
- Sealed to IP67**

### ENVIRONMENTAL SPECIFICATIONS

- Front panel sealing : IP67 according to IEC 60529
- 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

### GENERAL SPECIFICATIONS

- Panel thickness : 1,5 mm (.059) min. 5,5 mm (.217) max.
- Total travel : 2,5 mm (.098) +/- 0,3 mm
- Typical operating force : 5 N +/- 2N
- Mechanical life : 200.000 cycles
- Torque : 1,5 Nm max. applied to nut
- Soldering : 320°C max. for 3 sec.

### ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load :  
4A 12VDC, 200.000 cycles  
1A 48VDC, 200.000 cycles  
2A 48VDC, 100.000 cycles  
3A 48VDC, 75.000 cycles  
1A 72VDC, 15.000 cycles
- Initial contact resistance : 100 mΩ max.
- Insulation resistance : 1 GΩ min. at 500VDC
- Dielectric strength : 1.500 Vrms between terminals  
1.000 VAC rms between terminals and frame

### LED COMPONENT SPECIFICATIONS

LED colour	Forward current	Typ. forward voltage	Max. forward voltage
Super red (LOS)	20mA	1,95V	1,95V
Yellow (LOY)	20mA	2V	2,05V
Green (LOG)	20mA	3,2V	3,70V
Blue (LOB)	20mA	3,2V	4V

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

### MATERIALS

- Case : thermoplastic, UL 94-V0
- Actuator : polyamide 6/6
- Bushing/bezel : zinc die-cast (zamak), black painted
- Contacts : silver, gold plated
- Multi-wire lead AWG20, section 0,6 mm<sup>2</sup>
- LED wire : AWG26, section 0,12 mm<sup>2</sup>
- Lens : polycarbonate
- Terminal seal : epoxy

### AGENCY APPROVAL



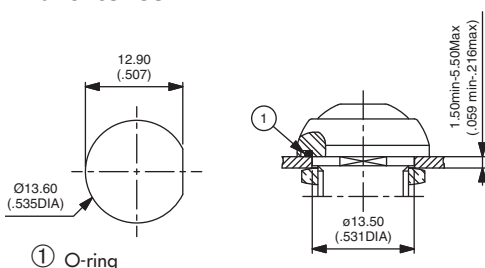
2A 125VAC/250VAC  
File E83438

**Availability** : consult factory for details of approved models.

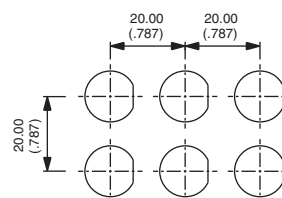
**Marking** : to order switches marked UL, complete appropriate box of ordering format.

### MOUNTING

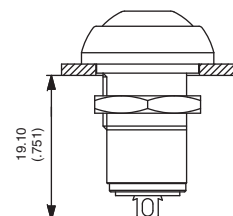
#### Panel cut-out



#### Matrix mounting



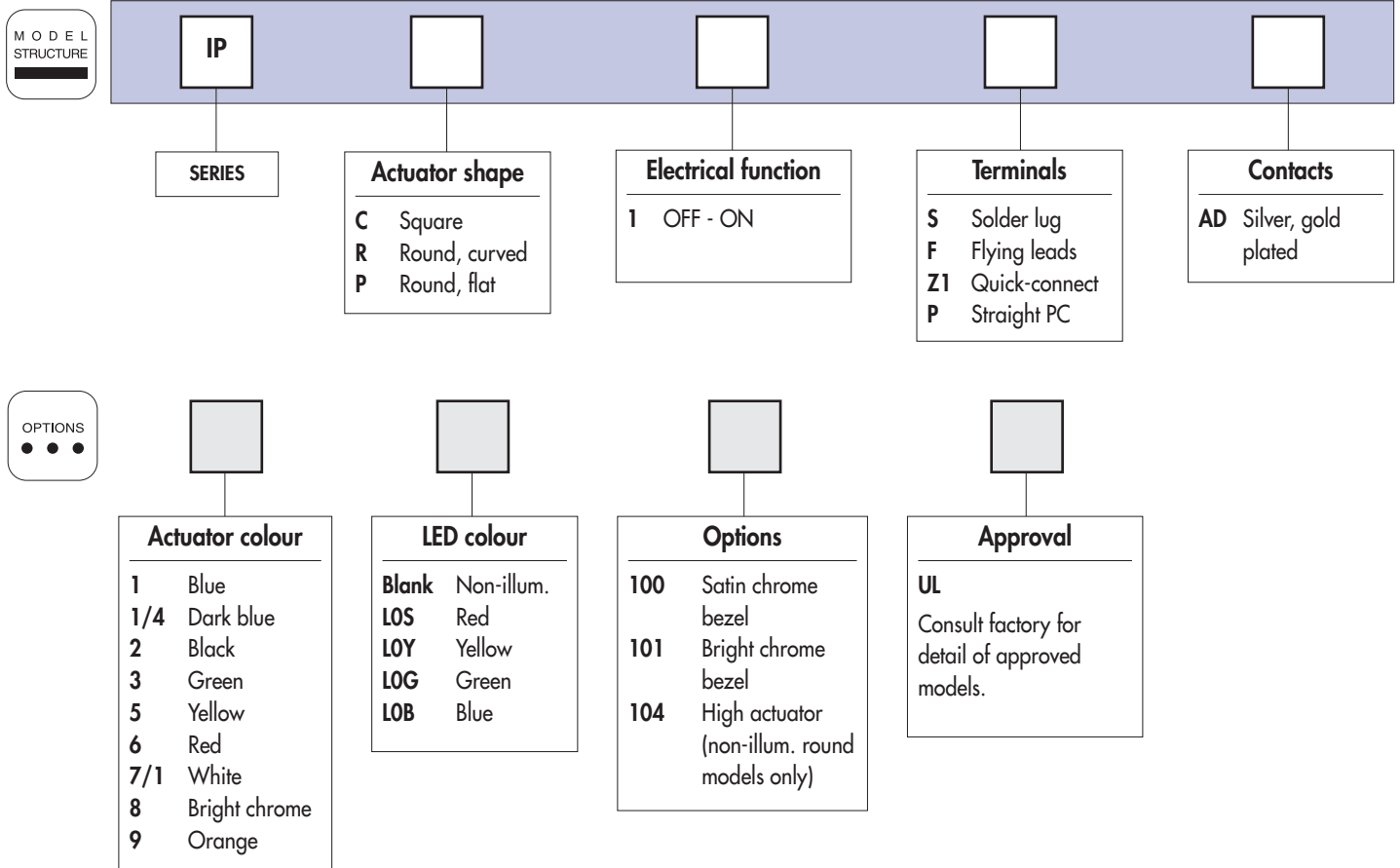
#### Back of panel space requirement



# IP series

## Pushbutton switches for harsh environments - bushing Ø 12 mm - latching

### Overview



### ABOUT THIS SERIES

On the following pages, you will find successively :  
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**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 (P/N U5125).  
It is presented at the end of this catalogue..



**Mounting accessories** : Standard hardware supplied : 1 hex nut 14 mm (.551) across flats and 1 O-Ring.

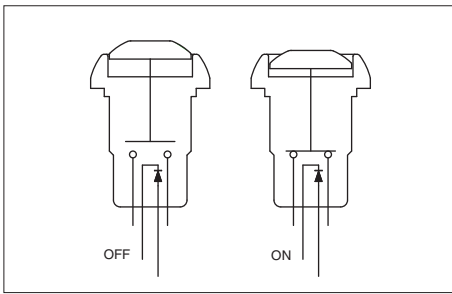


**Packaging unit** : 25 pieces

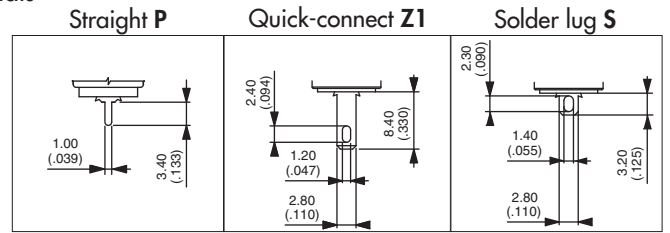
# IP series

## Pushbutton switches for harsh environments - bushing Ø 12 mm - latching

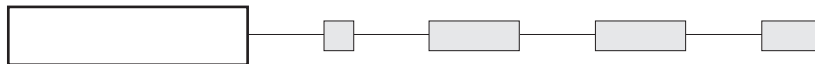
Square or round - illuminated



- Four LED colours
- Tin plated LED terminals



### MODEL STRUCTURE



### Square models

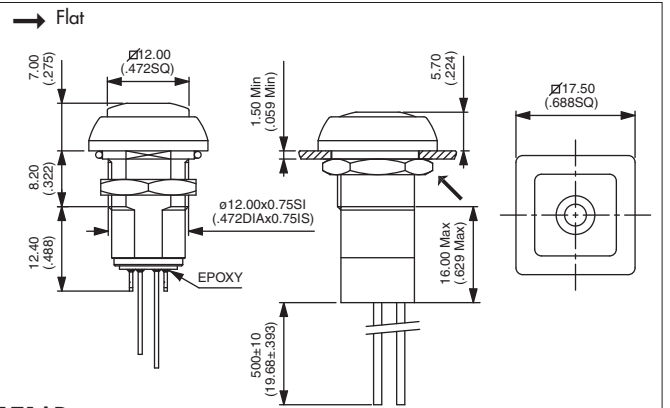


Solder lug terminals  
**IPC1SAD**

OFF - ON

Flying lead terminals  
**IPC1FAD**

OFF - ON



Also available with straight PC : **IPC1PAD** or quick-connect terminals : **IPC1Z1AD**

### Round models

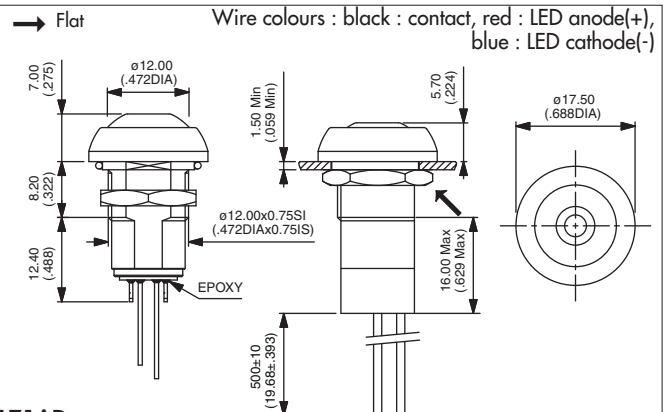


Solder lug terminals  
**IPR1SAD**

OFF - ON

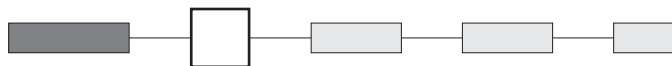
Flying lead terminals  
**IPR1FAD**

OFF - ON



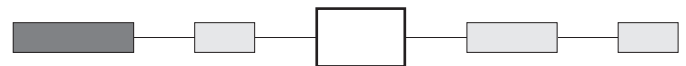
Also available with straight PC : **IPR1PAD** or quick-connect terminals : **IPR1Z1AD**

### ACTUATOR COLOUR



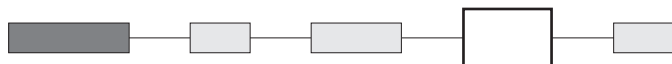
1 : blue - 1/4 : dark blue - 2 : black - 3 : green - 5 : yellow  
6 : red - 7/1 : white - 8 : bright chrome - 9 : orange

### LED COLOUR



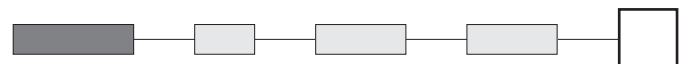
LOS : red - LOY : yellow - LOG : green - LOB : blue

### OPTIONS



100 : Satin chrome bezel  
101 : Bright chrome bezel

### APPROVAL



### UL

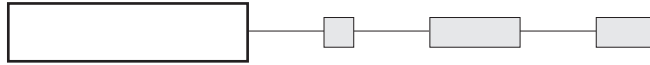
Consult factory for details of approved models. To order switches marked UL, complete above box with "UL".

# IP series

Pushbutton switches for harsh environments - bushing  $\varnothing 12$  mm - latching

Square or round - non-illuminated

## MODEL STRUCTURE



### Square models



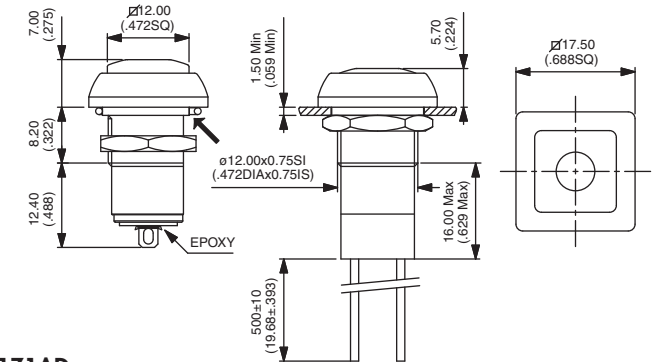
Solder lug terminals  
**IPC1SAD**

OFF - ON

Flying lead terminals  
**IPC1FAD**

OFF - ON

→ Flat



Also available with straight PC : **IPC1PAD** or quick-connect terminals : **IPC1Z1AD**

### Round models



CURVED ACTUATOR

Solder lug terminals  
**IPR1SAD**

OFF - ON

Flying lead terminals  
**IPR1FAD**

OFF - ON

FLAT ACTUATOR

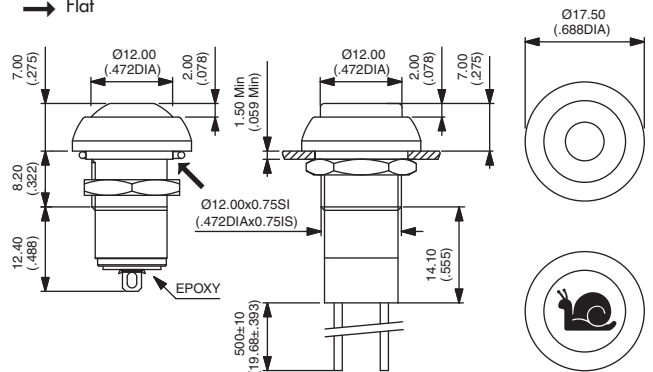
Solder lug terminals  
**IPP1SAD**

OFF - ON

Flying lead terminals  
**IPP1FAD**

OFF - ON

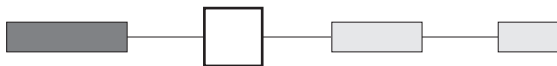
→ Flat



Also available with straight PC : **IP•1PAD** or quick-connect terminals : **IP•1Z1AD**

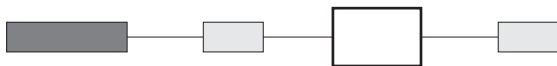
## ACTUATOR COLOUR

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

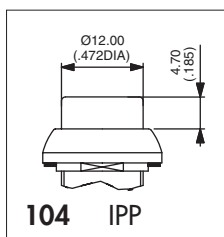
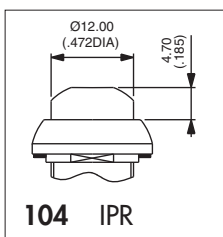


1 : blue - 1/4 : dark blue - 2 : black - 3 : green - 5 : yellow - 6 : red - 7/1 : white - 8 : bright chrome - 9 : orange

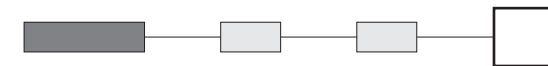
## OPTIONS



100 : Satin chrome bezel  
101 : Bright chrome bezel  
104 : High actuator (for round model only)



## APPROVAL



### UL

**Availability** : consult factory for details of approved models.

**Marking** : to order switches marked UL, complete above box with "UL".

# IB and IS series

Sealed pushbutton switches - bushing Ø 12 mm - momentary

*Distinctive features and specifications*



- Snap-in and threaded bushing models
- Compact, light in weight
  - Behind-panel depth of 13 mm (.512) only
  - 50 % reduction in weight compared to metallic models
- Tactile feedback
- Sealed to IP67

## ENVIRONMENTAL SPECIFICATIONS

- Front panel sealing : IP67 according to IEC 60529
- Shock resistance : 100 g according to IEC 512-4, test 6c
- Vibration resistance : 10-500 Hz - 10 g according to IEC 512-4, test 6d
- Salt spray : IEC 512-6, test 11f
- Operating temperature : -40°C to +85°C

## MATERIALS

- Case : thermoplastic UL94-V0
- Actuator : polyamide 6/6
- Bushing/bezel : polyamide 6/6
- Contacts : silver, gold plated
- Terminal seal : epoxy

## ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load :  
400mA 32VAC - 100mA 50VDC - 125mA 125VAC
- Initial contact resistance : 50 mΩ max.
- Insulation resistance : 1 GΩ min. at 500VDC
- Dielectric strength : 1.000 Vrms
- Electrical life at full load : 500.000 cycles

## AGENCY APPROVAL



2A 125VAC/250VAC  
File E83438

**Availability** : consult factory for details of approved models.

**Marking** : to order switches marked UL, complete appropriate box of ordering format.

## GENERAL SPECIFICATIONS

- Panel thickness :
  - IB series : 0,8 mm (.031) min. - 1,8 mm (.071) max.
  - IS series : 1,5 mm (.059) min. - 4 mm (.157) max.
- Total travel : 1,9 mm (.074) +/- 0,3 mm
- Typical operating force : 7N +/- 3N
- Mechanical life : 1.000.000 cycles
- Torque : 1,5 Nm max. applied to nut
- Soldering : 300°C max. for 3 seconds

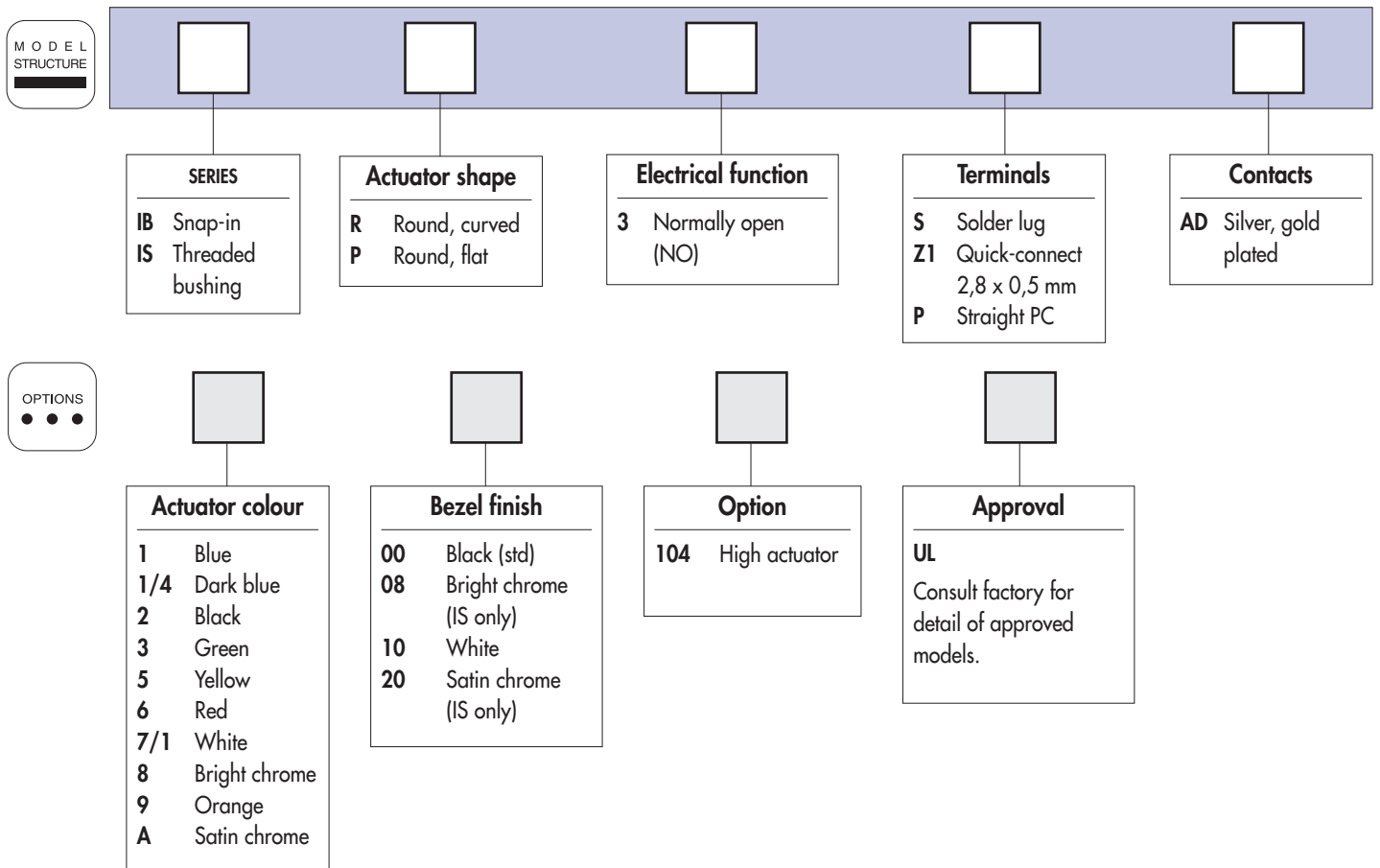
*Example of custom switch:  
see end of the series.*

**Panel mounting** : see next pages.

# IB and IS series

## Sealed pushbutton switches - bushing Ø 12 mm - momentary

### 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 at the end of this catalogue.



**Mounting accessories** : Standard hardware supplied : 1 flat seal (IB series)  
1 hex nut 14 mm (.551) across flats and 1 flat seal (IS series). Hex nut part number U166.

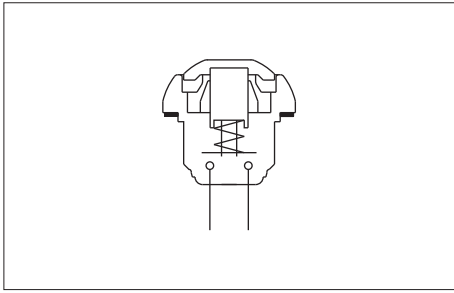


**Packaging unit** : 50 pieces

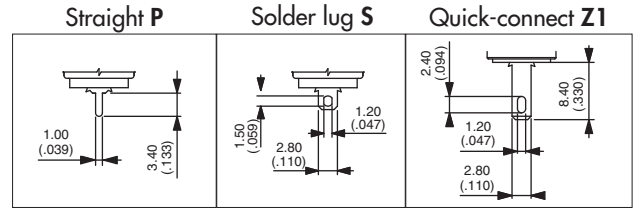


# IB and IS series

Sealed pushbutton switches - bushing Ø 12 mm - momentary



- Ten actuator colours
- Curved or flat actuator
- Antirotation bushing



MODEL STRUCTURE





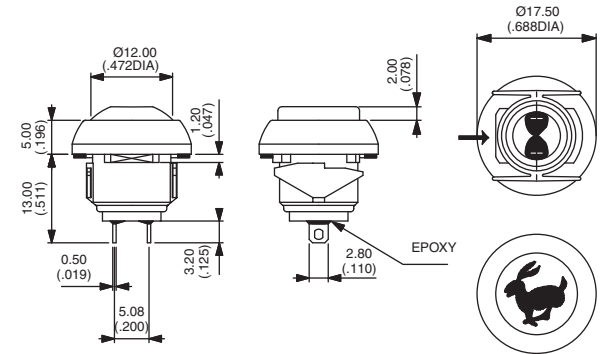
## Snap-in mounting - solder lugs

→ Flat

Panel thickness : 0,8 mm to 1,8 mm



- Curved actuator  
**IBR3SAD**  Normally open
- Flat actuator  
**IBP3SAD**  Normally open





Also available with straight PC : **IBR•3PAD** or quick-connect terminals : **IB•3Z1AD**

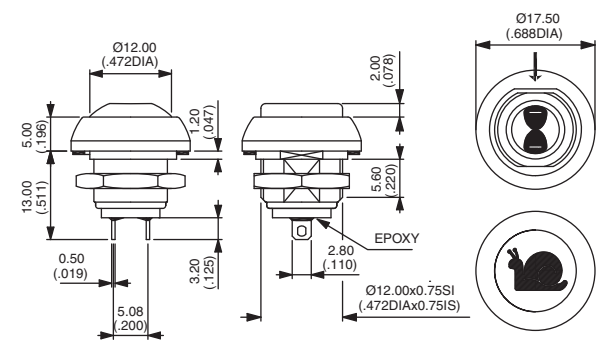
## Mounting by threaded bushing - solder lugs

→ Flat

Panel thickness : 1,5 mm to 4 mm



- Curved actuator  
**ISR3SAD**  Normally open
- Flat actuator  
**ISP3SAD**  Normally open

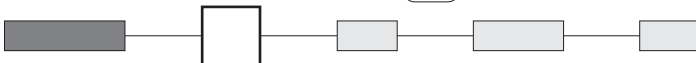


Also available with straight PC : **IS•3PAD** or quick-connect terminals : **IS•3Z1AD**

## ACTUATOR COLOUR



Actuator marking available on IBP and ISP models (symbol 10 mm max.). On request.



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

## BUSHING AND BEZEL FINISH

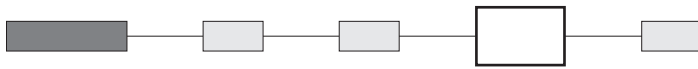


00 : Black (standard)  
08 : Bright chrome (IS series only)  
10 : White  
20 : Satin chrome (IS series only)

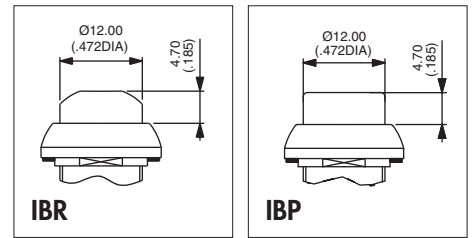
# IB and IS series

Sealed pushbutton switches - bushing Ø 12 mm - momentary

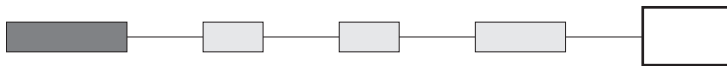
## ACTUATOR OPTION



104 : High actuator



## APPROVAL



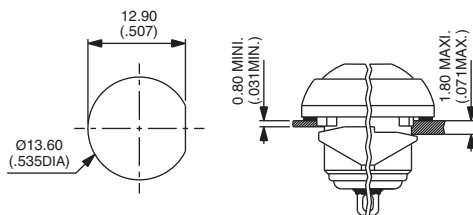
UL

**Availability** : consult factory for details of approved models.

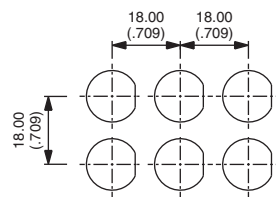
**Marking** : to order switches marked UL, complete above box with "UL".

## IB SERIES MOUNTING

### Panel cut-out

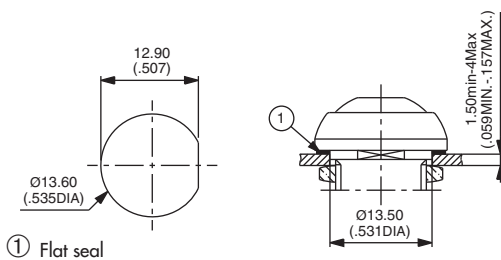


### Matrix mounting

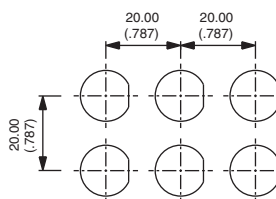


## IS SERIES MOUNTING

### Panel cut-out



### Matrix mounting



## Example of custom switch



ISR3FADB22X1248-01

- Painted bushing and actuator, soft feel
- Flying leads (55 mm) + connector
- Overmolded rear part



- Rear mounting for easier installation
- Momentary metal models
- Fixed or variable panel thickness
- Screw version available up to 4A
- Sealed to IP67
- Illuminated or non-illuminated
- Flat actuator for optional marking

### ENVIRONMENTAL SPECIFICATIONS

- Front panel sealing : IP67 according to IEC 60529
- 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
- Operating temperature : -40°C to +85°C

### ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load :
  - Gold plated silver contacts (code 4) : 200mA 48VDC - 200mA 250VAC
  - Silver contacts (code 2) - screw terminals : 2A 250VAC - 4A 48VDC
- Electrical life at full load : 500.000 cycles
- Initial contact resistance : 100 mΩ max.
- Insulation resistance : 1 GΩ min. at 500VDC
- Dielectric strength : 1.000 Vrms 50 Hz

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

On flying lead versions, the LED resistor can be integrated by APEM on request.

### GENERAL SPECIFICATIONS

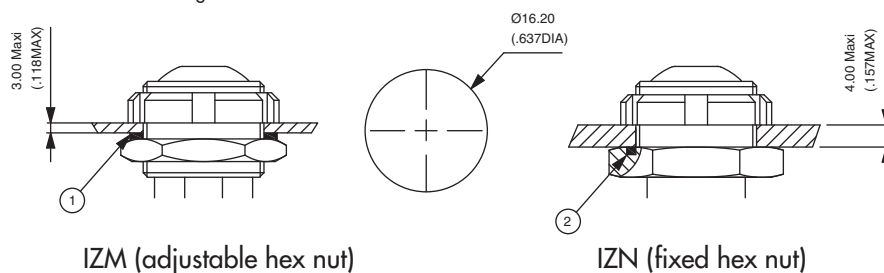
- Panel thickness :
  - IZM : 3 mm (.118) max.
  - IZN : 4 mm (.157) max.
- Total travel : 1,8 mm (.070) +/- 0,3 mm
- Typical operating force : 6N +/- 2N
- Mechanical life : 1.000.000 cycles
- Torque : IZN : 1 Nm max.  
IZM : 0,7 Nm max. applied to nut
- Soldering : 320°C max. for 3 sec.

### MATERIALS

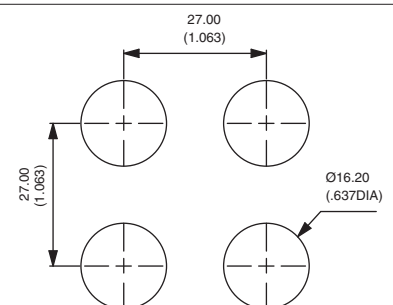
- Case : thermoplastic UL94-V0
- Plunger : polyamide
- Bushing/bezel : brass, nickel plated
- Contacts :
  - 4 : silver, gold plated
  - 2 : silver (screw terminals)
- Multi-wire lead AWG20, section 0,6 mm<sup>2</sup>
- LED wire : AWG26, section 0,12 mm<sup>2</sup>
- Lens : polycarbonate
- Terminal seal : epoxy

### PANEL CUT-OUT

- ① Flat seal ② O-ring



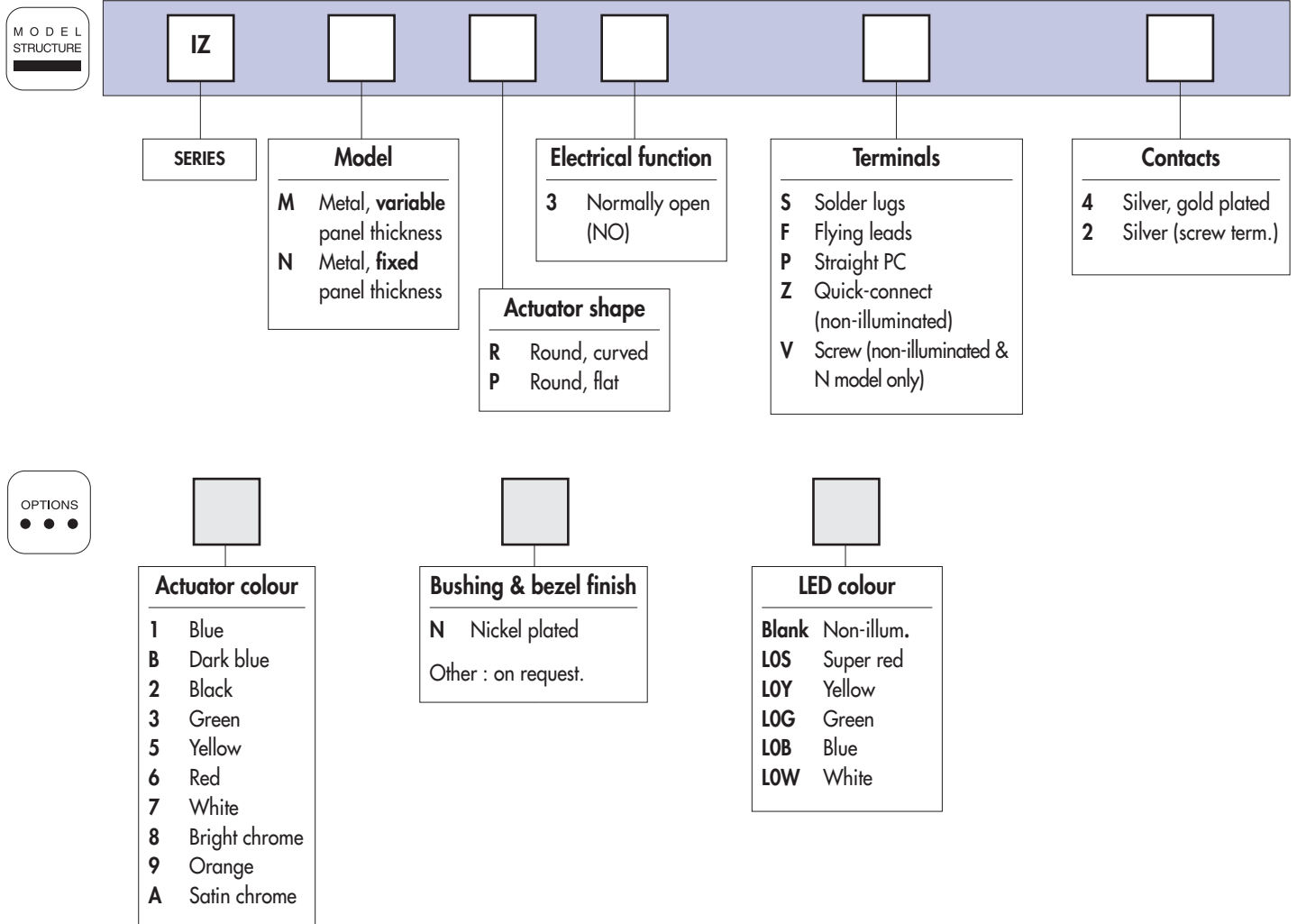
### MATRIX MOUNTING



# IZ series

## Rear mounted sealed pushbutton switches - bushing Ø 16 mm - metal - momentary

### 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.



**Mounting accessories** : Standard hardware supplied :

- IZM : 1 castellated nickel plated brass nut U6915 + 1 silicone flat seal + 1 hex nut 19 mm (.748) across flats U4116.
- IZN : 1 castellated nickel plated brass nut U6915 + 1 O-ring

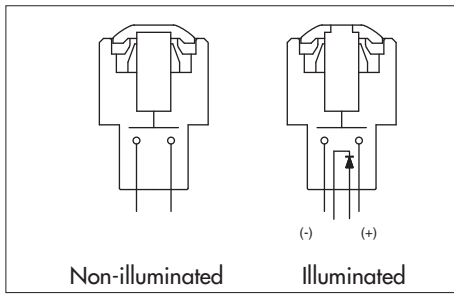


**Packaging unit** : 25 pieces for flying lead models - 40 pieces for other models

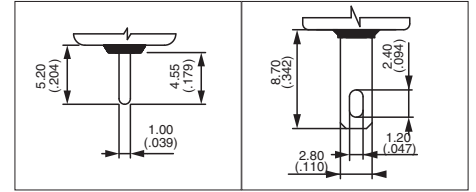
# IZ series

## Rear mounted sealed pushbutton switches - bushing Ø 16 mm - metal - momentary

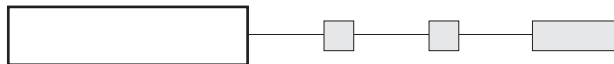
For variable panel thickness : IZM



- Five LED colours
- Tin plated LED terminals
- Gold plated contacts



### MODEL STRUCTURE



Plunger marking available on IZMP models (symbol 10 mm max.). On request.

### Illuminated - solder lug terminals

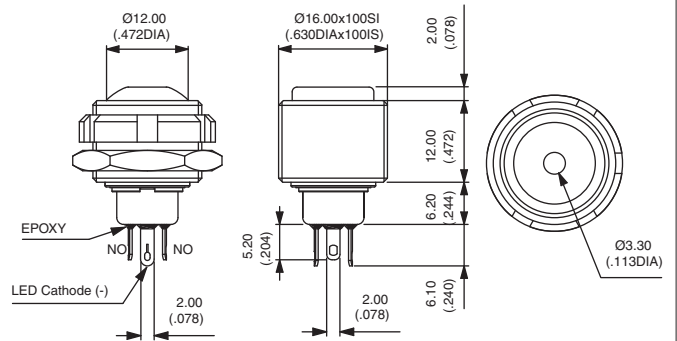


Curved actuator  
**IZMR3S4**

Normally Open

Flat actuator  
**IZMP3S4**

Normally Open



Also available with straight PC terminals : **IZM•3P4**.  
LED colour is indicated by the bottom of the switch.

### Illuminated - flying lead terminals



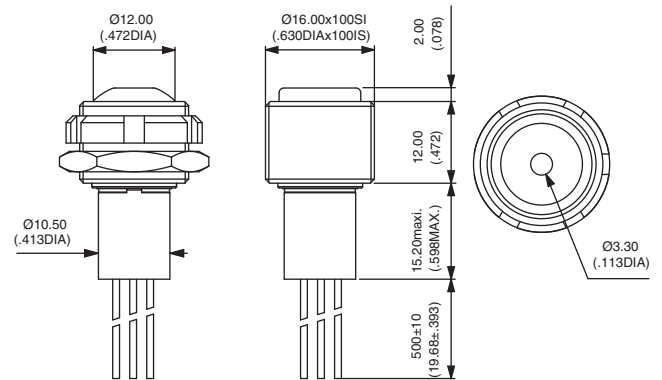
Curved actuator  
**IZMR3F4**

Normally Open

Flat actuator  
**IZMP3F4**

Normally Open

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



### Non-illuminated - solder lug terminals

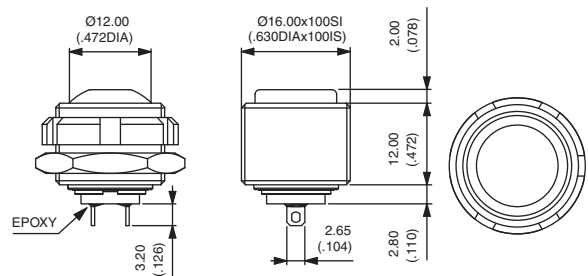


Curved actuator  
**IZMR3S4**

Normally Open

Flat actuator  
**IZMP3S4**

Normally Open



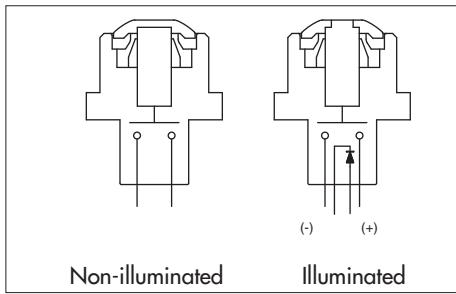
Also available with straight PC terminals :  
**IZM•3P4** and quick-connect terminals : **IZM•3Z4**.

For non-illuminated FLYING LEAD versions, refer to illuminated models above. Non-illuminated have 2 wires only.

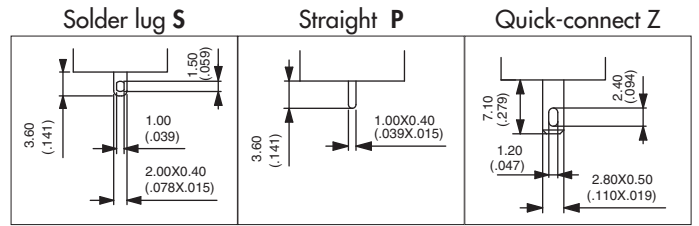
# IZ series

## Rear mounted sealed pushbutton switches - bushing Ø 16 mm - metal - momentary

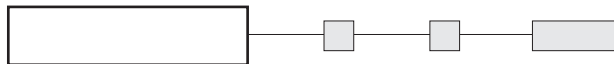
For fixed panel thickness : IZN



- Five LED colours
- Tin plated LED terminals



### MODEL STRUCTURE



Plunger marking available on IZNP models (symbol 10 mm max.). On request.

### Illuminated - solder lug terminals

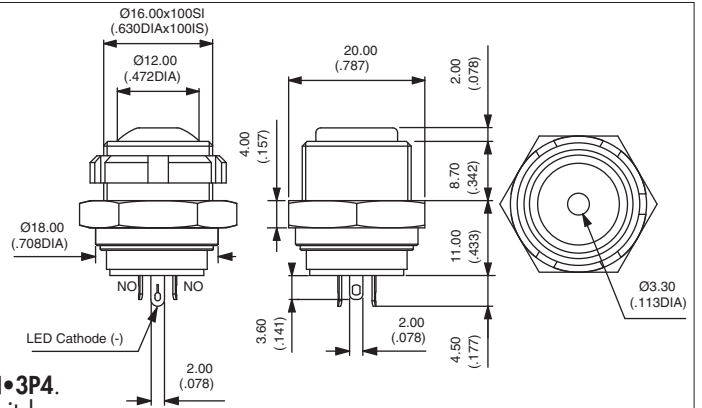


GOLD PLATED CONTACTS

Curved actuator  
**IZNR3S4** Normally Open

Flat actuator  
**IZNP3S4** Normally Open

Also available with straight PC terminals : **IZN•3P4**.  
LED colour is indicated by the bottom of the switch.



### Illuminated - sealed flying lead terminals

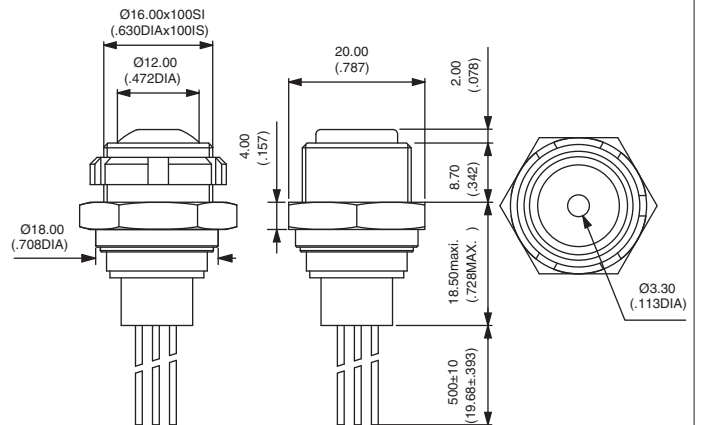


GOLD PLATED CONTACTS

Curved actuator  
**IZNR3F4** Normally Open

Flat actuator  
**IZNP3F4** Normally Open

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



### Non-illuminated - solder lug terminals

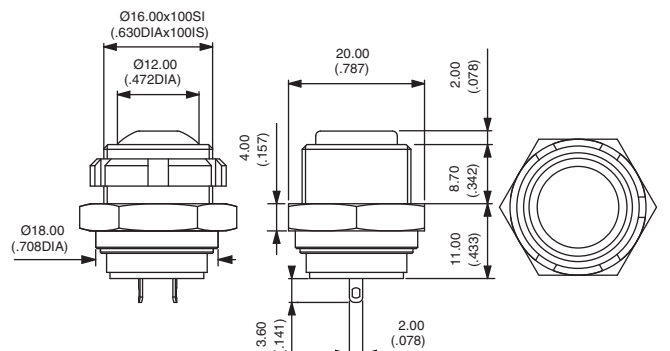


GOLD PLATED CONTACTS

Curved actuator  
**IZNR3S4** Normally Open

Flat actuator  
**IZNP3S4** Normally Open

Also available with straight PC terminals :  
**IZN•3P4** and quick-connect terminals : **IZN•3Z4**.



For non-illuminated FLYING LEAD versions, refer to illuminated models above. Non-illuminated have 2 wires only.

# IZ series

Rear mounted sealed pushbutton switches - bushing Ø 16 mm - metal - momentary

For fixed panel thickness : IZN - options

## Non-illuminated - screw terminals

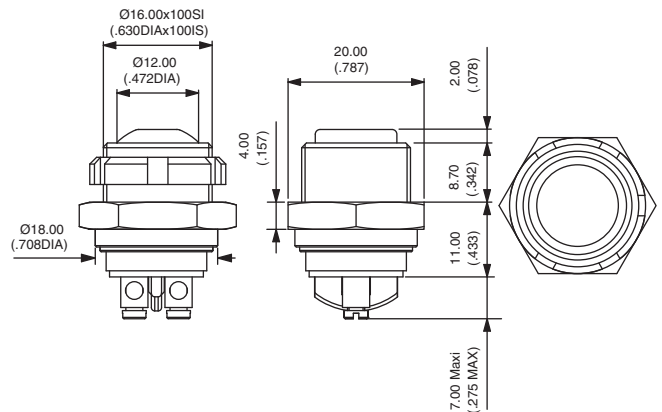


SILVER CONTACTS

Curved actuator  
**IZNR3V2**



Flat actuator  
**IZNP3V2**

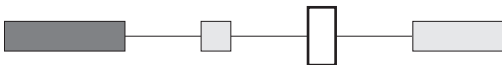


## ACTUATOR COLOUR



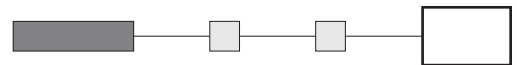
1 : blue - B : dark blue - 2 : black - 3 : green - 5 : yellow - 6 : red - 7 : white - 8 : bright chrome - 9 : orange  
A : satin chrome

## BUSHING AND BEZEL COLOUR



2 : black (standard)  
Other : on request.

## LED COLOUR



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

# IZ series

## Rear mounted sealed pushbutton switches - bushing Ø 16 mm - metal - latching

*Distinctive features and specifications*



- Rear mounting for easier installation
- Latching action metal models
- Fixed or variable panel thickness
- Sealed to IP67
- Illuminated or non-illuminated
- Flat actuator for optional marking

### ENVIRONMENTAL SPECIFICATIONS

- Front panel sealing : IP67 according to IEC 60529
- 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 : 100mA 24VDC - 200.000 cycles
- Initial contact resistance : 100 mΩ max.
- Insulation resistance : 1 GΩ min. at 500VDC
- Dielectric strength : 1.500 Vrms between terminals  
1.000 Vrms between terminals and frame

#### LED COMPONENT SPECIFICATIONS

LED colour	Forward current	Typ. forward voltage	Max. forward voltage
Super red (LOS)	20mA	1,95V	1,95V
Yellow (LOY)	20mA	2V	2,05V
Green (LOG)	20mA	3,2V	3,70V
Blue (LOB)	20mA	3,2V	4V

A resistor must be series-connected by the user.

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

On flying lead versions, the LED resistor can be integrated by APEM on request.

### GENERAL SPECIFICATIONS

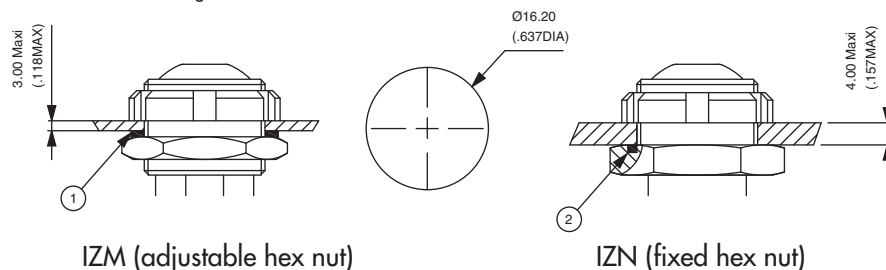
- Panel thickness :
  - IZM : 3 mm (.118) max.
  - IZN : 4 mm (.157) max.
- Total travel : 2,5 mm (.098) +/-0,3 mm
- Typical operating force : 5N +/- 2N
- Mechanical life : 200.000 cycles
- Torque : IZN : 1 Nm max.  
IZM : 0,7 Nm max. applied to nut
- Soldering : 320°C max. for 3 sec.

### MATERIALS

- Case : thermoplastic UL94-V0
- Plunger : polyamide
- Bushing/bezel : brass, nickel plated
- Contacts : silver, gold plated
- Multi-wire lead AWG20, section 0,6 mm<sup>2</sup>
- LED wire : AWG26, section 0,12 mm<sup>2</sup>
- Lens : polycarbonate
- Terminal seal : epoxy

### PANEL CUT-OUT

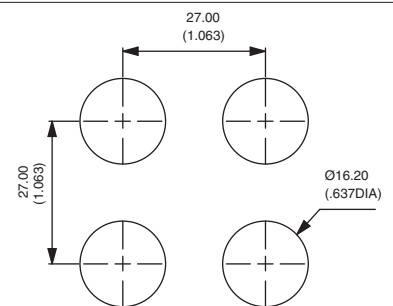
- ① Flat seal ② O-ring



IZM (adjustable hex nut)

IZN (fixed hex nut)

### MATRIX MOUNTING

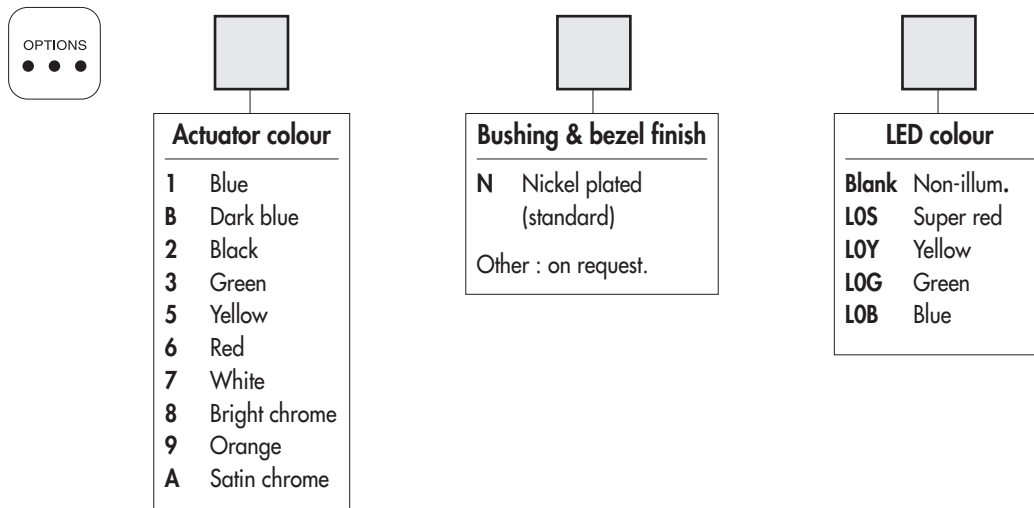
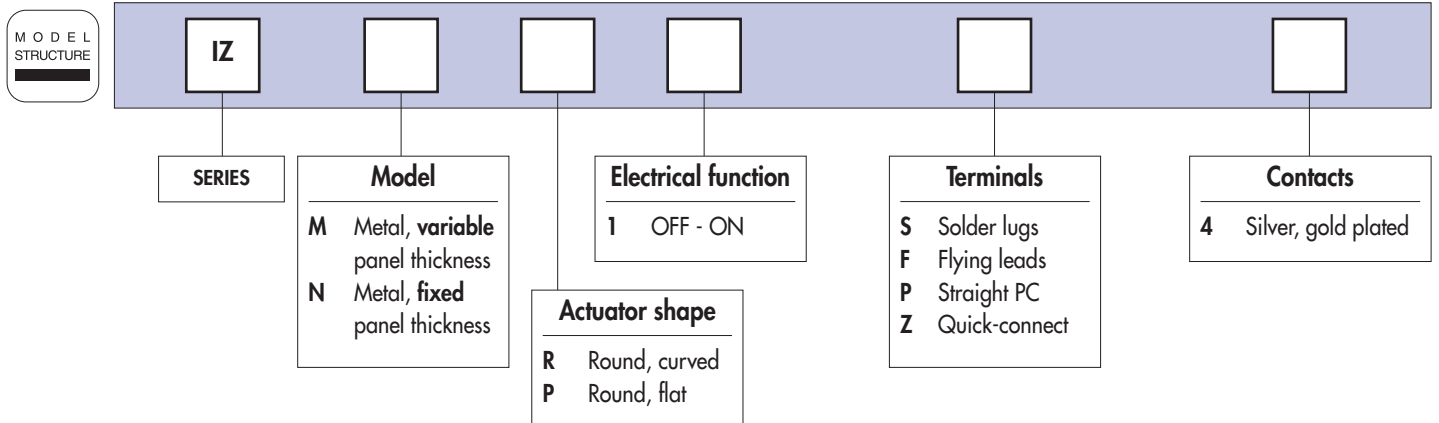




# IZ series

## Rear mounted sealed pushbutton switches - bushing Ø 16 mm - metal - latching

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.



**Mounting accessories** : Standard hardware supplied :

- IZN : 1 castellated nickel plated brass nut U6915 + 1 O-ring

- IZM : 1 castellated nickel plated brass nut U6915 + 1 silicone flat seal + 1 hex nut 19 mm (.748) across flats U4116.

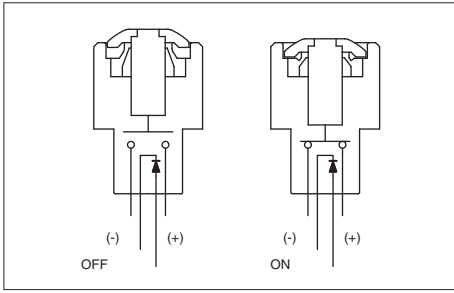


**Packaging unit** : 25 pieces for flying lead models - 40 pieces for other models

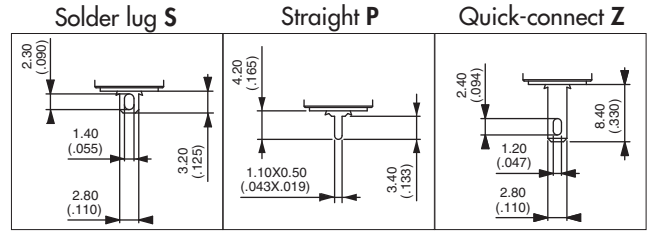
# IZ series

## Rear mounted sealed pushbutton switches - bushing Ø 16 mm - metal - latching

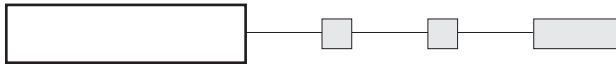
For variable panel thickness : IZM



- Four LED colours
- Tin plated LED terminals
- Gold plated contacts



### MODEL STRUCTURE



Plunger marking available on IZMP models (symbol 10 mm max.). On request.

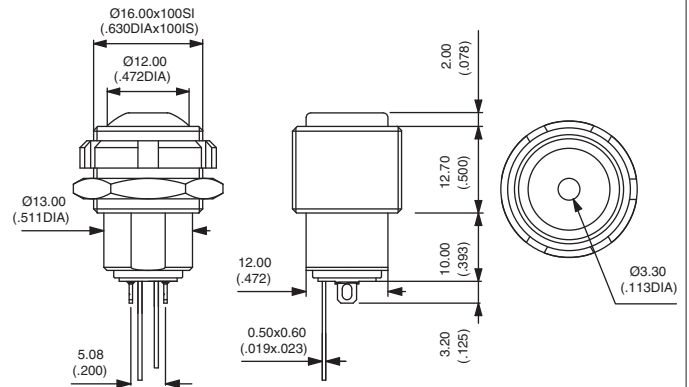
### Illuminated - solder lug terminals



Curved actuator  
**IZMR1S4** OFF - ON

Flat actuator  
**IZMP1S4** OFF - ON

Also available with straight PC terminals :  
**IZM•1P4** & quick-connect terminals : **IZM•1Z4**.



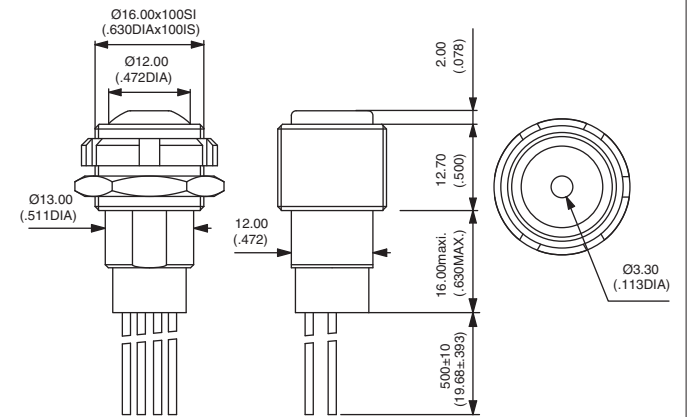
### Illuminated - flying lead terminals



Curved actuator  
**IZMR1F4** OFF - ON

Flat actuator  
**IZMP1F4** OFF - ON

Wire colours : black : contact,  
red : LED anode(+), blue : LED cathode (-)



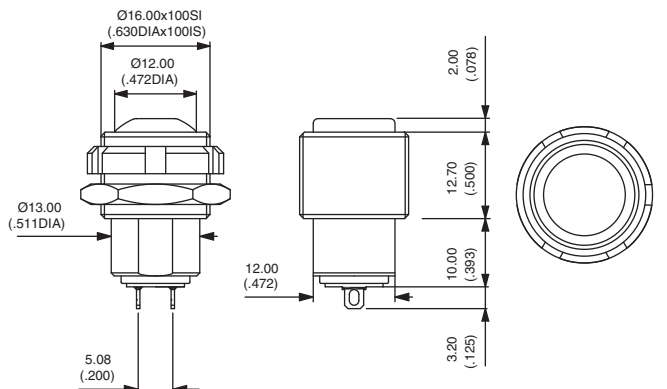
### Non-illuminated - solder lug terminals



Curved actuator  
**IZMR1S4** OFF - ON

Flat actuator  
**IZMP1S4** OFF - ON

Also available with straight PC terminals :  
**IZM•1P4** & quick-connect terminals : **IZM•1Z4**.

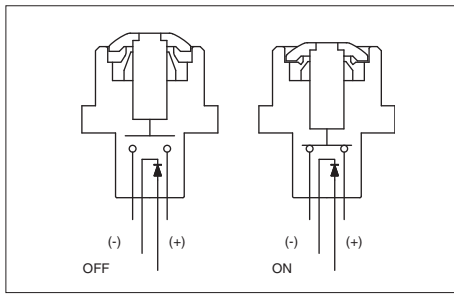


For FLYING LEAD versions, refer to illuminated models above. Non-illuminated have 2 wires only.

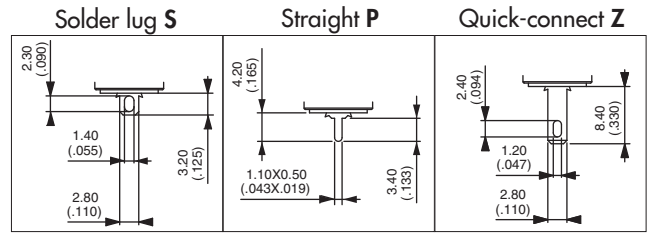
# IZ series

## Rear mounted sealed pushbutton switches - bushing Ø 16 mm - metal - latching

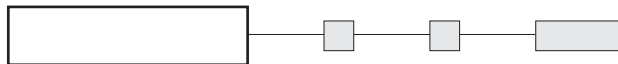
For fixed panel thickness : IZN



- Four LED colours
- Tin plated LED terminals
- Gold plated contacts



### MODEL STRUCTURE



Plunger marking available on IZNP models (symbol 10 mm max.). On request.

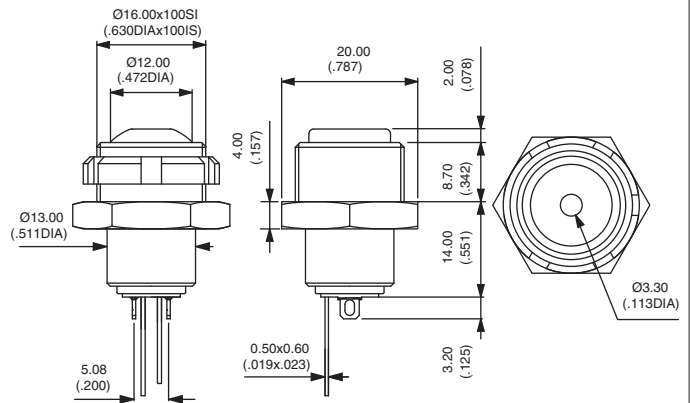
### Illuminated - solder lug terminals



Curved actuator  
**IZNR1S4** OFF - ON

Flat actuator  
**IZNP1S4** OFF - ON

Also available with straight PC terminals :  
**IZN•1P4** & quick-connect terminals : **IZN•1Z4**.



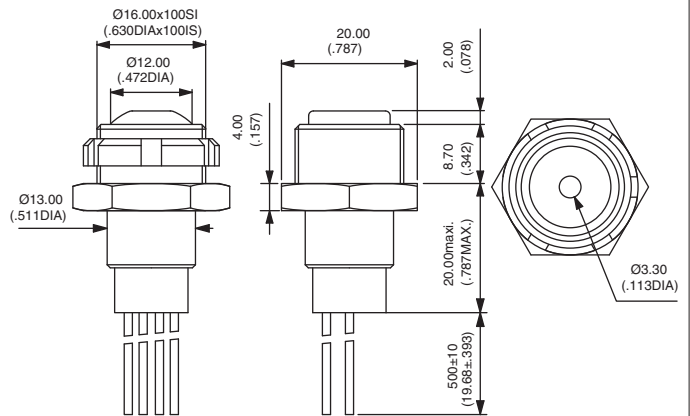
### Illuminated - flying lead terminals



Curved actuator  
**IZNR1F4** OFF - ON

Flat actuator  
**IZNP1F4** OFF - ON

Wire colours : black : contact,  
red : LED anode(+), blue : LED cathode (-)



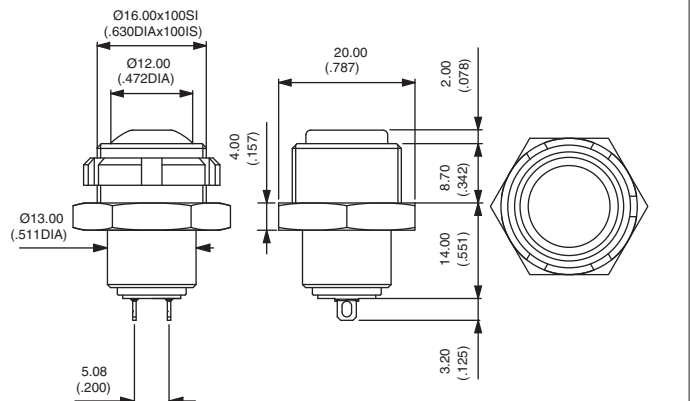
### Non-illuminated - solder lug terminals



Curved actuator  
**IZNR1S4** OFF - ON

Flat actuator  
**IZNP1S4** OFF - ON

Also available with straight PC terminals :  
**IZN•1P4** & quick-connect terminals : **IZN•1Z4**.



For FLYING LEAD versions, refer to illuminated models above. Non-illuminated have 2 wires only.

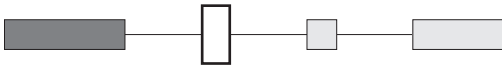
# I<sup>Z</sup> series

## Rear mounted sealed pushbutton switches - bushing Ø 16 mm - metal - latching

### Options

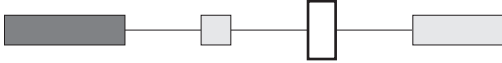
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#### ACTUATOR COLOUR



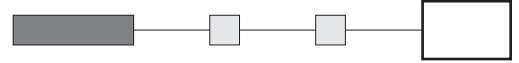
**1** : blue - **B** : dark blue - **2** : black - **3** : green - **5** : yellow - **6** : red - **7** : white - **8** : bright chrome - **9** : orange  
**A** : satin chrome

#### BUSHING AND BEZEL COLOUR



**N** : nickel plated (standard)  
Other : on request.

#### LED COLOUR



**Blank** : non-illuminated  
**LOS** : super red - **LOY** : yellow - **LOG** : green  
**LOB** : blue



- Rear mounting for easier installation
- Momentary models
- Screw version available up to 4A
- Sealed to IP67
- Illuminated or non-illuminated
- Flat actuator for optional marking

### ENVIRONMENTAL SPECIFICATIONS

- Front panel sealing : IP67 according to IEC 60529
- 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
- Operating temperature : -40°C to +85°C

### GENERAL SPECIFICATIONS

- Panel thickness : 3 mm (.118) max.
- Total travel : 1,8 mm (.070) +/- 0,3 mm
- Typical operating force : 6N +/- 2N
- Mechanical life : 1.000.000 cycles
- Torque : 0,7 Nm max. applied to nut
- Soldering : 320°C max. for 3 sec.

### ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load :
  - Gold plated silver contacts (code 4) : 200mA 48VDC - 200mA 250VAC
  - Silver contacts (code 2) - screw terminals : 2A 250VAC - 4A 48VDC
- Electrical life at full load : 500.000 cycles
- Initial contact resistance : 100 mΩ max.
- Insulation resistance : 1 GΩ min. at 500VDC
- Dielectric strength : 1.000 Vrms 50 Hz

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

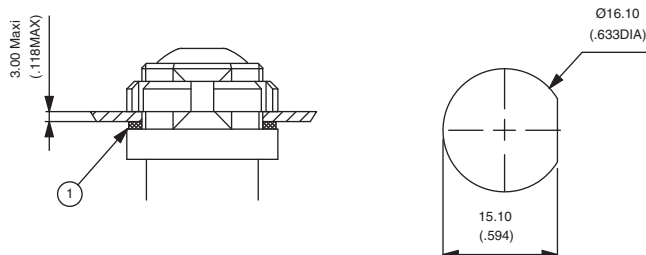
On flying lead versions, the LED resistor can be integrated by APEM on request.

### MATERIALS

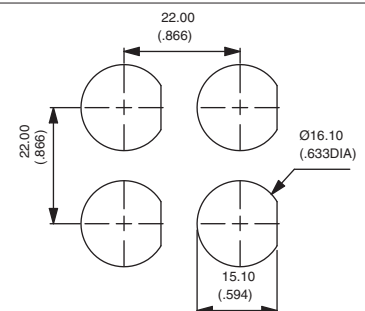
- Case : thermoplastic UL94-V0
- Plunger : polyamide
- Bushing/bezel : polyamide
- Contacts :
  - 4 : silver, gold plated
  - 2 : silver (screw terminals)
- Multi-wire lead AWG20, section 0,6 mm<sup>2</sup>
- LED wire : AWG26, section 0,12 mm<sup>2</sup>
- Lens : polycarbonate
- Terminal seal : epoxy

### PANEL CUT-OUT

① Flat seal



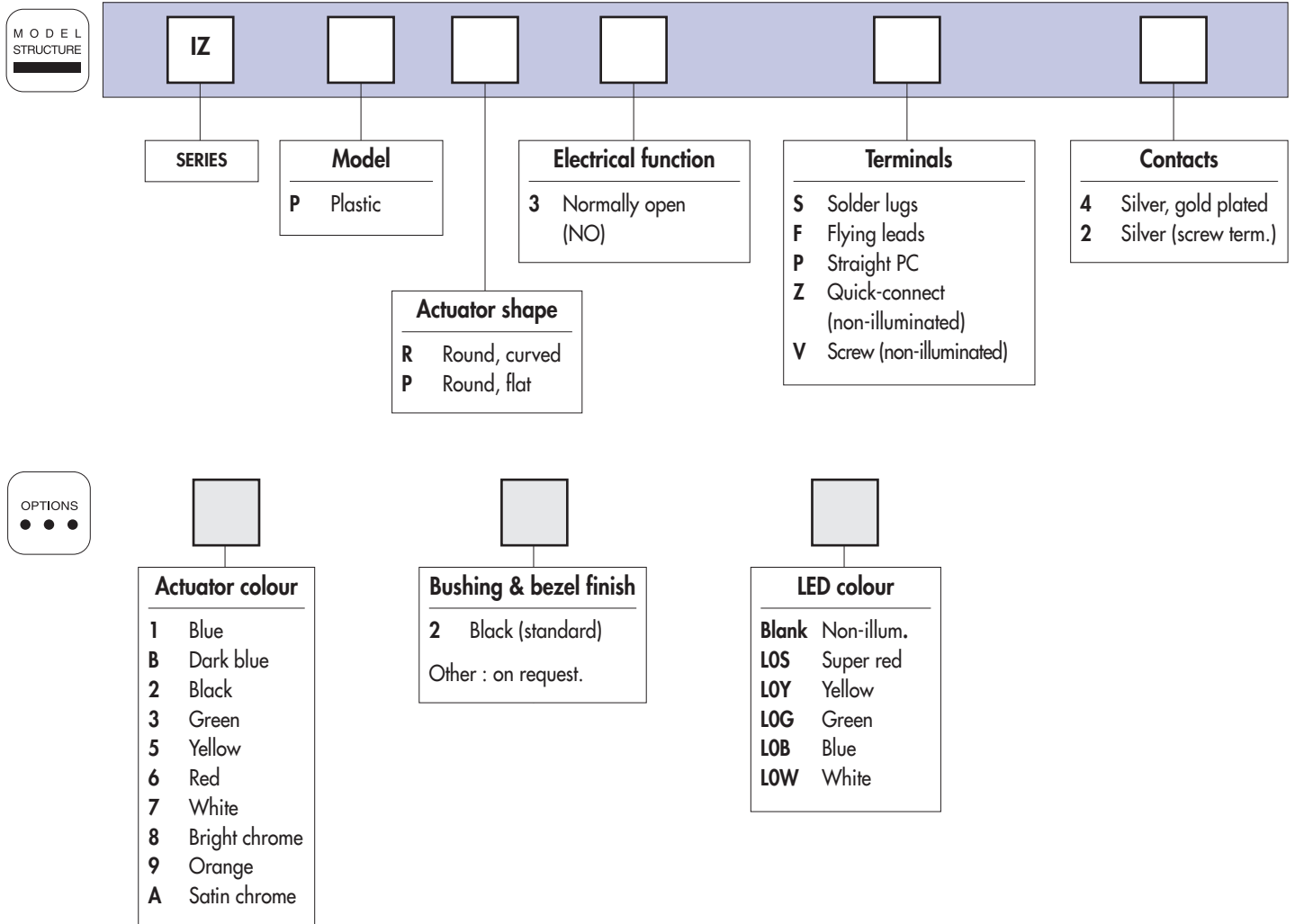
### MATRIX MOUNTING



# IZ series

## Rear mounted sealed pushbutton switches - bushing Ø 16 mm - momentary

### 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.



**Mounting accessories** : Standard hardware supplied : 1 castellated black plastic nut U4249 and 1 silicone flat seal.

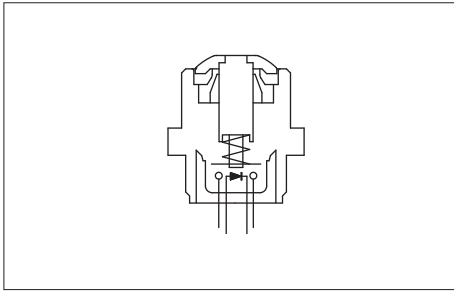


**Packaging unit** : 25 pieces for flying lead models - 40 pieces for other models

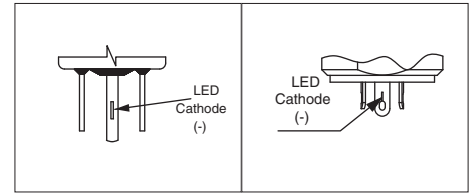
# IZ series

## Rear mounted sealed pushbutton switches - bushing Ø 16 mm - momentary

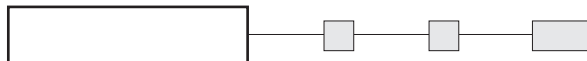
*Illuminated*



- Five LED colours
- Tin plated LED terminals
- Gold plated contacts



### MODEL STRUCTURE



Plunger marking available on IZPP models (symbol 10 mm max.). On request.

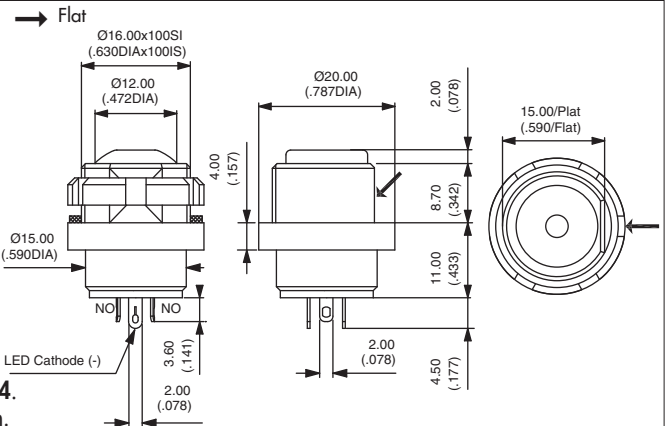
### Solder lug terminals



Curved actuator  
**IZPR3S4**  Normally Open

Flat actuator  
**IZPP3S4**  Normally Open

Also available with straight PC terminals : **IZP•3P4**.  
LED colour is indicated by the bottom of the switch.



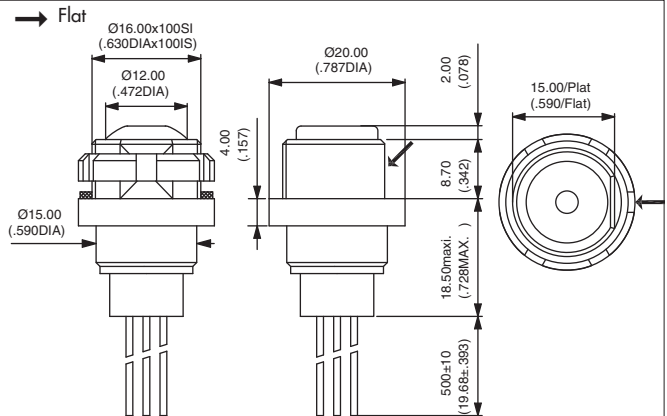
### Flying lead terminals - momentary



Curved actuator  
**IZPR3F4**  Normally Open

Flat actuator  
**IZPP3F4**  Normally Open

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

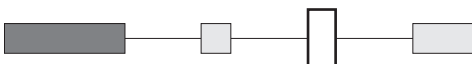


### ACTUATOR COLOUR



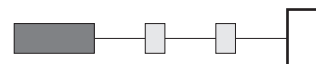
1 : blue - B : dark blue - 2 : black - 3 : green - 5 : yellow - 6 : red - 7 : white - 8 : bright chrome - 9 : orange  
A : satin chrome

### BUSHING AND BEZEL COLOUR



2 : black (standard)  
Other : on request.

### LED COLOUR

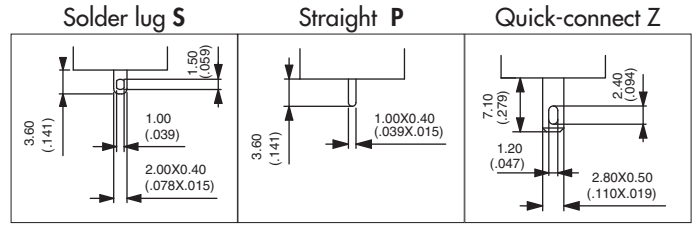
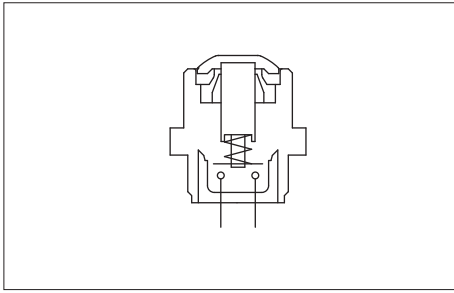


LOS : super red - LOY : yellow - LOG : green  
LOB : blue - LOW : white

# IZ series

## Rear mounted sealed pushbutton switches - bushing Ø 16 mm - momentary

Non-illuminated



MODEL  
STRUCTURE



Plunger marking available on IZPP models (symbol 12 mm max.). On request.

### Solder lug terminals - gold plated contacts



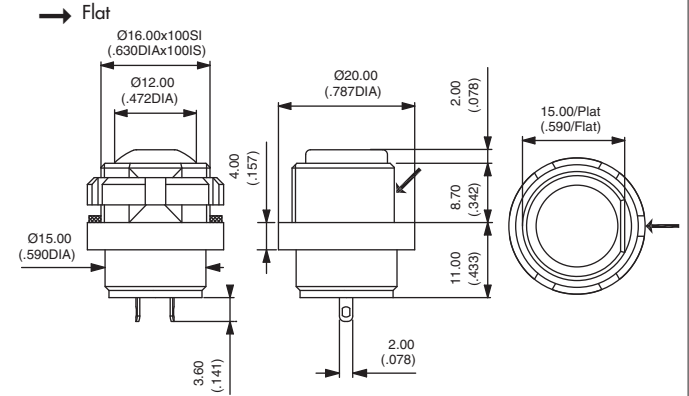
Curved actuator  
**IZPR3S4**



Flat actuator  
**IZPP3S4**



Also available with straight PC terminals :  
**IZP•3P4** and quick-connect terminals : **IZP•3Z4**.



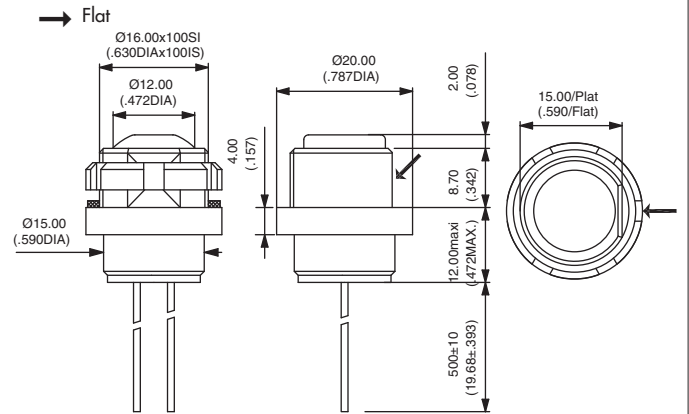
### Sealed flying lead terminals - gold plated contacts



Curved actuator  
**IZPR3F4**



Flat actuator  
**IZPP3F4**



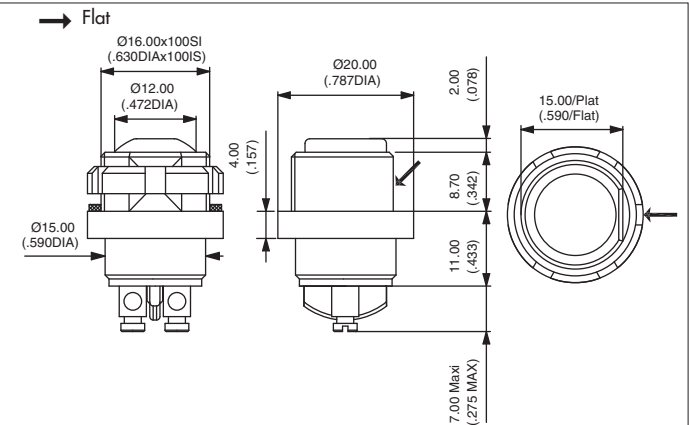
### Screw terminals - silver contacts



Curved actuator  
**IZPR3V2**



Flat actuator  
**IZPP3V2**



Actuator colour and bushing/bezel colour : select the desired codes on previous page.





- Rear mounting for easier installation
- Latching action models
- Sealed to IP67
- Illuminated or non-illuminated
- Flat actuator for optional marking

### ENVIRONMENTAL SPECIFICATIONS

- Front panel sealing : IP67 according to IEC 60529
- 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
- Operating temperature : -40°C to +85°C

### GENERAL SPECIFICATIONS

- Panel thickness : 3 mm (.118) max.
- Total travel : 2,5 mm (.098) +/- 0,3 mm
- Typical operating force : 5N +/- 2N
- Mechanical life : 200.000 cycles
- Torque : 0,7 Nm max. applied to nut
- Soldering : 320°C max. for 3 sec.

### ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load : 100mA 24VDC - 200.000 cycles
- Initial contact resistance : 100 mΩ max.
- Insulation resistance : 1 GΩ min. at 500VDC
- Dielectric strength : 1.500 Vrms between terminals

#### LED COMPONENT SPECIFICATIONS

LED colour	Forward current	Typ. forward voltage	Max. forward voltage
Super red (LOS)	20mA	1,95V	1,95V
Yellow (LOY)	20mA	2V	2,05V
Green (LOG)	20mA	3,2V	3,70V
Blue (LOB)	20mA	3,2V	4V

A resistor must be series-connected by the user.

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

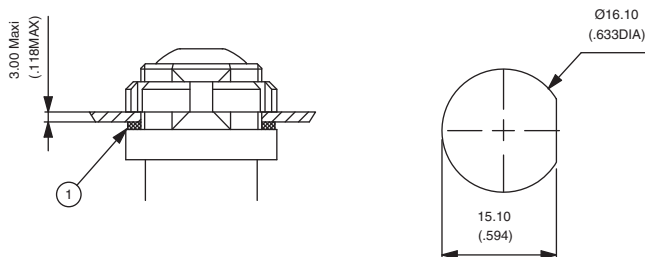
On flying lead versions, the LED resistor can be integrated by APEM on request.

### MATERIALS

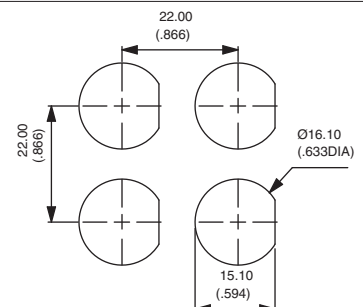
- Case : thermoplastic UL94-V0
- Plunger : polyamide
- Bushing/bezel : polyamide
- Contacts : silver, gold plated
- Multi-wire lead AWG20, section 0,6 mm<sup>2</sup>
- LED wire : AWG26, section 0,12 mm<sup>2</sup>
- Lens : polycarbonate
- Terminal seal : epoxy

### PANEL CUT-OUT

① Flat seal



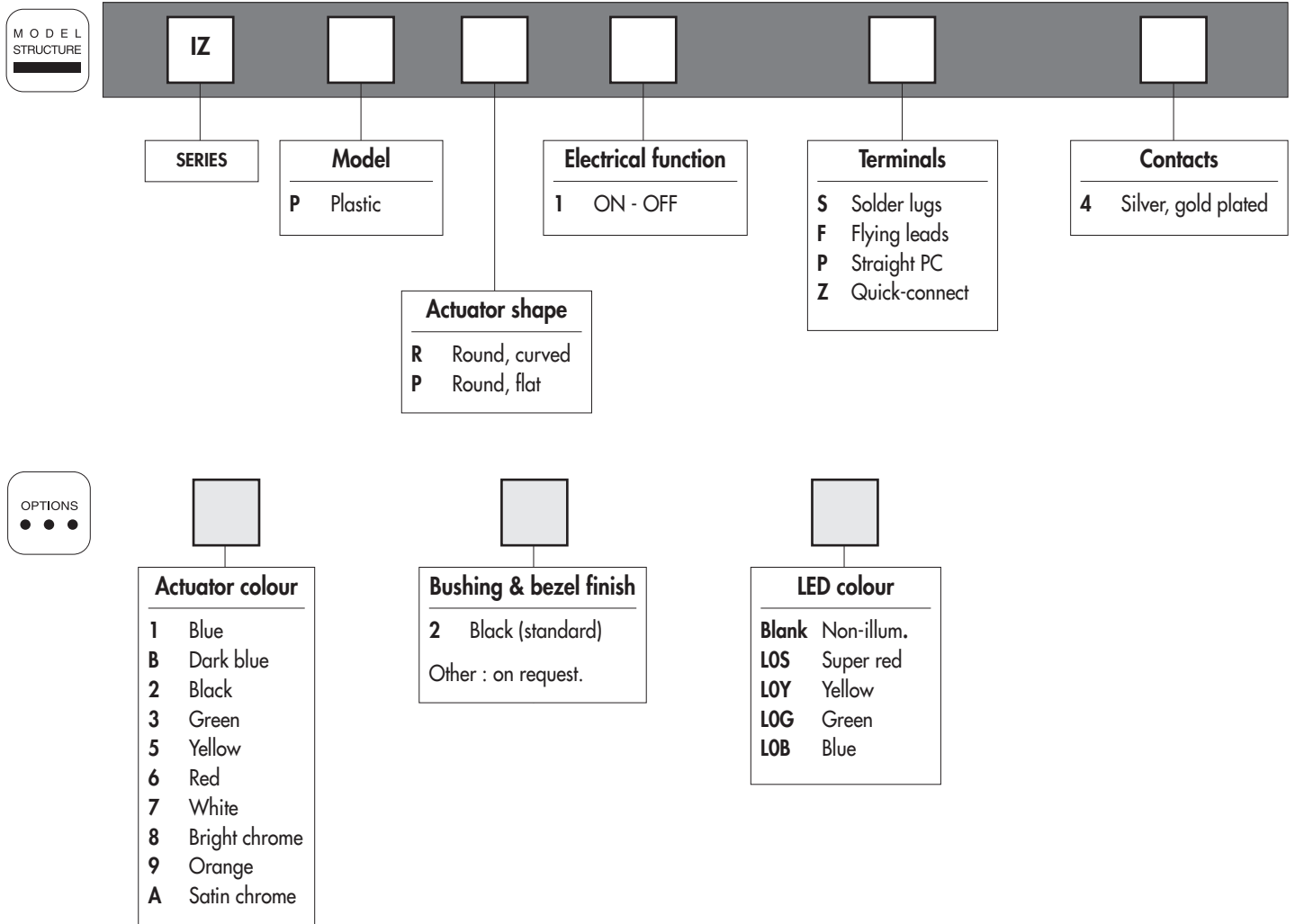
### MATRIX MOUNTING



# IZ series

## Rear mounted sealed pushbutton switches - bushing Ø 16 mm - latching

*Distinctive features and specifications*



### 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.



**Mounting accessories** : Standard hardware supplied : 1 castellated black plastic nut U4249 and 1 silicone flat seal.

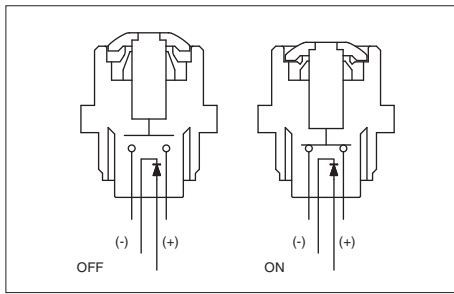


**Packaging unit** : 25 pieces for flying lead models - 40 pieces for other models

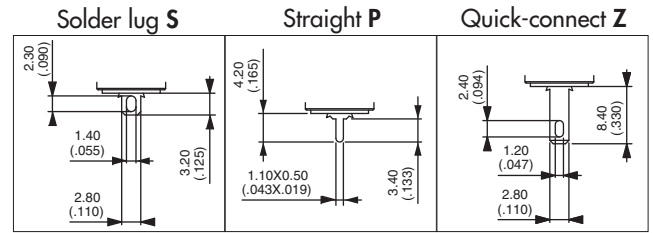
# IZ series

## Rear mounted sealed pushbutton switches - bushing Ø 16 mm - latching

*Illuminated*



- Four LED colours
- Tin plated LED terminals
- Gold plated contacts



### MODEL STRUCTURE



Plunger marking available on IZPP models (symbol 10 mm max.). On request.

### Solder lug terminals



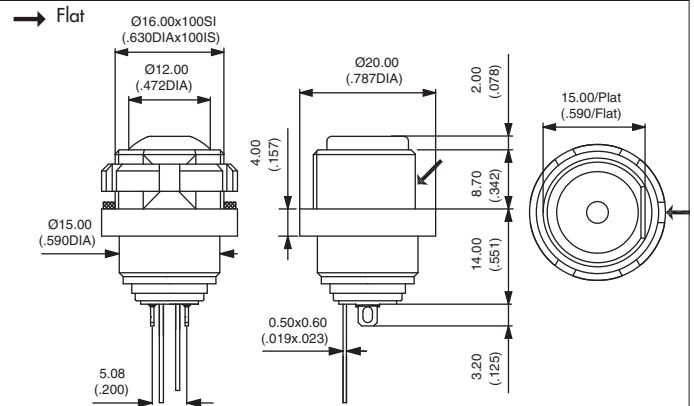
Curved actuator  
**IZPR1S4**

ON - OFF

Flat actuator  
**IZPP1S4**

ON - OFF

Also available with straight PC terminals : **IZP•1P4** and quick-connect terminals : **IZP•1Z4**.



### Sealed flying lead terminals



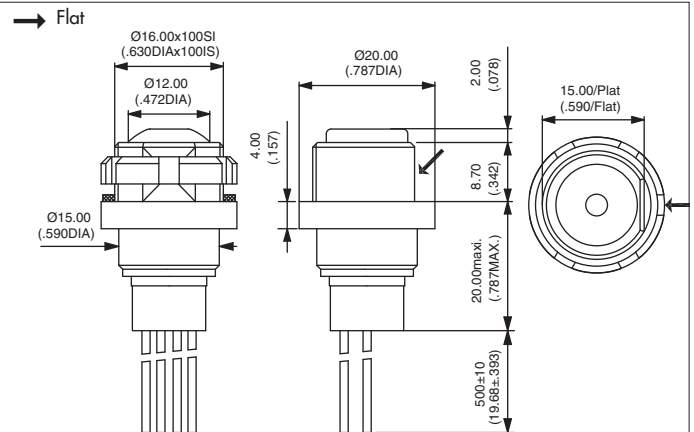
Curved actuator  
**IZPR1F4**

ON - OFF

Flat actuator  
**IZPP1F4**

ON - OFF

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

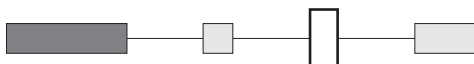


### ACTUATOR COLOUR



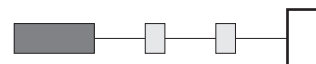
1 : blue - B : dark blue - 2 : black - 3 : green - 5 : yellow - 6 : red - 7 : white - 8 : bright chrome - 9 : orange  
A : satin chrome

### BUSHING AND BEZEL COLOUR



2 : black (standard)  
Other : on request.

### LED COLOUR

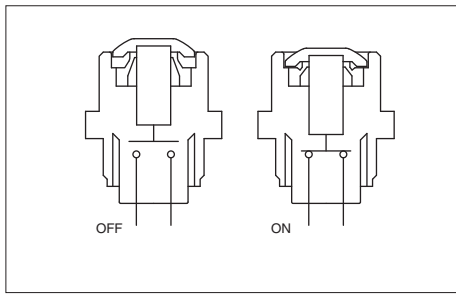


LOS : super red - LOY : yellow - LOG : green  
LOB : blue

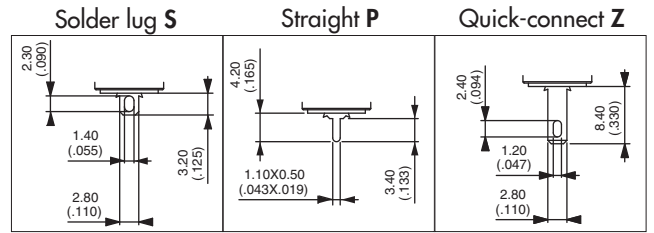
# IZ series

## Rear mounted sealed pushbutton switches - bushing Ø 16 mm - latching

Non-illuminated



- Gold plated contacts



### MODEL STRUCTURE



Plunger marking available on IZPP models (symbol 10 mm max.). On request.

### Solder lug terminals



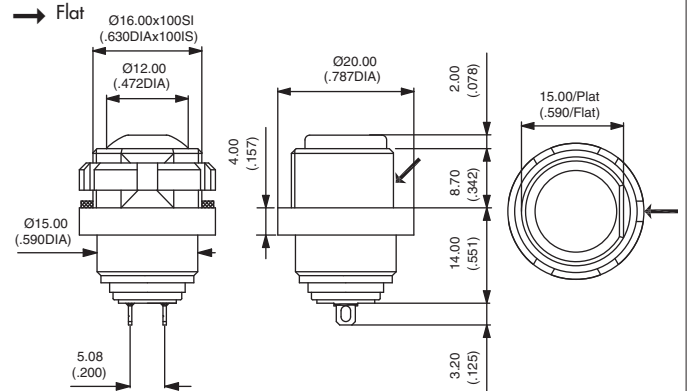
Curved actuator  
**IZPR1S4**

ON - OFF

Flat actuator  
**IZPP1S4**

ON - OFF

Also available with straight PC terminals : **IZP•1P4** and quick-connect terminals : **IZP•1Z4**.



### Sealed flying lead terminals

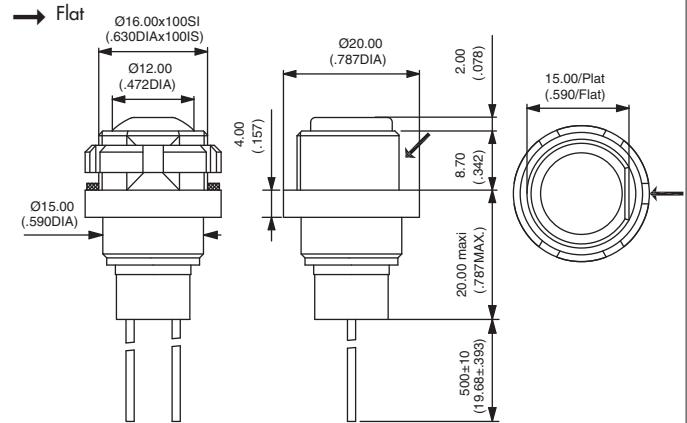


Curved actuator  
**IZPR1F4**

ON - OFF

Flat actuator  
**IZPP1F4**

ON - OFF

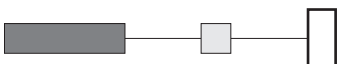


### ACTUATOR COLOUR



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

### BUSHING AND BEZEL COLOUR



2 : black (standard)  
Other : on request.

# IR series

## Sealed pushbutton switches - bushing Ø 16 mm - momentary

*Distinctive features*

The IR series is a range of sealed momentary pushbutton switches with dia. 16 mm bushing. This series is divided into 2 families : standard models and microswitch technology models.

### Common features

- Sealed to IP67
- Illuminated or non-illuminated
- Tactile feedback
- Square or round actuator
- Wide choice of bezel and actuator colours
- Wide choice of illumination colours

### Standard versions

- Numerous terminal options : solder, flying lead, straight PC, quick-connect, screw
- Screw versions withstanding up to 4A
- Electrical function : NO (2 terminals)



NO - Screw terminals



NO - Illuminated  
Wire lead terminals



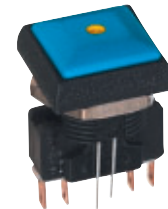
NO - Solder lug  
terminals

### Microswitch versions

- Withstanding up to 5A
- Two electrical functions :  
NC+NO (3 terminals)  
NC/NO combined (4 terminals)



NC+NO - 3 terminals



NC/NO - 4 terminals - Illuminated

### Optional marking

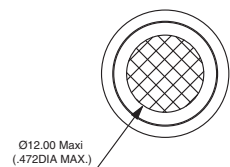
Actuator marking is available on request for models with flat round actuator.



Standard version

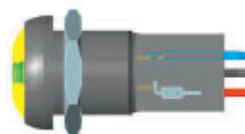


Microswitch version



### Integrated resistor

On wire lead illuminated versions, the LED resistor can be integrated in the product by APEM. On request.



# IR series

## Sealed pushbutton switches - bushing Ø 16 mm - momentary - standard version

*Distinctive features and specifications*



- Screw version up to 4A
- Tactile feedback
- Sealed to IP67
- Illuminated or non-illuminated
- Flat round actuator for optional marking

### ENVIRONMENTAL SPECIFICATIONS

- Front panel sealing : IP67 according to IEC 60529
- 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
- Operating temperature : -40°C to +85°C

### ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load :
  - Gold plated silver contacts (code 4) : 200mA 48VDC - 200mA 250VAC
  - Silver contacts (code 2) - screw terminals : 2A 250VAC - 4A 48VDC
- Electrical life at full load : 500.000 cycles
- Initial contact resistance : 100 mΩ max.
- Insulation resistance : 1 GΩ min. at 500VDC
- Dielectric strength : 1.500 Vrms

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

On flying lead versions, the LED resistor can be integrated by APEM on request.

### GENERAL SPECIFICATIONS

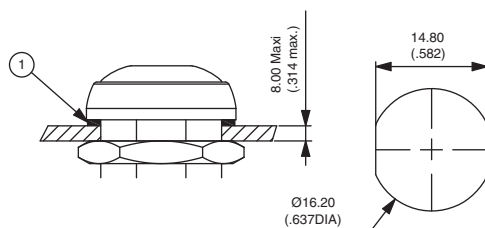
- Panel thickness : 8 mm (.314) max.
- Total travel : 1,6 mm (.062) +/- 0,3 mm
- Typical operating force : 4N +/- 2N
- Mechanical life : 1.000.000 cycles
- Torque : 0,8 Nm max. applied to nut
- Soldering : 320°C max. for 3 sec.

### MATERIALS

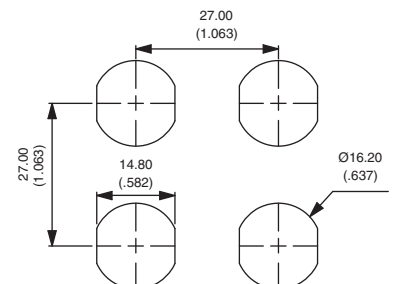
- Case : thermoplastic UL94-V0
- Actuator : polyamide 6/6
- Bushing/bezel : polyamide 6/6
- Contacts :
  - 4 : silver, gold plated
  - 2 : silver (screw terminals)
- Multi-wire lead AWG20, section 0,6 mm<sup>2</sup>
- LED wire : AWG26, section 0,12 mm<sup>2</sup>
- Lens : polycarbonate
- Terminal seal : epoxy

### PANEL CUT-OUT

① Flat seal



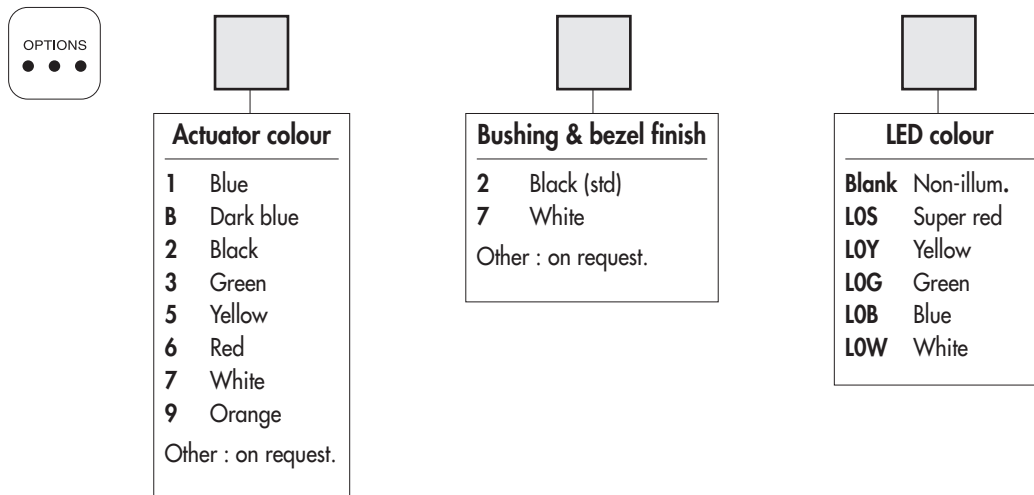
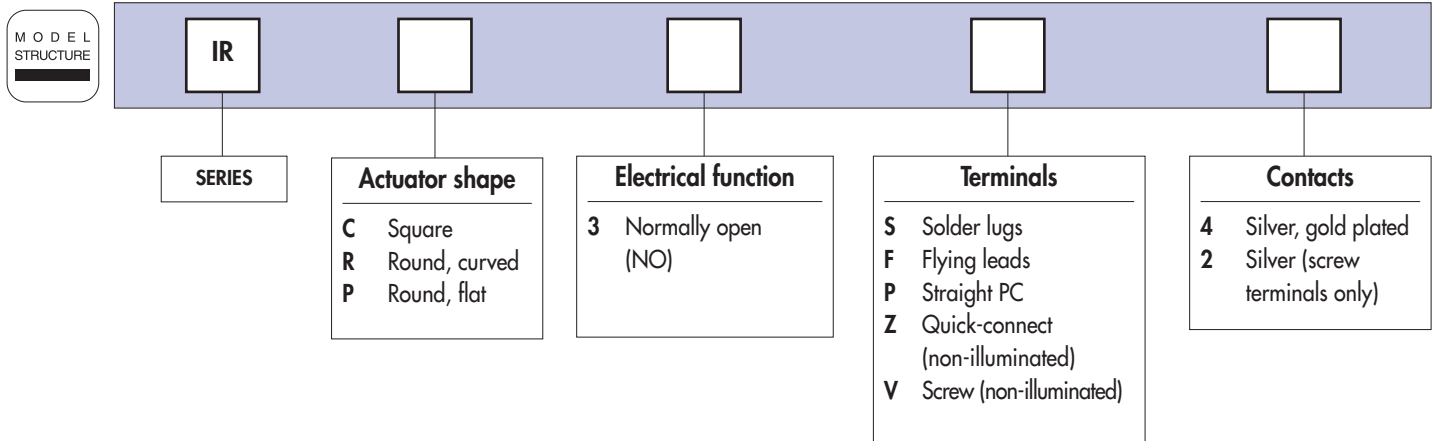
### MATRIX MOUNTING



# IR series

## Sealed pushbutton switches - bushing Ø 16 mm - momentary - standard version

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



**NOTICE** : please note that not all combinations of above numbers are available.  
 Refer to the following pages for further information.



**Mounting accessories** : Standard hardware supplied : 1 hex nut 19 mm (.748) across flats and 1 flat seal  
 Hex nut P/N U4116.

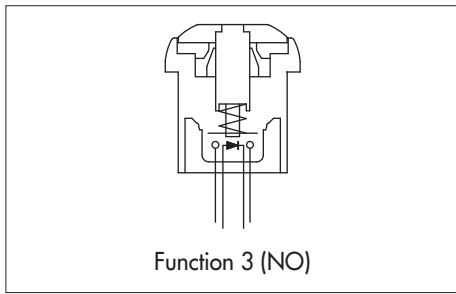


**Packaging unit** : 25 pieces for flying lead models - 40 pieces for other models

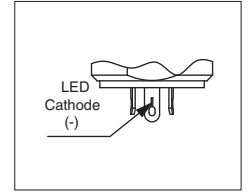
# IR series

## Sealed pushbutton switches - bushing Ø 16 mm - momentary - standard version

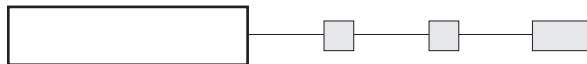
Round - illuminated



- Five LED colours
- Tin plated LED terminals
- Gold plated contacts



### MODEL STRUCTURE



Actuator marking available on IRP models (symbol 12 mm max.). On request.

### Solder lug terminals

→ Flat



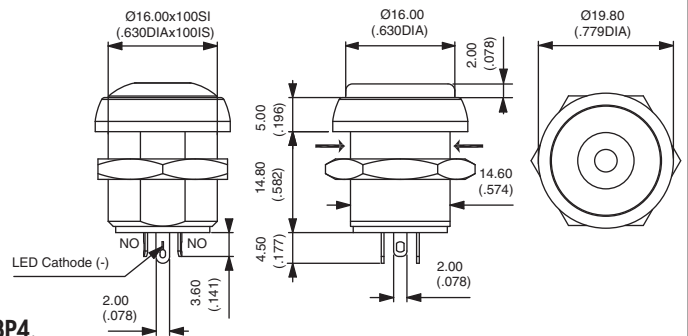
Curved actuator  
**IRR3S4**

Normally Open

Flat actuator  
**IRP3S4**

Normally Open

Also available with straight PC terminals : **IR•3P4**.  
LED colour is indicated by the bottom of the switch.



### Sealed flying lead terminals

→ Flat



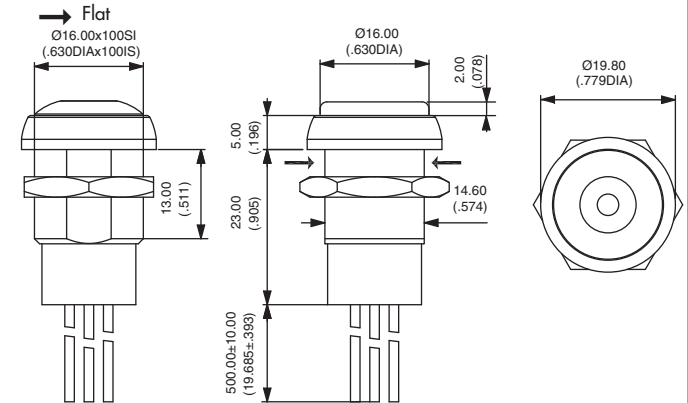
Curved actuator  
**IRR3F4**

Normally Open

Flat actuator  
**IRP3F4**

Normally Open

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

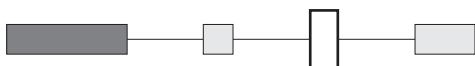


### ACTUATOR COLOUR



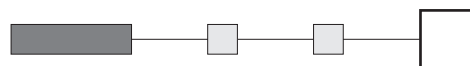
1 : blue - B : dark blue - 2 : black - 3 : green - 5 : yellow - 6 : red - 7 : white - 9 : orange

### BUSHING AND BEZEL FINISH



2 : black (standard) - 7 : white

### LED COLOUR



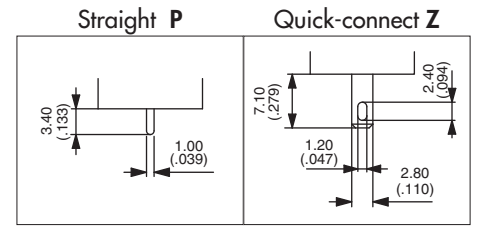
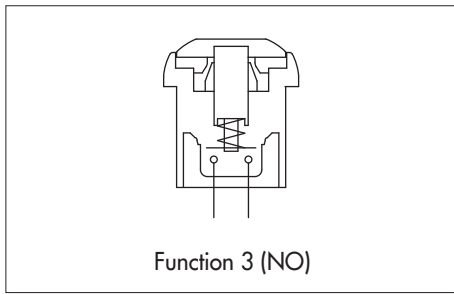
LOS : super red - LOY : yellow - LOG : green - LOB : blue  
LOW : white



# IR series

Sealed pushbutton switches - bushing Ø 16 mm - momentary - standard version

Round - non-illuminated



MODEL  
STRUCTURE



Actuator marking available on IRP models (symbol 12 mm max.). On request.

## Solder lug terminals - gold plated contacts



Curved actuator  
**IRR3S4**

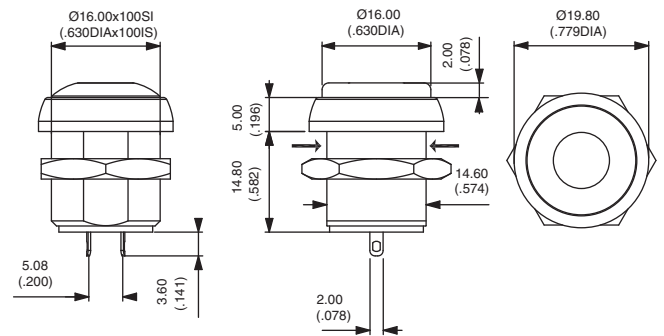


Flat actuator  
**IRP3S4**



Also available with straight PC terminals :  
**IR•3P4** and quick-connect terminals : **IR•3Z4**.

→ Flat



## Sealed flying lead terminals - gold plated contacts



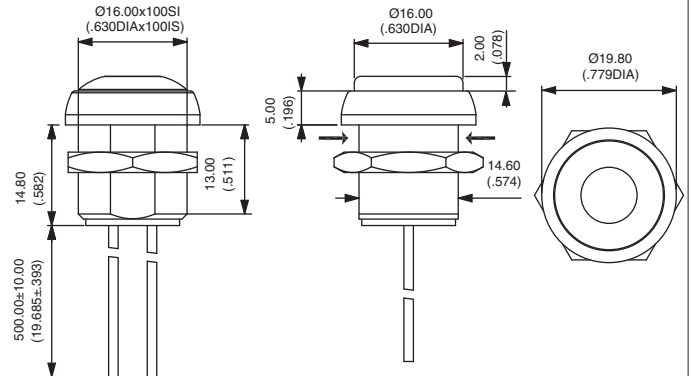
Curved actuator  
**IRR3F4**



Flat actuator  
**IRP3F4**



→ Flat



## Screw terminals - silver contacts



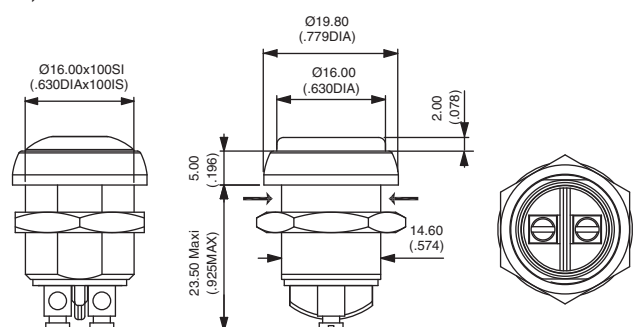
Curved actuator  
**IRR3V2**



Flat actuator  
**IRP3V2**



→ Flat

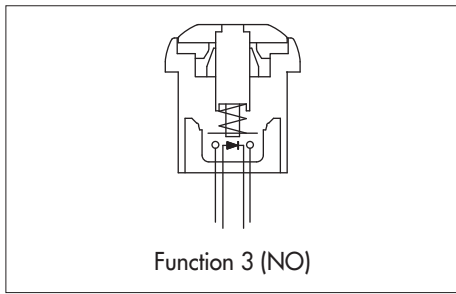


Actuator colour and bushing/bezel finish : select the desired codes on previous page.

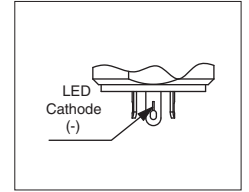
# IR series

## Sealed pushbutton switches - bushing Ø 16 mm - momentary - standard version

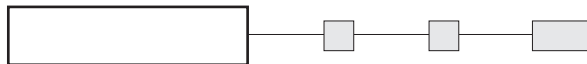
Square - illuminated



- Five LED colours
- Tin plated LED terminals
- Gold plated contacts



MODEL  
STRUCTURE



### Solder lug terminals



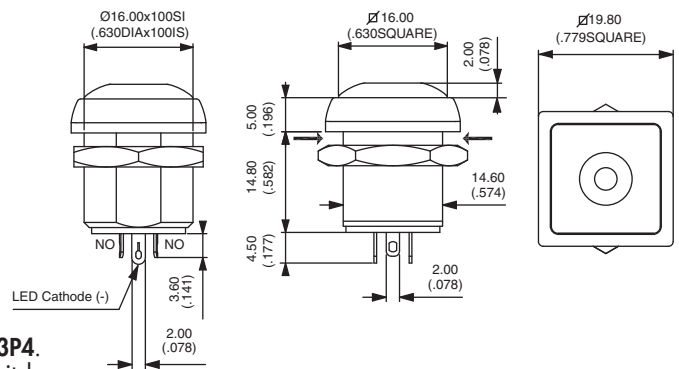
IRC3S4



Normally Open

Also available with straight PC terminals : **IRC3P4**.  
LED colour is indicated by the bottom of the switch.

→ Flat



### Sealed flying lead terminals



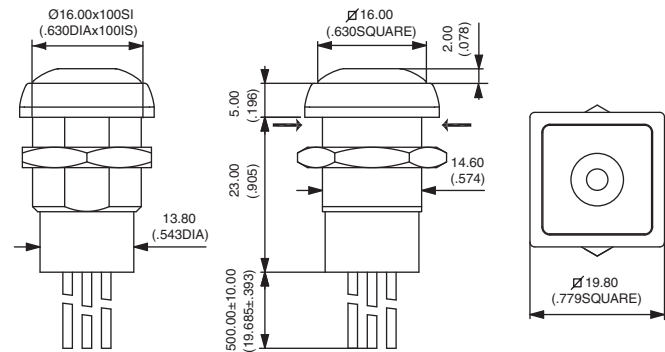
IRC3F4



Normally Open

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

→ Flat

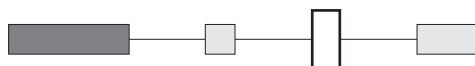


### ACTUATOR COLOUR



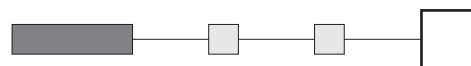
1 : blue - B : dark blue - 2 : black - 3 : green - 5 : yellow - 6 : red - 7 : white - 9 : orange

### BUSHING AND BEZEL FINISH



2 : black (standard) - 7 : white

### LED COLOUR

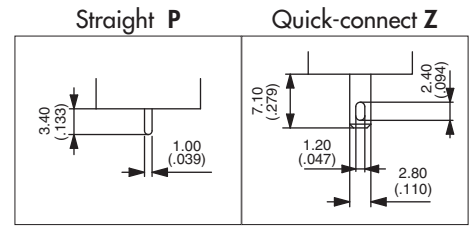
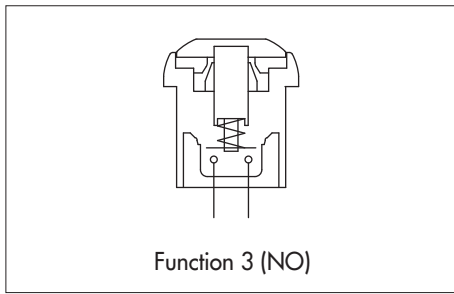


LOS : super red - LOY : yellow - LOG : green - LOB : blue  
LOW : white

# IR series

Sealed pushbutton switches - bushing  $\varnothing$  16 mm - momentary - standard version

Square - non-illuminated



MODEL  
STRUCTURE



## Solder lug terminals - gold plated contacts

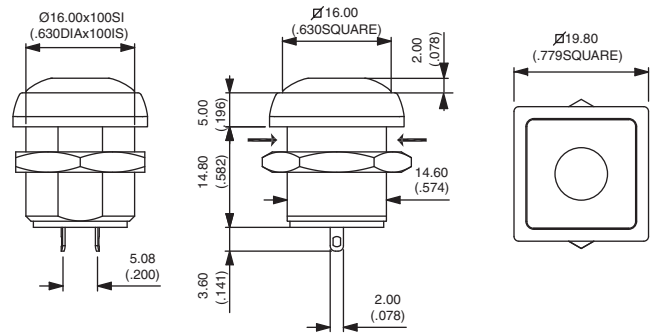


IRC3S4



Normally Open

→ Flat



Also available with straight PC terminals :  
IRC3P4 or quick-connect terminals : IRC3Z4.

## Sealed flying lead terminals - gold plated contacts

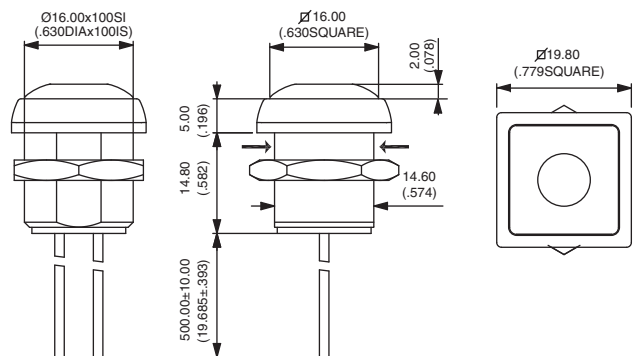


IRC3F4



Normally Open

→ Flat



## Screw terminals - silver contacts

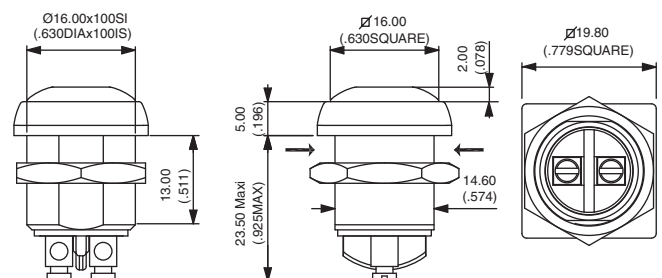


IRC3V2



Normally Open

→ Flat

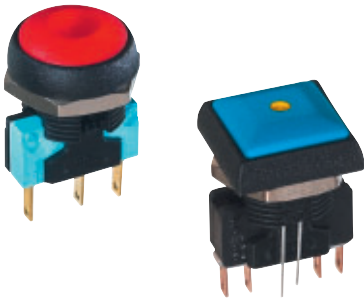


Actuator colour and bushing/bezel finish : select the desired codes on previous page.

# IR series

## Sealed pushbutton switches - bushing Ø 16 mm - momentary - microswitch version

*Distinctive features and specifications*



- Microswitch technology up to 5A
- Tactile feedback
- Sealed to IP67
- Illuminated or non-illuminated
- Flat round actuator for optional marking

### ENVIRONMENTAL SPECIFICATIONS

- Front panel sealing : IP67 according to IEC 60529
- Salt spray : IEC 512-6, test 11f
- Operating temperature : -20°C to +85°C

### ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load :  
5A 250VAC, 50.000 cycles (function 7)  
5A 250VAC, 25.000 cycles (function 8)
- Initial contact resistance : 100 mΩ max.
- Insulation resistance : 1 GΩ min. at 500VDC
- Dielectric strength : 750 Vrms between terminals  
2.000 Vrms between terminals and frame

### LED COMPONENT SPECIFICATIONS

LED colour	Forward current	Typ. forward voltage	Max. forward voltage
Super red (LOS)	20mA	2V	2,5V
Yellow (LOY)	20mA	2V	2,5V
Green (LOG)	10mA	2V	2,5V
Blue (LOB)	10mA	3,3V	3,8V

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

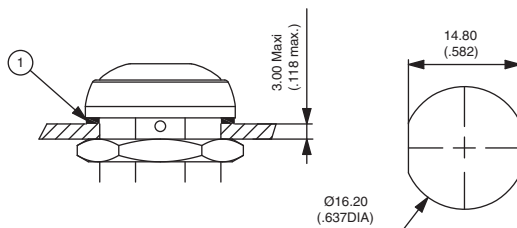
- Panel thickness : 3 mm (.118) max.
- Total travel : 1,6 mm (.062) +/- 0,3 mm
- Typical operating force : 4N +/- 2N
- Mechanical life : 1.000.000 cycles
- Torque : 0,8 Nm max. applied to nut
- Soldering : 320°C max. for 3 sec.

### MATERIALS

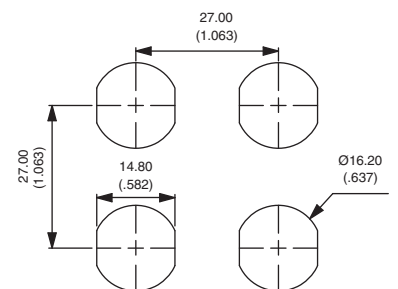
- Case : thermoplastic UL94-V0
- Actuator : polyamide 6/6
- Bushing/bezel : polyamide 6/6
- Contacts : silver
- Lens : polycarbonate

### PANEL CUT-OUT

① Flat seal



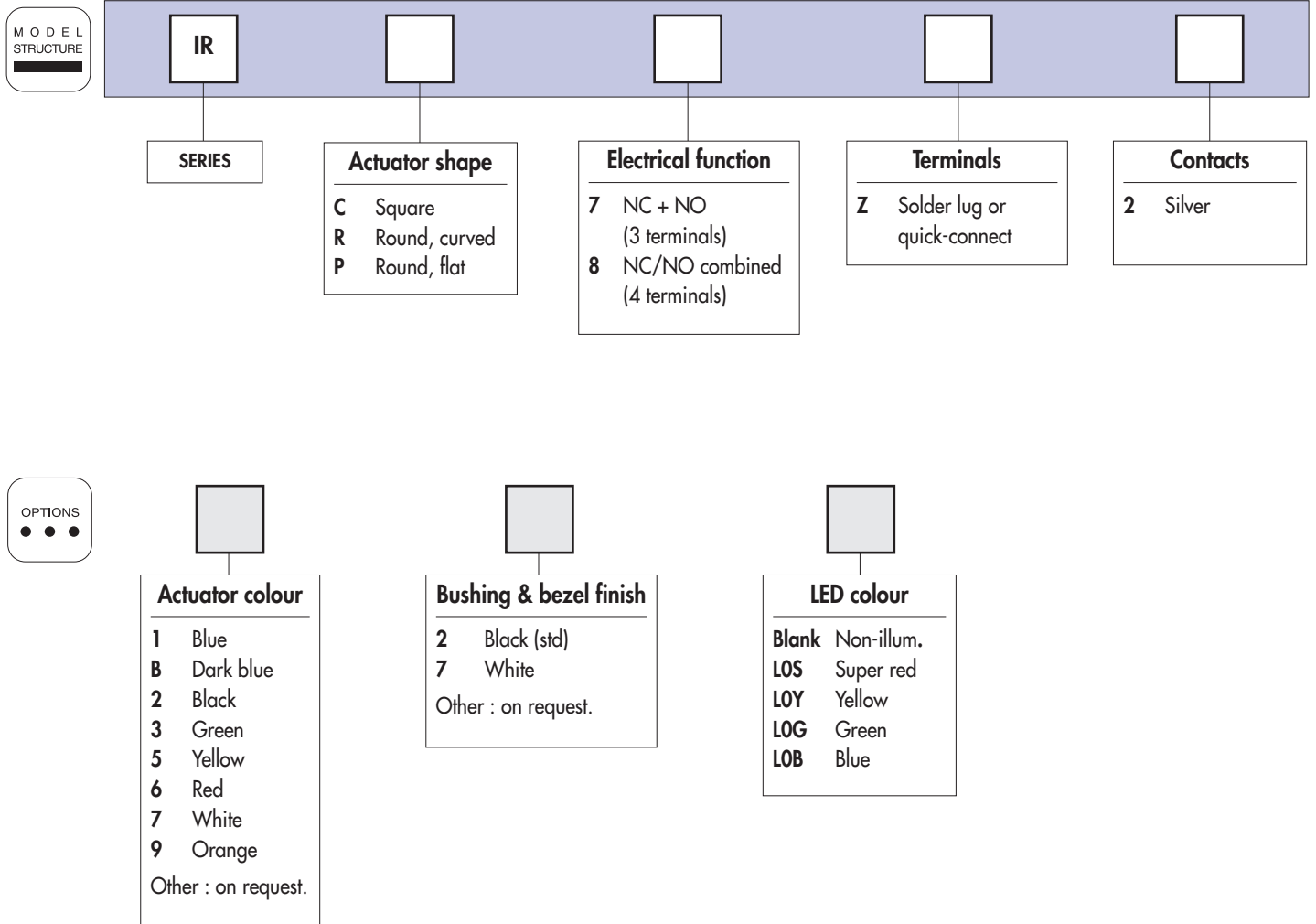
### MATRIX MOUNTING



# IR series

## Sealed pushbutton switches - bushing $\varnothing$ 16 mm - momentary - microswitch version

Overview



The IR series for high currents is based on a microswitch. Please note that this microswitch is supplied separately.

### 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



**NOTICE** : please note that not all combinations of above numbers are available.  
 Refer to the following pages for further information.



**Mounting accessories** : Standard hardware supplied : 1 hex nut 19 mm (.748) across flats and 1 flat seal.  
 Hex nut P/N : U4116

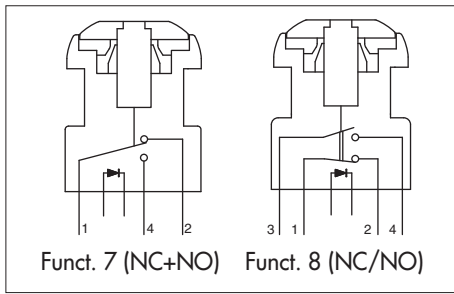


**Packaging unit** : 25 pieces for flying lead models - 40 pieces for other models

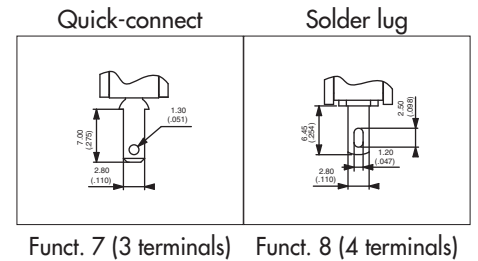
# IR series

## Sealed pushbutton switches - bushing Ø 16 mm - momentary - microswitch version

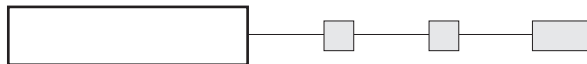
Round - illuminated



- Four LED colours
- Tin plated LED terminals
- Silver contacts



### MODEL STRUCTURE

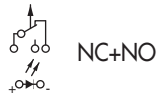


Actuator marking available on IRP models (symbol 12 mm max.). On request.

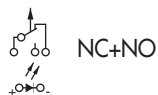
### Quick-connect terminals - NC+NO - 3 terminals



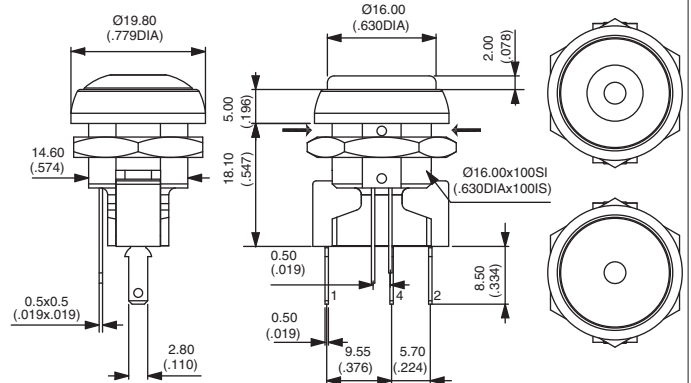
Curved actuator  
**IRR7Z2**



Flat actuator  
**IRP7Z2**



→ Flat



### Solder lug terminals - NC/NO - 4 terminals



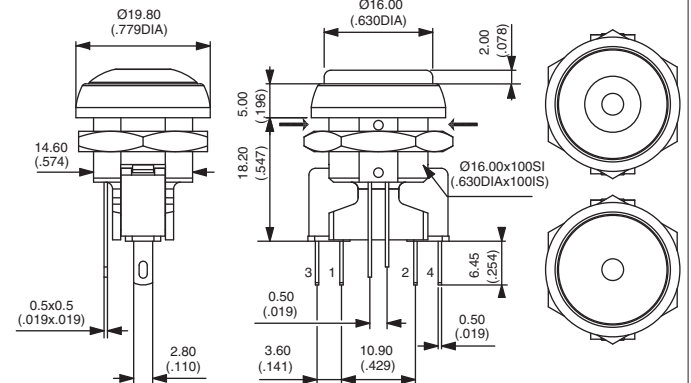
Curved actuator  
**IRR8Z2**



Flat actuator  
**IRP8Z2**



→ Flat



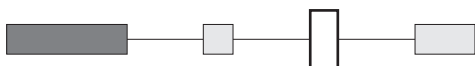
Terminals should be used as solder lugs only.

### ACTUATOR COLOUR



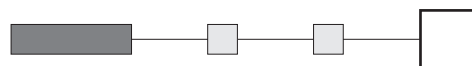
1 : blue - B : dark blue - 2 : black - 3 : green - 5 : yellow - 6 : red - 7 : white - 9 : orange

### BUSHING AND BEZEL FINISH



2 : black (standard) - 7 : white

### LED COLOUR

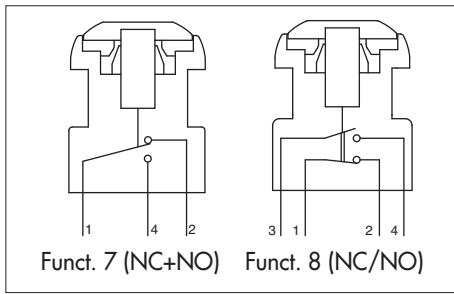


LOS : super red - LOY : yellow - LOG : green - LOB : blue

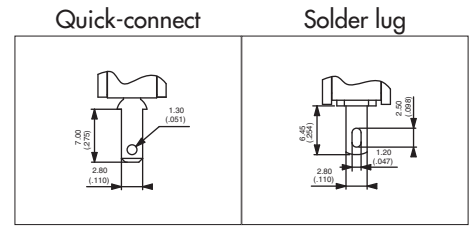
# IR series

## Sealed pushbutton switches - bushing Ø 16 mm - momentary - microswitch version

Round - non-illuminated



• Silver contacts



### MODEL STRUCTURE



Actuator marking available on IRP models (symbol 12 mm max.). On request.

### Quick-connect terminals - NC+NO - 3 terminals



Curved actuator  
**IRR7Z2**



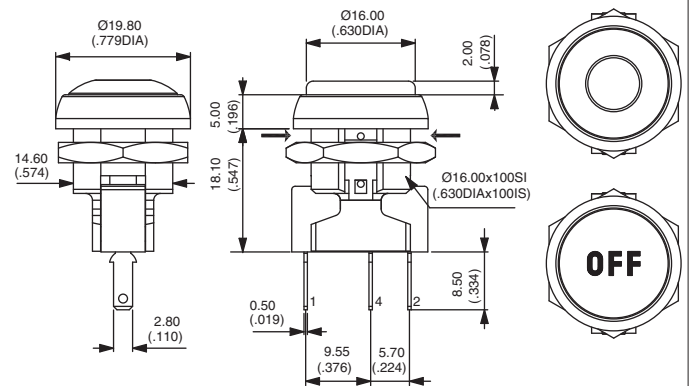
NC+NO

Flat actuator  
**IRP7Z2**



NC+NO

→ Flat



### Solder lug terminals - NC/NO - 4 terminals



Curved actuator  
**IRR8Z2**



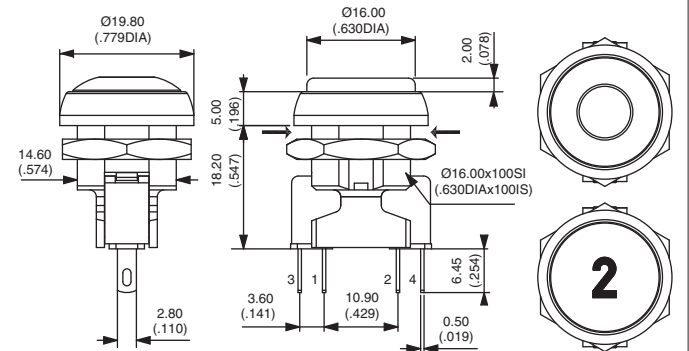
NC/NO combined

Flat actuator  
**IRP8Z2**



NC/NO combined

→ Flat



Terminals should be used as solder lugs only.

### ACTUATOR COLOUR



1 : blue - B : dark blue - 2 : black - 3 : green - 5 : yellow - 6 : red - 7 : white - 9 : orange

### BUSHING AND BEZEL FINISH

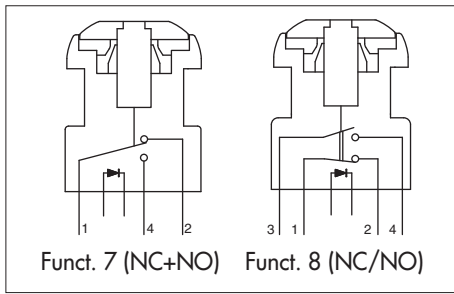


2 : black (standard) - 7 : white

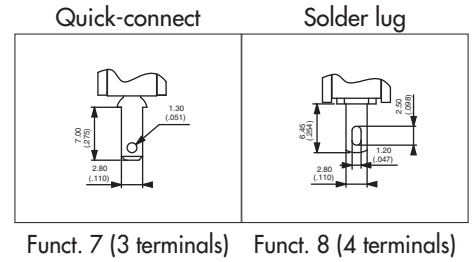
# IR series

Sealed pushbutton switches - bushing Ø 16 mm - momentary - microswitch version

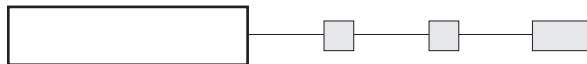
Square - illuminated



- Four LED colours
- Tin plated LED terminals
- Silver contacts



MODEL STRUCTURE



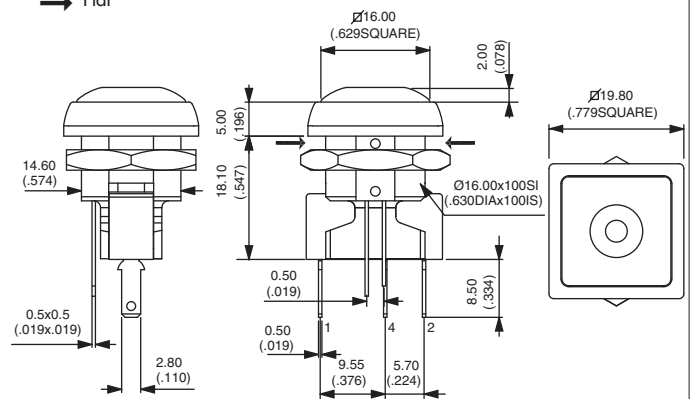
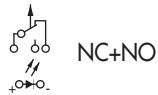
Funct. 7 (3 terminals)    Funct. 8 (4 terminals)

## Quick-connect terminals - NC+NO - 3 terminals

→ Flat

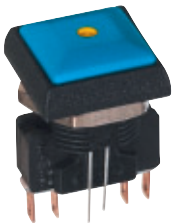


IRC7Z2

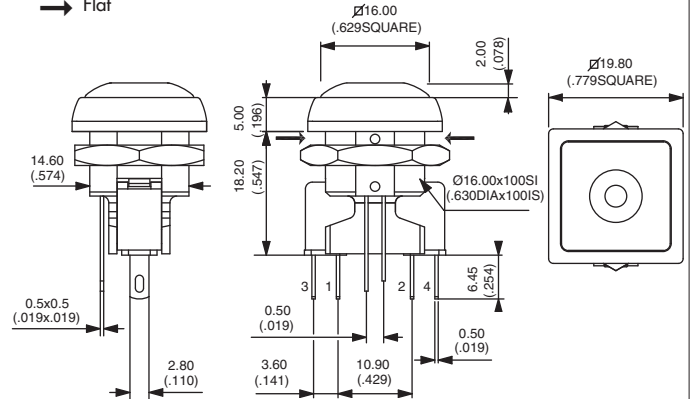


## Solder lug terminals - NC/NO - 4 terminals

→ Flat



IRC8Z2



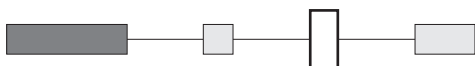
Terminals should be used as solder lugs only.

## ACTUATOR COLOUR



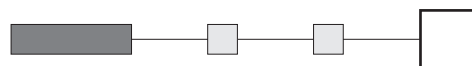
1 : blue - B : dark blue - 2 : black - 3 : green - 5 : yellow - 6 : red - 7 : white - 9 : orange

## BUSHING AND BEZEL FINISH



2 : black (standard) - 7 : white

## LED COLOUR



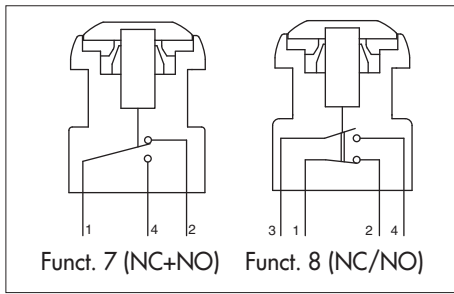
LOS : super red - LOY : yellow - LOG : green - LOB : blue



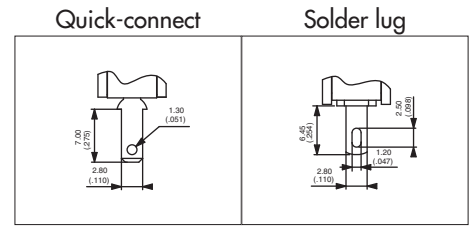
# IR series

Sealed pushbutton switches - bushing  $\varnothing$  16 mm - momentary - microswitch version

Square - non-illuminated

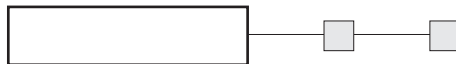


• Silver contacts



Funct. 7 (3 terminals)    Funct. 8 (4 terminals)

MODEL  
STRUCTURE



## Quick-connect terminals - NC+NO - 3 terminals

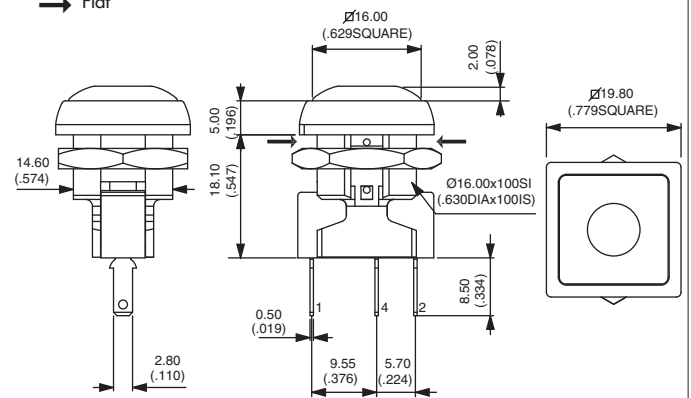


IRC7Z2



NC+NO

→ Flat



## Solder lug terminals - NC/NO - 4 terminals

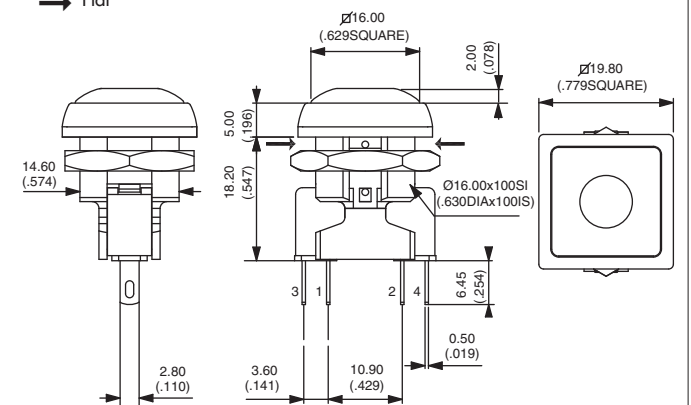


IRC8Z2



NC/NO combined

→ Flat



Terminals should be used as solder lugs only.

## ACTUATOR COLOUR



1 : blue - B : dark blue - 2 : black - 3 : green - 5 : yellow - 6 : red - 7 : white - 9 : orange

## BUSHING AND BEZEL FINISH



2 : black (standard) - 7 : white

# IR series

## Sealed pushbutton switches - bushing Ø 16 mm - latching

*Distinctive features and specifications*



- Latching action models
- Sealed to IP67
- Illuminated or non-illuminated
- Flat round actuator for optional marking

### ENVIRONMENTAL SPECIFICATIONS

- Front panel sealing : IP67 according to IEC 60529
- 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
- Operating temperature : -40°C to +85°C

### GENERAL SPECIFICATIONS

- Panel thickness : 8 mm (.314) max.
- Total travel : 2,5 mm (.098) +/- 0,3 mm
- Typical operating force : 5N +/- 2N
- Mechanical life : 200.000 cycles
- Torque : 0,8 Nm max. applied to nut
- Soldering : 320°C max. for 3 sec.

### ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load : 100mA 24VDC - 200.000 cycles
- Initial contact resistance : 100 mΩ max.
- Insulation resistance : 1 GΩ min. at 500VDC
- Dielectric strength : 1.500 Vrms between terminals

### LED COMPONENT SPECIFICATIONS

LED colour	Forward current	Typ. forward voltage	Max. forward voltage
Super red (LOS)	20mA	1,95V	1,95V
Yellow (LOY)	20mA	2V	2,05V
Green (LOG)	20mA	3,2V	3,70V
Blue (LOB)	20mA	3,2V	4V

A resistor must be series-connected by the user.

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

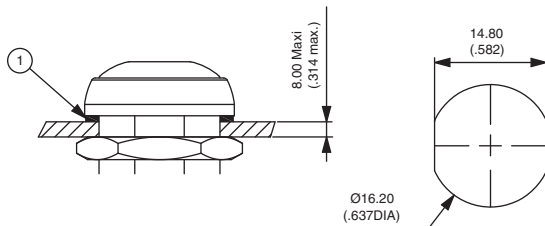
On flying lead versions, the LED resistor can be integrated by APEM on request.

### MATERIALS

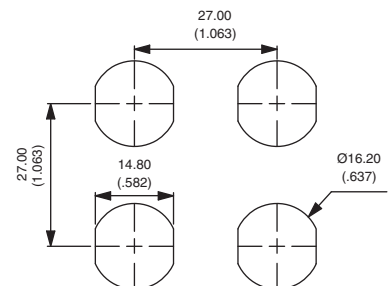
- Case : thermoplastic UL94-V0
- Plunger : polyamide
- Bushing/bezel : polyamide
- Contacts : silver, gold plated
- Multi-wire lead AWG20, section 0,6 mm<sup>2</sup>
- LED wire : AWG26, section 0,12 mm<sup>2</sup>
- Lens : polycarbonate
- Terminal seal : epoxy

### PANEL CUT-OUT

① Flat seal



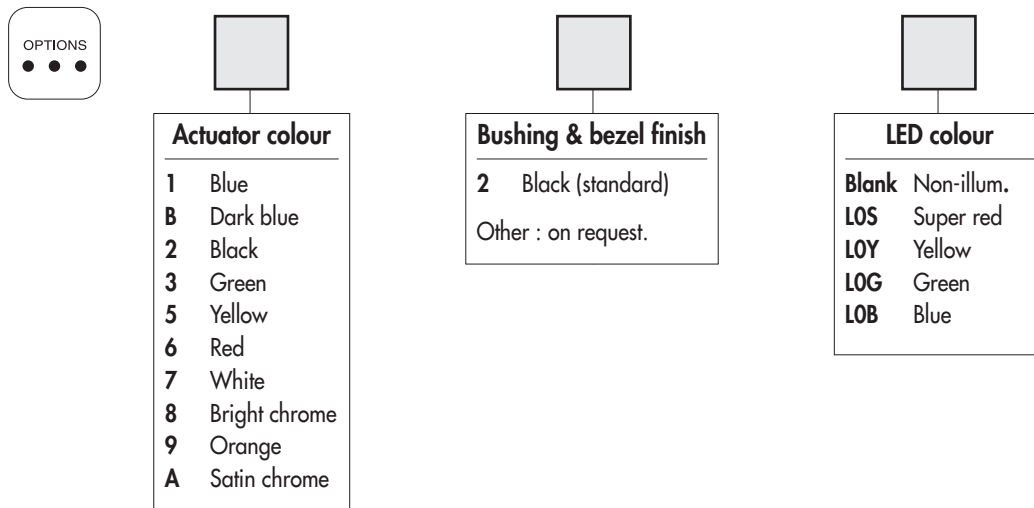
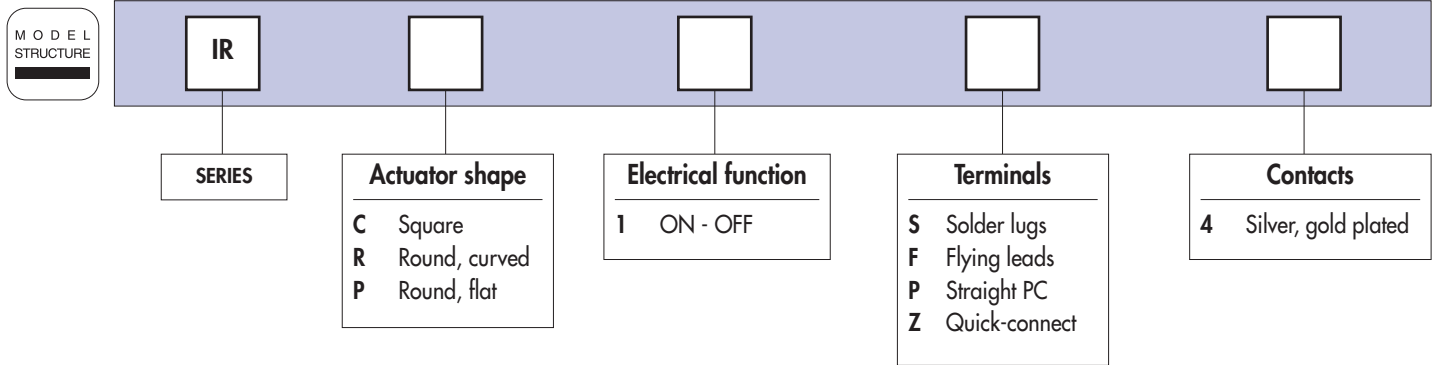
### MATRIX MOUNTING



# IR series

## Sealed pushbutton switches - bushing Ø 16 mm - latching

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.



**Mounting accessories** : Standard hardware supplied : 1 hex nut 19 mm (.748) across flats and 1 flat seal  
 Hex nut P/N U4116.

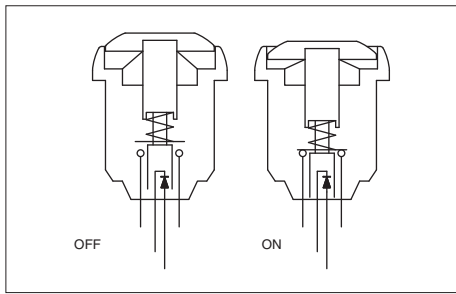


**Packaging unit** : 25 pieces for flying lead models - 40 pieces for other models

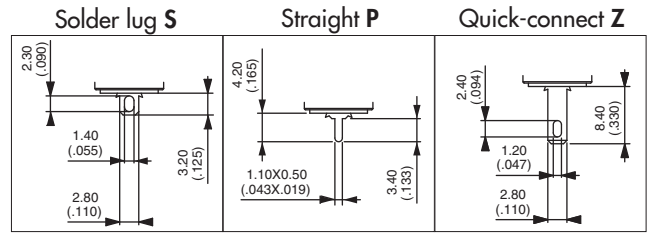
# IR series

## Sealed pushbutton switches - bushing Ø 16 mm - latching

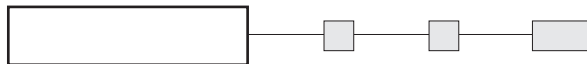
Round - illuminated



- Four LED colours
- Tin plated LED terminals
- Gold plated contacts



### MODEL STRUCTURE



Plunger marking available on IRP models (symbol 12 mm max.). On request.

### Solder lug terminals



Curved actuator  
**IRR1S4**

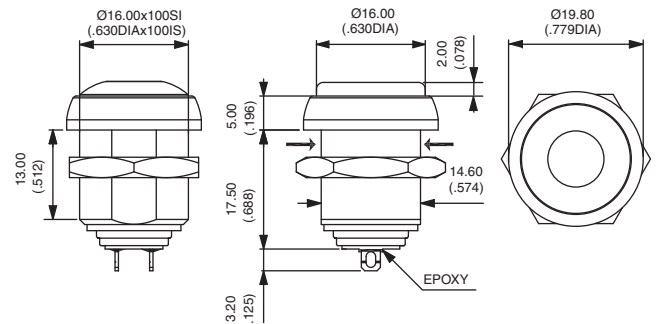
OFF - ON

Flat actuator  
**IRP1S4**

OFF - ON

Also available with straight PC terminals : **IR•1P4**  
& quick-connect terminals : **IR•1Z4**.

→ Flat



### Sealed flying lead terminals



Curved actuator  
**IRR1F4**

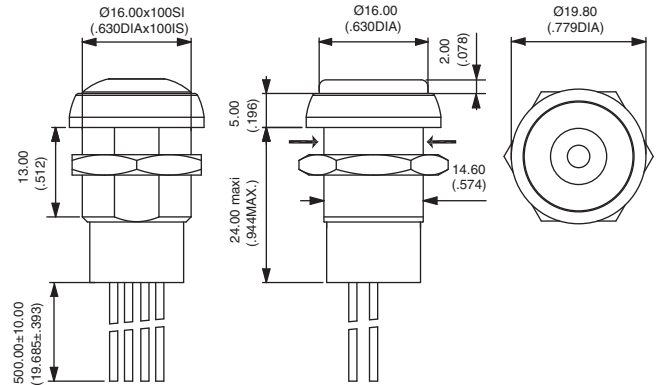
OFF - ON

Flat actuator  
**IRP1F4**

OFF - ON

Wire colours : black : contact,  
red : LED anode (+), blue : LED cathode (-)

→ Flat

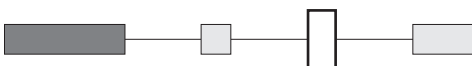


### ACTUATOR COLOUR



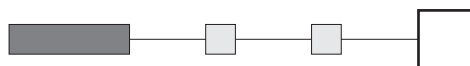
1 : blue - B : dark blue - 2 : black - 3 : green - 5 : yellow - 6 : red - 7 : white - 8 : bright chrome - 9 : orange  
A : satin chrome

### BUSHING AND BEZEL FINISH



2 : black (standard)

### LED COLOUR

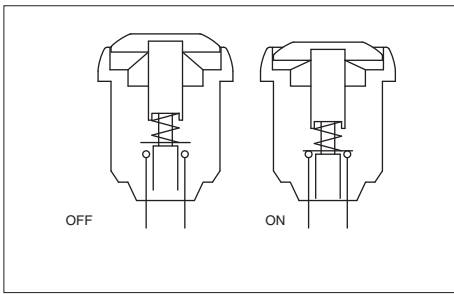


LOS : super red - LOY : yellow - LOG : green - LOB : blue

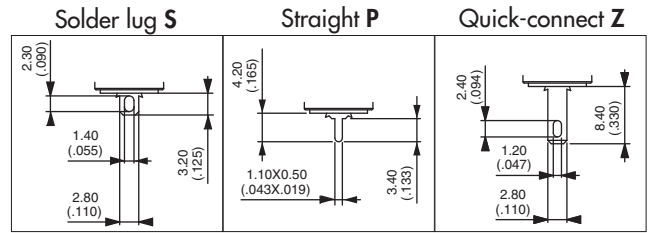
# IR series

## Sealed pushbutton switches - bushing Ø 16 mm - latching

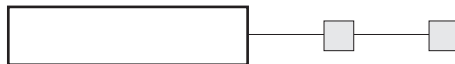
Round - non-illuminated



- Gold plated contacts



### MODEL STRUCTURE



Plunger marking available on IRP models (symbol 12 mm max.). On request.

### Solder lug terminals



Curved actuator  
**IRR1S4**

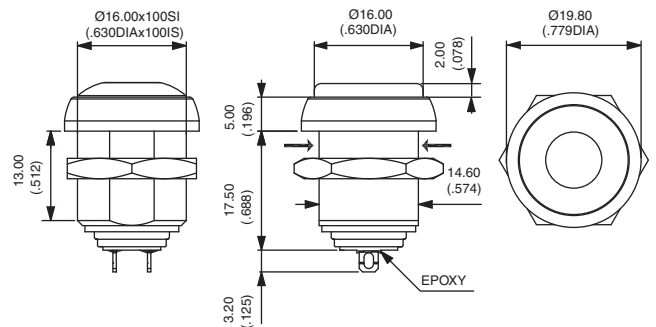
OFF - ON

Flat actuator  
**IRP1S4**

OFF - ON

Also available with straight PC terminals : **IR•1P4**  
& quick-connect terminals : **IR•1Z4**.

→ Flat



### Sealed flying lead terminals



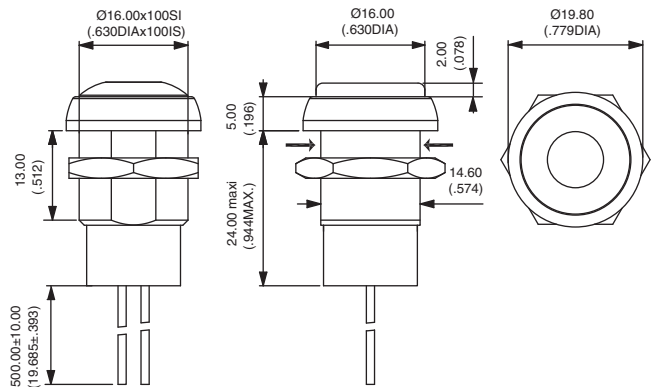
Curved actuator  
**IRR1F4**

OFF - ON

Flat actuator  
**IRP1F4**

OFF - ON

→ Flat



### ACTUATOR COLOUR



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

### BUSHING AND BEZEL FINISH

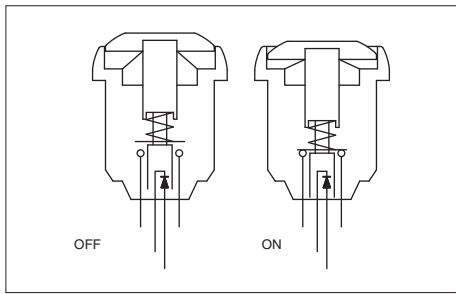


2 : black (standard)

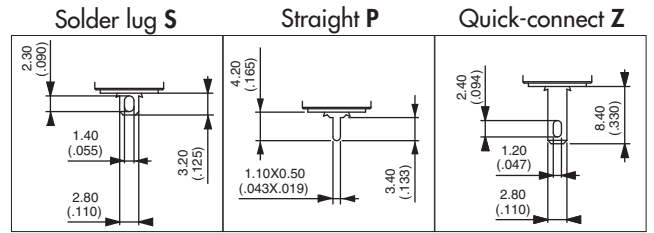
# IR series

## Sealed pushbutton switches - bushing Ø 16 mm - latching

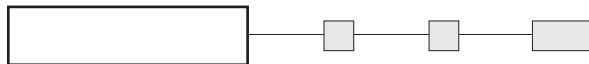
Square - illuminated



- Four LED colours
- Tin plated LED terminals
- Gold plated contacts



MODEL STRUCTURE



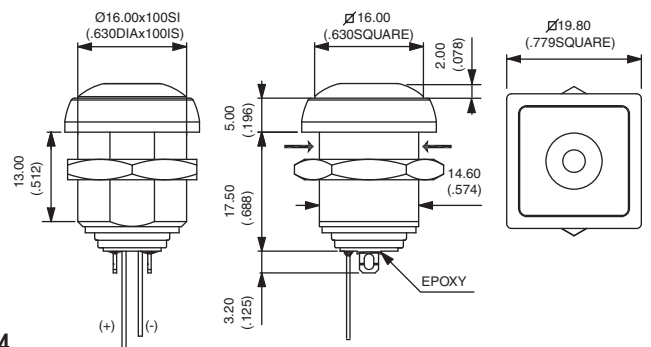
### Solder lug terminals



Curved actuator  
**IRC154**

OFF - ON

→ Flat



Also available with straight PC terminals : **IRC1P4**  
& quick-connect terminals : **IRC1Z4**.

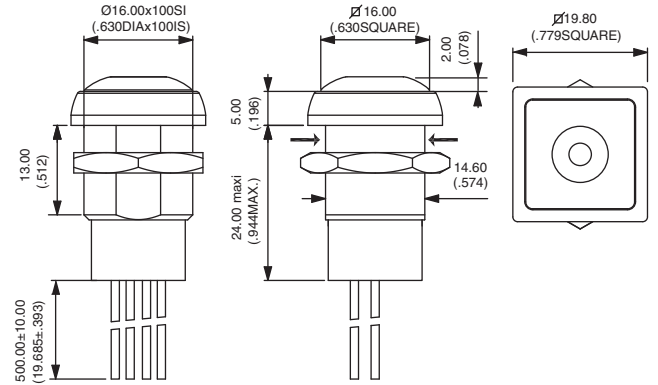
### Sealed flying lead terminals



Curved actuator  
**IRC1F4**

OFF - ON

→ Flat



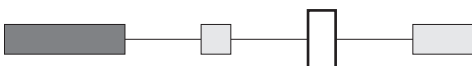
Wire colours : black : contact,  
red : LED anode(+), blue : LED cathode (-)

### ACTUATOR COLOUR



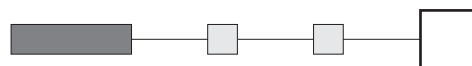
1 : blue - B : dark blue - 2 : black - 3 : green - 5 : yellow - 6 : red - 7 : white - 8 : bright chrome - 9 : orange  
A : satin chrome

### BUSHING AND BEZEL FINISH



2 : black (standard)

### LED COLOUR

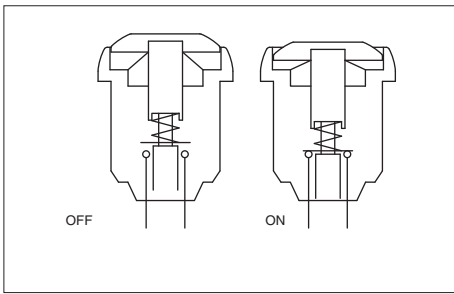


LOS : super red - LOY : yellow - LOG : green - LOB : blue

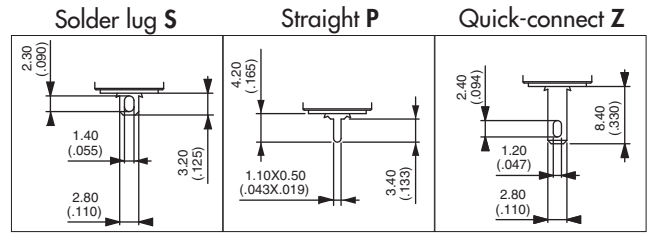
# IR series

Sealed pushbutton switches - bushing Ø 16 mm - latching

Square - non-illuminated



- Gold plated contacts



MODEL STRUCTURE



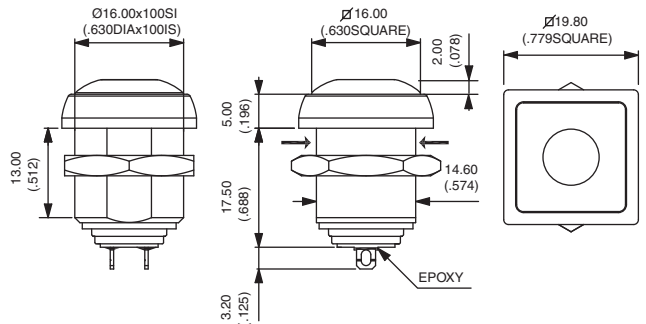
## Solder lug terminals



Curved actuator  
**IRC154**

OFF - ON

→ Flat



Also available with straight PC terminals : **IRC1P4**  
& quick-connect terminals : **IRC1Z4**.

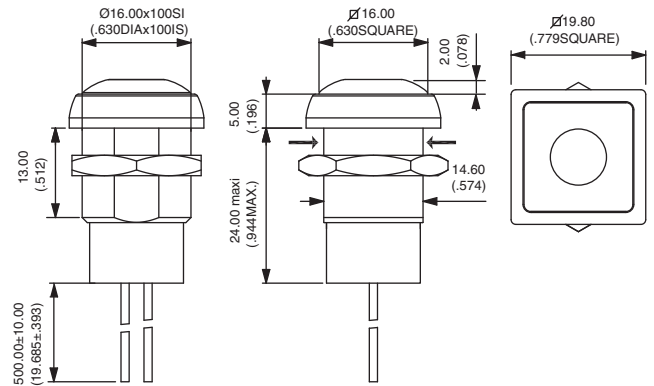
## Sealed flying lead terminals



Curved actuator  
**IRC1F4**

OFF - ON

→ Flat



## ACTUATOR COLOUR



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

## BUSHING AND BEZEL FINISH



2 : black (standard)

# IA series

Low profile pushbutton switches for harsh environments - bushing Ø 16 mm - momentary

*Distinctive features - Specifications - Overview*



- Resistant to frost, sand and hydrocarbons
- Tactile feedback
- Front panel sealed to IP67

## ENVIRONMENTAL SPECIFICATIONS

- Front panel sealing (see drawing opposite) : IP67
- Salt spray : IEC 512-6, test 11f
- Operating temperature : -20°C to +65°C

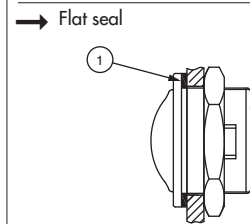
## ELECTRICAL AND GENERAL SPECIFICATIONS

- Max. current/voltage rating with resistive load : 2A 24VDC
- Initial contact resistance : 100mΩ max.
- Insulation resistance : 100 MΩ min. at 500VDC
- Dielectric strength : 500 Vrms
- Electrical life at full load : 1.000.000 cycles
- Panel thickness : 7 mm (.276) max.
- Total travel : 1,5 mm (.059) +/- 0,3 mm
- Typical operating force : 7N +/- 2N
- Mechanical life : 1.000.000 cycles
- **Torque : 0,5 to 1Nm max. applied to nut**

## MATERIALS

- Case/bushing : thermoplastic
- Actuator : polyurethane
- Contacts : silver, gold plated
- Multi-wire lead AWG20, section 0,6 mm<sup>2</sup>.
- Terminal seal : epoxy

## PANEL MOUNTING



IA						
<b>SERIES</b>	<b>Actuator shape</b>	<b>Electrical function</b>	<b>Terminals</b>	<b>Contacts</b>	<b>Acuator colours</b>	<b>Case colour</b>
	R round	3 Normally open (NO) 5 NC/NO combined	F Flying leads	1 Silver, gold plated	1 Blue 2 Black 3 Green 5 Yellow 6 Red 7/1 White 9 Orange	00 Black

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



A **sealing boot** is available to protect the switches against frost and sand. See end of this catalogue.



**Mounting accessories :** Standard hardware supplied : 1 hex nut 19 mm (.748) across flats and 1 flat seal. Knurled nut U3327 available on request.

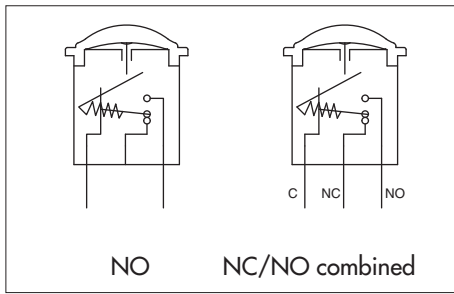


**Packaging unit :** 25 pieces



# IA series

Low profile pushbutton switches for harsh environments - bushing  $\varnothing$  16 mm - momentary



- Panel cut-out  $\varnothing$  16,2 mm (.657)
- Min. pitch for matrix mounting :
  - with standard hex nut : 27 x 27 mm (1.062 x 1.062)
  - with knurled nut U3327: 20 x 20 mm (.787x.787)

## MODEL STRUCTURE



NO model has 2 terminals only.

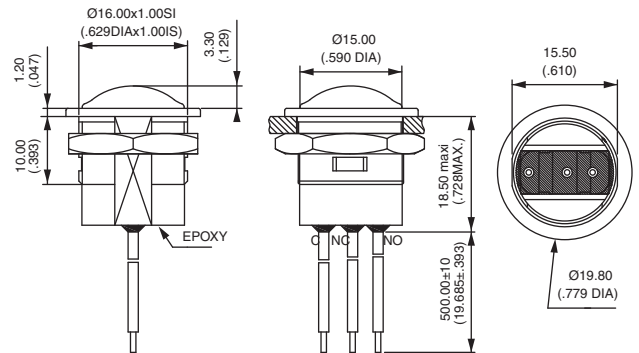
## Models



Normally open (NO)  
**IAR3F**



NC/NO combined  
**IAR5F**



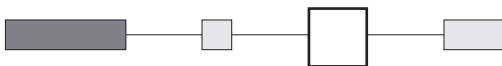
Wire colours (NC/NO) : black = common, brown = NC, blue = NO

## CONTACT MATERIAL



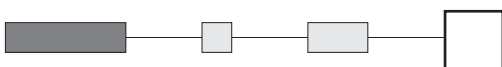
1 Silver, gold plated

## ACTUATOR COLOUR



1 : blue - 2 : black - 3 : green - 5 : yellow - 6 : red - 7/1 : white - 9 : orange

## CASE COLOUR



00 : black

# “I” range

## Sealed pushbutton switches

### Sealing

Degree of protection provided by the enclosures of electric appliances according to IEC 60529, DIN 40050 and NFC 20-010.

#### SEALING IP67

**IP**

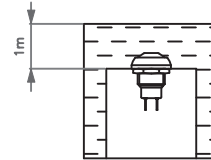
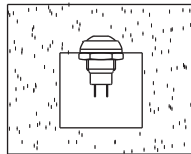
(Ingress Protection)

**6**

Totally protected against dust

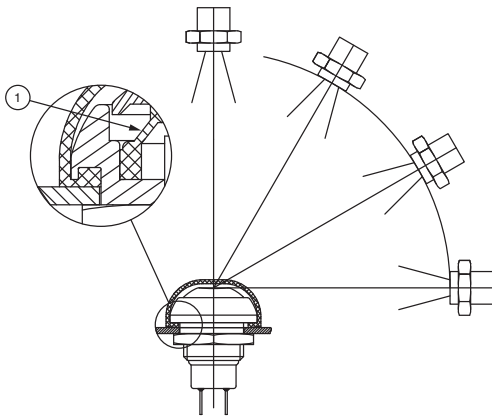
**7**

Protected against the effects of immersion up to 1 m water (30 mn)



The illustrations show non-illuminated models.

#### SEALING IP69K



High pressure, high temperature wash down

#### IP69K test conditions

- . Pressure : 80 - 120 bars
- . Distance : 15 cm
- . Temperature : 80°C ± 5°C
- . Flow : 14 - 16 l/mn
- . Duration : 30 seconds per position

① Elastomeric membrane

#### ADDITIONAL SEALING FOR IP-IB-IS SERIES

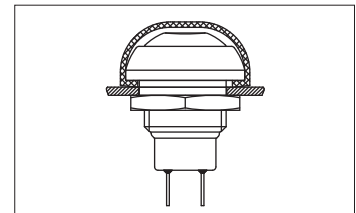
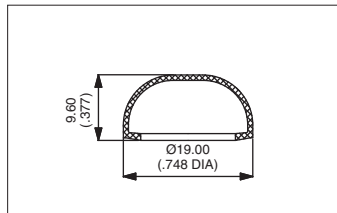
For ROUND plungers only, illuminated or non-illuminated.

By silicone boot for protection against frost and abrasion by sand. Order separately.

- transparent : **U5125**
- blue : **U5125-1**
- black : **U5125-2**
- red : **U5125-6**

Operating temperature : -40°C to +85°C  
Life expectancy : 500.000 cycles

**Note** : the flat seal should not be used in this case.

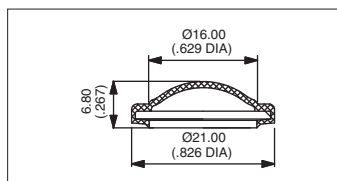


#### ADDITIONAL SEALING FOR IA SERIES

By silicone boot. Order separately.

- Black : **U6602**
- Yellow : **U6605**
- Red : **U6606**

Operating temperature : -40°C to +85°C  
Life expectancy : 1.000.000 cycles



# APEM, a world of switching capabilities

The APEM group is one of the world's largest manufacturers of switches, LED indicators, joysticks and switch panels.

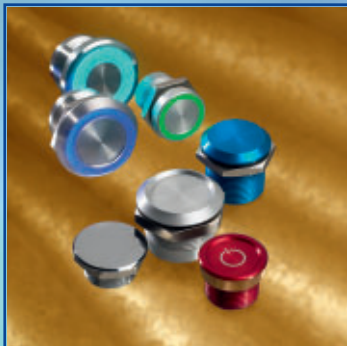
APEM manufactures switch products for multiple industrial markets including: instrumentation, medical, security, communications, industrial automation, military and transport.

## Other pushbutton switches



### ■ AV pushbutton switches

The AV series is a range of very robust pushbutton switches consisting of 2 families: anti-vandal and security pushbutton switches. This range features a large variety of models, with different bushing diameters, numerous materials and many electrical functions. Marking and illumination options are also available.

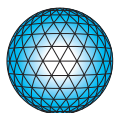


### ■ PBA piezo switches

PBA series piezo switches feature very long life expectancy, high performance sealing, easy to clean metal surface, ring or dot illumination and a large variety of shapes.

Applications for these products include medical, food-processing, home automation, car wash and mining.

## APEM product ranges



# APEM

Addresses of sales subsidiaries and distributors  
on [www.apem.com](http://www.apem.com)