

# APEM

## IR Series

Sealed momentary pushbutton switches

- Sealed to IP67
- Illuminated and non-illuminated
- Wide choice of terminals



A P E M

Ø16 mm  
bushing

# IR series

## Sealed momentary pushbutton switches - bushing Ø 16

*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

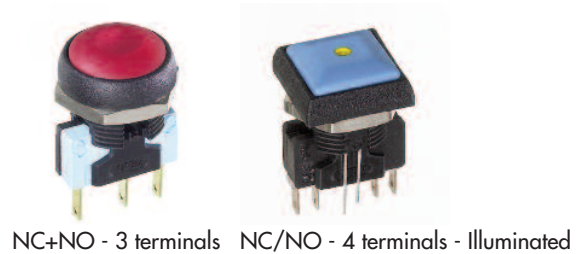
### Standard versions

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



### Microswitch versions

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



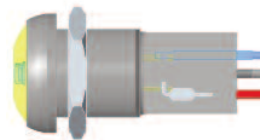
### Optional marking

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



### Integrated resistor

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



# IR series

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

*Distinctive features and specifications*



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

### ENVIRONMENTAL SPECIFICATIONS

- Degree of protection : IP67
- 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 switch) : 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 (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
- 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 =  $\frac{\text{supply voltage} - \text{LED forward voltage}}{\text{LED forward current}}$   
On wire lead versions, the LED resistor can be integrated by APEM on request.

### GENERAL SPECIFICATIONS

- Panel thickness : 8 mm (.314) max.
- Total travel : 1,7 mm (.066)
- Operating force : 2N to 5N
- 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
- Plunger : 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>, UL approved
- LED wire : AWG26
- Lens : polycarbonate
- Terminal seal : epoxy

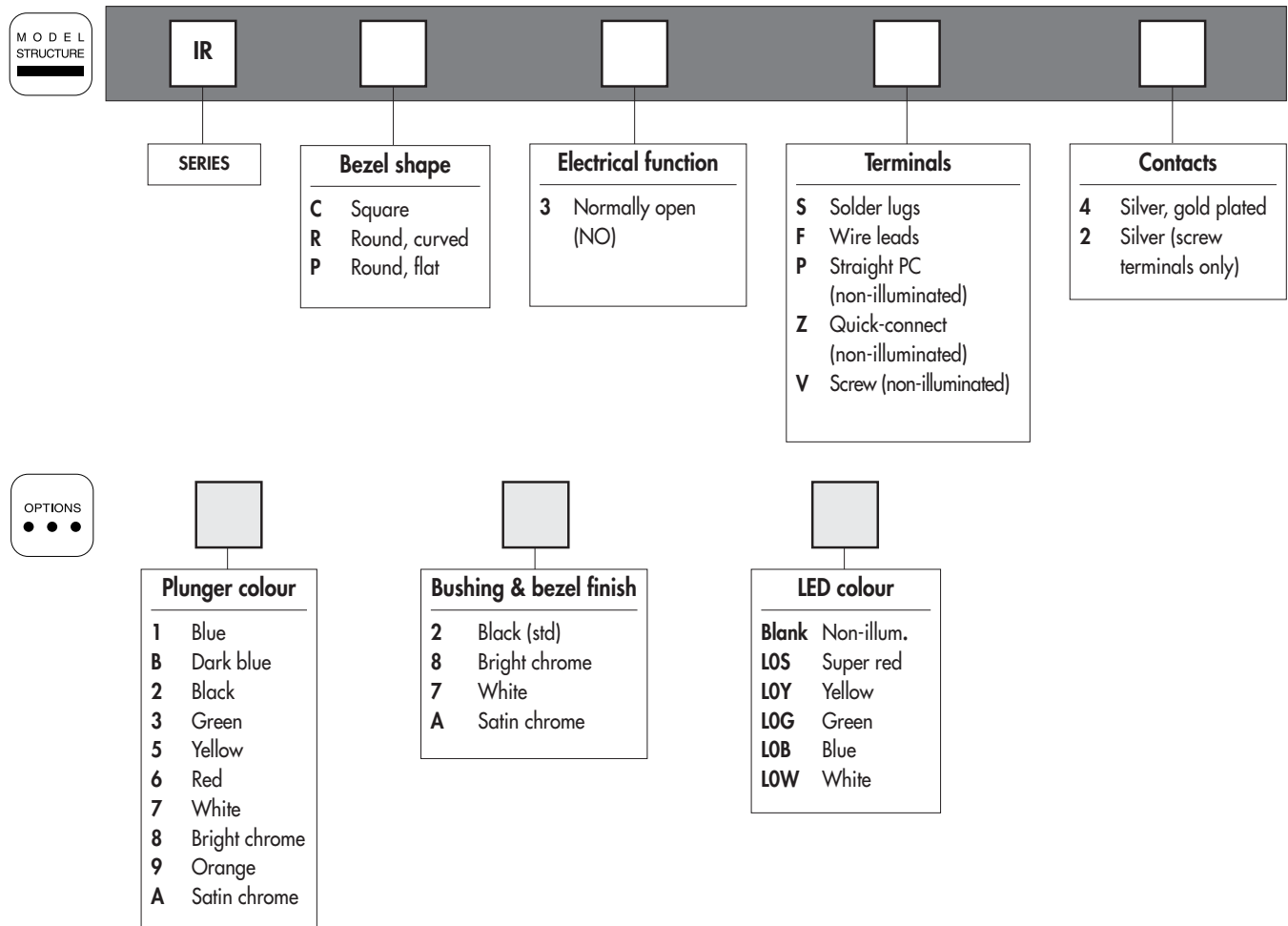
**Tolerance** : The general tolerance for dimensions in this brochure is ± 0,3 (.012). Overall dimension tolerance is ± 0,5 (.020).

Dimensions, specifications and data shown in this brochure are subject to change without notice.

# IR series

## Sealed momentary pushbutton switches - bushing Ø 16 - 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

**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.

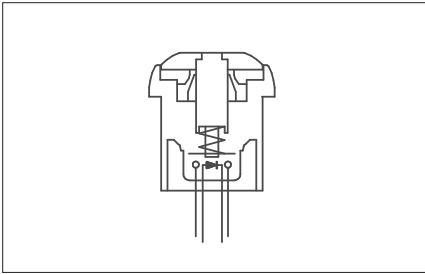


**Packaging unit** : 25 pieces for wire lead models - 40 pieces for other models

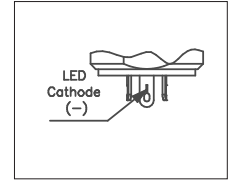
# IR series

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

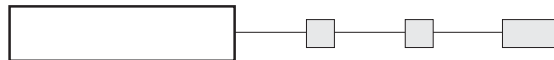
Round - illuminated



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

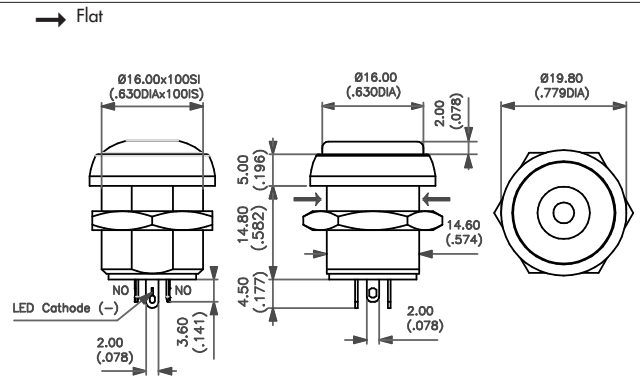
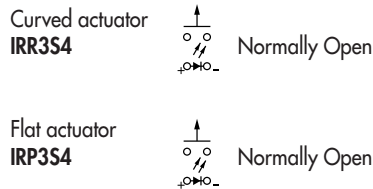


### MODEL STRUCTURE

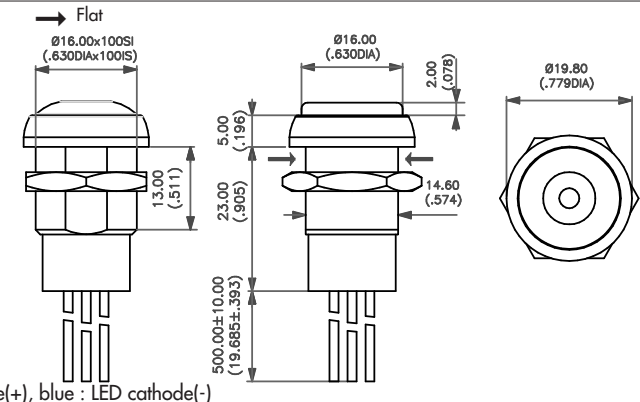
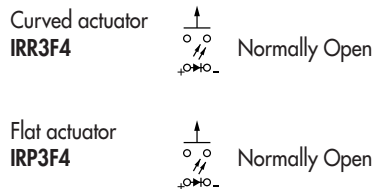


Plunger marking available on IRP models (symbol 12 mm max.). On request.

### Solder lug terminals



### Sealed wire lead terminals



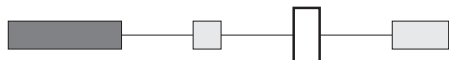
Wire colours : black : NO contact, red : LED anode(+), blue : LED cathode(-)

### PLUNGER COLOUR



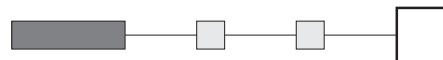
1 : blue - B : dark blue - 2 : black - 3 : green - 5 : yellow - 6 : red - 7 : white - 8 : bright chrome - 9 : orange  
A : satin chrome

### BUSHING AND BEZEL FINISH



2 : black (standard) - 7 : white - 8 : bright chrome  
A : satin chrome

### LED COLOUR

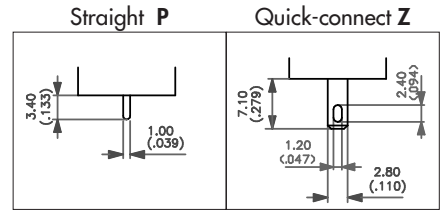
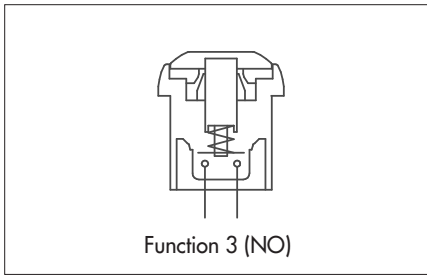


LOS : super red - LOY : yellow - LOG : green - LOB : blue  
LOW : white

# IR series

Sealed momentary pushbutton switches - bushing Ø 16 - standard version

Round - non-illuminated



MODEL STRUCTURE



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

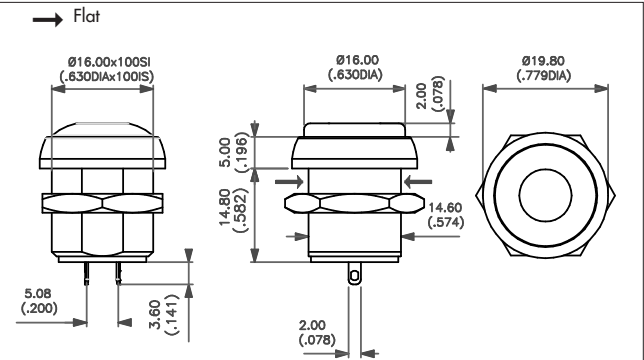
## Solder lug terminals - gold plated contacts



Curved actuator, NO  
**IRR3S4**



Flat actuator, NO  
**IRP3S4**



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

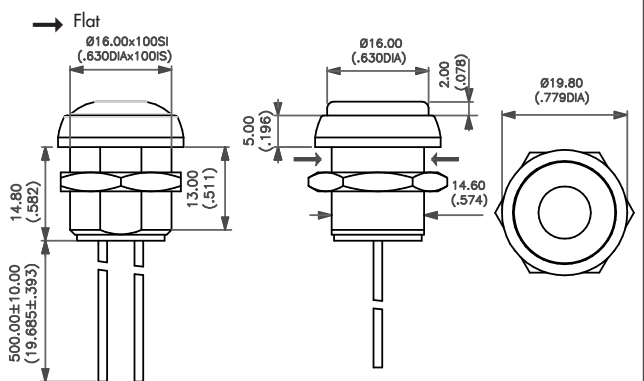
## Sealed wire lead terminals - gold plated contacts



Curved actuator, NO  
**IRR3F4**



Flat actuator, NO  
**IRP3F4**



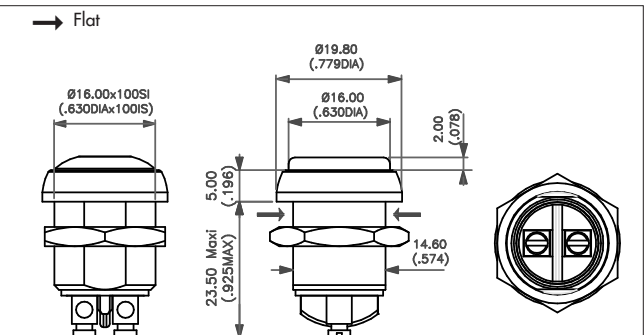
## Screw terminals - silver contacts



Curved actuator, NO  
**IRR3V2**



Flat actuator, NO  
**IRP3V2**

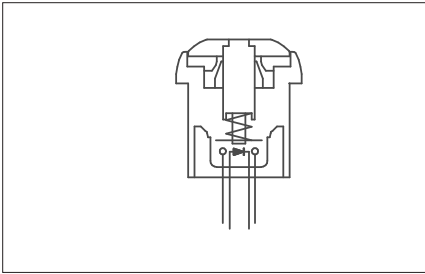


Plunger colour and bushing/bezel finish : select the desired codes on previous page.

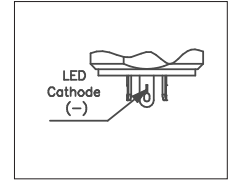
# IR series

Sealed momentary pushbutton switches - bushing Ø 16 - standard version

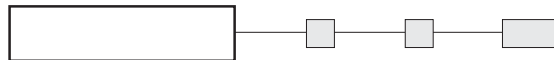
Square - illuminated



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



MODEL STRUCTURE



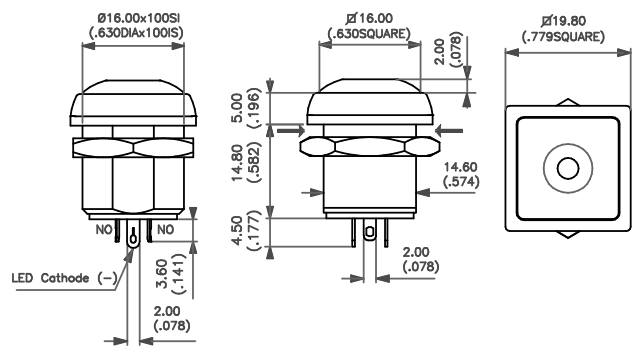
## Solder lug terminals



IRC3S4



→ Flat



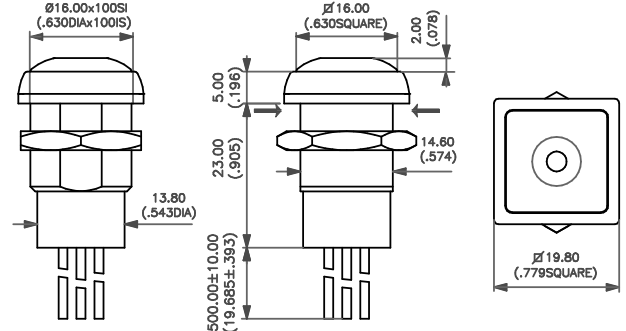
## Sealed wire lead terminals



IRC3F4



→ Flat



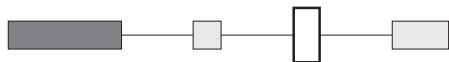
Wire colours : black : NO contact, red : LED anode(+), blue : LED cathode(-)

## PLUNGER COLOUR



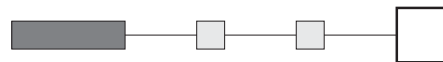
1 : blue - B : dark blue - 2 : black - 3 : green - 5 : yellow - 6 : red - 7 : white - 8 : bright chrome - 9 : orange  
A : satin chrome

## BUSHING AND BEZEL FINISH



2 : black (standard) - 7 : white - 8 : bright chrome  
A : satin chrome

## LED COLOUR

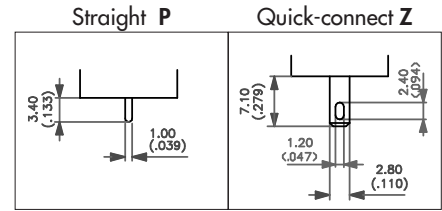
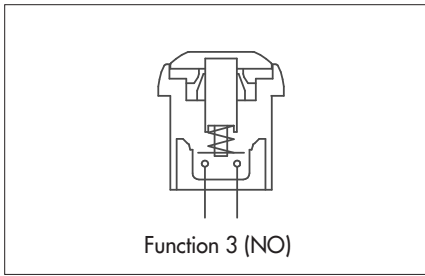


LOS : super red - LOY : yellow - LOG : green - LOB : blue  
LOW : white

# IR series

Sealed momentary pushbutton switches - bushing Ø 16 - standard version

Square - non-illuminated



MODEL STRUCTURE



## Solder lug terminals - gold plated contacts

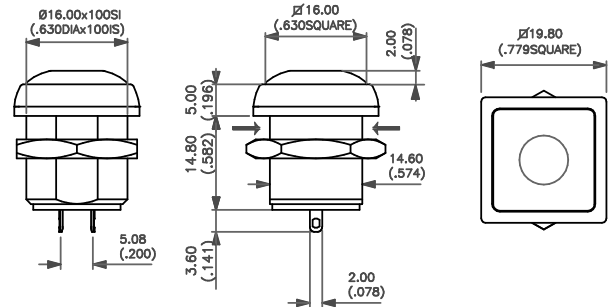


IRC3S4



Normally Open

→ Flat



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

## Sealed wire lead terminals - gold plated contacts

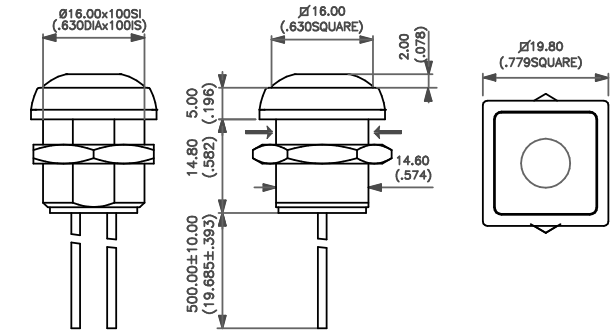


IRC3F4

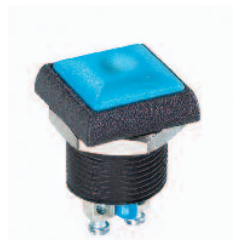


Normally Open

→ Flat



## Screw terminals - silver contacts

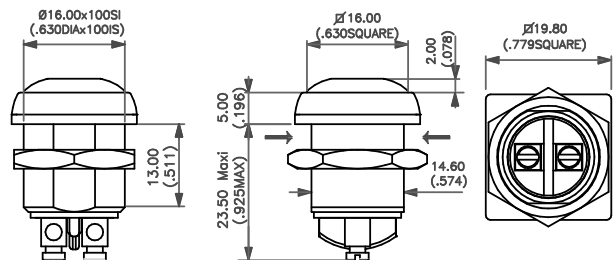


IRC3V2



Normally Open

→ Flat



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



# IR series

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

*Distinctive features and specifications*



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

### ENVIRONMENTAL SPECIFICATIONS

- Degree of protection : IP67
- 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 switch) : IK06 according to EN 50102 (1 joule)
- Operating temperature : -20°C to +85°C

### GENERAL SPECIFICATIONS

- Panel thickness : 3 mm (.118) max.
- Total travel : 1,7 mm (.066)
- Operating force : 2N to 5N
- Mechanical life : 1.000.000 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 :  
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
- Contact bounce : 10 ms

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

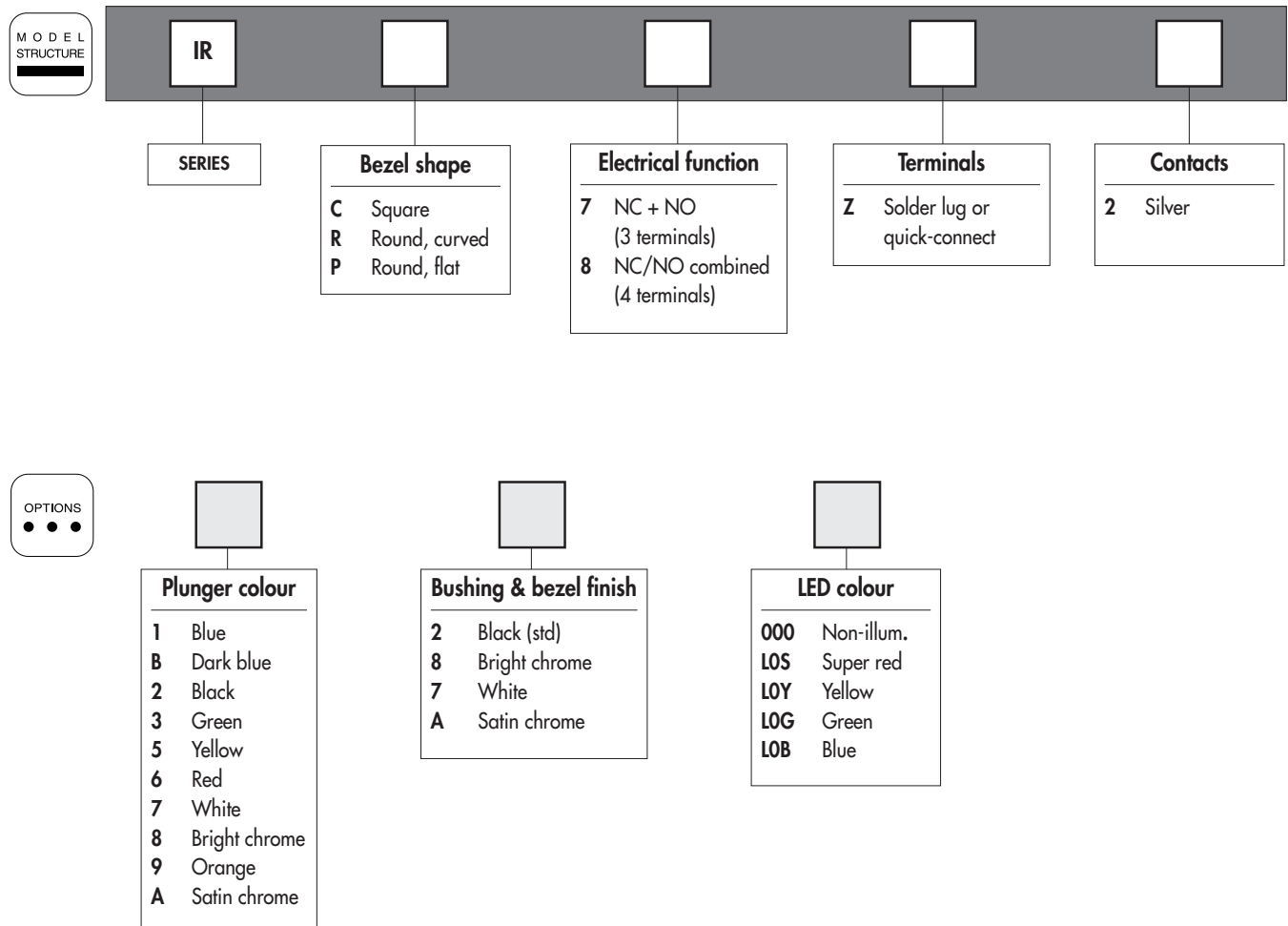
### MATERIALS

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

# IR series

## Sealed momentary pushbutton switches - bushing Ø 16 - 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

**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

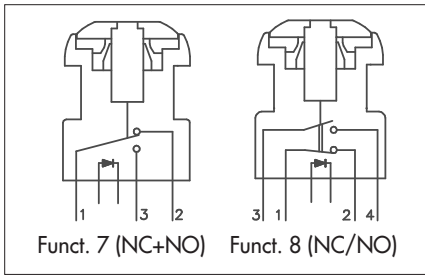


**Packaging unit** : 25 pieces for wire lead models - 40 pieces for other models

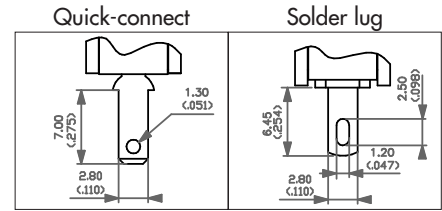
# IR series

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

Round - illuminated

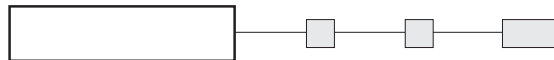


- Four LED colours
- Tin plated LED terminals
- Silver contacts



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

### MODEL STRUCTURE

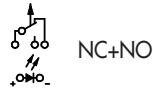


Plunger marking available on IRP models (symbol 12 mm max.). On request.

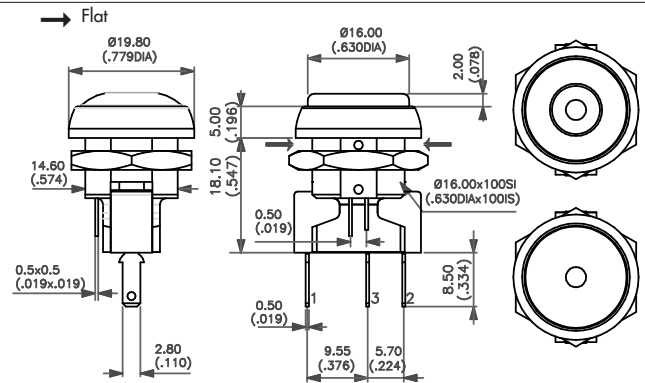
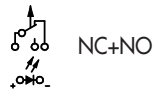
### Quick-connect terminals - NC+NO - 3 terminals



Curved actuator  
**IRR7Z2**



Flat actuator  
**IRP7Z2**



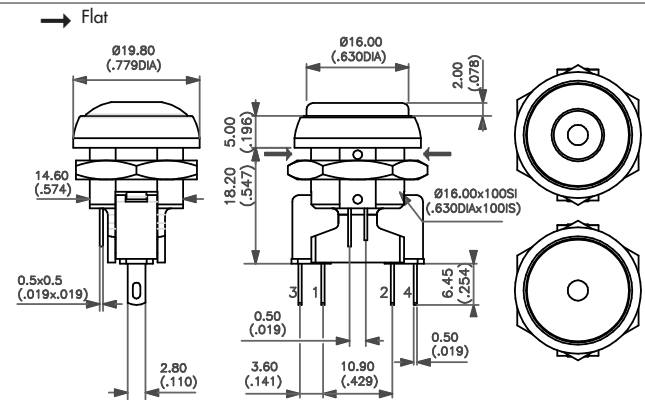
### Solder lug terminals - NC/NO - 4 terminals



Curved actuator  
**IRR8Z2**



Flat actuator  
**IRP8Z2**



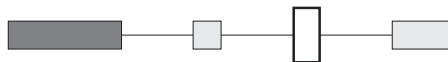
Terminals should be used as solder lugs only.

### PLUNGER COLOUR



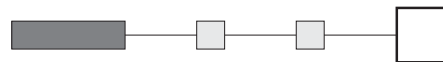
1 : blue - B : dark blue - 2 : black - 3 : green - 5 : yellow - 6 : red - 7 : white - 8 : bright chrome - 9 : orange  
A : satin chrome

### BUSHING AND BEZEL FINISH



2 : black (standard) - 7 : white - 8 : bright chrome  
A : satin chrome

### LED COLOUR

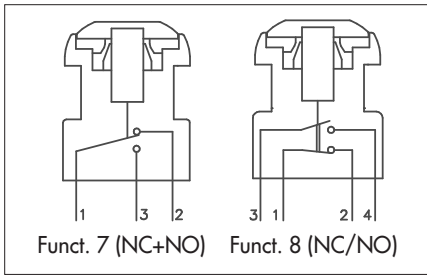


000 : non-illuminated  
LOS : super red - LOY : yellow - LOG : green - LOB : blue

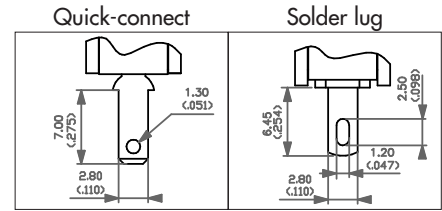
# IR series

Sealed momentary pushbutton switches - bushing Ø 16 - microswitch version

Round - non-illuminated



• Silver contacts



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

## MODEL STRUCTURE



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

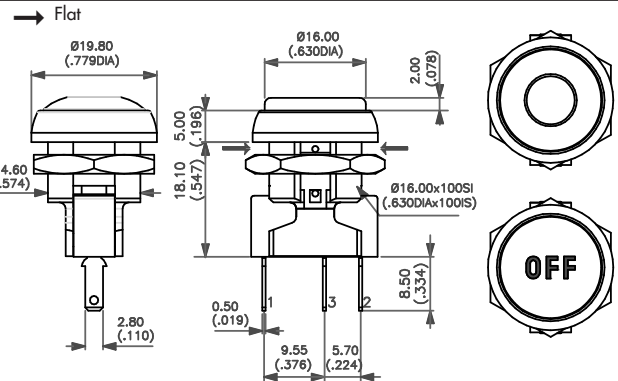
## Quick-connect terminals - NC+NO - 3 terminals



Curved actuator  
**IRR7Z2**



Flat actuator  
**IRP7Z2**



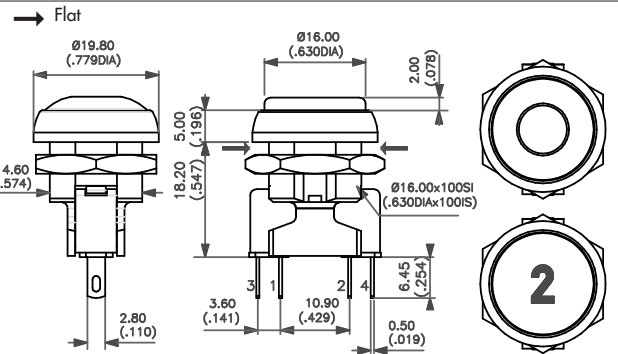
## Solder lug terminals - NC/NO - 4 terminals



Curved actuator  
**IRR8Z2**



Flat actuator  
**IRP8Z2**



Terminals should be used as solder lugs only.

## PLUNGER 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

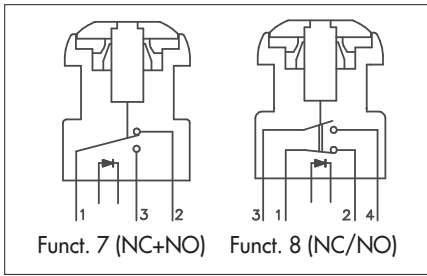


2 : black (standard) - 7 : white - 8 : bright chrome - A : satin chrome

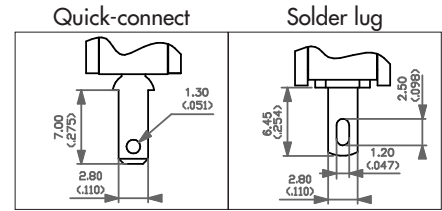
# IR series

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

Square - illuminated

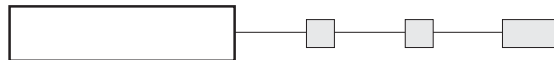


- Four LED colours
- Tin plated LED terminals
- Silver contacts



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

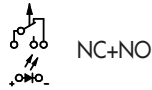
### MODEL STRUCTURE



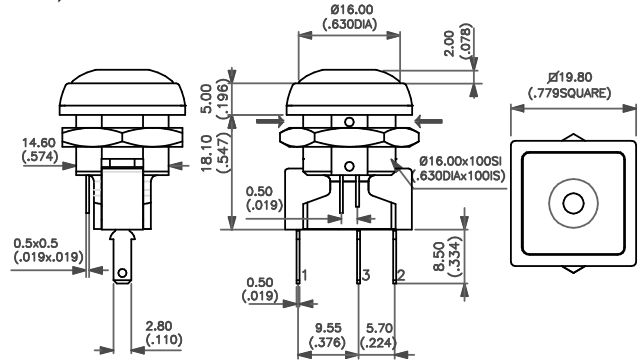
### Quick-connect terminals - NC+NO - 3 terminals



IRC7Z2



→ Flat



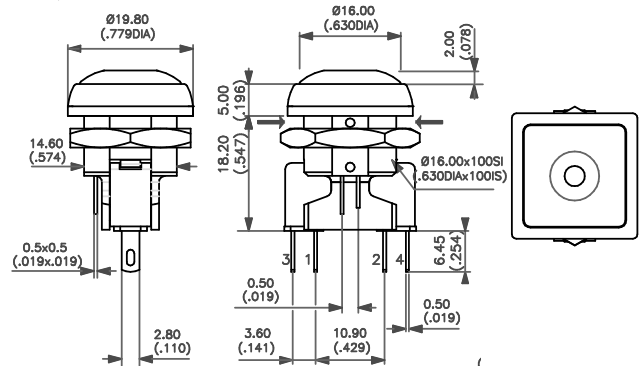
### Solder lug terminals - NC/NO - 4 terminals



IRC8Z2



→ Flat



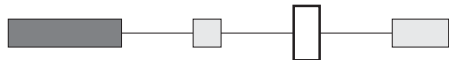
Terminals should be used as solder lugs only.

### PLUNGER COLOUR



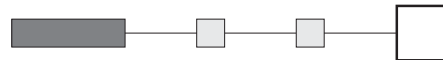
1 : blue - B : dark blue - 2 : black - 3 : green - 5 : yellow - 6 : red - 7 : white - 8 : bright chrome - 9 : orange  
A : satin chrome

### BUSHING AND BEZEL FINISH



2 : black (standard) - 7 : white - 8 : bright chrome  
A : satin chrome

### LED COLOUR

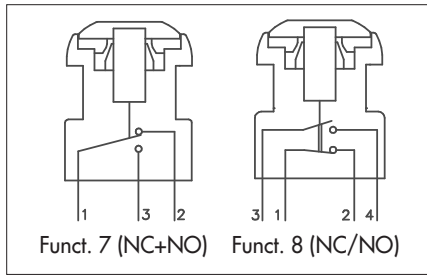


000 : non-illuminated  
LOS : super red - LOY : yellow - LOG : green - LOB : blue

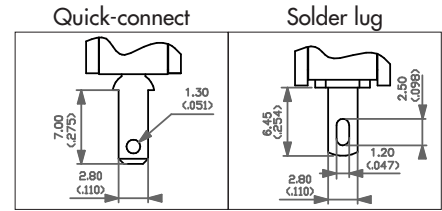
# IR series

Sealed momentary pushbutton switches - bushing Ø 16 - microswitch version

Square - non-illuminated



• Silver contacts

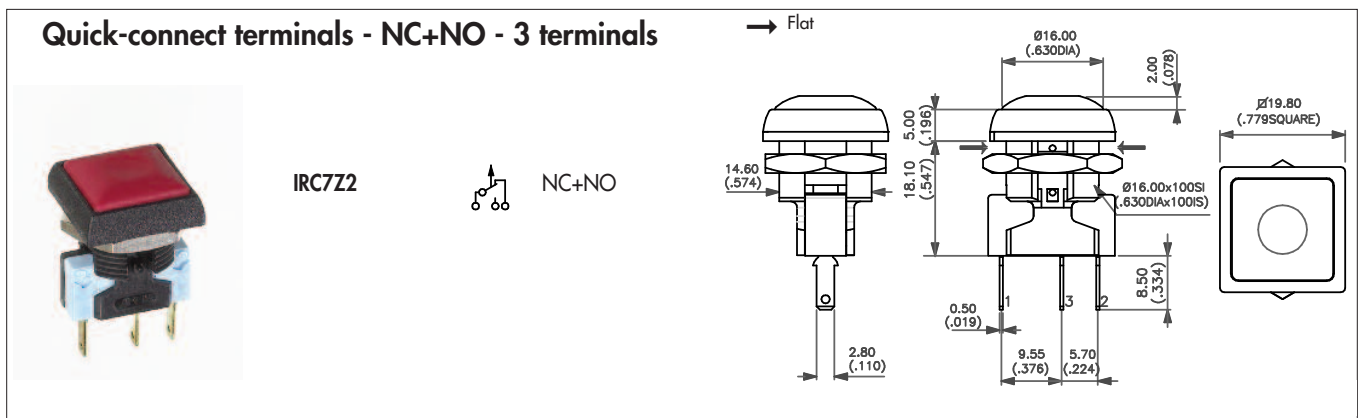


Funct. 7 (3 terminals)    Funct. 8 (4 terminals)

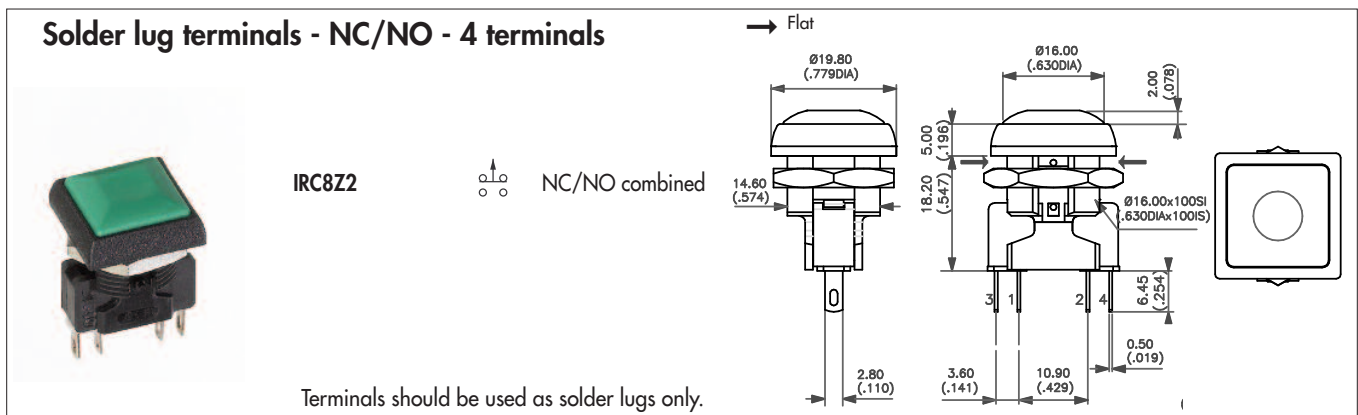
MODEL  
STRUCTURE



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



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



### PLUNGER COLOUR



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

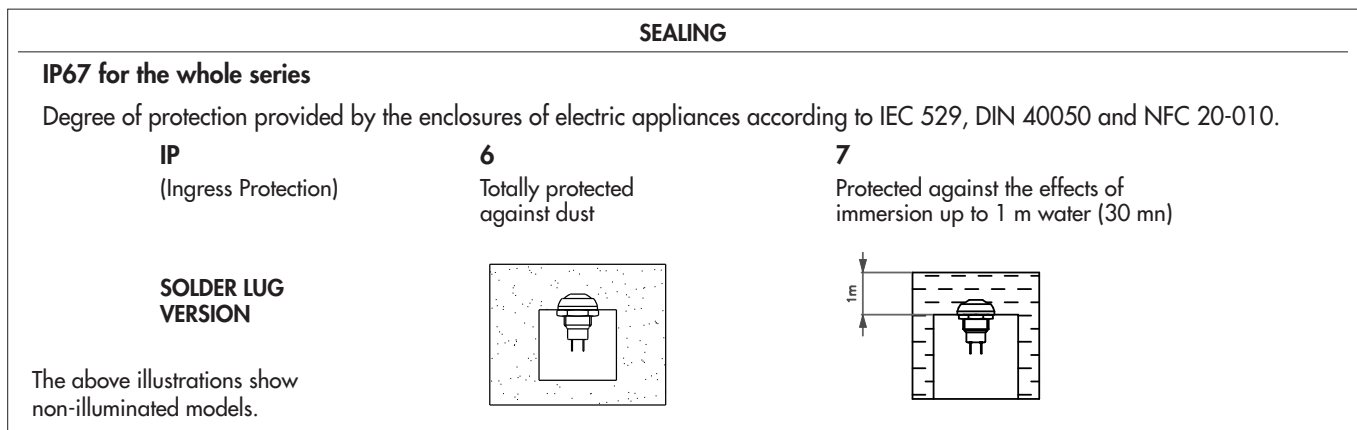
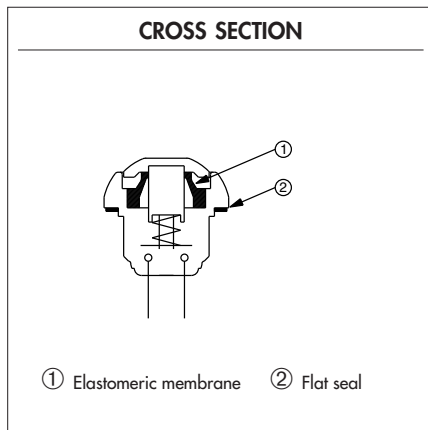
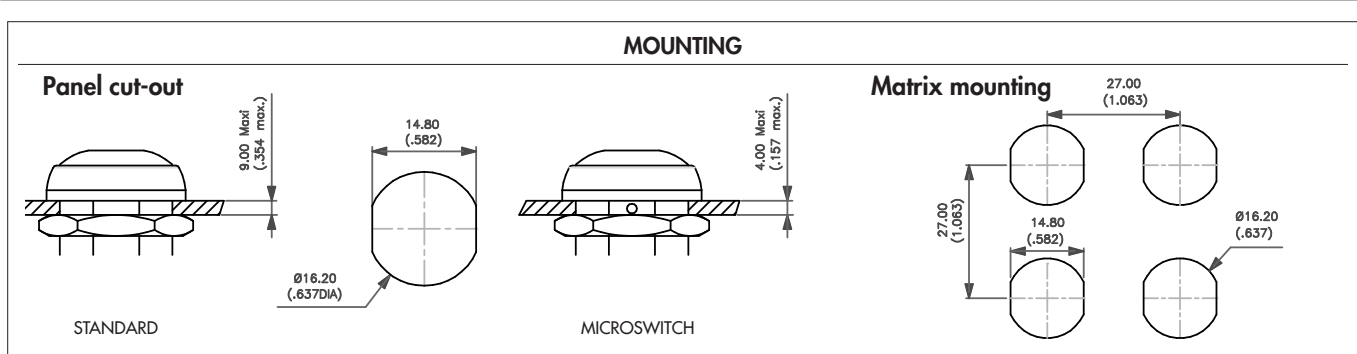
### BUSHING AND BEZEL FINISH



2 : black (standard) - 7 : white - 8 : bright chrome - A : satin chrome

# IR series

Sealed momentary pushbutton switches - bushing  $\varnothing 16$



IR0810A