

UG1410A

Like the IR series, the IQ series is a range of sealed pushbutton switches with dia. 16 mm bushing. But IQ pushbuttons feature snap-in mounting for easier and faster installation. Momentary and latching versions are available.

### Main features

- Snap-in mounting for easy installation
- Tactile feedback
- Sealed to IP54
- Illuminated or non-illuminated
- Square or round actuator
- Wide choice of actuator and illumination colours
- Flat round actuator for optional marking

### Momentary versions

- Electrical function : NO
- Five terminal options, including screw terminals
- Silver contacts for screw terminal types
- Gold plated silver contacts for other types



Solder lug terminals



Flying lead terminals



Screw terminals

### Latching versions

- Electrical function : OFF-ON
- Four terminal options
- Gold plated silver contacts



Solder lug terminals



Flying lead terminals

# IQ series

Sealed pushbutton switches - bushing Ø 16 mm - snap-in mounting - momentary

*Distinctive features and specifications*



- ☐ Snap-in mounting for easy installation
- ☐ Momentary models
- ☐ Illuminated or non-illuminated
- ☐ Flat round actuator for optional marking
- ☐ Sealed to IP54

## ENVIRONMENTAL SPECIFICATIONS

- Front panel sealing : IP54 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 contacts :
    - Code 4 : 200mA 48VDC, 500.000 cycles
    - Code 7 : 5A 28VDC, 70.000 cycles
  - Silver contacts (code 2) - screw terminals : 4A 48VDC, 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 :
  - with flat seal : 2,20 mm (.088) max.
  - without flat seal : 3 mm (.118) max.
- Total travel : 1,6 mm (.062) +/- 0,3 mm
- Typical operating force : 4N +/- 2N
- Low level or mechanical life : 1.000.000 cycles
- Soldering : 320°C max. for 3 sec.

## MATERIALS

- Case : thermoplastic UL94-V0
- Actuator : polyamide 6/6
- Bushing/bezel : polyamide 6/6
- Contacts :
  - 4 and 7 : 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

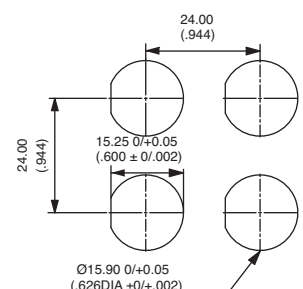
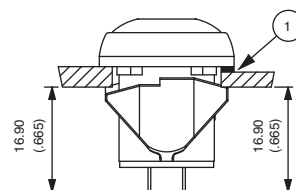
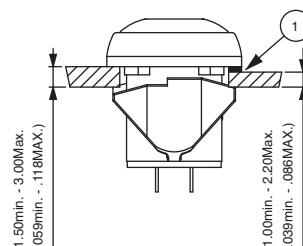
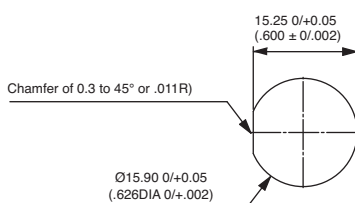
## MOUNTING

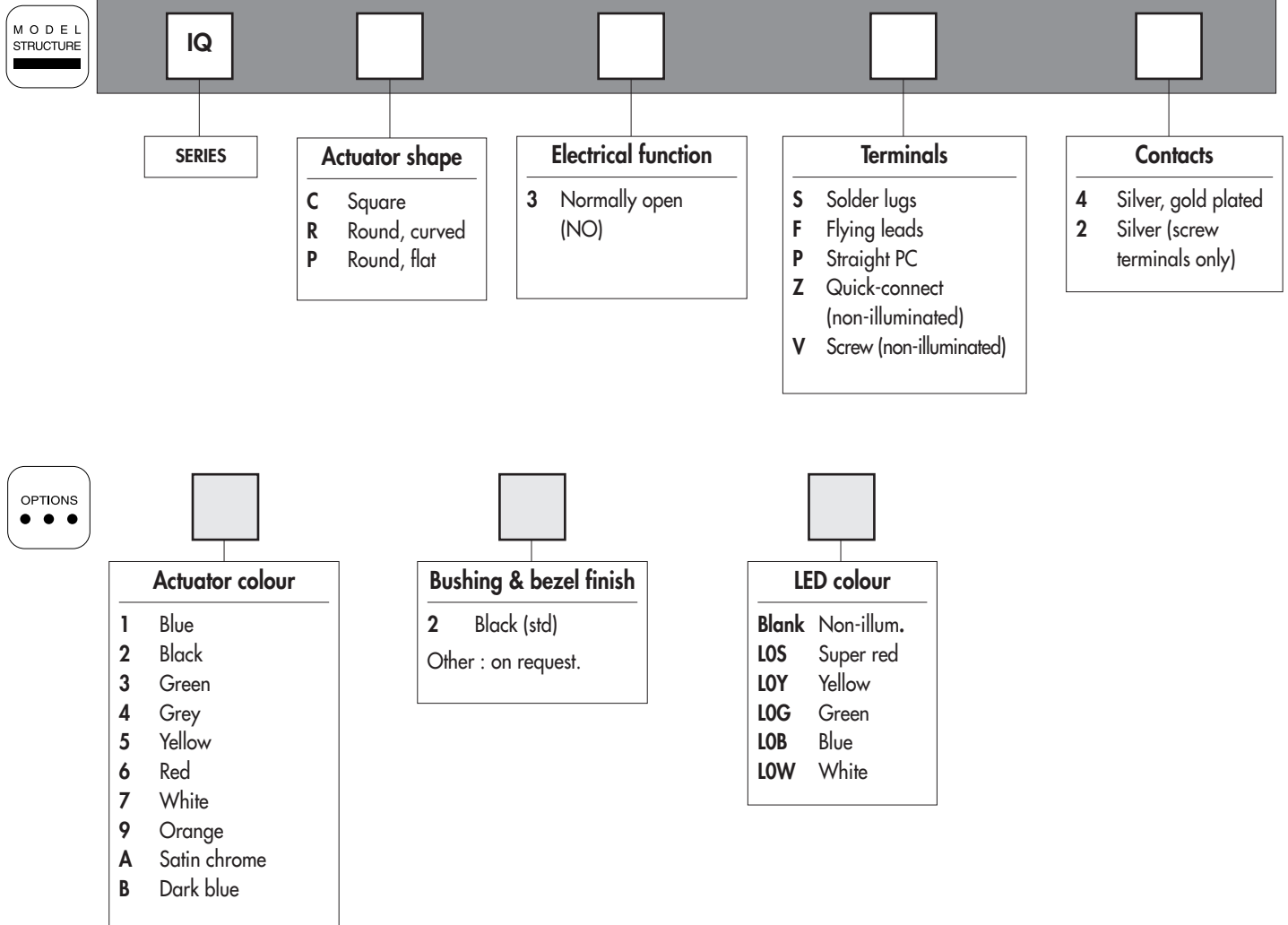
### Panel cut-out

① Flat seal

### Back of panel space requirement

### Matrix mounting





### ABOUT THIS SERIES

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

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



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



**Mounting accessories** : Standard hardware supplied : 1 flat seal

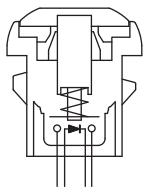


**Packaging unit** : 25 pieces for flying lead models - 40 pieces for other models

# IQ series

Sealed pushbutton switches - bushing Ø 16 mm - snap-in mounting - momentary

Round - illuminated

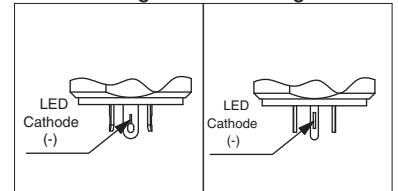


Function 3 (NO)

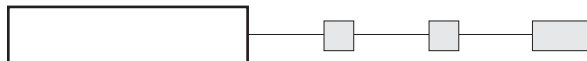
- Five LED colours
- Tin plated LED terminals
- Gold plated contacts

Solder lug **S**

Straight **P**



## MODEL STRUCTURE



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

## Solder lug terminals



Curved actuator  
**IQR3S4**



Normally Open

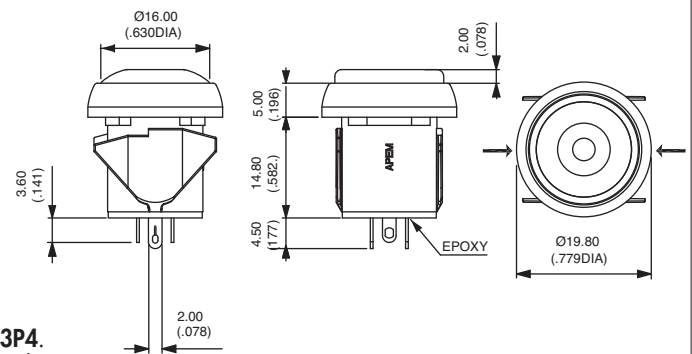
Flat actuator  
**IQP3S4**



Normally Open

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

→ Flat



## Sealed flying lead terminals



Curved actuator  
**IQR3F4**



Normally Open

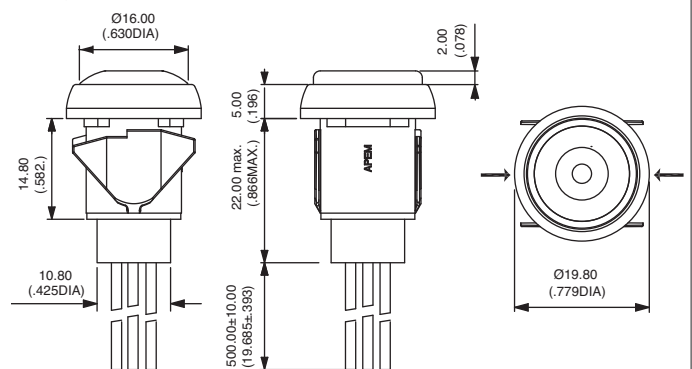
Flat actuator  
**IQP3F4**



Normally Open

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

→ Flat

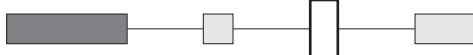


## ACTUATOR COLOUR



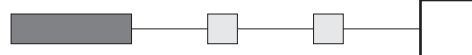
1 : blue - 2 : black - 3 : green - 4 : grey - 5 : yellow - 6 : red - 7 : white - 9 : orange - A : satin chrome - B : dark blue

## BUSHING AND BEZEL FINISH

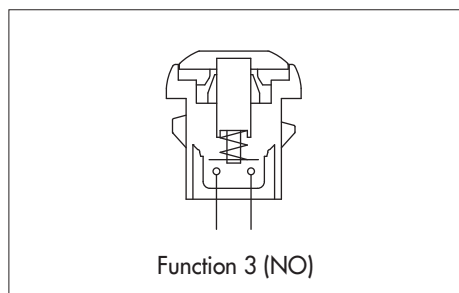


2 : black (standard)

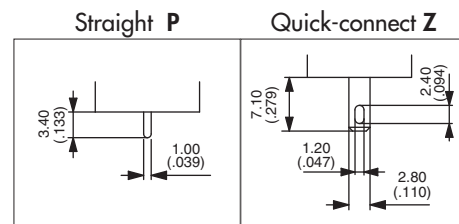
## LED COLOUR



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



- Gold plated or silver contacts depending on terminal type



### MODEL STRUCTURE



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

### Solder lug terminals - gold plated contacts



Curved actuator  
**IQR3S4**



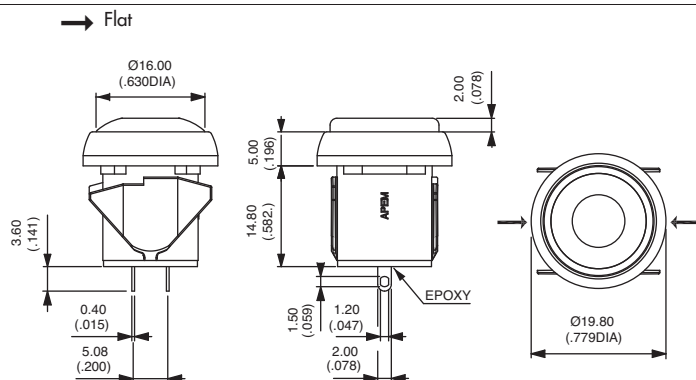
Normally open

Flat actuator  
**IQP3S4**



Normally open

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



### Sealed flying lead terminals - gold plated contacts



Curved actuator  
**IQR3F4**

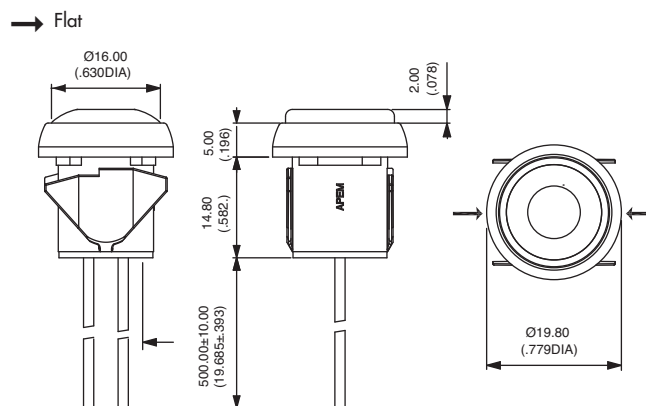


Normally open

Flat actuator  
**IQP3F4**



Normally open



### Screw terminals - silver contacts



Curved actuator  
**IQR3V2**

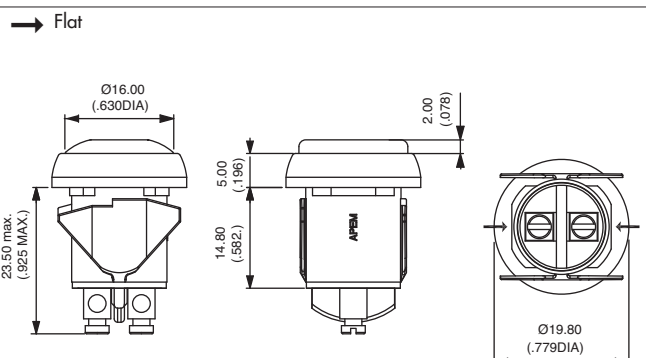


Normally open

Flat actuator  
**IQP3V2**



Normally open

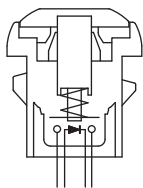


Actuator colour and bushing/bezel finish : select the desired codes on previous page.

# IQ series

Sealed pushbutton switches - bushing Ø 16 mm - snap-in mounting - momentary

Square - illuminated

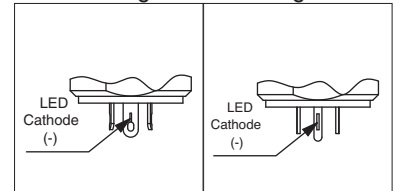


Function 3 (NO)

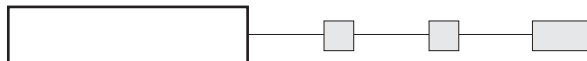
- Five LED colours
- Tin plated LED terminals
- Gold plated contacts

Solder lug S

Straight P



MODEL  
STRUCTURE



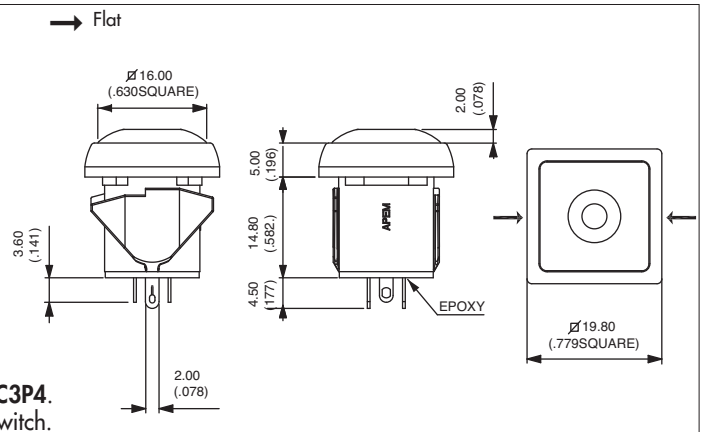
## Solder lug terminals



IQC3S4



Normally Open



Also available with straight PC terminals : **IQC3P4**.  
LED colour is indicated by the bottom of the switch.

## Sealed flying lead terminals

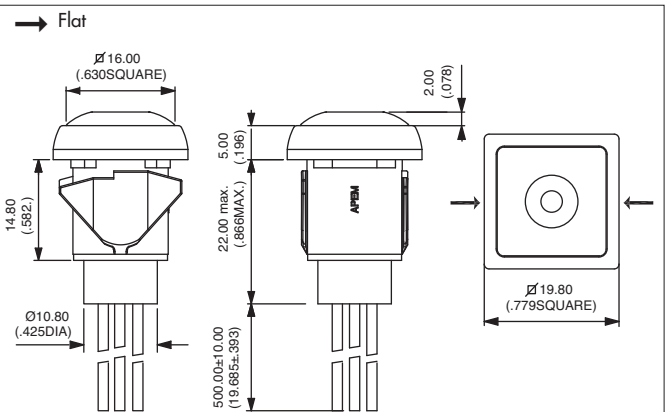


IQC3F4



Normally Open

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

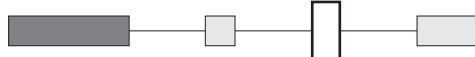


## ACTUATOR COLOUR



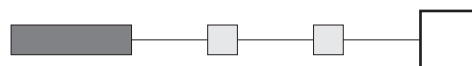
1 : blue - 2 : black - 3 : green - 4 : grey - 5 : yellow - 6 : red - 7 : white - 9 : orange - A : satin chrome - B : dark blue

## BUSHING AND BEZEL FINISH

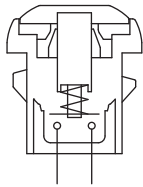


2 : black (standard)

## LED COLOUR



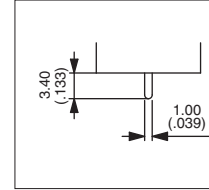
LOS : super red - LOY : yellow - LOG : green - LOB : blue  
LOW : white



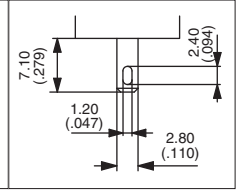
Function 3 (NO)

- Gold plated or silver contacts depending on terminal type

Straight P



Quick-connect Z



MODEL  
STRUCTURE



### Solder lug terminals - gold plated contacts

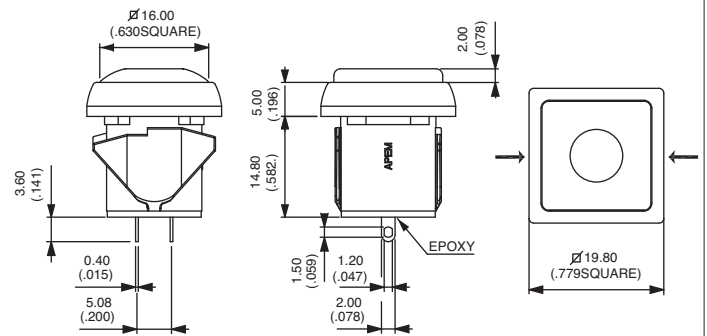


IQC3S4



Normally Open

→ Flat



Also available with straight PC terminals :  
IQC3P4 or quick-connect terminals : IQC3Z4.

### Sealed flying lead terminals - gold plated contacts

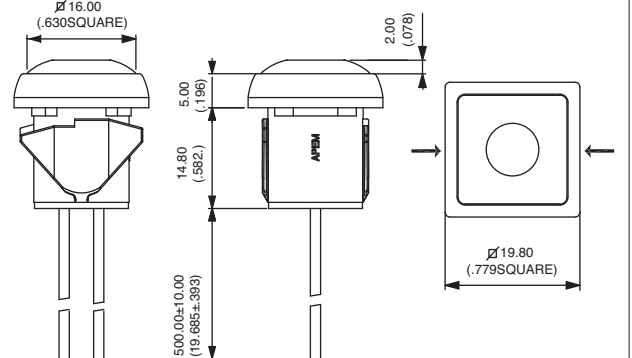


IQC3F4



Normally Open

→ Flat



### Screw terminals - silver contacts

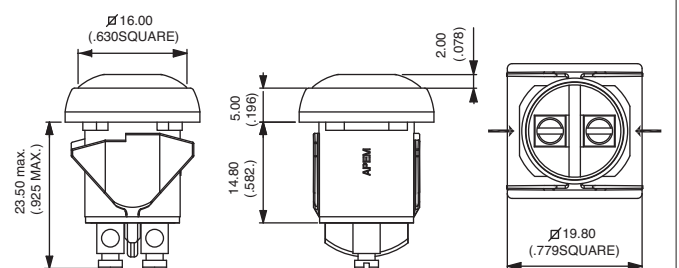


IQC3V2



Normally Open

→ Flat



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

# IQ series

## Sealed pushbutton switches - bushing Ø 16 mm - snap-in mounting - latching

*Distinctive features and specifications*



- ☐ Snap-in mounting for easy installation
- ☐ Latching action models
- ☐ Illuminated or non-illuminated
- ☐ Flat round actuator for optional marking
- ☐ Sealed to IP54

### ENVIRONMENTAL SPECIFICATIONS

- Front panel sealing : IP54 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 contacts) :
  - Code 4 : 100mA 24VDC, 200.000 cycles
  - Code 7 : 4A 12VDC, 200.000 cycles
  - 1A 48VDC, 200.000 cycles
  - 3A 48VDC, 75.000 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	2,1V	2,5V
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 :
  - with flat seal : 2,20 mm (.088) max.
  - without flat seal : 3 mm (.118) max.
- Total travel : 2,5 mm (.098) +/- 0,3 mm
- Typical operating force : 5N +/- 2N
- Low level or mechanical life : 200.000 cycles
- Soldering : 320°C max. for 3 sec.

### MATERIALS

- Case : thermoplastic UL94-V0
- Plunger : polyamide
- Bushing/bezel : polyamide
- Contacts : silver, gold plated (codes 4 and 7)
- 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

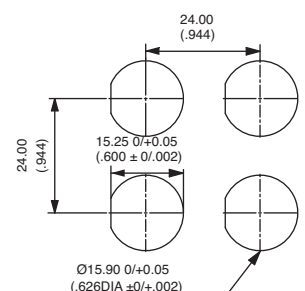
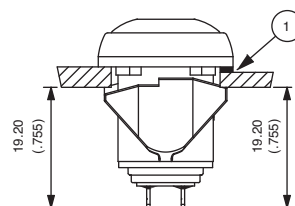
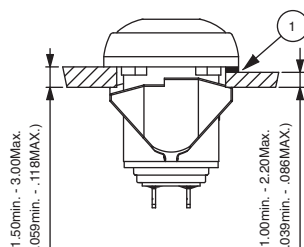
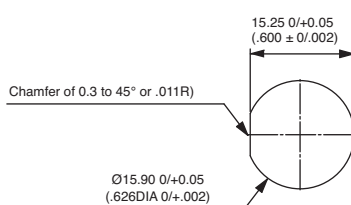
### MOUNTING

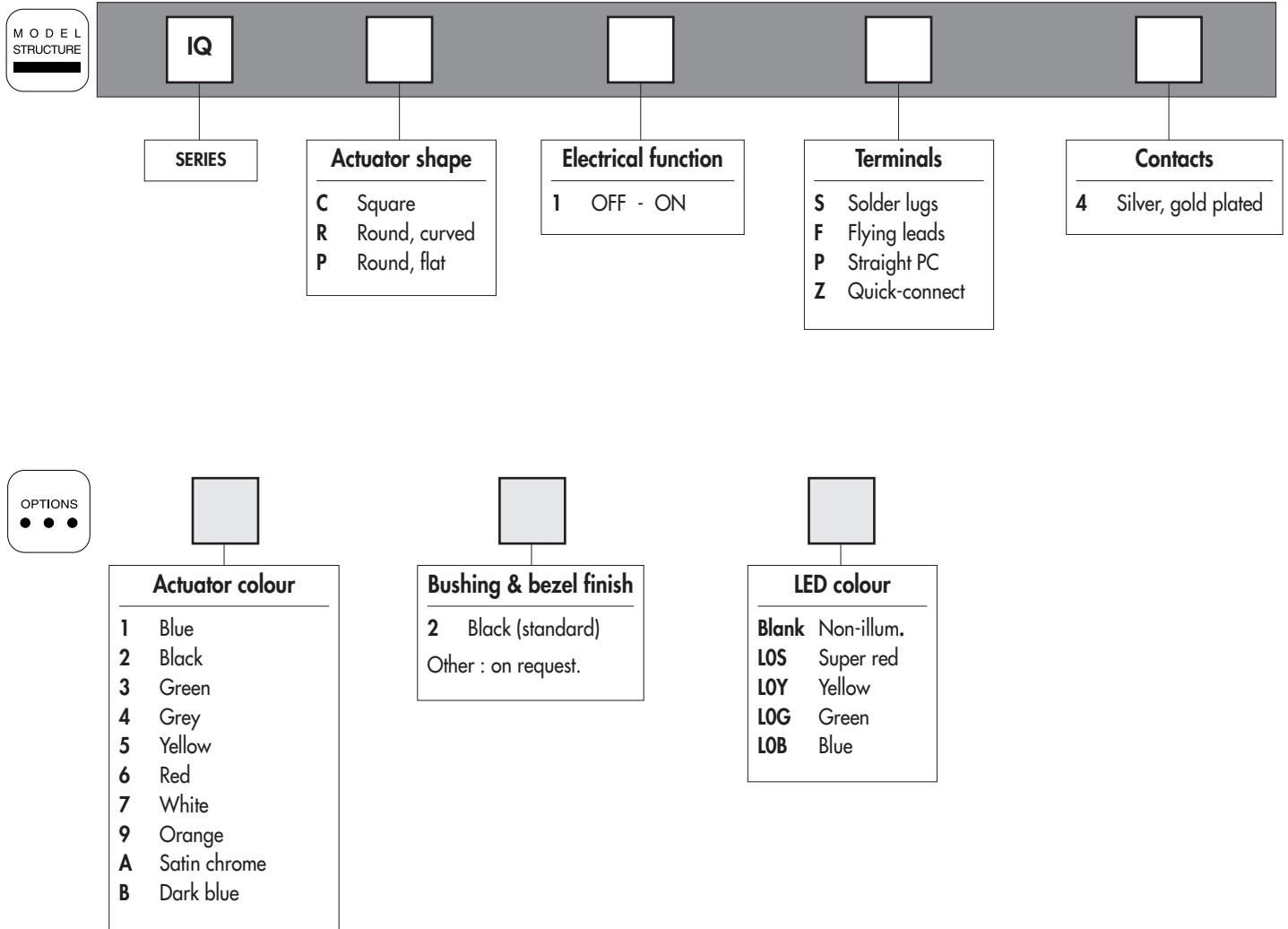
#### Panel cut-out

① Flat seal

#### Back of panel space requirement

#### Matrix mounting





### ABOUT THIS SERIES

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

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



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



**Mounting accessories** : Standard hardware supplied : 1 flat seal

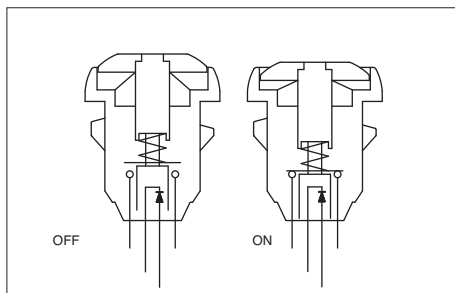


**Packaging unit** : 25 pieces for flying lead models - 40 pieces for other models

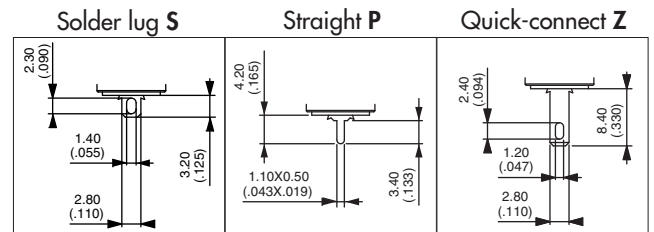
# IQ series

Sealed pushbutton switches - bushing Ø 16 mm - snap-in mounting - latching

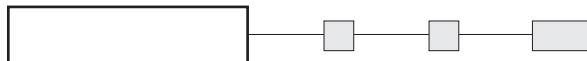
Round - illuminated



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



## MODEL STRUCTURE



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

## Solder lug terminals



Curved actuator  
**IQR1S4**

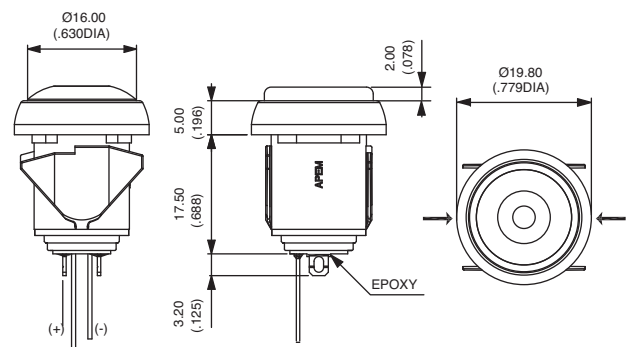
OFF - ON

Flat actuator  
**IQP1S4**

OFF - ON

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

→ Flat



## Sealed flying lead terminals



Curved actuator  
**IQR1F4**

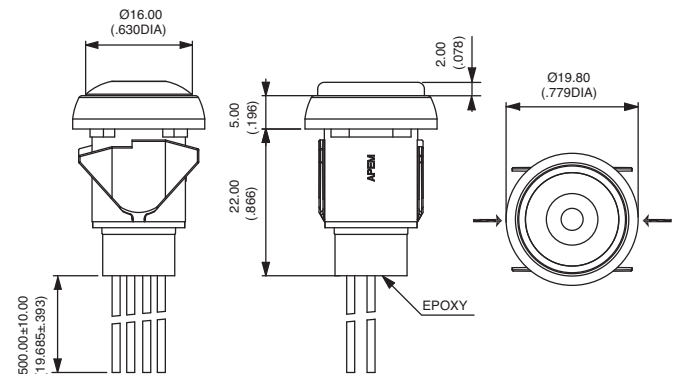
OFF - ON

Flat actuator  
**IQP1F4**

OFF - ON

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

→ Flat

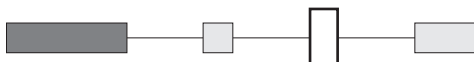


## ACTUATOR COLOUR



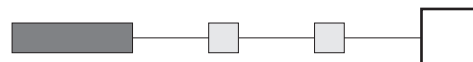
1 : blue - 2 : black - 3 : green - 4 : grey - 5 : yellow - 6 : red - 7 : white - 9 : orange - A : satin chrome - B : dark blue

## BUSHING AND BEZEL FINISH

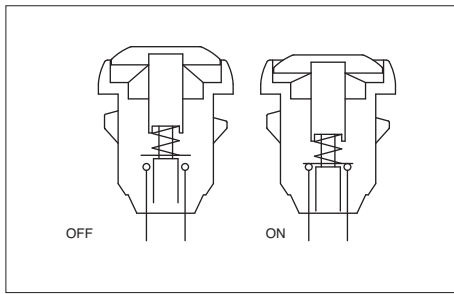


2 : black (standard)

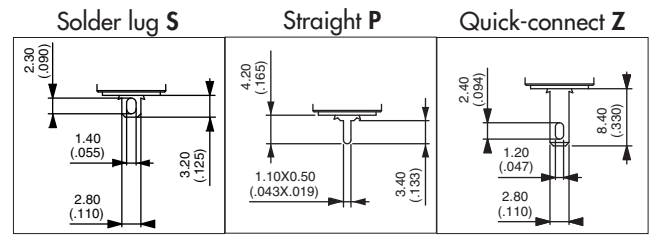
## LED COLOUR



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



- Gold plated contacts



### MODEL STRUCTURE



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

### Solder lug terminals



Curved actuator  
**IQR1S4**

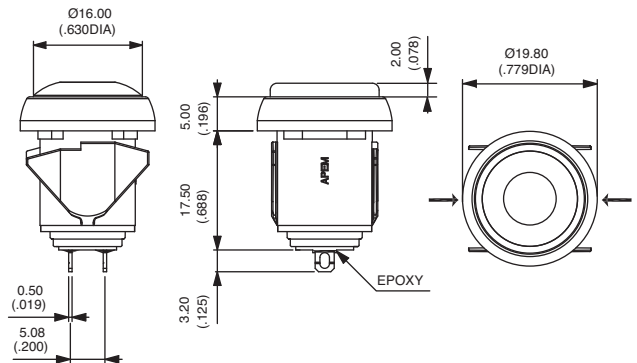
OFF - ON

Flat actuator  
**IQP1S4**

OFF - ON

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

→ Flat



### Sealed flying lead terminals



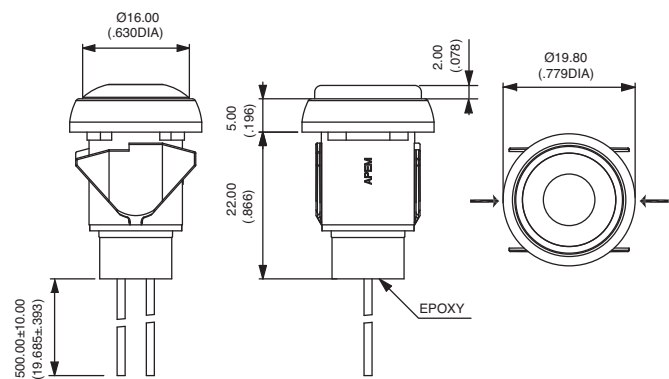
Curved actuator  
**IQR1F4**

OFF - ON

Flat actuator  
**IQP1F4**

OFF - ON

→ Flat



### ACTUATOR COLOUR



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

### BUSHING AND BEZEL FINISH

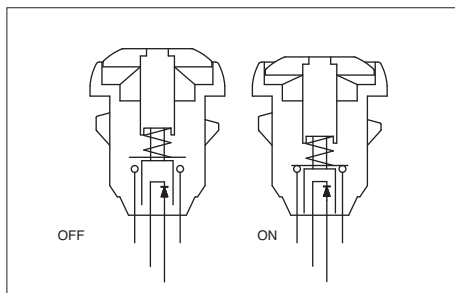


2 : black (standard)

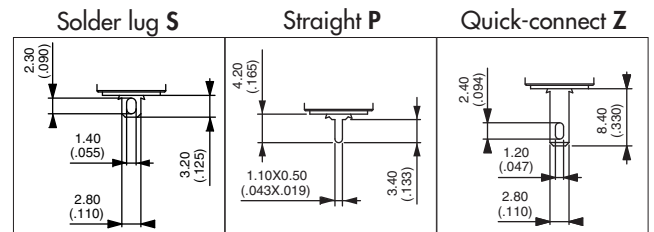
# IQ series

Sealed pushbutton switches - bushing Ø 16 mm - snap-in mounting - latching

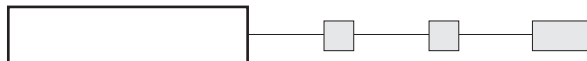
Square - illuminated



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



MODEL  
STRUCTURE



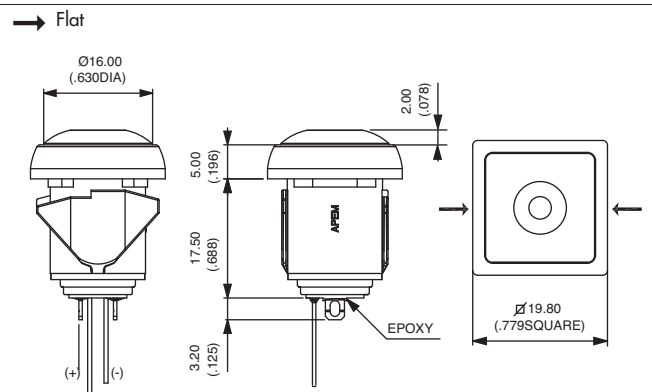
## Solder lug terminals



Curved actuator  
**IQC1S4**

OFF - ON

Also available with straight PC terminals : **IQC1P4**  
& quick-connect terminals : **IQC1Z4**.



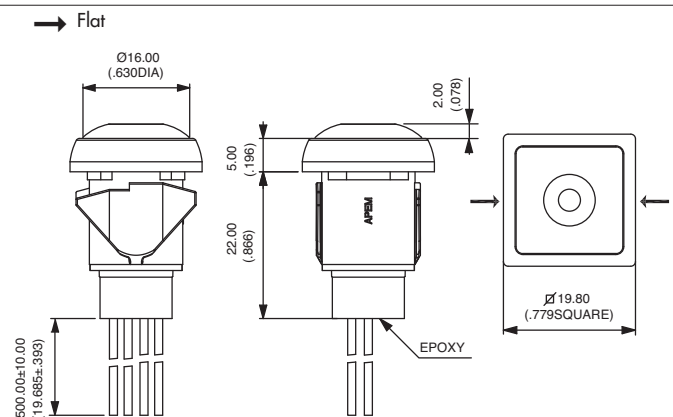
## Sealed flying lead terminals



Curved actuator  
**IQC1F4**

OFF - ON

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

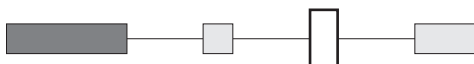


## ACTUATOR COLOUR



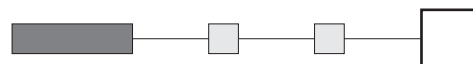
1 : blue - 2 : black - 3 : green - 4 : grey - 5 : yellow - 6 : red - 7 : white - 9 : orange - A : satin chrome - B : dark blue

## BUSHING AND BEZEL FINISH

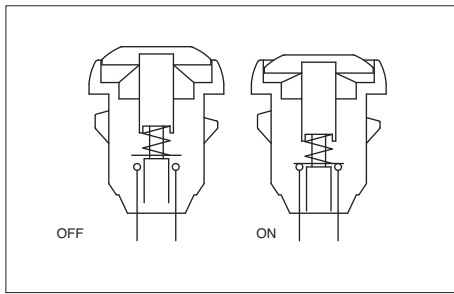


2 : black (standard)

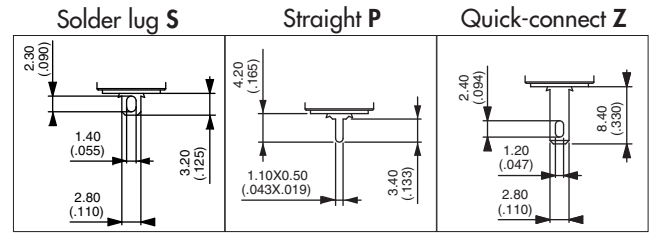
## LED COLOUR



L0S : super red - L0Y : yellow - L0G : green - L0B : blue



- Gold plated contacts



### MODEL STRUCTURE



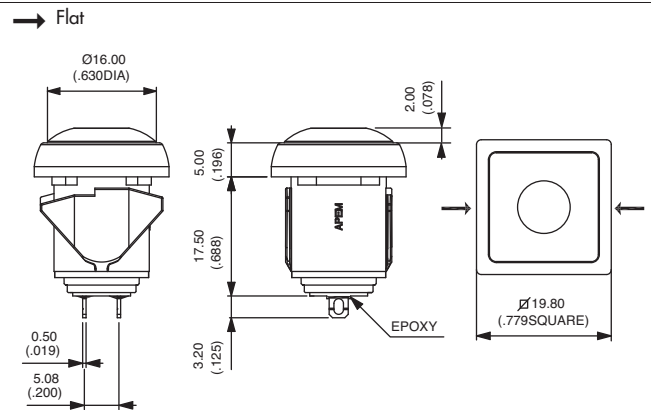
### Solder lug terminals



Curved actuator  
**IQC1S4**

OFF - ON

Also available with straight PC terminals : **IQC1P4**  
& quick-connect terminals : **IQC1Z4**.

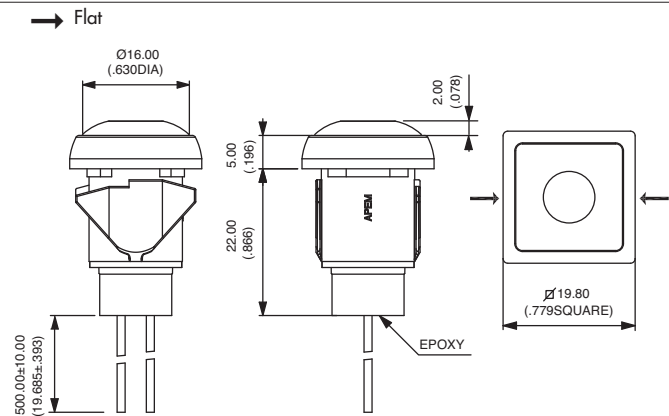


### Sealed flying lead terminals



Curved actuator  
**IQC1F4**

OFF - ON



### ACTUATOR COLOUR



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

### BUSHING AND BEZEL FINISH



2 : black (standard)