New!

IQ series

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

Distinctive features

UG1212A-R2

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

B1

IQ series

New!

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**

B1

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 silver contacts (code 4) : 200mA 48VDC
  - Silver contacts (code 2) - screw terminals : 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 (L0S)	20mA	2,1V	2,3V
Yellow (L0Y)	20mA	2,1V	2,3V
Green (L0G)	20mA	2,1V	2,3V
Blue (L0B)	20mA	3,2V	3,8V
White (L0W)	20mA	3,35V	4,25V

A resistor must be series-connected by the user.

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

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

GENERAL SPECIFICATIONS

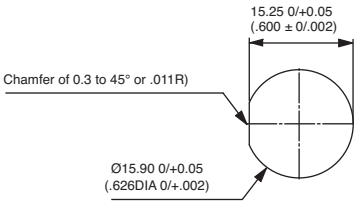
- Panel thickness :
  with flat seal : 2,20 mm (.088) max.
  without flat seal : 3 mm (.118) max.
- Total travel : 1,6 mm (.062) +/- 0,3 mm
- Typical operating force : 4N +/- 2N
- Low level or mechanical life :
  1.000.000 cycles
- Soldering : 320°C max. for 3 sec.

MATERIALS

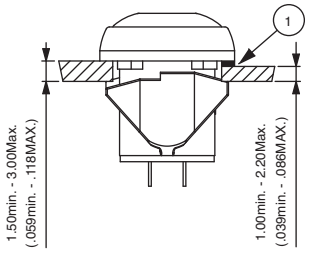
- Case : thermoplastic UL94-V0
- Actuator : polyamide 6/6
- Bushing/bezel : polyamide 6/6
- Contacts :
  4 : silver, gold plated
  2 : silver (screw terminals)
- Multi-wire lead AWG20,
  section 0,6 mm²
- LED wire : AWG26,
  section 0,12 mm²
- Lens : polycarbonate
- Terminal seal : epoxy

MOUNTING

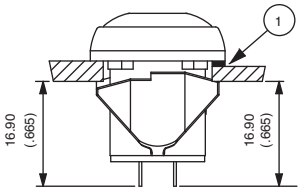
Panel cut-out



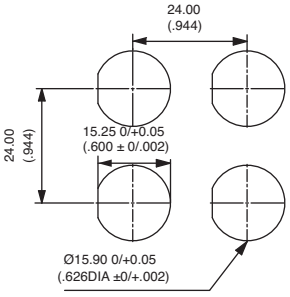
① Flat seal



Back of panel space requirement



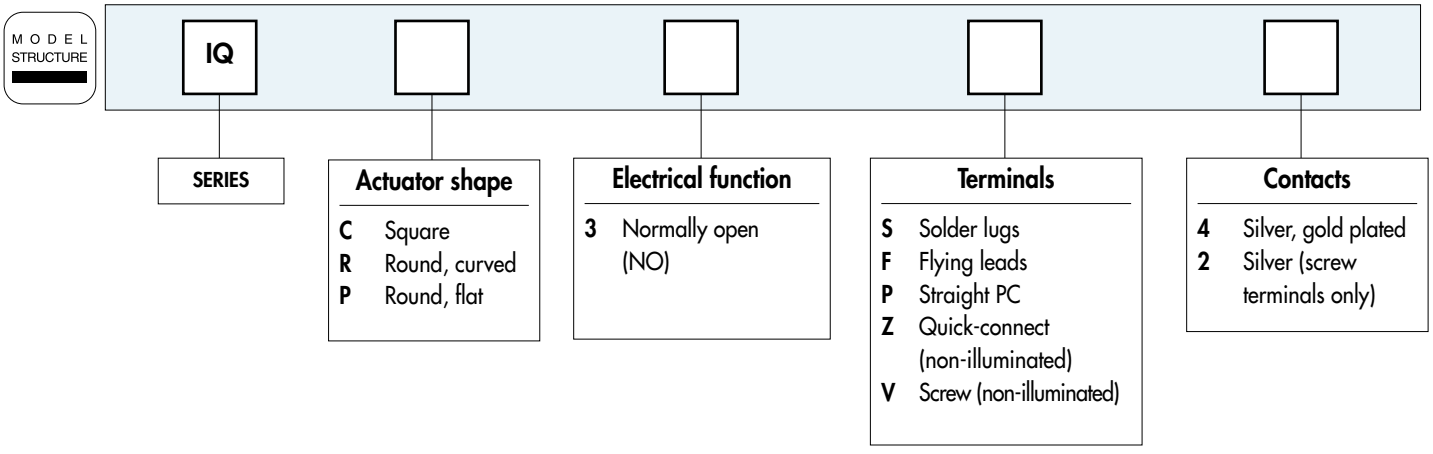
Matrix mounting

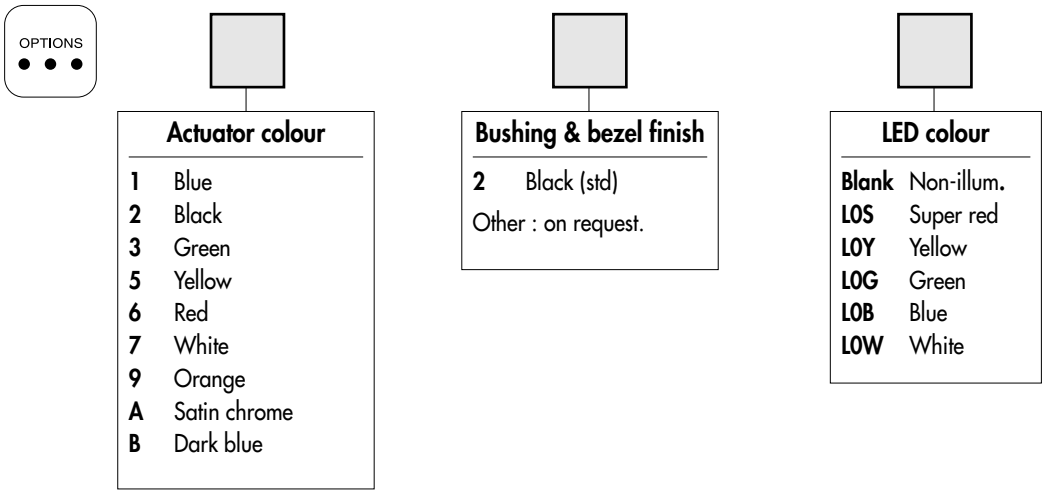


New! IQ series

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

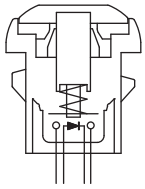
Packaging unit : 25 pieces for flying lead models - 40 pieces for other models

IQ series

New!

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

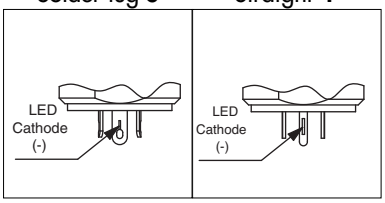
Round - illuminated



Function 3 (NO)

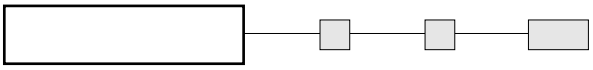
- Five LED colours
- Tin plated LED terminals
- Gold plated contacts

Solder lug **S** Straight **P**



B1

MODEL STRUCTURE



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

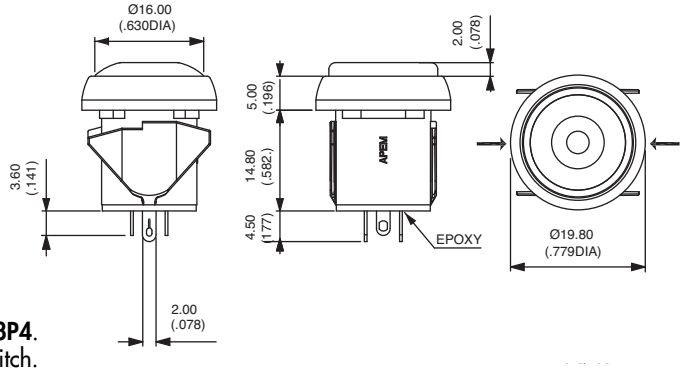
Solder lug terminals

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



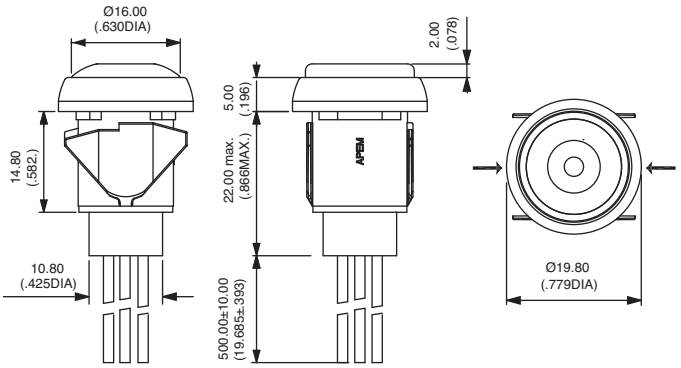
Sealed flying lead terminals

Curved actuator **IQR3F4** Normally Open

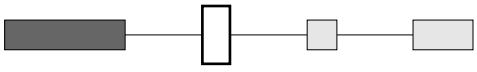
Flat actuator **IQP3F4** Normally Open

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

→ Flat

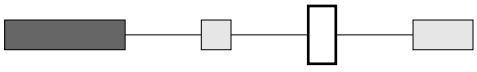


ACTUATOR COLOUR



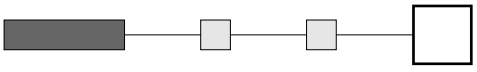
1 : blue - **2** : black - **3** : green - **5** : yellow - **6** : red - **7** : white - **9** : orange - **A** : satin chrome - **B** : dark blue

BUSHING AND BEZEL FINISH



2 : black (standard)

LED COLOUR

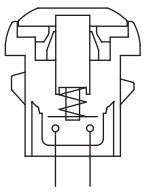


L0S : super red - **L0Y** : yellow - **L0G** : green - **L0B** : blue
L0W : white

New! IQ series

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

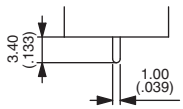
Round - non-illuminated



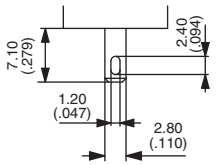
Function 3 (NO)

- Gold plated or silver contacts depending on terminal type

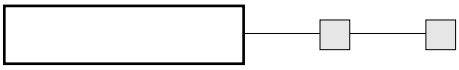
Straight **P**



Quick-connect **Z**



MODEL STRUCTURE



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

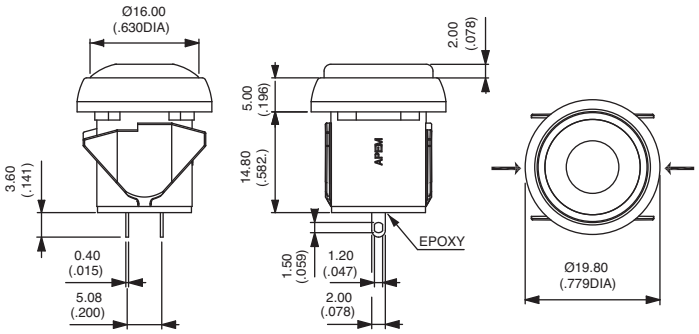
B1

Solder lug terminals - gold plated contacts

→ Flat

Curved actuator
IQR3S4 Normally open

Flat actuator
IQP3S4 Normally open



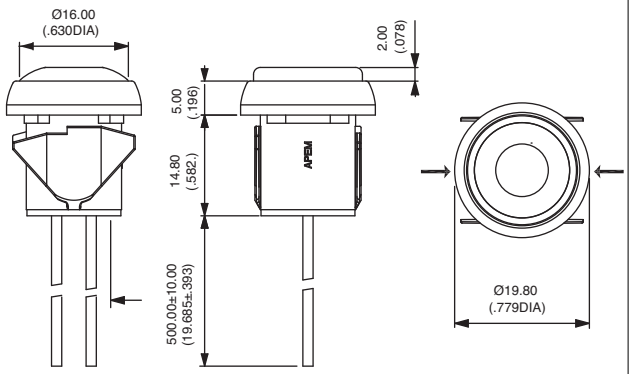
Also available with straight PC terminals : **IQ•3P4** and quick-connect terminals : **IQ•3Z4**.

Sealed flying lead terminals - gold plated contacts

→ Flat

Curved actuator
IQR3F4 Normally open

Flat actuator
IQP3F4 Normally open

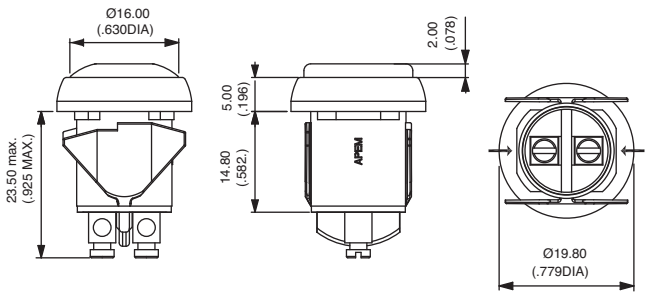


Screw terminals - silver contacts

→ Flat

Curved actuator
IQR3V2 Normally open

Flat actuator
IQP3V2 Normally open



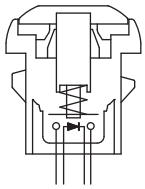
Actuator colour and bushing/bezel finish : select the desired codes on previous page.

IQ series

New!

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

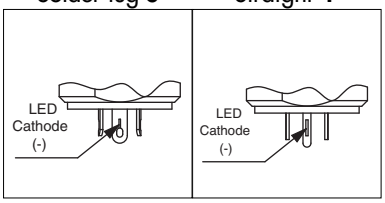
Square - illuminated



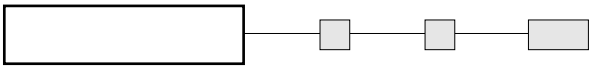
Function 3 (NO)

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

Solder lug **S** Straight **P**



MODEL STRUCTURE



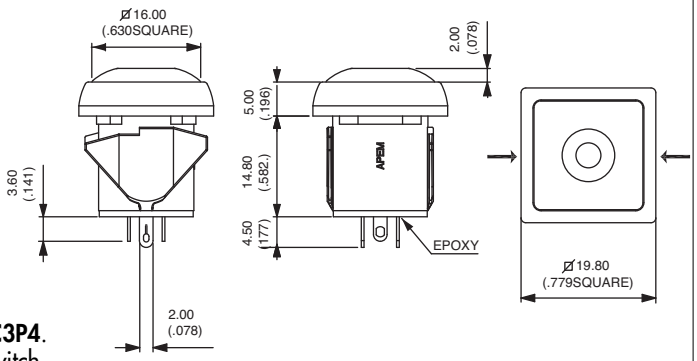
B1

Solder lug terminals

→ Flat

IQC3S4

Normally Open



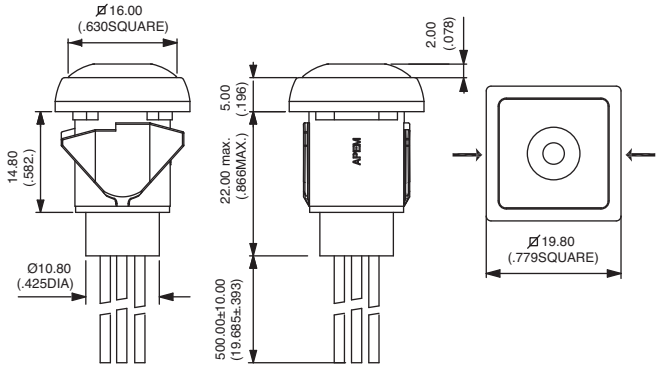
Also available with straight PC terminals : **IQC3P4**.
LED colour is indicated by the bottom of the switch.

Sealed flying lead terminals

→ Flat

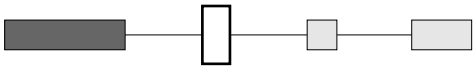
IQC3F4

Normally Open



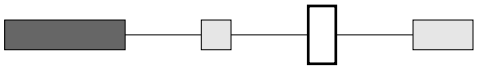
Wire colours : black : NO contact,
red : LED anode (+), blue : LED cathode (-)

ACTUATOR COLOUR



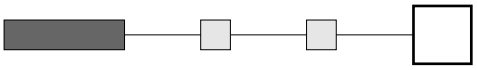
1 : blue - **2** : black - **3** : green - **5** : yellow - **6** : red - **7** : white - **9** : orange - **A** : satin chrome - **B** : dark blue

BUSHING AND BEZEL FINISH



2 : black (standard)

LED COLOUR

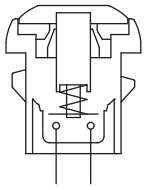


L0S : super red - **L0Y** : yellow - **L0G** : green - **L0B** : blue
L0W : white

New! IQ series

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

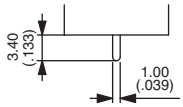
Square - non-illuminated



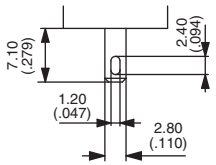
Function 3 (NO)

- Gold plated or silver contacts depending on terminal type

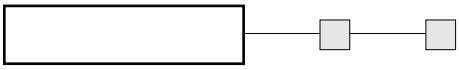
Straight **P**



Quick-connect **Z**



MODEL STRUCTURE

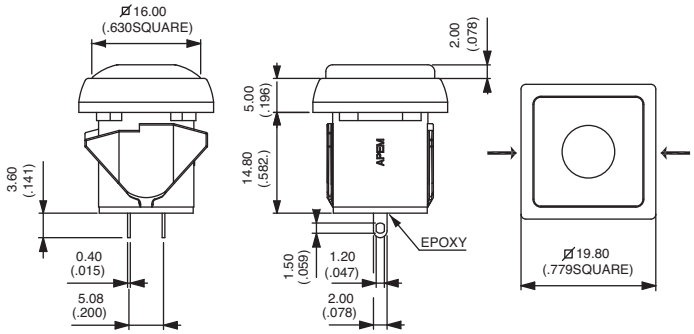


B1

Solder lug terminals - gold plated contacts

→ Flat

IQC3S4 Normally Open

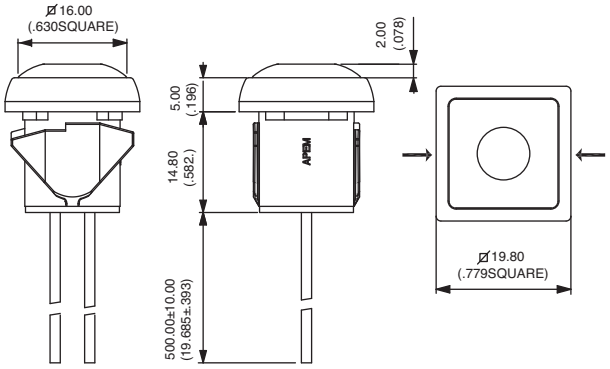


Also available with straight PC terminals : **IQC3P4** or quick-connect terminals : **IQC3Z4**.

Sealed flying lead terminals - gold plated contacts

→ Flat

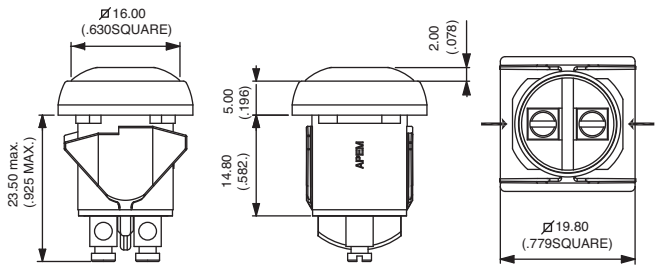
IQC3F4 Normally Open



Screw terminals - silver contacts

→ Flat

IQC3V2 Normally Open



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

IQ series

New!

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**

B1

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 : 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 (L0S)	20mA	1,95V	1,95V
Yellow (L0Y)	20mA	2V	2,05V
Green (L0G)	20mA	2,1V	2,5V
Blue (L0B)	20mA	3,2V	4V

A resistor must be series-connected by the user.

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

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

GENERAL SPECIFICATIONS

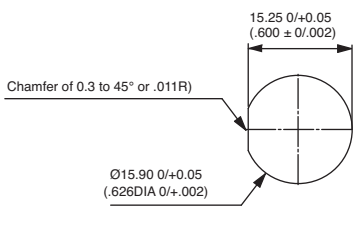
- Panel thickness : with flat seal : 2,20 mm (.088) max. without flat seal : 3 mm (.118) max.
- Total travel : 2,5 mm (.098) +/- 0,3 mm
- Typical operating force : 5N +/- 2N
- Low level or mechanical life : 200.000 cycles
- Soldering : 320°C max. for 3 sec.

MATERIALS

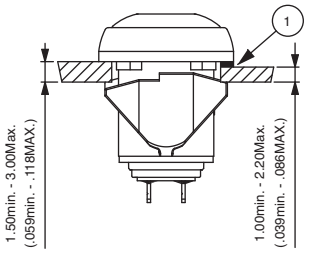
- Case : thermoplastic UL94-V0
- Plunger : polyamide
- Bushing/bezel : polyamide
- Contacts : silver, gold plated
- Multi-wire lead AWG20, section 0,6 mm²
- LED wire : AWG26, section 0,12 mm²
- Lens : polycarbonate
- Terminal seal : epoxy

MOUNTING

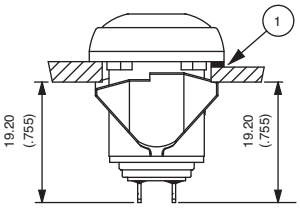
Panel cut-out



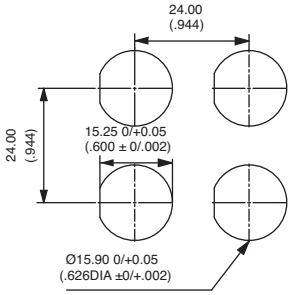
① Flat seal



Back of panel space requirement



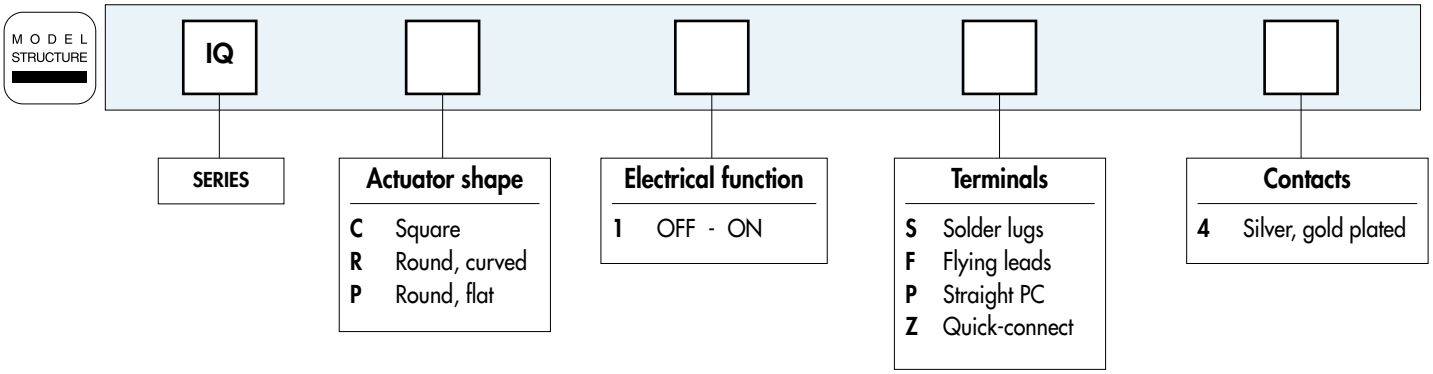
Matrix mounting

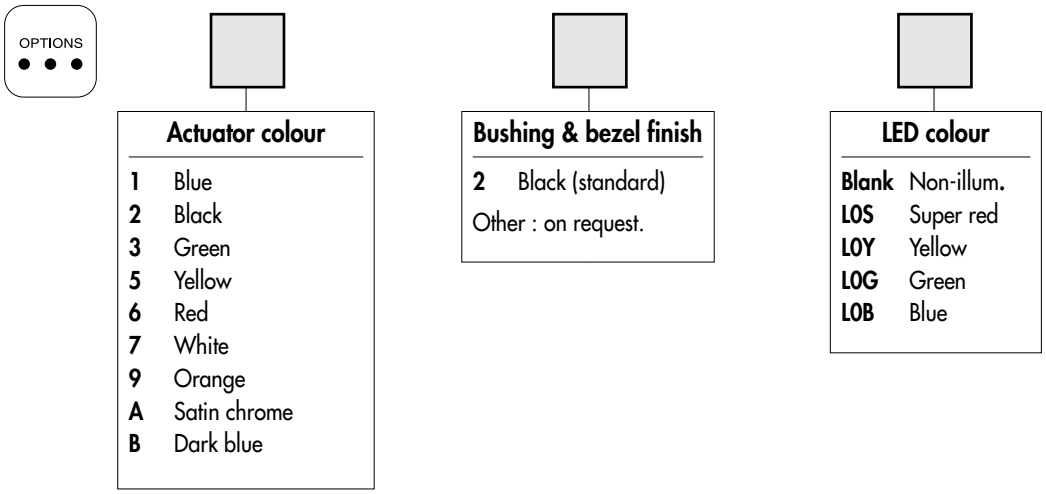


New! IQ series

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

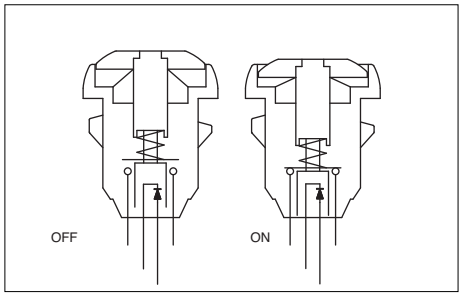
Packaging unit : 25 pieces for flying lead models - 40 pieces for other models

IQ series

New!

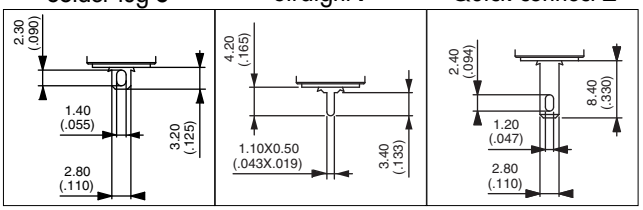
Sealed pushbutton switches - bushing Ø 16 mm - snap-in mounting - latching

Round - illuminated



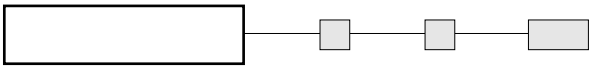
- Four LED colours
- Tin plated LED terminals
- Gold plated contacts

Solder lug **S** | Straight **P** | Quick-connect **Z**



B1

MODEL STRUCTURE



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

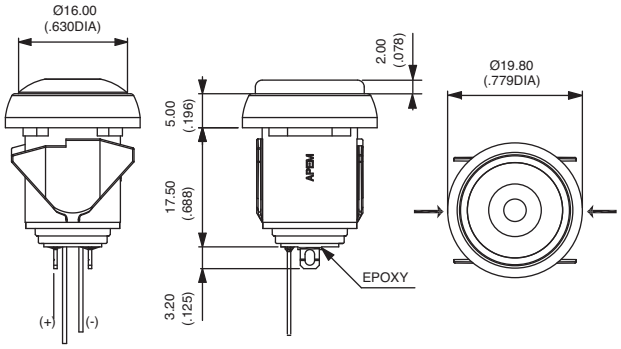
Solder lug terminals

Curved actuator
IQR1S4 OFF - ON

Flat actuator
IQP1S4 OFF - ON

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

→ Flat



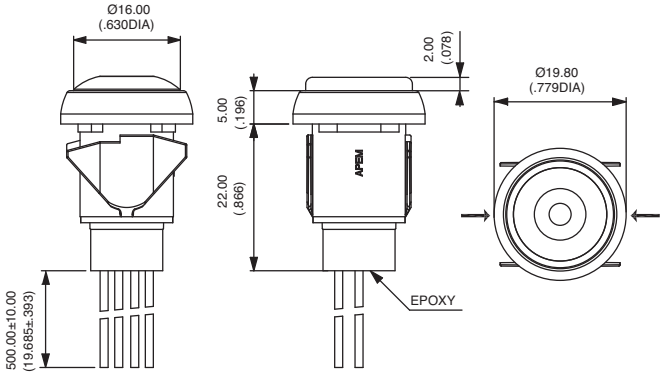
Sealed flying lead terminals

Curved actuator
IQR1F4 OFF - ON

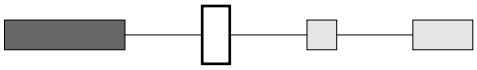
Flat actuator
IQP1F4 OFF - ON

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

→ Flat

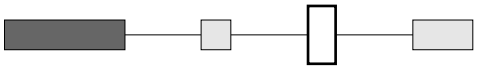


ACTUATOR COLOUR



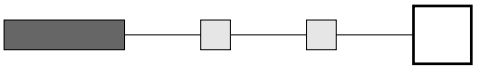
1 : blue - **2** : black - **3** : green - **5** : yellow - **6** : red - **7** : white - **9** : orange - **A** : satin chrome - **B** : dark blue

BUSHING AND BEZEL FINISH



2 : black (standard)

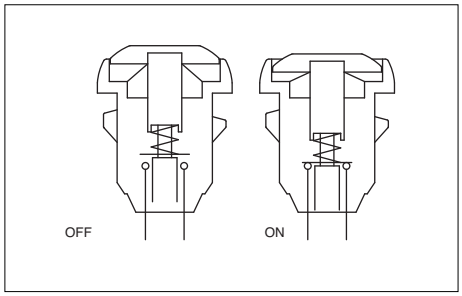
LED COLOUR



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

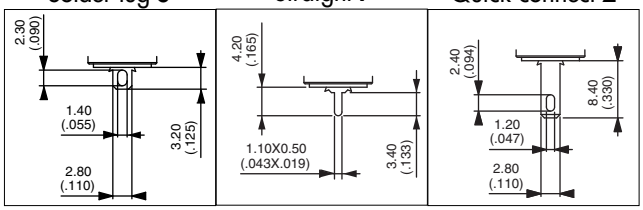
Sealed pushbutton switches - bushing Ø 16 mm - snap-in mounting - latching

Round - non-illuminated

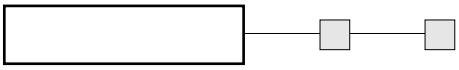


• Gold plated contacts

Solder lug **S** | Straight **P** | Quick-connect **Z**



MODEL STRUCTURE



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

B1

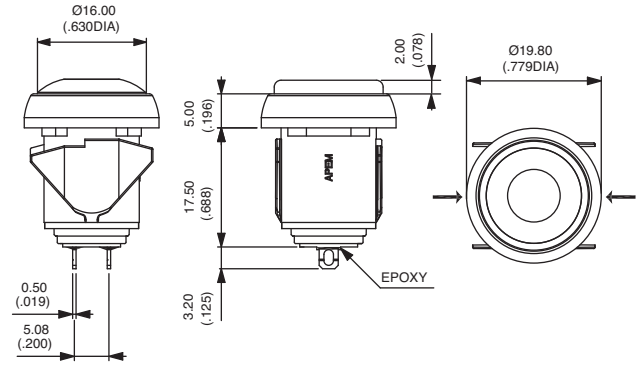
Solder lug terminals

Curved actuator
IQR1S4 OFF - ON

Flat actuator
IQP1S4 OFF - ON

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

→ Flat

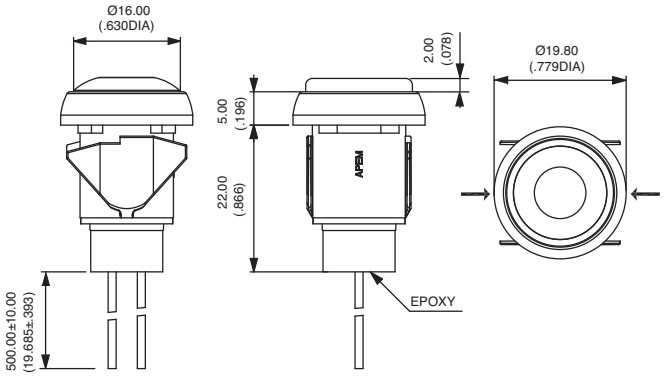


Sealed flying lead terminals

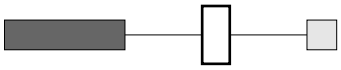
Curved actuator
IQR1F4 OFF - ON

Flat actuator
IQP1F4 OFF - ON

→ Flat

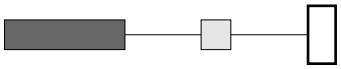


ACTUATOR COLOUR



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

BUSHING AND BEZEL FINISH



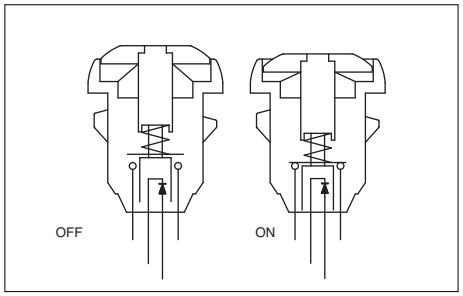
2 : black (standard)

IQ series

New!

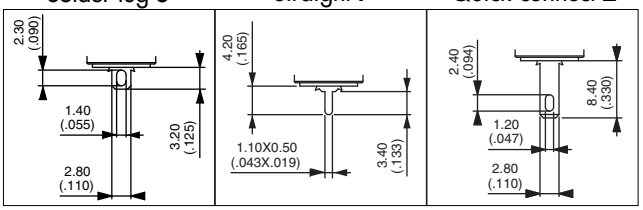
Sealed pushbutton switches - bushing Ø 16 mm - snap-in mounting - latching

Square - illuminated

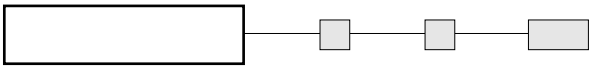


- Four LED colours
- Tin plated LED terminals
- Gold plated contacts

Solder lug **S** | Straight **P** | Quick-connect **Z**



MODEL STRUCTURE



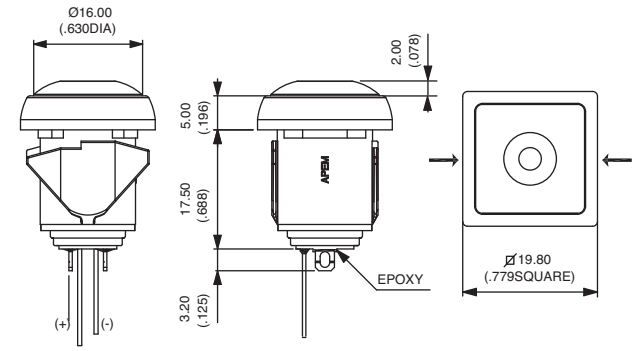
B1

Solder lug terminals

Curved actuator
IQC1S4 OFF - ON

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

→ Flat

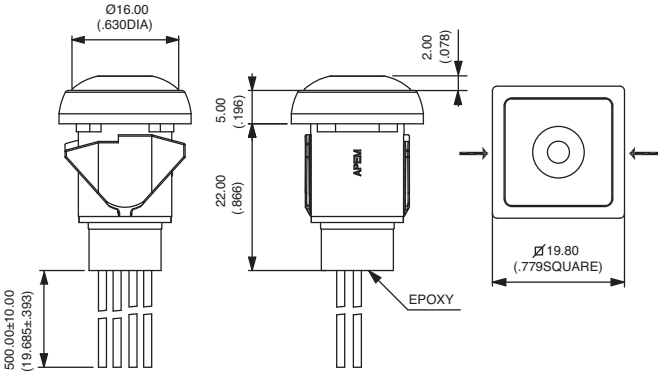


Sealed flying lead terminals

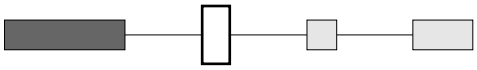
Curved actuator
IQC1F4 OFF - ON

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

→ Flat



ACTUATOR COLOUR



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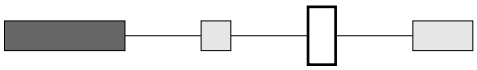
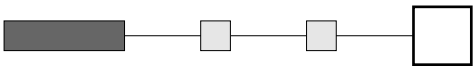
BUSHING AND BEZEL FINISH



2 : black (standard)

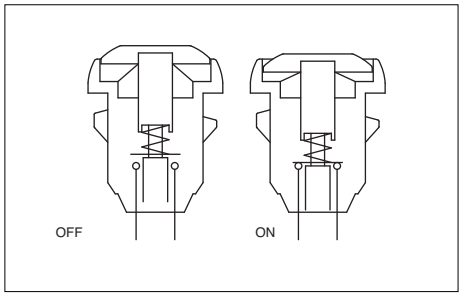
LED COLOUR



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

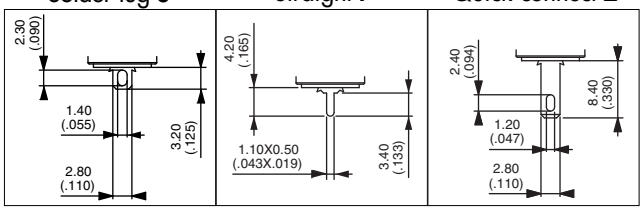
Sealed pushbutton switches - bushing Ø 16 mm - snap-in mounting - latching

Square - non-illuminated

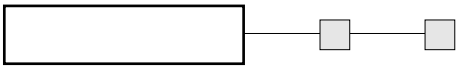


- Gold plated contacts

Solder lug **S** | Straight **P** | Quick-connect **Z**



MODEL STRUCTURE

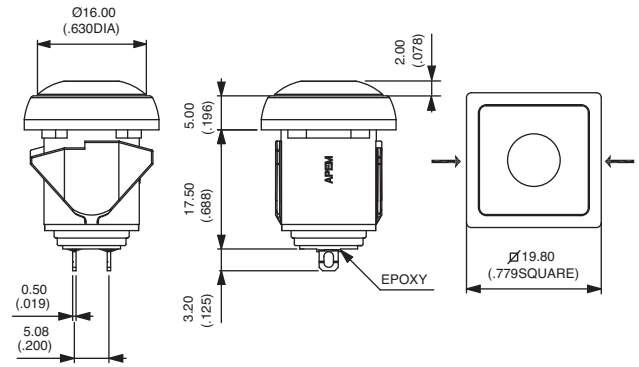


Solder lug terminals

Curved actuator
IQC1S4 OFF - ON

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

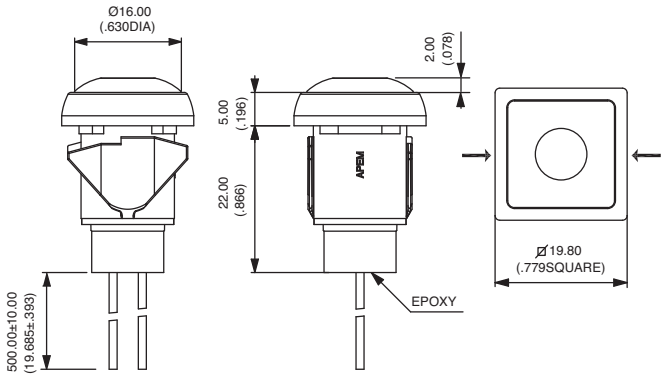
→ Flat



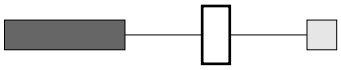
Sealed flying lead terminals

Curved actuator
IQC1F4 OFF - ON

→ Flat



ACTUATOR COLOUR



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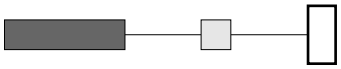
BUSHING AND BEZEL FINISH



2 : black (standard)