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sales@integrated-circuit.com

IQ series

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

Distinctive features

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

UG1410-A-R1



- ☐ 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 V_{rm}

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
Red/green (SG)	20mA	Red:1,95V-Green:2,1V	2,5V

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

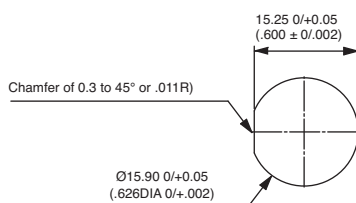
- Panel thickness :
 - with flat seal : 2,20 mm (.088) max.
 - without flat seal : 3 mm (.118) max.
- Total travel : 1,6 mm (.062) +/- 0,3 mm
- Typical operating force : 4N +/- 2N
- Low level or mechanical life : 1.000.000 cycles
- Soldering : 320°C max. for 3 sec.

MATERIALS

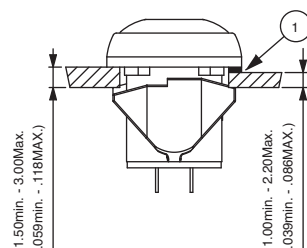
- Case : thermoplastic UL94-V0
- Actuator : polyamide 6/6
- Bushing/bezel : polyamide 6/6
- Contacts :
 - 4 and 7 : silver, gold plated
 - 2 : silver (screw terminals)
- Multi-wire lead AWG20, section 0,6 mm²
- LED wire : AWG26, section 0,12 mm²
- Lens : polycarbonate
- Terminal seal : epoxy

MOUNTING

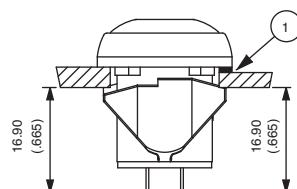
Panel cut-out



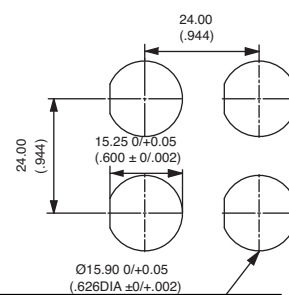
① Flat seal



Back of panel space requirement



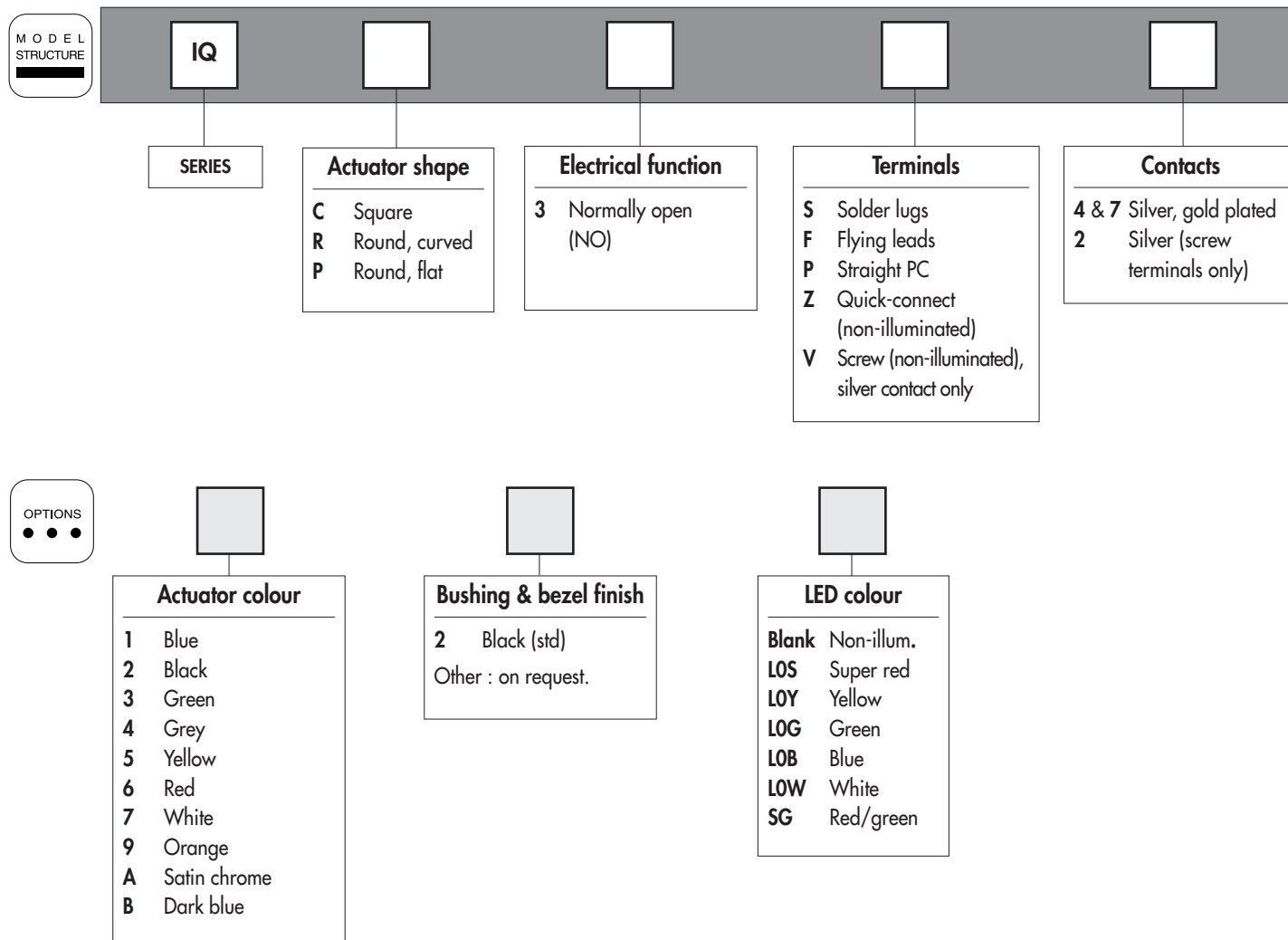
Matrix mounting



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

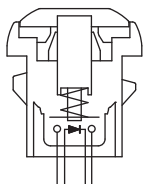


Packaging unit : 25 pieces for flying lead models - 40 pieces for other models

IQ series

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

Round - illuminated

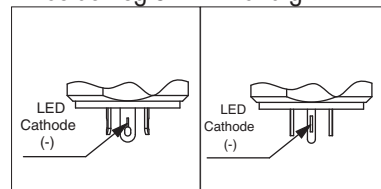


Function 3 (NO)

- Five LED colours
- Tin plated LED terminals
- Gold plated contacts (4 or 7)
See electrical specifications.
For high current, replace 4 with 7
in the part numbers below.

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

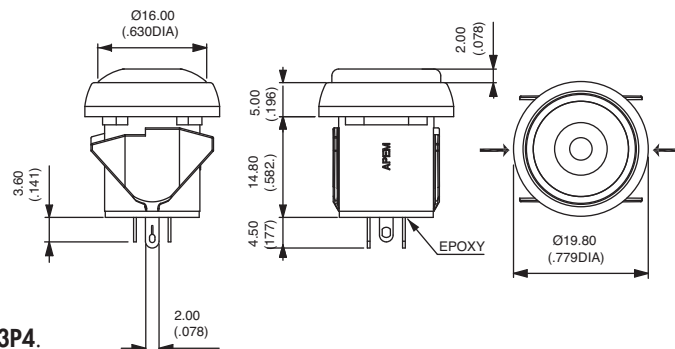
Flat actuator
IQP3S4



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

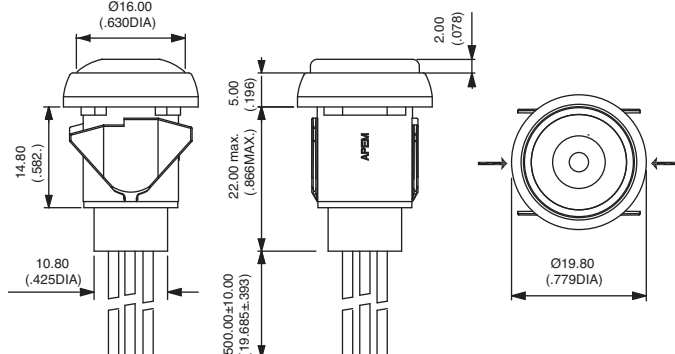
Flat actuator
IQP3F4



Normally Open

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

→ Flat

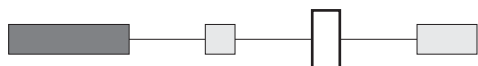


ACTUATOR COLOUR



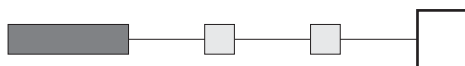
1 : blue - 2 : black - 3 : green - 4 : grey - 5 : yellow - 6 : red - 7 : white - 9 : orange - A : satin chrome - B : dark blue

BUSHING AND BEZEL FINISH



2 : black (standard)

LED COLOUR

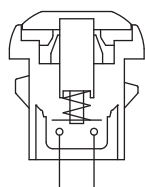


LOS : super red - LOY : yellow - LOG : green - LOB : blue
LOW : white - SG : red/green

IQ series

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

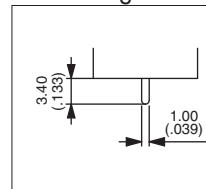
Round - non-illuminated



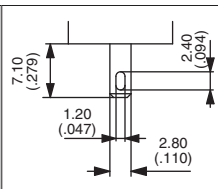
Function 3 (NO)

- Gold plated or silver contacts depending on terminal type
- Gold plated contacts (4 or 7)
See electrical specifications.
For high current, replace 4 with 7 in the part numbers below.

Straight P



Quick-connect Z



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

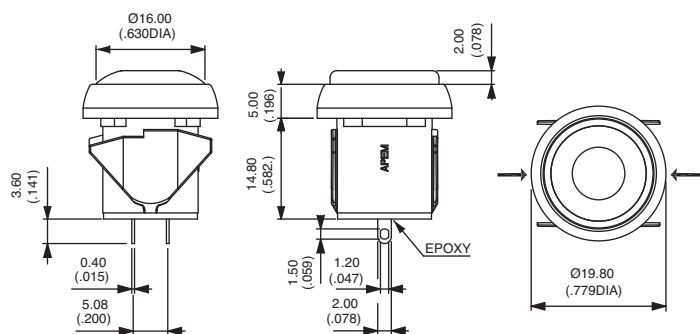
Flat actuator
IQP3S4



Normally open

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

→ Flat



Sealed flying lead terminals - gold plated contacts



Curved actuator
IQR3F4



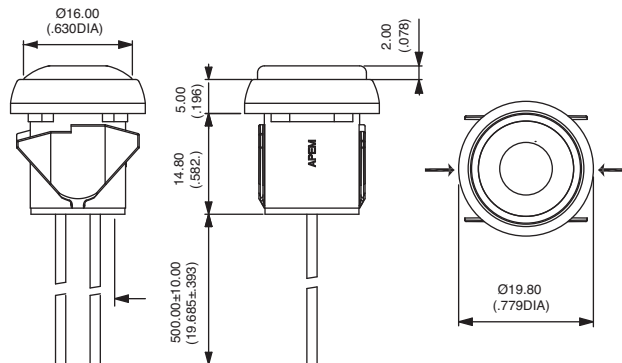
Normally open

Flat actuator
IQP3F4



Normally open

→ Flat



Screw terminals - silver contacts



Curved actuator
IQR3V2



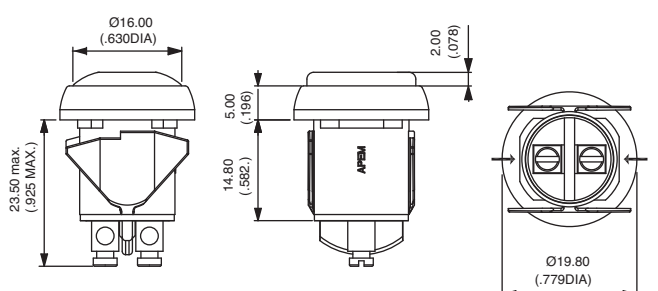
Normally open

Flat actuator
IQP3V2



Normally open

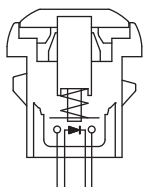
→ Flat



IQ series

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

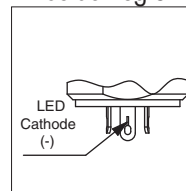
Square - illuminated



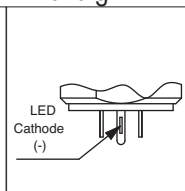
Function 3 (NO)

- Five LED colours
- Tin plated LED terminals
- Gold plated contacts (4 or 7)
See electrical specifications.
For high current, replace 4 with 7
in the part numbers below.

Solder lug S



Straight P



MODEL STRUCTURE



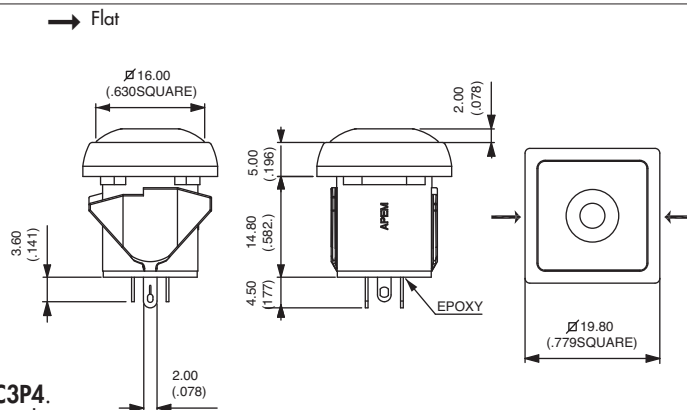
Solder lug terminals



IQC3S4



Normally Open



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

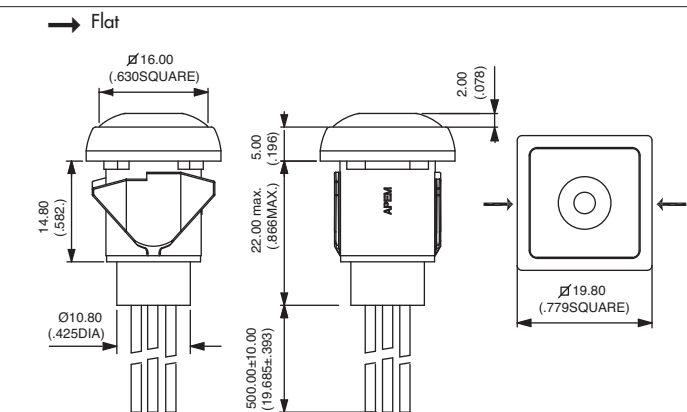
Sealed flying lead terminals



IQC3F4



Normally Open



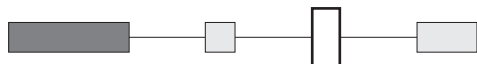
Wire colours : black : NO contact,
red : LED anode (+), blue : LED cathode (-)

ACTUATOR COLOUR



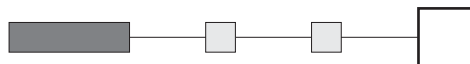
1 : blue - 2 : black - 3 : green - 4 : grey - 5 : yellow - 6 : red - 7 : white - 9 : orange - A : satin chrome - B : dark blue

BUSHING AND BEZEL FINISH



2 : black (standard)

LED COLOUR

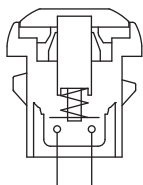


LOS : super red - LOY : yellow - LOG : green - LOB : blue
LOW : white - SG : red/green

IQ series

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

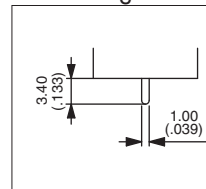
Square - non-illuminated



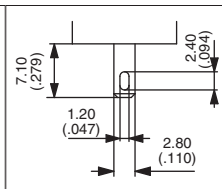
Function 3 (NO)

- Gold plated or silver contacts depending on terminal type
- Gold plated contacts (4 or 7)
See electrical specifications.
For high current, replace 4 with 7 in the part numbers below.

Straight P



Quick-connect Z



MODEL STRUCTURE



Solder lug terminals - gold plated contacts



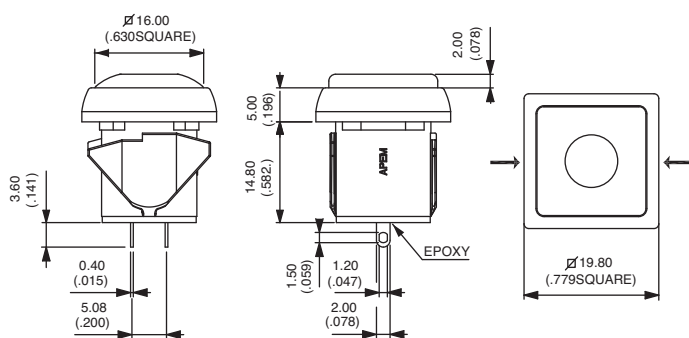
IQC3S4



Normally Open

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

→ Flat



Sealed flying lead terminals - gold plated contacts

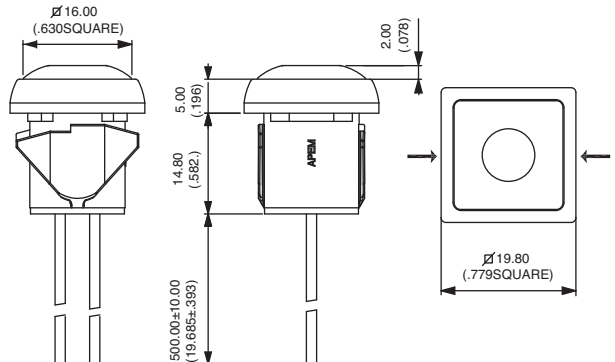


IQC3F4



Normally Open

→ Flat



Screw terminals - silver contacts

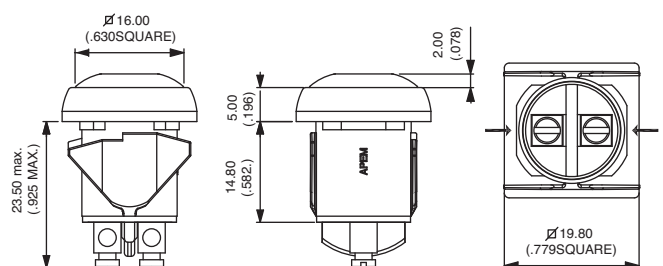


IQC3V2



Normally Open

→ Flat



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 mm²
- LED wire : AWG26, section 0,12 mm²
- Lens : polycarbonate
- Terminal seal : epoxy

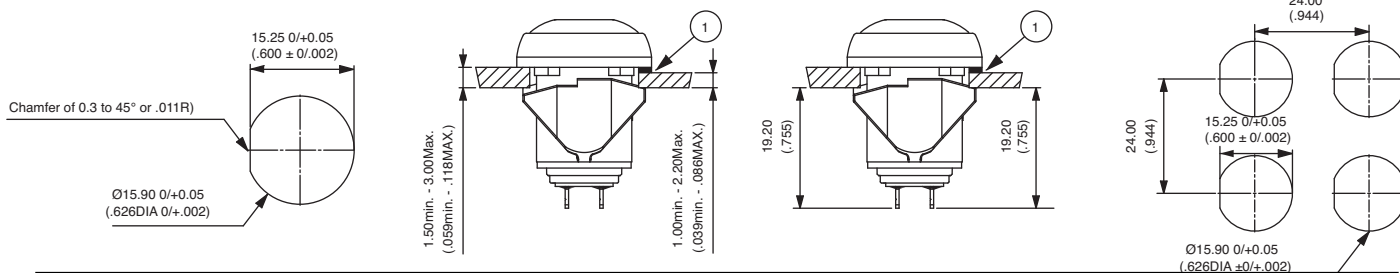
MOUNTING

Panel cut-out

① Flat seal

Back of panel space requirement

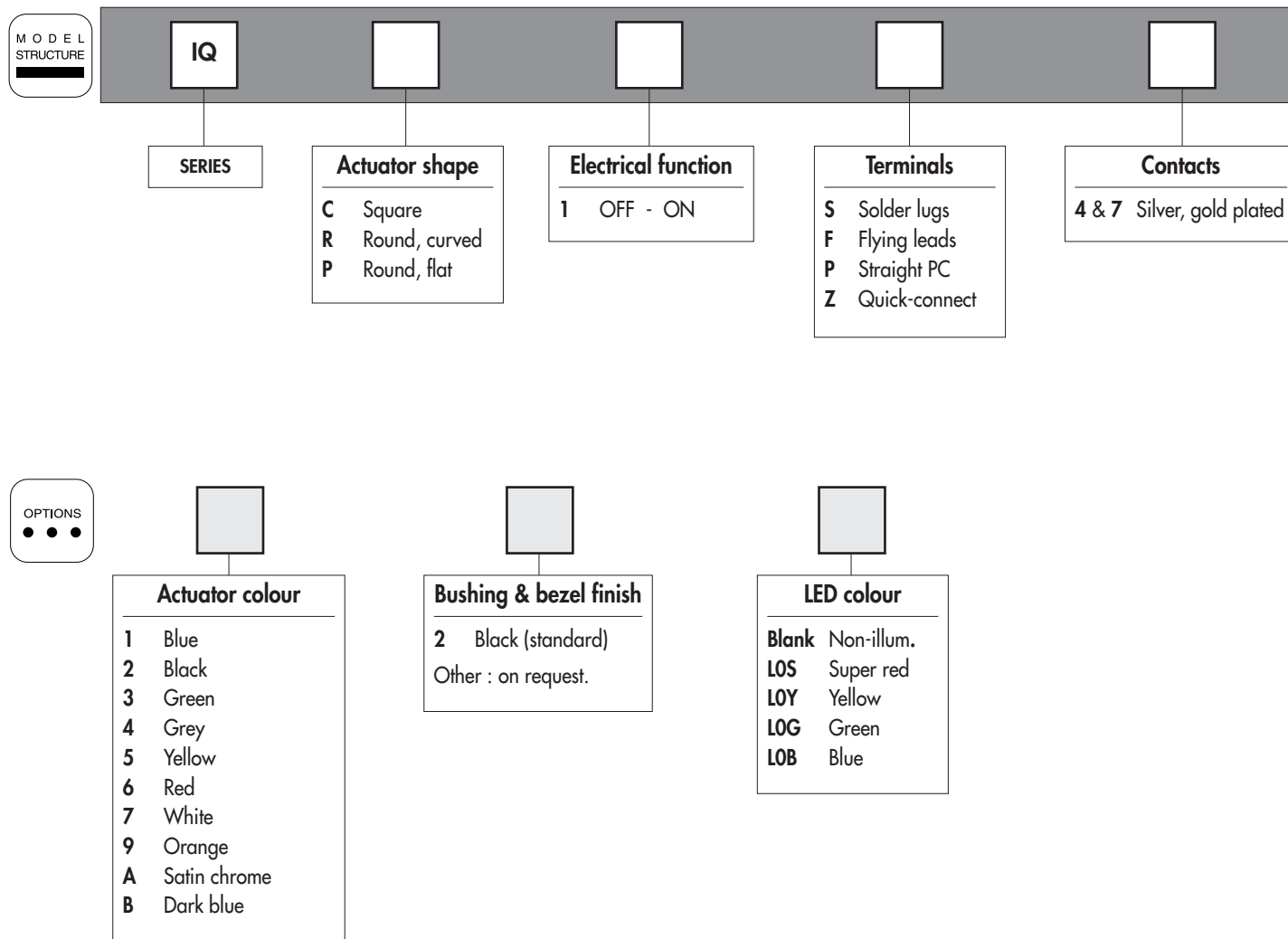
Matrix mounting



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

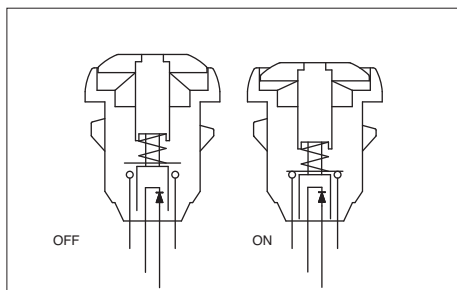


Packaging unit : 25 pieces for flying lead models - 40 pieces for other models

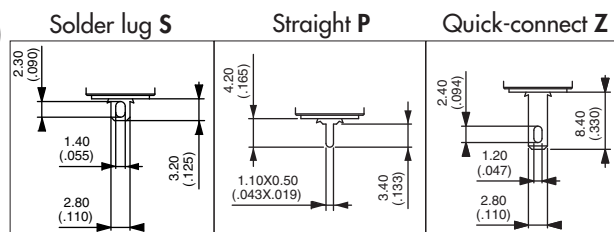
IQ series

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

Round - illuminated



- Four LED colours
- Tin plated LED terminals
- Gold plated contacts (4 or 7)
See electrical specifications.
For high current, replace 4 with 7 in the P/Ns below.



MODEL STRUCTURE



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

Solder lug terminals



Curved actuator
IQR1S4

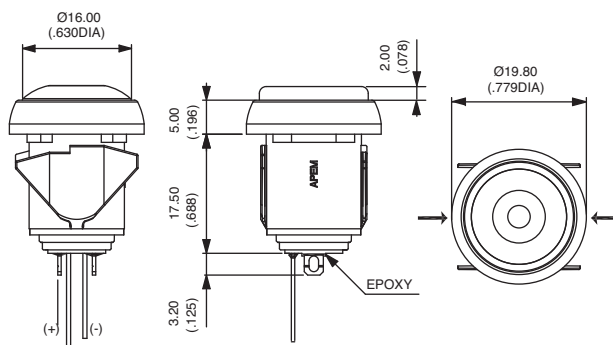
OFF - ON

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

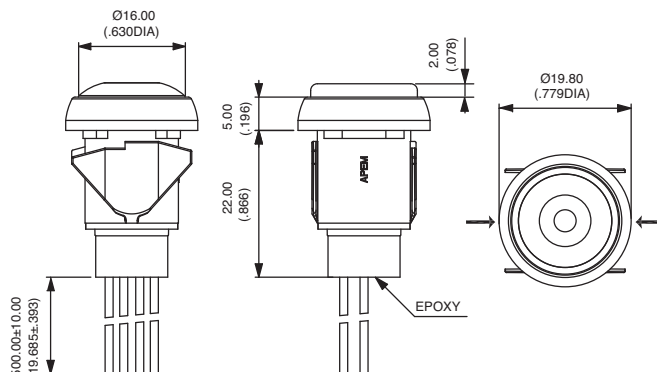
OFF - ON

Flat actuator
IQP1F4

OFF - ON

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

→ Flat

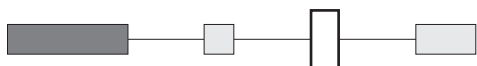


ACTUATOR COLOUR



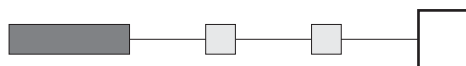
1 : blue - 2 : black - 3 : green - 4 : grey - 5 : yellow - 6 : red - 7 : white - 9 : orange - A : satin chrome - B : dark blue

BUSHING AND BEZEL FINISH



2 : black (standard)

LED COLOUR

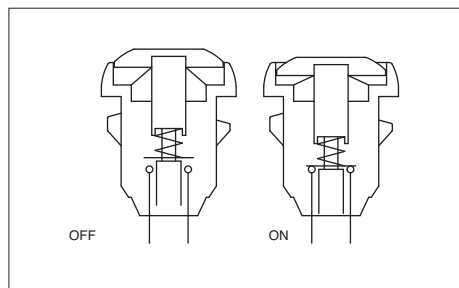


LOS : super red - LOY : yellow - LOG : green - LOB : blue

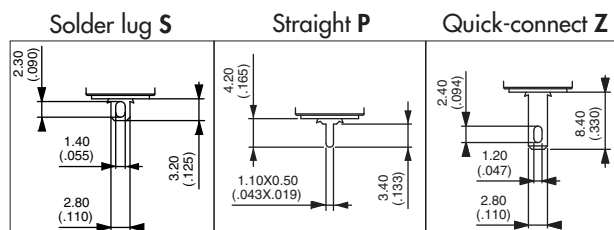
IQ series

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

Round - non-illuminated



- Gold plated contacts (4 or 7)
See electrical specifications.
For high current, replace 4 with 7 in the P/Ns below.



MODEL STRUCTURE



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

Solder lug terminals



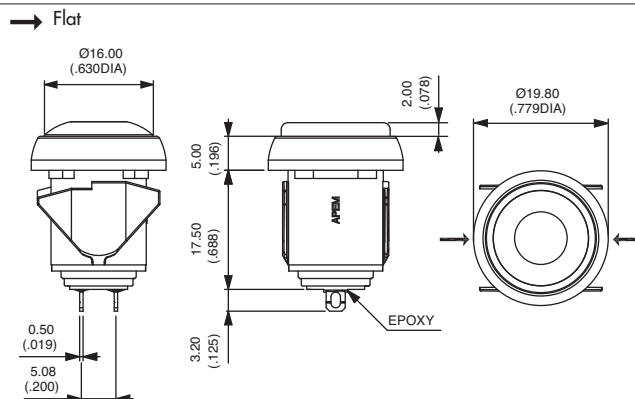
Curved actuator
IQR1S4

OFF - ON

Flat actuator
IQP1S4

OFF - ON

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



Sealed flying lead terminals

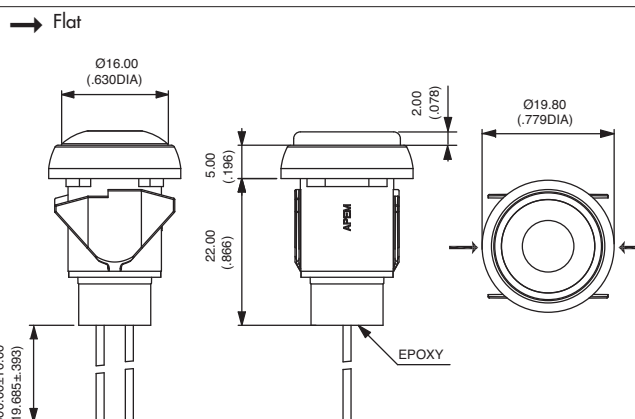


Curved actuator
IQR1F4

OFF - ON

Flat actuator
IQP1F4

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

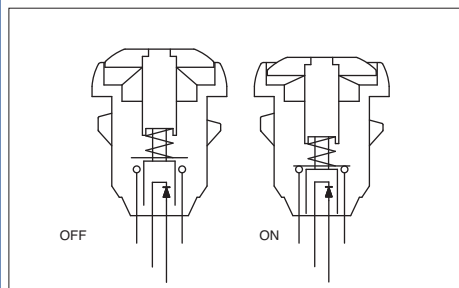


2 : black (standard)

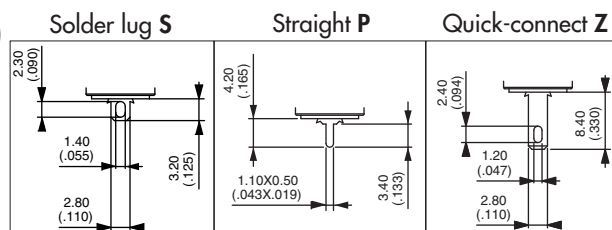
IQ series

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

Square - illuminated



- Four LED colours
- Tin plated LED terminals
- Gold plated contacts (4 or 7)
See electrical specifications.
For high current, replace 4 with 7 in the P/Ns below.



MODEL STRUCTURE



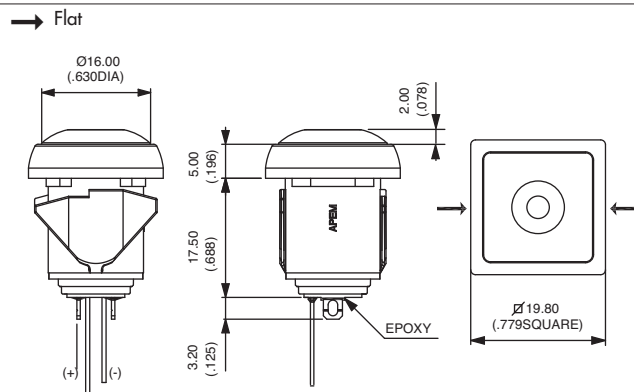
Solder lug terminals



Curved actuator
IQC1S4

OFF - ON

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



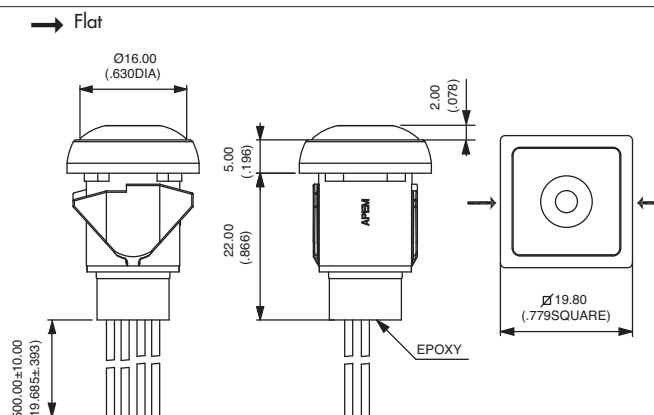
Sealed flying lead terminals



Curved actuator
IQC1F4

OFF - ON

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

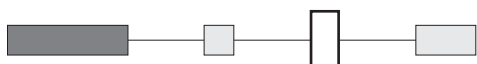


ACTUATOR COLOUR



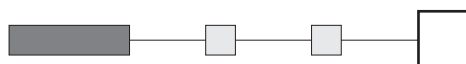
1 : blue - 2 : black - 3 : green - 4 : grey - 5 : yellow - 6 : red - 7 : white - 9 : orange - A : satin chrome - B : dark blue

BUSHING AND BEZEL FINISH



2 : black (standard)

LED COLOUR

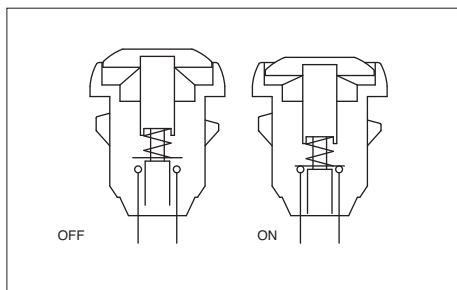


LOS : super red - LOY : yellow - LOG : green - LOB : blue

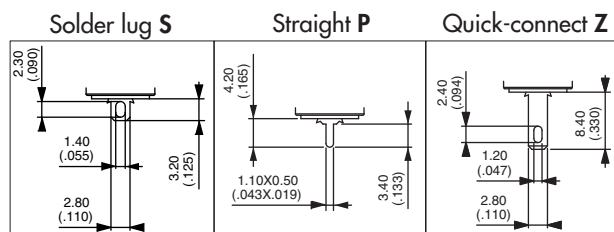
IQ series

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

Square - non-illuminated



- Gold plated contacts (4 or 7)
See electrical specifications.
For high current, replace 4 with 7 in the P/Ns below.



MODEL STRUCTURE



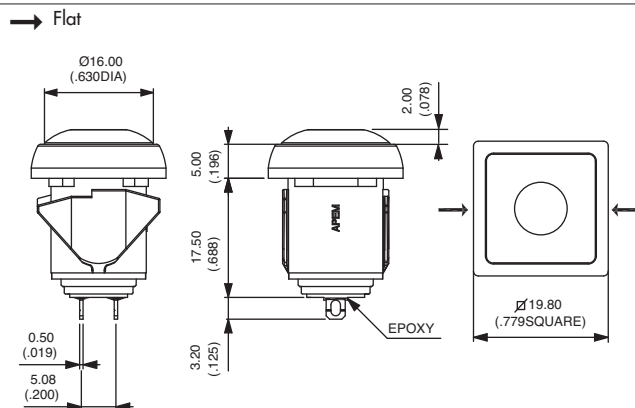
Solder lug terminals



Curved actuator
IQC1S4

OFF - ON

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

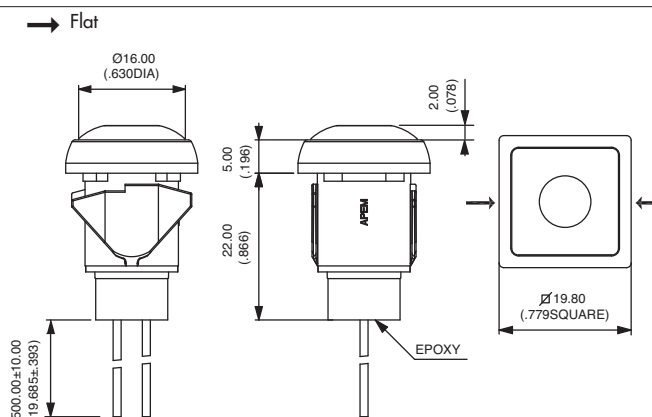


Sealed flying lead terminals



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)