

IR series

Sealed pushbutton switches - bushing Ø 16 mm - momentary

Distinctive features

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

Common features

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

Standard versions

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



NO - Screw terminals



NO - Illuminated
Flying lead terminals



NO - Solder lug
terminals

Microswitch versions

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



NC+NO - 3 terminals



NC/NO - 4 terminals - Illuminated

Optional marking

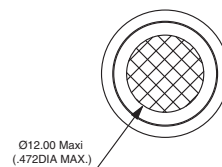
Actuator marking is available on request for models with flat round actuator.



Standard version

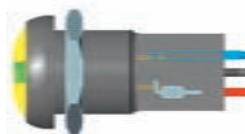


Microswitch version



Integrated resistor

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





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

ENVIRONMENTAL SPECIFICATIONS

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

ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load :
 - Gold plated silver contacts (code 4) : 200mA 48VDC
 - 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 (LOS)	20mA	2,1V	2,3V
Yellow (LOY)	20mA	2,1V	2,3V
Green (LOG)	20mA	2,1V	2,3V
Blue (LOB)	20mA	3,2V	3,8V
White (LOW)	20mA	3,35V	4,25V

A resistor must be series-connected by the user.

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

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

GENERAL SPECIFICATIONS

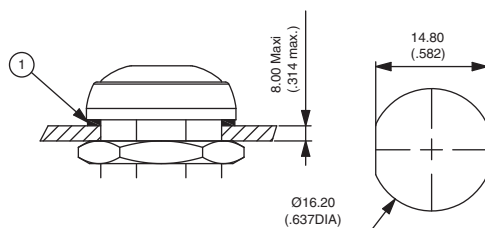
- Panel thickness : 8 mm (.314) max.
- Total travel : 1,6 mm (.062) +/- 0,3 mm
- Typical operating force : 4N +/- 2N
- Low level or mechanical life : 1.000.000 cycles
- Torque : 0,8 Nm max. applied to nut
- Soldering : 320°C max. for 3 sec.

MATERIALS

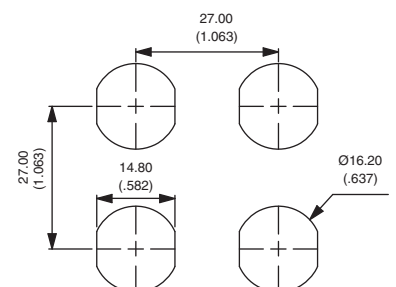
- Case : thermoplastic UL94-V0
- Actuator : polyamide 6/6
- Bushing/bezel : polyamide 6/6
- Contacts :
 - 4 : silver, gold plated
 - 2 : silver (screw terminals)
- Multi-wire lead AWG20, section 0,6 mm²
- LED wire : AWG26, section 0,12 mm²
- Lens : polycarbonate
- Terminal seal : epoxy

PANEL CUT-OUT

① Flat seal



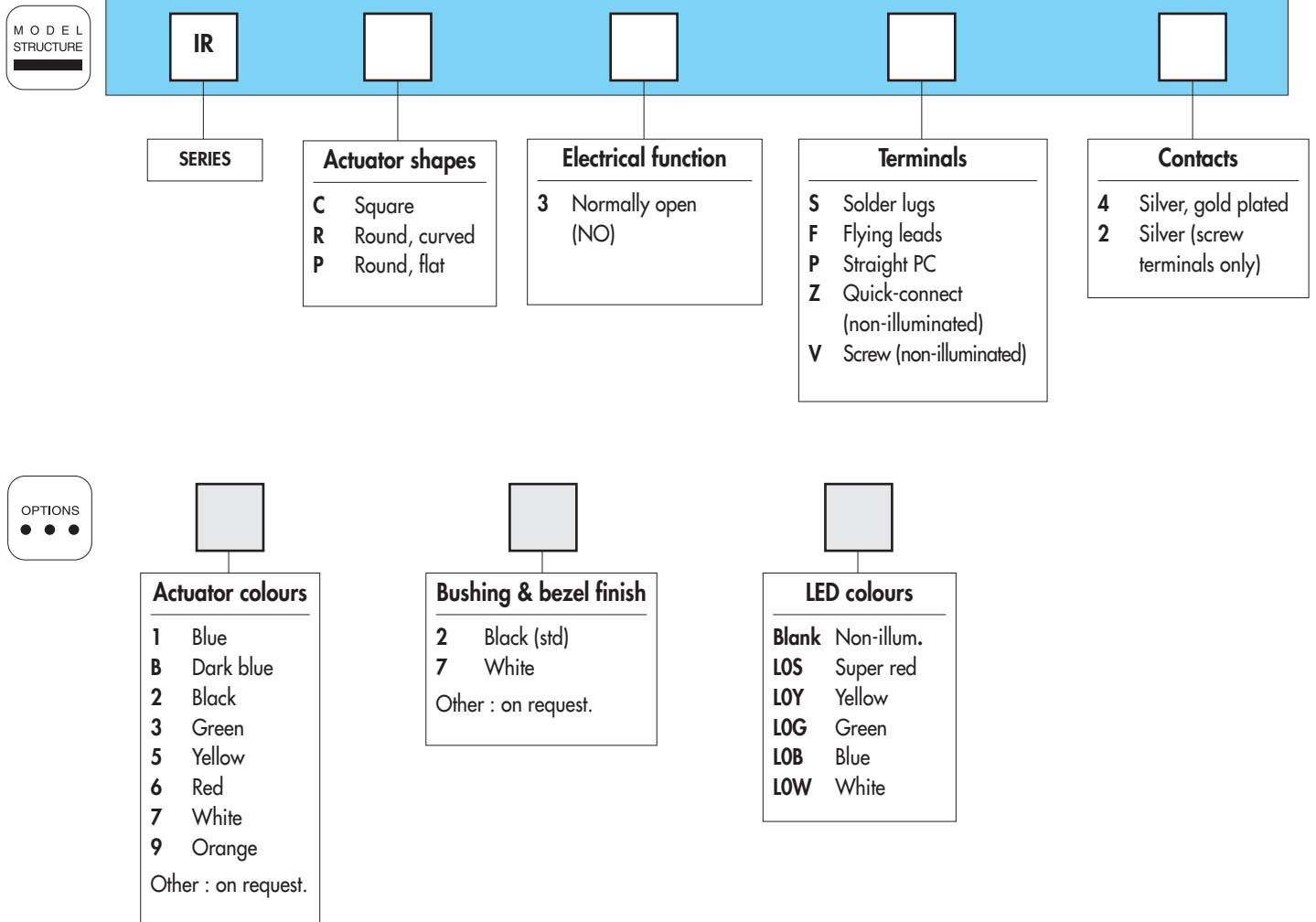
MATRIX MOUNTING



IR series

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

Overview



ABOUT THIS SERIES

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

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



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



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

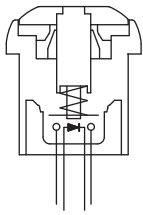


Packaging unit : 25 pieces for flying lead models - 40 pieces for other models

IR series

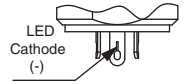
Sealed pushbutton switches - bushing Ø 16 mm - momentary - standard version

Round - illuminated

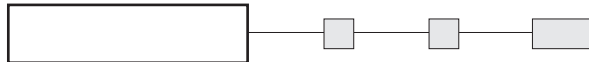


Function 3 (NO)

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



MODEL STRUCTURE



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

Solder lug terminals

→ Flat



Curved actuator
IRR3S4



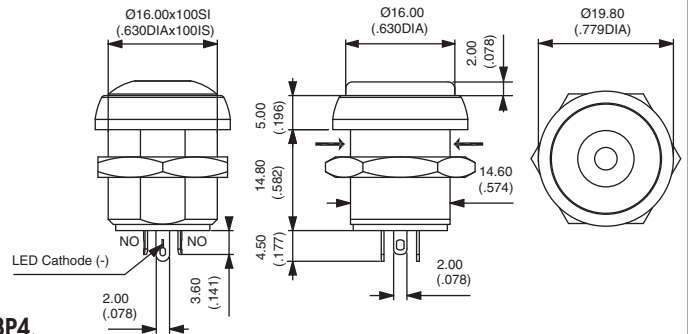
Normally Open

Flat actuator
IRP3S4



Normally Open

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



Sealed flying lead terminals

→ Flat



Curved actuator
IRR3F4



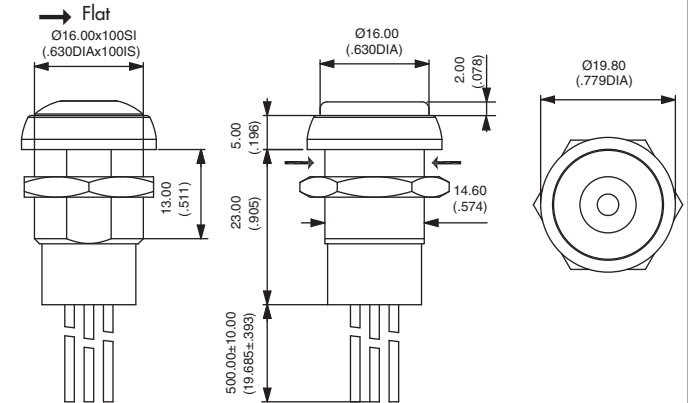
Normally Open

Flat actuator
IRP3F4



Normally Open

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

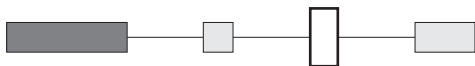


ACTUATOR COLOURS



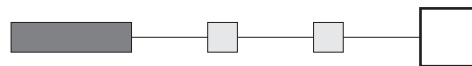
1 : blue - B : dark blue - 2 : black - 3 : green - 5 : yellow - 6 : red - 7 : white - 9 : orange

BUSHING AND BEZEL FINISH



2 : black (standard) - 7 : white

LED COLOURS

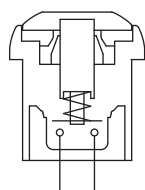


LOS : super red - LOY : yellow - LOG : green - LOB : blue
LOW : white

IR series

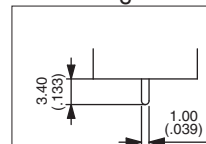
Sealed pushbutton switches - bushing Ø 16 mm - momentary - standard version

Round - non-illuminated

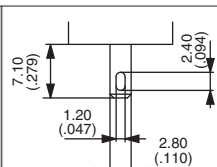


Function 3 (NO)

Straight P



Quick-connect Z



MODEL STRUCTURE



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

Solder lug terminals - gold plated contacts

→ Flat



Curved actuator
IRR3S4

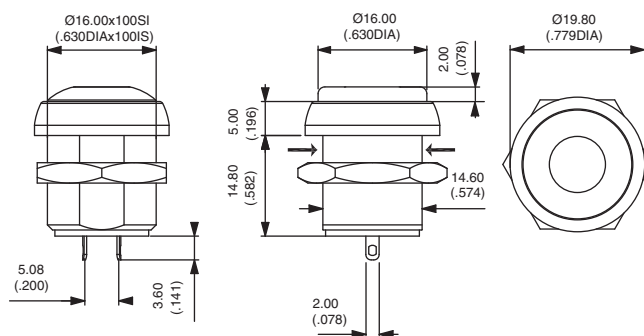


Normally open

Flat actuator
IRP3S4



Normally open



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

Sealed flying lead terminals - gold plated contacts

→ Flat



Curved actuator
IRR3F4

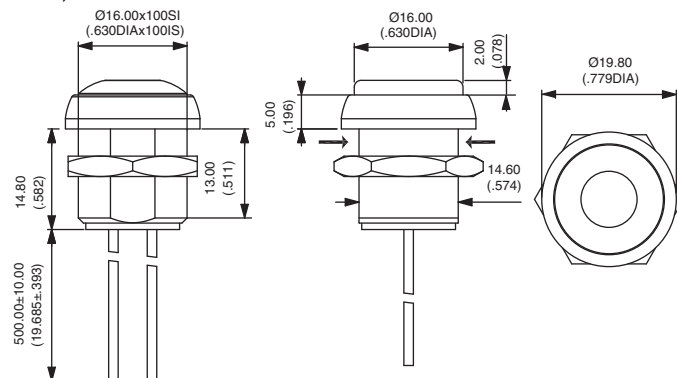


Normally open

Flat actuator
IRP3F4



Normally open



Screw terminals - silver contacts

→ Flat



Curved actuator
IRR3V2

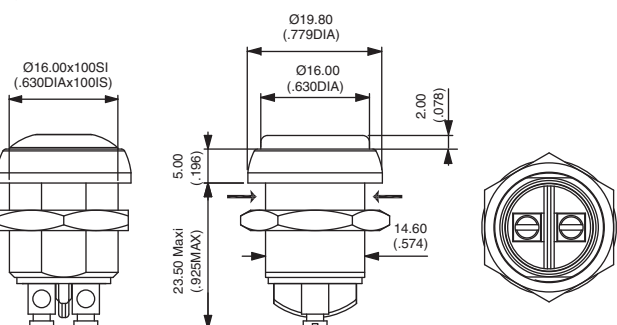


Normally open

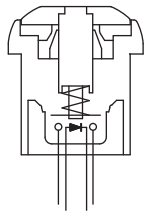
Flat actuator
IRP3V2



Normally open

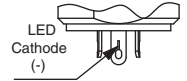


Actuator colour and bushing/bezel finish : select the desired codes on previous page.

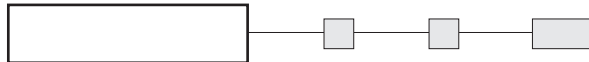


Function 3 (NO)

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



MODEL STRUCTURE



B1

Solder lug terminals



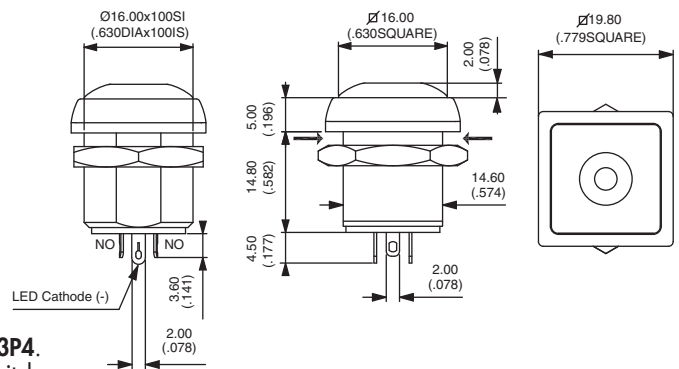
IRC3S4



Normally Open

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

→ Flat



Sealed flying lead terminals



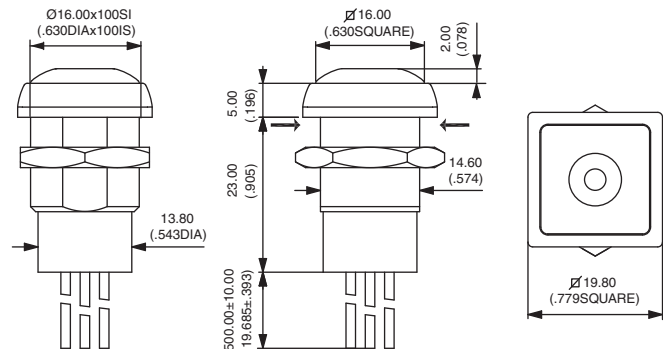
IRC3F4



Normally Open

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

→ Flat

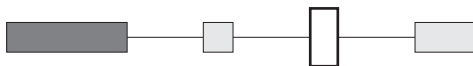


ACTUATOR COLOURS



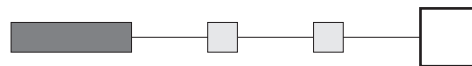
1 : blue - B : dark blue - 2 : black - 3 : green - 5 : yellow - 6 : red - 7 : white - 9 : orange

BUSHING AND BEZEL FINISH



2 : black (standard) - 7 : white

LED COLOURS

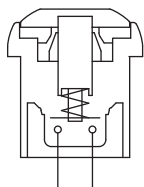


L0S : super red - L0Y : yellow - L0G : green - L0B : blue
L0W : white

IR series

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

Square - non-illuminated



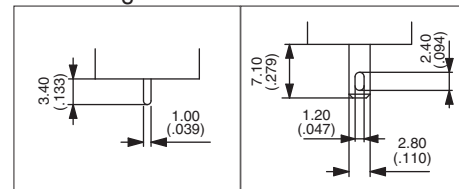
Function 3 (NO)

MODEL
STRUCTURE



Straight P

Quick-connect Z



Solder lug terminals - gold plated contacts



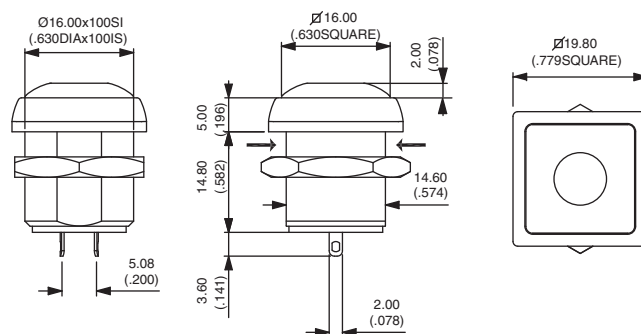
IRC3S4



Normally Open

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

→ Flat



Sealed flying lead terminals - gold plated contacts

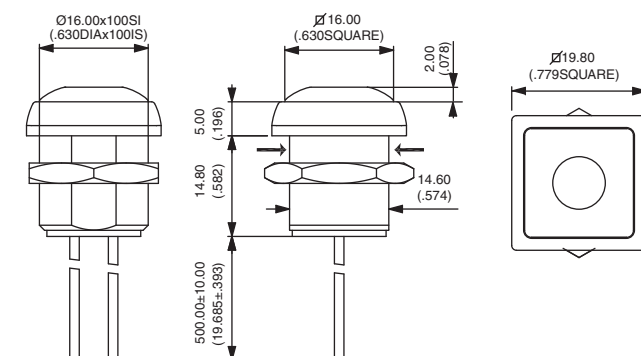


IRC3F4



Normally Open

→ Flat



Screw terminals - silver contacts

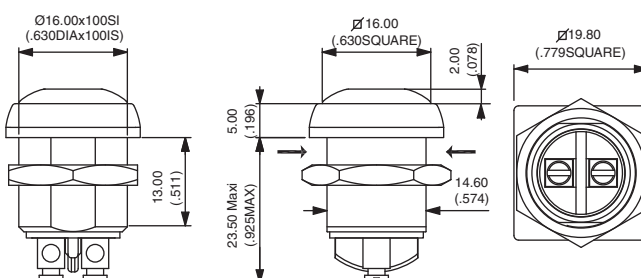


IRC3V2

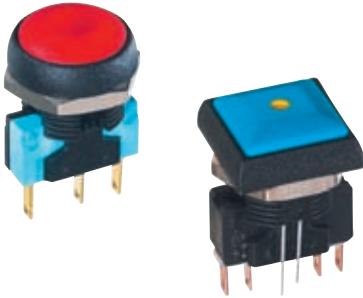


Normally Open

→ Flat



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



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

ENVIRONMENTAL SPECIFICATIONS

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

ELECTRICAL SPECIFICATIONS

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

LED COMPONENT SPECIFICATIONS

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

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

GENERAL SPECIFICATIONS

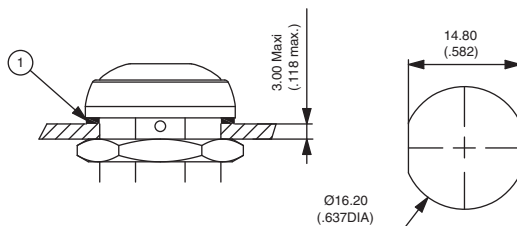
- Panel thickness : 3 mm (.118) max.
- Total travel : 1,6 mm (.062) +/- 0,3 mm
- Typical operating force : 4N +/- 2N
- Mechanical life : 1.000.000 cycles
- Torque : 0,8 Nm max. applied to nut
- Soldering : 320°C max. for 3 sec.

MATERIALS

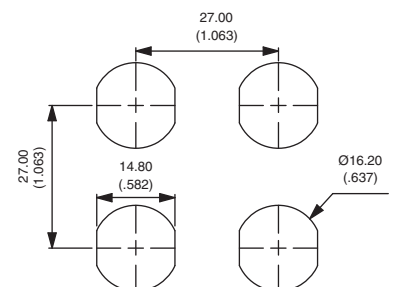
- Case : thermoplastic UL94-V0
- Actuator : polyamide 6/6
- Bushing/bezel : polyamide 6/6
- Contacts : silver
- Lens : polycarbonate

PANEL CUT-OUT

① Flat seal



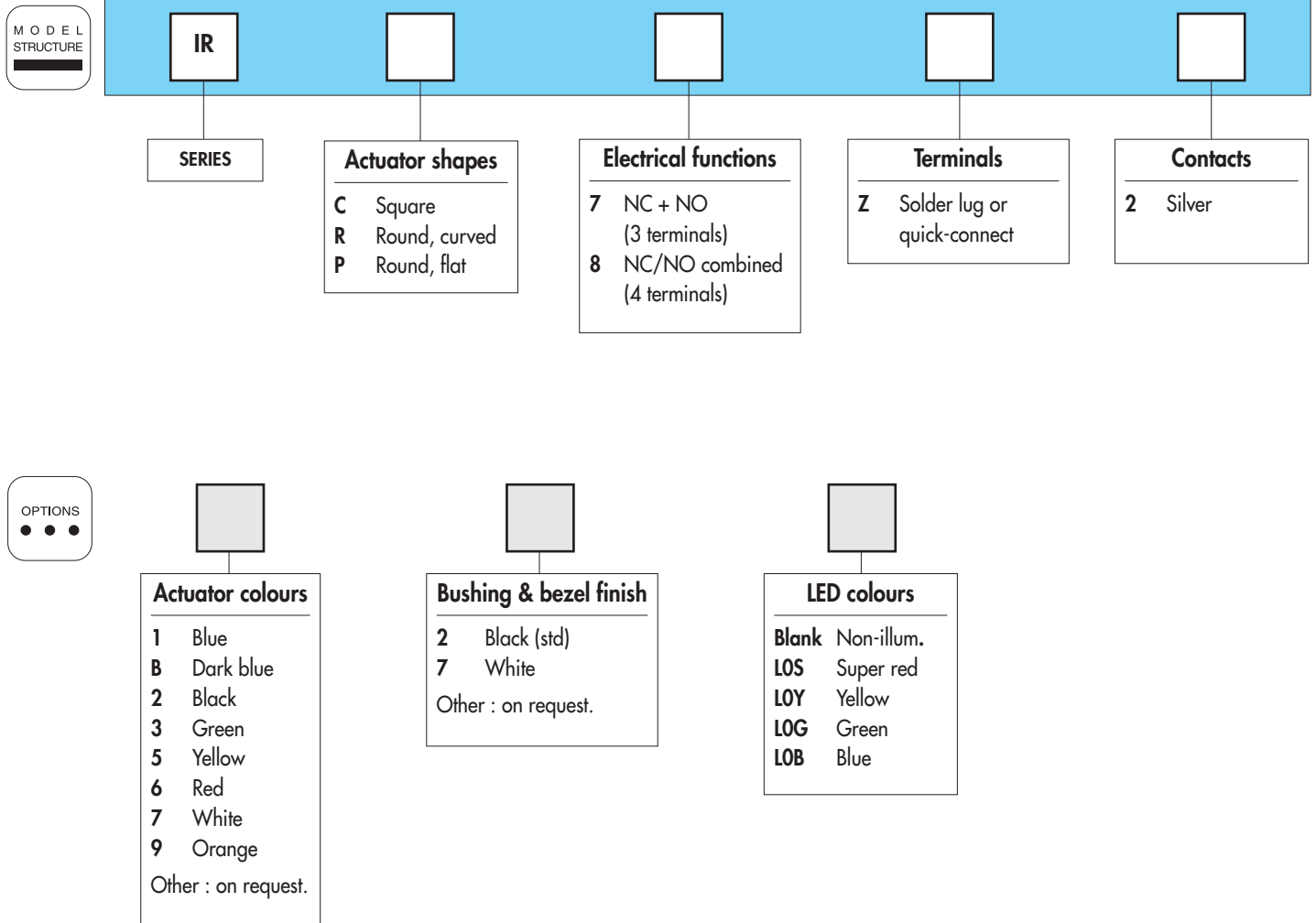
MATRIX MOUNTING



IR series

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

Overview



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

ABOUT THIS SERIES

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

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



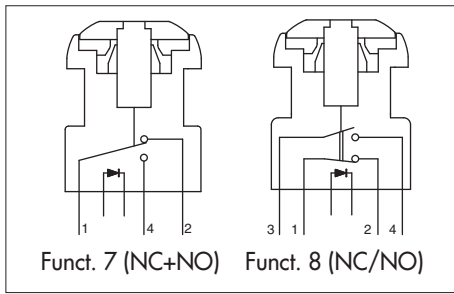
NOTICE : please note that not all combinations of above numbers are available.
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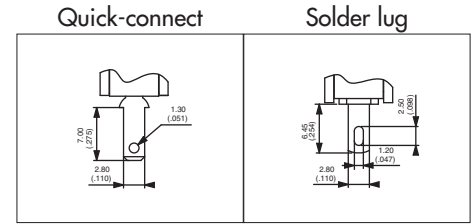
Mounting accessories : Standard hardware supplied : 1 hex nut 19 mm (.748) across flats and 1 flat seal.
Hex nut P/N : U4116



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

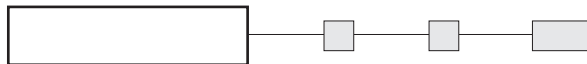


- Four LED colours
- Tin plated LED terminals
- Silver contacts



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

MODEL STRUCTURE



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

Quick-connect terminals - NC+NO - 3 terminals

→ Flat



Curved actuator
IRR7Z2

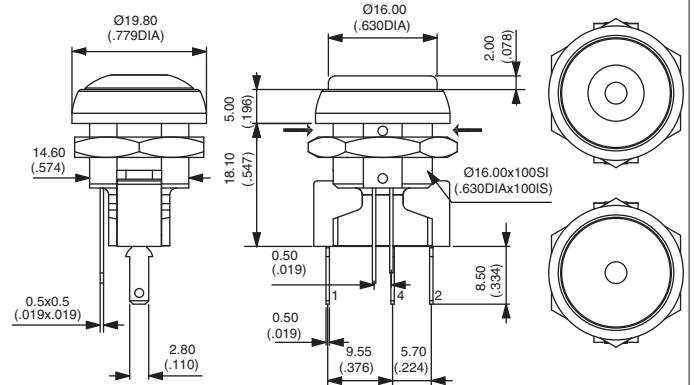


NC+NO

Flat actuator
IRP7Z2



NC+NO



Solder lug terminals - NC/NO - 4 terminals

→ Flat



Curved actuator
IRR8Z2

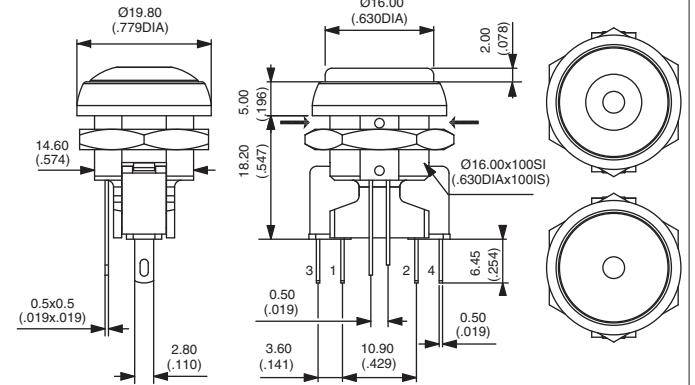


NC/NO combined

Flat actuator
IRP8Z2



NC/NO combined



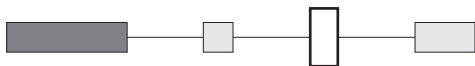
Terminals should be used as solder lugs only.

ACTUATOR COLOURS



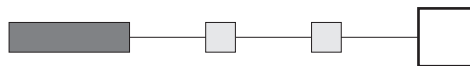
1 : blue - B : dark blue - 2 : black - 3 : green - 5 : yellow - 6 : red - 7 : white - 9 : orange

BUSHING AND BEZEL FINISH



2 : black (standard) - 7 : white

LED COLOURS

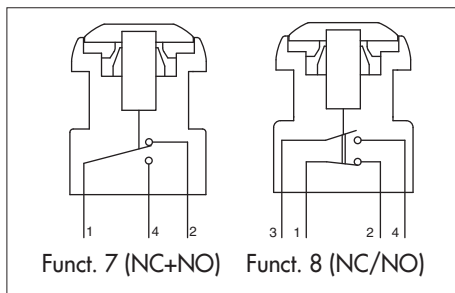


LOS : super red - LOY : yellow - LOG : green - LOB : blue

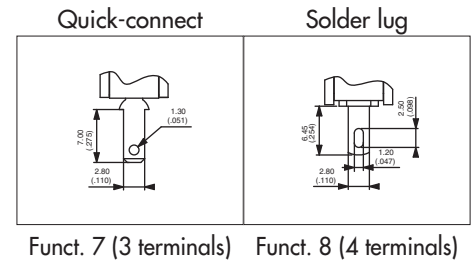
IR series

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

Round - non-illuminated



• Silver contacts



MODEL
STRUCTURE



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

Quick-connect terminals - NC+NO - 3 terminals

→ Flat



Curved actuator
IRR7Z2

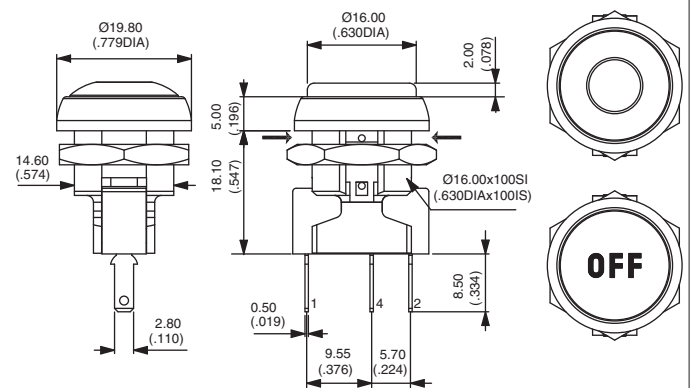


NC+NO

Flat actuator
IRP7Z2



NC+NO



Solder lug terminals - NC/NO - 4 terminals

→ Flat



Curved actuator
IRR8Z2

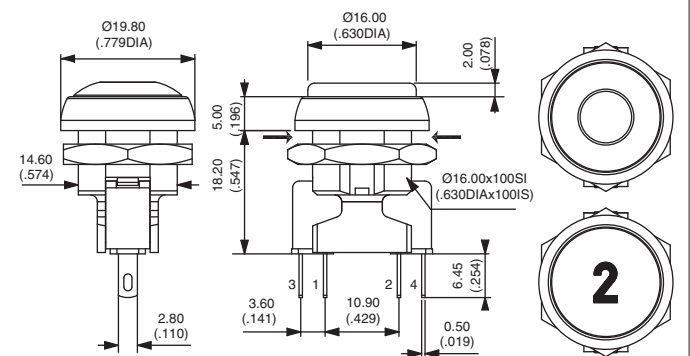


NC/NO combined

Flat actuator
IRP8Z2



NC/NO combined



Terminals should be used as solder lugs only.

ACTUATOR COLOURS



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

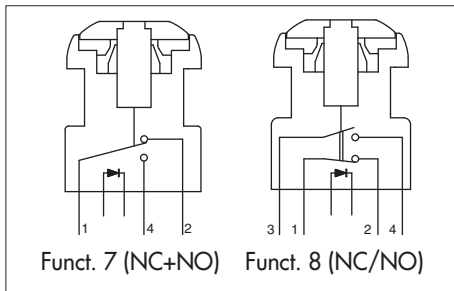
BUSHING AND BEZEL FINISH



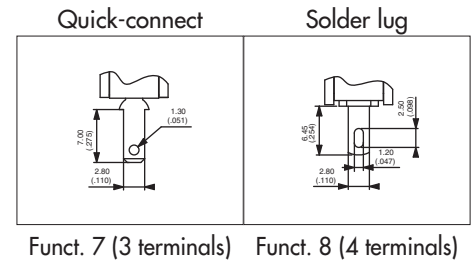
2 : black (standard) - 7 : white

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

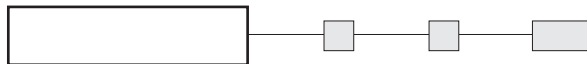
Square - illuminated



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



MODEL STRUCTURE

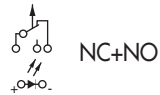


B1

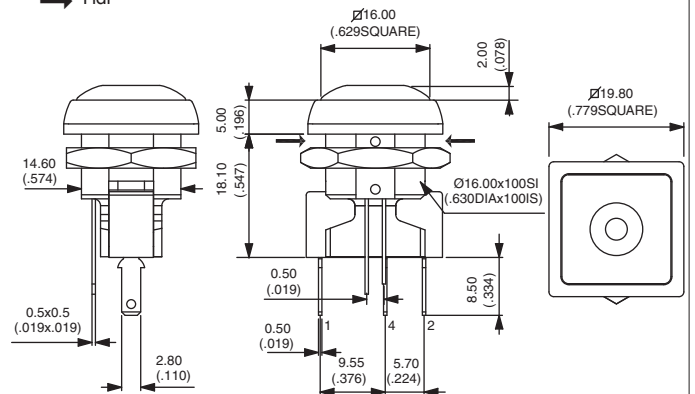
Quick-connect terminals - NC+NO - 3 terminals



IRC7Z2



→ Flat



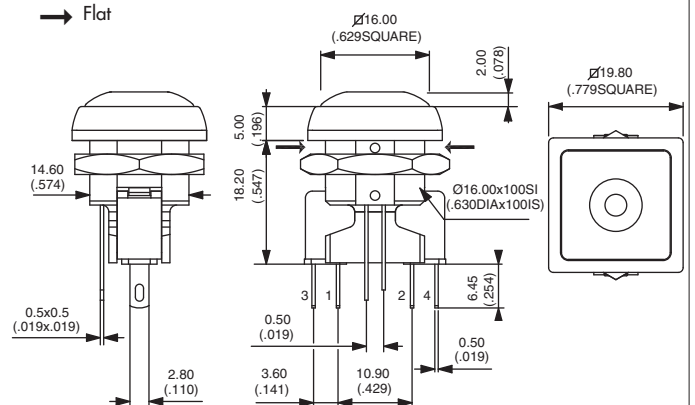
Solder lug terminals - NC/NO - 4 terminals



IRC8Z2



→ Flat



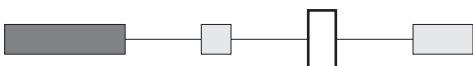
Terminals should be used as solder lugs only.

ACTUATOR COLOURS



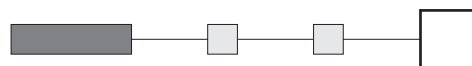
1 : blue - B : dark blue - 2 : black - 3 : green - 5 : yellow - 6 : red - 7 : white - 9 : orange

BUSHING AND BEZEL FINISH



2 : black (standard) - **7** : white

LED COLOURS

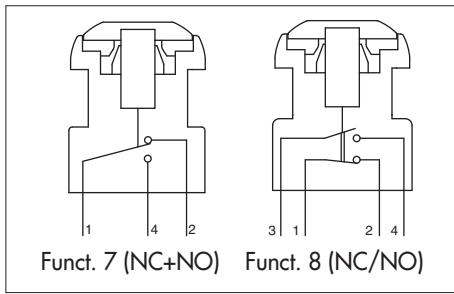


LOS : super red - **LOY** : yellow - **LOG** : green - **LOB** : blue

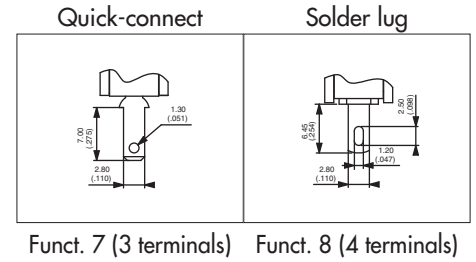
IR series

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

Square - non-illuminated



• Silver contacts



MODEL
STRUCTURE



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

Quick-connect terminals - NC+NO - 3 terminals

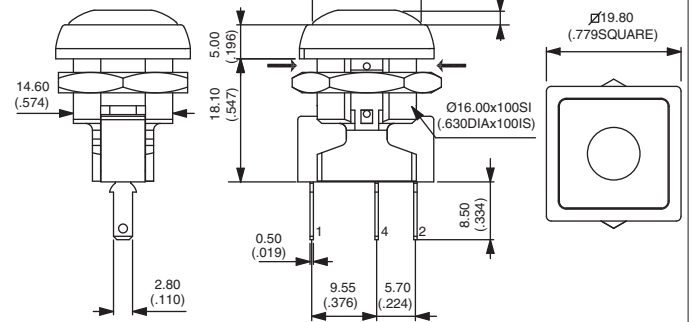
→ Flat



IRC7Z2



NC+NO



Solder lug terminals - NC/NO - 4 terminals

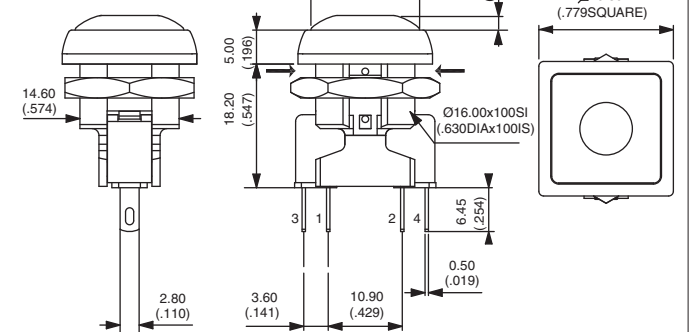
→ Flat



IRC8Z2



NC/NO combined



Terminals should be used as solder lugs only.

ACTUATOR COLOURS



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

BUSHING AND BEZEL FINISH



2 : black (standard) - 7 : white

IR series

Sealed pushbutton switches - bushing Ø 16 mm - latching

Distinctive features and specifications



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

ENVIRONMENTAL SPECIFICATIONS

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

ELECTRICAL SPECIFICATIONS

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

LED COMPONENT SPECIFICATIONS

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

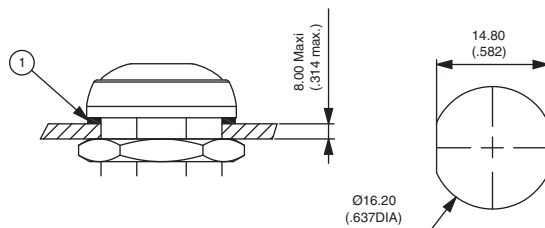
- Panel thickness : 8 mm (.314) max.
- Total travel : 2,5 mm (.098) +/- 0,3 mm
- Typical operating force : 5N +/- 2N
- Low level or mechanical life : 200.000 cycles
- Torque : 0,8 Nm max. applied to nut
- Soldering : 320°C max. for 3 sec.

MATERIALS

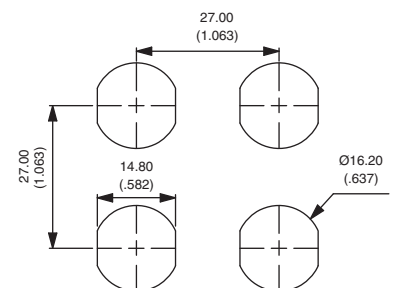
- Case : thermoplastic UL94-V0
- Plunger : polyamide
- Bushing/bezel : polyamide
- Contacts : silver, gold plated
- Multi-wire lead AWG20, section 0,6 mm²
- LED wire : AWG26, section 0,12 mm²
- Lens : polycarbonate
- Terminal seal : epoxy

PANEL CUT-OUT

① Flat seal



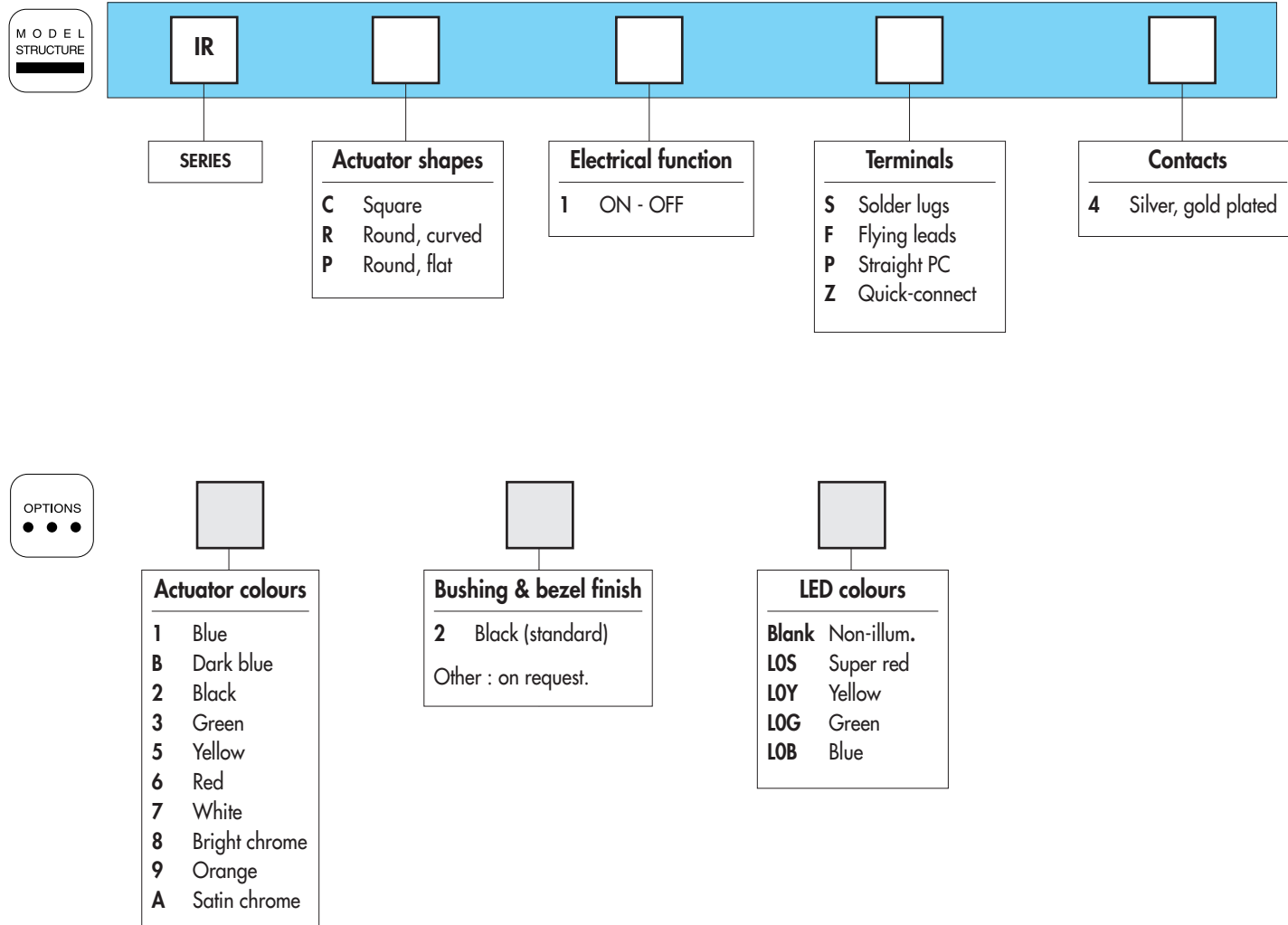
MATRIX MOUNTING



IR series

Sealed pushbutton switches - bushing Ø 16 mm - latching

Overview



ABOUT THIS SERIES

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

Dimensions : first dimensions are in mm while inches are shown as 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 hex nut 19 mm (.748) across flats and 1 flat seal
Hex nut P/N U4116.

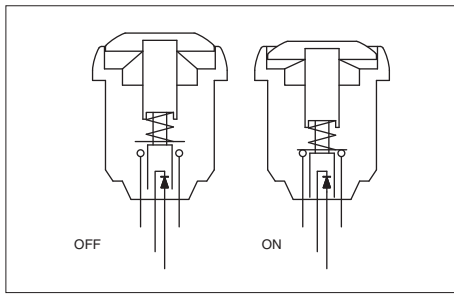


Packaging unit : 25 pieces for flying lead models - 40 pieces for other models

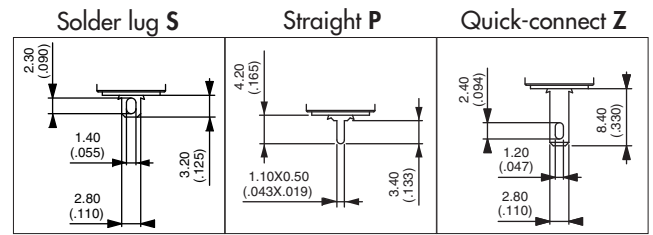
IR series

Sealed pushbutton switches - bushing Ø 16 mm - latching

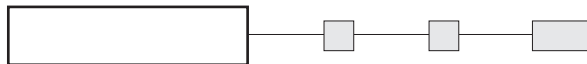
Round - illuminated



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



MODEL STRUCTURE



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

Solder lug terminals



Curved actuator
IRR1S4

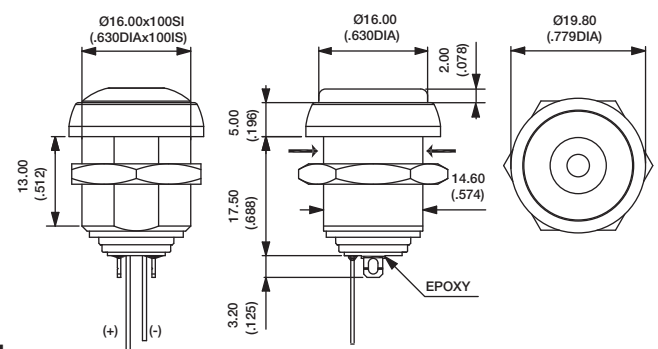
OFF - ON

Flat actuator
IRP1S4

OFF - ON

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

→ Flat



Sealed flying lead terminals



Curved actuator
IRR1F4

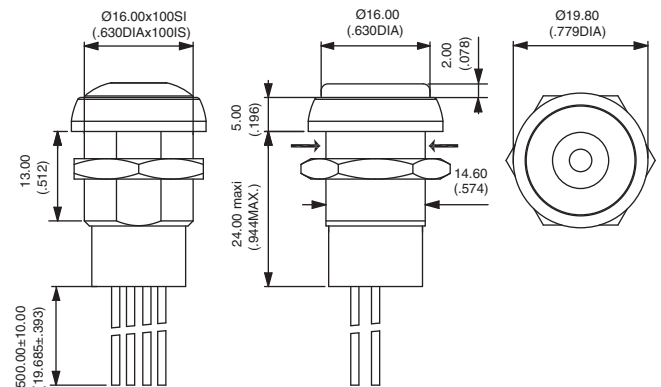
OFF - ON

Flat actuator
IRP1F4

OFF - ON

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

→ Flat

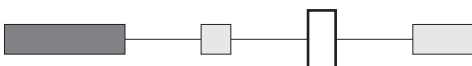


ACTUATOR COLOURS



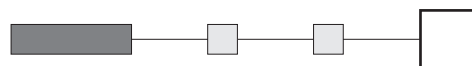
1 : blue - B : dark blue - 2 : black - 3 : green - 5 : yellow - 6 : red - 7 : white - 8 : bright chrome - 9 : orange
A : satin chrome

BUSHING AND BEZEL FINISH



2 : black (standard)

LED COLOURS

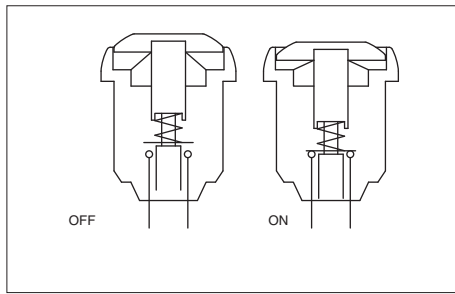


L0S : super red - L0Y : yellow - L0G : green - L0B : blue

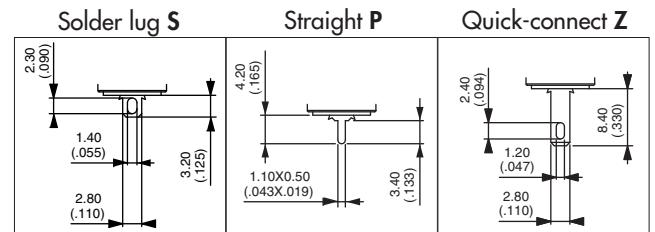
IR series

Sealed pushbutton switches - bushing Ø 16 mm - latching

Round - non-illuminated



- Gold plated contacts



MODEL STRUCTURE



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

Solder lug terminals



Curved actuator
IRR1S4

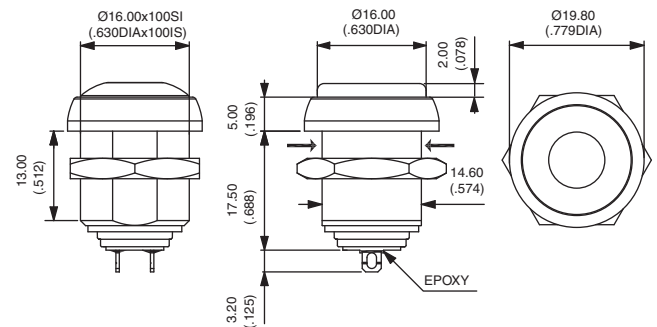
OFF - ON

Flat actuator
IRP1S4

OFF - ON

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

→ Flat



Sealed flying lead terminals



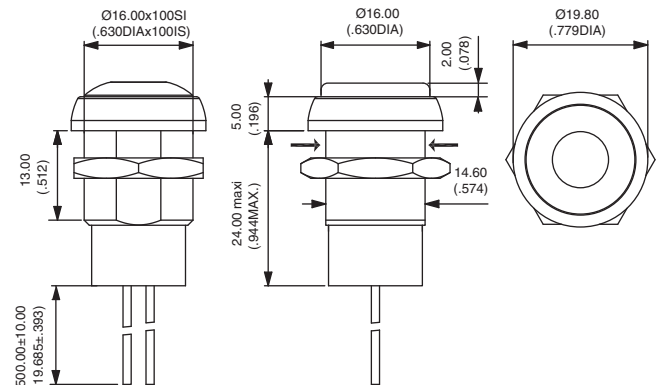
Curved actuator
IRR1F4

OFF - ON

Flat actuator
IRP1F4

OFF - ON

→ Flat



ACTUATOR COLOURS



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

BUSHING AND BEZEL FINISH

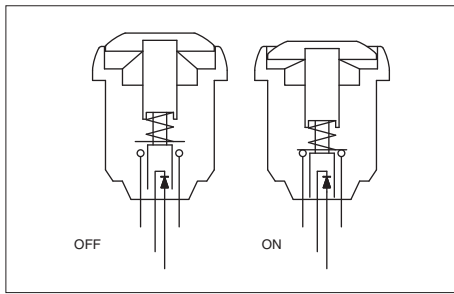


2 : black (standard)

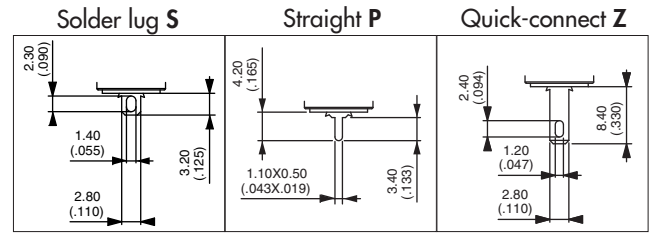
IR series

Sealed pushbutton switches - bushing Ø 16 mm - latching

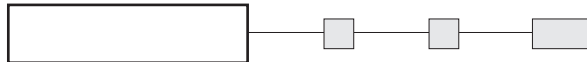
Square - illuminated



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



MODEL
STRUCTURE



Solder lug terminals

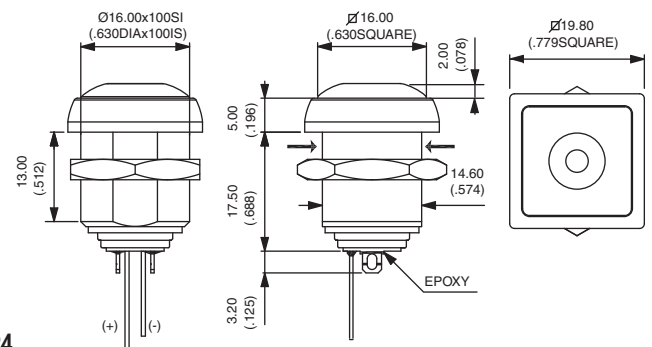


Curved actuator
IRC154

OFF - ON

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

→ Flat



Sealed flying lead terminals

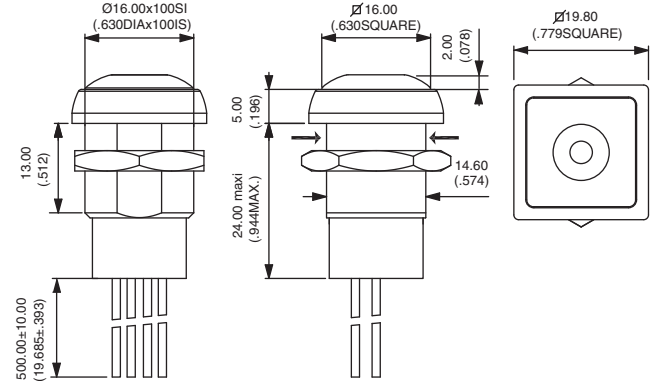


Curved actuator
IRC1F4

OFF - ON

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

→ Flat

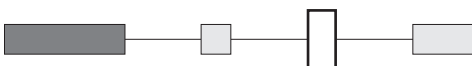


ACTUATOR COLOURS



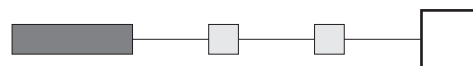
1 : blue - B : dark blue - 2 : black - 3 : green - 5 : yellow - 6 : red - 7 : white - 8 : bright chrome - 9 : orange
A : satin chrome

BUSHING AND BEZEL FINISH



2 : black (standard)

LED COLOURS



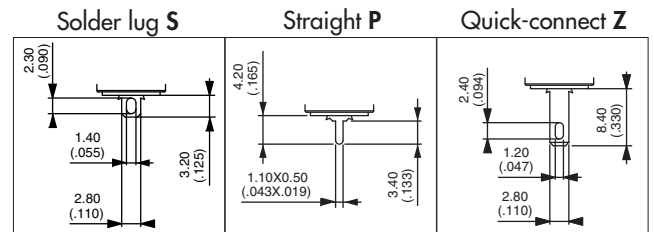
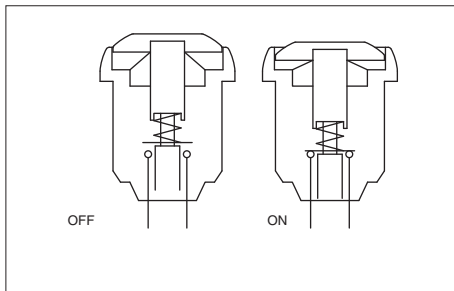
L0S : super red - L0Y : yellow - L0G : green - L0B : blue

IR series

Sealed pushbutton switches - bushing Ø 16 mm - latching

Square - non-illuminated

- Gold plated contacts



MODEL
STRUCTURE



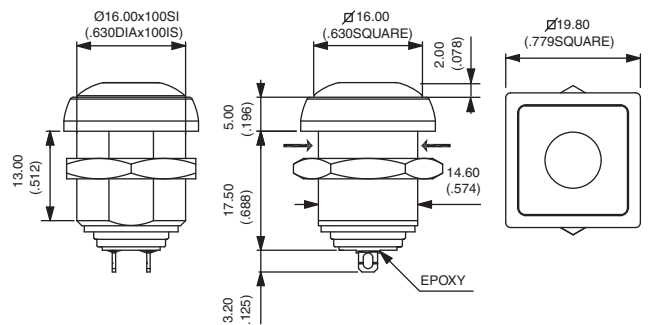
Solder lug terminals

→ Flat



Curved actuator
IRC154

OFF - ON



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

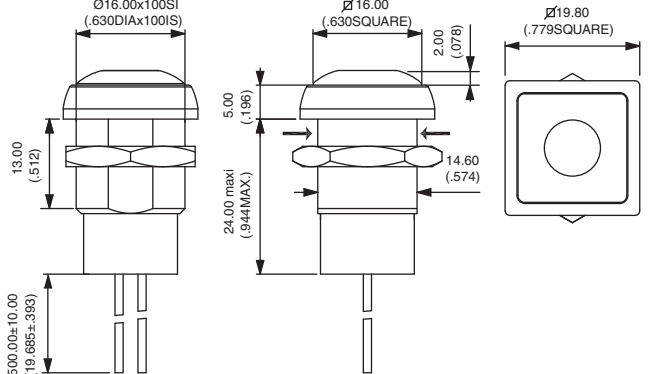
Sealed flying lead terminals

→ Flat



Curved actuator
IRC1F4

OFF - ON



ACTUATOR COLOURS



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)