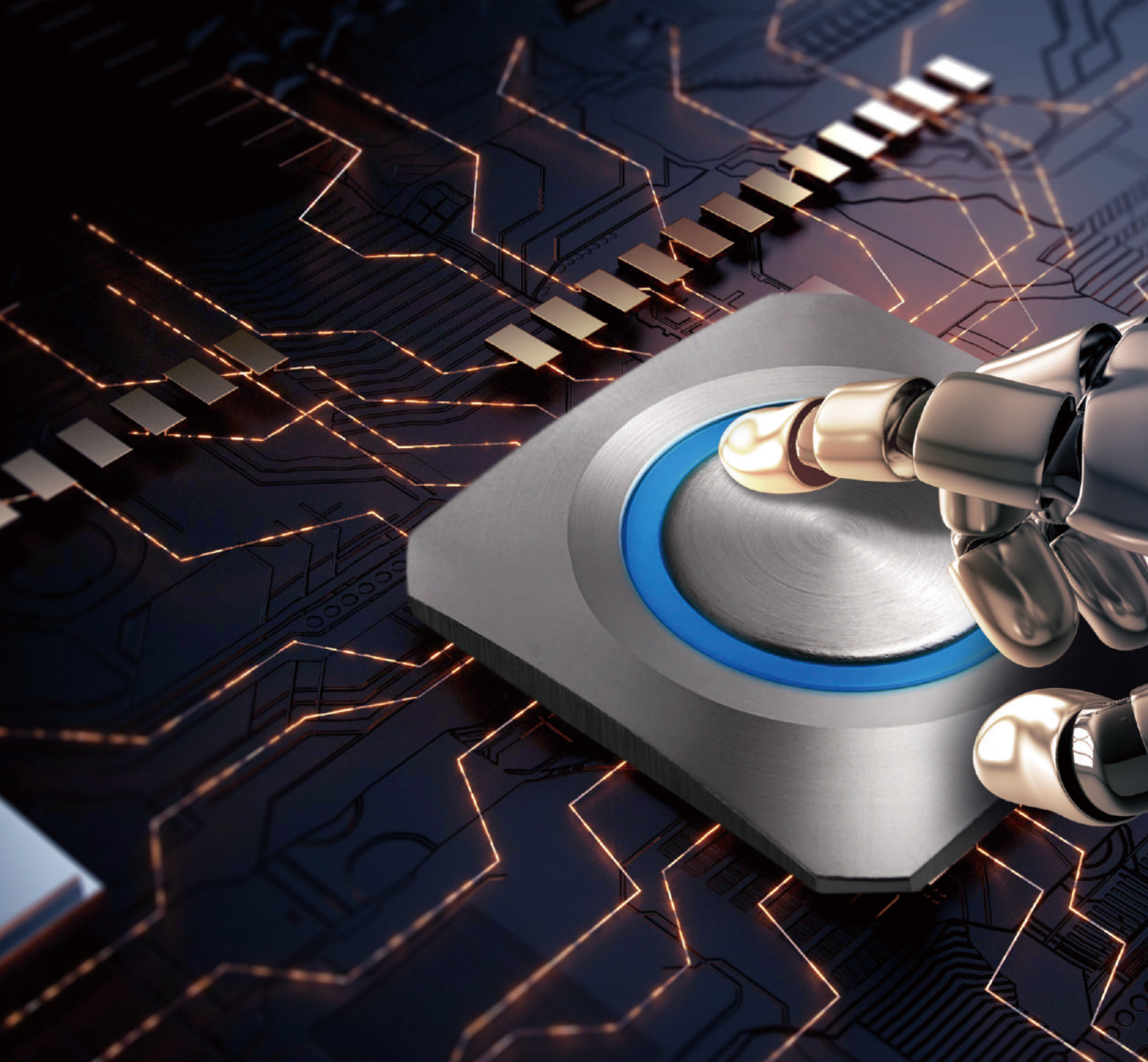




Anti vandal switch / Piezo switch / Plastic piezo switch / Capacitive switch / Keypads / Circuit protection /

(angir

01/76



**Anti vandal
switch**

77/90



**Piezo
switch**

(angir

Professional at design, manufacturing
for anti vandal switch, piezo switch,
capacitive switch and circuit protection.

Contents

91/92



**Plastic
piezo switch**

93/96



**Capacitive
switch**

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Keypads

108/112



**Circuit
protection**

Anti Vandal Switch

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- Yacht controls
- Industrial controls
- Audio / Visual
- Kitchen
- Parking
- Car controls
- Bus
- Railway
- Defense
- Kiosks / Vending
- Drone
- Electromedicine
- Elevators
- Small appliances
- Access controls
- Coffee machine

Degrees of IP protection

IP is an acronym "Ingress Protection". It is a measurement of the protection an item will have against solid objects (dust, sand, dirt, etc.) and liquids. An IP rating is comprised of 2 numbers. The first number refers to the protection against solid objects (dust, etc.) and the second number refers to protection against liquids.

What is an IP rating?

Each IP rating has two numbers, both of which give you information about the protection level.

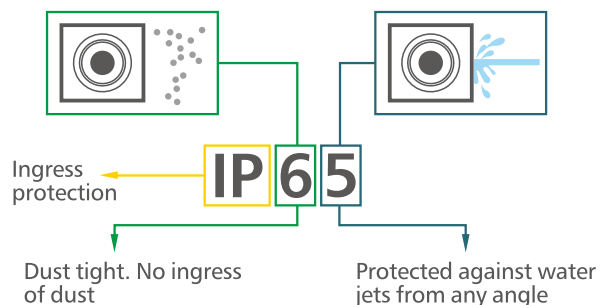
A higher number means greater protection against solids and liquids.

- The first number (0-6) refers to the level of protection against solid objects and moving parts, such as dust, debris, or other solid matter.
- The second number (0-8) references the level of liquid and moisture protection.

Take a look at the chart below to better understand the protection offered with each number.

IP rating chart

IP ratings are represented by combining the first and second digits of the following columns.



1st DIGIT - SOLID

Degree of protection against solid objects

0	No protection	
1	Protected against a solid object greater than 50mm, such as a hand	
2	Protected against a solid object greater than 12.5mm, such as a finger	
3	Protected against a solid object greater than 2.5mm, such as a small tool	
4	Protected against a solid object greater than 1.0mm, such as a wire	
5	Dust protected. Prevents ingress of dust sufficient to cause harm	
6	Dust tight. No ingress of dust	

2nd DIGIT- WATER

Degree of protection against water

0	No protection	
1	Protected against water drops	
2	Protected against water drops at a 15-degree angle	
3	Protected against water spray at a 60-degree angle	
4	Protected against water splashing from any angle	
5	Protected against water jets from any angle	
6	Protected against powerful jets from and temporary flooding	
7	Protected against the effects of temporary submersion in water(30 minutes at 0.15 to 1 meter)	
8	Protected against the effects of permanent submersion in water(up to 3 meters). Depth specified by manufacturer	

Degrees of IK protection

The IK rating is an international code which measures the degree of protection against mechanical wear and tear as well as the amount of impact a specific fixture can take. Essentially it is a measure of a fixtures robustness and durability.



So why is a fixtures IK rating important and when do they become relevant when choosing a fixture?

If you are choosing a fixture which will be fitted within a high traffic area such as street, highway or other commercial environments, then it's important to choose a fixture with an appropriate IK rating.

If a fixture was to become damaged, it could result in the fixture failing to work efficiently, or worse still, failing completely.

You don't need a fixture which is highly resistant if there is little or no risk of impact. So, analyzing your risk of impact is the first step in deciding if you need a fixture with a high IK rating. It's not just high traffic areas which need IK rated fixtures, but if the area is prone to vandalism it's a good idea too.

For areas of low risk an IK rating of IK07 and below is ideal. IK08 is great for areas which provide a reasonable risk of impact, whereas for maximum protection in places such as parks, schools, prisons and subways IK10 is essential.

IK rating chart

The degree of mechanical protection is identified by a code that consists of the letters IK followed by two digits:

IK number	Energy		Equivalent impact
0	Non-protected		No protection
1	Protected against 0.14 joules impact		Equivalent to impact of 0.25 kg mass dropped from 56 mm above impacted surface
2	Protected against 0.2 joules impact		Equivalent to impact of 0.25 kg mass dropped from 80 mm above impacted surface
3	Protected against 0.35 joules impact		Equivalent to impact of 0.25 kg mass dropped from 140 mm above impacted surface
4	Protected against 0.5 joules impact		Equivalent to impact of 0.25 kg mass dropped from 200 mm above impacted surface
5	Protected against 0.7 joules impact		Equivalent to impact of 0.25 kg mass dropped from 280 mm above impacted surface
6	Protected against 1 joules impact		Equivalent to impact of 0.25 kg mass dropped from 400 mm above impacted surface
7	Protected against 2 joules impact		Equivalent to impact of 0.5 kg mass dropped from 400 mm above impacted surface
8	Protected against 5 joules impact		Equivalent to impact of 1.7 kg mass dropped from 300 mm above impacted surface
9	Protected against 10 joules impact		Equivalent to impact of 5 kg mass dropped from 200 mm above impacted surface
10	Protected against 20 joules impact		Equivalent to impact of 5 kg mass dropped from 400 mm above impacted surface

Non-illuminated



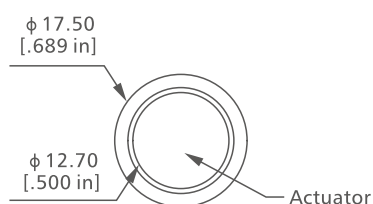


Anti Vandal Switch Ø 12mm

Order Code

Series	Actuator Options	Terminal Options	Function Options	Material Options	Actuator Color Options
☐ ☐	☐	☐	☐	☐	☐
V12	B-Round	P-Solder lug (2.0X0.5) NONE-Screw	NONE-Momentary 1NO	S-Stainless steel N-Nickel plated brass A-Zin-Al alloy black color	W-White Y-Yellow B-Blue G-Green R-Red BK-Black

Description

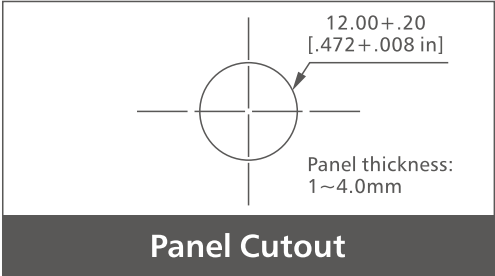
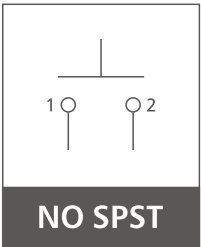
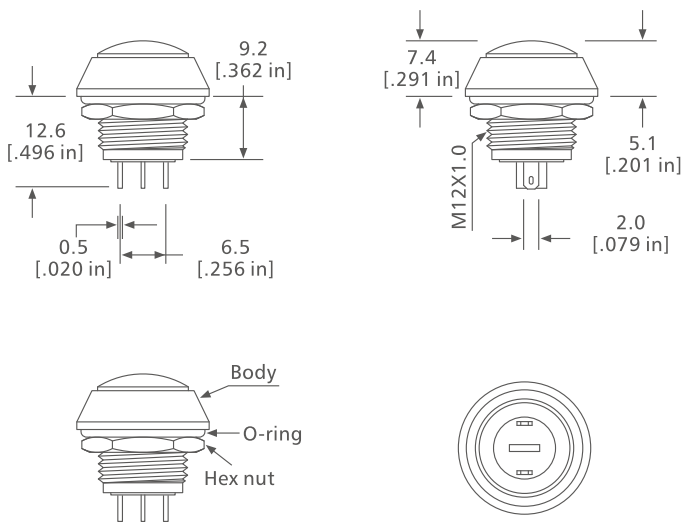


Panel thickness: 1~4.0mm

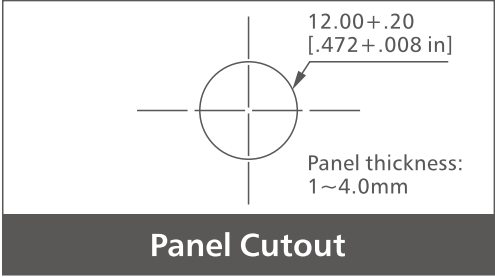
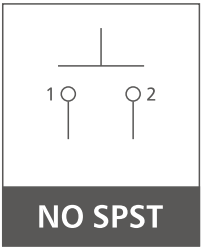
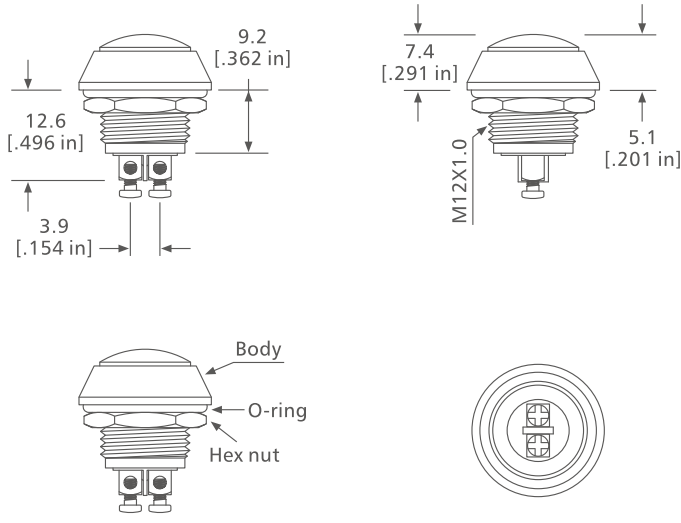
Technical Data

Type	V12-B-S	V12-B-N	V12-B-A
Illuminated options	Non-illuminated		
Front shape	Round		
Terminal	Screw / Solder lug (2.0X0.5)		
Max. switch rating	2A 48VDC		
Contact resistance	≤ 50m Ω		
Insulation resistance	≥ 1000m Ω		
Dielectric strength	2000VAC		
Operation temp.	-20°C ~ +55°C		
Mechanical life	1,000,000 Cycles		
Electrical life	200,000 Cycles		
Contact material	Silver alloy		
Torque	5~14Nm		
Operation pressure	Approx. 5N		
Protection	IP65 / IK08		
Material			
Actuator	Stainless steel / Brass / PBT		
Body	Stainless steel	Nickel plated brass	Zin-al alloy
Base	PBT		
Color	R/G/Y/O/B/W/BK		

Solder Terminal



Screw Terminal



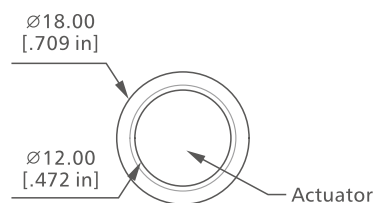


Anti Vandal Switch Ø 16mm

Order Code

Series	Actuator Options	Terminal Options	Function Options	Material Options	Graphic Options
☐ ☐	☐	☐	☐	☐ —	☐ ☐ ☐
V16	F-Flat H-High B-Domed	P-Solder lug (2.8X0.5) NONE-Screw	Momentary 1-NO 2-NC	S-Stainless steel N-Nickel plated brass A-Anodized aluminum G-Gold plated brass	NONE-Non-marking LE-Laser etched

Description

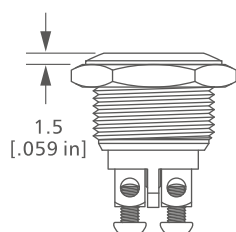


Panel thickness: 1~6mm

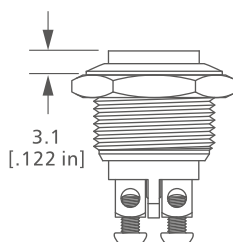
Technical Data

Type	V16-F	V16-B	V16-H
Actuator options	Flat	Domed	High
Terminal	Screw / Solder lug (2.8X0.5)		
Max. switch rating	2A 48VDC		
Contact resistance	≤ 50m Ω		
Insulation resistance	≥ 1000m Ω		
Dielectric strength	2000VAC		
Operation temp	-20°C ~ +55°C		
Mechanical life	1,000,000 cycles		
Electrical life	200,000 cycles		
Contact material	Silver alloy		
Torque	5~14Nm		
Operation pressure	Approx. 4N		
Protection	IP65 / IK08		
Material			
Actuator	Stainless steel / Gold or Nickel plated brass / Anodized aluminum		
Body	Stainless steel / Gold or Nickel plated brass / Anodized aluminum		
Base	PBT		

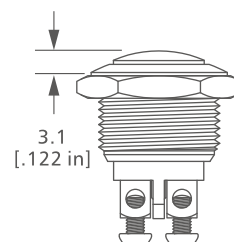
Actuator Options



Flat Actuator

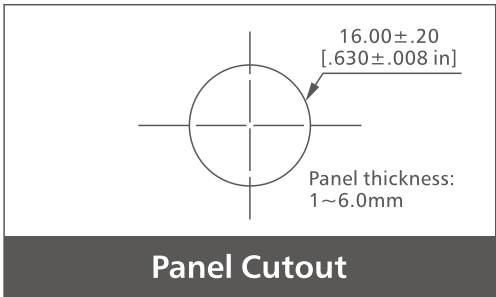
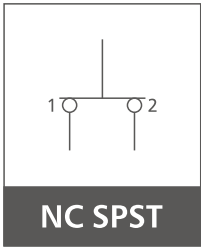
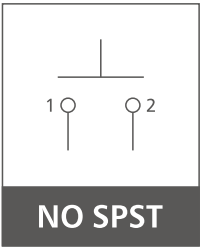
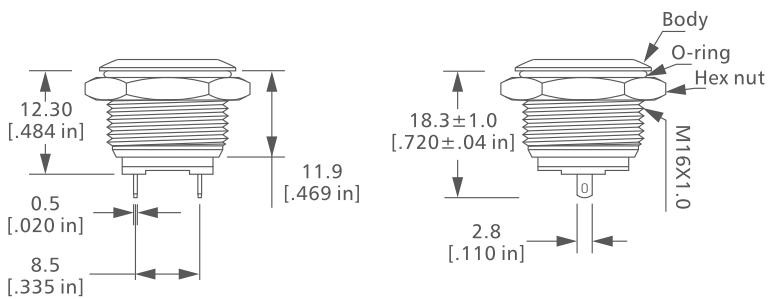


High Actuator

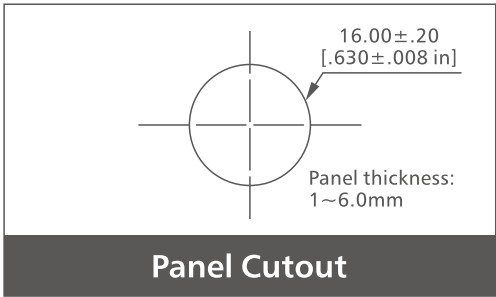
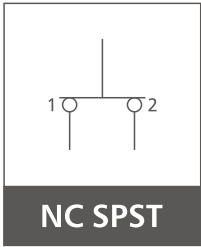
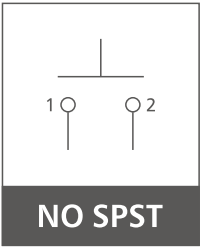
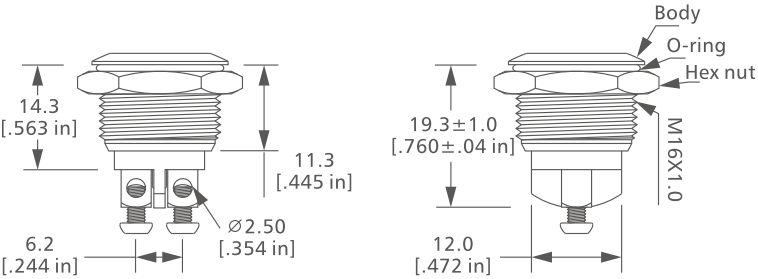


Domed Actuator

Solder Terminal



Screw Terminal





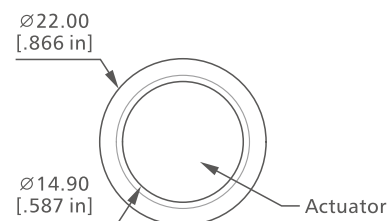
Anti Vandal Switch

Ø 19mm

Order Code

Series	Actuator Options	Terminal Options	Function Options	Material Options	Graphic Options
V19	F-Flat H-High B-Domed	P-Solder lug (2.8X0.5) NONE-Screw	Momentary 1-NO	S-Stainless steel N-Nickel plated brass A-Anodized aluminum G-Gold plated brass	NONE-Non-marking LE-Laser etched

Description

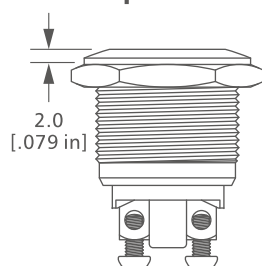


Panel thickness: 1~8mm

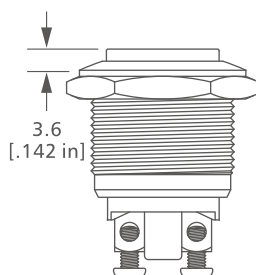
Technical Data

Type	V19-F	V19-B	V19-H
Actuator options	Flat	Domed	High
Terminal	Screw / Solder lug (2.8X0.5)		
Max. switch rating	2A 48VDC		
Contact resistance	≤ 50m Ω		
Insulation resistance	≥ 1000m Ω		
Dielectric strength	2000VAC		
Operation temp	-20°C ~ +55°C		
Mechanical life	1,000,000 cycles		
Electrical life	200,000 cycles		
Contact material	Silver alloy		
Torque	5~14Nm		
Operation pressure	Approx. 5N		
Protection	IP65 / IK09		
Material			
Actuator	Stainless steel / Gold or Nickel plated brass / Anodized aluminum		
Body	Stainless steel / Gold or Nickel plated brass / Anodized aluminum		
Base	PBT		

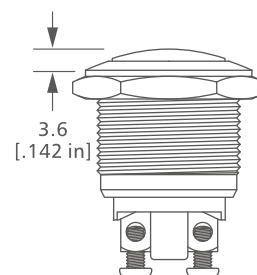
Actuator Options



Flat Actuator

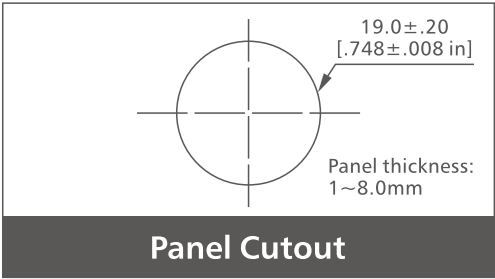
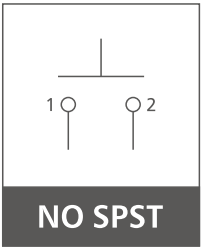
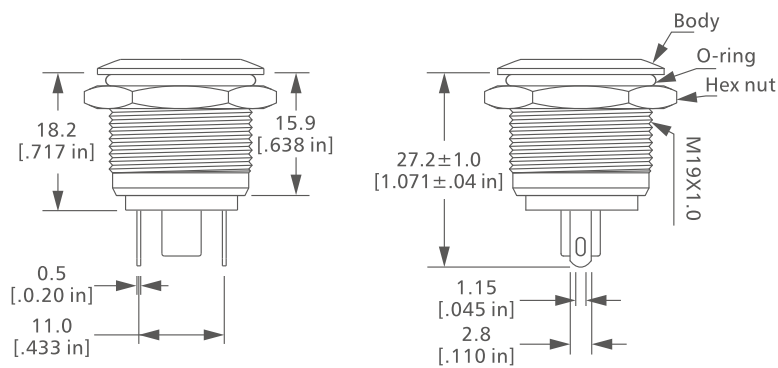


High Actuator

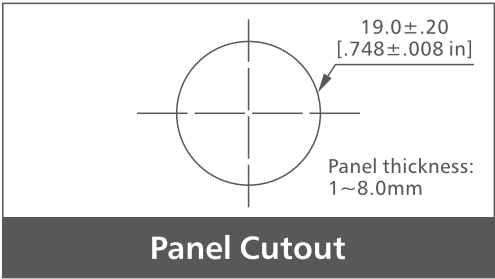
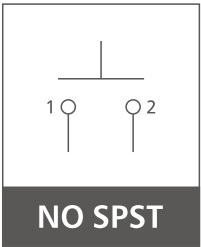
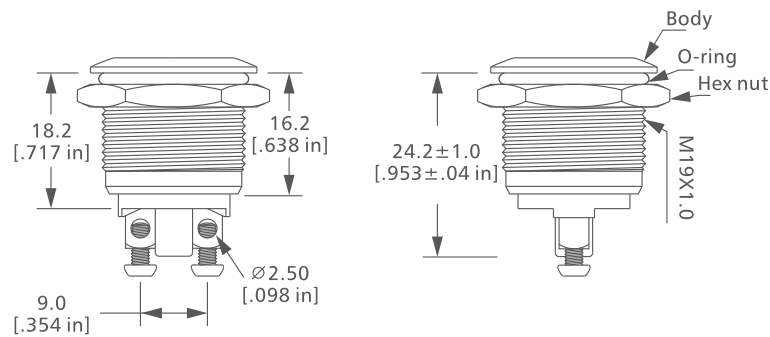


Domed Actuator

Solder Terminal



Screw Terminal



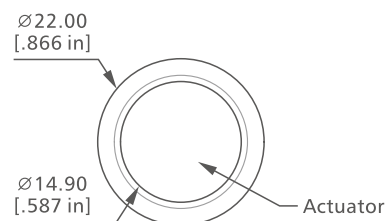


Anti Vandal Switch Ø 19mm(Short Body)

Order Code

Series	Actuator Options	Terminal Options	Function Options	Material Options	Graphic Options
☐ ☐	☐	☐	☐	☐ —	☐ ☐ ☐
VS19	F-Flat H-High B-Domed	P-Solder lug (2.8X0.5) NONE-Screw	Momentary 1-NO 2-NC	S-Stainless steel N-Nickel plated brass A-Anodized aluminum	NONE-Non-marking LE-Laser etched

Description

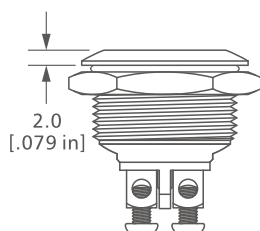


Panel thickness: 1~6mm

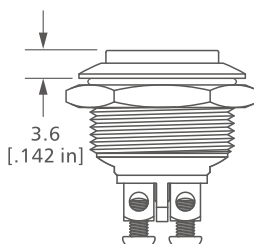
Technical Data

Type	VS19-F	VS19-B	VS19-H
Actuator options	Flat	Domed	High
Terminal	Screw / Solder lug (2.8X0.5)		
Max. switch rating	2A 48VDC		
Contact resistance	≤ 50m Ω		
Insulation resistance	≥ 1000m Ω		
Dielectric strength	2000VAC		
Operation temp	-20°C ~ +55°C		
Mechanical life	1,000,000 cycles		
Electrical life	200,000 cycles		
Contact material	Silver alloy		
Torque	5~14Nm		
Operation pressure	Approx. 5N		
Protection	IP65 / IK09		
Material			
Actuator	Stainless steel / Nickel plated brass / Anodized aluminum		
Body	Stainless steel / Nickel plated brass / Anodized aluminum		
Base	PBT		

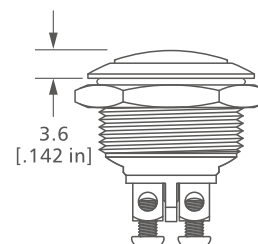
Actuator Options



Flat Actuator

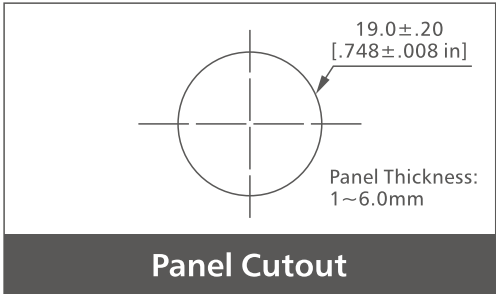
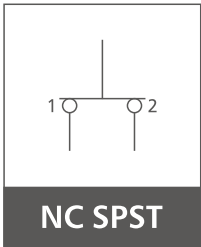
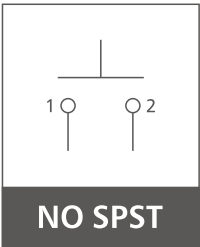
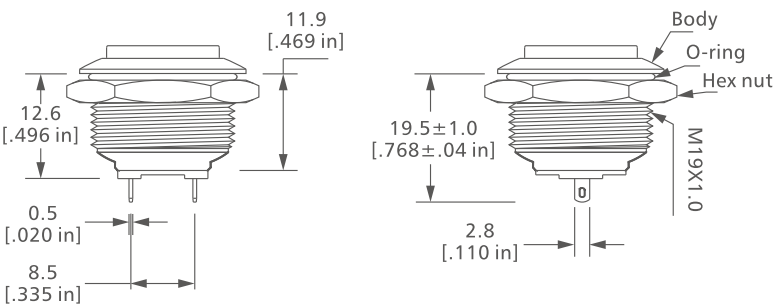


High Actuator

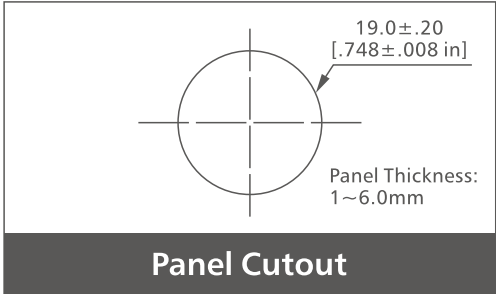
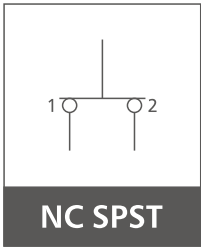
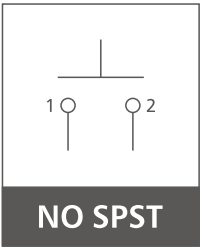
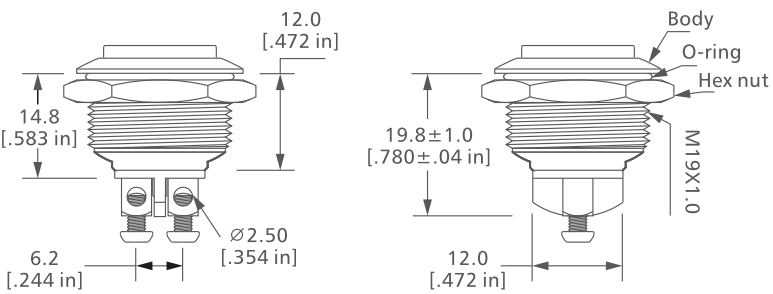


Domed Actuator

Solder Terminal



Screw Terminal



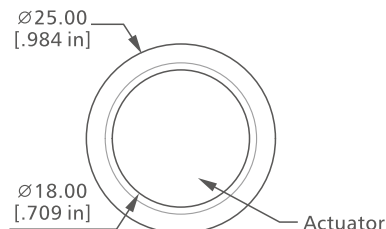


Anti Vandal Switch Ø 22mm

Order Code

Series	Actuator Options	Terminal Options	Function Options	Material Options	Graphic Options
☐ ☐	☐	☐	☐	☐ —	☐ ☐ ☐
V22	F-Flat H-High B-Domed	P-Solder lug (2.8X0.5) NONE-Screw	Momentary 1-NO	S-Stainless steel	NONE-Non-marking LE-Laser etched

Description

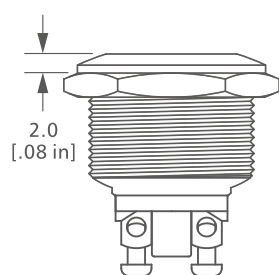


Panel thickness: 1~8mm

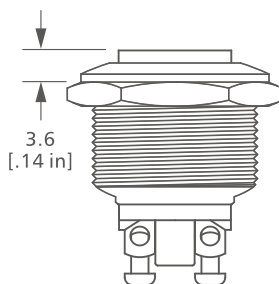
Technical Data

Type	V22-F	V22-B	V22-H
Front Shape	Flat	Domed	High flat
Terminal	Screw / Solder lug (2.8X0.5)		
Max. switch rating	2A 48VDC		
Contact resistance	≤ 50m Ω		
Insulation resistance	≥ 1000m Ω		
Dielectric strength	2000VAC		
Operation temp	-20°C ~ +55°C		
Mechanical life	1,000,000 cycles		
Electrical life	200,000 cycles		
Contact material	Silver alloy		
Torque	5~14Nm		
Operation pressure	Approx. 5.5N		
Protection	IP65 / IK09		
Material			
Actuator	Stainless steel		
Body	Stainless steel		
Base	PBT		

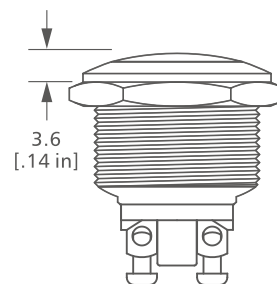
Actuator Options



Flat Actuator

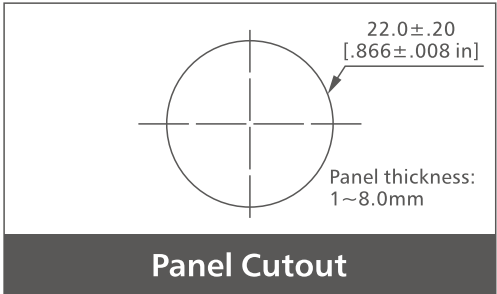
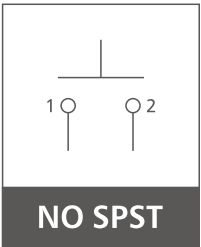
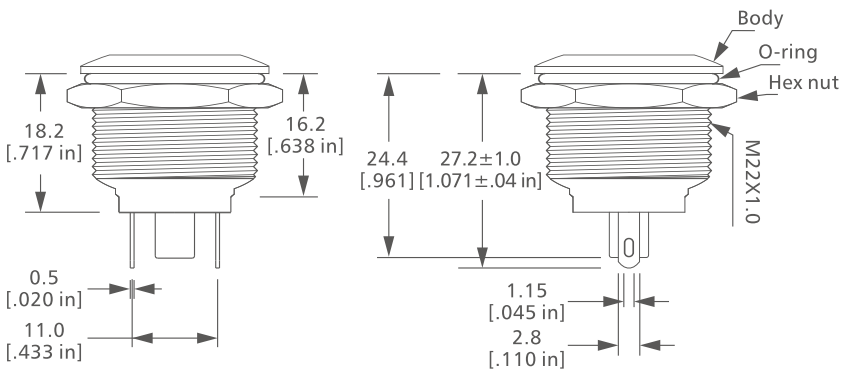


High Actuator

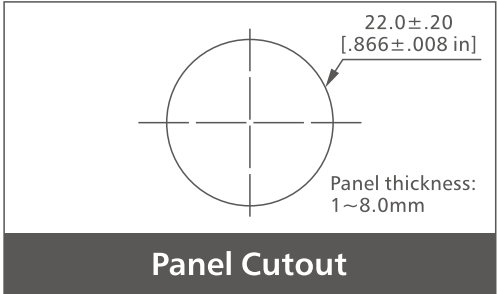
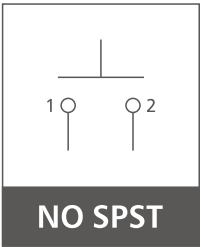
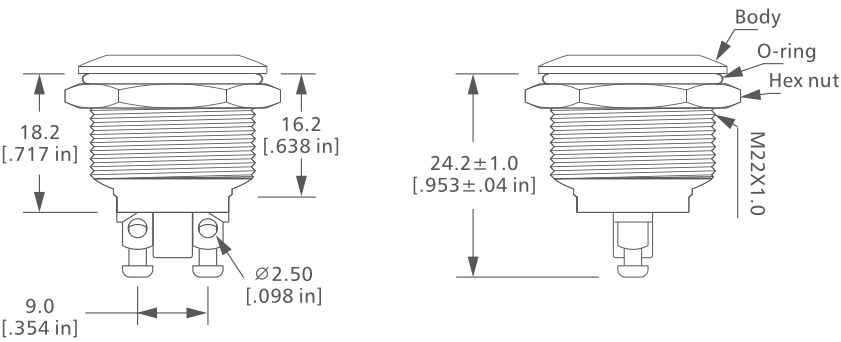


Domed Actuator

Solder Terminal



Screw Terminal





Anti Vandal Switch Ø 12mm

Specifications

Electrical rating: 2A 36VDC
Mechanical life: 200,000 Cycles
Electrical life: 50,000 Cycles
Contact resistance: 50mΩ Max
Insulation resistance: 1000mΩ Min
Dielectric strength: 2000VAC
Operating / Storage temperature: -20°C to 55°C
Travel: 1.50mm
Moisture protection: IP65
Actuation force: 4N
Panel thickness: 1-11mm
Mounting nut torque: 5-14Nm

Features & Benefits

- 12mm diameter panel cutout
- Variety of LED option
- Dot, ring illumination available
- Multiple actuator options
- Pilot indicator option
- IP65 rated
- Momentary Off-(On), Latching Off-On
- Terminal option: Solder lug(2.0X0.5)

Order Code

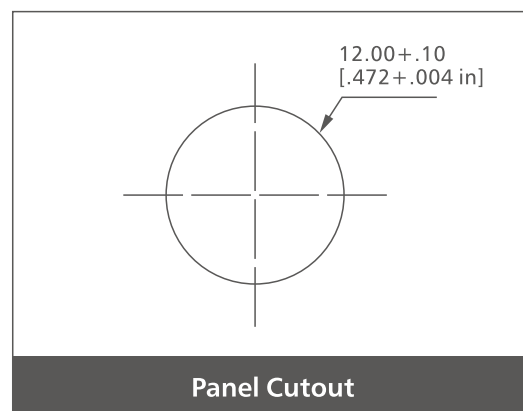
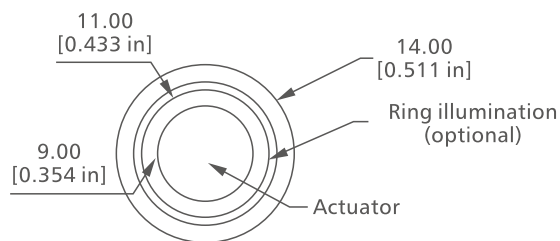
Series	Actuator Options	Function Options	Material Options	Illumination Style Options	Led-Color Options	Illumination Voltage Options
☐	☐	☐	☐	☐	☐	☐
L12	F-Flat H-High	M-Momentary Off-(On) Z-Latching Off-On	S-Stainless Steel N-Nickel plated brass	NONE-Non-illum. D-Dot R-Ring	NONE-Non-illum. W-White R-Red O-Orange G-Green B-Blue Y-Yellow	NONE-Base voltage* 3.3V 6V 12V 24V

Notes:

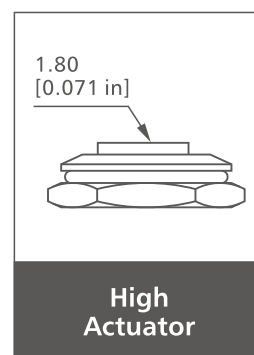
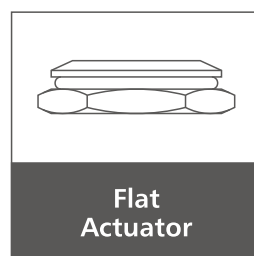
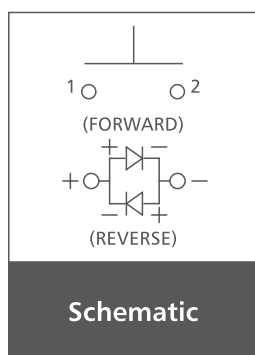
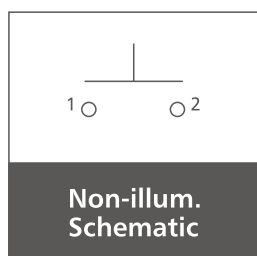
*Base voltage on LEDs:

1.8V @ 20mA for red, yellow and orange LED colors

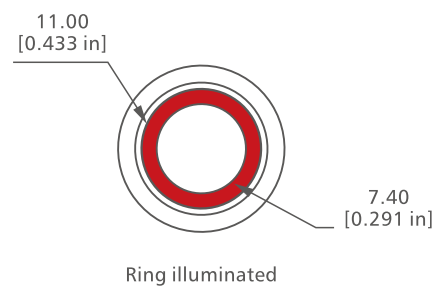
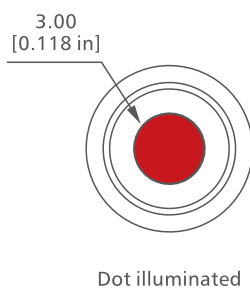
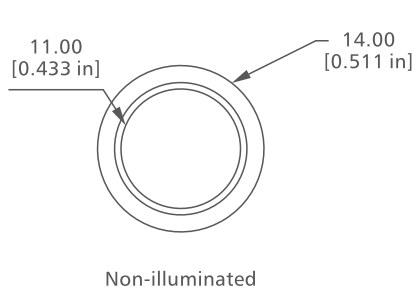
2.8V @ 20mA for blue, green and white LED colors



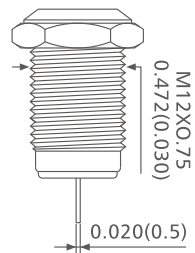
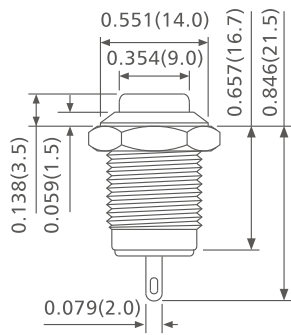
Schematic & Actuator



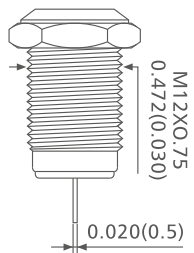
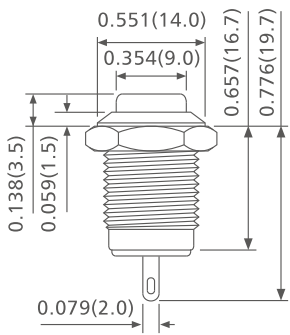
Illumination Options



Non-illuminated

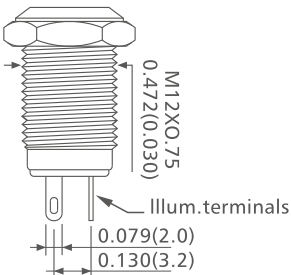
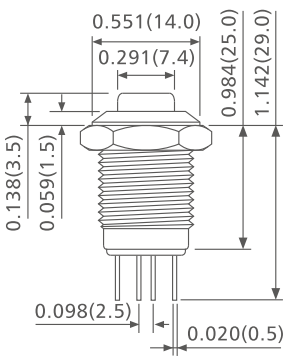


Latching



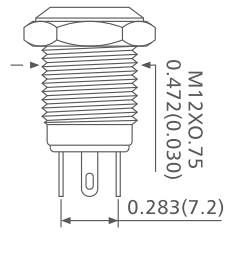
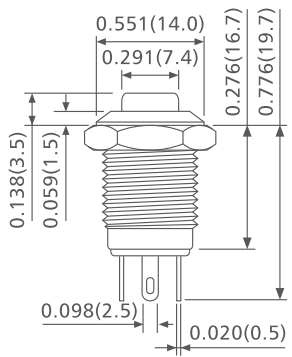
Momentary

Ring illuminated



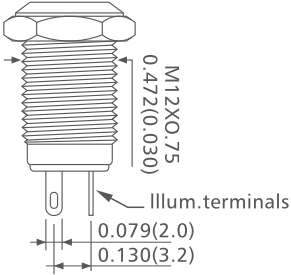
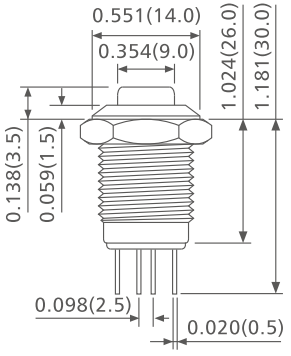
Latching

Illum. terminals



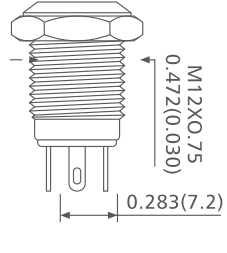
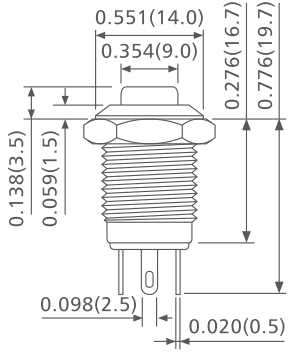
Momentary

Dot illuminated



Latching

Illum. terminals



Momentary



Anti Vandal Switch Ø 16mm

Order Code

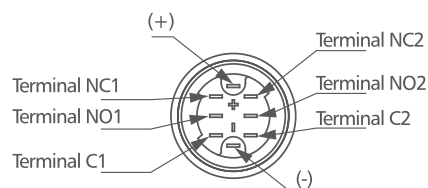
Series	Actuator Options	Terminal Options	Function Options	Material Options	Illumination Style Options	Led- Color Options	Illumination Voltage Options	Protection	Graphic Options
☐ L16	☐ F-Flat ☐ H-Raised	☐ NONE-Solder lug (1.8x0.4)	☐ M-Momentary 1-1NO1NC 2-2NO2NC Z-Latching 1-1NO1NC 2-2NO2NC	☐ S-Stainless steel ☐ N-Nickel plated brass ☐ A-Anodized aluminum	☐ NONE-Non-illum. ☐ D-Dot ☐ R-Ring ☐ PS-Power backlit symbol ☐ PY-Ring illum.& Power backlit symbol	☐ NONE-Non-illum. ☐ W-White ☐ Y-Yellow ☐ B-Blue ☐ G-Green ☐ R-Red ☐ O-Orange	☐ NONE-Base voltage* 3.3V 6V 12V 24V 36V 110V 220V	☐ NONE-IP65	☐ NONE-Non-marking ☐ LE-Laser etched

Notes:

* Base voltage on LEDs:

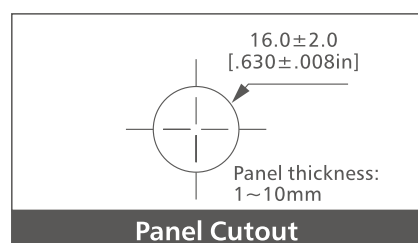
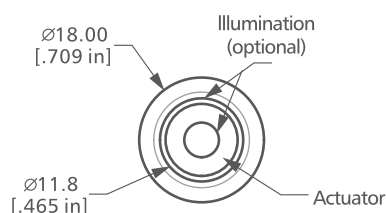
1.8V @20mA for red, yellow and orange LED colors
2.8V @20mA for blue, green and white LED colors

Description



C = Common
NO = Normally open
NC = Normally closed

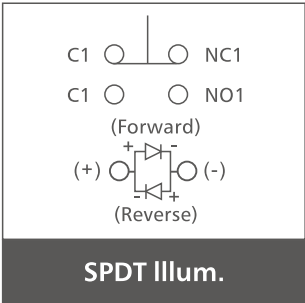
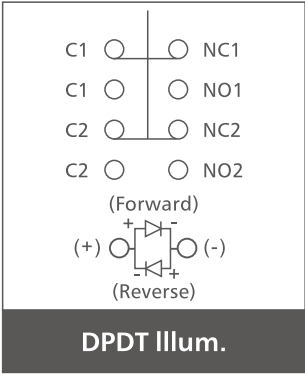
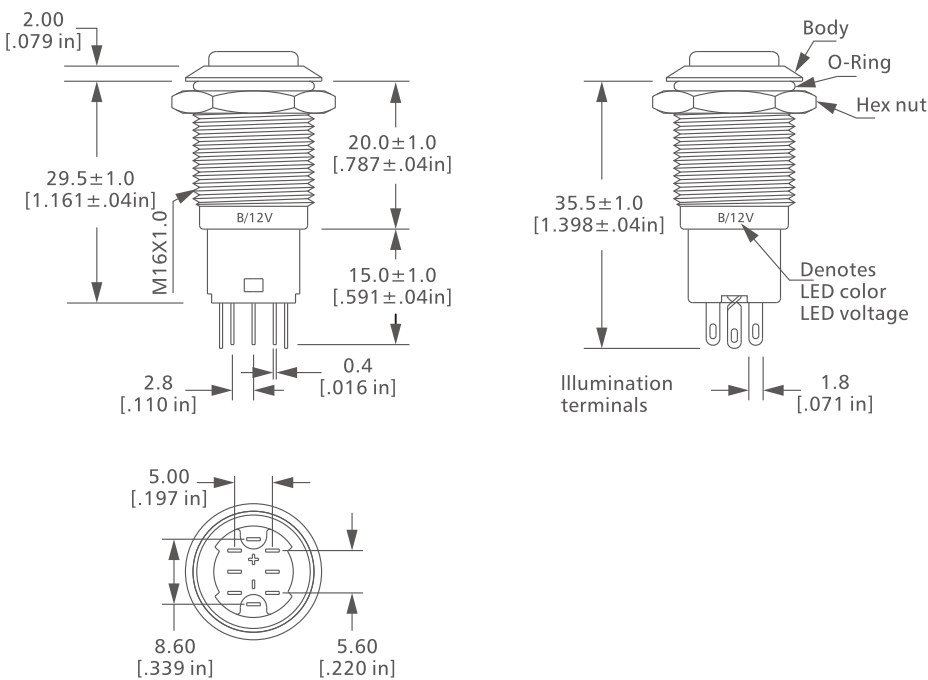
Terminals (-) and (+) used with illum. option only



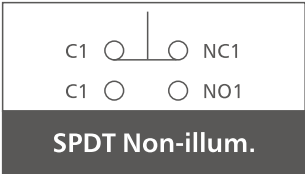
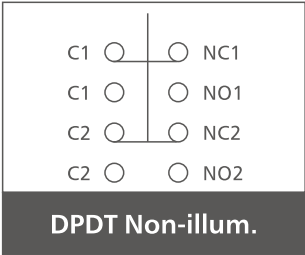
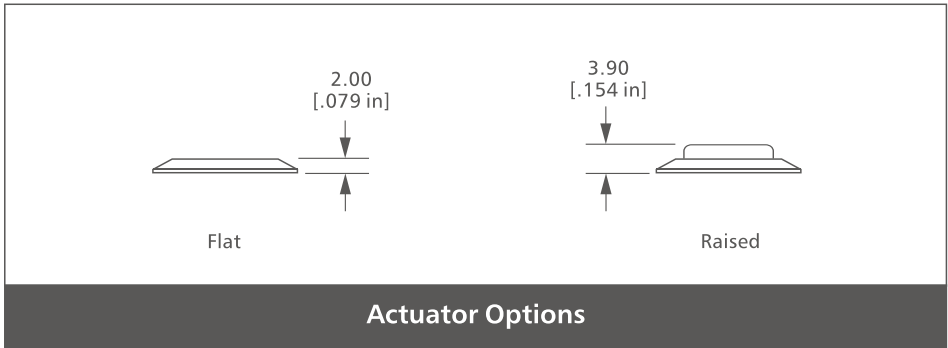
Technical Data

Type	L16-F / L16-H
Illuminated options	Non-illuminated / Ring illuminated / Dot illuminated
Terminal	Solder lug (1.8X0.4)
Max. switch rating	Ith: 3A Ui: 250VAC
Contact resistance	≤50mΩ
Insulation resistance	≥1000m
Dielectric strength	2000VAC
Operation temp.	-20°C ~ +55°C
Mechanical life	200,000 cycles
Electrical life	> 50,000 cycles
Contact material	Silver alloy
Torque	5~14Nm
Operation pressure	Approx. 3~5N
Protection	IP65/ IK09
Material	
Button	Stainless steel / Nickel plated brass / Anodized aluminum
Body	Stainless steel / Nickel plated brass / Anodized aluminum
Base	PBT
LED	
Color	3.3V / 6V / 12V / 24V / 36V / 110V / 220V Approx. 40,000 hours

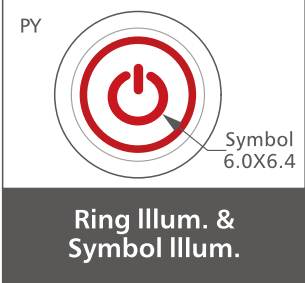
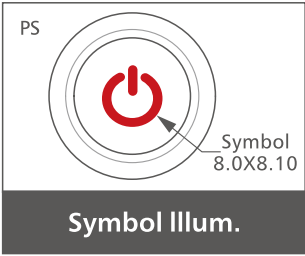
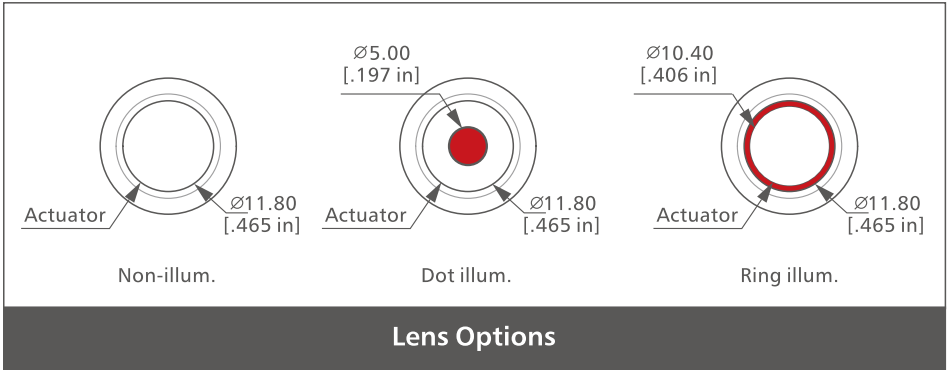
Dimensions



Actuator Options



Illum. Options





Anti Vandal Switch Ø16mm

Order Code

Series	Actuator Options	Terminal Options	Function Options	Material Options	Illumination Style Options	Led- Color Options	Illumination Voltage Options	Graphic Options
LS16	F-Flat	NONE-Solder lug (2.8X0.5)	M-Momentary 1-1NO	S-Stainless steel N-Nickel plated brass A-Anodized aluminum	D-Dot R-Ring	W-White Y-Yellow B-Blue G-Green R-Red O-Orange 3A-Red / Green / Blue	NONE-Base voltage* 3.3V 6V 12V 24V 36V	NONE-Non-marking LE-Laser etched

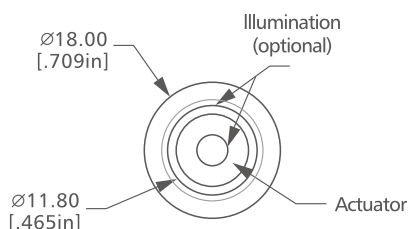
Notes:

* Base voltage on LEDs:

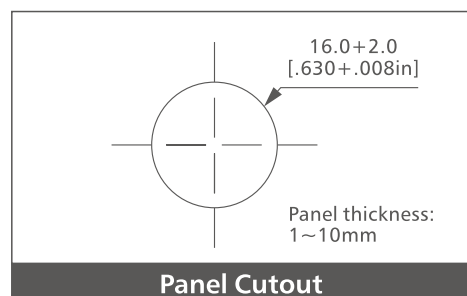
1.8V @20mA for red, yellow and orange LED colors

2.8V @20mA for blue, green and white LED colors

Description



Panel Cutout

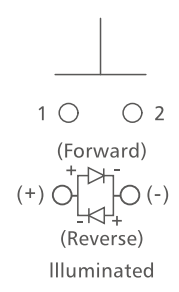
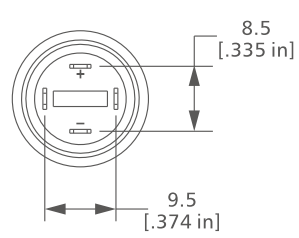
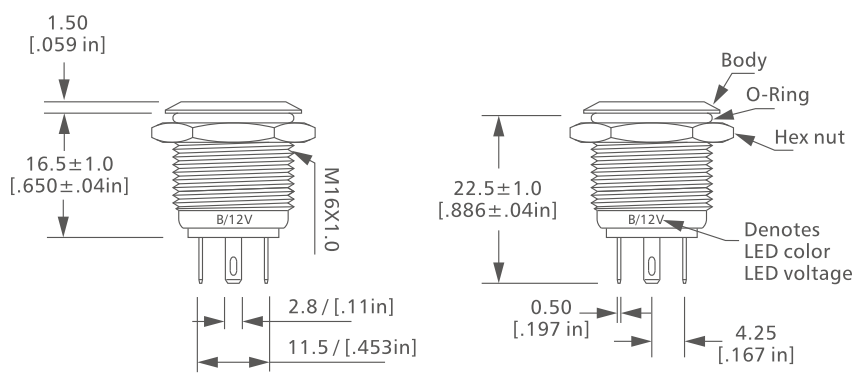


Technical Data

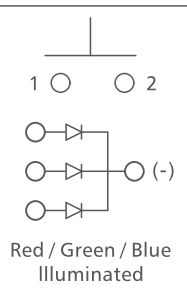
Type	LS16-F
Illuminated options	Non-illuminated / Ring illuminated / Dot illuminated
Terminal	Solder lug (2.8X0.5)
Max. switch rating	2A 36VDC
Contact resistance	≤50mΩ
Insulation resistance	≥1000mΩ
Dielectric strength	2000VAC
Operation temp.	-20°C ~ +55°C
Mechanical life	1,000,000 cycles
Electrical life	200,000 cycles
Contact material	Silver alloy
Torque	5~14Nm
Operation pressure	Approx. 3~5N
Protection	IP65/ IK08
Material	
Actuator	Stainless steel / Nickel plated brass / Anodized aluminum
Body	Stainless steel / Nickel plated brass / Anodized aluminum
Base	PBT
LED	
Color	3.3V / 6V / 12V / 24V / 36V (The resistor is external)
	R G B Y O W
	Approx. 40,000 hours

Current-limiting Resistance Configuration Table	Operating Voltage (U)	6V	12V	24V	36V	Formula
	Current-limiting Resistance (R)	R G B Y	210Ω ,1/4W	510Ω ,1/2W	1.2kΩ ,3/4W	$R = \frac{U \cdot U_e}{I_e}$
		O W	160Ω ,1/4W	460Ω ,1/2W	2.2kΩ ,1W	

Standard Illum.

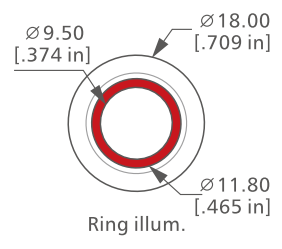
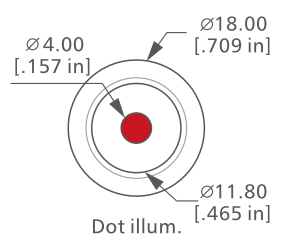
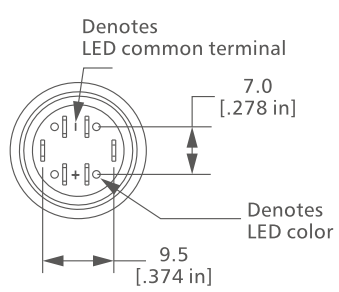
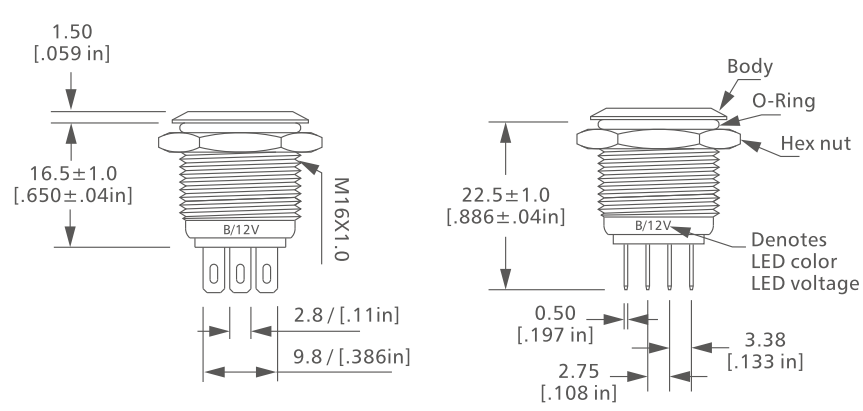


Functions



Functions

Tri-color



Lens Options



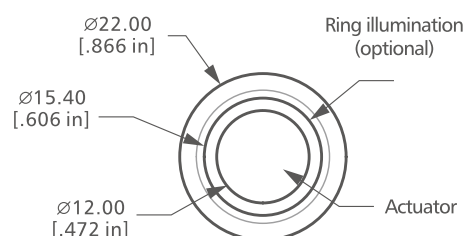
Anti Vandal Switch Ø19mm

Order Code

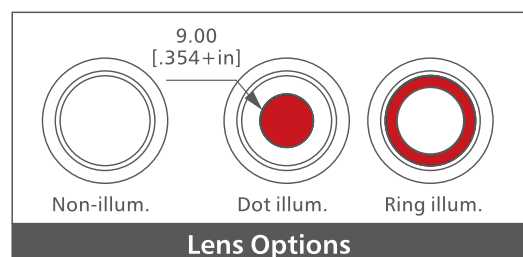
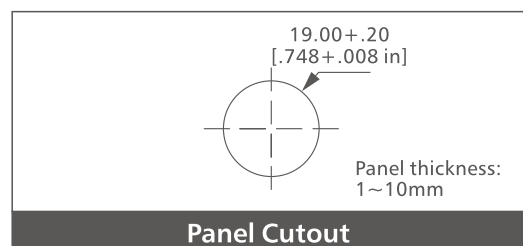
Series	Actuator Options	Terminal Options	Function Options	Material Options	Illumination Style Options	Led- Color Options	Illumination Voltage Options	Graphic Options
☐ ☐	☐	☐	☐	☐	☐	☐	☐	☐ ☐ ☐
L19	F-Flat	NONE -Solder lug (2.8X0.5) N-Screw	M-Momentary 1-1NO1NC Z-Latching 1-1NO1NC	S-Stainless steel A-Anodized aluminum	NONE -Non-illum. D-Dot R-Ring X-Backlit label kit**	NONE -Non-illum. W-White Y-Yellow B-Blue G-Green R-Red O-Orange	NONE -Base voltage* 3.3V 6V 12V 24V 36V 110V 220V	NONE -Non-marking LE-Laser etched

Notes
 * Base voltage on LEDs:
 1.8V @20mA for red, yellow and orange LED colors
 2.8V @20mA for blue, green and white LED colors
 **5 ICON labels included, flat actuator only

Description



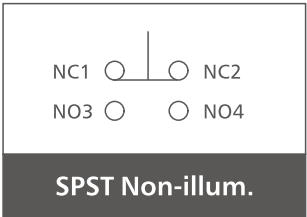
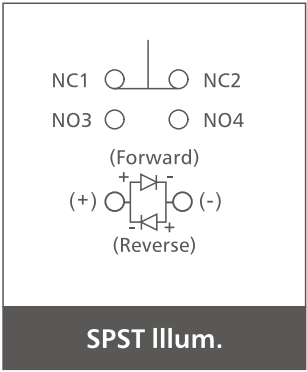
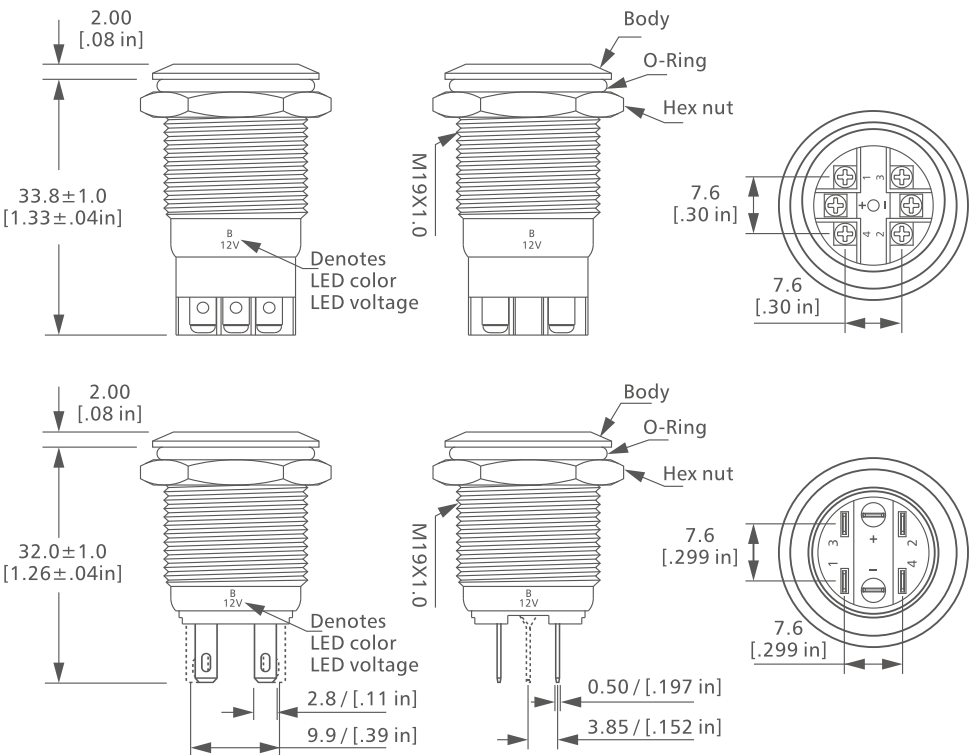
Panel Cutout & Illuminated Options



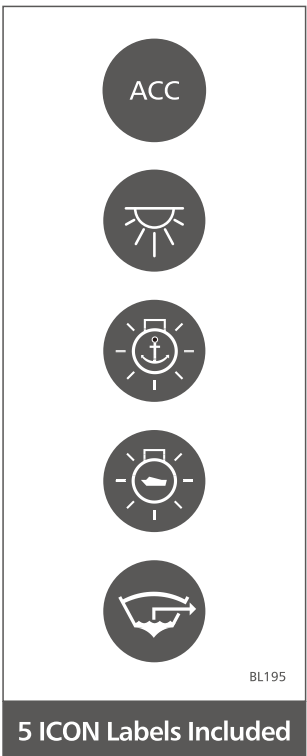
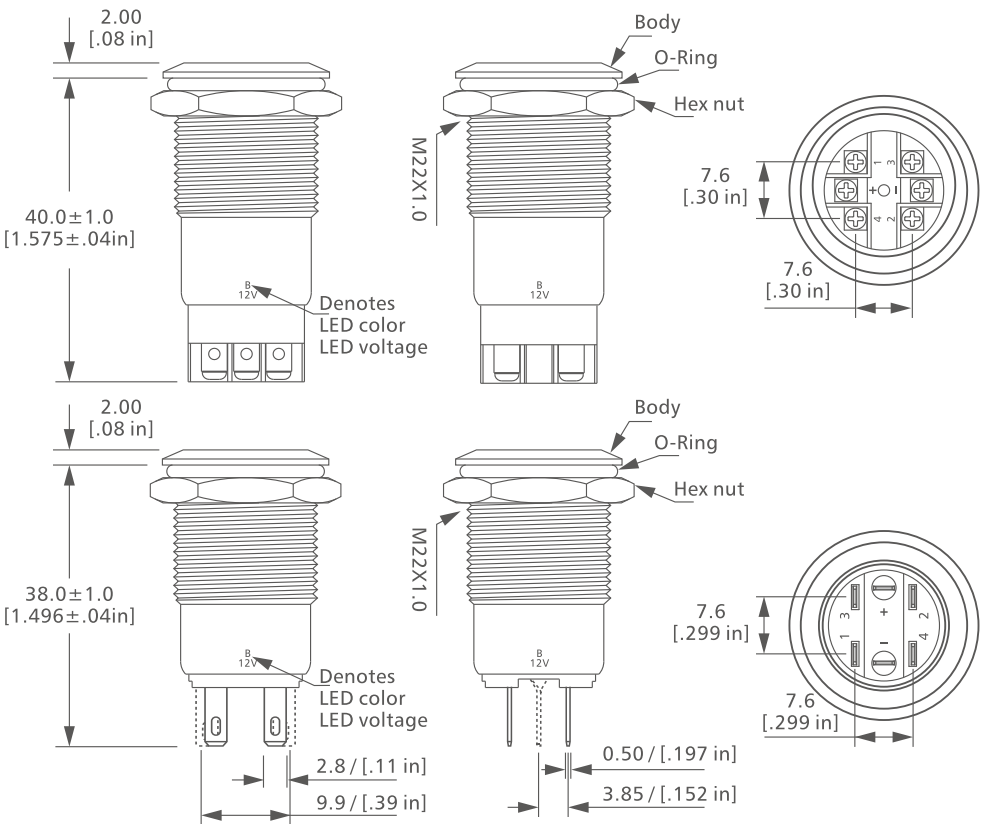
Technical Data

Type	L19-F
Illuminated options	Non-illuminated / Ring illuminated / Dot illuminated / Backlit label kit
Terminal	Screw / Solder lug (2.8X0.5)
Max. switch rating	Ith: 5A Ui: 250VAC
Contact resistance	≤50mΩ
Insulation resistance	≥1000m
Dielectric strength	2000VAC
Operation temp.	-20°C ~ +55°C
Mechanical life	1,000,000 cycles
Electrical life	50,000 cycles
Contact material	Silver alloy
Torque	5~14Nm
Operation pressure	Approx. 5N
Protection	IP65 or IP67 / IK09
Material	
Actuator	Stainless steel / Anodized aluminum
Body	Stainless steel / Anodized aluminum
Base	PA
LED	
Color	3.3V / 6V / 12V / 24V / 36V / 110V / 220V R G Y O B W Approx. 40,000 hours

Dimensions



Latching





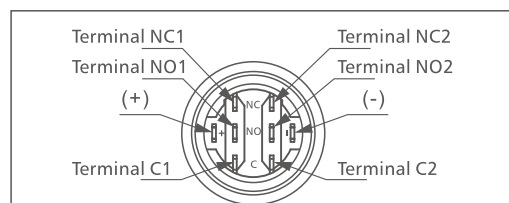
Anti Vandal Switch Ø19mm

Order Code

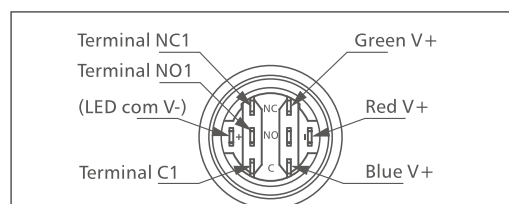
Series	Actuator Options	Terminal Options	Function Options	Material Options	Illumination Style Options	Led- Color Options	Illumination Voltage Options	Graphic Options
☐ L19A	☐ F-Flat	☐ NONE-Solder lug (2.8X0.5)	☐ M-Momentary 1-1NO1NC 2-2NO2NC Z-Latching 1-1NO1NC 2-2NO2NC	☐ S-Stainless steel	☐ NONE-Non-illum. D-Dot R-Ring PS-Power backlit symbol  PY-Ring illum. & Power backlit symbol 	☐ NONE-Non-illum. W-White Y-Yellow B-Blue G-Green R-Red O-Orange 3A-Red/ Green/ Blue	☐ NONE-Base voltage* 3.3V 6V 12V 24V 36V 110V 220V	☐ NONE-Non-marking LE-Laser etched

Notes
 * Base voltage on LEDs:
 1.8V @20mA for red, yellow and orange LED colors
 2.8V @20mA for blue, green and white LED colors

Description



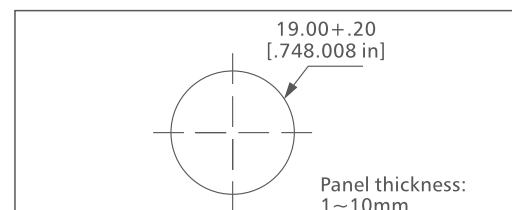
Single & Bi-color



Tri-color

C = Common
 NO = Normally open
 NC = Normally closed

Terminals (-) and (+) used with illum. option only

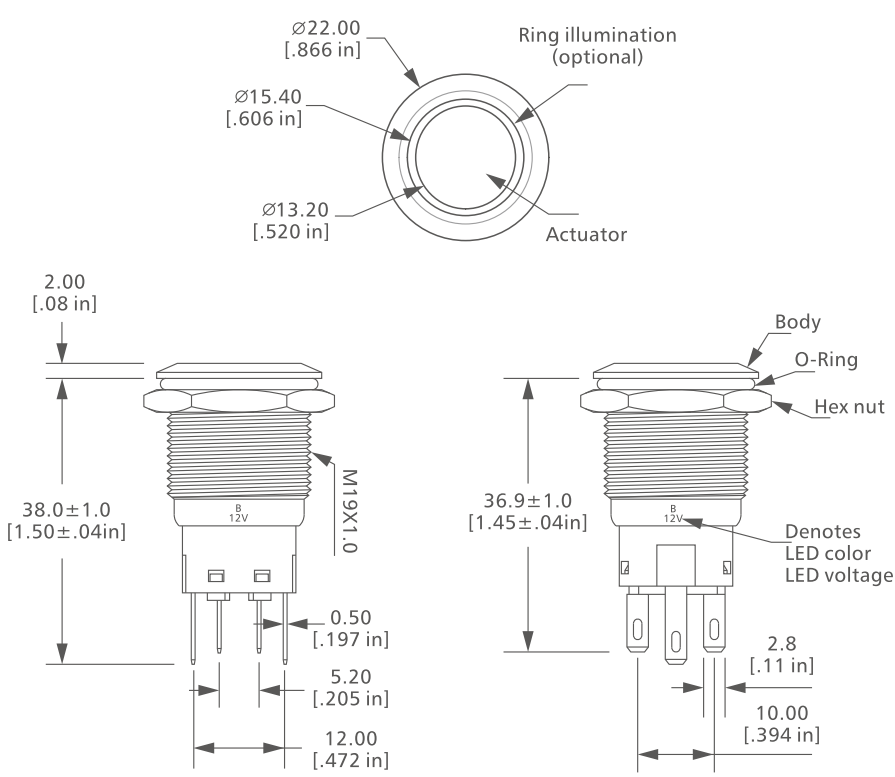


Panel Cutout

Technical Data

Type	L19A-F
Illuminated options	Non-illuminated / Ring illuminated / Dot illuminated
Terminal	Solder lug (2.8X0.5)
Max. switch rating	Ith: 5A Ui: 250VAC
Contact resistance	≤50m Ω
Insulation resistance	≥1000m Ω
Dielectric strength	2000VAC
Operation temp.	-20°C ~ +55°C
Mechanical life	1,000,000 cycles
Electrical life	50,000 cycles
Contact material	Silver alloy
Torque	5~14Nm
Operation pressure	Approx. 5N
Protection	IP65/ IK09
Material	
Actuator	Stainless steel
Body	Stainless steel
Base	PBT
	LED
Color	3.3V / 6V / 12V / 24V / 36V / 110V / 220V  Approx. 40,000 hours

Dimensions



Illum. Options

PS

Symbol
9.20X9.20

Symbol Illum.

PY

Symbol
8.0X8.1

Ring Illum. & Symbol Illum.

Actuator $\varnothing 15.40$ [.606 in]

Actuator $\varnothing 9.00$ [.354 in] $\varnothing 15.40$ [.606 in]

Actuator $\varnothing 13.20$ [.520 in] $\varnothing 15.40$ [.606 in]

Non-illum. Dot illum. Ring illum.

Lens Options

DPDT Illum.

SPDT Illum.

DPDT Non-illum.

SPDT Non-illum.

SPDT RGB Color



Anti Vandal Switch Ø19mm

Order Code

Series	Actuator Options	Terminal Options	Function Options	Material Options	Illumination Style Options	Led- Color Options	Illumination Voltage Options	Graphic Options
LS19	F-Flat	NONE-Solder lug (2.8X0.5)	M-Momentary 1-1NO	S-Stainless steel	D-Dot R-Ring X-Backlit label kit**	W-White Y-Yellow B-Blue G-Green R-Red O-Orange	NONE-Base voltage* 3.3V 6V 12V 24V 36V	NONE-Non-marking LE-Laser etched

Notes:

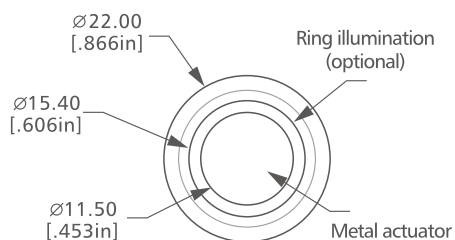
* Base voltage on LEDs:

1.8V @20mA for red, yellow and orange LED colors

2.8V @20mA for blue, green and white LED colors

**5 ICON labels included, flat actuator only

Description

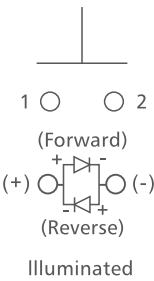
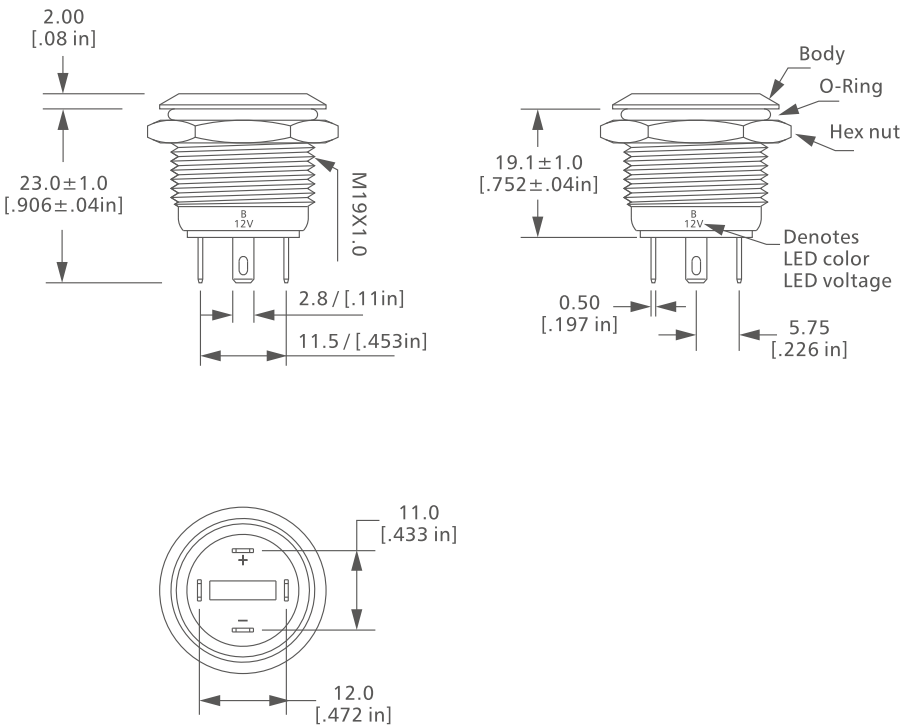


Technical Data

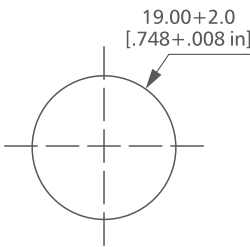
Type	LS19-F
Illuminated options	Non-illuminated / Ring illuminated / Dot illuminated
Terminal	Solder lug (2.8X0.5)
Max. switch rating	2A 36VDC
Contact resistance	≤50mΩ
Insulation resistance	≥1000mΩ
Dielectric strength	2000VAC
Operation temp.	-20°C ~ +55°C
Mechanical life	1,000,000 cycles
Electrical life	200,000 cycles
Contact material	Silver alloy
Torque	5~14Nm
Operation pressure	Approx. 3~5N
Protection	IP65/ IK08
Material	
Actuator	Stainless steel
Body	Stainless steel
Base	PBT
LED	
Color	3.3V / 6V / 12V / 24V / 36V (The resistor is external) R G Y O B W Approx. 40,000 hours

Current-limiting Resistance Configuration Table	Operating Voltage (U)	6V	12V	24V	36V	Formula
	Current-limiting Resistance (R)	R G Y	210Ω ,1/4W	510Ω ,1/2W	1.2kΩ ,3/4W	$R = \frac{U-U_e}{I_e}$
		O B W	160Ω ,1/4W	460Ω ,1/2W	2.2kΩ ,1W	

Dimensions



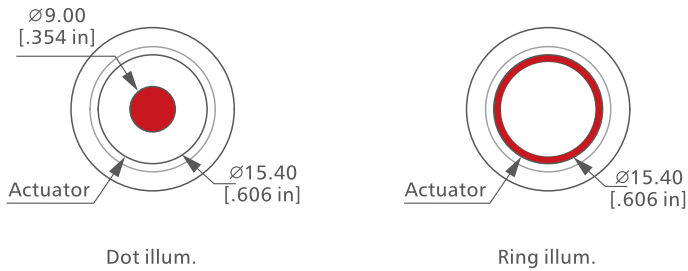
Functions



Panel thickness: 1~10mm

Panel Cutout

Illum. Options



Lens Options



Micro-trip Anti Vandal Switch Ø 19mm

Order Code

Series	Actuator Options	Terminal Options	Function Options	Material Options	Illumination Style Options	Led- Color Options	Illumination Voltage Options	Graphic Options
L19M Micro-trip	F-Flat	NONE-Solder lug (2.8X0.8) N-Screw	M-Momentary 1-1NO	S-Stainless steel	NONE-Non-illum. D-Dot R-Ring PS-Power backlit symbol PY-Ring illum. & Power backlit symbol X-Backlit label kit**	NONE-Non-illum. W-White Y-Yellow B-Blue G-Green R-Red O-Orange 3A-Red/ Green/ Blue	NONE-Base voltage* 3.3V 6V 12V 24V 36V	NONE-Non-marking LE-Laser etched

Notes:

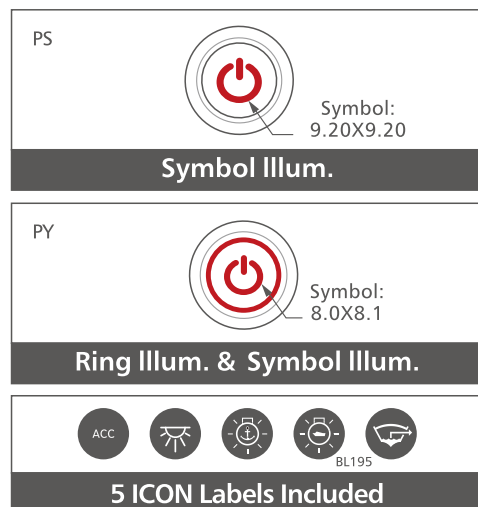
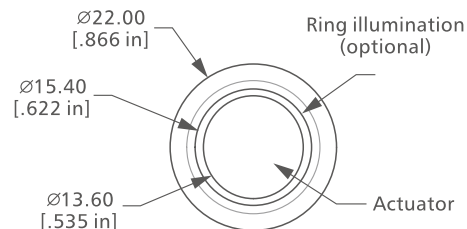
* Base voltage on LEDs:

1.8V @20mA for red and yellow and orange LED colors

2.8V @20mA for blue, green and white LED colors

**5 ICON labels included, flat actuator only

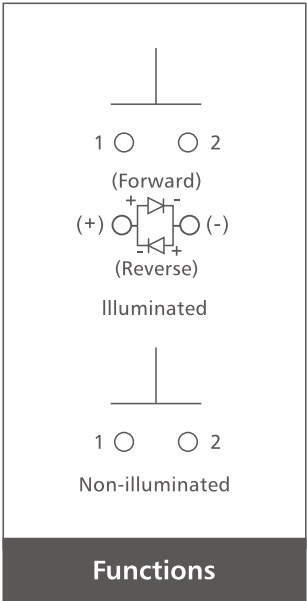
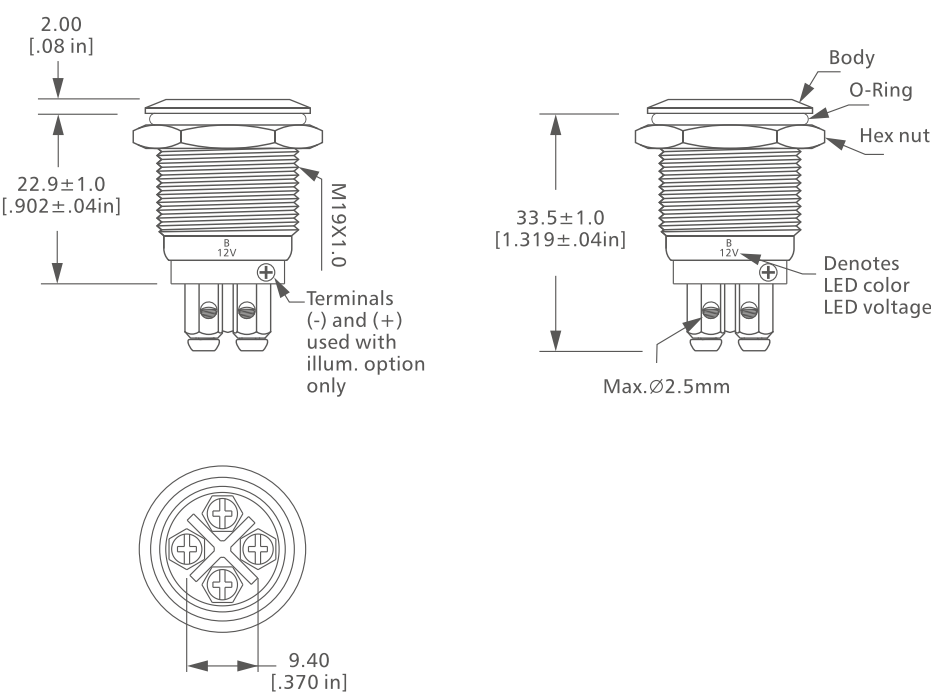
Description



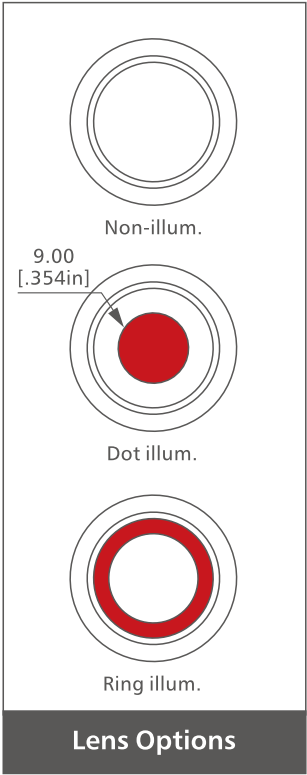
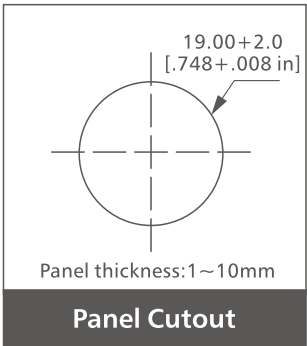
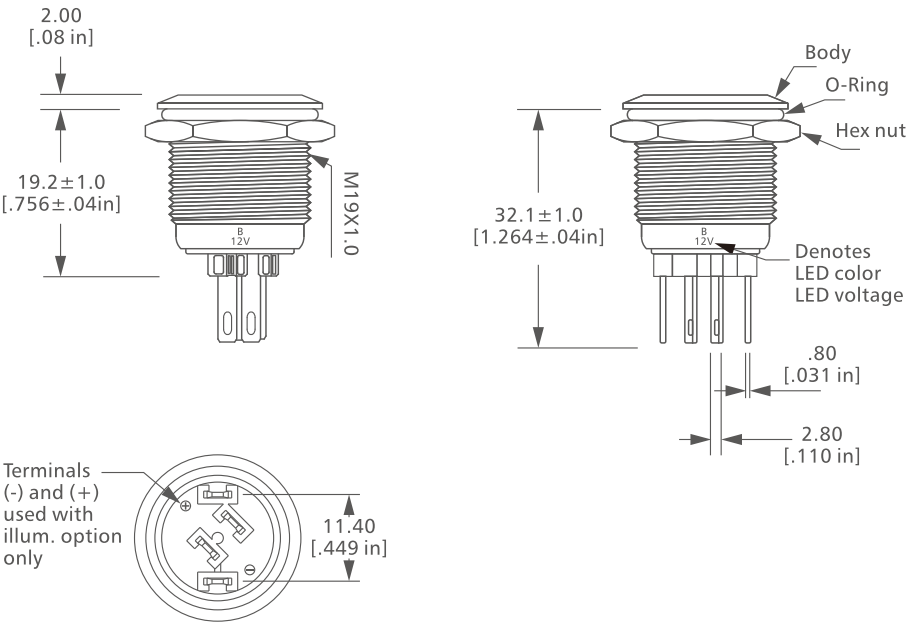
Technical Data

Type	L19M-F
Illuminated options	Non-illuminated / Ring illuminated / Dot illuminated
Terminal	Screw / Solder lug (2.8X0.8)
Max. switch rating	50mA 24VDC
Contact resistance	≤ 100m Ω
Insulation resistance	≥ 1000m Ω
Dielectric strength	2000VAC
Operation temp.	-20°C ~ +55°C
Mechanical life	1,000,000 cycles
Electrical life	50,000 cycles
Contact material	Silver alloy
Rear nut fixing torque	0.57Nm
Operation pressure	Approx. 8N
Protection	IP65/ IK09
Material	
Switch assembly	UL94V-0 rated polyamide (nylon)
Tags	Copper alloy
Terminals	Copper alloy
Switch body & button	Stainless steel / *Anodized aluminum
Lens and lens body	Polycarbonate
Internal seal	Silicone
O ring	Nitrile
	LED
Color	3.3V / 6V / 12V / 24V / 36V R/G/Y/B/W Approx. 40,000 hours

Screw Terminal



Solder Terminal



High Current Anti Vandal Switch Ø 19mm



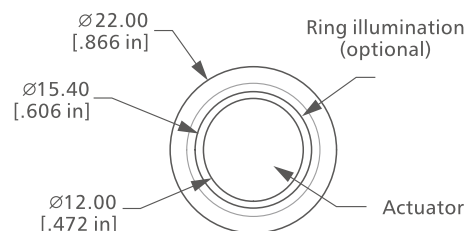
Order Code

Series	Actuator Options	Terminal Options	Function Options	Current Options	Material Options	Illumination Style Options	Led- Color Options	Illumination Voltage Options	Graphic Options
☐ ☐	☐	☐	☐	☐	☐	☐	☐	☐	☐ ☐ ☐
L19B	F-Flat	NONE -Quick connect terminal (6.35X0.8)	M -Momentary 1-1NO(SPST) 2-1NC(SPST) 3-1NO1NC(SPDT) Z -Latching 1-1NO(SPST) 2-1NC(SPST) 3-1NO1NC(SPDT)	02-2.5A 03-3A 05-5A 08-8A 10-10A 16-16A 21-21A D6-0.6A / 125VDC D3-0.3A / 250VDC	S-Stainless steel	NONE -Non-illum. D -Dot R -Ring	NONE -Non-illum. W -White Y -Yellow B -Blue G -Green R -Red O -Orange	NONE -Base voltage* 3.3V 6V 12V 24V 36V 110V 220V	NONE -Non-marking LE -Laser etched

Notes

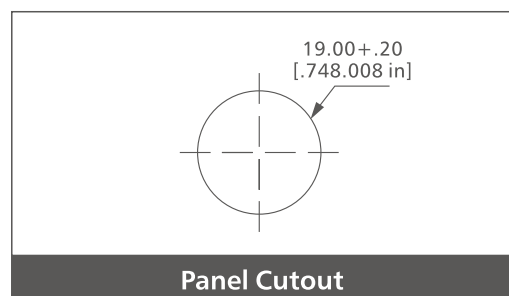
* Base voltage on LEDs:
1.8V @20mA for red, yellow and orange LED colors
2.8V @20mA for blue, green and white LED colors

Description



Panel thickness: 1~10mm

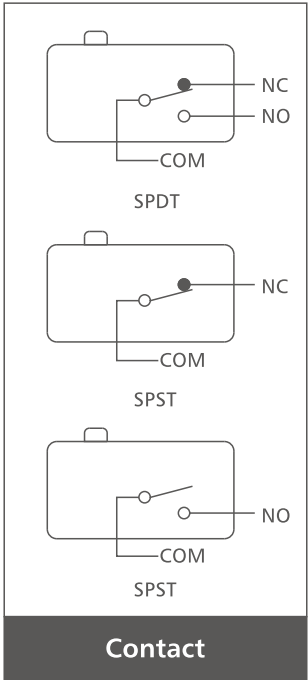
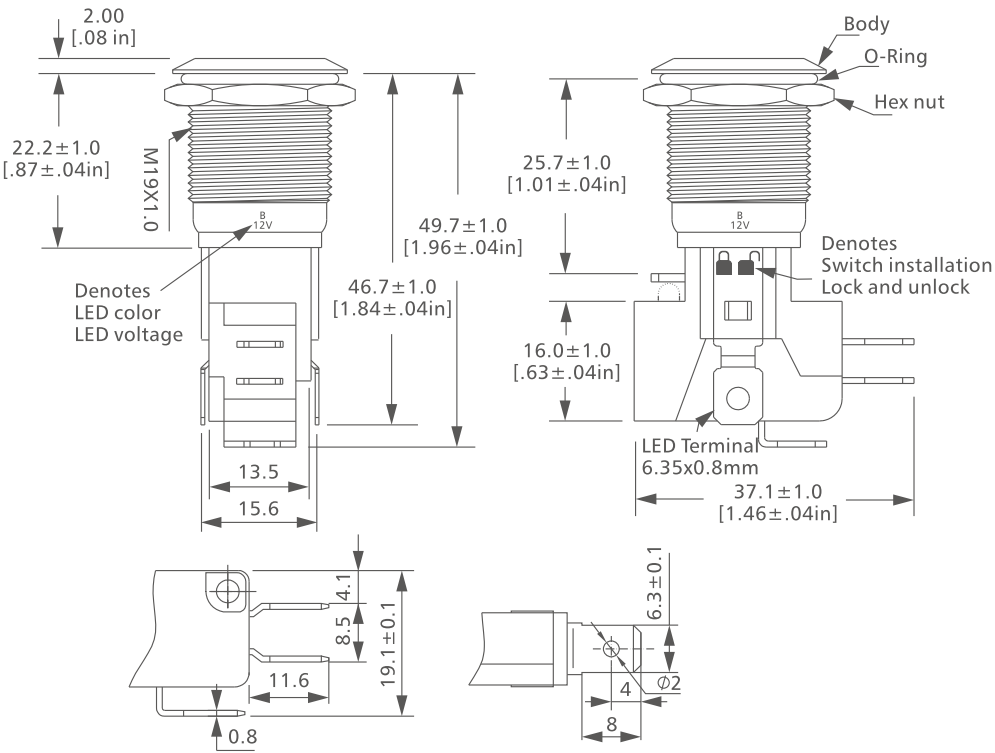
Panel Cutout



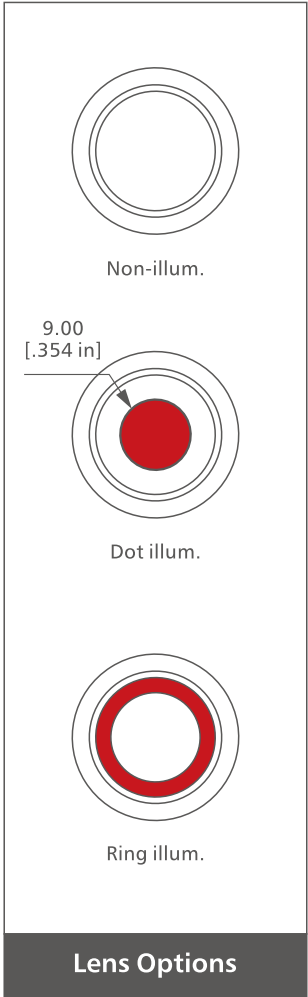
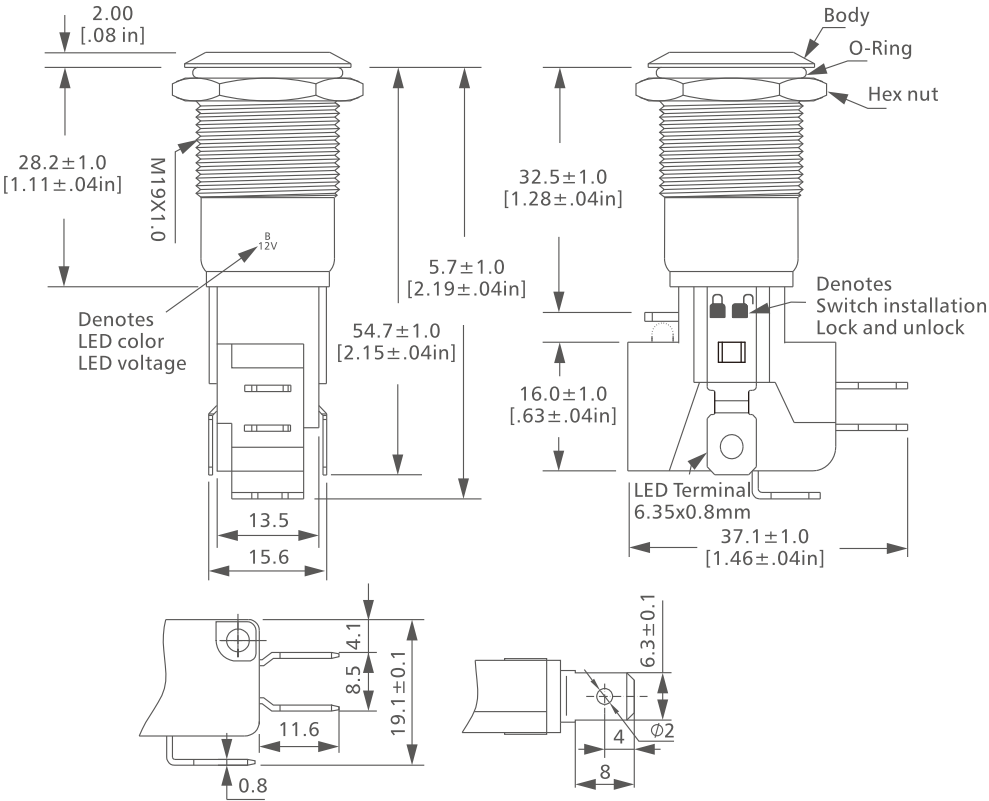
Technical Data

Type	L19B-F
Illuminated options	Non-illuminated / Ring illuminated / Dot illuminated
Terminal	Quick connect terminal (6.35x0.8)
Max. switch rating	3A 5A 8A 10A 15A(16A) 20A(21A)/ 250VAC, 125VAC 0.6A/ 125VDC 0.3A/ 250VDC
Contact resistance	≤25mΩ
Insulation resistance	≥100mΩ
Dielectric strength	Between non-consecutive terminals 1,000Vrms, 50/60Hz for 1min Between non-current carrying metal parts and each terminal 1,500Vrms, 50/60Hz for 1min Between ground and each terminal 1,500Vrms, 50/60Hz for 1min
Shock resistance	Detraction: O.F.>0.5N: 1000m/s2 (approx. 100g), O.F.≤0.5N: 400m/s2 (approx. 40g) Malfunction: O.F.>0.5N: 200m/s2 (approx. 20g), O.F.≤0.5N: 100m/s2 (approx. 10g)
Vibration resistance	10 - 50Hz, 1.5mm double amplitude
Ambient temp.	-25°C ~ +85°C
Mechanical life	2,000,000 cycles
Electrical life	50,000 cycles
Contact material	Silver alloy
Torque	5~14Nm
Operation pressure	10N
Protection	IP65/ IK09
Material	
Actuator	Stainless steel
Body	Stainless steel
LED	
Color	3.3V / 6V / 12V / 24V / 36V / 110V / 220V R/G/Y/O/B/W
	Approx. 40,000

Dimensions



Latching





High Current Anti Vandal Switch Ø 19mm

Specifications

Electrical rating: 21A, 24VDC
Mechanical life: 1,000,000 Cycles
Electrical life: 50,000 Cycles
Contact resistance: 50mΩ Max.
Insulation resistance: 1000MΩ Min.
Dielectric strength: 2,000VAC
Operating /Storage temperature: -20°C to 55°C
Travel: 1.50mm
Moisture protection: IP67
Actuation force: 4N
Panel thickness: 1-11mm
Mounting nut torque: 5-14Nm
LED state for output image option :
 1 LED : the LED is ON when the output is closed.
 2 LEDs : first color is ON when the output is open,
 second color is ON when the output is closed.

Features & Benefits

- 19mm diameter panel cutout
- Backlit label kit option
- Variety of LED option
- Dot, ring or power symbol illumination available
- Multiple actuator options
- Pilot indicator option
- IP65 rated,
- Momentary Off-(On), Latching Off-On

Part Number Configurator

Series	Actuator Options	Terminal Options	Function Options	Rating Options	Material Options	Illumination Style Options	LED-Color Options	Illumination Voltage Options	LED Functions	Graphic (Optional)
L19Y	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	F- Flat H-High	C- Cable*	M- Momentary Off-(On) Z-Latching Off - On	NONE-Max. 21A24V DC	S-Stainless steel A-Black anodized	NONE-Non-illum. D-Dot R-Ring X-Backlit label kit***	NONE-Non-illum. W- White Y- Yellow B- Blue G- Green R- Red O- Orange RG-Red/Green RB-Red/Blue	NONE-Non-illum. 1-Base voltage**	S-Independent C-Output indicator	LE-Laser etched

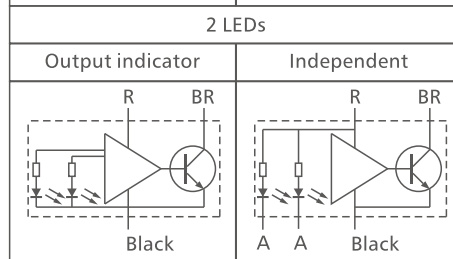
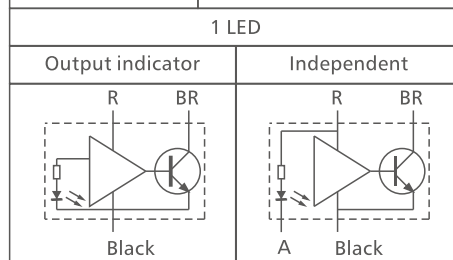
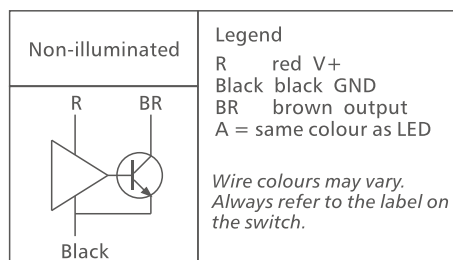
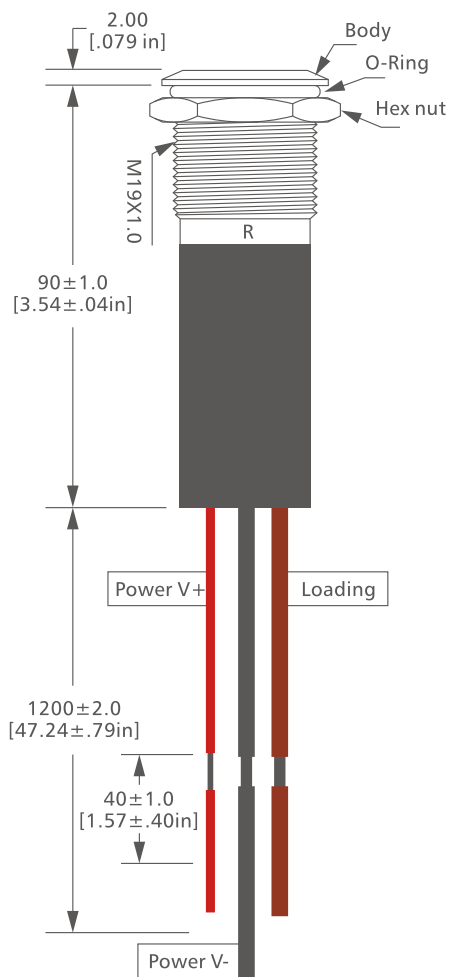
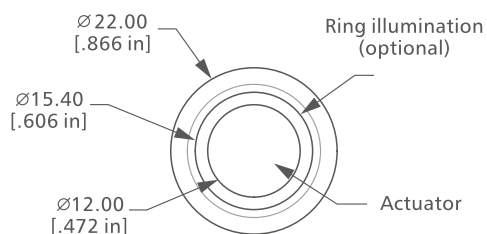
Notes:

()denotes function is momentary

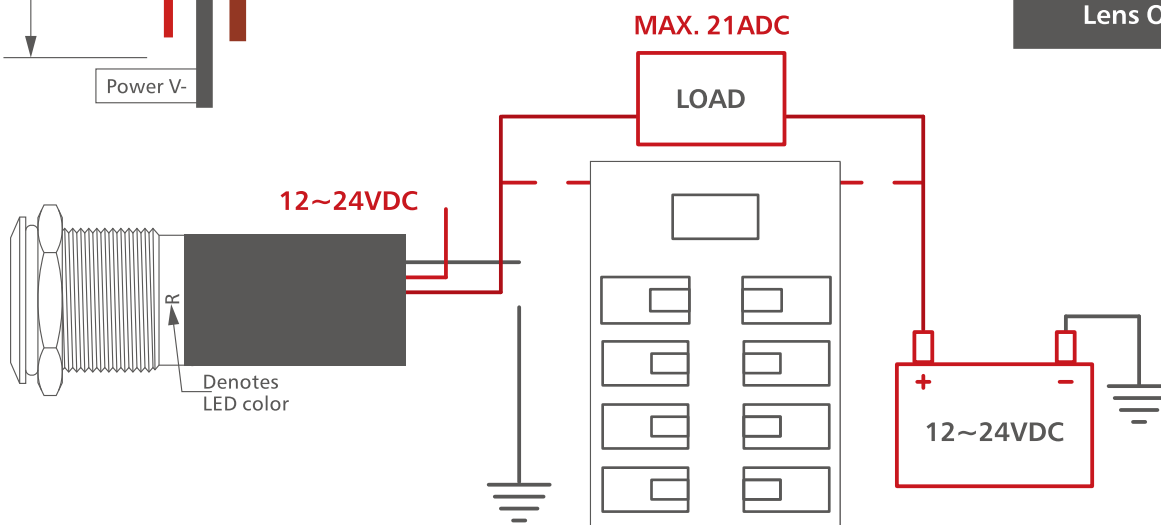
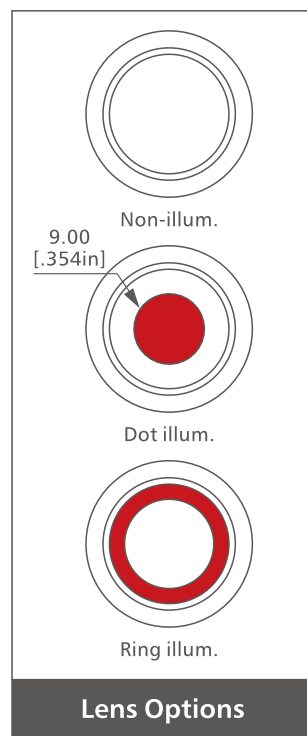
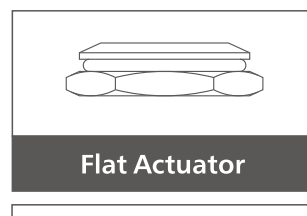
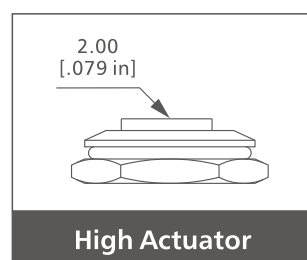
*Cable length 1200mm

**The base voltage for rating

***5 ICON labels included, flat actuator only



Wiring Diagrams



Important: Proper wiring must be followed!
Improper wiring may cause damage to switch

**FUSED BATTERY OR
CIRCUIT BREAKER PROTECTED
DISTRIBUTION PANEL**



Anti Vandal Switch Ø 22mm

Order Code

Series	Actuator Options	Terminal Options	Function Options	Material Options	Illumination Style Options	Led- Color Options	Illumination Voltage Options	Graphic Options
☐ ☐	☐	☐	☐	☐	☐	☐	☐ — ☐	☐ ☐ ☐
L22	F-Flat	NONE-Solder lug (2.8X0.5)	M-Momentary 1-1NO1NC Z-Latching 1-1NO1NC	S-Stainless steel A-Anodized aluminum*	NONE-Non-illum. D-Dot R-Ring	NONE-Non-illum. W-White Y-Yellow B-Blue G-Green R-Red O-Orange	NONE-Base voltage** 3.3V 6V 12V 24V 36V 110V 220V	NONE-Non-marking LE-Laser etched

Notes:

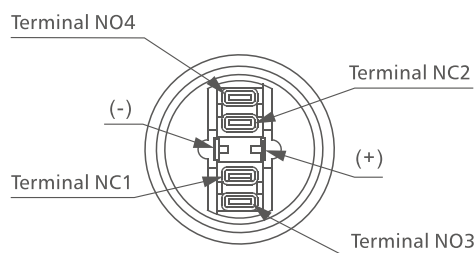
* Anodized aluminum: variety of colors(MOQ 500pcs/color), standard for black anodized

* Base voltage on LEDs:

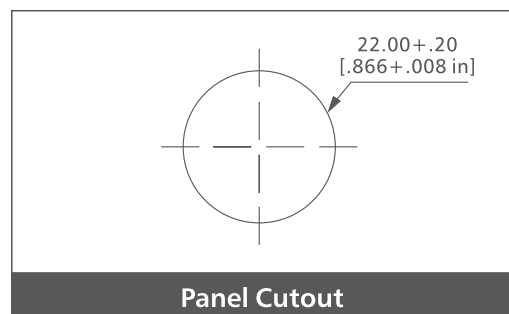
1.8V @20mA for red, yellow and orange LED colors

2.8V @20mA for blue, green and white LED colors

Description



Terminals (-) and (+) used with illum.option only



Panel thickness:

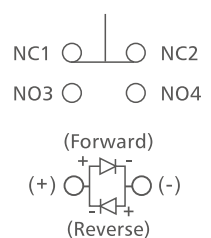
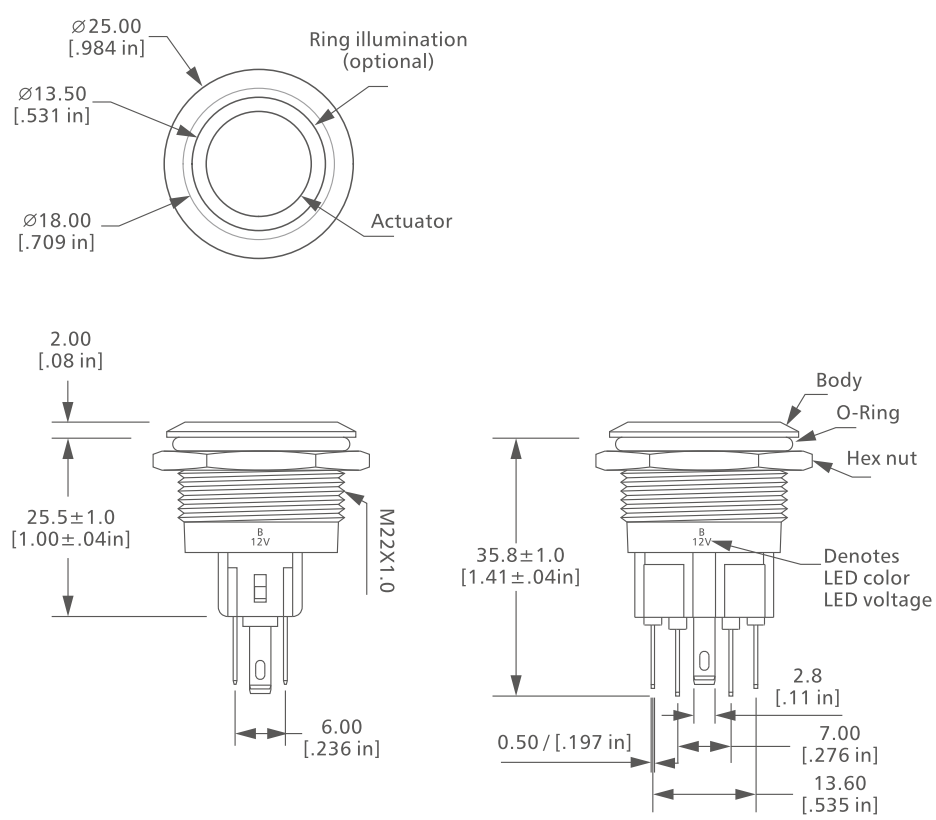
1-12mm for latching

1-10mm for momentary

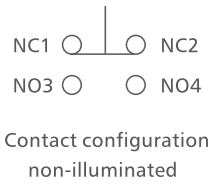
Technical Data

Type	L22-F
Illuminated options	Non-illuminated / Ring illuminated / Dot illuminated
Terminal	Solder lug (2.8X0.5)
Max. switch rating	Ith: 5A Ui: 250VAC
Contact resistance	≤ 50mΩ
Insulation resistance	≥ 1000mΩ
Dielectric strength	2000VAC
Operation temp.	-20°C ~ +55°C
Mechanical life	1,000,000 cycles
Electrical life	> 50,000 cycles
Contact material	Silver alloy
Torque	5~14Nm
Operation pressure	Approx. 8N
Protection	IP65/ IK10
Material	
Actuator	Stainless steel / *Anodized aluminum
Body	Stainless steel / *Anodized aluminum
Base	PA
LED	
Color	3.3V / 6V / 12V / 24V / 36V / 110V / 220V R/G/Y/O/B/W
	Approx. 40,000 hours

Momentary



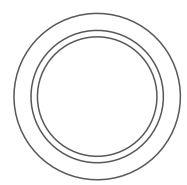
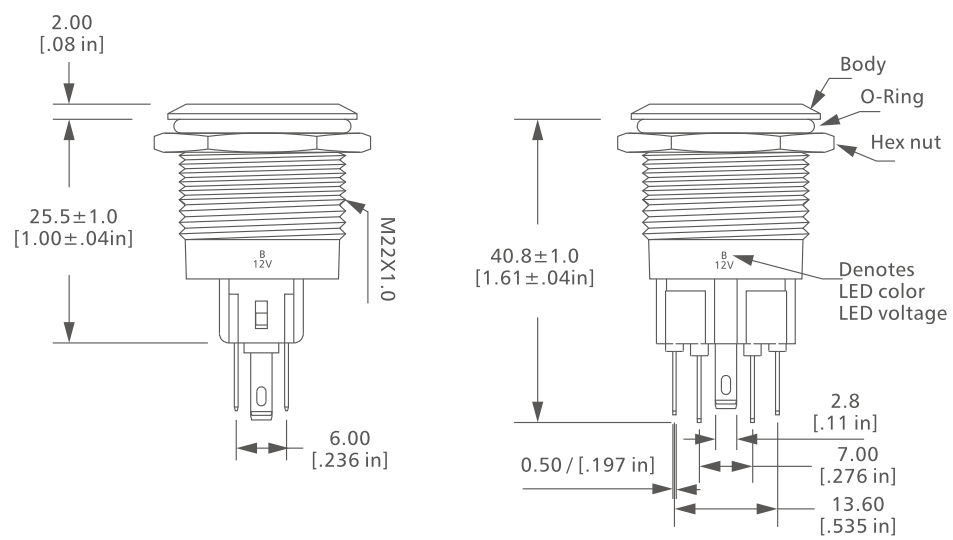
Contact configuration illuminated



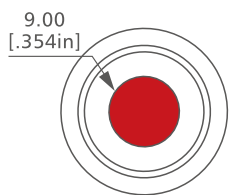
Contact configuration non-illuminated

Functions

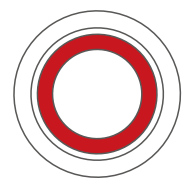
Latching



Non-illum.



Dot illum.



Ring illum.

Lens Options



Anti Vandal Switch Ø 22mm

Order Code

Series	Actuator Options	Terminal Options	Function Options	Material Options	Illumination Style Options	Led- Color Options	Illumination Voltage Options	Graphic Options
☐ ☐	☐	☐	☐	☐	☐	☐	☐ — ☐	☐ ☐ ☐
L22A	F-Flat	NONE-Solder lug (2.8X0.5) N-Screw	M-Momentary 1-1N01NC Z-Latching 1-1N01NC	S-Stainless steel	NONE-Non-illum. D-Dot R-Ring X-Backlit label kit**	None-Non-illum. W-White Y-Yellow B-Blue G-Green R-Red O-Orange	NONE-Base voltage** 3.3V 6V 12V 24V 36V 110V 220V	NONE-Non-marking LE-Laser etched

Notes:

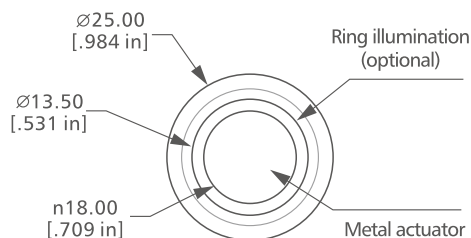
* Base voltage on LEDs:

1.8V @20mA for red, yellow and orange LED colors

2.8V @20mA for blue, green and white LED colors

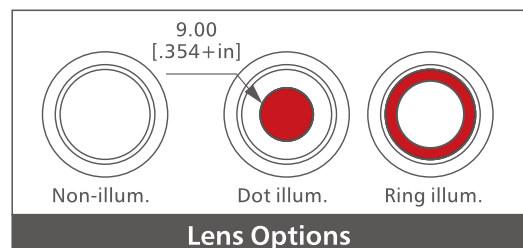
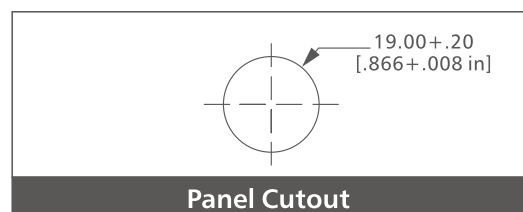
**5 ICON labels included, flat actuator only

Description



Panel thickness:
1-10mm for momentary
1-12mm for latching

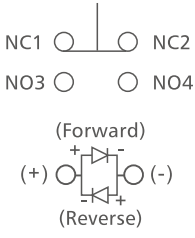
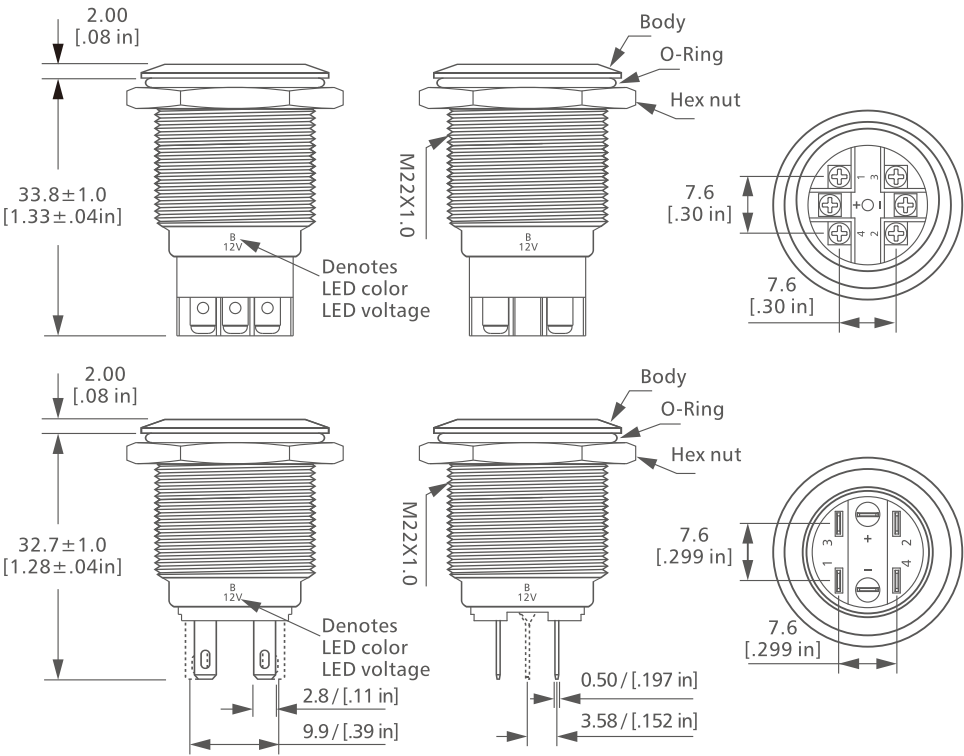
Panel Cutout & Illuminated Options



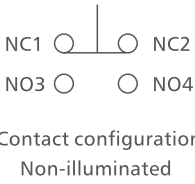
Technical Data

Type	L22A-F
Illuminated options	Non-illuminated / Ring illuminated / Dot illuminated / Backlit label kit
Terminal	Screw / Solder lug (2.8X0.5)
Max. switch rating	Ith: 5A Ui: 250VAC
Contact resistance	≤50mΩ
Insulation resistance	≥1000mΩ
Dielectric strength	2000VAC
Operation temp.	-20°C ~ +55°C
Mechanical life	1,000,000 cycles
Electrical life	> 50,000 cycles
Contact material	Silver alloy
Torque	5~14Nm
Operation pressure	Approx. 8N
Protection	IP65/ IK10
Material	
Actuator	Stainless steel
Body	Stainless steel
Base	PA
	LED
Color	3.3V / 6V / 12V / 24V / 36V / 110V / 220V R/G/Y/O/B/W Approx. 40,000 hours

Momentary



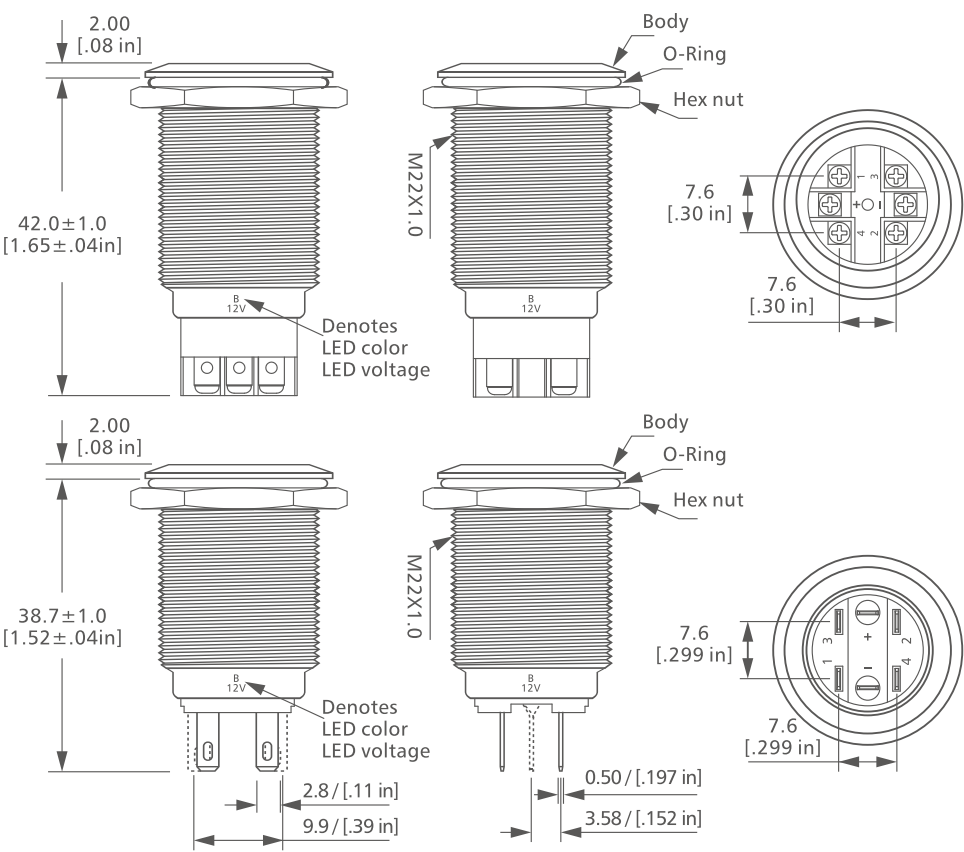
Contact configuration illuminated



Contact configuration Non-illuminated

Functions

Latching



BL225

5 ICON Labels Included



Micro-trip Anti Vandal Switch

Ø 22mm

Order Code

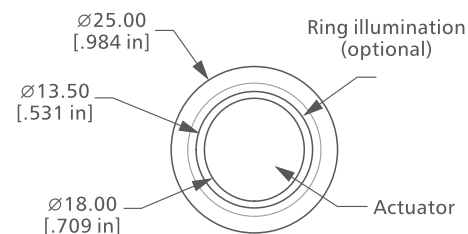
Series	Actuator Options	Terminal Options	Function Options	Material Options	Illumination Style Options	Led- Color Options	Illumination Voltage Options	Graphic Options
☐ ☐	☐	☐	☐	☐	☐	☐	☐	☐ ☐ ☐
L22M Micro-trip	F-Flat	NONE -Solder lug (2.8X0.8) N-Screw	M-Momentary 1-1NO	S-Stainless steel	NONE -Non-illum. D-Dot R-Ring	NONE -Non-illum. W-White Y-Yellow B-Blue G-Green R-Red O-Orange	NONE -Base voltage* 3.3V 6V 12V 24V 36V	NONE -Non-marking LE-Laser etched

Notes:

* Base voltage on LEDs:

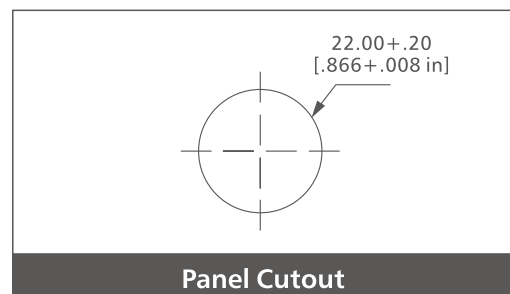
1.8V @20mA for red, yellow and orange LED colors
2.8V @20mA for blue, green and white LED colors

Description



Panel thickness: 1~10mm

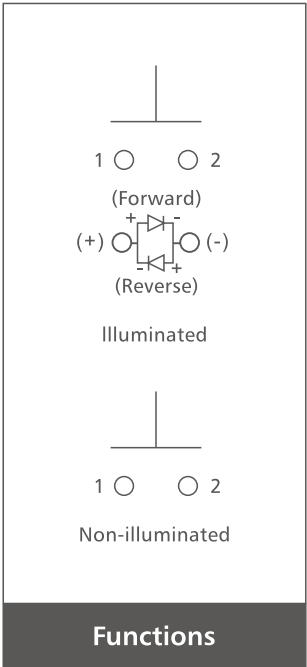
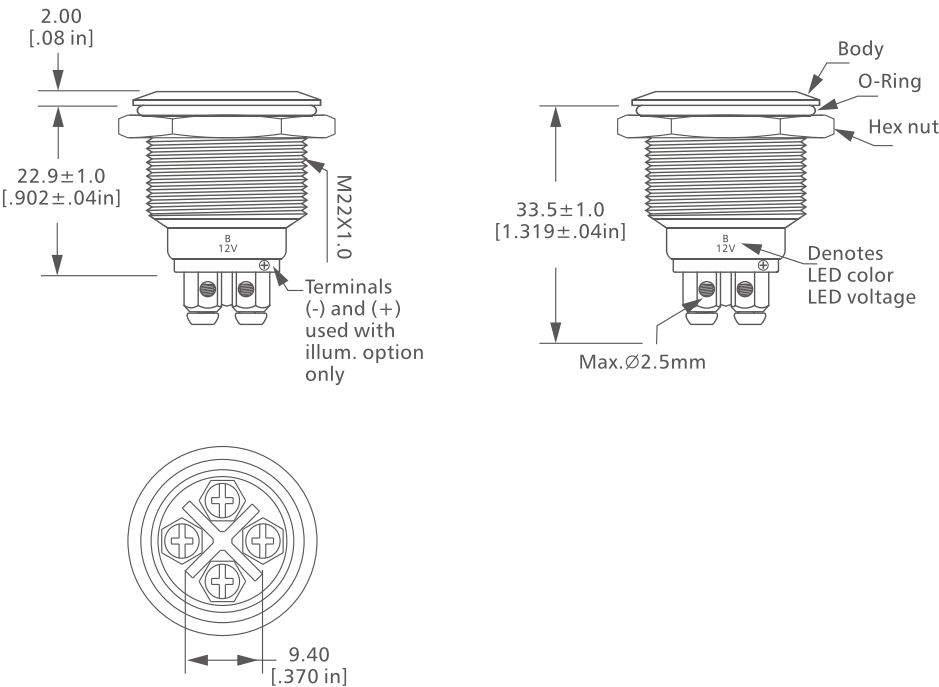
Panel Cutout



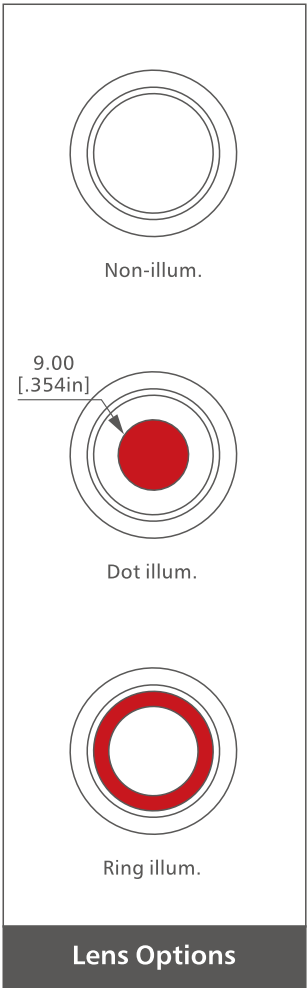
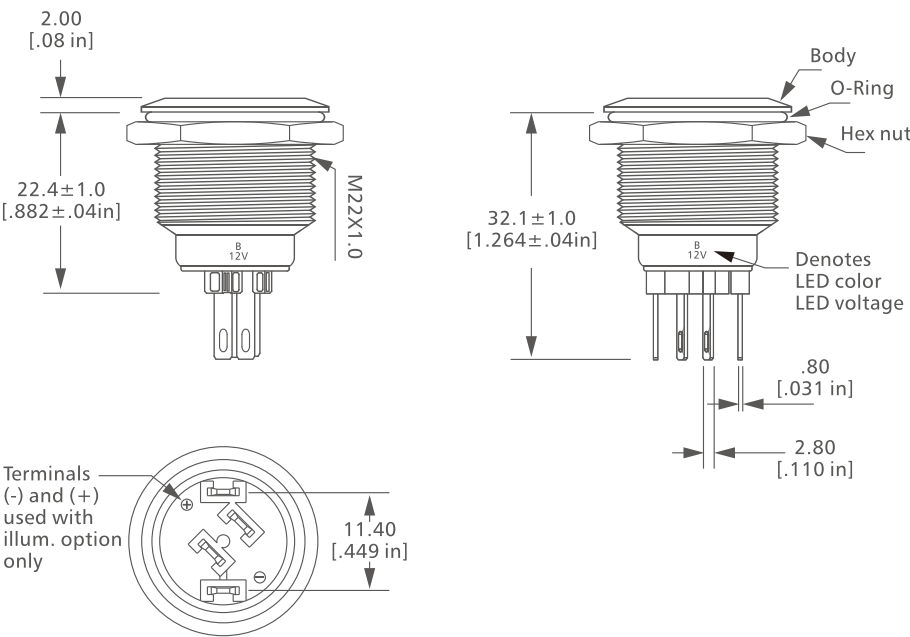
Technical Data

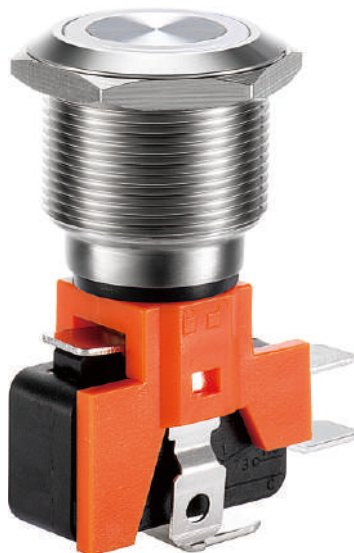
Type	L22M-F
Illuminated options	Non-illuminated / Ring illuminated / Dot illuminated
Terminal	Screw / Solder lug (2.8X0.8)
Max. switch rating	50mA 24VDC
Contact resistance	≤ 100m Ω
Insulation resistance	≥ 1000m Ω
Dielectric strength	2000VAC
Operation temp.	-20°C ~ +55°C
Mechanical life	1,000,000 cycles
Electrical life	50,000 cycles
Contact material	Silver alloy
Rear nut fixing torque	0.57Nm
Operation pressure	Approx. 8N
Protection	Ip65/ IK10
Material	
Switch assembly	UL94V-0 rated polyamide (nylon)
Tags	Copper alloy
Terminals	Copper alloy
Switch body & button	Stainless steel
Lens and lens body	Polycarbonate
Internal seal	Silicone
O ring	Nitrile
	LED
Color	3.3V / 6V / 12V / 24V / 36V R/G/Y/O/B/W Approx. 40,000 hours

Screw Terminal



Solder Terminal





High Current Anti Vandal Switch

Ø22mm

Order Code

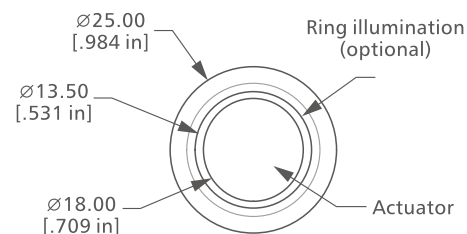
Series	Actuator Options	Terminal Options	Function Options	Current Options	Material Options	Illumination Style Options	Led- Color Options	Illumination Voltage Options	Graphic Options
☐ ☐	☐	☐	☐	☐	☐	☐	☐	☐	☐ ☐ ☐
L22B	F-Flat	NONE -Quick connect terminal (6.35X0.8)	M -Momentary 1-1NO(SPST) 2-1NC(SPST) 3-1NO1NC(SPDT) Z -Latching 1-1NO(SPST) 2-1NC(SPST) 3-1NO1NC(SPDT)	02-2.5A 03-3A 05-5A 08-8A 10-10A 16-16A 21-21A D6-0.6A / 125VDC D3-0.3A / 250VDC	S-Stainless steel	NONE -Non-illum. D -Dot R -Ring	NONE -Non-illum. W -White Y -Yellow B -Blue G -Green R -Red O -Orange	NONE -Base voltage* 3.3V 6V 12V 24V 36V 110V 220V	NONE -Non-marking LE -Laser etched

Notes:

* Base voltage on LEDs:

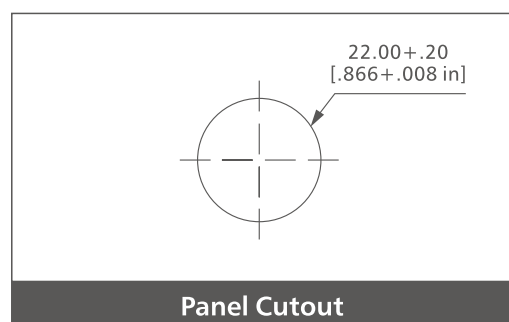
1.8V @20mA for red, yellow and orange LED colors
2.8V @20mA for blue, green and white LED colors

Description



Panel thickness: 1~12mm

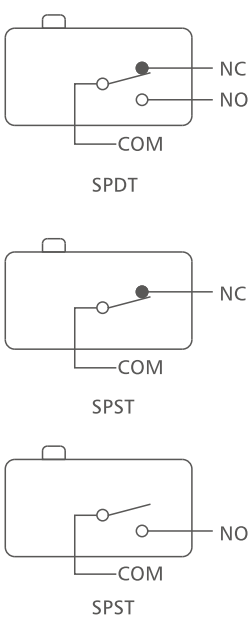
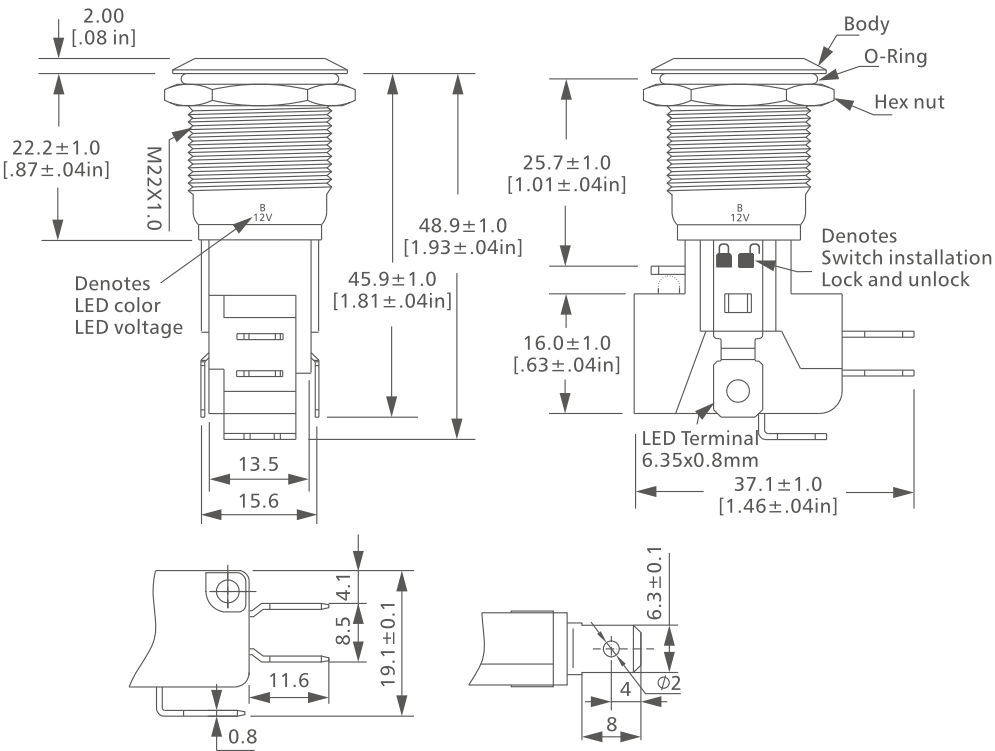
Panel Cutout



Technical Data

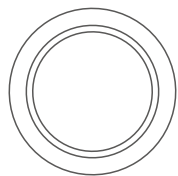
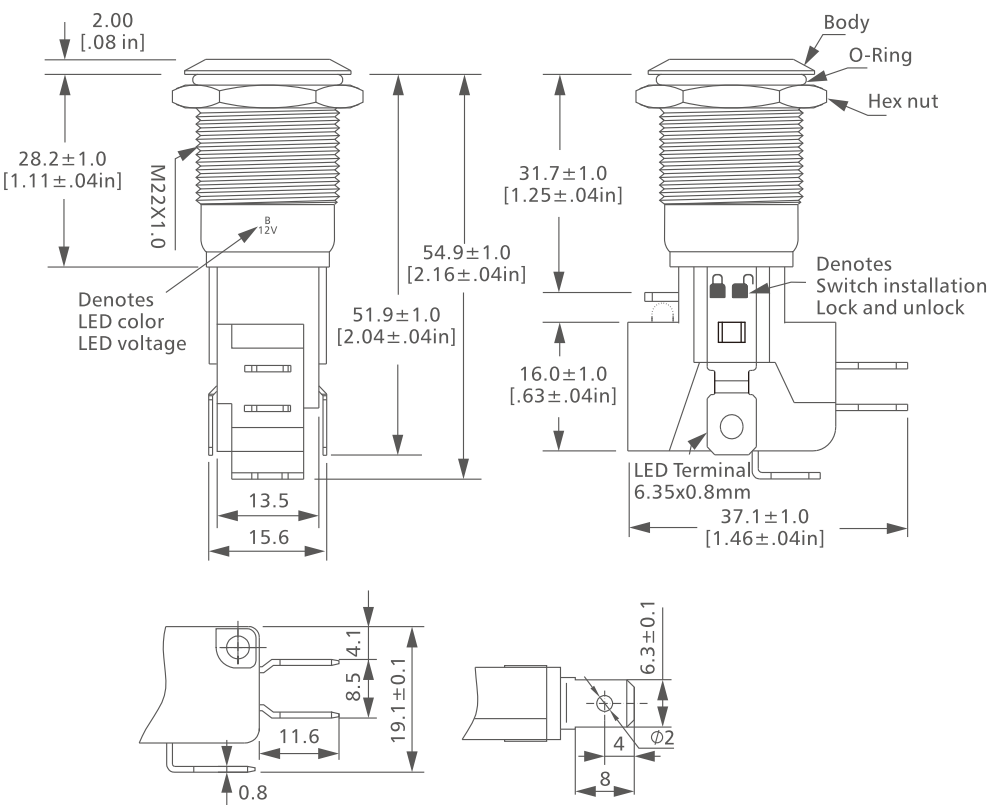
Type	L22B-F
Illuminated options	Non-illuminated / Ring illuminated / Dot illuminated
Terminal	Quick connect terminal (6.35x0.8)
Max. switch rating	3A 5A 8A 10A 15A(16A) 20A(21A) / 250VAC, 125VAC 0.6A / 125VDC 0.3A / 250VDC
Contact resistance	≤25mΩ
Insulation resistance	≥100mΩ
Dielectric strength	Between non-consecutive terminals 1,000Vrms, 50/60Hz for 1min Between non-current carrying metal parts and each terminal 1,500Vrms, 50/60Hz for 1min Between ground and each terminal 1,500Vrms, 50/60Hz for 1min
Shock resistance	Detruction: O.F.>0.5N: 1000m/s2 (approx. 100g), O.F.≤0.5N: 400m/s2 (approx. 40g) Malfunction: O.F.>0.5N: 200m/s2 (approx. 20g), O.F.≤0.5N: 100m/s2 (approx. 10g)
Vibration resistance	10 - 50Hz, 1.5mm double amplitude
Ambient temp.	-25°C ~ +85°C
Mechanical life	2,000,000 cycles
Electrical life	50,000 cycles
Contact material	Silver alloy
Torque	5~14Nm
Operation pressure	10N
Protection	IP65/ IK09
Material	
Actuator	Stainless steel
Body	Stainless steel
LED	
Color	3.3V / 6V / 12V / 24V / 36V / 110V / 220V R/G/Y/O/B/W
	Approx. 40,000

Momentary

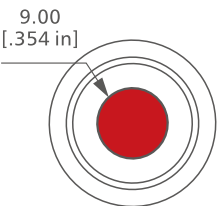


Contact

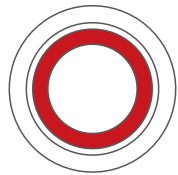
Latching



Non-illum.



Dot illum.



Ring illum.

Lens Options



Anti Vandal Switch Ø25mm

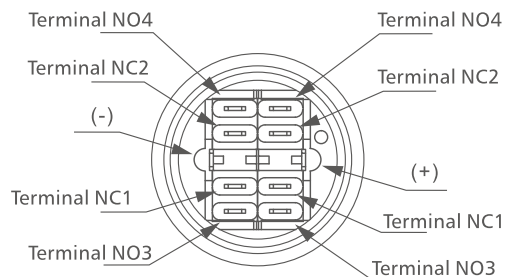
Order Code

Series	Actuator Options	Terminal Options	Function Options	Material Options	Illumination Style Options	Led- Color Options	Illumination Voltage Options	Graphic Options
☐ L25	☐ F-Flat	☐ NONE-Solder lug (2.8X0.5)	☐ M-Momentary 1-1NO1NC 2-2NO2NC Z-Latching 1-1NO1NC 2-2NO2NC	☐ S-Stainless steel A-Anodized aluminum*	☐ NONE-Non-illum. D-Dot R-Ring	☐ NONE-Non-illum. W-White Y-Yellow B-Blue G-Green R-Red O-Orange	☐ NONE-Base voltage** 3.3V 6V 12V 24V 36V 110V 220V	☐ NONE-Non-marking LE-Laser etched

Notes:

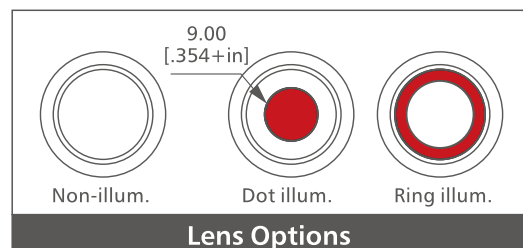
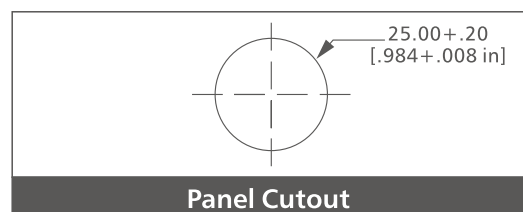
* Base voltage on LEDs:
1.8V @20mA for red, yellow and orange LED colors
2.8V @20mA for blue, green and white LED colors

Description



Terminals (-) and (+) used with illum.option only

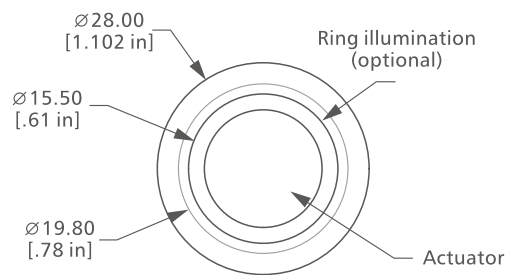
Panel Cutout & Illuminated Options



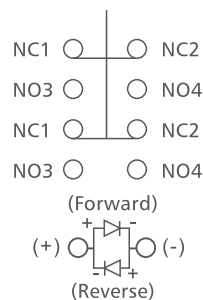
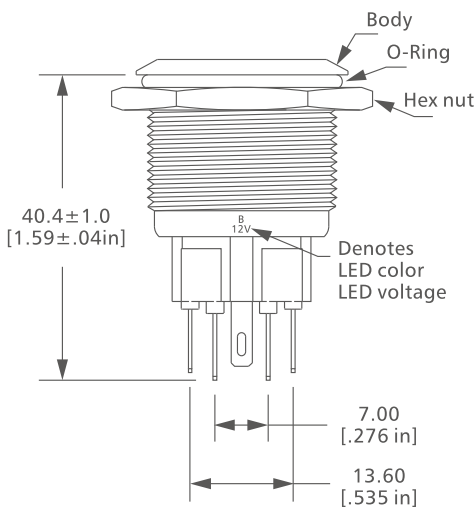
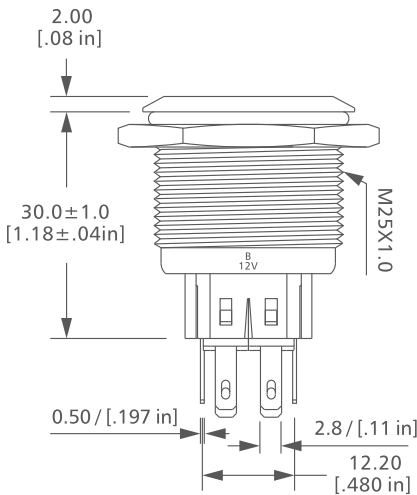
Technical Data

Type	L25-F
Illuminated options	Non-illuminated / Ring illuminated / Dot illuminated
Terminal	Solder lug (2.8X0.5)
Max. switch rating	Ith: 5A Ui: 250VAC
Contact resistance	≤50mΩ
Insulation resistance	≥1000mΩ
Dielectric strength	2000VAC
Operation temp.	-20°C ~ +55°C
Mechanical life	1,000,000 cycles
Electrical life	> 50,000 cycles
Contact material	Silver alloy
Torque	5~14Nm
Operation pressure	Approx. 8N
Protection	IP65 / IK10
Material	
Actuator	Stainless steel / *Anodized aluminum
Body	Stainless steel / *Anodized aluminum
Base	PA
LED	
Color	3.3V / 6V / 12V / 24V / 36V / 110V / 220V R/G/Y/O/B/W/ Approx, 40,000 hours

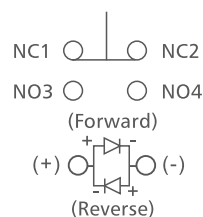
Momentary



Panel thickness:
1-10mm for momentary
1-12mm for maintained

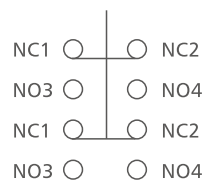
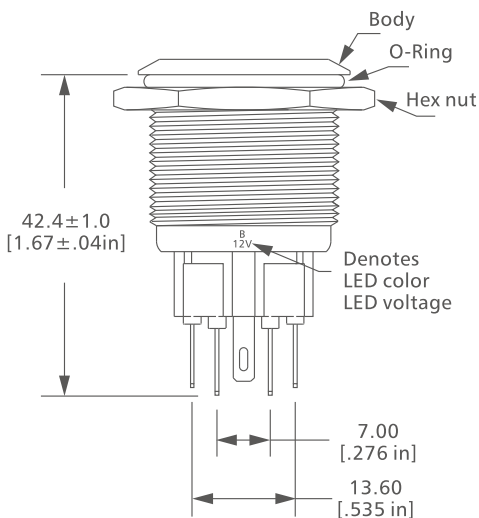
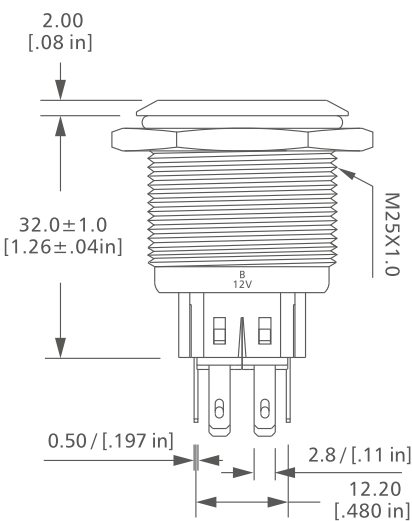


DPDT
2NO2NC ON (OFF) / OFF (ON)
Contact configuration
illuminated

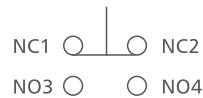


SPST
1NO1NC ON (OFF) / OFF (ON)
Contact configuration
illuminated

Latching



DPDT
2NO2NC ON (OFF) / OFF (ON)
Contact configuration
illuminated



SPST
1NO1NC ON (OFF) / OFF (ON)
Contact configuration
illuminated

Functions



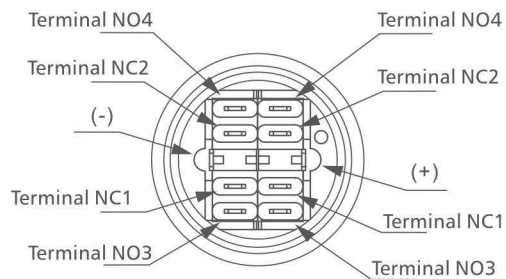
Anti Vandal Switch Ø28 mm

Order Code

Series	Actuator Options	Terminal Options	Function Options	Material Options	Illumination Style Options	Led- Color Options	Illumination Voltage Options	Graphic Options
☐ L28	☐ F-Flat	☐ NONE-Solder lug (2.8X0.5)	☐ M-Momentary 1-1NO1NC 2-2NO2NC Z-Latching 1-1NO1NC 2-2NO2NC	☐ S-Stainless steel	☐ NONE-Non-illum. D-Dot R-Ring	☐ NONE-Non-illum. W-White Y-Yellow B-Blue G-Green R-Red O-Orange	☐ NONE-Base voltage** 3.3V 6V 12V 24V 36V 110V 220V	☐ NONE-Non-marking LE-Laser etched

Notes:
 * Base voltage on LEDs:
 1.8V @20mA for red, yellow and orange LED colors
 2.8V @20mA for blue, green and white LED colors

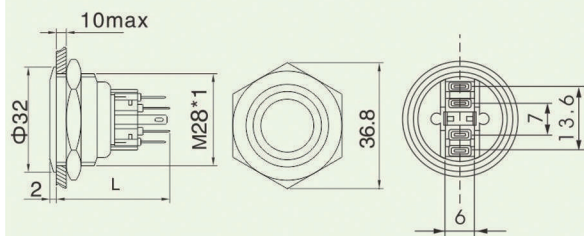
Description



Terminals (-) and (+) used with illum.option only

Panel Cutout & Illuminated Options

自锁 Momentary: L=40mm
 自复 ON-OFF : L=35mm



Technical Data

Type	L28-F
Illuminated options	Non-illuminated / Ring illuminated / Dot illuminated
Terminal	Solder lug (2.8X0.5)
Max. switch rating	Ith: 5A Ui: 250VAC
Contact resistance	≤50mΩ
Insulation resistance	≥1000mΩ
Dielectric strength	2000VAC
Operation temp.	-20°C ~ +55°C
Mechanical life	1,000,000 cycles
Electrical life	> 50,000 cycles
Contact material	Silver alloy
Torque	5~14Nm
Operation pressure	Approx. 8N
Protection	IP67 / IK10
Material	
Actuator	Stainless steel
Body	Stainless steel
Base	PA
LED	
Color	3.3V / 6V / 12V / 24V / 36V / 110V / 220V R/G/Y/O/B/W Approx. 40,000 hours



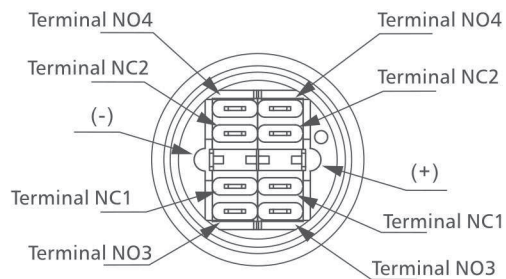
Anti Vandal Switch $\varnothing 30$ mm

Order Code

Series	Actuator Options	Terminal Options	Function Options	Material Options	Illumination Style Options	Led- Color Options	Illumination Voltage Options	Graphic Options
☐ L30	☐ F-Flat	☐ NONE-Solder lug (2.8X0.5)	☐ M-Momentary 1-1NO1NC 2-2NO2NC Z-Latching 1-1NO1NC 2-2NO2NC	☐ S-Stainless steel	☐ NONE-Non-illum. D-Dot R-Ring	☐ NONE-Non-illum. W-White Y-Yellow B-Blue G-Green R-Red O-Orange	☐ NONE-Base voltage** 3.3V 6V 12V 24V 36V 110V 220V	☐ NONE-Non-marking LE-Laser etched

Notes:
 * Base voltage on LEDs:
 1.8V @20mA for red, yellow and orange LED colors
 2.8V @20mA for blue, green and white LED colors

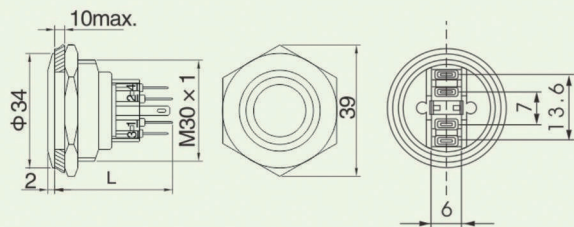
Description



Terminals (-) and (+) used with illum.option only

Panel Cutout & Illuminated Options

自锁 Momentary: L=40mm
 自复 ON-OFF : L=35mm



Technical Data

Type	L30-F
Illuminated options	Non-illuminated / Ring illuminated / Dot illuminated
Terminal	Solder lug (2.8X0.5)
Max. switch rating	Ith: 5A Ui: 250VAC
Contact resistance	$\leq 50\text{m}\Omega$
Insulation resistance	$\geq 1000\text{m}\Omega$
Dielectric strength	2000VAC
Operation temp.	-20°C ~ +55°C
Mechanical life	1,000,000 cycles
Electrical life	> 50,000 cycles
Contact material	Silver alloy
Torque	5~14Nm
Operation pressure	Approx. 8N
Protection	IP67/ IK10
Material	
Actuator	Stainless steel
Body	Stainless steel
Base	PA
LED	
Color	3.3V / 6V / 12V / 24V / 36V / 110V / 220V R/G/Y/O/B/W Approx. 40,000 hours



Anti Vandal Switch $\varnothing 35$ mm

Order Code

Series	Actuator Options	Terminal Options	Function Options	Material Options	Illumination Style Options	Led- Color Options	Illumination Voltage Options	Graphic Options
☐ L35	☐ F-Flat	☐ NONE-Solder lug (2.8X0.5)	☐ M-Momentary 1-1NO1NC Z-Latching 1-1NO1NC	☐ S-Stainless steel	☐ R-Ring	☐ W-White Y-Yellow B-Blue G-Green R-Red O-Orange	☐ NONE-Base voltage** 3.3V 6V 12V 24V 36V 110V 220V	☐ NONE-Non-marking LE-Laser etched

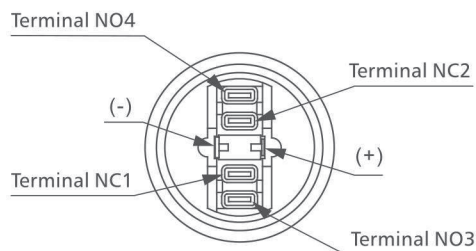
Notes:

* Base voltage on LEDs:

1.8V @20mA for red, yellow and orange LED colors

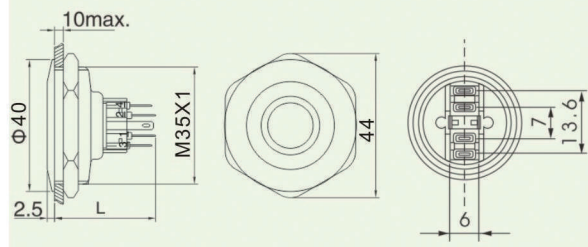
2.8V @20mA for blue, green and white LED colors

Description



Terminals (-) and (+) used with illum.option only

自锁 Momentary: L=40mm
自复 ON-OFF : L=35mm



Technical Data

Type	L35-F
Illuminated options	Ring illuminated
Terminal	Solder lug (2.8X0.5)
Max. switch rating	Ith: 5A Ui: 250VAC
Contact resistance	$\leq 50m\Omega$
Insulation resistance	$\geq 1000m\Omega$
Dielectric strength	2000VAC
Operation temp.	-20°C ~ +55°C
Mechanical life	1,000,000 cycles
Electrical life	> 50,000 cycles
Contact material	Silver alloy
Torque	5~14Nm
Operation pressure	Approx. 8N
Protection	IP67/IK10
Material	
Actuator	Stainless steel
Body	Stainless steel
Base	PA
LED	
Color	3.3V / 6V / 12V / 24V / 36V / 110V / 220V R/G/Y/O/B/W Approx, 40,000 hours



Anti Vandal Switch $\varnothing 40$ mm

Order Code

Series	Actuator Options	Terminal Options	Function Options	Material Options	Illumination Style Options	Led- Color Options	Illumination Voltage Options	Graphic Options
☐ ☐	☐	☐	☐	☐	☐	☐	☐ — ☐	☐ ☐ ☐
L40	F-Flat	NONE-Solder lug (2.8X0.5)	M-Momentary 1-1NO1NC Z-Latching 1-1NO1NC	S-Stainless steel	R-Ring	W-White Y-Yellow B-Blue G-Green R-Red O-Orange	NONE-Base voltage** 3.3V 6V 12V 24V 36V 110V 220V	NONE-Non-marking LE-Laser etched

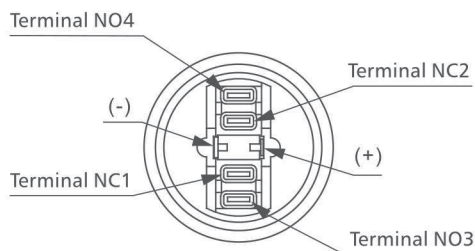
Notes:

* Base voltage on LEDs:

1.8V @20mA for red, yellow and orange LED colors

2.8V @20mA for blue, green and white LED colors

Description

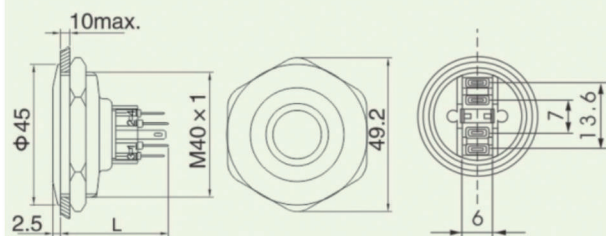


Terminals (-) and (+) used with illum.option only

Technical Data

Type	L40-F
Illuminated options	Ring illuminated
Terminal	Solder lug (2.8X0.5)
Max. switch rating	Ith: 5A Ui: 250VAC
Contact resistance	$\leq 50m\Omega$
Insulation resistance	$\geq 1000m\Omega$
Dielectric strength	2000VAC
Operation temp.	-20°C ~ +55°C
Mechanical life	1,000,000 cycles
Electrical life	> 50,000 cycles
Contact material	Silver alloy
Torque	5~14Nm
Operation pressure	Approx. 8N
Protection	IP67/IK10
Material	
Actuator	Stainless steel
Body	Stainless steel
Base	PA
Color	LED 3.3V / 6V / 12V / 24V / 36V / 110V / 220V R/G/Y/O/B/W Approx, 40,000 hours

自锁 Momentary: L=40mm
自复 ON-OFF : L=35mm





Indicator Buzzer



Anti Vandal Pilot Lamp

Specifications

Contact arrangement: Indicator

Operating / Storage Temperature: -20°C to 55°C

Lamp life: 40,000 hours nominal

Ingress protection: IP67

Panel thickness: 1-6mm or 1-10mm, (depending on mounting diameter)

Mounting nut torque: 5-14Nm

Features & Benefits

- Pilot indicator light
- Multiple panel cutout sizes: 6mm to 19mm dia.
- Multiple illumination voltage options
- Multiple LED color options
- IP67 rated

Order Code

Series	Indicator Diameter	Terminal Options	Lens	Illumination Style Options	Material Options	Led-Color Options	Illumination Voltage Options
PI	06- 6mm Dia. 08- 8mm Dia. 10- 10mm Dia. 12- 12mm Dia. 14- 14mm Dia. 16- 16mm Dia. 19- 19mm Dia.	NONE Solder lug(2.8x0.5) K-Wire-leads 150mm long or request	F- Flat C- Chamfer	D- Dot illum. R- Ring illum.**	S-Stainless steel N-Nickel plated brass	W- White Y- Yellow B- Blue G- Green R- Red O- Orange	NONE-Base voltage*** 3.3V 6V 12V 24V 36V 110V

Notes:

*PV: only 8mm and 12mm

**Ring illum. for 16~19mm, 6~12mm dot illum. only or request

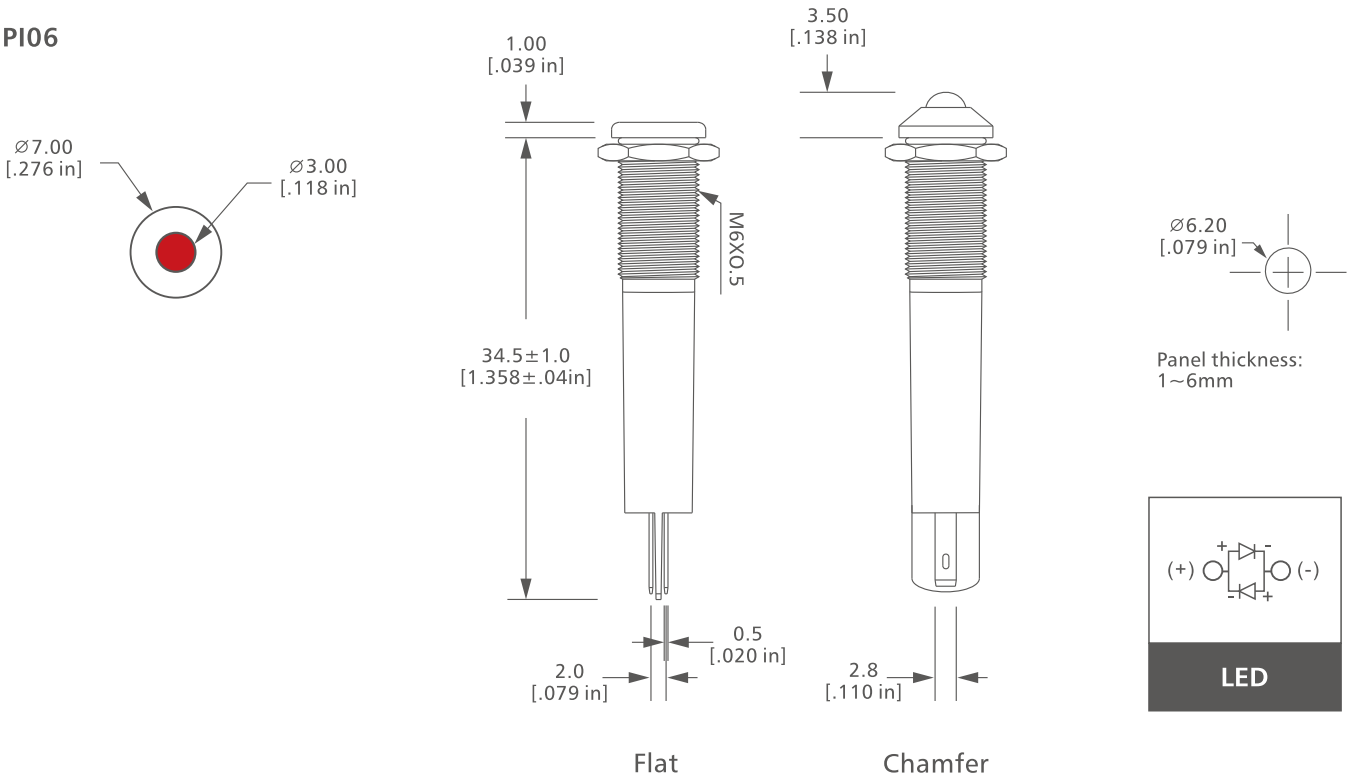
***Base voltage on LEDs:

1.8V @ 20mA for red, yellow and orange LED colors

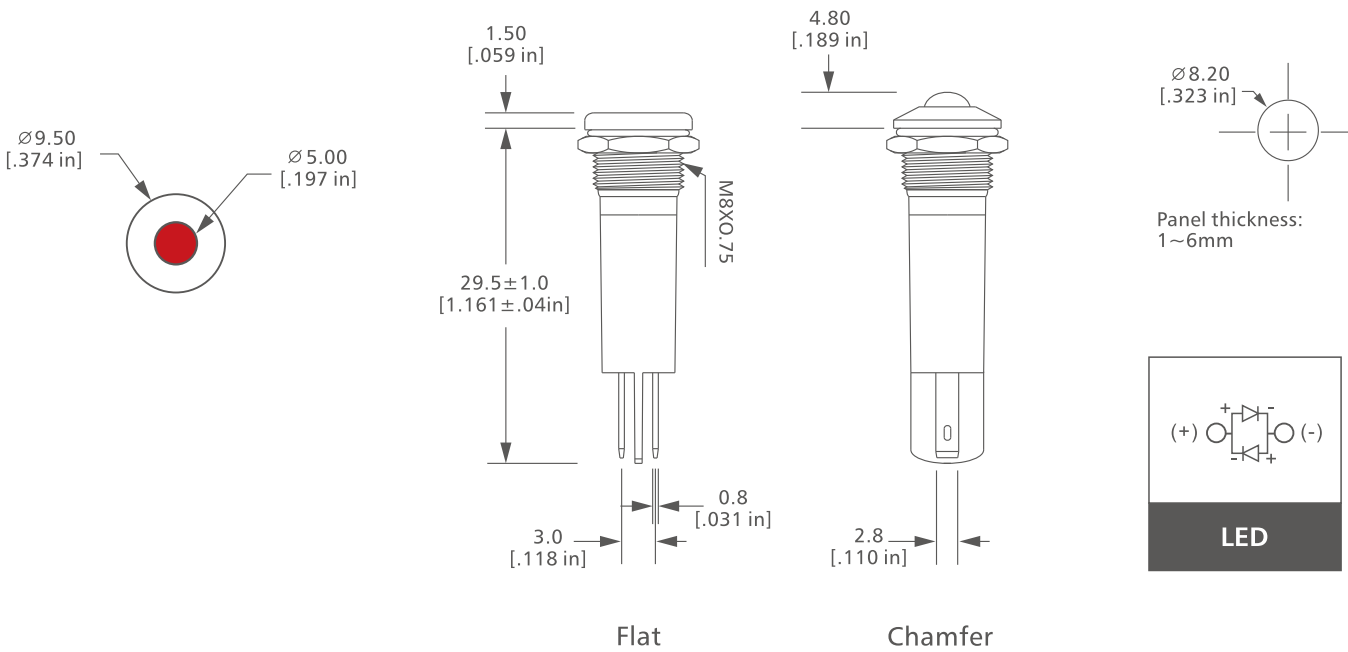
2.8V @ 20mA for blue, green and white LED colors

Dimensions

PI06

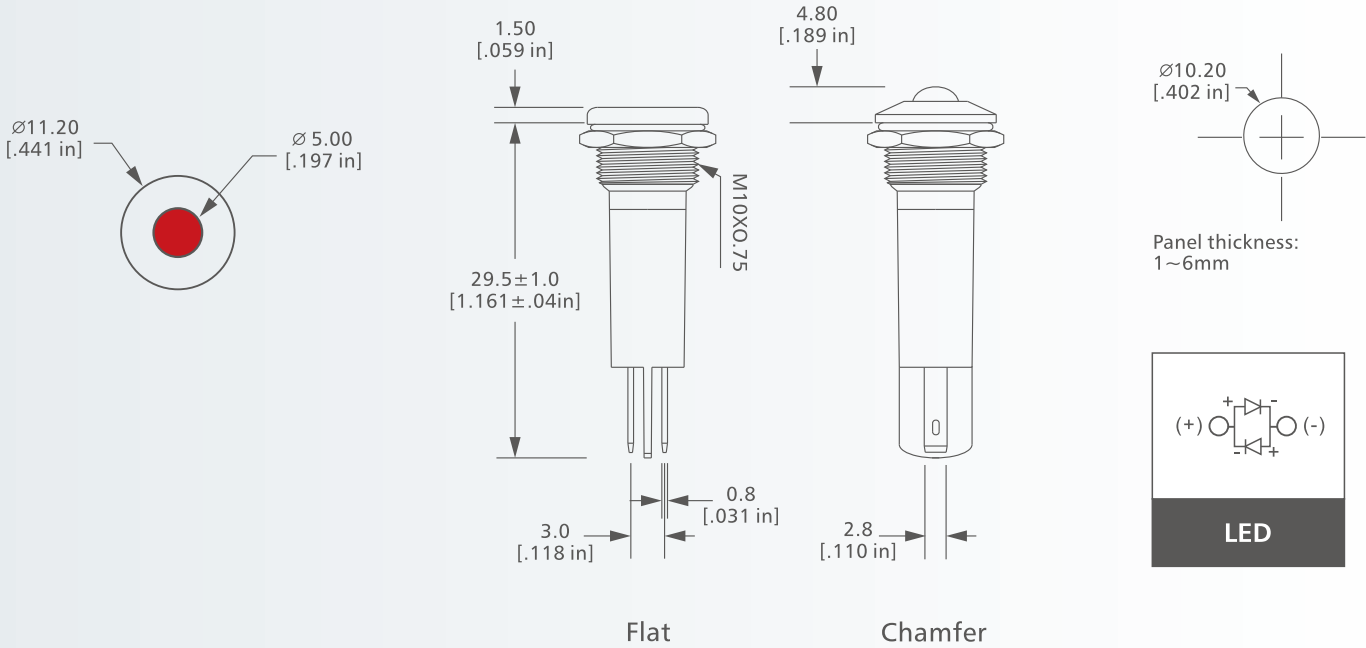


PI08

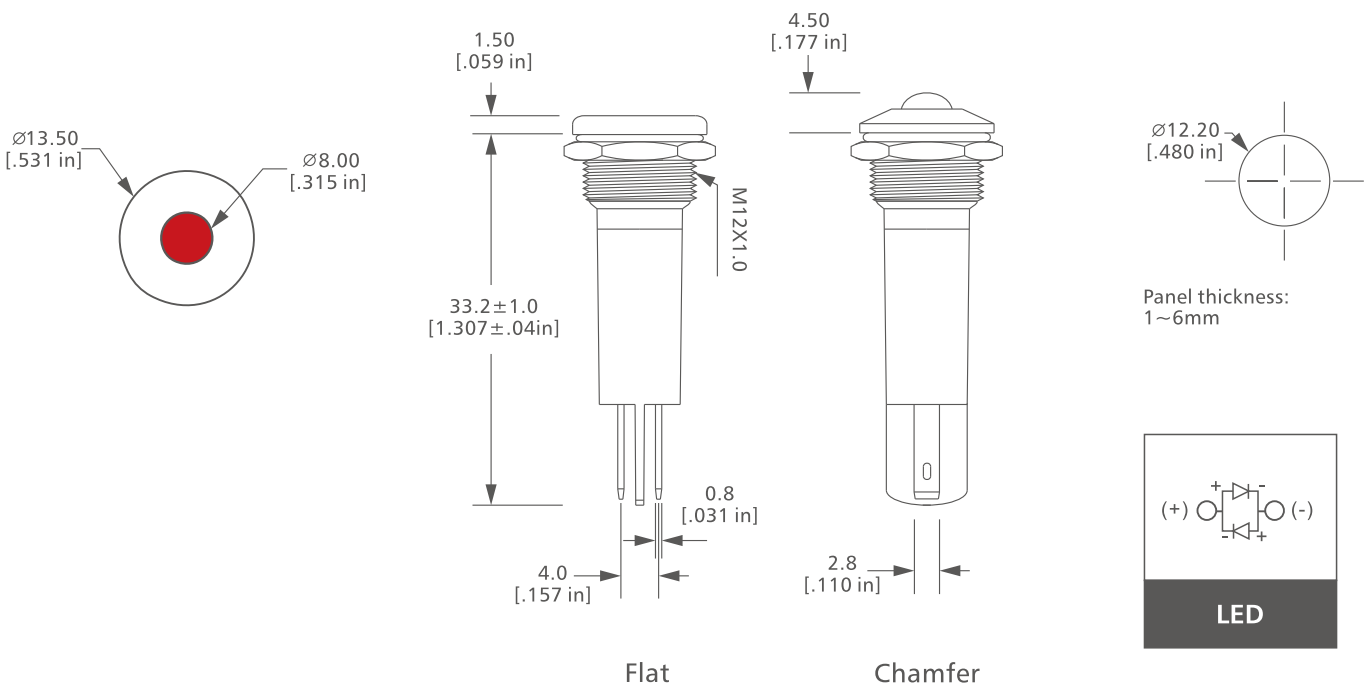


Dimensions

PI10

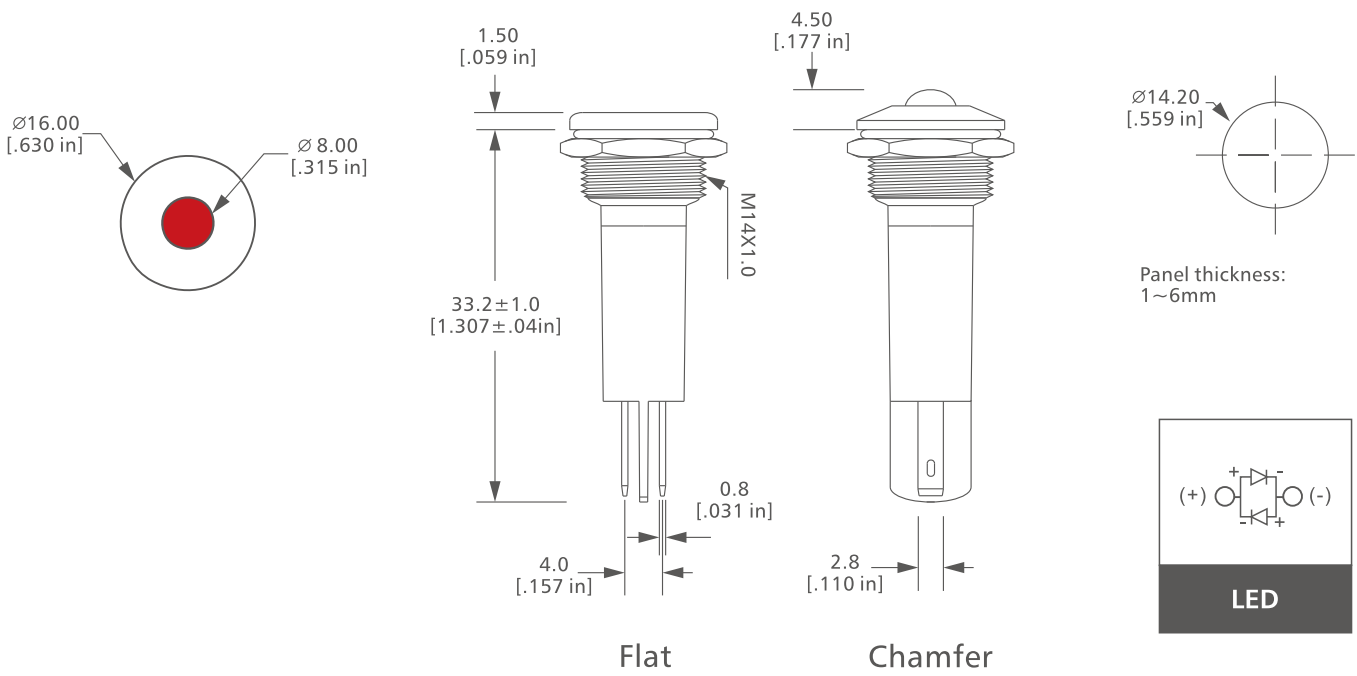


PI12

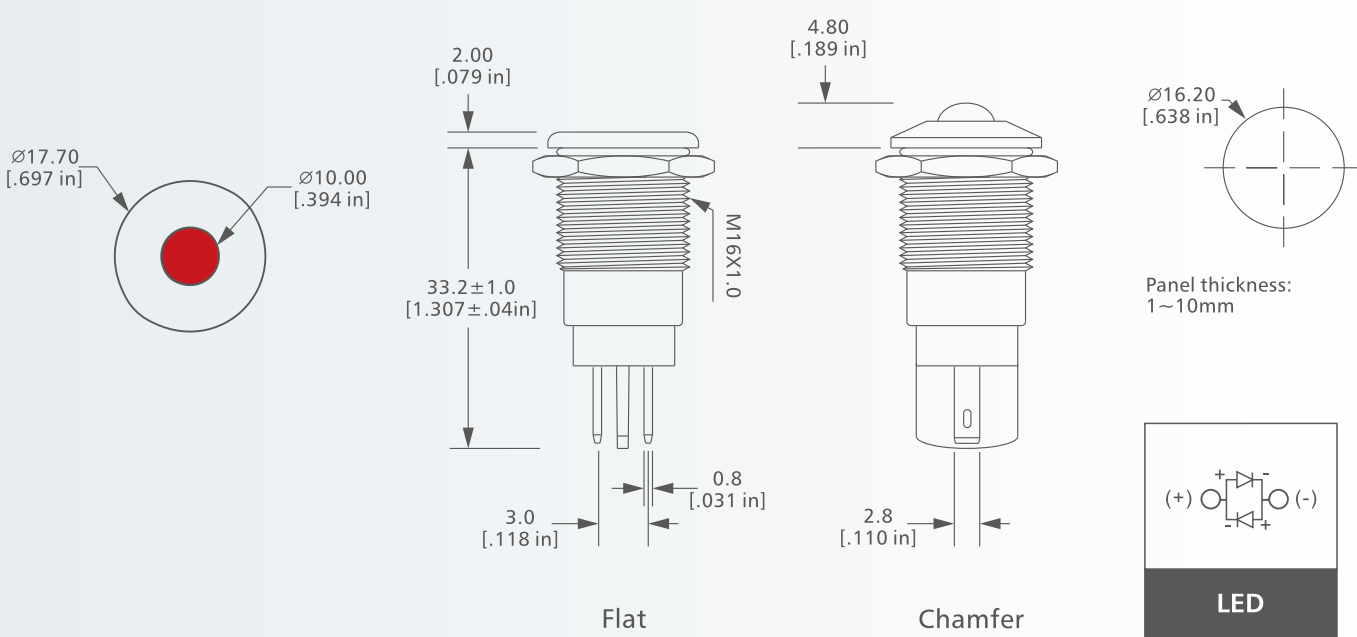


Dimensions

PI14

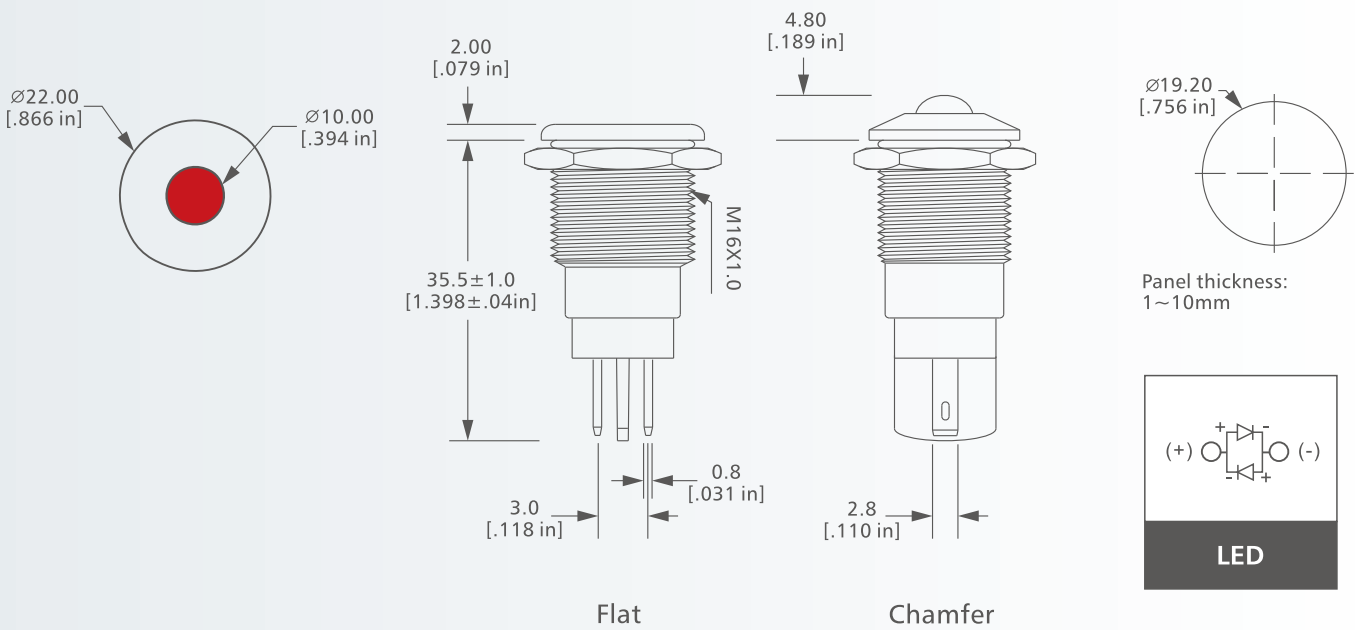


PI16

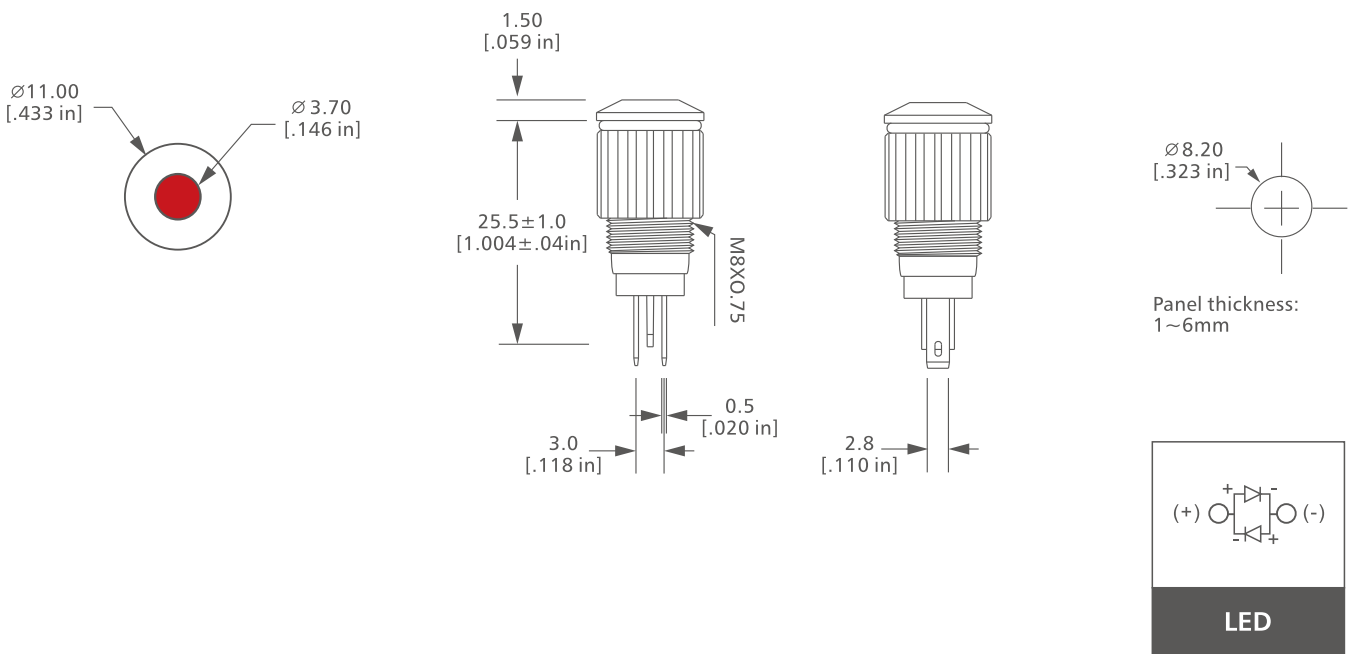


Dimensions

PI19

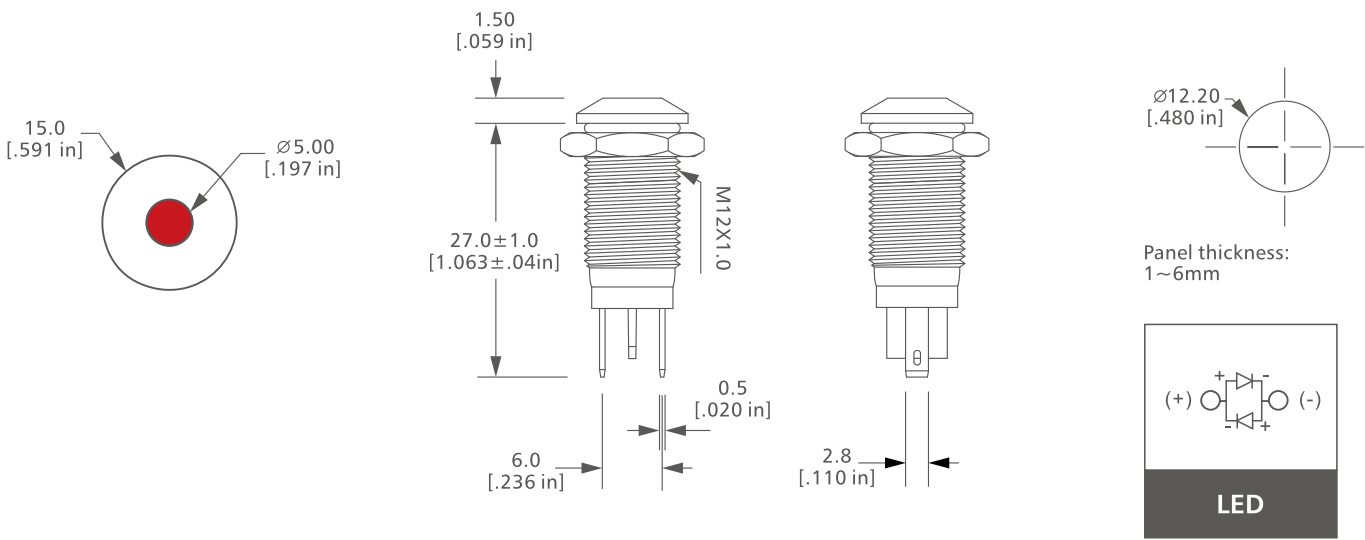


PV8



Dimensions

PV12





Buzzer

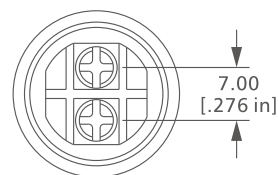
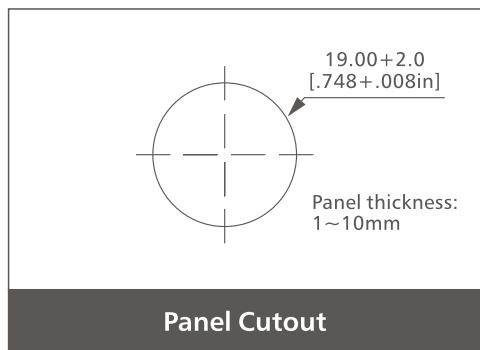
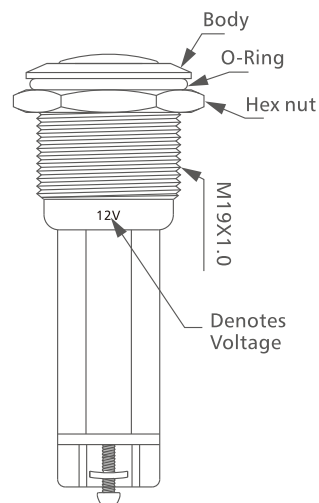
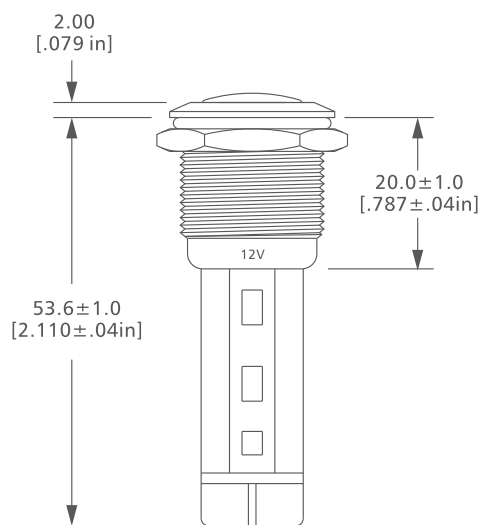
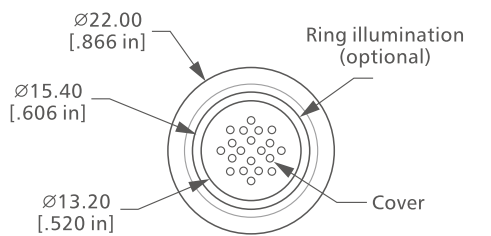
Order Code

Series	Function Options	Terminal Options	Material Options	Illumination Style Options	Led- Color Options	Illumination Voltage Options
☐ LF19	☐ NONE -Buzzer flashing and non-illum. F -Flicker buzzer A -Alternately flashing color C -LED close when buzzer pause H -LED always lighting when buzzer pause S -Bi-color LED strobe, the buzzer call in slow The function can be customized	☐ NONE -Screw	☐ S -Stainless steel	☐ NONE -Ring illum.	☐ W -White Y -Yellow B -Blue G -Green R -Red	☐ 12V 24V
Remark: 'A' standard color for red and green 'C' standard color for red 'S' standard color for red and blue						

Technical Data

Type	LF19	LF19-F
Function	Buzzer	Flicker buzzer
Terminal	Screw	
Max. switch rating		
Contact resistance		
Insulation resistance		
Dielectric strength	2000VAC	
Operation temp	-20°C ~ +55°C	
Mechanical life		
Electrical life		
Contact material		
Torque	5~14Nm	
Operation pressure		
Protection	IP40 / IK04	
Material		
Actuator	Stainless steel	
Body	Stainless steel	
Base	PA	
Buzzer Spec.		
Type	Buzzer	Flicker buzzer
Voltage	DC12V / DC24V	
Color		
Sound Inten	≥80dB(0.1m)	

Dimensions



Backlit
Tri-color
Rear mounting
Square bezel
Ultra short





Anti Vandal Switch Ø16mm

Order Code

Series	Actuator Options	Terminal Options	Function Options	Material Options	Illumination Style Options	Led- Color Options	Illumination Voltage Options	Graphic Options
L16T	F-Flat H-Raised	NONE-Solder lug (2.8X0.5)	M-Momentary 1-1NO1NC Z-Latching 1-1NO1NC	S-Stainless steel N-Nickel plated brass A-Anodized aluminum	NONE-Non-illum. D-Dot R-Ring PS-Power backlit symbol  PY-Ring illum. & Power backlit symbol 	NONE-Non-illum. W-White Y-Yellow B-Blue G-Green R-Red 3A-Red/ Green/ Blue	NONE-Base voltage* 3.3V 6V 12V 24V 36V 110V 220V	NONE-Non-marking LE-Laser etched

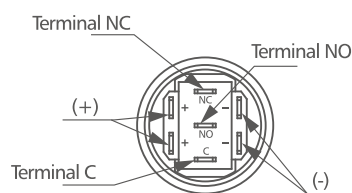
Notes:

* Base voltage on LEDs:

1.8V @20mA for red and yellow LED colors

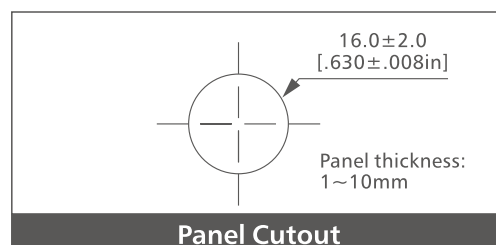
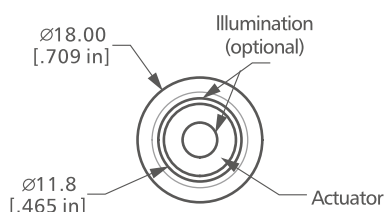
2.8V @20mA for blue, green and white LED colors

Description



C = Common
NO = Normally open
NC = Normally closed

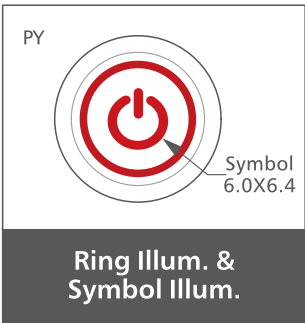
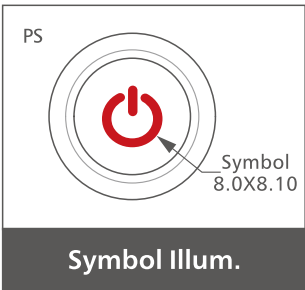
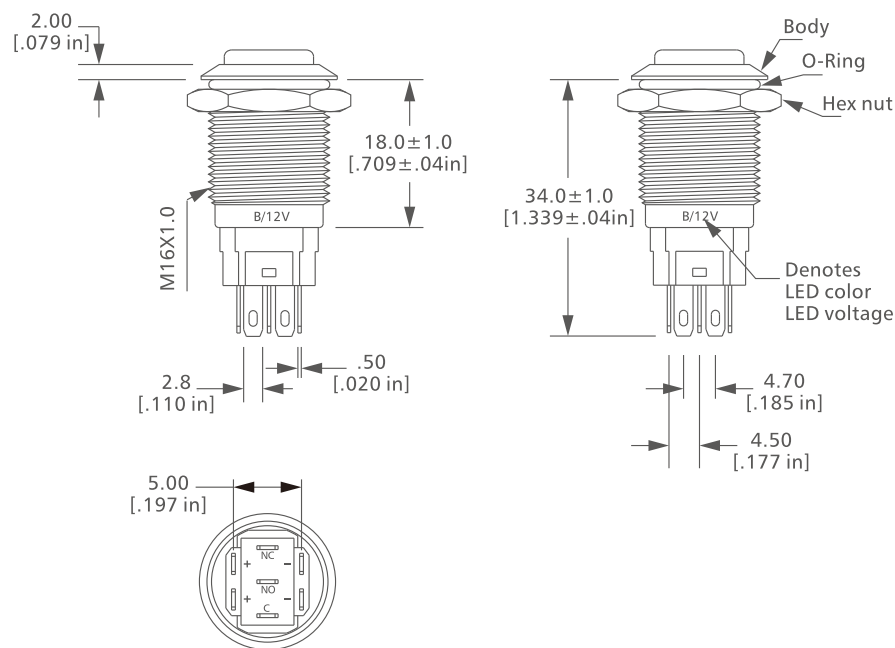
Terminals (-) and (+) used with illum. option only



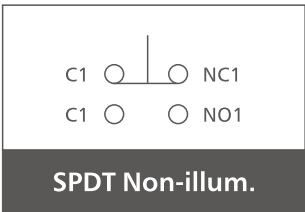
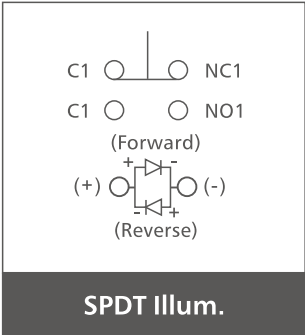
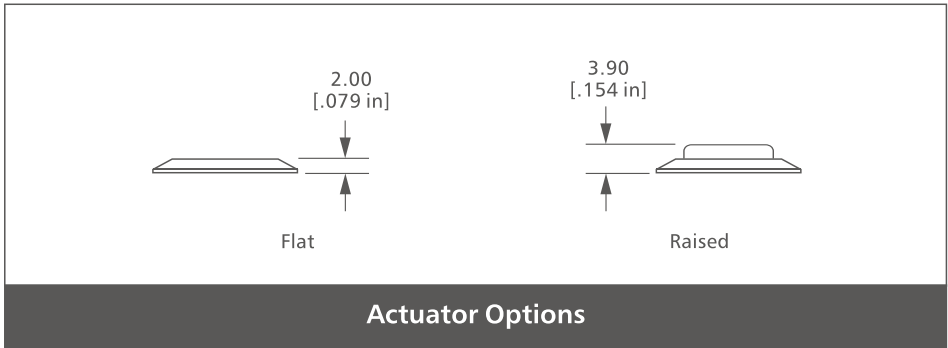
Technical Data

Type	L16T-F / L16T-H
Illuminated type	Non-illuminated / Ring illuminated / Dot illuminated
Terminal	Solder lug (2.8X0.5)
Max. switch rating	Ith: 3A Ui: 250VAC
Contact resistance	≤50mΩ
Insulation resistance	≥1000mΩ
Dielectric strength	2000VAC
Operation temp.	-20°C ~ +55°C
Mechanical life	2,000,000 cycles
Electrical life	100,000 cycles
Contact material	Silver alloy
Torque	5~14Nm
Operation pressure	Approx. 3~5N
Protection	IP65/ IK09
Material	
Button	Stainless steel / Nickel plated brass / Anodized aluminum
Body	Stainless steel / Nickel plated brass / Anodized aluminum
Base	PBT
LED	
Color	3.3V / 6V / 12V / 24V / 36V / 110V / 220V  Approx. 40,000 hours

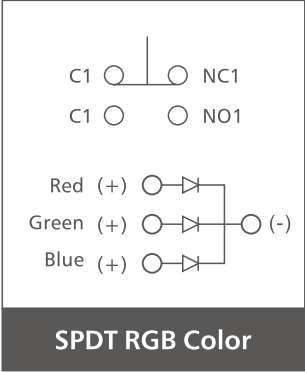
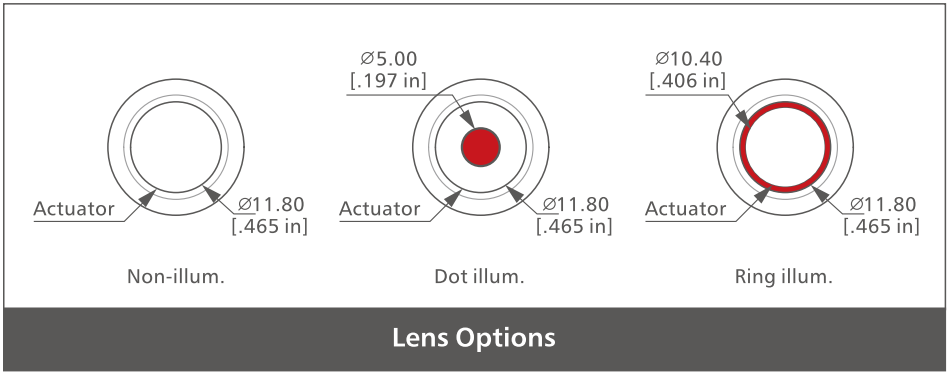
Dimensions



Actuator Options



Illum. Options





Anti Vandal Switch Ø 19mm

Order Code

Series	Actuator Options	Terminal Options	Function Options	Material Options	Illumination Style Options	Led- Color Options	Illumination Voltage Options	Graphic Options
☐ L19T	☐ F-Flat	☐ NONE-Solder lug (2.8X0.5)	☐ M-Momentary 1-1NO1NC Z-Latching 1-1NO1NC	☐ S-Stainless steel A-Anodized aluminum	☐ NONE-Non-illum. D-Dot R-Ring PS-Power backlit symbol  PY-Ring illum. & Power backlit symbol 	☐ NONE-Non-illum. W-White Y-Yellow B-Blue G-Green R-Red 3A-Red/ Green/ Blue	☐ NONE-Base voltage* 3.3V 6V 12V 24V 36V 110V 220V	☐ NONE-Non-marking LE-Laser etched

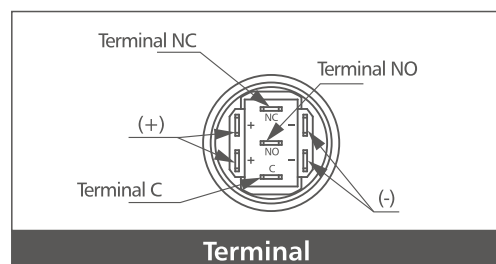
Notes:

* Base voltage on LEDs:

1.8V @20mA for red and yellow LED colors

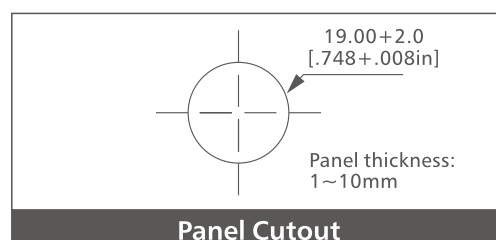
2.8V @20mA for blue, green and white LED colors

Description



C = Common
NO = Normally open
NC = Normally closed

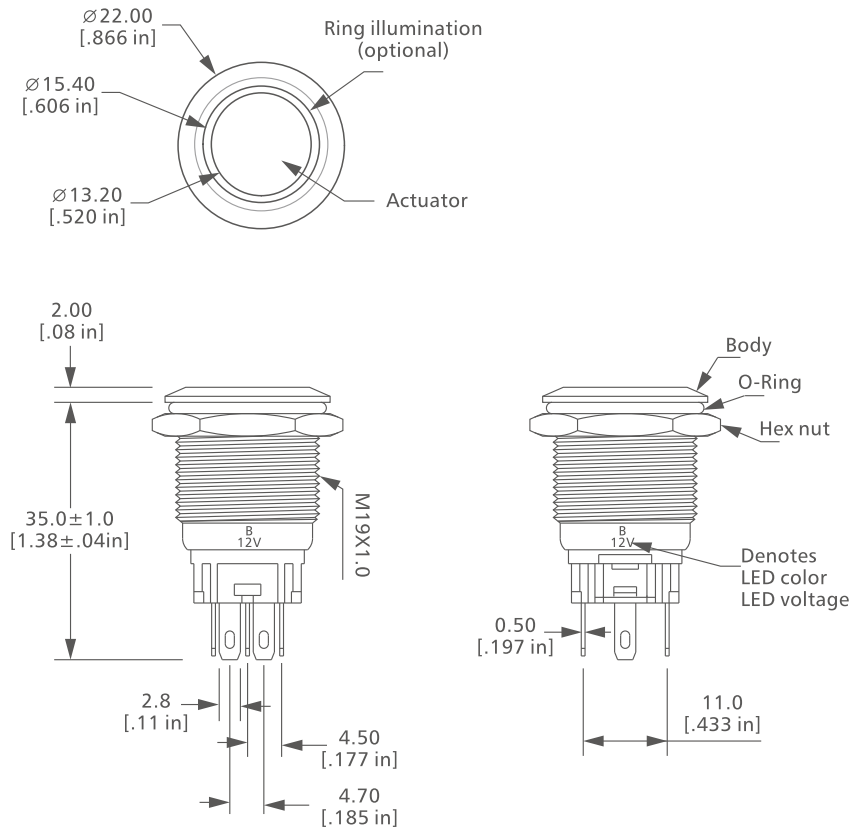
Terminals (-) and (+) used with illum. option only



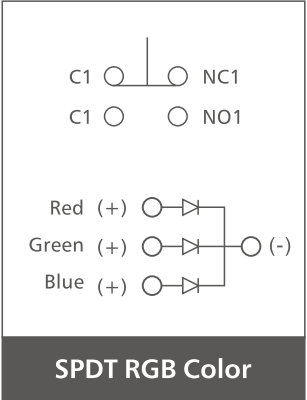
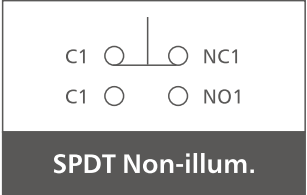
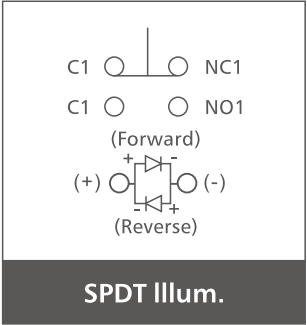
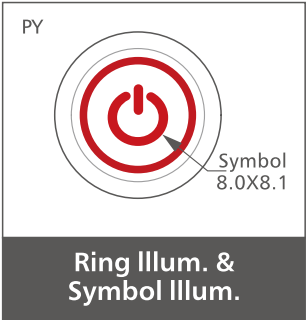
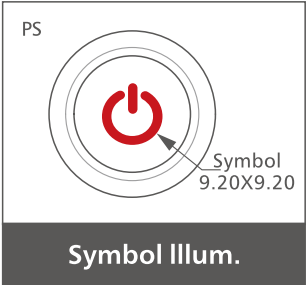
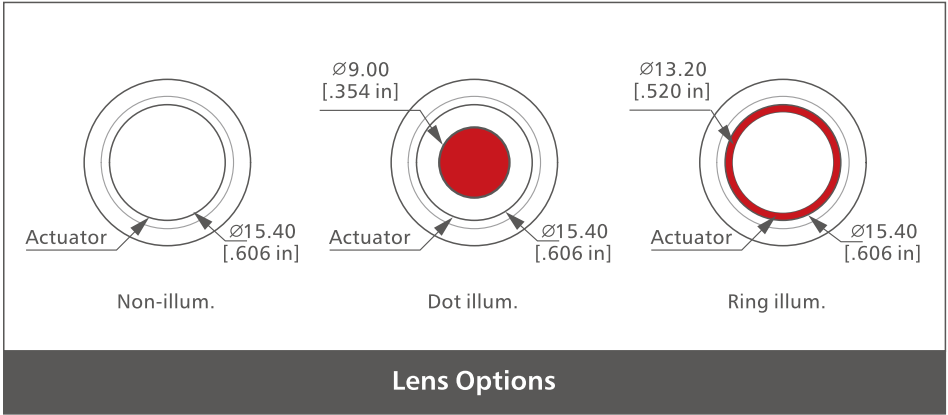
Technical Data

Type	L19T-F
Illuminated options	Non-illuminated / Ring illuminated / Dot illuminated
Terminal	Solder lug (2.8X0.5)
Max. switch rating	Ith: 3A Ui: 250VAC
Contact resistance	≤50mΩ
Insulation resistance	≥1000mΩ
Dielectric strength	2000VAC
Operation temp.	-20°C ~ +55°C
Mechanical life	1,000,000 cycles
Electrical life	100,000 cycles
Contact material	Silver alloy
Torque	5~14Nm
Operation pressure	Approx. 5N
Protection	IP65/ IK09
Material	
Actuator	Stainless steel / Anodized aluminum
Body	Stainless steel / Anodized aluminum
Base	PBT
LED	
Color	3.3V / 6V / 12V / 24V / 36V / 110V / 220V 
	Approx. 40,000 hours

Dimensions



Illum. Options





Anti Vandal Switch Ø 22mm

Order Code

Series	Actuator Options	Terminal Options	Function Options	Material Options	Illumination Style Options	Led- Color Options	Illumination Voltage Options	Graphic Options
☐ L22T	☐ F-Flat ☐ H-Raised	☐ NONE-Solder lug (2.8X0.5)	☐ M-Momentary 1-1NO1NC 2-2NO2NC Z-Latching 1-1NO1NC 2-2NO2NC	☐ S-Stainless steel ☐ A-Anodized aluminum	☐ NONE-Non-illum. D-Dot R-Ring PS-Power backlit symbol  PY-Ring illum. & Power backlit symbol 	☐ NONE-Non-illum. W-White Y-Yellow B-Blue G-Green R-Red 3A-Red/ Green/ Blue	☐ NONE-Base voltage* 3.3V 6V 12V 24V 36V 110V 220V	☐ NONE-Non-marking LE-Laser etched

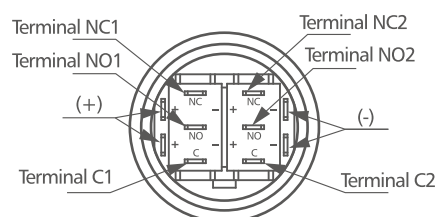
Notes:

* Base voltage on LEDs:

1.8V @20mA for red and yellow LED colors

2.8V @20mA for blue, green and white LED colors

Description

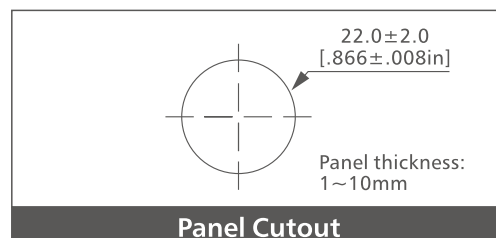
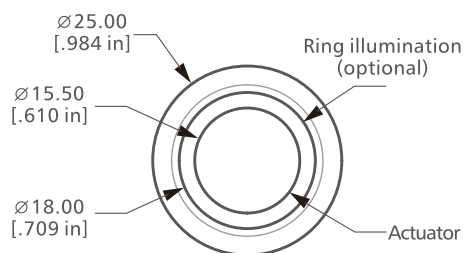


C = Common

NO = Normally open

NC = Normally closed

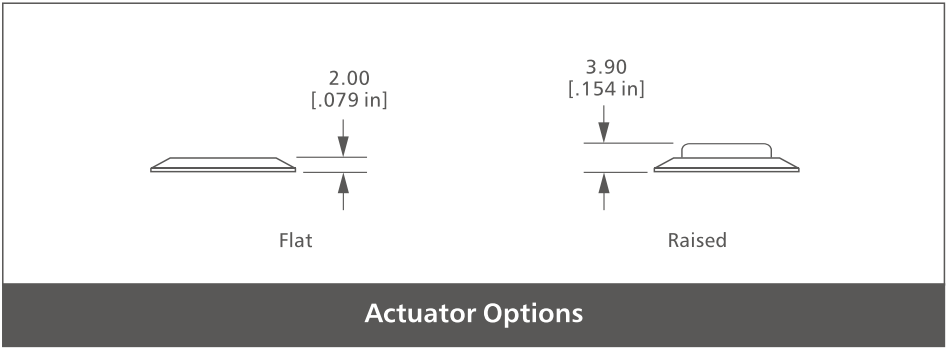
Terminals (-) and (+) used with illum. option only



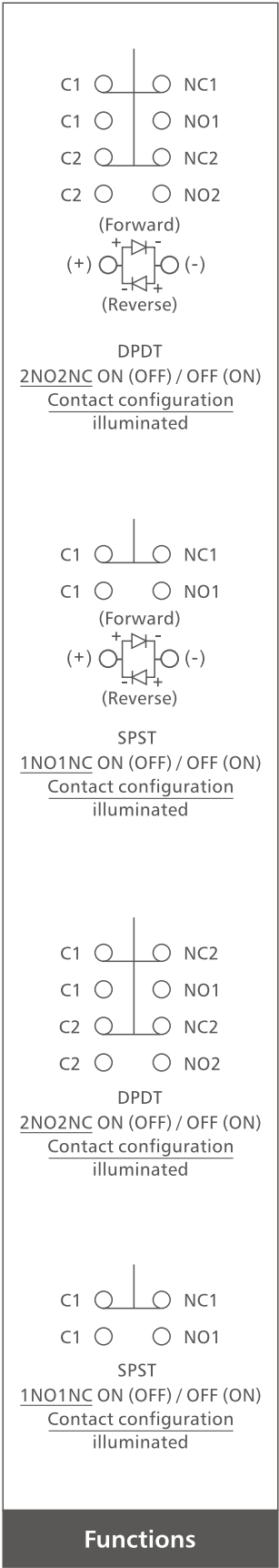
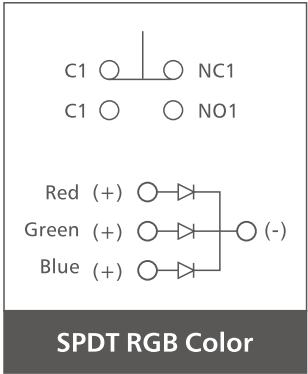
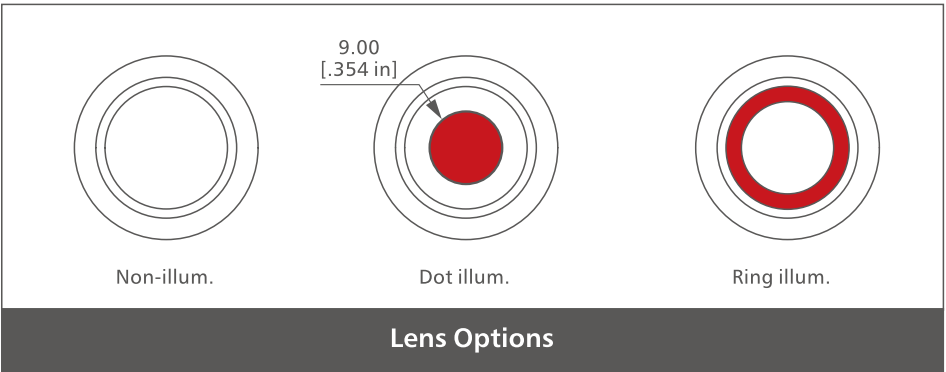
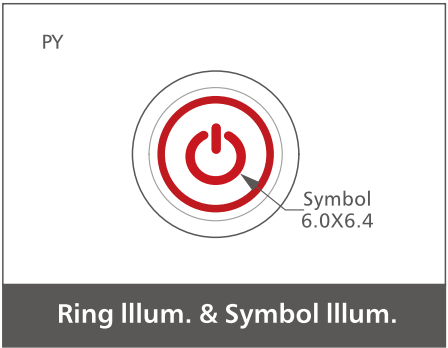
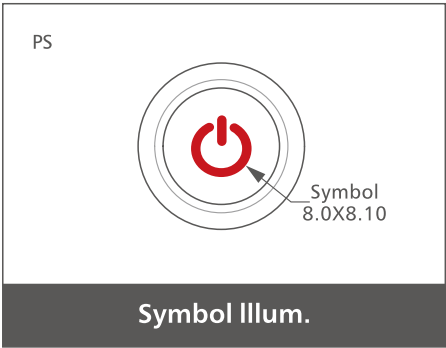
Technical Data

Type	L22T-F / L22T-H
Illuminated type	Non-illuminated / Ring illuminated / Dot illuminated
Terminal	Solder lug (2.8X0.5)
Max. switch rating	Ith: 3A Ui: 250VAC
Contact resistance	≤ 50mΩ
Insulation resistance	≥ 1000mΩ
Dielectric strength	2000VAC
Operation temp.	-20°C ~ +55°C
Mechanical life	2,000,000 cycles
Electrical life	100,000 cycles
Contact material	Silver alloy
Torque	5~14Nm
Operation pressure	Approx. 3~5N
Protection	IP65/ IK09
Material	
Button	Stainless steel / Anodized aluminum
Body	Stainless steel / Anodized aluminum
Base	PBT
LED	
Color	3.3V / 6V / 12V / 24V / 36V / 110V / 220V 
	Approx. 40,000 hours

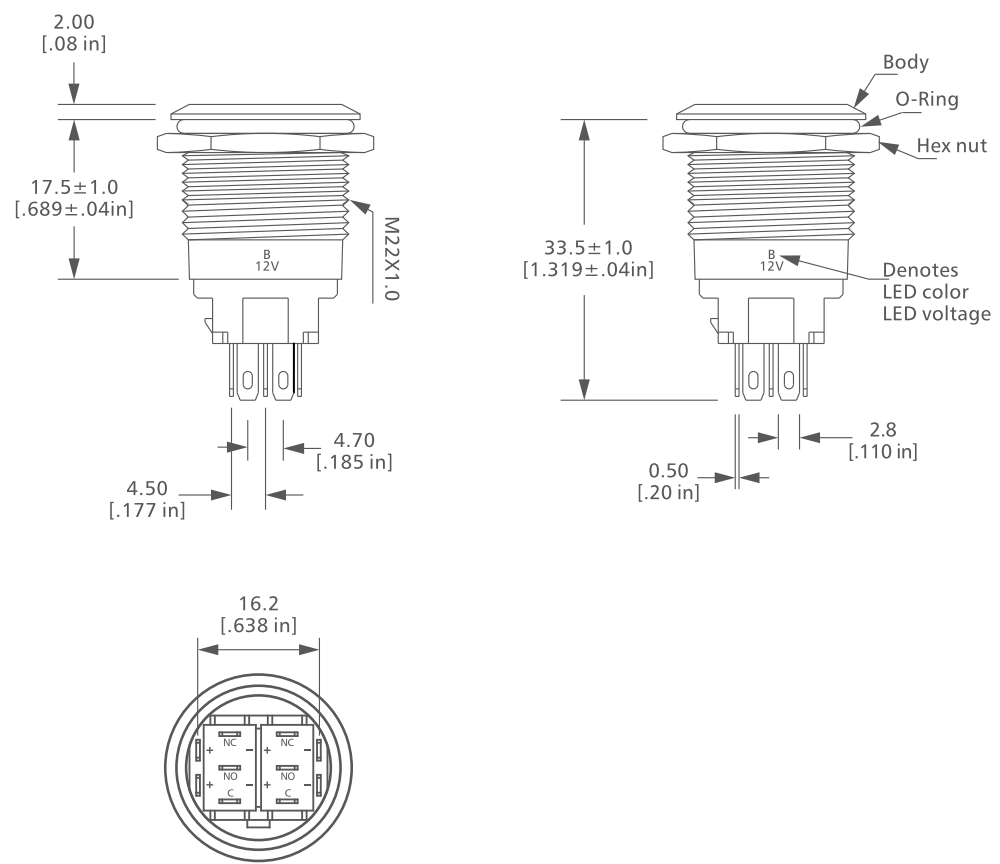
Actuator Options



Illum. Options



Dimensions





Rear Mounting Anti Vandal Switch Ø 22mm

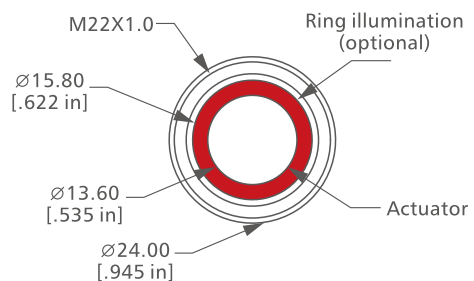
Order Code

Series	Actuator Options	Terminal Options	Function Options	Material Options	Illumination Style Options	Led- Color Options	Illumination Voltage Options	Graphic Options
☐ ☐	☐	☐	☐	☐	☐	☐	☐	☐ ☐ ☐
L220 Rear mounting for flush version	F-Flat	NONE-Solder lug (2.8X0.8) N-Screw	M-Momentary 1-1NO	S-Stainless steel	NONE-Non-illum. D-Dot R-Ring	NONE-Non-illum. W-White Y-Yellow B-Blue G-Green R-Red	NONE-Base voltage* 3.3V 6V 12V 24V 36V	NONE-Non-marking LE-Laser etched

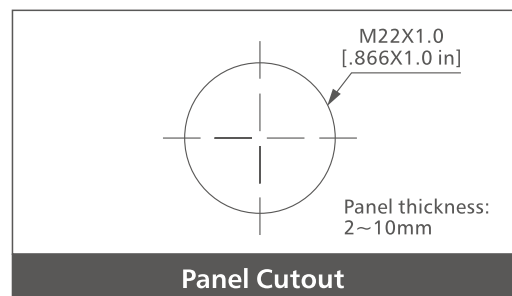
Notes:

* Base voltage on LEDs:
1.8V @20mA for red, yellow and orange LED colors
2.8V @20mA for blue, green and white LED colors

Description



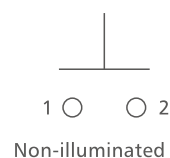
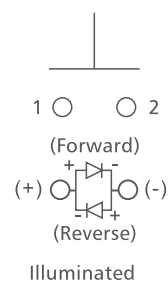
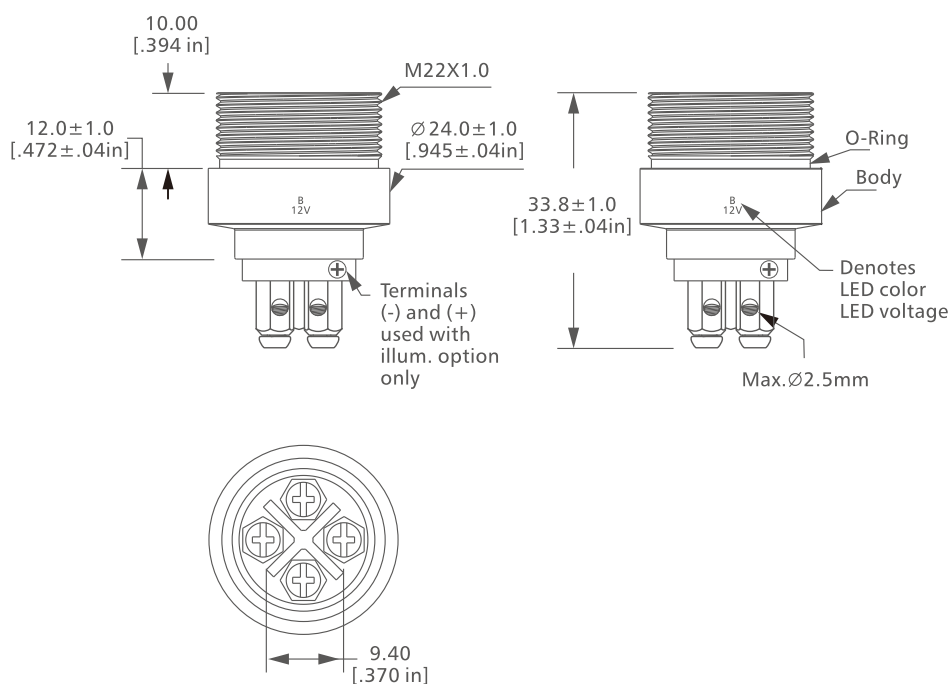
Panel Cutout



Technical Data

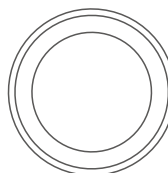
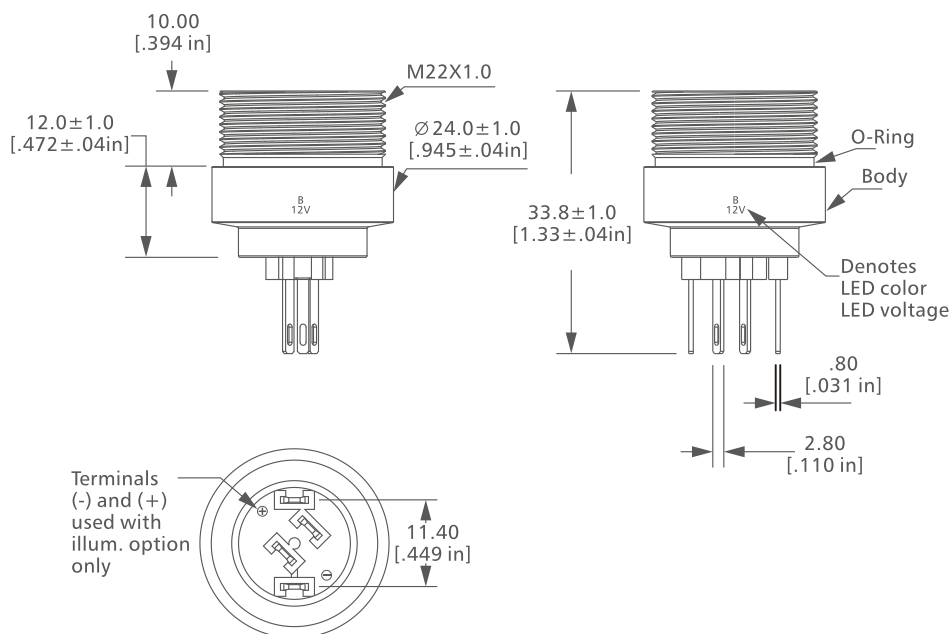
Type	L220-F
Illuminated options	Non-illuminated / Ring illuminated / Dot illuminated
Terminal	Screw / Solder lug (2.8X0.8)
Max. switch rating	50mA 24VDC
Contact resistance	≤100m Ω
Insulation resistance	≥1000m Ω
Dielectric strength	2000VAC
Operation temp.	-20°C ~ +55°C
Mechanical life	1,000,000 cycles
Electrical life	50,000 cycles
Contact material	Silver alloy
Rear nut fixing torque	0.57Nm
Operation pressure	Approx. 8N
Protection	IP65/ IK09
Material	
Switch assembly	UL94V-0 rated polyamide (nylon)
Tags	Copper alloy
Terminals	Copper alloy
Switch body & button	Stainless steel
Lens and lens body	Polycarbonate
Internal seal	Silicone
O ring	Nitrile
	LED
Color	3.3V / 6V / 12V / 24V / 36V Approx. 40,000 hours

Screw Terminal

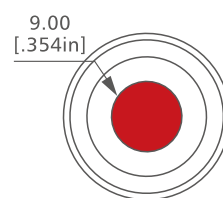


Functions

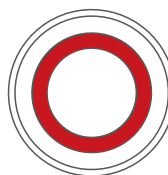
Solder Terminal



Non-illum.



Dot illum.



Ring illum.

Lens Options

Backlit LED Switch Label Kit

When the Dual color LED function switches are turned on, the Blue LED lights up through the actuator. Activate a particular function by pressing one of the switches. This will change the Blue LED to Red, indicating that the chosen function is turned on. The switch color can customization.

With a IP67 waterproof rating and Stainless Steel body our switch can be installed on your boat or other vehicle in wet and dusty environments, but not under water. The first switch can be designated as the night time Blue LED On / Off switch.

Identifying the function of each push button switch is simple with our **interchangeable 3M adhesive backed actuator Backlit Labels**.

It's the only actuator that allows the LEDs in the switch body to pass light through the label.

The result is excellent visibility at night.

There are **53 Switch Function Icons** to choose from!

Custom Icon Labels can be made to your design specifications.

Please check with the factory.



Backlit Label in **Daytime Mode**.
LED light is off.



Backlit Label in **Nighttime Mode**.
The Blue LED provides great visibility of all the function switches and lets you know that the switches are in the off position.



Backlit Label in **Nighttime Mode**.
The Red LED lets you know that the switch is on.

*All specifications are subject to change without notice.

BACKLIT ANTI VANDAL SWITCH WITH LABELKIT

Mutiple labels
Easy to change
Save the cost



How to order

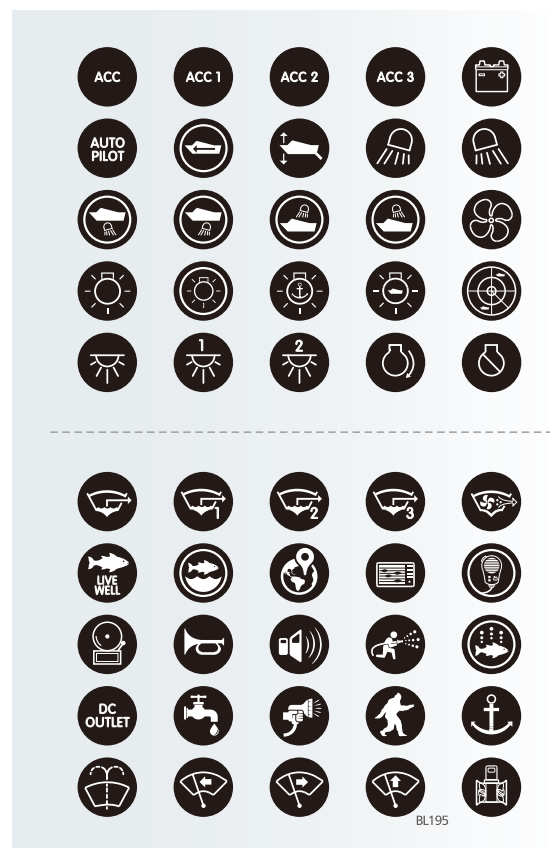
Series	Material Options	Switch Options	Icon Options
BL	NONE-PVC U- PU Dome	16-16mm switch 19-19mm switch 22-22mm switch 25-25mm switch	5-5 Icon labels included 50-50 Icon labels included L450-1 Icon label (check list)

Features & Benefits

- Scratch resistant polycarbonate material
- Back printed for durability
- Waterproof adhesive for longevity in wet environments
- Custom Icon Labels can be made to your design specifications
Please check with the factory.



5 ICON labels included



50 ICON labels included

Backlit Labels Icon & Part Number Legend

Icon Style	Part No.	Icon Style	Part No.	Icon Style	Part No.	Icon Style	Part No.
	L450-0001		L450-0015		L450-0029		L450-0043
	L450-0002		L450-0016		L450-0030		L450-0044
	L450-0003		L450-0017		L450-0031		L450-0045
	L450-0004		L450-0018		L450-0032		L450-0046
	L450-0005		L450-0019		L450-0033		L450-0047
	L450-0006		L450-0020		L450-0034		L450-0048
	L450-0007		L450-0021		L450-0035		L450-0049
	L450-0008		L450-0022		L450-0036		L450-0050
	L450-0009		L450-0023		L450-0037		L450-0051
	L450-0010		L450-0024		L450-0038		L450-0052
	L450-0011		L450-0025		L450-0039		L450-0053
	L450-0012		L450-0026		L450-0040		
	L450-0013		L450-0027		L450-0041		
	L450-0014		L450-0028		L450-0042		



Square Bezel Anti Vandal Switch

Ø 19mm / Ø 22mm

Specifications

Electrical rating: 5A, 250VAC
Mechanical life: 1,000,000 cycles
Electrical life: 50,000 cycles
Contact resistance: 50mΩ Max.
Insulation resistance: 1000MΩ Min.
Dielectric strength: 2,000VAC
Operating /Storage temperature: -25°C to 55°C
Travel: 1.50mm
Moisture protection: IP65
Actuation force: 4N
Panel thickness: 1-11mm
Mounting nut torque: 5-14Nm

Features & Benefits

- 19 or 22mm diameter panel cutout
- RGB option
- Multiple function options
- Dot, ring or power symbol illumination available
- Multiple actuator options
- IP65 rated,
- SPDT & DPDT
- Soldered wire leads (300mm long) optional

Order Code

Series	Actuator Options	Terminal Options	Function Options	Material Options	Illumination Style Options	LED-Color Options	Illumination Voltage Options	Graphic Options
☐	☐	☐	☐	☐	☐	☐	☐	☐
L19S L22S	F- Flat	NONE-Solder lug (2.8X0.5) C-Wire leads 300mm long	M-Momentary 1-1NO1NC 2-2NO2NC Z-Latching 1-1NO1NC 2-2NO2NC	S-Stainless steel	NONE-Non-illum. D-Dot R-Ring PS-Power backlit symbol  PY-Ring illum.& Powerbacklit symbol 	NONE-Non-illum. W- White R- Red O- Orange G-Green B-Blue Y-Yellow RG-Red/Green RB-Red/Blue RY-Red/Yellow OB-Orange/Blue 3A-Red/Green/Blue LED*	NONE-Non-illum. 1-Base voltage** 3.3V 6V 12V 24V 36V 110V 220V	NONE-Non-marking LE-Laser etched

Notes:

* Base voltage on LEDs:
 1.8V @20mA for red, yellow and orange LED colors
 2.8V @20mA for blue, green and white LED colors
 ** 3A is only for functions 1NO1NC(SPDT)

Illum. Options

PS

Symbol
9.20X9.20

Symbol Illum.

PY

Symbol
8.0X8.1

Ring Illum. & Symbol Illum.

Actuator
Non-illum.
Ø15.40
[.606 in]

Actuator
Dot illum.
Ø15.40
[.606 in]

Actuator
Ring illum.
Ø15.40
[.606 in]

Ø9.00
[.354 in]

Ø13.20
[.520 in]

Lens Options

Illum. Options

SPDT Non-illum.

DPDT Non-illum.

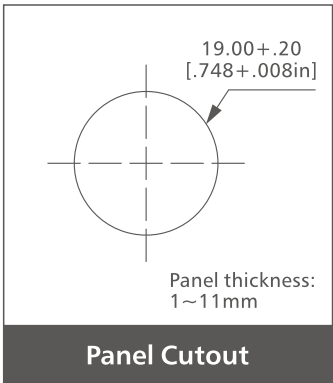
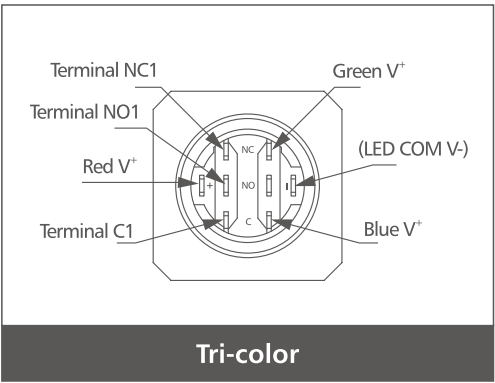
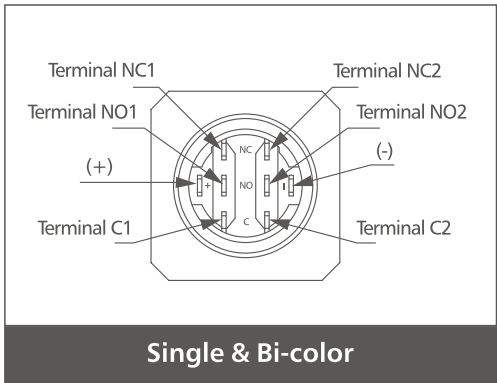
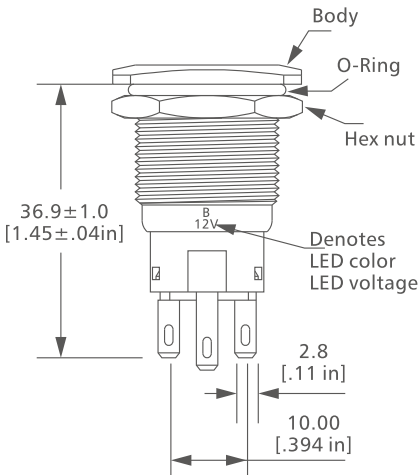
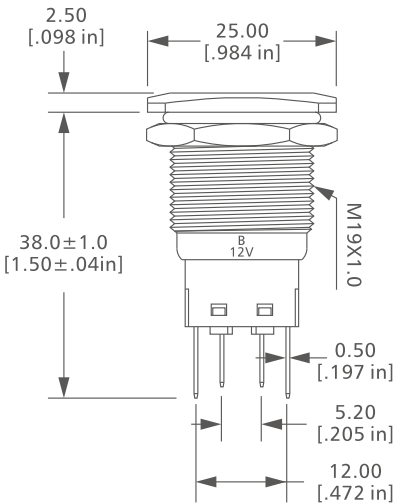
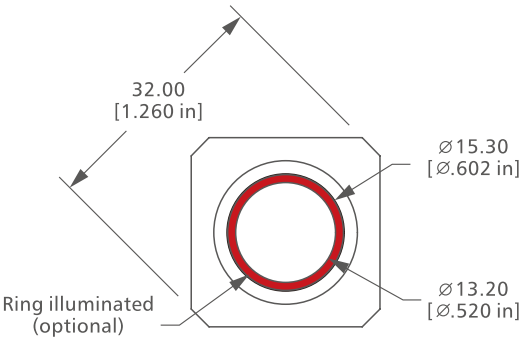
SPDT Illum.

DPDT Illum.

SPDT RGB Color

Dimensions

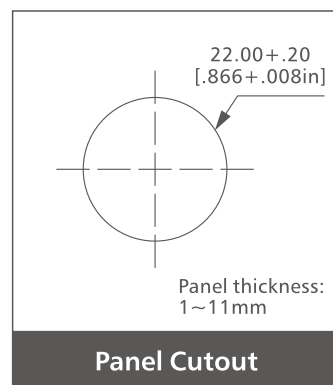
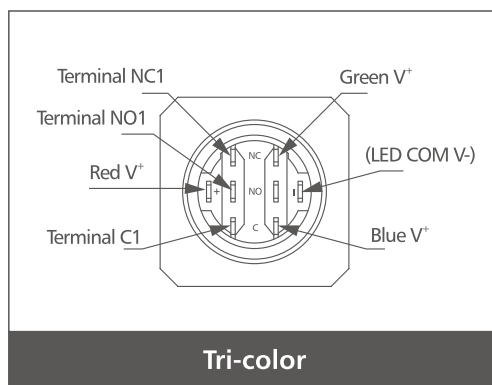
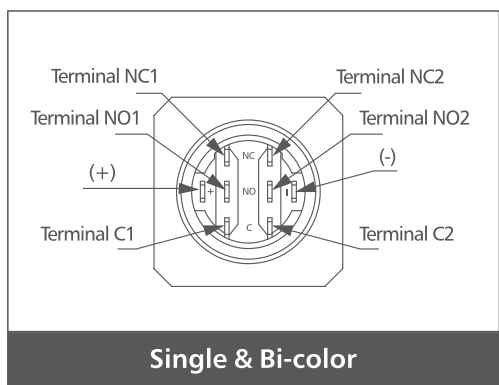
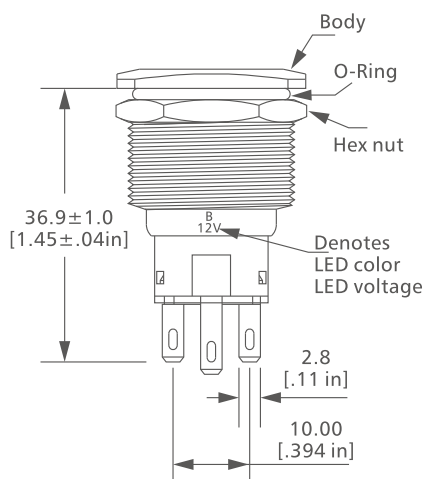
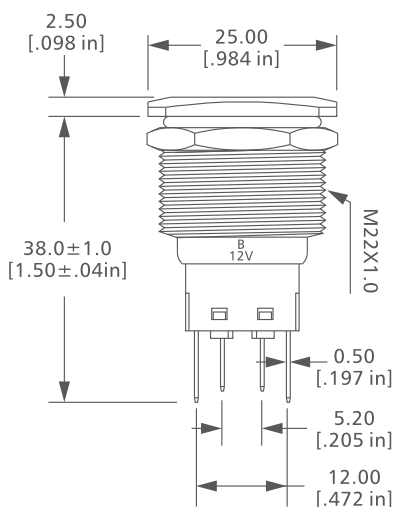
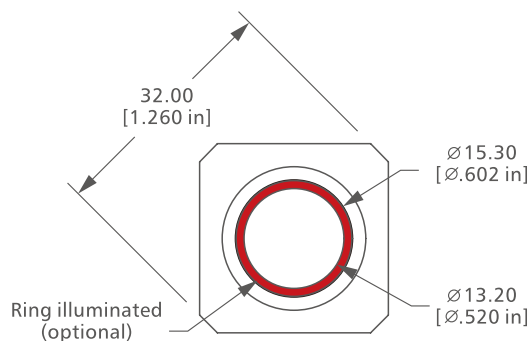
Square Bezel Anti Vandal Switch $\varnothing 19\text{mm}$



C = Common
NO = Normally open
NC = Normally closed
Terminals (-) and (+) used with illum. option only

Dimensions

Square Bezel Anti Vandal Switch $\varnothing 22\text{mm}$



C = Common
NO = Normally open
NC = Normally closed

Terminals (-) and (+) used with illum. option only





Ultra Short Anti Vandal Switch

Ø 12mm / Ø 16mm / Ø 19mm / Ø 22mm / Ø 25mm

Specifications

Electrical rating: 0.3A, 12VDC
 Mechanical life: 1000,000 Cycles
 Electrical life: 50,000 Cycles
 Contact resistance: 50mΩ Max
 Insulation resistance: 1000mΩ Min
 Dielectric strength: 2.000VAC
 Operating / Storage Temperature: -25°C to 55°C
 Travel: 0.5mm
 Moisture protection: IP67
 Actuation force: 4N
 Panel thickness: 1-3mm
 Mounting nut torque: 5-14Nm

Features & Benefits

- 12, 16, 19, 22 or 25mm diameter panel cutout
- Variety of LED option*
- Multiple function options
- Ring illumination available
- IP67 rated

Order Code

Series	Actuator Options	Terminal Options	Function Options	Material Options	Illumination Style Options	LED-Color Options	Illumination Voltage Options	Graphic Options
☐	☐	☐	☐	☐	☐	☐	☐	☐
L12U L16U L19U L22U L25U	F- Flat	NONE-Solder lug(2.0x0.5)	M-Momentary 1-1 NO	S-Stainless steel	NONE-Non-illum. R-Ring	NONE-Non-illum. W- White R- Red O- Orange G-Green B-Blue Y-Yellow	NONE-Non-illum. 1-Base voltage** 3.3V 6V 12V 24V	NONE-Non-illum. LE-Laser etched

Notes:

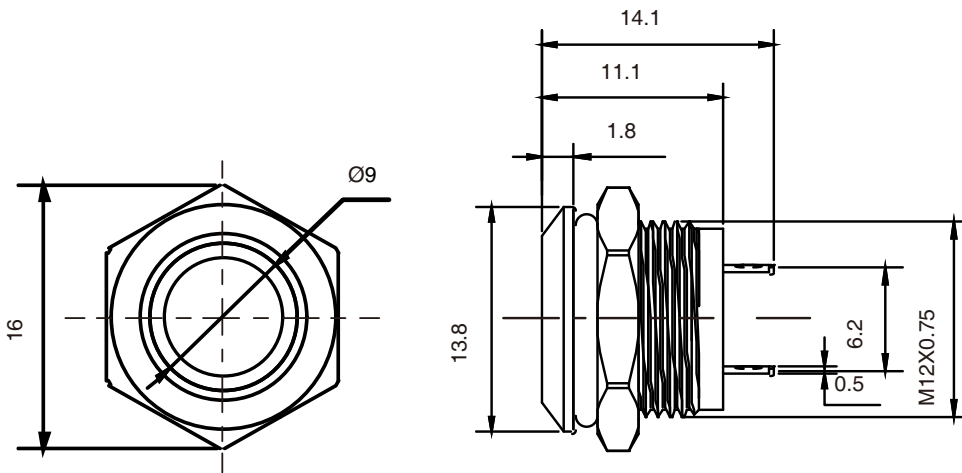
*Base voltage on LEDs:

1.8V @ 20mA for red, yellow and orange LED colors

2.8V @ 20mA for blue, green and white LED colors

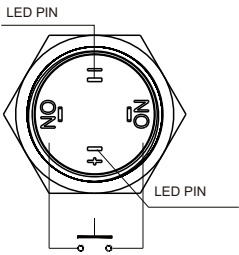
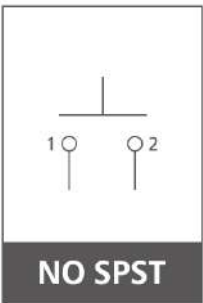
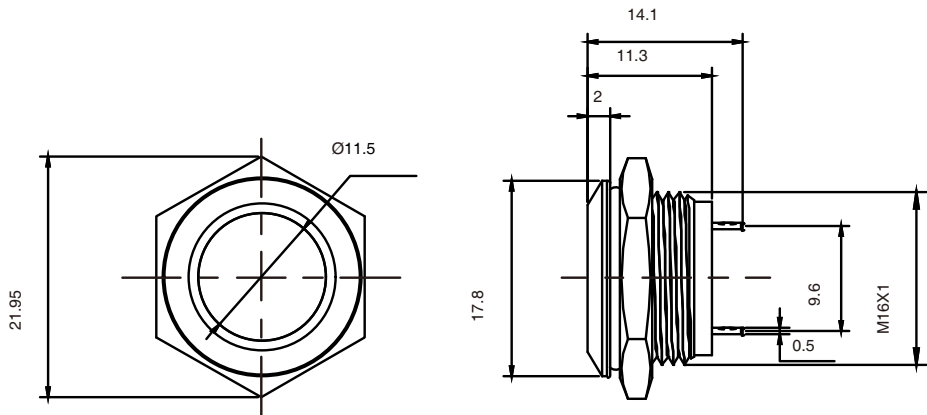
Dimensions

Ultra Short Anti Vandal Switch Ø12mm



Dimensions

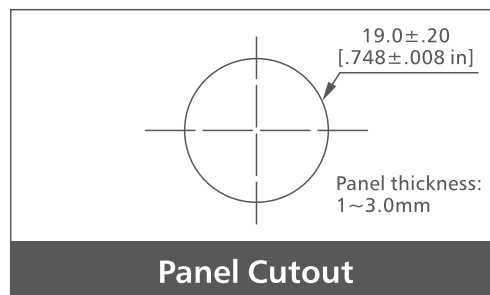
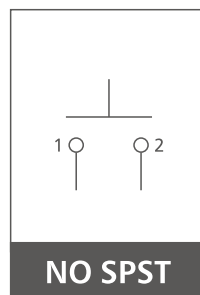
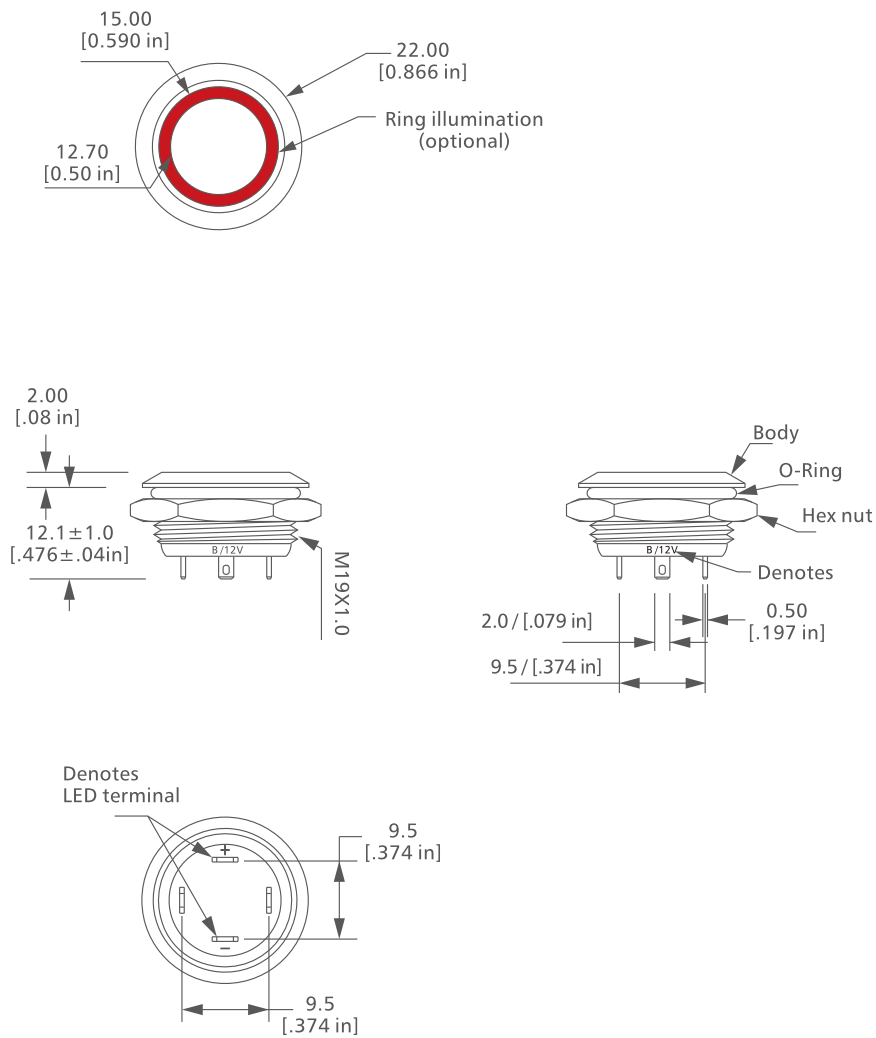
Ultra Short Anti Vandal Switch Ø16mm

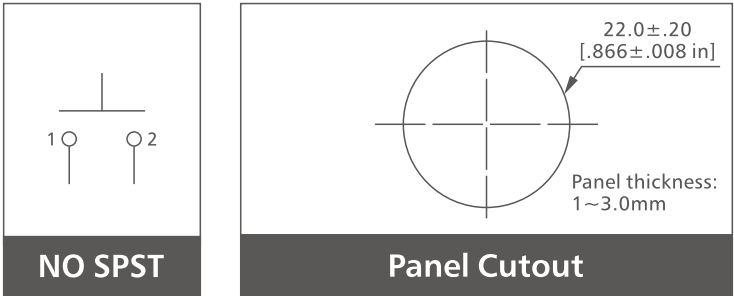
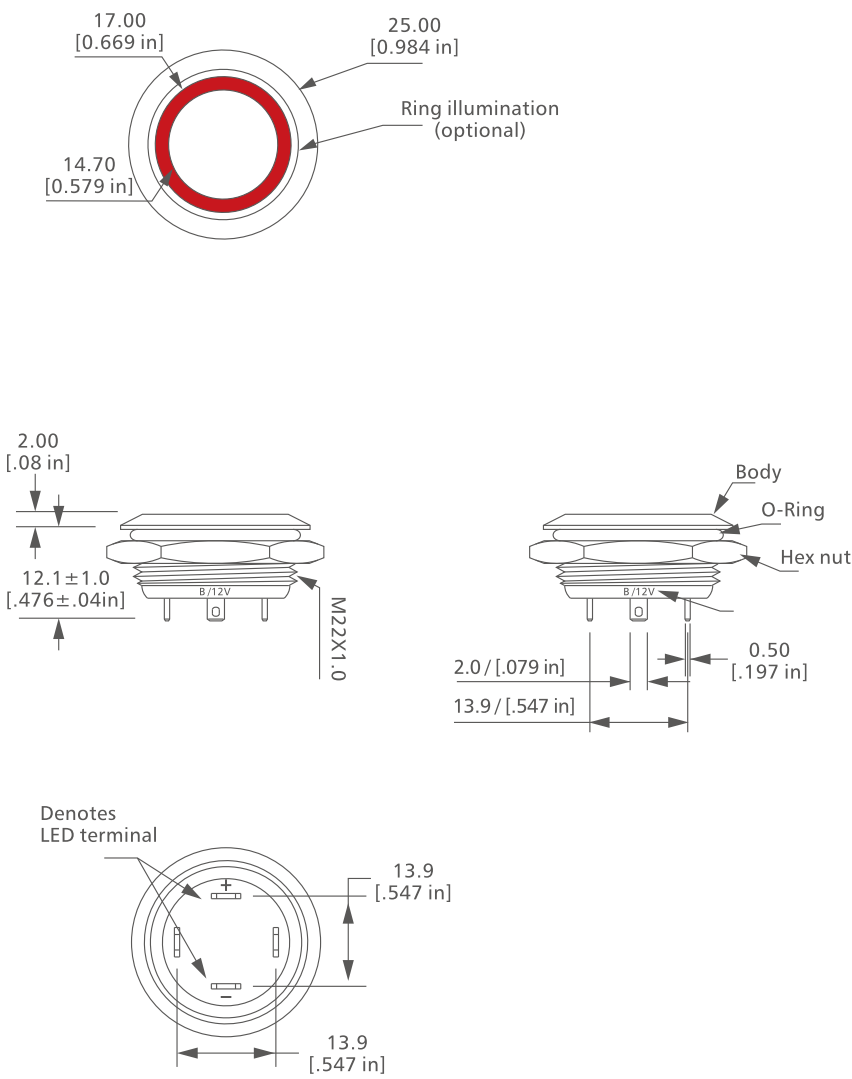


Terminal Description

Dimensions

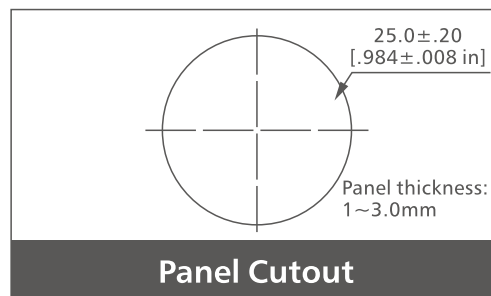
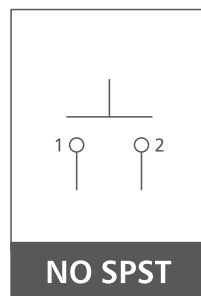
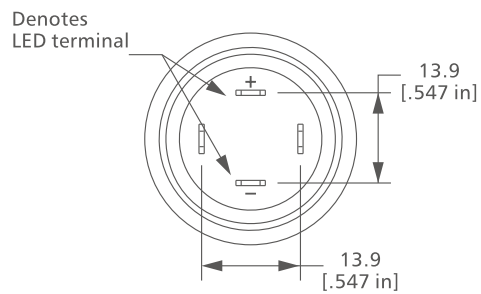
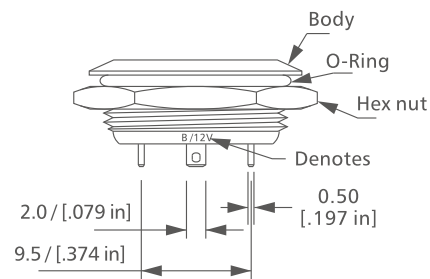
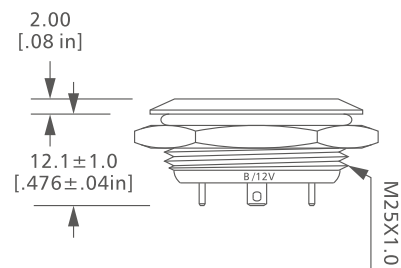
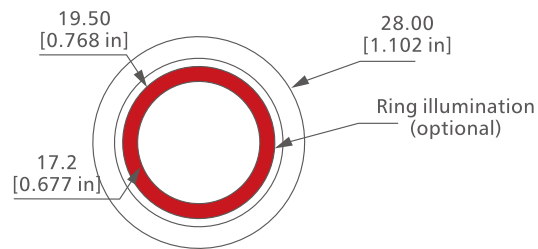
Ultra Short Anti Vandal Switch $\varnothing 19\text{mm}$





Dimensions

Ultra Short Anti Vandal Switch Ø25mm







Piezo Switch

www.langir.com



**Leaders in engineering,
innovation and quality**

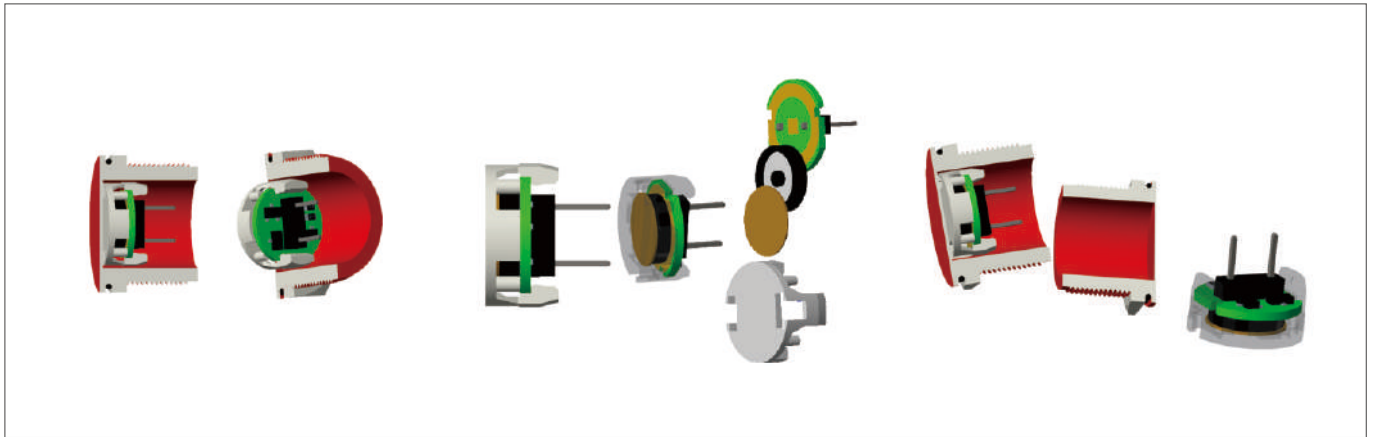
**LANGIR brings
piezo technology to
perfection**



- Shower
- Bath
- Marine
- Yacht controls
- Railway
- Industrial controls
- Electromedicine
- Access control
- Car wash device
- Bike system
- Parking

The LANGIR VPM (Versatile Piezo Module)

The principle behind the Langir Piezo technology is the assembly of all the necessary components into a single unit (the Module) which eliminates the need to handle multiple components for every single Push Point Manufactured.



The VPM is a solid state (no moving parts), stand alone module which may be easily arranged in any configuration by simply clicking it in to the housing. The VPM also features a few significant advantages:

No Soldering No Adhesive

Unlike other common Piezo electric technologies, the VPM is a mechanically assembled structure. It features a very stable structure unaffected by extreme temperature fluctuations and not prone to deterioration of components.

No adhesive is used in the assembly process and there is no need for soldering wires directly to the sensitive Piezo ceramic.

Dependency on employee skills and workmanship is greatly reduced and the module, placed behind a 0.6mm thick metal membrane, is extremely durable and reliable.



Distinctive Features

Bushing diameter:
16 (.630), 19 (.748), 22 (.866) or 30 mm (1.181)
Sealed to IP68 and IP69K (switches mounted on panel)
Easy to clean metal surface
Very long life expectancy
Illumination or Non-illumination



Environmental Specifications

- Sealing: IP68 per IEC 60529, IP69K per DIN 40050-9 (switches mounted on panel)
- Vibration resistance : 10-500 Hz / 10 g per IEC 60068-2-6
- Operating temperature : -40°C to +75°C (-40°F to +167°F)
- EMC compatibility according to EN 61058-1 for the whole range
- EMC compatibility according to EN 61000-4 & EN61000-6-2 for 1A



Materials

- Case: aluminum, anodized or stainless steel 316L
- Multi-wire leads section 0.22mm² length 300mm, twisted by pair
- Case, length 300mm, section depending on switch model
- PC terminals : bronze, tin plated

Note : to maintain the ESD performance, always add a ground washer when the panel is made of non-conductive material (PVC, polycarbonate).



Electrical Specifications

- Max. current / voltage rating with resistive load:
-Function NO : standard 200 mA 24 VAC / DC, 1 A 24 VAC / DC or request
-Function NC : standard max. 600 mA 24 VAC / DC
- Switch resistance ON : 10Ω max.
- Switch resistance OFF : 5MΩ max.
- Life expectancy : 50 million cycles
- LED consumption: illuminated dot 10mA - illuminated ring 20mA



Color



Blue



Green



Yellow



White

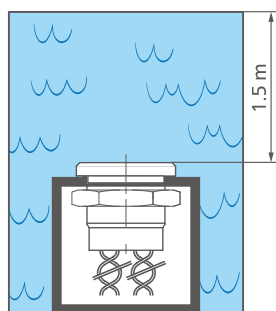


Red



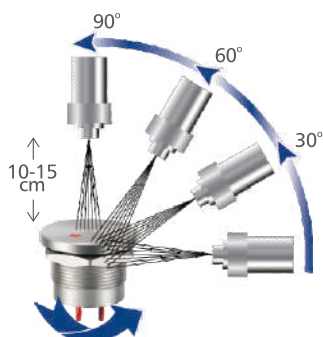
Sealing

SEALING IP68



Continuous immersion in water
IP68 test conditions
Continuous immersion in water
(1.5m, 24 hours)

SEALING IP69K



High pressure, high temperature wash
down IP69K test conditions

- Pressure : 80-120 bars
- Distance : 15cm
- Temperature : 80°C ± 5°C (176°F ± 41°F)
- Flow : 14-16 l/mn
- Duration : 30 seconds per position



General Specifications

- Operating force: 2 to 6 N
- Torque : 2.5 Nm min. -3 Nm max.

Specifications



Electrical Functions

FINGER PRESSURE applied to switch

1 = pressure

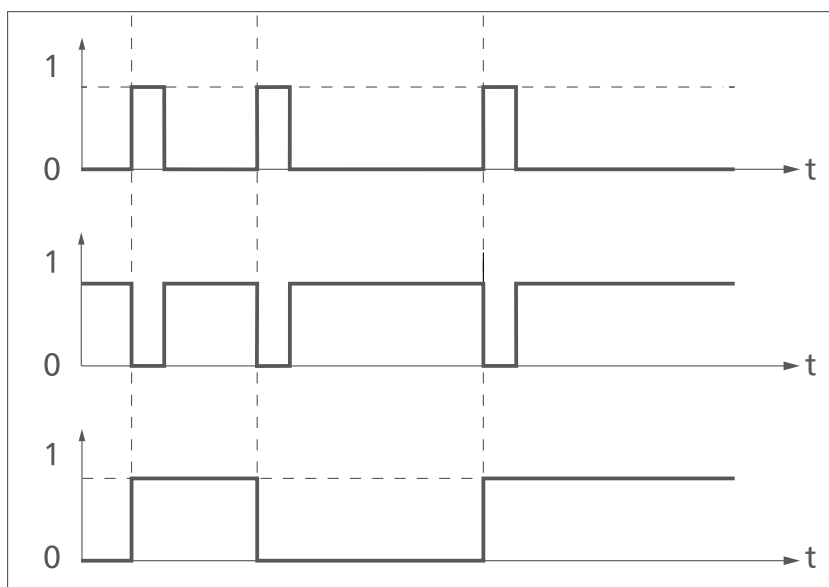
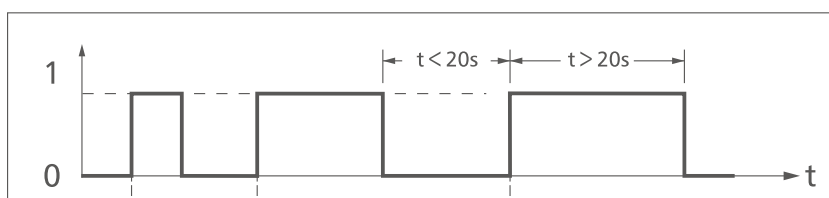
0 = no pressure

OUTPUT

Momentary NO (pulse)
No external power supply
required

Momentary NC (pulse)
No external power supply
required

Latching (ON - OFF)
Requires external power supply



1 = closed output 0 = open output

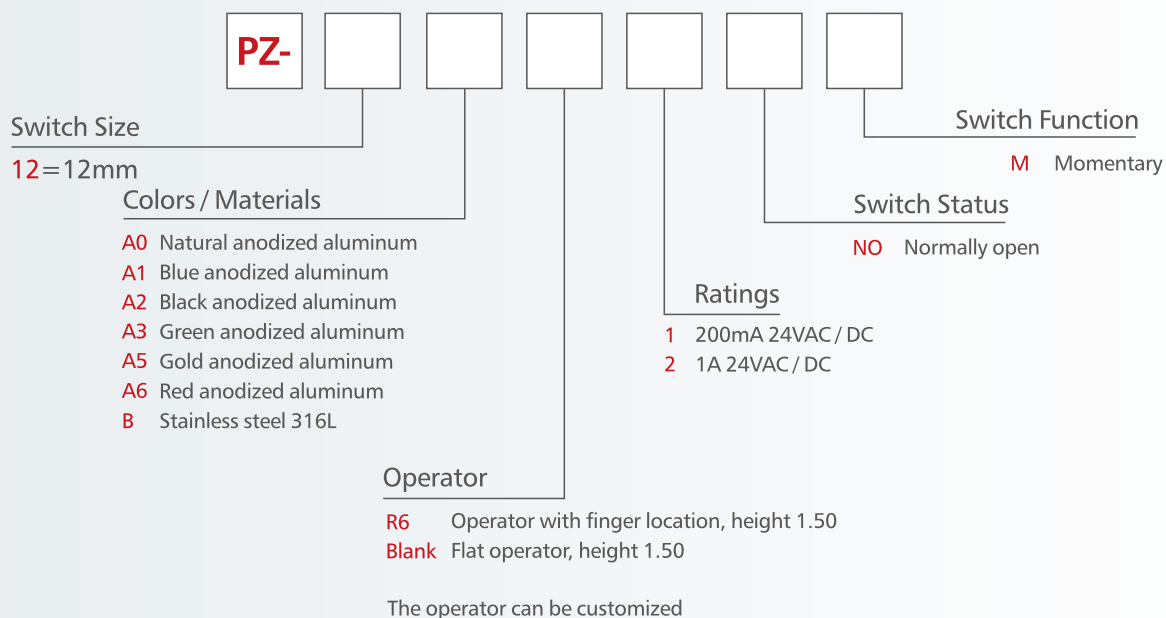


Wiring Diagrams

Function	Non-illuminated	1 LED*	2 LEDs	3 LEDs
Momentary NO				
Momentary NC				
Momentary NO Prolongated Pulse				
Latching (ON - OFF)				BR brown +V BK black GND BL blue output

Legend: B = black, A = same colour as LED

*LED colour is indicated by the bottom of the product.



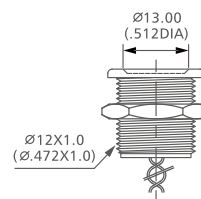
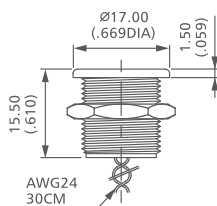
Non-illuminated



PZ12A01NOM

Flat

Finger location



R6



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 and 1 O-ring



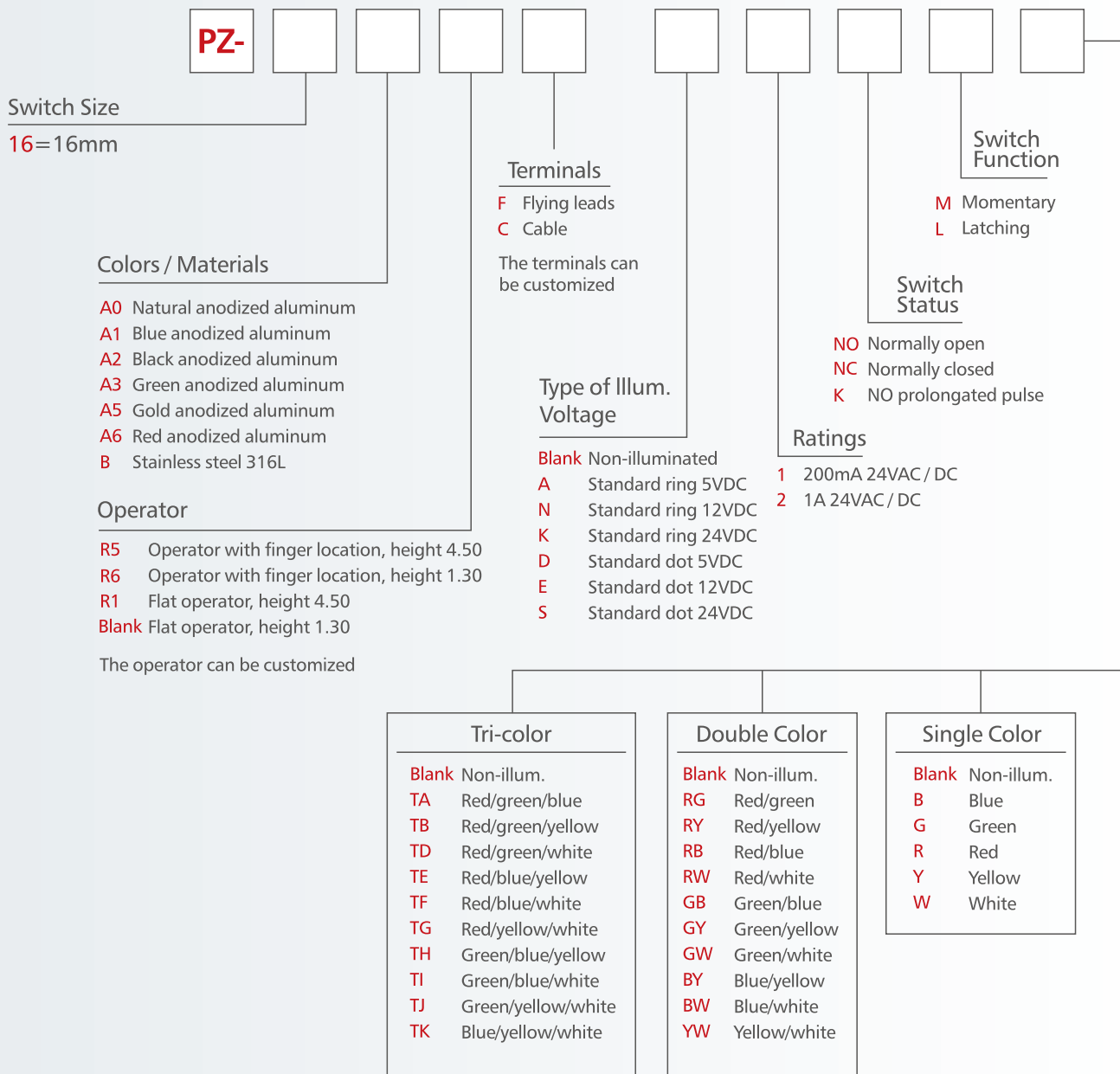
Packing unit: 20 pieces

For options not listed above, please contact LANGIR.

The appearance of the products listed on this file, color, parameters are for reference only, issued a kind of LANGIR Company shall prevail.

LANGIR Company reserves the right to modify or cancel the relevant parameters of this file does not advance notice.

If in doubt, please contact customer service hotline.



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



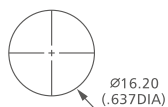
Mounting accessories standard hardware supplied :1 hex nut and 1 O-ring



Packing unit: 20 pieces

For options not listed above, please contact LANGIR.

The appearance of the products listed on this file, color, parameters are for reference only, issued a kind of LANGIR Company shall prevail.
LANGIR Company reserves the right to modify or cancel the relevant parameters of this file does not advance notice.
If in doubt, please contact customer service hotline.



Shown with flying lead terminals.

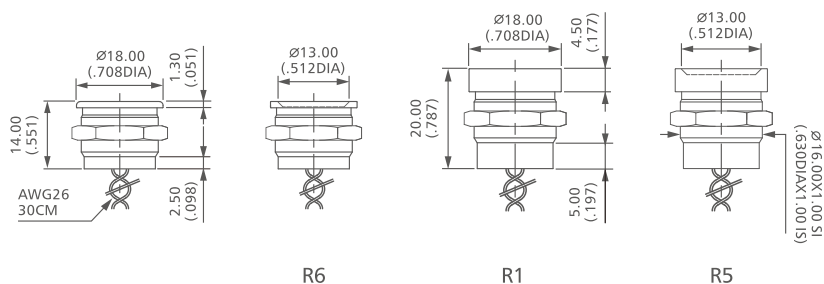
Non-illuminated



PZ16A6R1F1NOM

Flat

Finger location



R6

R1

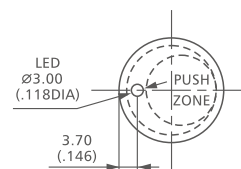
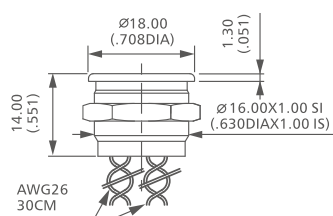
R5

Dot illuminated



PZ16BF51NOMG

Flat

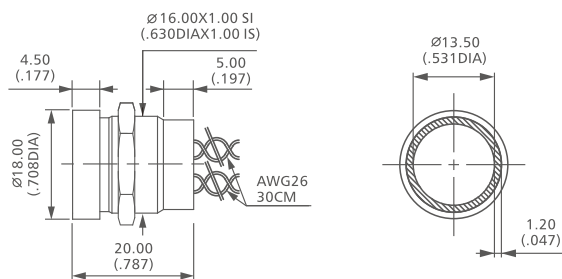


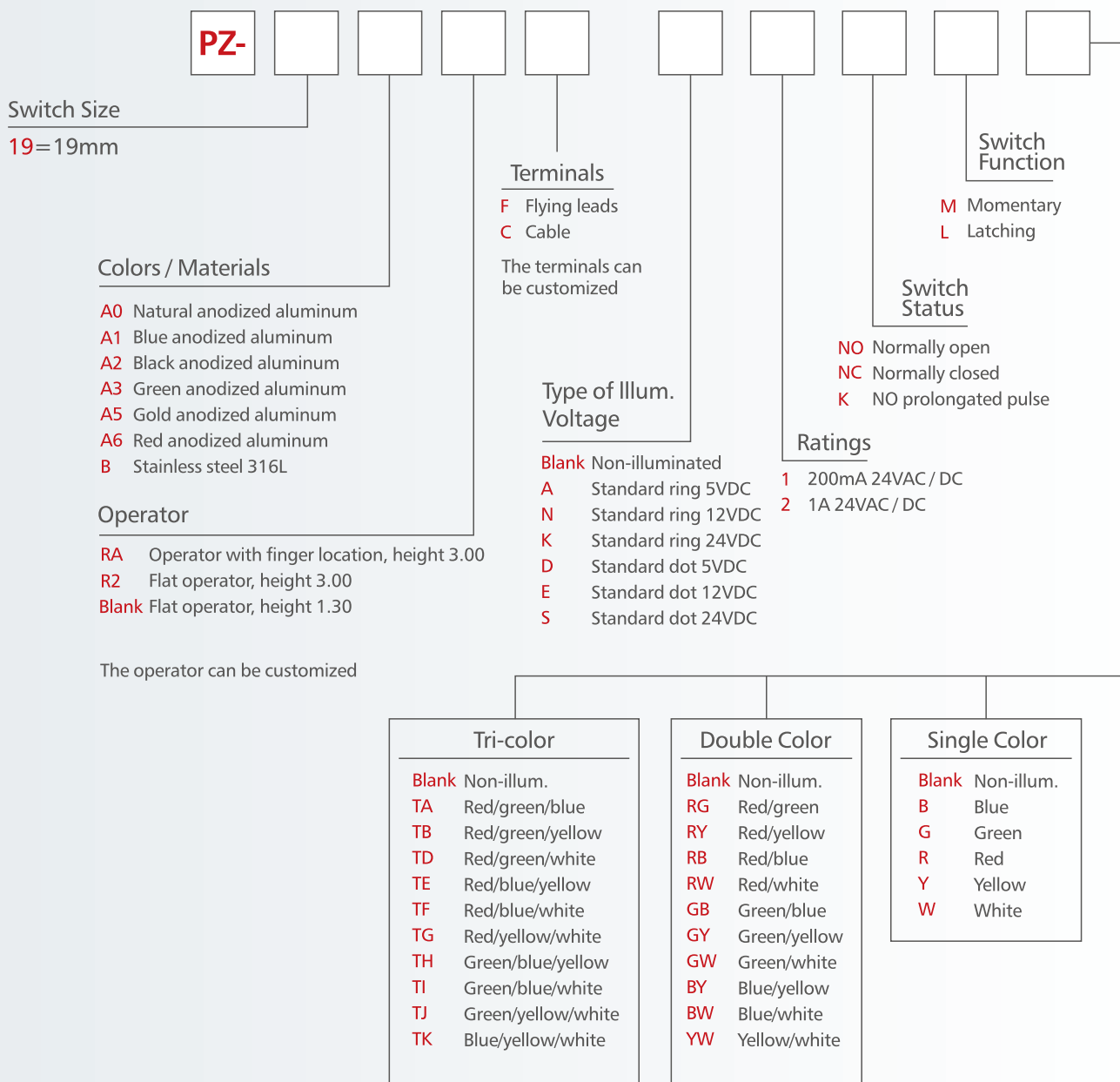
Ring illuminated



PZ16BR1FN1NOMR

Flat operator, height 4,50 (.177)





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 and 1 O-ring



Packing unit: 20 pieces

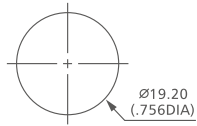
For options not listed above, please contact LANGIR.

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If in doubt, please contact customer service hotline.

Piezo Switch



Shown with flying lead terminals.

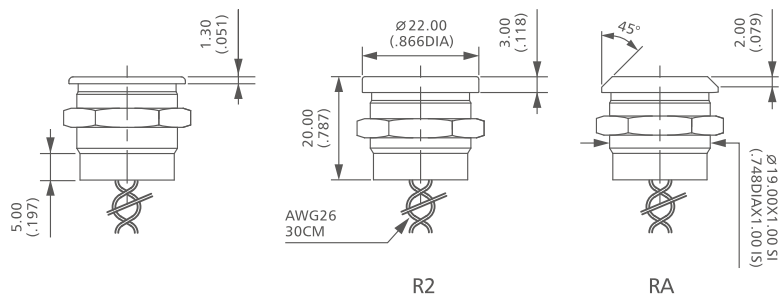
Non-illuminated



PZ19A3F1NOM

Flat

Chamfer



R2

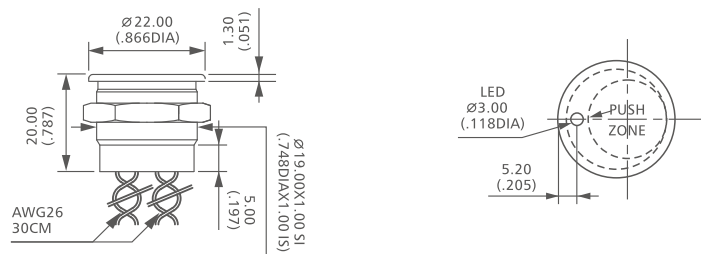
RA

Dot illuminated



PZ19BE1NOMG

Flat



LED
Ø3.00
(.118DIA)

PUSH
ZONE

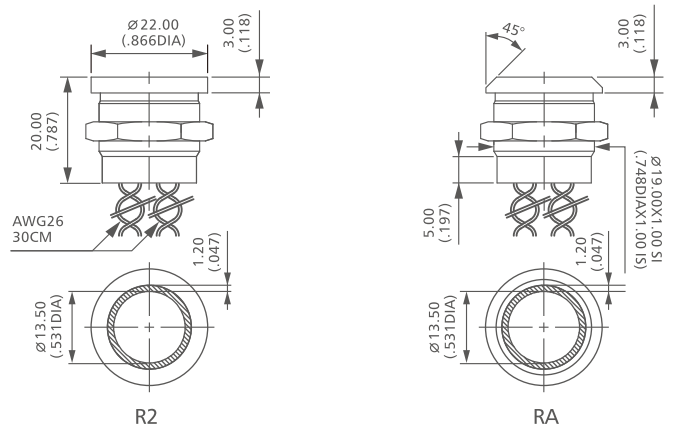
Ring illuminated



PZ19BRAFK1NOMR

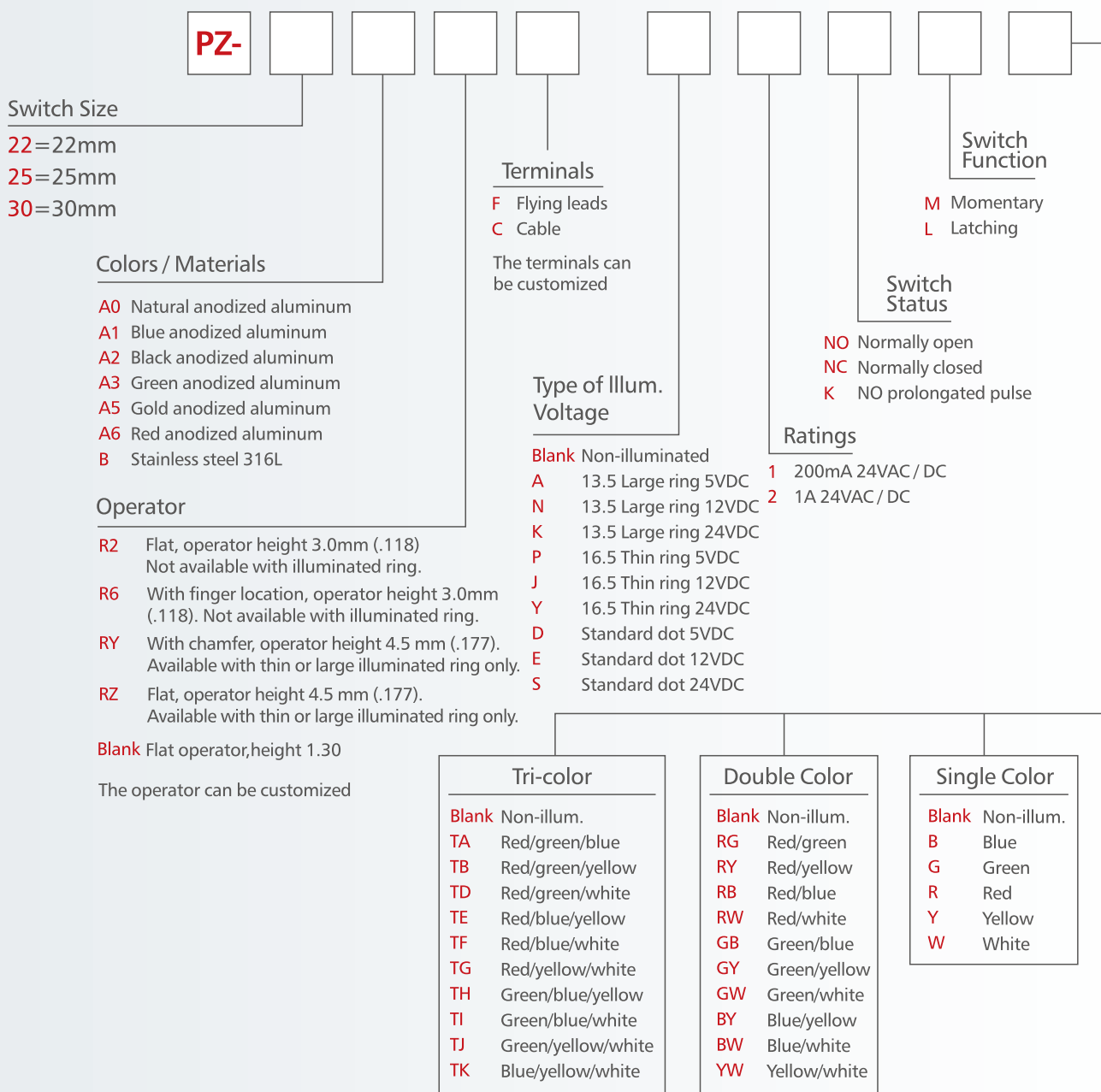
Flat

Chamfer



R2

RA



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 and 1 O-ring



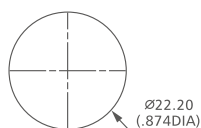
Packing unit: 20 pieces

For options not listed above, please contact LANGIR.

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Shown with flying lead terminals.

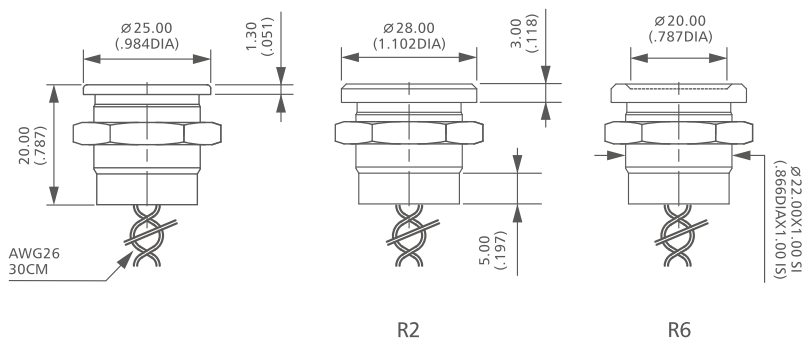
Non-illuminated



PZ22A6R6F1NOM

Flat

Finger location



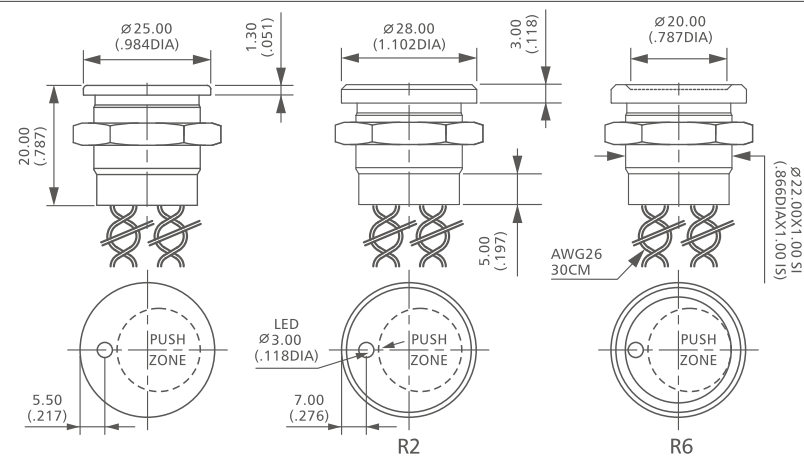
Dot illuminated



PZ22A0R2FD1NOMR

Flat

Finger location



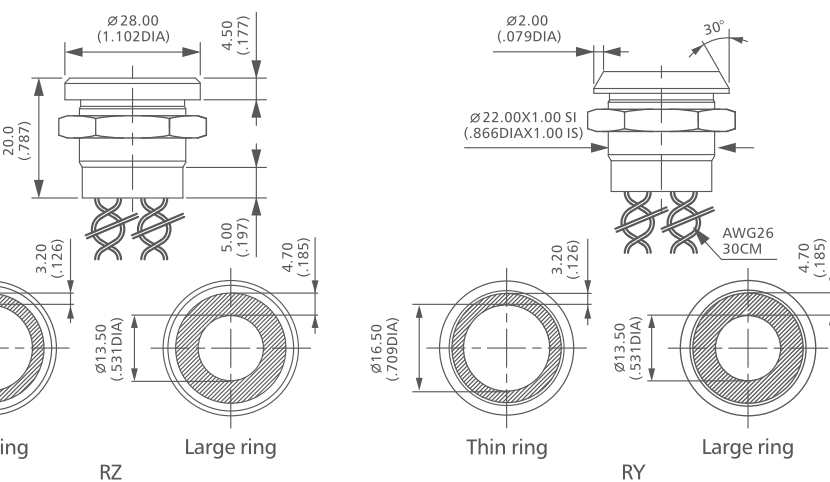
Ring illuminated



PZ22BRYFJ1NOLW

Flat

Chamfer





Shown with flying lead terminals.

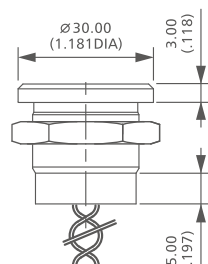
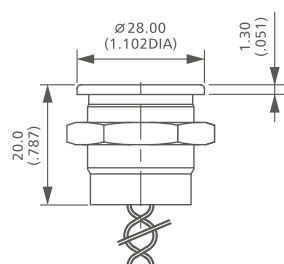
Non-illuminated



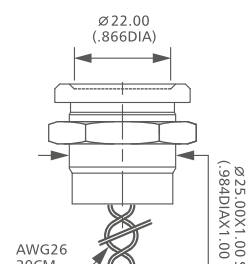
PZ25BF1NOM

Flat

Finger location



R2



R6

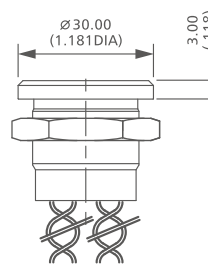
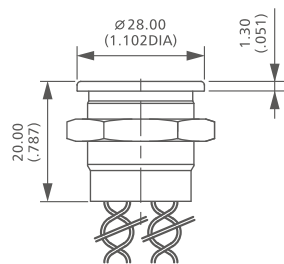
Dot illuminated



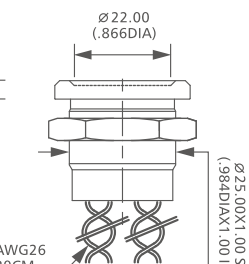
PZ25BR2FS1NOLG

Flat

Finger location



R2



R6

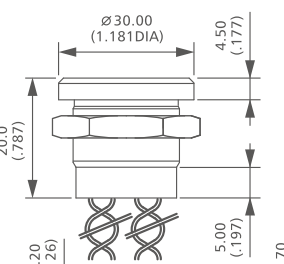
Ring illuminated



PZ25BRZFN1NOLG

Flat

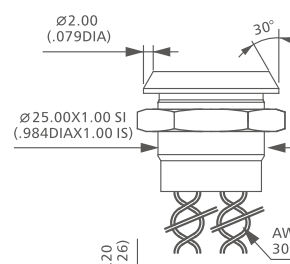
Chamfer



Thin ring

RZ

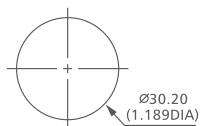
Large ring



Thin ring

RY

Large ring



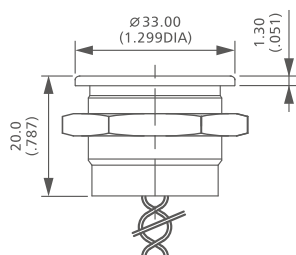
Shown with flying lead terminals.

Non-illuminated

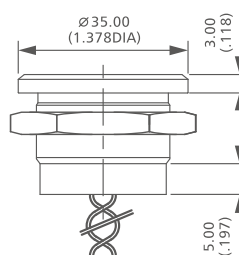


PZ30BR2F1NOM

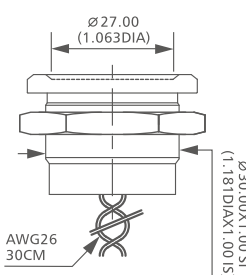
Flat



R2



R6



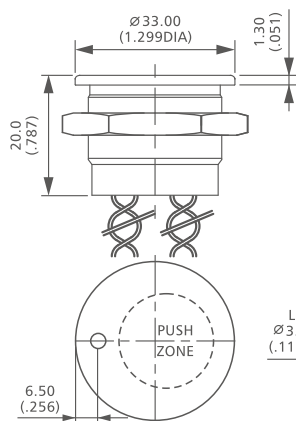
Dot illuminated



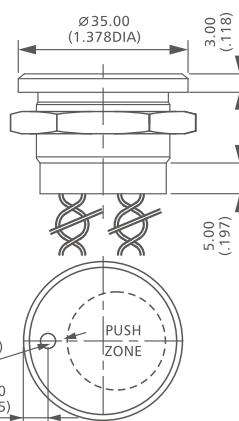
PZ30BE1NOMG

Flat

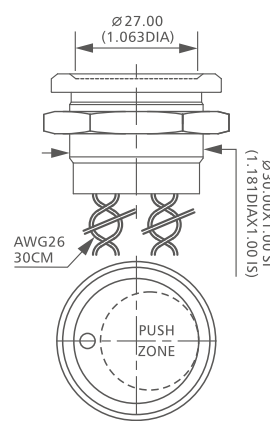
Finger location



R2



R6



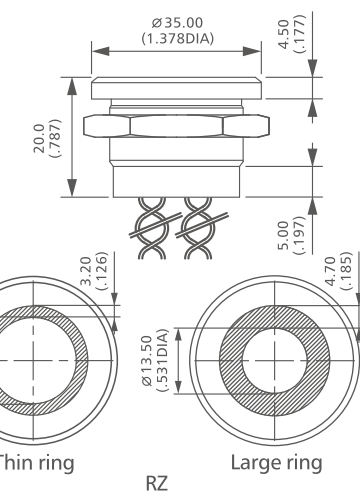
Ring illuminated



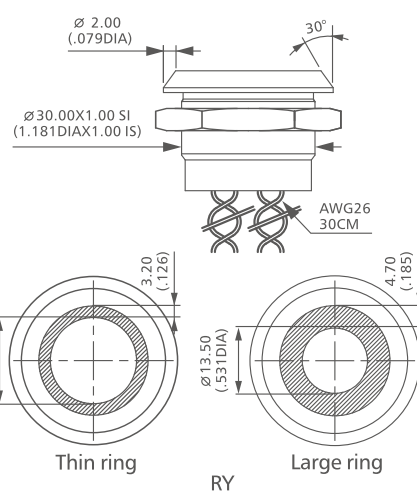
PZ30A2RYFJ1NOMRY

Flat

Chamfer



R2



RY

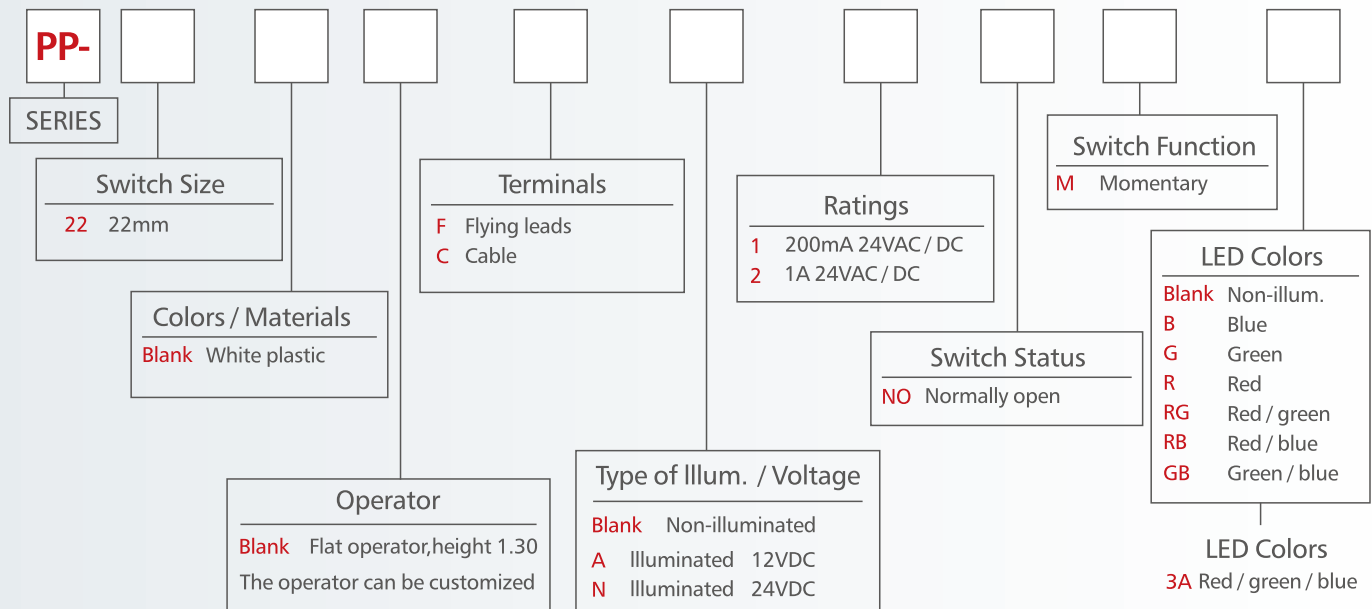
Plastic Piezo Switch

www.langir.com

**Leaders in engineering,
innovation and quality**

**LANGIR brings piezo
technology to perfection**





Plastic piezo switches offering rugged, sealed tamper and vandal proof solid stated switching.

Exceptional durability and reliability.

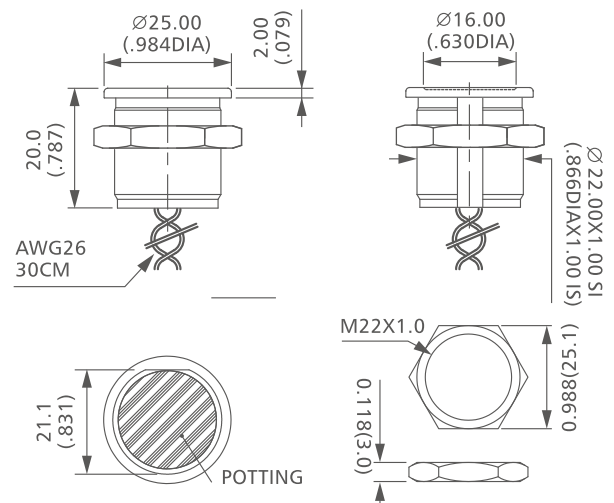
Fitted with red, green and blue LED's for illumination.

- 25mm diameter actuator
- 22.2mm diameter mounting hole
- Normally open, momentary action
- Make impulse time of 125-300 msec
- Recessed face
- Wire termination
- IP68 Sealed
- Available in 12V and 24V LED's

Specifications

Operating voltage:	1-24V AC / DC	
Switching current	0.2A(standard) / 1A options	
Actuation force	3-5N	
Operating temperature	-20°C ~ +70°C	
LED operating voltage	12DC max OR 24V DC max	
LED max current consumption:	(12V)	(24V)
Red	18mA	18mA
Green	9mA	9mA
Blue	27mA	16mA
Ingress Protection	IP68	
Life time	50 million operations	
Material	POM	

Dimension



Wiring Diagrams

	Non-illuminated	1-LED	2-LEDs	3-LEDs
Momentary NO				

Legend: B=black, A=same color as LED

*LED color is indicated by the bottom of the product.

Capacitive Switch

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Features

Bushing diameter:
16 (.630), 19 (.748), 22 (.866) or 25 (0.984)
Activated by the touch of a finger
50 million cycles
Auto-calibration function
Momentary or latching
Illuminated and Non-illuminated

The new CP series capacitive switches technology senses the touch of a finger and creates an electrical charge to activate the switches

An auto-calibration function ensures the sensor adapts to changing external environments.

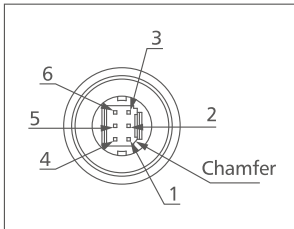
LANGIR's capacitive switches are specially designed for durability and a low activation force. As sensitive as a touch screen, the capacitive switches are perfect for industrial applications where repetitive activation can cause operator fatigue.



This switch should not be used in safety applications.



Wiring for switch connector



- Pin 1: GND
- Pin 2: output
- Pin 3: +V
- Pin 4: LED 2
- Pin 5:
- Pin 6: LED 1



Environmental Specifications

- Sealing : IP68 and IP69K according to IEC 60529
- Triggered by flowing water
- Impact resistance : 1k10
- Operating temperature : -20°C to +65°C (-4°F to +149°F)
- ESD : complies with EN61000-4-2 (extended) $\pm 8\text{KV}$ (20 contacts) and $\pm 15\text{KV}$ (20 air discharges)



Electrical Specifications

- Max. current / voltage rating : 200 mA 24 VDC
- Supply voltage : 5 VDC, 12 VDC or 24 VDC
- Life expectancy : 50 million cycles
- Power consumption non-illuminated : 7 mA
- Power consumption illuminated : 25 mA
- Operating force : 0 N
- LED state for output image option:
1 LED : the LED is ON when the output is closed.
2 LEDs : first color is ON when the output is open. Second color is ON when the output is closed.
- Output type : NPN or PNP



Materials

- Case : aluminum, anodized or stainless steel 316L
- Multi-wire leads section 0.22 mm² length 300 mm
- Cable, length 300 mm, section depending on switch model
- Connector : HE14 6V compatible with AMP/TYCO281839-3



Wiring Diagrams

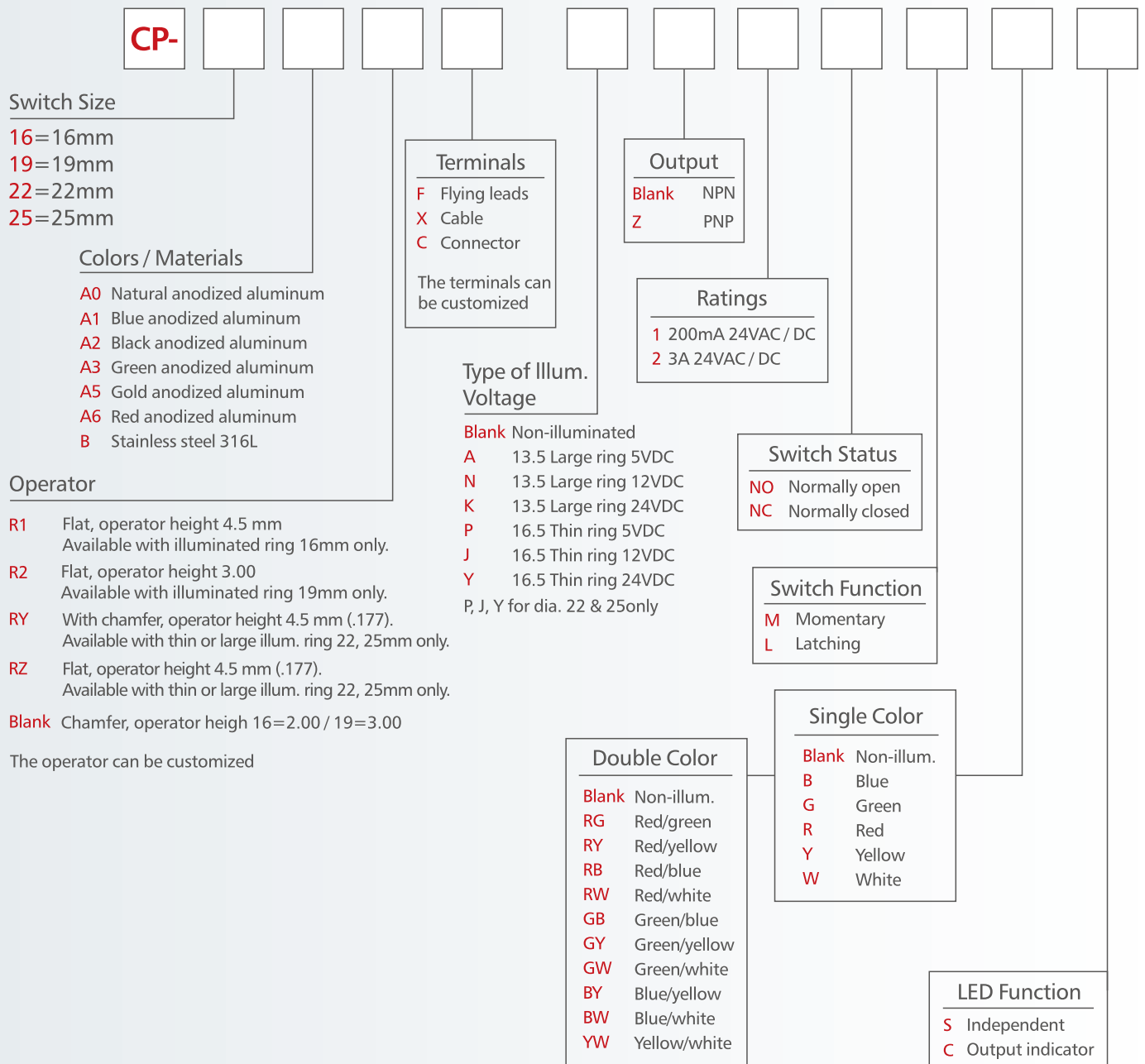
Output type	Non-illuminated	1LED		2 LEDs		Legend
		Output indicator	Independent	Output indicator	Independent	
NPN						R red +V Black black GND W white output A = same color as LED
PNP						Wire colours may vary. Always refer to the label on the switch.

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

Tolerance: The general tolerance for dimensions in this brochure is $\pm 0,3$ (.012).

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

Capacitive Switch



Mounting accessories standard hardware supplied :1 hex nut and 1 O-ring



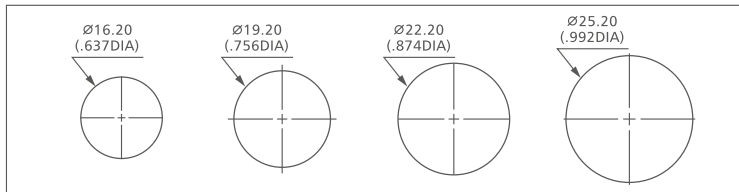
Packing unit: 10 pieces

For options not listed above, please contact LANGIR.

The appearance of the products listed on this file, color, parameters are for reference only, issued a kind of LANGIR Company shall prevail.

LANGIR Company reserves the right to modify or cancel the relevant parameters of this file does not advance notice.

If in doubt, please contact customer service hotline.



Shown with flying lead terminals.

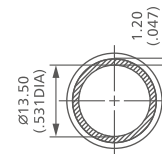
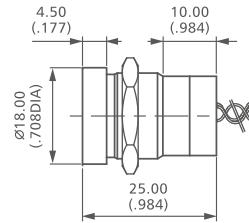
Bushing Ø 16 mm (.630)



Flat

Chamfer

CP16BFR1FANOMBC



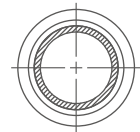
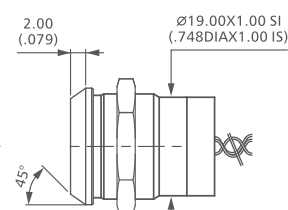
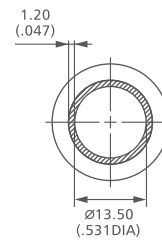
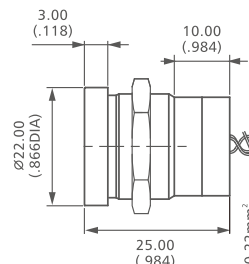
Bushing Ø 19 mm (.748)



Flat

Chamfer

CP19BR2FKNOLBC



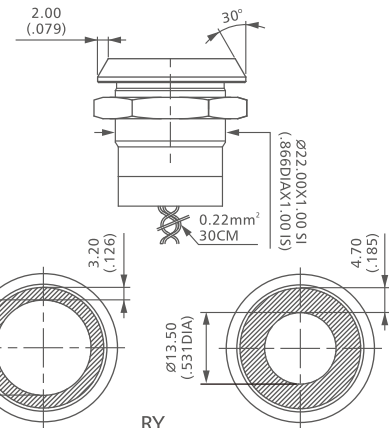
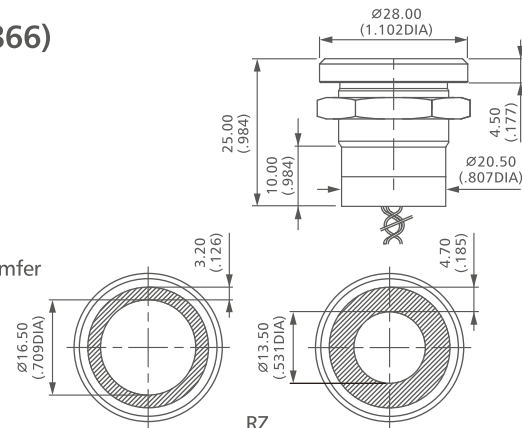
Bushing Ø 22 mm (.866) - large or thin ring



Flat

Chamfer

CP22BRYFNNOMBC



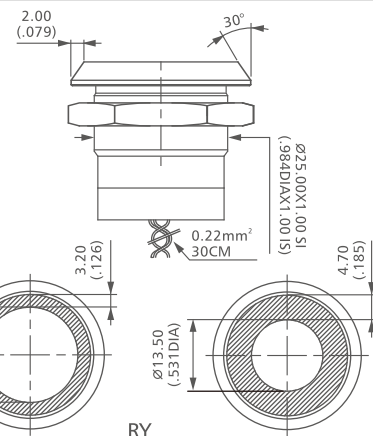
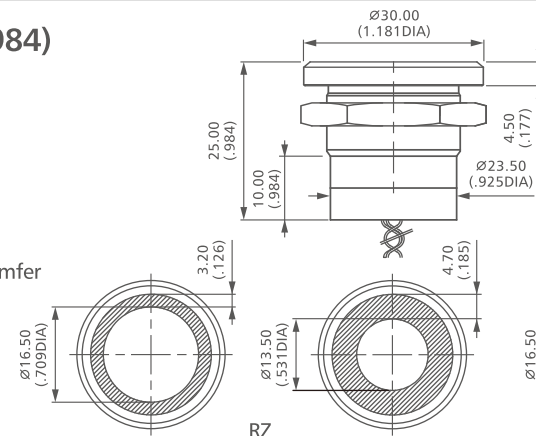
Bushing Ø 25 mm (.984) - large or thin ring



Flat

Chamfer

CP25BRZFNNOMBC



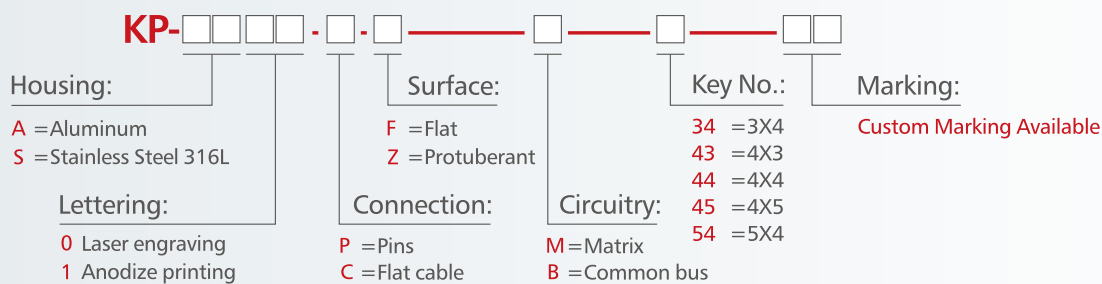
Keypads

www.langir.com



Features:

Maximum reliability and durability, Ideal for use in rough environments.
IP68 Dust and water resistant, Sea-water and detergent resistant.
No moving part, maintenance free.
Made of one piece of solid metal, totally rugged.
Potted switching unit at rear seals against all contamination and prevents freezing.
Flexible anodize print or laser engrave layout.



Electrical Specifications:

Switching voltage max.: 24VDC
Switching current max.: 200mA
Lifetime electrical: 15mill.
Insulation resistance (OFF = not actuated): $>5\text{m}\Omega$
Initial contact Resistance (ON = actuated): $<7.5\Omega$

Mechanical Data:

Actuating force: 5-15N
Temperature: -40 to +125°C
Protection class: IP68

Other Data:

Materials Front Panel Stainless Steel, Aluminum
Lettering Laser engraving / anodize printing



Dimensions: first dimensions are in mm while inches are shown as bracketed numbers.
Tolerance: The general tolerance for dimensions in this brochure is $\pm 0,3$ (.012).
Dimensions, specifications and data shown in this brochure are subject to change without notice.



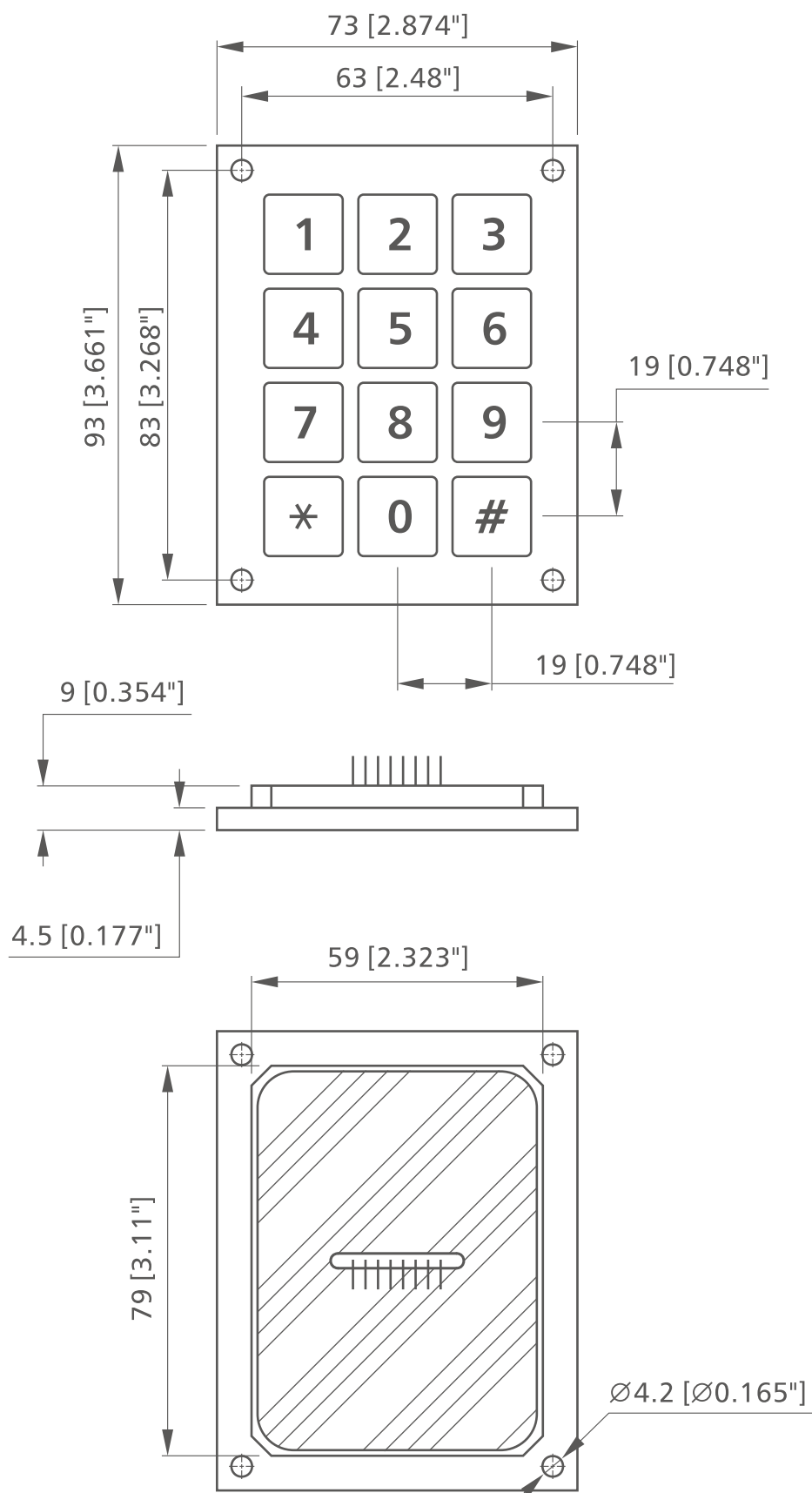
Mounting accessories standard hardware supplied :4 screws and 1 Sealing

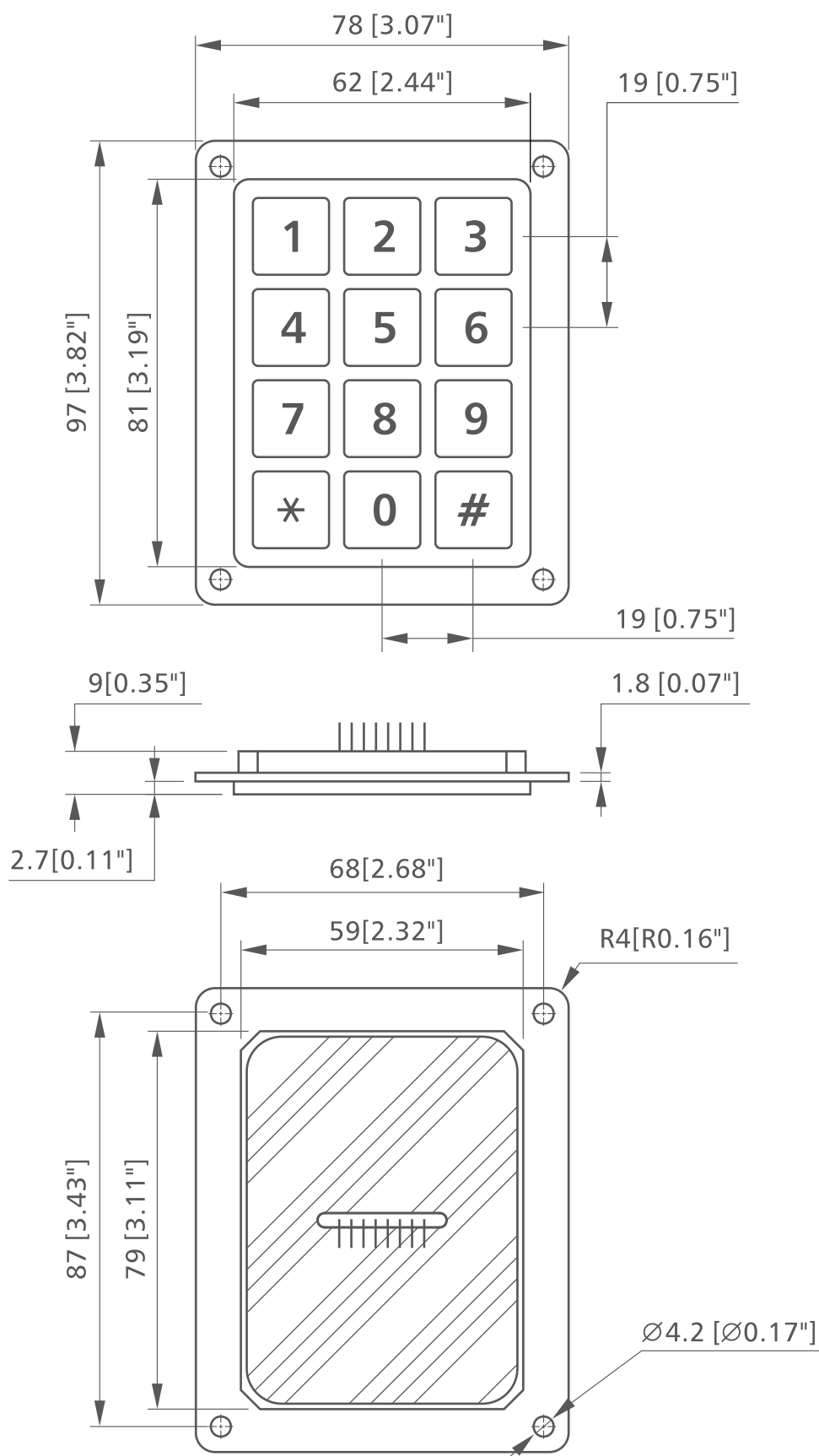


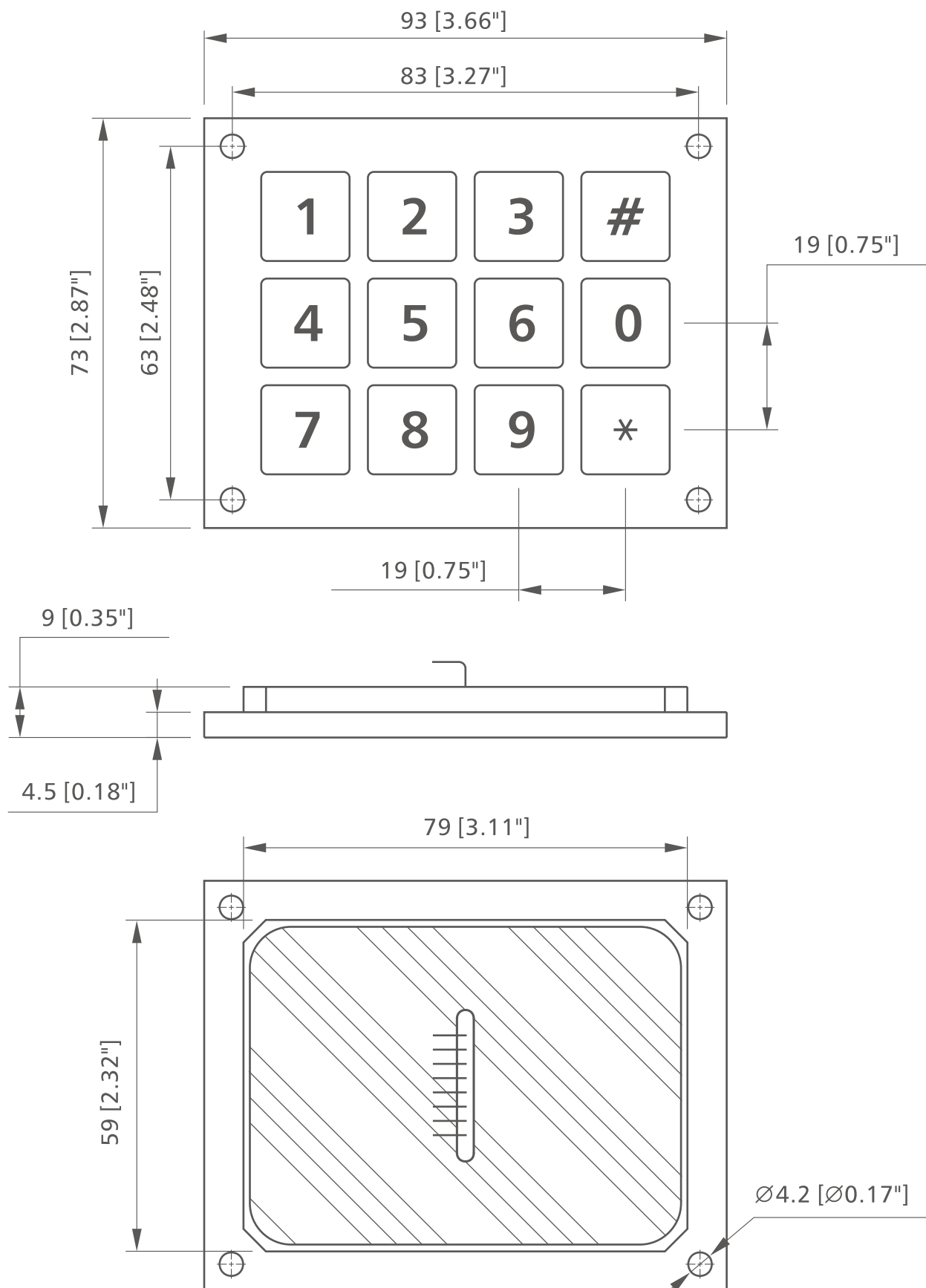
Packing unit: 1 piece

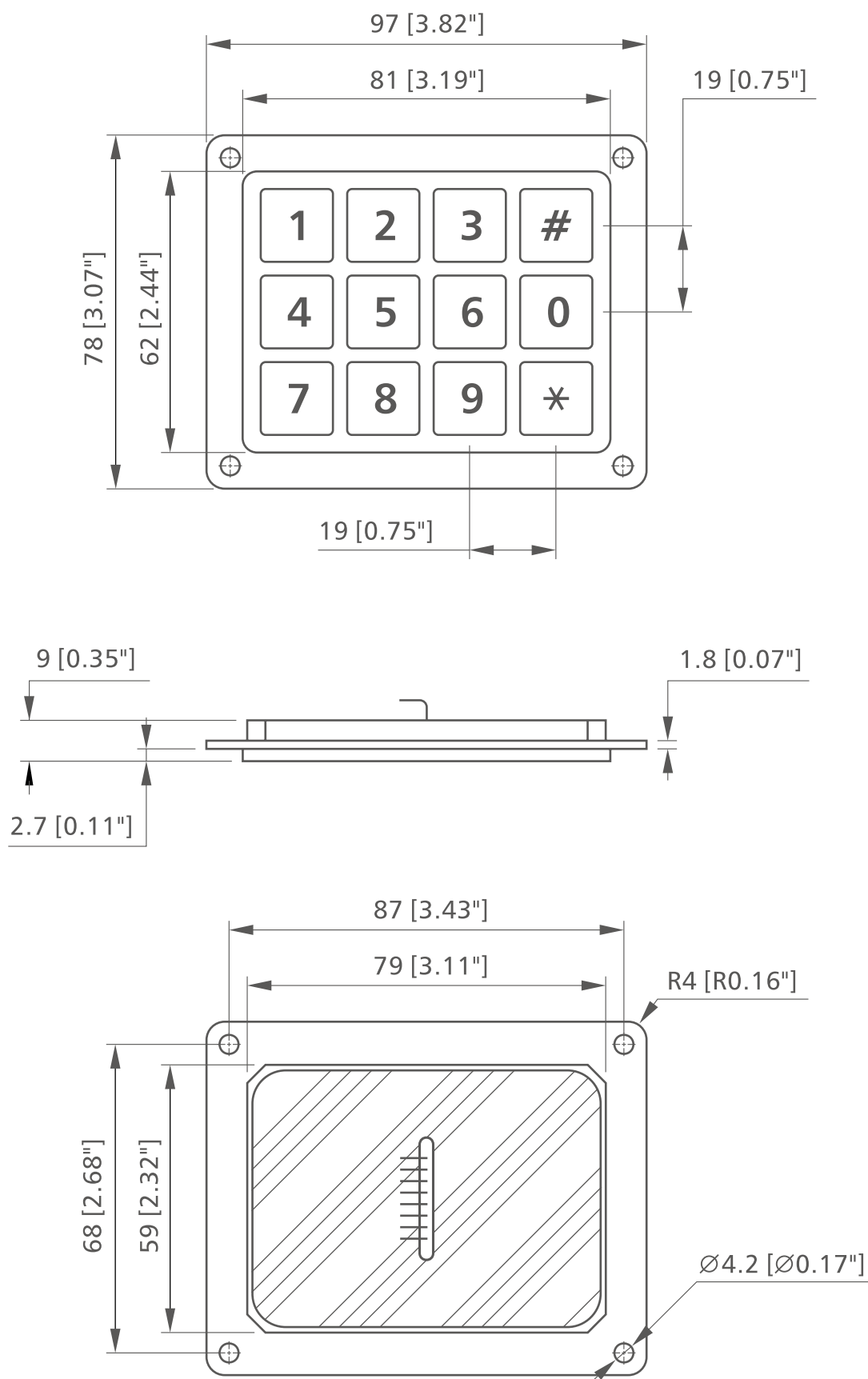
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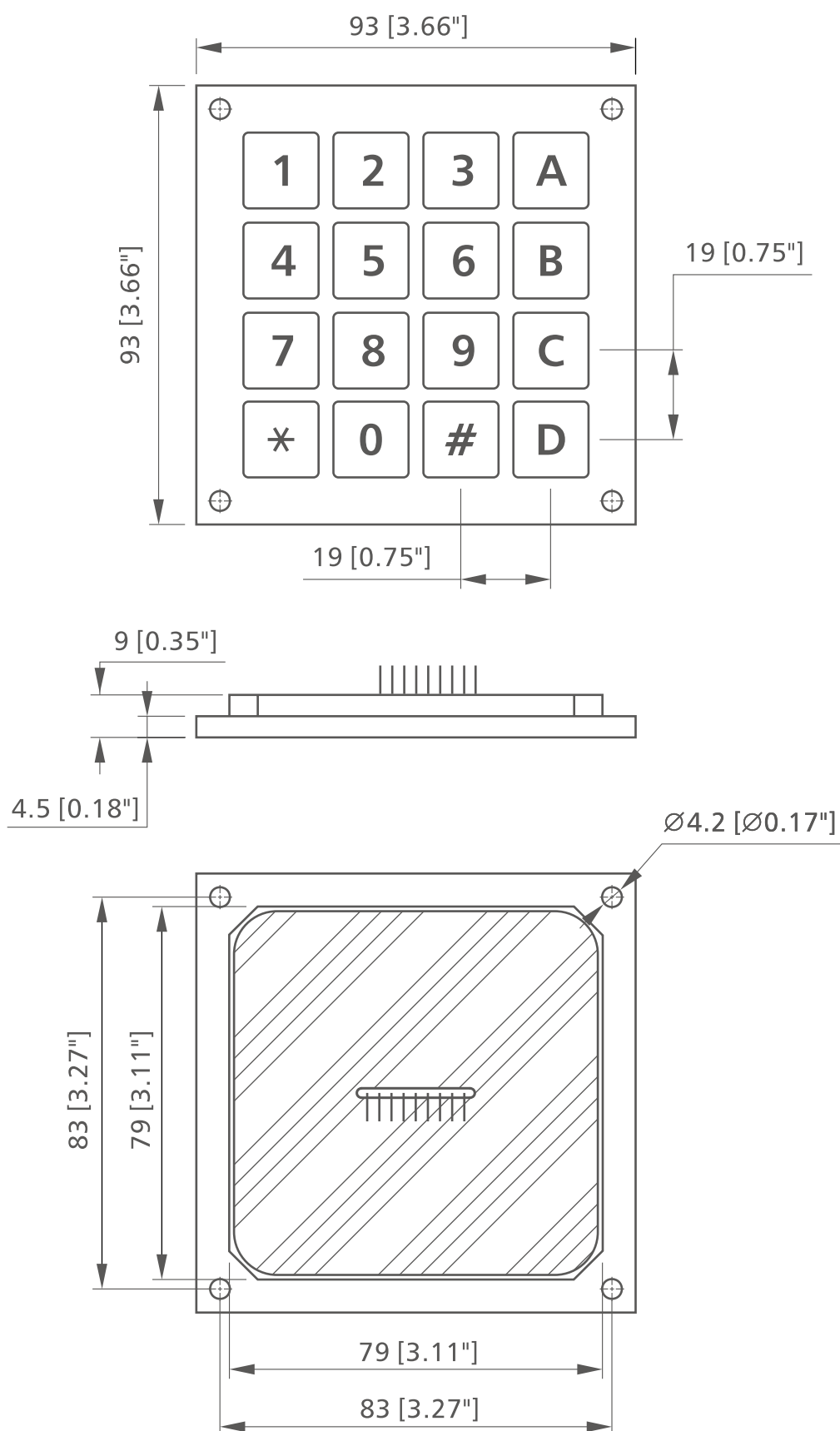
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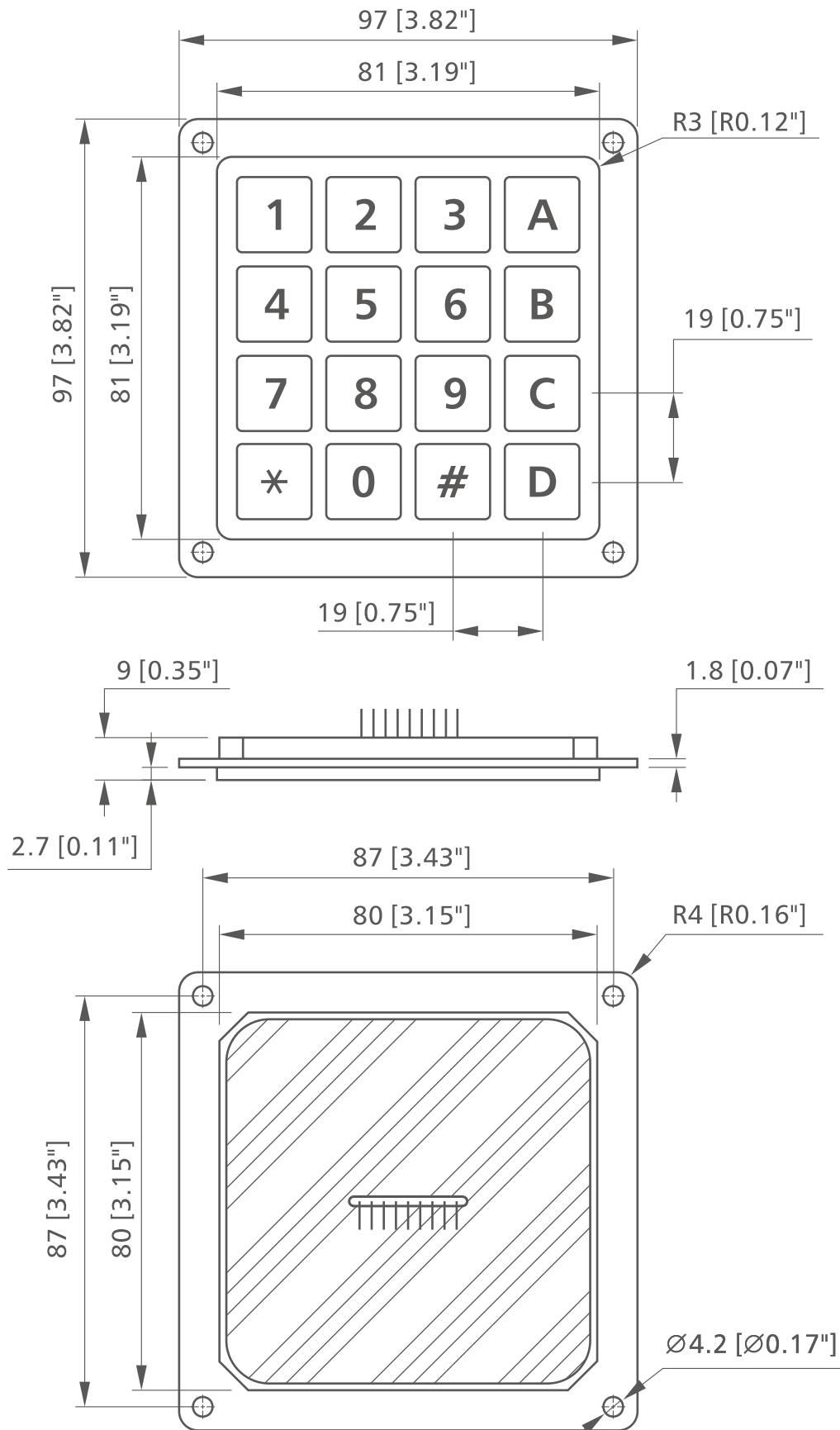


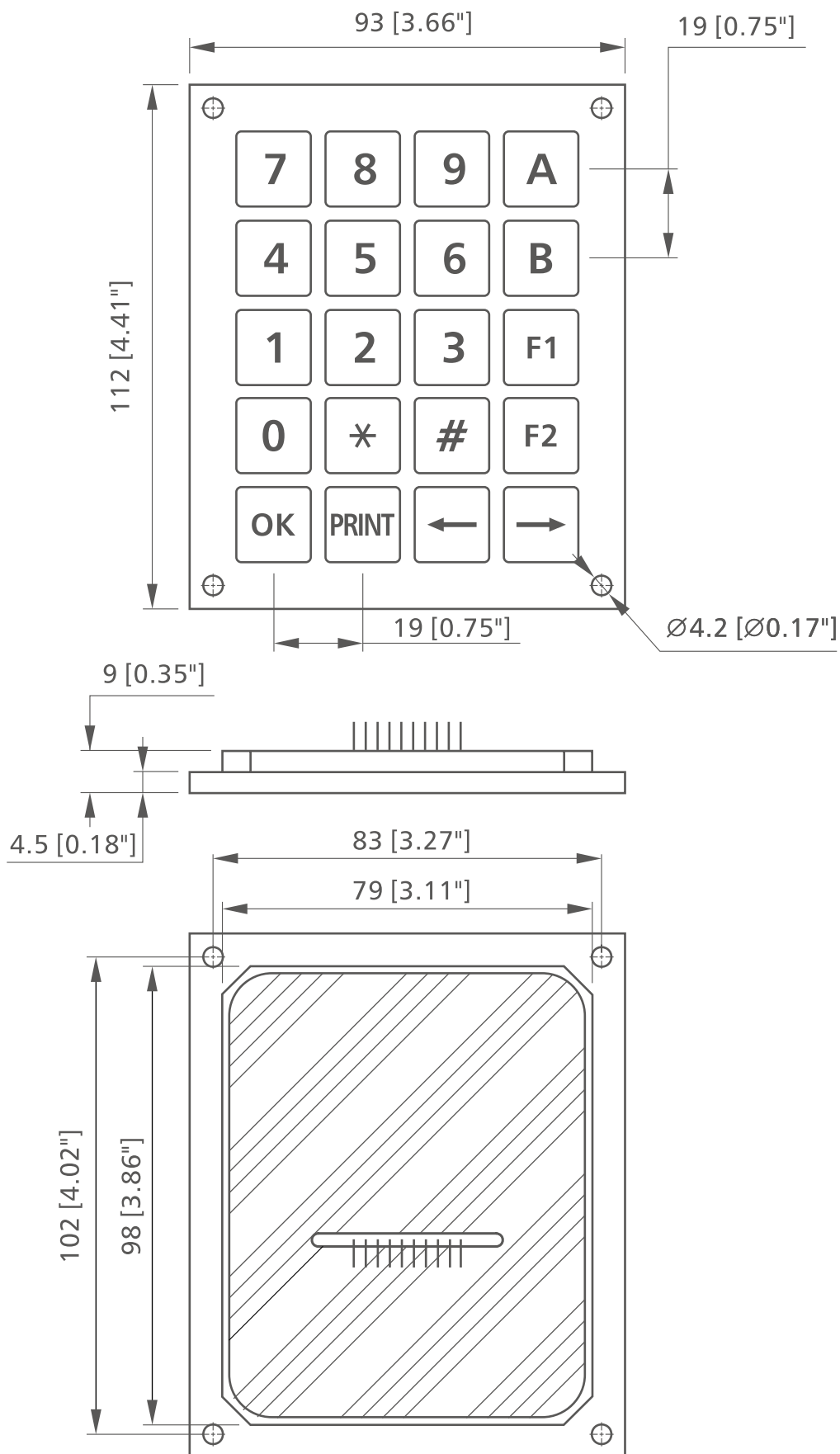


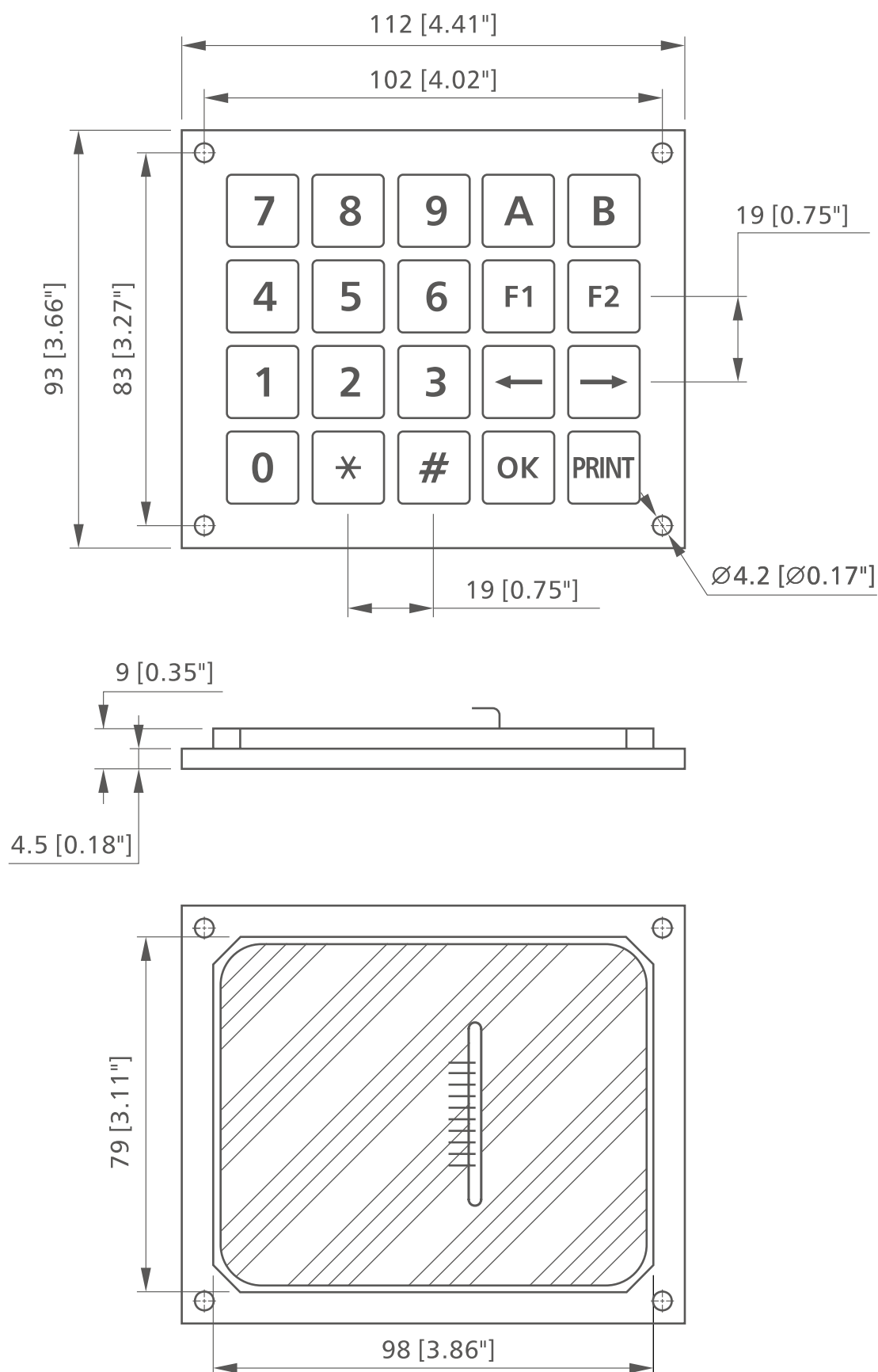








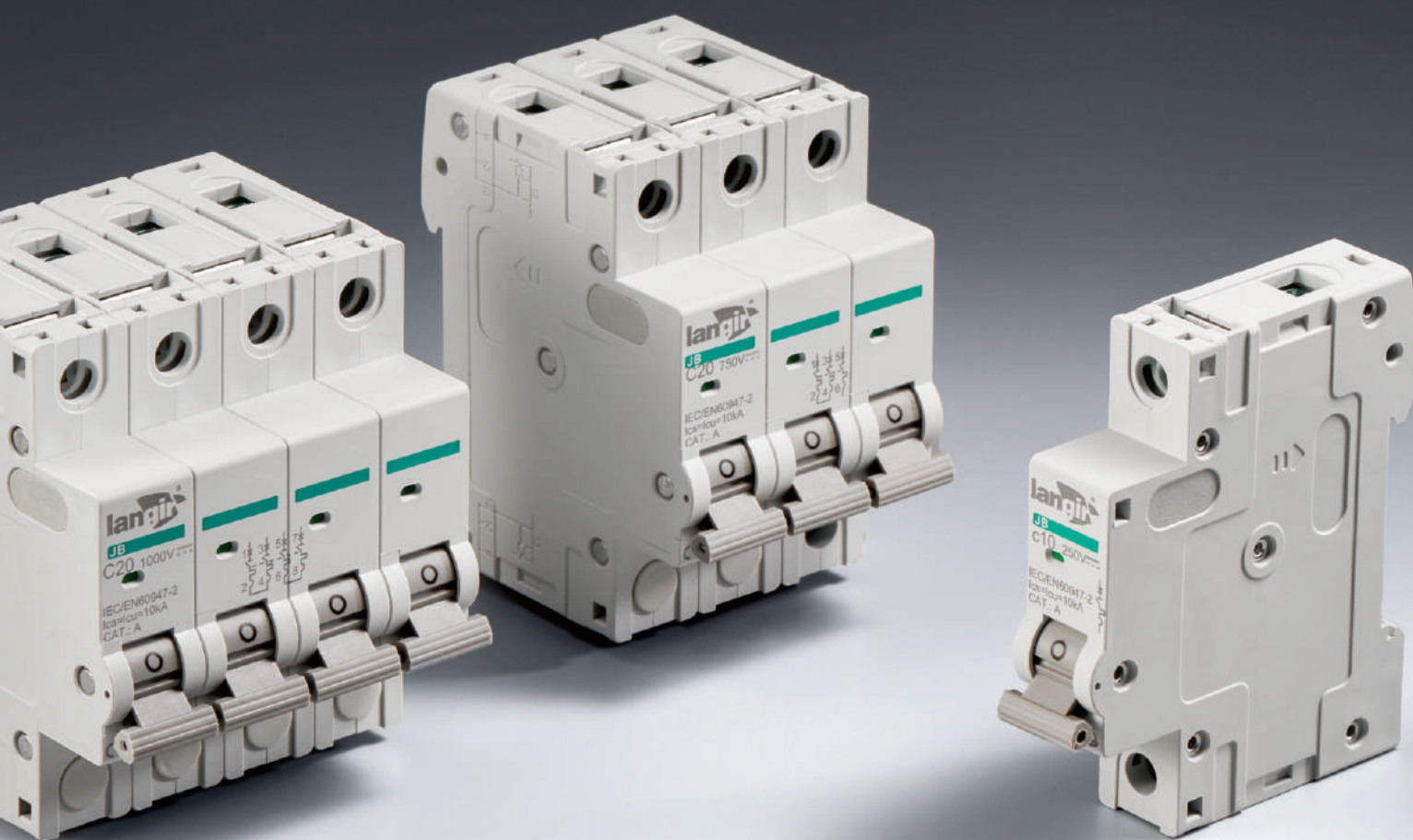




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Circuit Protection

www.langir.com



CB CE



IEC 60947-2, EN60947-2, GB 14048.2

The JB is a DC circuit breaker dedicated to multi string photovoltaic installations.

This circuit breaker is designed to protect the cables located between each string of photovoltaic modules and the photovoltaic inverter against overloads and short circuits (see application diagram).

Combined with a switch, the JB will be installed in a string PV protection enclosure at the end of each string of photovoltaic modules.

It can be locked (by a padlocking device) in OFF position as a safety measure for removal of the PV inverter.

Since a fault current can flow in the reverse direction to the operating current, the JB can detect and protect against any bidirectional current.

To ensure the safety of the installation, it is necessary, depending on the various types of application, to combine the JB with:

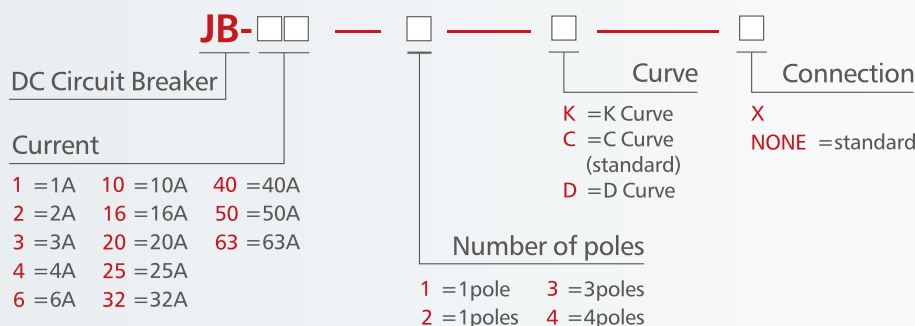
- a residual current device at the AC end,
- a fault passage detector (insulation monitoring device) at the DC end
- an earth protection circuit breaker at the DC end

In all cases, fast action on site will be required to clear the fault (protection not ensured in the event of a double fault).

JB is not polarity sensitive: (+) and (-) wires can inversed without any risk.

The JB is: delivered with three inter-pole barrier to provide increased isolation distance between two adjacent connectors.

Meaning and Classification Models



Main Characteristics

Operating voltage (Ue)	1P=250 V DC, 2P=500 V DC 3P=750 V DC, 4P=1000 V DC
Rated insulation voltage (Ui)	1,000 V DC
Breaking capacity (Icu)	10 kA
Impulse voltage (Uimp)	10 kV
Electrical connection	By the bottom for In and Out
Number of poles	1P, 2P, 3P, 4P
Standards	IEC 60947-2 EN 60947-2

Instantaneous Trip

B Curve

These MCBs are suitable for cable protection.

Rating: 1-63A (30°C)

Instantaneous trip: (3-5)I_n

C Curve

Suitable Domestic and residential applications and electromagnetic starting loads with medium starting currents.

Rating: 1-63A (30°C)

Instantaneous trip: (7-10)I_n

D Curve

Suitable for inductive and motor loads with high starting currents.

Rating: 1-63A (30°C)

Instantaneous trip: (10-14)I_n

K Curve

Suitable for inductive and motor loads with high inrush currents.

Rating: 1-63A (30°C)

Instantaneous trip: (14-18)I_n

Technical Data

- Position contact indication-suitability for isolation according to IEC/EN 60947-2 standard.
- The presence of the green strip guarantees physical opening of the contacts and allows operations to be performed on the downstream circuit in complete safety.
- Increased product service life thanks to fast closing independent of the speed of actuation of the toggle.
- Pre-wired product: Input / Output on the same side.

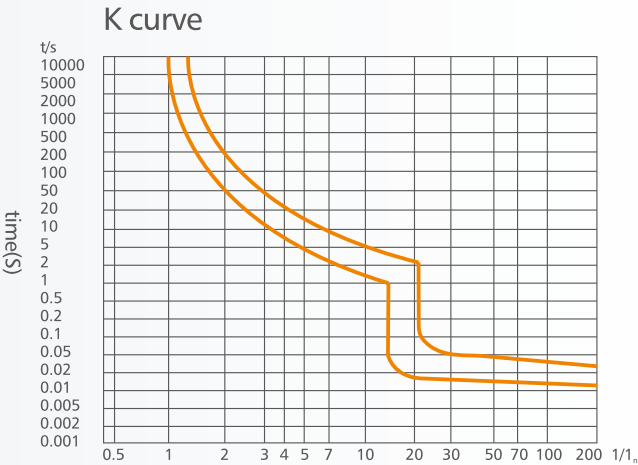
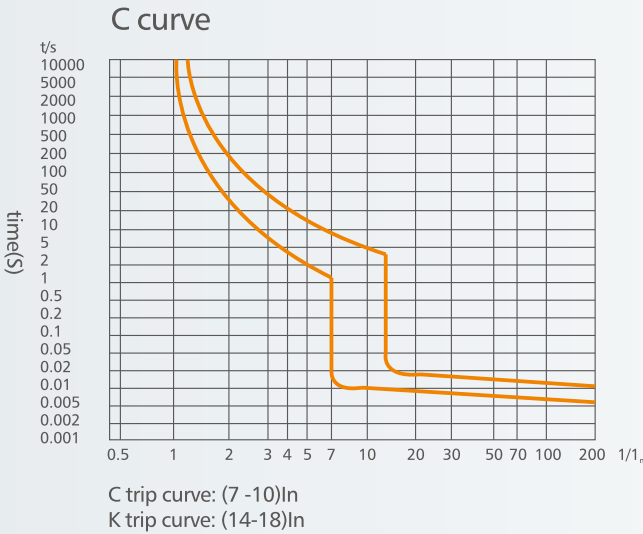
Main Characteristics		
Rated service breaking capacity (Ics)		100% of the Icu
Endurance (O-C)	Electrical	1,500 cycles (where L / R=2 ms)
	Mechanical	20,000 cycles
Mechanical		20,000 cycles
Degree of pollution		2
Category		A (no delay in accordance with IEC / EN 60947-2 standards)
Degree of protection (IEC 60529)	Device in modular enclosure	IP40
Tropicalisation		Relative humidity: 95% at 55°C in accordance with IEC 60068-2 and GB 14048.2 standards
Temperature	Operating	-25°C to 70°C (Reference temperature 30°C, ref. table 1)
	Storage	-40°C to 85°C

Additional Characteristics (@T _A =1P 60VDC)			
Rating (A)	Voltage drop (mV)	Impedance (mΩ)	Power loss (W)
1	1230	1230	1.230
2	536	238	1.072
3	439	146.3	1.317
4	381	95.3	1.524
6	158	26.3	0.948
10	147	14.7	1.470
16	125	7.8	2.000
20	93	4.7	1.860
25	76	3	1.900
32	91	2.8	2.912
40	68	1.7	2.720
50	70	1.4	3.500
63	68	1.1	4.284

Temperature Derating (Table 1)

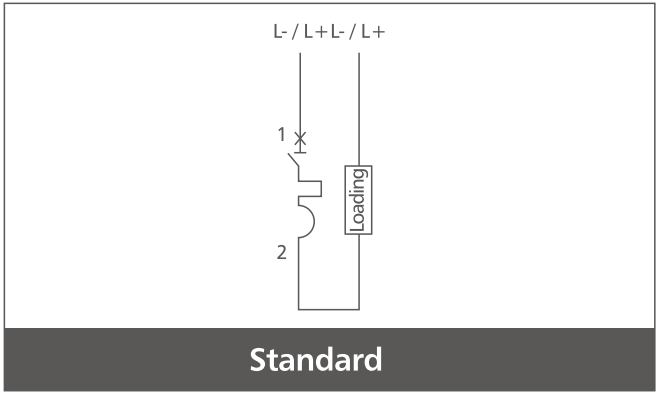
JB	Ambient temperature (°C)											
Rating	-35°C	-30°C	-20°C	-10°C	0°C	10°C	20°C	30°C	40°C	50°C	60°C	70°C
1A	1.30	1.26	1.23	1.19	1.15	1.11	1.05	1.00	0.96	0.93	0.88	0.83
2A	2.60	2.52	2.46	2.38	2.28	2.20	2.08	2.00	1.92	1.86	1.76	1.66
3A	3.90	3.78	3.69	3.57	3.42	3.30	3.12	3.00	2.88	2.79	2.64	2.49
4A	5.20	5.04	4.92	4.76	4.56	4.40	4.16	4.00	3.84	3.76	3.52	3.32
6A	7.80	7.56	7.38	7.14	6.84	6.60	6.24	6.00	5.76	5.64	5.28	4.98
10A	13.20	12.76	12.50	12.00	11.50	11.10	10.60	10.00	9.60	9.30	8.90	8.40
16A	21.12	20.48	20.00	19.20	18.40	17.76	16.96	16.00	15.36	14.88	14.24	13.44
20A	26.40	25.60	25.00	24.00	23.00	22.20	21.20	20.00	19.20	18.60	17.80	16.80
25A	33.00	32.00	31.25	30.00	28.75	27.75	26.50	25.00	24.00	23.25	22.25	21.00
32A	42.56	41.28	40.00	38.72	38.12	35.52	33.92	32.00	30.72	29.76	28.16	26.88
40A	53.20	51.20	50.00	48.00	46.40	44.80	42.40	40.00	38.40	37.20	35.60	33.60
50A	67.00	65.50	63.00	60.50	58.00	56.00	53.00	50.00	48.00	46.50	44.00	41.50
63A	83.79	81.90	80.01	76.86	73.71	70.56	66.78	63.00	60.48	58.90	55.44	52.29

Curve

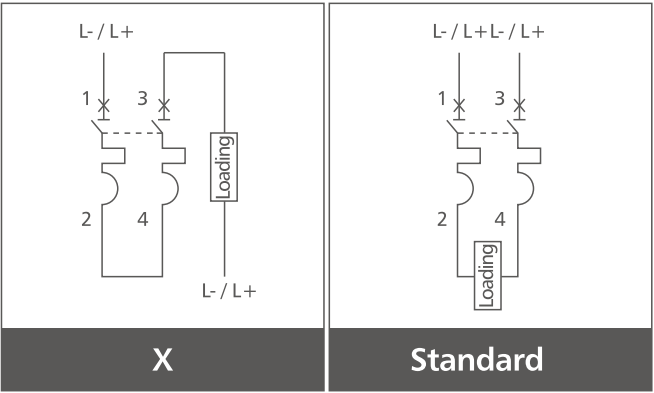


Diagrams

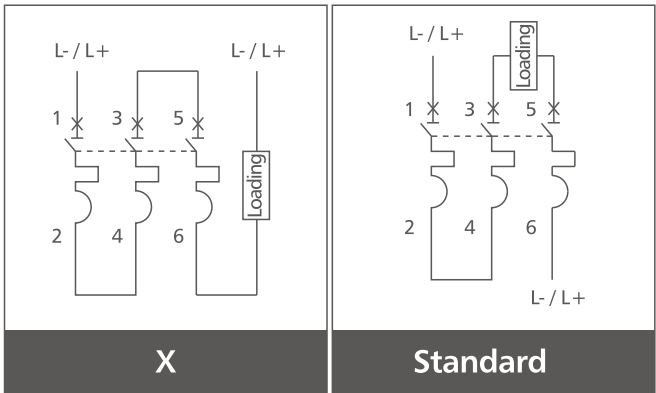
1P: 250V DC



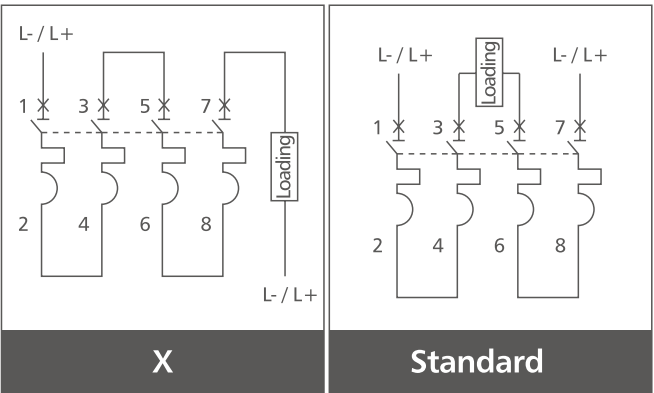
2P: 500V DC



3P: 750V DC

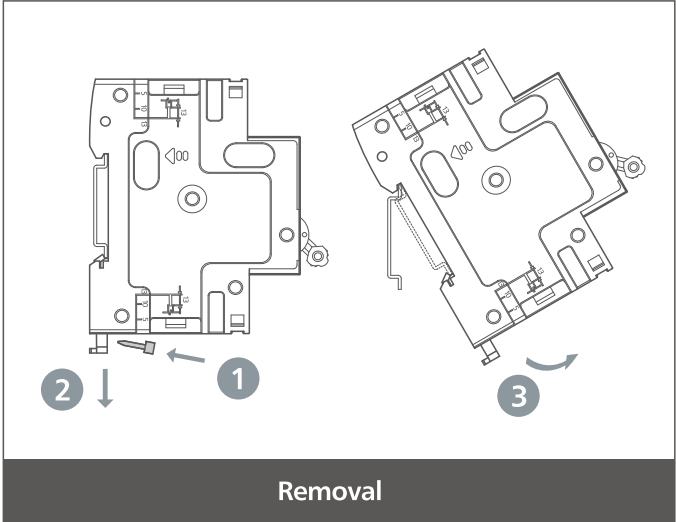
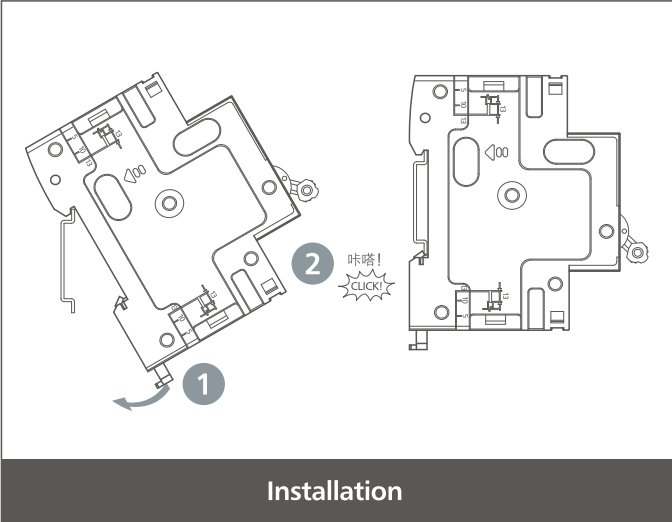


4P: 1000V DC



JB Type

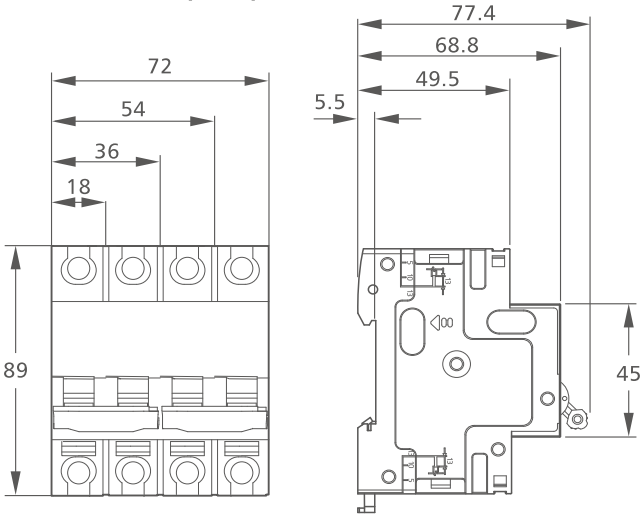
Installation



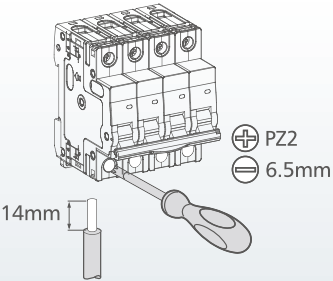
Weight (g)

Circuit breaker				
Type	1P	2P	3P	4P
	120	240	360	480

Dimensions (mm)



Connection

	Without Accessory				With Accessories
	Tightening torque	Copper cables		50 mm ² Cu /Al Terminal	Ring tongue terminal screw connection
		Rigids	Flexibles with ferrule		
	2.5N.m				
		1 to 25 mm ²	1 to 16 mm ²	50 mm ²	Ø 5 mm

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