

# Piezo Switches



**PW1L-R6AFB002**  
22mm with LED dot  
& finger guide



**PW1L-RYAFB002**  
22mm chamfer  
with LED ring



**PN1L-M2AFB002**  
30mm flush  
with LED ring



**PN1L-M4AFB002**  
30mm with side-  
viewable LED ring

## PART NUMBERS

Part Number	Description	Panel cut size	LED voltage ①	LED color ②
PW1L-R6AFB002①②	22mm Piezo switch with LED dot & finger guide	Ø22mm	P: Dot / 12VDC J: Dot / 24VDC	OB: Blue OG: Green OS: Red OY: Yellow OW: White SG: Red/Green <sup>1</sup>
PW1L-RYAFB002①②	22mm Piezo switch with LED ring	Ø22mm	D: Ring / 12VDC E: Ring / 24VDC	OB: Blue OG: Green OS: Red OY: Yellow OW: White 2A: Red/Green <sup>2</sup>
PN1L-M2AFB002①②	30mm flush Piezo switch with LED ring	Ø30mm	D: Ring / 12VDC E: Ring / 24VDC	OB: Blue OG: Green OS: Red OY: Yellow OW: White 2A: Red/Green <sup>2</sup>
PN1L-M4AFB002①②	30mm Piezo switch with side viewable LED ring	Ø30mm	D: Ring / 12VDC E: Ring / 24VDC	OB: Blue OG: Green OS: Red OY: Yellow OW: White 2A: Red/Green <sup>2</sup>

## PRODUCT DESCRIPTION

Designed for demanding applications where reliability is critical, Piezo switches are based on solid-state output allowing for an exceptionally long lifespan. The flat metal surface is completely closed, preventing ingress of liquids and other contaminants and is perfect for surface cleaning, required in medical and food processing industries. High performance sealing up to IP68 and IP69K is achieved with the single piece construction of the switch.

The Piezo switch series includes a 22mm or 30mm diameter housing with ring or dot illumination, various LED color options, including dual color.

## KEY FEATURES

- 22 or 30mm diameter stainless steel 316L housing
- Sealing up to IP68 & IP69K (switches mounted on panel)
- Flush mount bezel
- Easy to clean metal surface
- Solid state switch, no moving parts
- Over 50 million lifecycles
- Dot or ring illumination options
- Side viewable illumination models

## SPARE PARTS

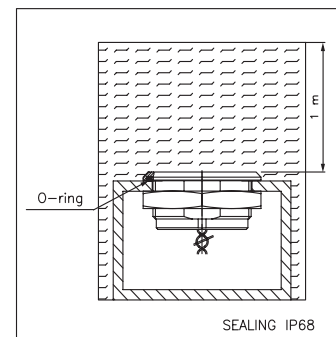
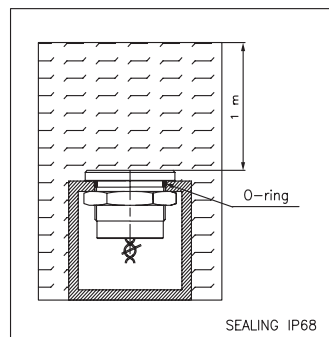
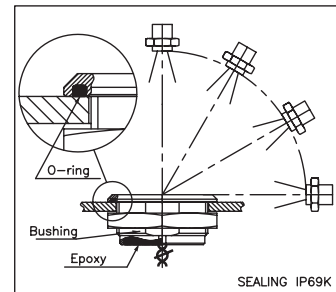
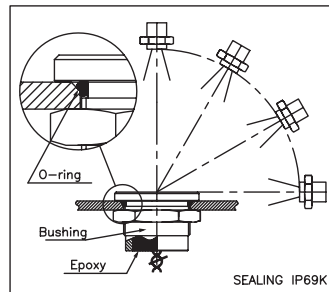
Part Number	Description	Size	Material
PW9Z-LNM	Spare 22mm Piezo Switch Hex Locking Nut	M22x1	Metal
PN9Z-LN	Spare 30mm Piezo Switch Hex Locking Nut	M30x1.5	Plastic

Note:  
1. See Equivalent Circuit Diagram-2 on page 3 for details.  
2. See Equivalent Circuit Diagram-2 on page 4, 5 & 6 for details.

# PIEZO SWITCH SPECIFICATIONS

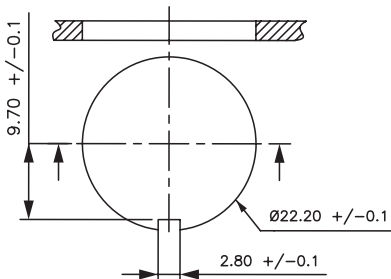
PART NUMBER	PW1L-R6AFB002 ① ②	PW1L-RYAFB002 ① ②	PN1L-M2AFB002 ① ②	PN1L-M4AFB002 ① ②
Construction	Momentary, solid state pushbutton, dot LED indicator, 3mm mount bezel with finger guide	Momentary, solid state pushbutton, LED ring illumination, 4.5mm chamfered bezel	Momentary, solid state pushbutton, LED ring illumination, 2.5mm flush mount bezel	Momentary, solid state pushbutton, LED side-viewable ring illumination, 5.5mm mount bezel
Housing diameter	22mm	22mm	30mm	30mm
MATERIALS	Housing	Stainless steel 316L	Stainless steel 316L	Stainless steel 316L
	Wire sealing	Epoxy	Epoxy	Epoxy
	Illuminated ring		Polycarbonate (translucent when off)	Polycarbonate (translucent when off)
	Locking nut	Stainless steel	Stainless steel	PA6.6 nylon - black
ELECTRICAL	Switch effect	Pulse once activated (pulse duration depending on actuation force and speed)		
	Electrical function	1 Normally Open (NO) contact		
	Maximum ratings	1A 24V AC or DC		
	Electrical life	50 million cycles		
	Switch resistance ON / OFF	ON: 10 ohms max / OFF: 5 M ohms min		
	LED consumption	10mA @ 12VDC or 24VDC		20mA @ 12VDC or 24VDC
	Insulation resistance	1000 Mohms minimum at 500VDC		
	Dielectric strength	500 Vrms 50Hz min between outputs and housing		
MECHANICAL	Torque	2.5Nm (1.8lb-ft) min - 3.0Nm (2.2lb-ft) max applied to locking nut		1.5Nm (1.1lb-ft) min - 10.0Nm (7.4lb-ft) max applied to locking nut
	Operating force	2.00N (0.45lb) - 6.00N (1.35lb)		6.00N (1.35lb) - 12.00N (2.70lb)
	Panel thickness	1.5mm min to 6.5mm max		1.5mm min to 6mm max
Temperature range	-40°C to +75°C (-40°F to +167°F)			
Sealing	IP68 according to IEC 60529; IP69K according to DIN 40050-9			
Vibration resistance	10-500Hz / 10g per IEC 60068-2-6			
EMC	EN61000-4 & EN61000-6-2			

IP69K SEALING	<p>TEST CONDITIONS:</p> <ul style="list-style-type: none"> <li>• Pressure: 80-120 bars</li> <li>• Distance: 150mm</li> <li>• Temperature: 80°C ± 5°</li> <li>• Flow: 14-16 l/m</li> <li>• Duration: 30 seconds per position</li> </ul>
IP68 SEALING	<p>TEST CONDITIONS:</p> <p>Continuous immersion in water</p>

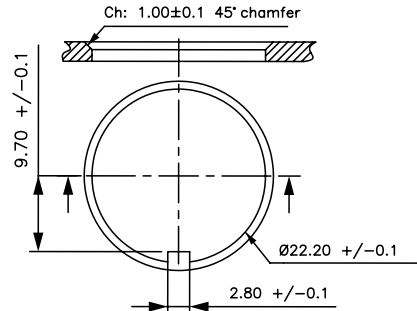


# PIEZO SWITCH PW1L-R6AFB002 PANEL CUT OUT

All dimensions in mm

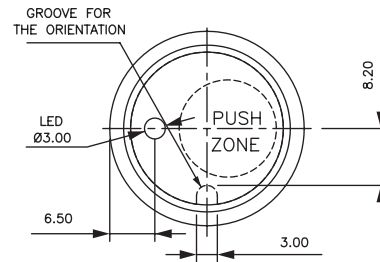
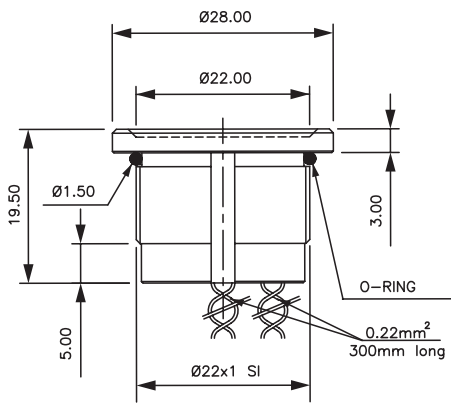


IP68 PANEL CUT OUT



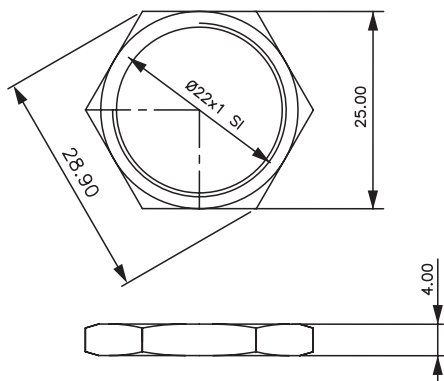
IP69K PANEL CUT OUT

## DIMENSIONS



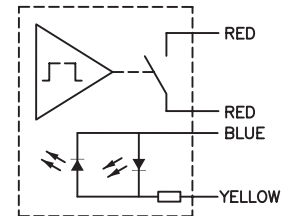
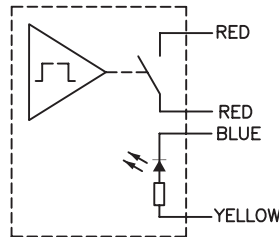
## PW1L-R6AFB002

PW9Z-LNM



Type of Illumination-Voltage	
P	DOT - 12V
J	DOT - 24V

LED COLORS		DIAGRAM TYP.
OB	BLUE	1
OG	GREEN	1
OS	RED	1
OY	YELLOW	1
OW	WHITE	1
SG	RED/GREEN	2



EQUIVALENT CIRCUIT DIAGRAM-1

LED COLOR	WIRE	N.O. CONTACT Max.rating: 1A 24V AC/DC
RED	RED WIRES	N.O. CONTACT Max.rating: 1A 24V AC/DC
YELLOW	YELLOW WIRE	LED +12V DC or +24V DC
BLUE	BLUE WIRE	LED GND

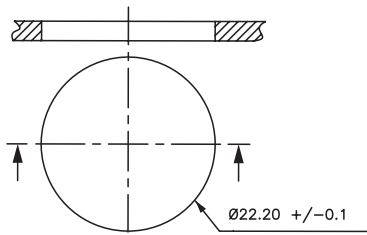
EQUIVALENT CIRCUIT DIAGRAM-2

LED COLOR	WIRE	N.O. CONTACT Max.rating: 1A 24V AC/DC
RED	RED WIRES	N.O. CONTACT Max.rating: 1A 24V AC/DC
GREEN	YELLOW WIRE	LED +12V DC or +24V DC
GREEN	BLUE WIRE	LED GND
RED	YELLOW WIRE	LED GND
RED	BLUE WIRE	LED +12V DC or +24V DC

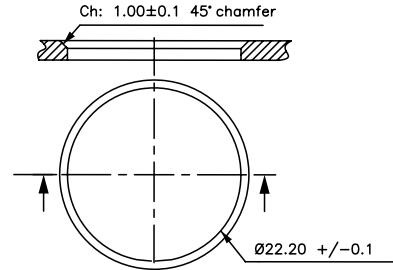
# PIEZO SWITCH PW1L-RYAFB002

## PANEL CUT OUT

All dimensions in mm

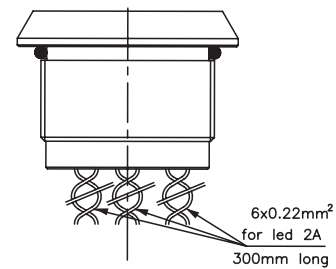
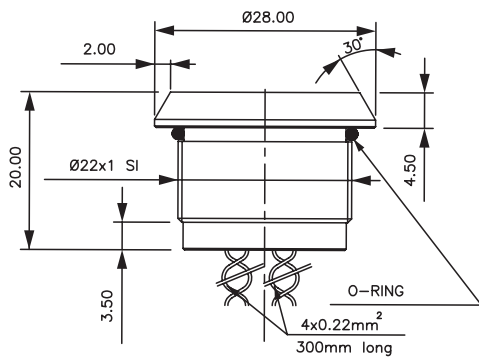


IP68 PANEL CUT OUT



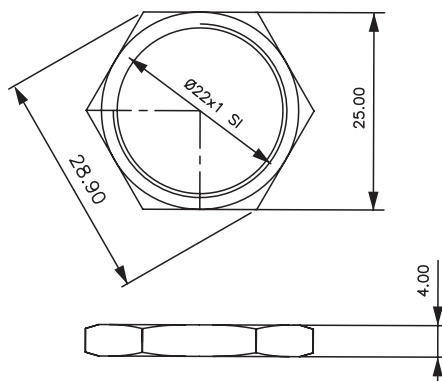
IP69K PANEL CUT OUT

## DIMENSIONS



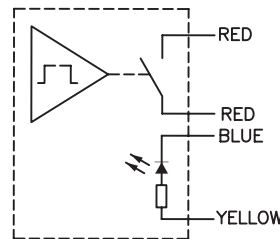
# PW1L-RYAFB002

PW9Z-LNM



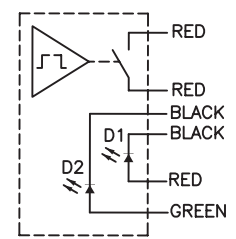
Type of Illumination-Voltage	
D	Thin ring 12V
E	Thin ring 24V

LED COLORS		DIAGRAM TYP.
0B	BLUE	1
0G	GREEN	1
0S	RED	1
0Y	YELLOW	1
0W	WHITE	1
2A	RED/GREEN	2



EQUIVALENT CIRCUIT DIAGRAM-1

LED COLOR	RED WIRES	N.O. CONTACT Max.rating: 1A 24V AC/DC
	YELLOW WIRE	LED +12V DC or +24V DC
	BLUE WIRE	LED GND

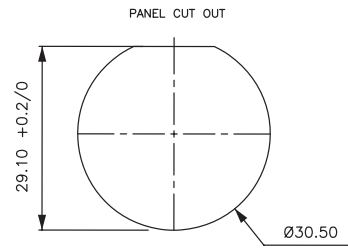
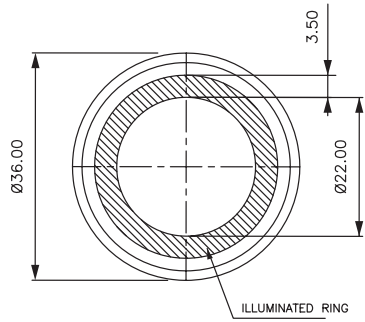


EQUIVALENT CIRCUIT DIAGRAM-2

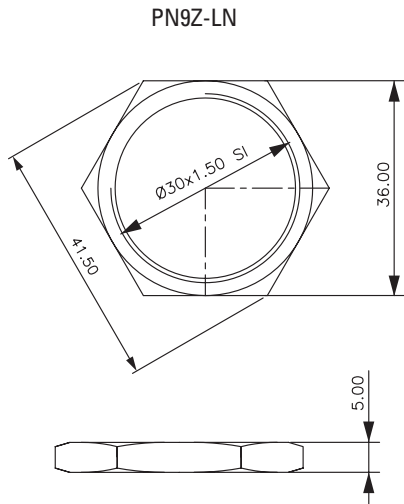
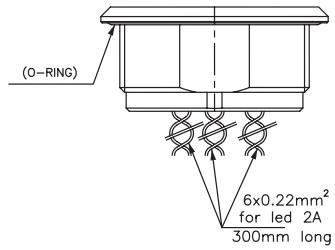
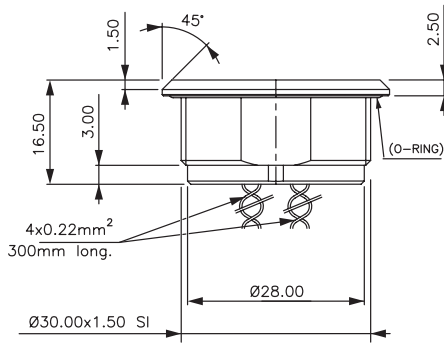
LED COLOR	RED WIRES	N.O. CONTACT Max.rating: 1A 24V AC/DC
D1-RED	GREEN WIRE	LED +12V DC or +24V DC
D2-GREEN	BLACK WIRE	LED GND
D1-RED	BLACK WIRE	LED GND
D1-RED	RED WIRE	LED +12V DC or +24V DC

# PIEZO SWITCH PN1L-M2AFB002 PANEL CUT OUT

All dimensions in mm



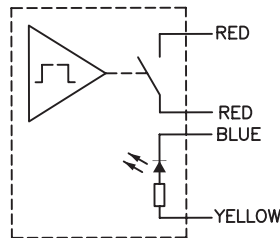
## DIMENSIONS



## PN1L-M2AFB002

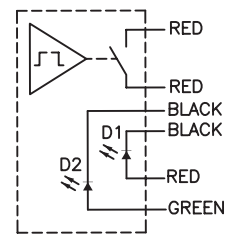
Type of Illumination-Voltage	
D	12V
E	24V

LED COLORS		DIAGRAM TYP.
OB	BLUE	1
OG	GREEN	1
OS	RED	1
OY	YELLOW	1
OW	WHITE	1
2A	RED/GREEN	2



EQUIVALENT CIRCUIT DIAGRAM-1

LED COLOR	WIRE	N.O. CONTACT Max.rating: 1A 24V AC/DC
	RED WIRES	
	YELLOW WIRE	LED +12V DC or +24V DC
	BLUE WIRE	LED GND



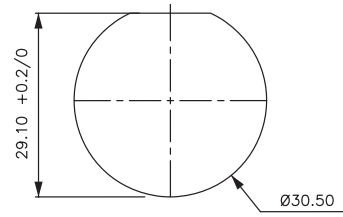
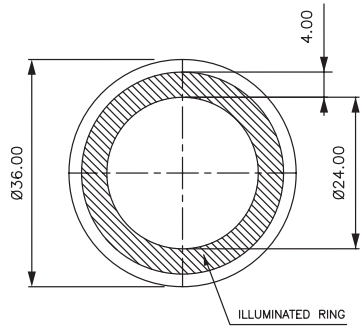
EQUIVALENT CIRCUIT DIAGRAM-2

LED COLOR	WIRE	N.O. CONTACT Max.rating: 1A 24V AC/DC
	RED WIRES	
	GREEN WIRE	LED +12V DC or +24V DC
	BLACK WIRE	LED GND
	BLACK WIRE	LED GND
	RED WIRE	LED +12V DC or +24V DC

# PIEZO SWITCH PN1L-M4AFB002\_\_\_\_\_

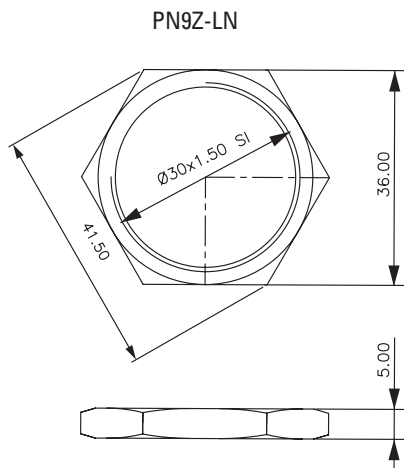
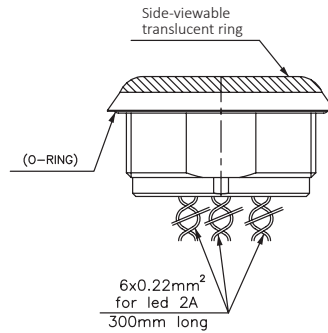
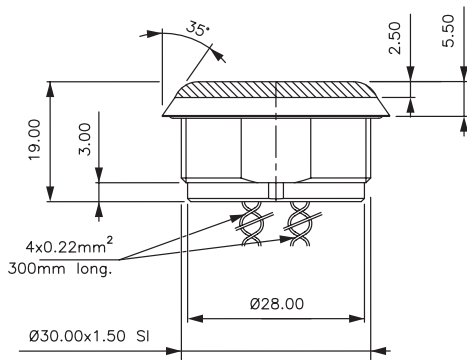
## PANEL CUT OUT

All dimensions in mm



PANEL CUT OUT

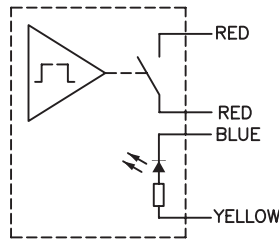
## DIMENSIONS



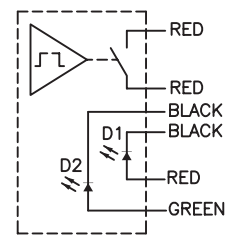
## PN1L-M4AFB002\_\_\_\_\_

Type of Illumination-Voltage	
D	12V
E	24V

LED COLORS		DIAGRAM TYP.
0B	BLUE	1
0G	GREEN	1
0S	RED	1
0Y	YELLOW	1
0W	WHITE	1
2A	RED/GREEN	2



EQUIVALENT CIRCUIT DIAGRAM-1



EQUIVALENT CIRCUIT DIAGRAM-2

LED COLOR	RED WIRES	N.O. CONTACT Max.rating: 1A 24V AC/DC
	YELLOW WIRE	LED +12V DC or +24V DC
	BLUE WIRE	LED GND

LED COLOR	RED WIRES	N.O. CONTACT Max.rating: 1A 24V AC/DC
D1-RED	GREEN WIRE	LED +12V DC or +24V DC
D2-GREEN	BLACK WIRE	LED GND
	BLACK WIRE	LED GND
	RED WIRE	LED +12V DC or +24V DC

