

# PBA series

Piezo switches Ø 30 mm



## 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

Ring illumination: flush or prominent ring



## ENVIRONMENTAL SPECIFICATIONS

- Sealing : IP68 per IEC 60529, IP69K per DIN 40050-9 (switches mounted on panel)
- Operating temperature : -40 °C to +75 °C (-40 °F to + 167 °F)



## ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load : 1 A 24 VAC/DC
- Switch resistance ON : 10 Ω max.
- Switch resistance OFF : 5 MΩ min.
- Life expectancy : 50 million cycles
- LED consumption : 20 mA max.



## GENERAL SPECIFICATIONS

- Operating force : 6 to 12 N
- Torque : 1.5 Nm min. - 10 Nm max.



## MATERIALS

- Case : aluminum, anodized or stainless steel 316L
- Multi-wire leads section 0.22 mm<sup>2</sup> length 300 mm, twisted by pair
- Cable, length 300 mm, section depending on switch model

APEM products may be recycled at end-of-life for the re-claiming of valuable metal components.

**Note** : to maintain the ESD performance, always add a ground washer when the panel is made of non-conductive material (PVC, polycarbonate). For part numbers, see "Mounting accessories" on the following pages.

The company reserves the right to change specifications without notice.

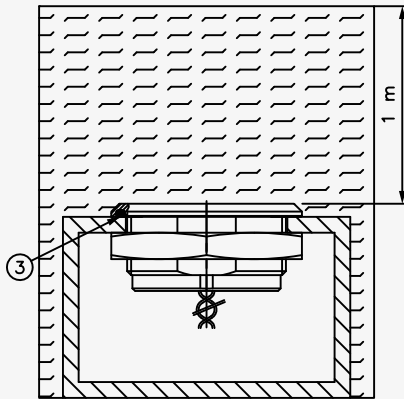


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Piezo switches Ø 30 mm

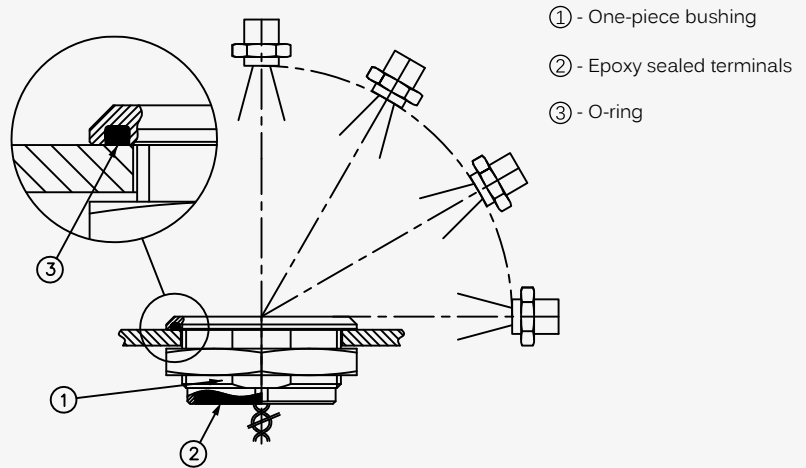
## SEALING

SEALING IP68



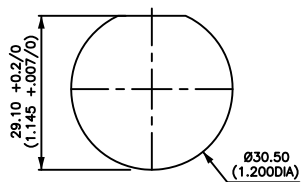
**Continuous immersion in water  
IP68 test conditions**  
Continuous immersion in water  
(1 m, 24 hours)

SEALING IP69K



**High pressure, high temperature wash down  
IP69K test conditions**  
 . Pressure : 80 - 120 bars  
 . Distance : 15 cm  
 . Temperature : 80 °C ± 5 °C (176 °F ± 41 °F)  
 . Flow : 14 - 16 l/mn  
 . Duration : 30 seconds per position

## PANEL CUT-OUT

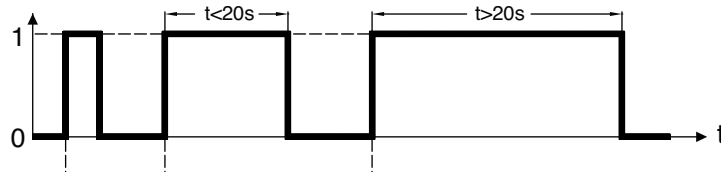




## ELECTRICAL FUNCTIONS

### FINGER PRESSURE APPLIED TO SWITCH

1 : pressure / 0 : no pressure

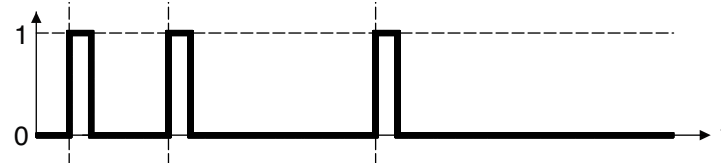


### OUTPUT

1 : closed output / 0 : open output

#### Momentary NO (pulse)

No external power supply required



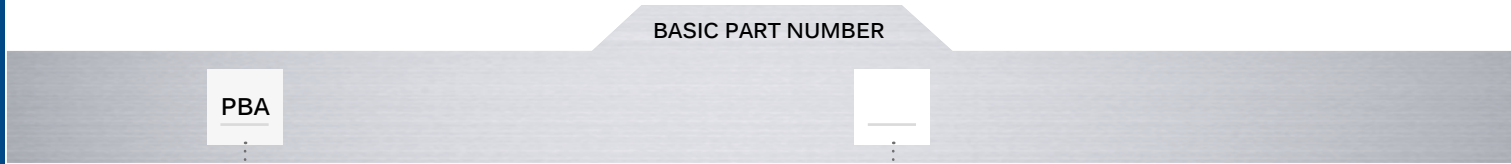
## WIRING DIAGRAMS

	Non-illuminated	1 LED *	2 LEDs	3 LEDs
Momentary NO				
Legend : C : yellow, D : blue, B : black, A : same color as LED		* LED color is indicated by the bottom of the product.		

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## BUILD YOUR PART NUMBER



### BASIC PART NUMBER

**PBA**  
SERIES

BUSHING / OPERATOR

All models with Ø 30 mm (1.181) bushing and Ø 36 mm (1.417) operator

<b>M1</b>	Operator height 2.5 mm (.098) Non-illuminated	<b>M4</b>	Operator height 5.5 mm (.216) Illuminated, prominent translucent ring
<b>M2</b>	Operator height 2.5 mm (.098) Illuminated, flush translucent ring	<b>M5</b>	Operator height 5.5 mm (.216) Illuminated, prominent colored ring (same color as LED)
<b>M3</b>	Operator height 2.5 mm (.098) Illuminated, flush colored ring (same color as LED)		

### OPTIONS



#### ELECTRICAL FUNCTIONS

**A** NO (pulse)

#### TERMINALS

**F** Flying leads  
**C** Cable

#### COLORS / MATERIALS

**0** Natural anodized  
**1** Blue anodized  
**2** Black anodized  
**3** Green anodized  
**5** Gold anodized  
**6** Red anodized  
**B** Stainless steel 316L

Bold = standard

#### RATINGS

**002** 1 A 24 VAC/DC

#### LED VOLTAGE

**Blank** Non-illuminated  
**C** 5 VDC  
**D** 12 VDC  
**E** 24 VDC

#### LED COLORS

<b>Blank</b>	Non-illum.	<b>2A</b>	Red/green
<b>0B</b>	Blue	<b>2B</b>	Red/yellow
<b>0G</b>	Green	<b>2C</b>	Red/blue
<b>0S</b>	Red	<b>2D</b>	Red/white
<b>0Y</b>	Yellow	<b>2E</b>	Green/blue
<b>0W</b>	White	<b>2F</b>	Green/yellow

#### LED COLORS (CONTINUED)

<b>2G</b>	Green/white	<b>3A</b>	Red/green/blue	<b>3H</b>	Green/blue/ yellow
<b>2H</b>	Blue/yellow	<b>3B</b>	Red/green/yellow	<b>3I</b>	Green/blue/white
<b>2I</b>	Blue/white	<b>3D</b>	Red/green/white	<b>3J</b>	Green/yellow/ white
<b>2K</b>	Yellow/white	<b>3E</b>	Red/blue/yellow	<b>3K</b>	Blue/yellow/white
		<b>3F</b>	Red/blue/white		
		<b>3G</b>	Red/yellow/white		

Bicolor or tricolor, order with translucent ring (M2 or M4)

For options not listed above, please contact APEM.

## ABOUT THIS SERIES

On the following pages, you will find successively basic part numbers of switches and options in the same order as in above chart.

- 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 U6730 (36 mm ac. flats) and 1 O-ring. Always add a ground washer U7340 when the panel is non-conductive (PVC, polycarbonate).

# PBA series

Piezo switches  $\varnothing$  30 mm

**NON-ILLUMINATED**  
OPERATOR HEIGHT 2.50 MM (.098)



PBAM1

**FLUSH ILLUMINATED RING**  
OPERATOR HEIGHT 2.50 MM (.098)



Translucent ring

PBAM2

Colored ring

PBAM3

**PROMINENT ILLUMINATED RING**  
OPERATOR HEIGHT 5.50 MM (.216)



Translucent ring

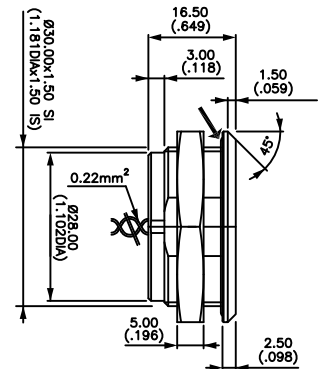
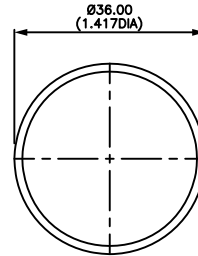
PBAM4

Colored ring

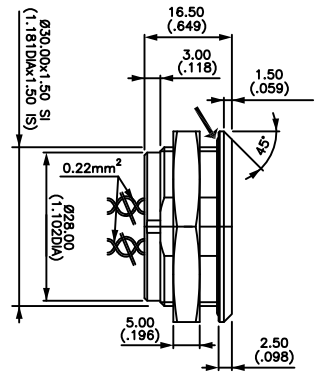
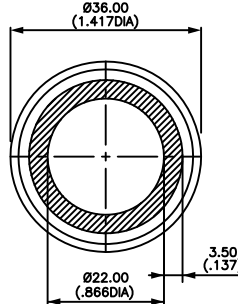
PBAM5

Wire colors : see "Wiring diagrams".

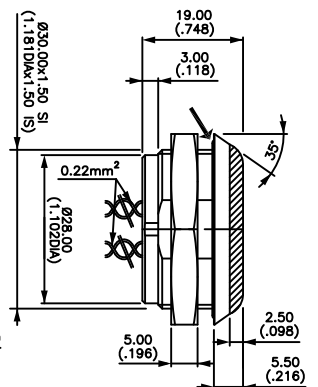
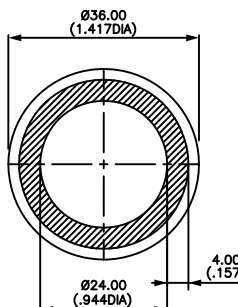
→ O-RING



→ O-RING



→ O-RING



## ELECTRICAL FUNCTION



A NO pulse

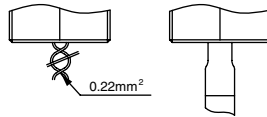
# PBA series

Piezo switches Ø 30 mm

## TERMINALS



- F Flying leads
- C Cable



## CASE COLORS / MATERIALS



- |   |                                  |   |                        |
|---|----------------------------------|---|------------------------|
| 0 | <b>Natural anodized aluminum</b> | 5 | Gold anodized aluminum |
| 1 | Blue anodized aluminum           | 6 | Red anodised aluminum  |
| 2 | <b>Black anodised aluminum</b>   | B | Stainless steel 316L   |
| 3 | Green anodized aluminum          |   |                        |
- Bold = standard

## RATINGS



002 1 A 24 VAC or DC

## LED VOLTAGE



- Blank Non-illuminated
- C 5 VDC
- D 12 VDC
- E 24 VDC

## LED COLORS



Blank Non-illuminated Integrated LED resistor

### Illuminated 1 LED \*

0B : blue - 0G : green - 0S : red - 0Y : yellow - 0W : white

### Illuminated 2 LEDs (with translucent ring)

2A : red/green - 2B : red/yellow - 2C : red/blue - 2D : red/white - 2E : green/blue - 2F : green/yellow - 2G : green/white  
 2H : blue/yellow - 2I : blue/white - 2K : yellow/white

### Illuminated 3 LEDs (with translucent ring)

3A : red/green/blue - 3B : red/green/yellow - 3D : red/green/white - 3E : red/blue/yellow - 3F : red/blue/white  
 3G : red/yellow/white - 3H : green/blue/yellow - 3I : green/blue/white - 3J : green/yellow/white - 3K : blue/yellow/white

\* LED color is indicated by protective resin color on bottom of unit.

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