Piezo Switches

Product Description

Designed for demanding applications where reliability is critical, Piezo switches are based on solid-state outputs 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 choice of 22mm or 30mm diameter housings 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
- Single or dual illumination color
- Short uni-body construction

Specifications

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>PW1L-R6AFB002  ①②</th>
<th>PW1L-RYAFB002  ①②</th>
<th>PN1L-M2AFB002  ①②</th>
<th>PN1L-M4AFB002  ①②</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>Momentary, solid state pushbutton, dot LED indicator, 3mm mount bezel with finger guide</td>
<td>Momentary, solid state pushbutton, LED ring illumination, 4.5mm chamfered bezel</td>
<td>Momentary, solid state pushbutton, LED ring illumination, 2.5mm flush mount bezel</td>
<td>Momentary, solid state pushbutton, LED side viewable ring illumination, 5.5mm mount bezel</td>
</tr>
<tr>
<td>Housing diameter</td>
<td>22mm</td>
<td>22mm</td>
<td>30mm</td>
<td>30mm</td>
</tr>
<tr>
<td>Housing</td>
<td>Stainless steel 316L</td>
<td>Stainless steel 316L</td>
<td>Stainless steel 316L</td>
<td>Stainless steel 316L</td>
</tr>
<tr>
<td>Wire sealing</td>
<td>Epoxy</td>
<td>Epoxy</td>
<td>Epoxy</td>
<td>Epoxy</td>
</tr>
<tr>
<td>Illuminated ring</td>
<td>Polycarbonate (translucent when off)</td>
<td>Polycarbonate (translucent when off)</td>
<td>Polycarbonate (translucent when off)</td>
<td>Polycarbonate (translucent when off)</td>
</tr>
<tr>
<td>Locking nut</td>
<td>Stainless steel</td>
<td>Stainless steel</td>
<td>PA6.6 nylon - black</td>
<td>PA6.6 nylon - black</td>
</tr>
</tbody>
</table>

- 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
- Insulation resistance: 1000 Mohms minimum at 500VDC
- Dielectric strength: 500 Vrms 50Hz min between outputs and housing
- Torque: 2.5Nm (1.18lb-ft) min - 3.0Nm (2.21lb-ft) max applied to locking nut
- Operating force: 2.00N (0.45lb) - 6.00N (1.35lb)
- Panel thickness: 1.5mm min to 6.5mm 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
### Part Numbers

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Panel cut size</th>
<th>LED voltage</th>
<th>LED color</th>
</tr>
</thead>
<tbody>
<tr>
<td>PW1L-R6AFB002/12</td>
<td>22mm Piezo switch with LED dot &amp; finger guide</td>
<td>Ø22mm</td>
<td>P: Dot / 12VDC  J: Dot / 24VDC</td>
<td>0B: Blue  0G: Green  0S: Red  0Y: Yellow  0W: White  SD: Red/Green1</td>
</tr>
<tr>
<td>PW1L-RYAFB002/12</td>
<td>22mm Piezo switch with LED ring</td>
<td>Ø22mm</td>
<td>D: Ring / 12VDC  E: Ring / 24VDC</td>
<td>0B: Blue  0G: Green  0S: Red  0Y: Yellow  0W: White  2A: Red/Green2</td>
</tr>
<tr>
<td>PN1L-M2AFB002/12</td>
<td>30mm flush Piezo switch with LED ring</td>
<td>Ø30mm</td>
<td>D: Ring / 12VDC  E: Ring / 24VDC</td>
<td>0B: Blue  0G: Green  0S: Red  0Y: Yellow  0W: White  2A: Red/Green2</td>
</tr>
<tr>
<td>PN1L-M4AFB002/12</td>
<td>30mm Piezo switch with side viewable LED ring</td>
<td>Ø30mm</td>
<td>D: Ring / 12VDC  E: Ring / 24VDC</td>
<td>0B: Blue  0G: Green  0S: Red  0Y: Yellow  0W: White  2A: Red/Green2</td>
</tr>
</tbody>
</table>

### Replacement Parts

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Size</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>PW9Z-LNM</td>
<td>Spare 22mm Piezo Switch Hex Locking Nut</td>
<td>M22x1</td>
<td>Metal</td>
</tr>
<tr>
<td>PN9Z-LN</td>
<td>Spare 30mm Piezo Switch Hex Locking Nut</td>
<td>M30x1.5</td>
<td>Plastic</td>
</tr>
</tbody>
</table>

Note:
1. See Equivalent Circuit Diagram-2 on page 837 for details.
2. See Equivalent Circuit Diagram-4 on page 837 & 838 for details.
**Piezo Switches PW1L-R6AFB002**

**Panel Cut Out**

All dimensions in mm

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**Dimensions**

**PW9Z-LNM**

**PW1L-RYAFB002**

**Equivalent Circuit Diagrams**

**Type of Illumination-Voltage**

- **D**: Thin ring 12V
- **E**: Thin ring 24V

**LED Colors**

- **DB**: BLUE
- **D**: GREEN
- **DS**: RED
- **DY**: YELLOW
- **OW**: WHITE
- **SG**: RED/GREEN

**Equivalent Circuit Diagram 1**: RED Wires

- **Yellow Wire**: +12V DC or +24V DC
- **Blue Wire**: LED GND

**Equivalent Circuit Diagram 2**: RED Wires

- **Yellow Wire**: +12V DC or +24V DC
- **Blue Wire**: LED GND

**Equivalent Circuit Diagram 3**: RED Wires

- **Yellow Wire**: +12V DC or +24V DC
- **Blue Wire**: LED GND

**Equivalent Circuit Diagram 4**: RED Wires

- **Yellow Wire**: +12V DC or +24V DC
- **Blue Wire**: LED GND

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**Notes**

- All dimensions in mm
- PW9Z-LNM
- PW1L-RYAFB002

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**Contact Information**

- **IDEC.com**
- **www.IDEC.com**

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**Dimensions**

**PW9Z-LNM**

**PW1L-RYAFB002**
Piezo Switches

**PIEZO SWITCH PN1L-M2AFB002**

**PANEL CUT OUT**

All dimensions in mm

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<tr>
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<tbody>
<tr>
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<tr>
<td>Ø30.00</td>
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</tr>
<tr>
<td>Ø28.00</td>
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</tr>
<tr>
<td>26.0</td>
<td>15.30</td>
</tr>
<tr>
<td>33.0</td>
<td>21.0</td>
</tr>
<tr>
<td>45°</td>
<td>45°</td>
</tr>
<tr>
<td>(O-RING)</td>
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**SIDE VIEW**

- Translucent ring

**PN92-LN**

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**PIEZO SWITCH PN1L-M4AFB002**

**PANEL CUT OUT**

All dimensions in mm

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**SIDE VIEW**

- Translucent ring

**PN92-LN**

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**PN1L-M2AFB002**

- **LED COLORS**
  - **D** 12V
    - **OR** BLUE 1
    - **GS** GREEN 1
    - **GY** RED 1
    - **GW** WHITE 1
    - **2A RED/GREEN 2**

**PN1L-M4AFB002**

- **LED COLORS**
  - **D** 12V
    - **OR** BLUE 1
    - **GS** GREEN 1
    - **GY** RED 1
    - **GW** WHITE 1
    - **2A RED/GREEN 2**

**EQUIVALENT CIRCUIT DIAGRAM**

- **RED WIRES**
  - N.O. CONTACT Rating: 1A 24V AC/DC
  - YELLOW WIRE LED +12V DC or +24V DC
  - BLUE WIRE LED GND
  - GREEN WIRE LED +12V DC or +24V DC
  - BLACK WIRE LED GND
  - RED WIRE LED +12V DC or +24V DC