Pressure Swichgage®
45APE Series

The 45APE Series Swichgage instrument is a mechanical gage for pressure indication. It includes two adjustable SPDT switches. These snap-acting switches can be used for start and stop, to trip alarms and to shut down equipment. Ranges are available from 30” VAC (-100 kPa) [-1 bar] thru 10,000 psi (138 MPa) [1379 bar].

The 45APE Series utilizes a bourdon tube sensing unit with a stainless steel dual-sector geared movement. Each of the sectors drives separate pointers when pressure is applied to the bourdon tube. The indicating pointer (visible pointer) shows actual pressure reading, including below and beyond the low and high trip points. The low and high trip points are adjustable independently on the gage front lens. The switch operator pointer (behind the dial) is calibrated to follow the indicating pointer. The low and high trip point indicators arrest the switch operator pointer. As pressure decreases or increases through the principal of lost motion, the respective snapswitch is tripped.

The 45APE Series models are widely used in applications requiring pressure indication and Form C low and high pressure switches.

Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
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</thead>
<tbody>
<tr>
<td><strong>Dial:</strong></td>
<td>White on black, dual scale, psi and kPa standard, 4-1/2 in. (114 mm) diameter</td>
</tr>
<tr>
<td><strong>Case:</strong></td>
<td>Die cast aluminum, surface or panel mount</td>
</tr>
<tr>
<td><strong>Overrange:</strong></td>
<td>Do not exceed 10% FS above full range</td>
</tr>
<tr>
<td><strong>Process Connection:</strong></td>
<td>1/4 NPTM thru 1000 psi; 1/2 NPTM 1500 - 10,000 psi; back connection optional</td>
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<tr>
<td><strong>Sensing Element:</strong></td>
<td>Bronze or 316 stainless steel bourdon tube</td>
</tr>
<tr>
<td><strong>Gage Accuracy:</strong></td>
<td>Indicating pointer within switch points with hysteresis of &lt;1%; ±2% for first and last quarters of scale; middle half of scale is ±1%. Indicating pointer above or below trip point:</td>
</tr>
<tr>
<td><strong>Range</strong></td>
<td><strong>Accuracy (+/-) above &amp; below to trip point only</strong></td>
</tr>
<tr>
<td>&lt; 100 (except 15 psi)</td>
<td>10</td>
</tr>
<tr>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>100-300</td>
<td>4</td>
</tr>
<tr>
<td>400-1500</td>
<td>2</td>
</tr>
<tr>
<td>2000</td>
<td>12</td>
</tr>
<tr>
<td>3000-5000</td>
<td>8</td>
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</tbody>
</table>

Reading based on testing performed with switch point at mid scale which represents worst case. Switch accuracy ±1.5%

**Pressure Relief Disc:** Back of case (except EX models)

**Switch Reset Deadband:** Approximately 10% FS

**Snap-Acting Switches:** 2-SPDT; 2 A @ 250 VAC

**Dry Relay Contact (BP Models):** 10 A @ 28 VDC or 10 A @ 120 VAC

**Wire Connections (Surface Mount):** 1/2 NPTF conduit/ terminal block

**Wire Connections (Panel Mount):** Wire leads, 18 AWG (1.0 mm²) x 9 in. (229 mm) long

**Wire Connections (-ES, -OS):** 1/2 NPTM conduit and wire leads, 24 AWG (0.22 mm²) x 30 in. (762 mm) long

**Weight:** 5 lbs 6 oz (2.4 kg) approximately

**Explosion-proof models:** 21 lb. (9.5 kg) approx.

**Dimensions:** 10 x 9 x 6 in. (254 x 229 x 152 mm) approximately

**Explosion-proof models:** 12 x 12 x 9 in (305 x 305 x 229 mm) approximately

**CSA Certified Models:** 45APE Series models with pressure range thru 5000 psig (34.4 MPa) [344 bar] are CSA approved for non-hazardous locations, except options BC, ES, LC and OS. Explosion-proof EX models with pressure range thru 5000 psig (34.4 MPa) [344 bar] are CSA approved for Hazardous locations Class I, Groups, C & D. 45APEBP and 45APEBPE models are not CSA certified.

Certain models listed for non-hazardous locations. Pending for hazardous location.

**Basic Models**

**45APE Series Swichgage instrument**
Surface mount (square case) version

**45APEF Series Swichgage instrument**
Panel mount (round case) version

**45APEBP Latching Control Relay Series**
These models have a latching control relay for automatic ON/OFF control. They are designed to start and stop electric motor driven equipment.

**45APEE and 45APEBPE**
These models (square case) have the same features as the 45APE/45APEBP but are suitable for panel mounting.

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**Dimensions**

<table>
<thead>
<tr>
<th>Surface Mount Models</th>
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<tbody>
<tr>
<td>8.7/16 in. (214 mm)</td>
</tr>
<tr>
<td>7.78 in. (200 mm)</td>
</tr>
<tr>
<td>3.3/8 in. (86 mm)</td>
</tr>
<tr>
<td>4.16/2 in. (102 mm)</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Panel Mount Models</th>
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</thead>
<tbody>
<tr>
<td>138 mm</td>
</tr>
<tr>
<td>92 in. (230 mm)</td>
</tr>
<tr>
<td>8 in. (200 mm)</td>
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</tbody>
</table>

**Typical Wiring Diagram**

Contact Ratings: 2-SPDT snap-switches; 2 A @ 250 VAC

NOTE: Diagram shows the pointer in the at rest (shelf) position.

**How to Order**

Options listed below. All configurations may not be available. Call your sales representative or Enovation Controls for more information.

- **Base Model**
  - 45ABP
  - 45APEF
  - 45APEBP
  - 45APEBP

- **Options (NOTE: Not all options available for every model)**
  - BC = Buck Connected Bourdon Tube
  - EX = Environmentally Sealed (45APEF models only)
  - EK = Explosion-proof approved for hazardous areas Class I, Groups C & D to = 5000 psi
  - EL = (EXLC) Explosion-Proof Less Case
  - LC = Less Case
  - OS = Oil Sealed (45APEF models only)
  - PSL = PT147 PT147 pressure transmitter w/3 ft. capillary
  - PSL = PT147 Pressure transmitter direct mount

- **Range**
  - Code: 30A
  - Vacuum/psi: 30 in Hg Vac - 60 in Hg Press.
  - kPa/MPa: -101 kPa - 203 kPa
  - bar: -1.01 - 2.03

**Base Model Options**

- Base Model
- 45ABP
- 45APEF
- 45APEBP

**Options**

- BC = Buck Connected Bourdon Tube
- EX = Environmentally Sealed (45APEF models only)
- EK = Explosion-proof approved for hazardous areas Class I, Groups C & D to = 5000 psi
- EL = (EXLC) Explosion-Proof Less Case
- LC = Less Case
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- PSL = PT147 PT147 pressure transmitter w/3 ft. capillary
- PSL = PT147 Pressure transmitter direct mount

**Range**

- Code: 30AV60H
- Vacuum/psi: 30 in Hg Vac - 60 in Hg Press.
- kPa/MPa: -101 kPa - 203 kPa
- bar: -1.01 - 2.03

**Bourdon Tube/Socket**

- A = Brass/Brass std. <1,000 psi
- S = 316 Stainless Steel/316 Stainless Steel

**NOTE:** for detail on PSL, P6 options see FW Murphy sales bulletin OPL-9501B in section 05 of your catalog.