

# Pressure Switchgauge® A20 and A25 Series

The A20 Series (2 inch/51 mm dial) and the A25 Series (2-1/2 inch/64 mm dial) Switchgauge instruments are diaphragm-actuated, pressure-indicating gages with built-in electrical switches for tripping alarms and/or shut-down devices.

Ranges are available from 0-30 psi (207 kPa) [2.0 bar] through 0-300 psi (2.1 MPa) [20 bar].

These rugged instruments are face sealed from the environment by the unique combination of a polycarbonate case and lens, a polished stainless steel bezel and O-ring seals. These gages are sealed from the external environment. Accuracy and protection from moderate overpressure is assured by a unique, unitized diaphragm chamber. A built-in pulsation dampener helps eliminate pointer flutter and is removable for cleaning.

For series A25P, the gage pointer acts as a pressure indicator and as one switch pole which completes a circuit when it touches the adjustable limit contact. Contacts have self-cleaning motion to ensure electrical continuity.

Model A20PE has internal snap-acting SPDT switches for three wire control and can be wired to make or to break a circuit.

Gage-only models without switches (MurphyGage® instrument) are also available.

A20/A25 Series applications include: engines/equipment in oil field for lube oil pressure, water pump pressure, hydraulic pressure, air pressure, etc.

## Base Models

### A25P Series Switchgauge

The gage pointer makes with an adjustable contact to complete a pilot duty circuit.

### A20PE Switchgauge

The A20PE (was A20EO) features internal snap-acting SPDT switches, instead of the single pole/pointer contacts. When the switch closes on falling pressure, it becomes set, as pressure rises the switch resets (refer to wiring diagram).

### A20PG MurphyGage instrument

Gage without contact(s)



Products covered by this bulletin comply with EMC Council directive 89/336/EEC regarding electromagnetic compatibility except as noted.

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## Specifications

**Dial:** White on black, dual scale; U.S.A. standard scale is psi/kPa; U.K. standard scale is psi/bar.

**Case:** Polycarbonate/glass filled, corrosion-resistant; steel mounting clamp included

**Bezel:** Polished stainless steel, standard; others are available.

**Pointer:** Tempered nickel silver; Red tip

**Lens:** Polycarbonate, high-impact

**Oil:** Silicone Oil

### Temperature Range:

Ambient: -40° to 150°F (-40° to 66°C)

Process: -40° to 250°F (-40° to 121°C)

**Process Connection:** 1/8-27 NPTM brass

**Sensing Element:** Beryllium copper diaphragm

### Gage Accuracy (% of Full Scale):

Range	Lower 1/4	Middle 1/2	Upper 1/4
≤ 300psi (20 Bar)	±3%	±2%	±3%

**Maximum Pressure:** See Pressure Ranges and Factory Settings table.

**Adjustable Limit Contact (A20P and A25P):** SPST contact; pilot-duty only, 2A@30 VAC/DC; Closed when the low limit is met. Open when pointer is in normal operating range. Contacts are gold flashed silver. Limit Contact Adjustment: by a 1/16 in. hex wrench through 100% of the scale.

**Wiring:** A25P: Number 6 screw terminals

**Snap-Switch Rating (A20PE):** SPDT, 3 A@ 30 VDC inductive; 4 A @ 125 VAC inductive

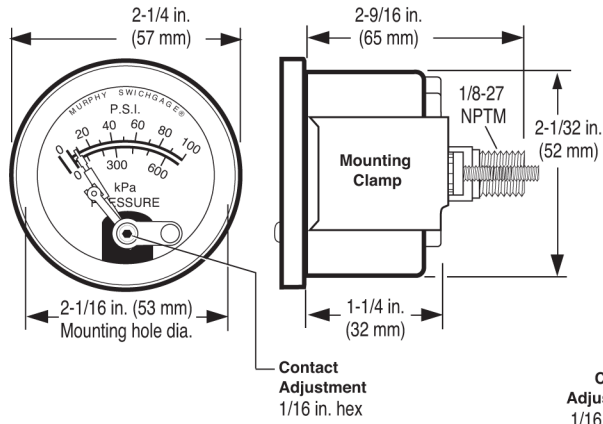
**Wiring:** A20PE: Number 4 screw terminals;

**Unit Weight:** A20 Series: 8 oz. (0.23 kg); A25 Series Models: 11 oz. (0.31 kg).

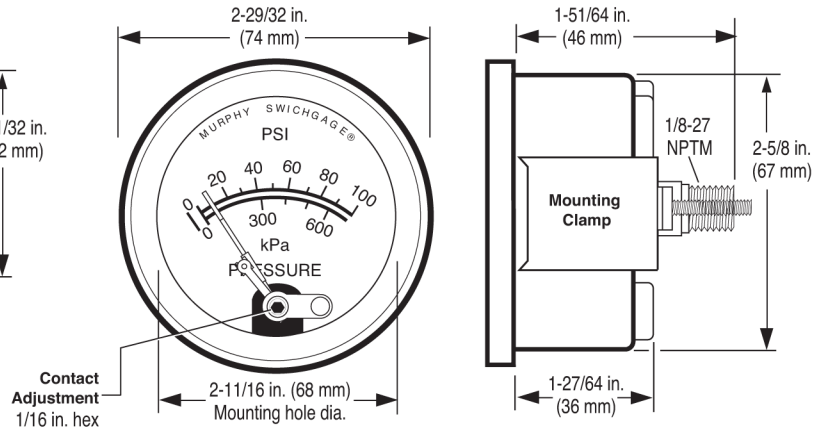
**Unit Dimensions:** A20 Series: 3 x 3 x 3 in. (76 x 76 x 76 mm); A25 Series Models: 4-3/4 x 4-3/4 x 2-3/4 in. (121 x 121 x 70 mm)

# Dimensions

## A20 Series Models



## A25 Series Models



## Pressure Ranges and Factory Settings

### NOTES

• Values in ( ) are mathematical conversions from psi to kPa/MPa — they do not reflect actual second scale range. U.S.A. standard scale is psi/kPa; U.K. standard scale is psi/bar — exact set point shown. Consult factory for other scales.

• For model A20PE, the switch trip point cannot be set at either the low or high extreme of the scale. The trip point must allow for the reset differential. Only certain models are adjustable.

• For adjustable switch models, the trip point is adjustable only over the lower half of the scale.

Ranges Available psi (kPa) [bar]	Maximum Pressure	Standard Settings			High Settings		
		psi (kPa) [bar]	psi (kPa) [bar]	psi (kPa) [bar]			
0-30 (207) [2.0]	60 psi (413)	7 (48) [0.4]	24 (165) [1.6]				
0-100 (690) [7.0]	200 psi (1.4 MPa)	20 (138) [1.5]	80 (552) [5.5]				
0-150 (1.0 MPa) [10]	300 psi (2.1 MPa)	30 (207) [2.0]	120 (827) [8.0]				
0-300 (2.1 MPa) [20]	500 psi (3.4 MPa)	75 (517) [5.0]	225 (1.6 MPa) [15]				

## Features

**A. Process Connection and Port:** Machined from brass bar stock. Together with the diaphragm forms the diaphragm chamber.

**B. Diaphragm (not shown):** Beryllium copper die formed and heat treated to very close physical and metallurgical specifications.

**C. Pulsation Dampener:** Designed to minimize undesirable pointer chatter. It is removable for cleaning.

**D. Dial:** White letters on a black background, dual scale; others available on request.

**E. Case:** Polycarbonate/glass filled, corrosion resistant; mounting clamp included.

**F. Bezel:** Polished stainless steel standard, black bezel also available.

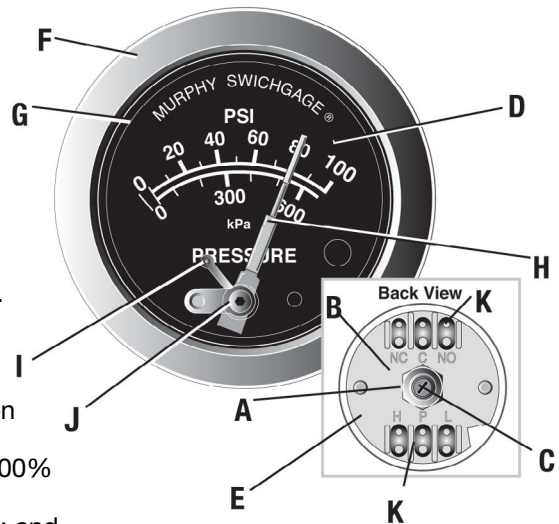
**G. Lens:** Made of high-impact resistant treated polycarbonate.

**H. Pointer:** Tempered nickel silver for continuity and corrosion resistance—mounted on a machined brass post. Red tip.

**I. Limit Contact:** SPST contact; N.C. when low limit is met. N.O. when pointer operates above limit.

**J. Limit Contact Adjustment:** by 1/16 in. hex type wrench through 100% of the scale. Easy adjustment knob available.

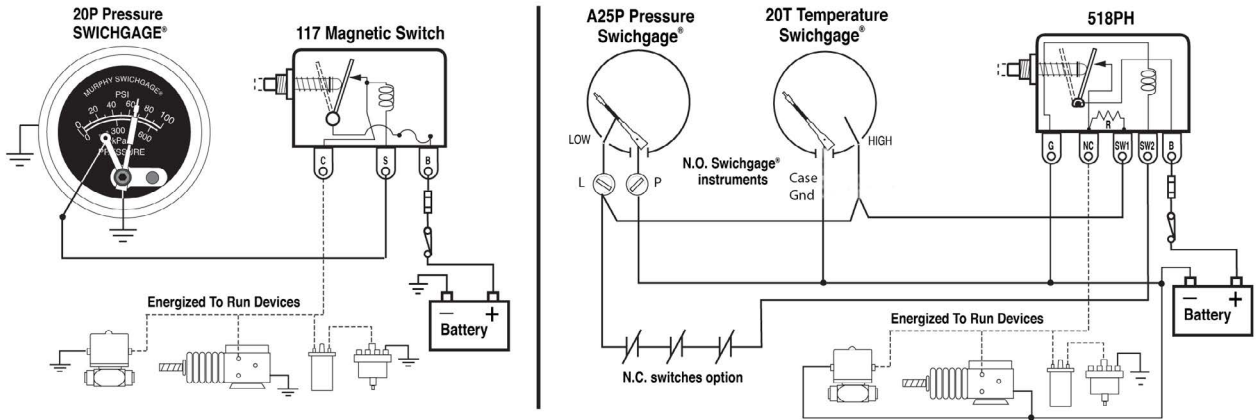
**K. Electrical Connections:** Number 4 screw terminals for A20 Series; and number 6 screw terminals for A25 Series models.



# Magnetic Switch

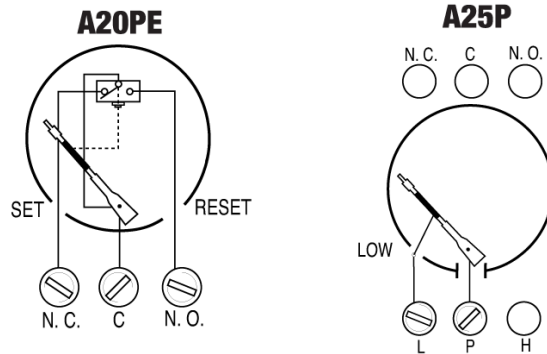
**INDUCTIVE AND HIGH CURRENT LOADS REQUIRE THE USE OF A MAGNETIC SWITCH.** The Switchgauge contacts are for light-duty electrical switching to operate alarms or control devices. The Magnetic Switch is for protection of the pilot-duty Switchgauge limit contacts.

Tattletale® Magnetic Switches show the cause of shutdown for applications that include: capacitor discharge or magneto ignitions, battery systems and electric motor driven equipment. Typical wiring diagrams are shown below.



## Typical Internal Wiring Diagrams

Pointer shown in the shelf position. Pointer type contact rating: pilot-duty 2 A @ 30 VAC/VDC resistive. Snap-acting switch rating: 3 A @ 30 VDC inductive. 4 A @ 125 VAC inductive.



## How to Order

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

**A25P - OS - 100**

<p><b>Base Model</b></p> <p>A20PE A20PG A25P</p>	<p><b>Options</b></p> <p>Options Not Available On All Models Or Configurations</p> <p><b>OS</b> = Oil Sealed, Silicone Oil</p>	<p><b>Pressure Range</b></p> <p><b>Dual Scale</b></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">psi</td> <td style="text-align: center;">kPa/MPa</td> </tr> <tr> <td>30 = 0-30 psi</td> <td>0-207 kPa</td> </tr> <tr> <td>100 = 0-100 psi</td> <td>0-689 kPa</td> </tr> <tr> <td>150 = 0-150 psi</td> <td>0-1.03 MPa</td> </tr> <tr> <td>300 = 0-300 psi</td> <td>0-2.07 MPa</td> </tr> </table> <p>Consult factory for availability of dials other than psi/kPa. Select scale so your normal operating temperature is in the middle half of the scale.</p>	psi	kPa/MPa	30 = 0-30 psi	0-207 kPa	100 = 0-100 psi	0-689 kPa	150 = 0-150 psi	0-1.03 MPa	300 = 0-300 psi	0-2.07 MPa
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Approximate Shipping Weight and Dimensions		
Model	Weight	Dimension
A20 Series	8 oz. (0.23 kg)	3 x 3 x 3 in. (76 x 76 x 76 mm)
A25 Series	11 oz. (0.31 kg)	4-3/4 x 4-3/4 x 2-3/4 in. (121 x 121 x 70 mm)