

Pressure Switchgauge® Instrument 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 shutdown devices.

Ranges are available from 0-15 psi (103 kPa) [1.0 bar] through 0-400 psi (2.8 MPa) [28 bar].

These rugged, built-to-last 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. Ranges above 30 psi (207 kPa) [2 bar] are sealed from the external environment (except PE Series). Ranges of 30 psi and lower have a small weep hole in the bottom of the case. 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 A20P and 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.

Models A20PE and A25PE have 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, marine, irrigation, construction and trucking for lube oil pressure, water pump pressure, hydraulic pressure, air pressure, etc.

Base Models

A20P and A25P Series Switchgauge

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

A20PE and A25PE Switchgauge

A20PE (was A20EO) and A25PE (was A25EO).

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).

Model A25PE is CSA listed for non-hazardous areas.

Model A25PE-EX is CSA listed for Class I, Division 1, Groups C and D hazardous areas.

A20PABS and A25PABS Switchgauge instrument

Same as A20P and A25P with internal SPDT snap-switch for pre-alarm

A20PG and A25PG Murphygage instrument

Gage without contact(s)



A20 Series



A25 Series



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

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%
400psi (28 Bar)	±3%	±3%	±5%

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: A20P: Number 4 screw terminals; A25P: Number 6 screw terminals

Snap-Switch Rating (A20PE and A25PE): SPDT, 3 A@ 30 VDC inductive; 4 A @ 125 VAC inductive

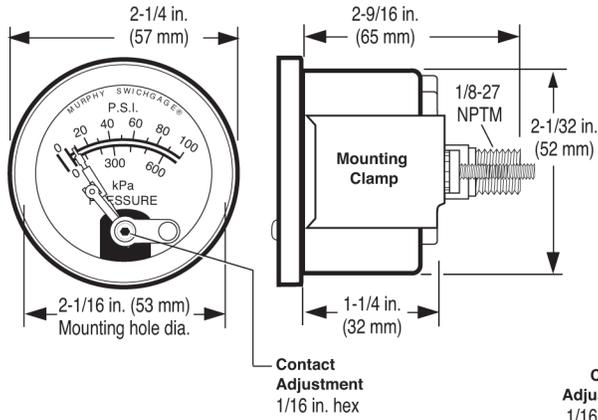
Wiring: A20PE: Number 4 screw terminals; A25PE: Number 6 screw terminals.

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

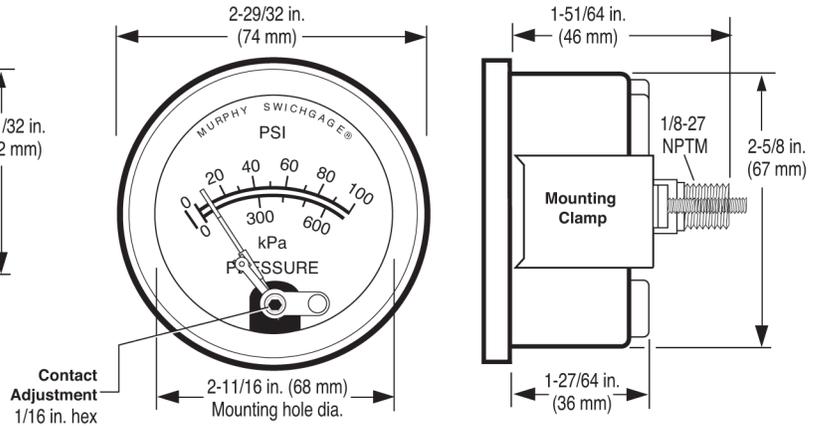
Unit Dimensions: A20 Series: 3 x 3 x 3 in. (76 x 76 x 76 mm); A25 Series Models: 4-3/4 x 4-3/4 x 2-3/4 in. (121 x 121 x 70 mm)

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 models A20PE and A25PE, 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			20PABS and 25PABS Settings					
		psi	(kPa)	[bar]	psi	(kPa)	[bar]	Low			Alarm		
0-15 (103) [1.0]	30 psi (207)	3	(21)	[0.2]	12	(83)	[0.8]	3	(21)	[0.2]	6	(41)	[0.3]
0-30 (207) [2.0]	60 psi (413)	7	(48)	[0.4]	24	(165)	[1.6]	7	(48)	[0.4]	10	(69)	[0.6]
0-50 (345) [3.5]	100 psi (690)	10	(69)	[0.8]	40	(276)	[2.8]	10	(69)	[0.8]	13	(90)	[1.0]
0-75 (517) [5.0]	150 psi (1.0 MPa)	15	(103)	[1.0]	60	(414)	[4.0]	15	(103)	[1.0]	18	(124)	[1.5]
0-100 (690) [7.0]	200 psi (1.4 MPa)	20	(138)	[1.5]	80	(552)	[5.5]	20	(138)	[1.0]	23	(159)	[1.5]
0-150 (1.0 MPa) [10]	300 psi (2.1 MPa)	30	(207)	[2.0]	120	(827)	[8.0]	30	(207)	[1.5]	33	(228)	[2.0]
0-200 (1.4 MPa) [14]	400 psi (2.8 MPa)	50	(345)	[3.0]	150	(1 MPa)	[10]	50	(345)	[3.0]	53	(365)	[4.0]
0-300 (2.1 MPa) [20]	500 psi (3.4 MPa)	75	(517)	[5.0]	225	(1.6 MPa)	[15]	75	(517)	[5.0]	78	(538)	[5.0]
0-400 (2.8 MPa) [28]	500 psi (3.4 MPa)	150	(1.0 MPa)	[7.0]	300	(2.1 MPa)	[20]	75	(517)	[5.0]	150	(1 MPa)	[10]

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.

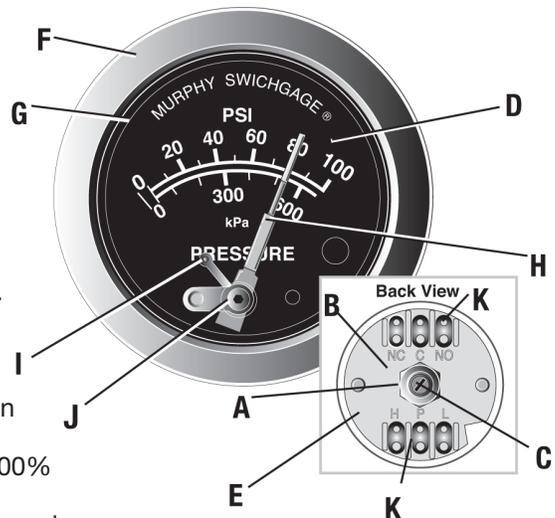
G. Lens: Made of high-impact resistant treated polycarbonate.

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.

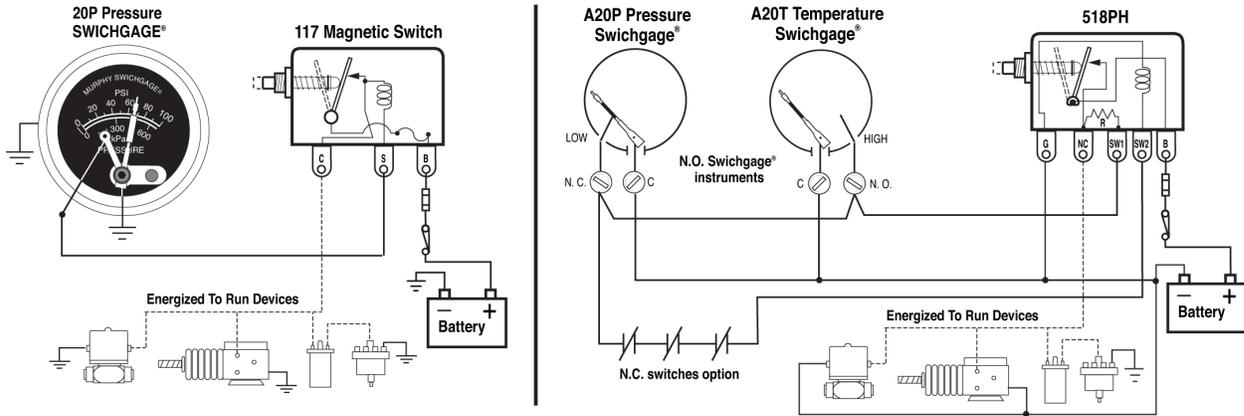
K. Electrical Connections: Number 4 screw terminals for A20 Series; and number 6 screw terminals for A25 Series models.



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. Enovation Controls manufactures the Magnetic Switch 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.

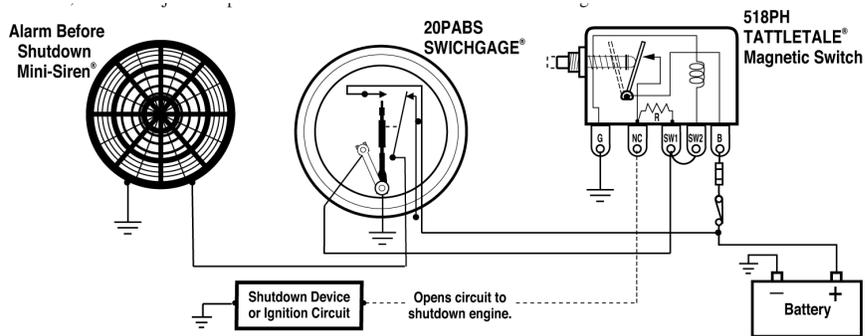


Pre-Alarm Using A20/A25PABS

The A20PABS and A25PABS feature a standard limit contact for equipment shutdown on low pressure. They also have an internal SPDT snap-switch to signal an alarm before shutting down. When the snap-switch trips (preset point) on falling pressure, the switch completes a circuit to activate an alarm. If the pressure continues to fall, the face-adjustable pointer contact will make and

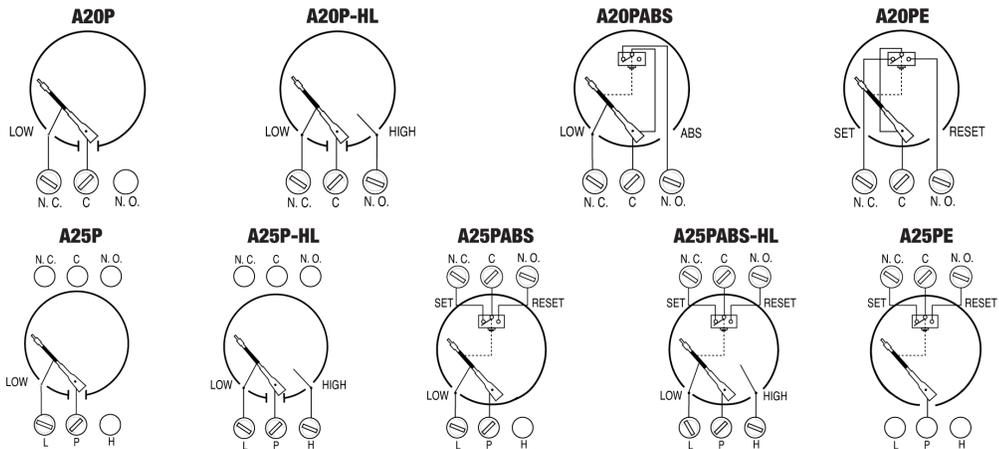
the shutdown circuit will be completed (see the typical diagram below for reference).

The front contact shutdown limit setting (which is adjustable) and the snap-switch are preset at the factory. Refer to Pressure Ranges and Factory Settings table. For alternative alarm before shutdown, see Magnetic Switch model 760A or 761APH.



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 Enovation Controls for more information.

<i>Base Model</i>	
A20P	A25P
A20PE	A25PE
A20PABS	A25PABS
A20PG	A25PG

<i>Options</i> [†]
B1 = Black bezel
EX = Explosion-proof (CSA Listed for Class I, Div. 1, Groups C & D)*
EL = Explosion-proof less case
HL = High and low contacts
K = Knob adjusting face contact
OS = Oil sealed (Silicone Oil)
[†] Options not available on all models or configurations.
*A25PE-EX only is CSA listed for hazardous locations.

<i>Range</i> ^{††}			
Dual scale (psi/kPa)		Single scale (bar)	
	psi	kPa/MPa	
15	= 0-15	0-103	1B = 0-1 bar
30	= 0-30	0-207	2B = 0-2 bar
50	= 0-50	0-345	3.5B = 0-3.5 bar
75	= 0-75	0-517	5B = 0-5 bar
100	= 0-100	0-689	7B = 0-7 bar
150	= 0-150	0-1.03	10B = 0-10 bar
200	= 0-200	0-1.38	14B = 0-14 bar
300	= 0-300	0-2.07	20B = 0-20 bar
400	= 0-400	0-2.76	28B = 0-28 bar
^{††} Consult factory for availability of dials other than psi/kPa. Select scale so your normal operating pressure is in the middle half of the scale.			

Part Number	Description	Notes
05702176	A20 Series Clamp Lite Assembly; 12V	Illumination — Order Separately
05702177	A20 Series Clamp Lite Assembly; 24V	
N/A	A25 Series	