

# 2 Inch and 2.5 Inch Pressure Switchgauge® 20 and 25 Series

The 20 Series (2 inch/51 mm dial) and the 25 Series (2-1/2 inch/64 mm dial) Switchgauge models are diaphragm-actuated, pressure-indicating gages with built-in electrical switches. These switches exceed SAE standards and are used for tripping alarms and/or shut-down devices.

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

The gage mechanism is enclosed in a steel case coated to resist corrosion. A polycarbonate, break-resistant lens and a polished, stainless steel bezel help protect this rugged, built-to-last instrument. 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 models 20P and 25P, 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 are grounded through the case and have self-cleaning motion to ensure electrical continuity.

Models 20PE and 25PE have internal snap-acting SPDT switches.

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

The Switchgauge® was specifically designed to protect engines/equipment in oil field, marine, irrigation, construction and trucking applications to monitor engine lube pressure, water pump pressure, hydraulic pressure, air pressure, etc.

## Base Models

### 20P and 25P Series Switchgauge

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

### 20PE and 25PE Switchgauge

**20PE** (was 20EO) and **25PE** (was 25EO)

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.

### 20PABS and 25PABS Switchgauge

Same as 20P and 25P with internal SPDT snap-switch for pre-alarm.

### 20P7 and 25P7 Lockout Switchgauge

Same as 20P and 25P Series. They also include a front, semi-automatic lockout for startup override. This built-in device holds the pointer away from the contact on startup. When pressure exceeds the set point, the lockout is automatically disengaged (see following pages for details).

### 20PG and 25PG MurphyGage

Gage without contact(s)



CE

Products covered in 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; others available (see How to Order).

**Case:** Plated steel; mounting clamp included (except for direct mount models)

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

**Lens:** Polycarbonate, high-impact

**Oil:** Silicon 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
≤300 psi (20 Bar)	±3%	±2%	±3%
400psi (28 Bar)	±3%	±3%	±5%

**Maximum Pressure:** See Pressure Ranges and Factory Settings table next page

**Adjustable Limit Contact (20P and 25P):** SPST contact; pilot-duty only, 2 A @ 30 VAC/DC; Normally Close (NC) when the low limit is met. Normally Open (NO) 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

**Limit Contact Wire Leads:** 18 AWG (1.0 mm2) x 12 in. (305 mm)

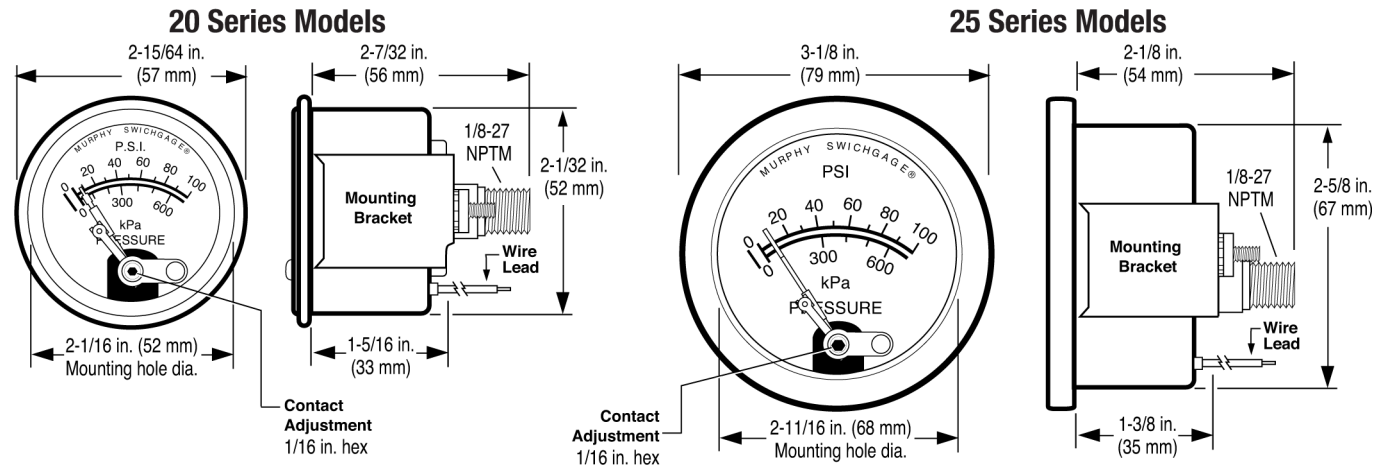
**Snap-Switch Rating (20PE and 25PE):** SPDT, 3 A@ 30 VDC inductive; 4 A @ 125 VAC inductive

**Snap-Switch Wire Leads:** 20 AWG (0.75 mm2) x 12 in. (305 mm)

**Unit Weight:** 20 Series: 8 oz. (0.23 kg); 25 Series Models: 11 oz. (0.31 kg)

**Unit Dimensions:** 20 Series: 3 x 3 x 3 in. (76 x 76 x 76 mm); 25 Series Models: 4-3/4 x 4-3/4 x 2-3/4 in. (121 x 121 x 70 mm)

# Dimensions

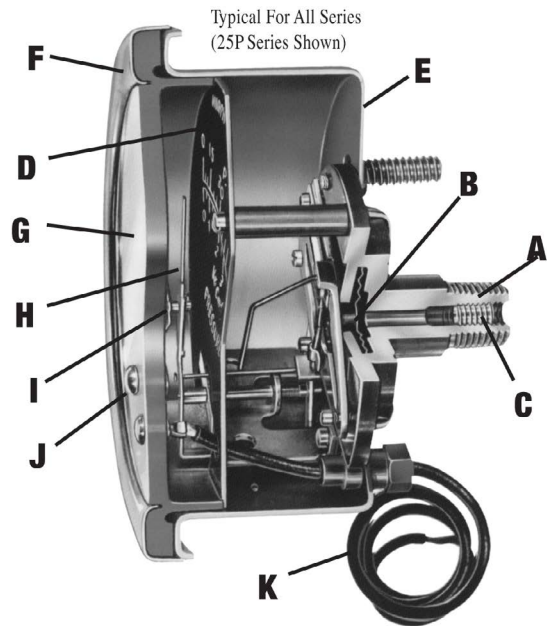


## Pressure Ranges and Factory Settings

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]	2 x scale	3	(21)	[0.2]	12	(83)	[0.8]	3	(21)	[0.2]	6	(41)	[0.3]
0-30 (207) [2.0]	2 x scale	7	(48)	[0.4]	24	(165)	[1.6]	7	(48)	[0.4]	10	(69)	[0.6]
0-50 (345) [3.5]	2 x scale	10	(69)	[0.8]	40	(276)	[2.8]	10	(69)	[0.8]	13	(90)	[1.0]
0-75 (517) [5.0]	2 x scale	15	(103)	[1.0]	60	(414)	[4.0]	15	(103)	[1.0]	18	(124)	[1.5]
0-100 (690) [7.0]	2 x scale	20	(138)	[1.5]	80	(552)	[5.5]	20	(138)	[1.0]	23	(159)	[1.5]
0-150 (1.0 MPa) [10]	2 x scale	30	(207)	[2.0]	120	(827)	[8.0]	30	(207)	[2.0]	33	(228)	[2.0]
0-200 (1.4 MPa) [14]	2 x scale	50	(345)	[3.0]	150	(1 MPa)	[10]	50	(345)	[3.0]	53	(365)	[4.0]
0-300 (2.1 MPa) [20]	1-2/3 x scale	75	(517)	[5.0]	225	(1.6 MPa)	[15]	75	(517)	[5.0]	78	(538)	[5.0]
0-400 (2.8 MPa) [28]	1-1/4 x scale	150	(1.0 MPa)	[7.0]	300	(2.1 MPa)	[20]	75	(517)	[5.0]	150	(1 MPa)	[10]

## Features

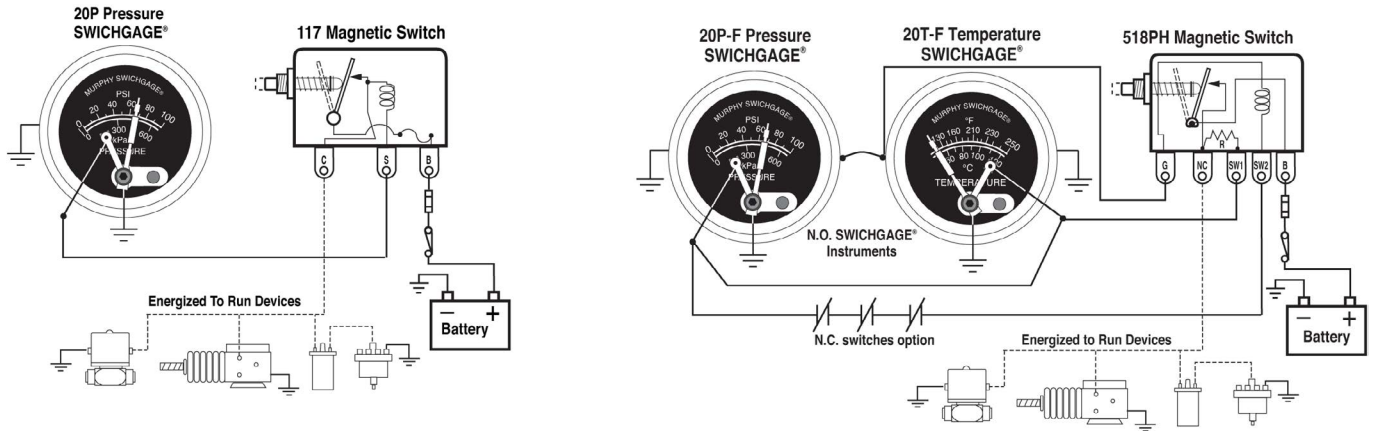
- A. Process Connection and Port:** Machined from brass bar stock; together with the diaphragm forms the diaphragm chamber.
- B. Diaphragm:** Beryllium copper; material is die formed and heat treated to very close physical and metallurgical specifications.
- C. Pulsation Dampener:** Designed to minimize undesirable pointer chatter. It is removable for cleaning.
- D. Dial:** White letters on a black background, dual scale (psi & kPa) standard; others available on request (see How to Order).
- E. Case:** Steel with zinc and iridite; mounting clamp included (except for direct mount models).
- F. Bezel:** Polished stainless steel standard, black bezel also available
- G. Lens:** Made of polycarbonate glass, high-impact treated
- H. Pointer:** Tempered nickel silver for continuity and corrosion resistance. It is mounted on a machined brass post.
- 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. Wire Leads:** 12 in. (305 mm) long, 18 AWG (1.0 mm<sup>2</sup>) for face-adjustable contacts. 20 AWG (0.75 mm<sup>2</sup>) for snap-switches models.



**Warranty** — A limited warranty on materials and workmanship is given with this Murphy product. A copy of the warranty may be viewed or printed by going to [www.enovationcontrols.com/warranty](http://www.enovationcontrols.com/warranty)

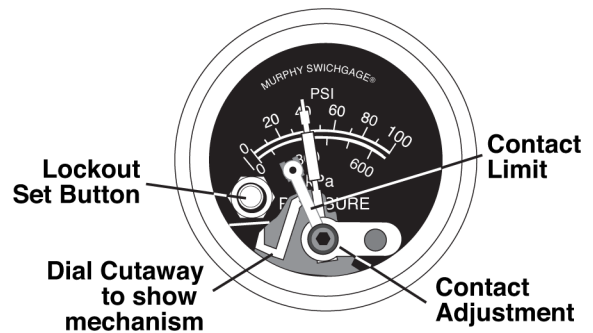
# Magnetic Switch

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



## Start-Up Lockout (P7 Versions)

The Swichgag low limit contact can be bypassed on start-up by pushing this optional lockout button. It holds the pointer away from the shut-down contact while the engine starts. The lockout will disengage automatically on rising pressure.



## How to Order

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

25P		-		B1		-		200		
Base Model		Options								
20P	20PE	Options Not Available On All Models Or Configurations								
20P7	20PG	B1 = Black Bezel								
25P	25P7	B2 = Bezel 05051857 (was HP)								
25PG		B3 = Bezel 05051836 (was HBB)								
		D = Direct Mount								
		F = FS Contact (Includes ES as Appropriate)								
		HL = High and Low Contacts								
		I = Illuminations (See Illumination Options)								
		IP1 = Light Pipe Illumination, 12 VDC								
		IP2 = Light Pipe Illumination, 24 VDC								
		K = Knob Adjusting Face Contact								
		OS = Oil Sealed ( Silicone Oil)								
		Illumination Options								
		IP1 / IP2				1				
20 Series		X				X*				
25 Series		N/A				N/A				
		* Can be used with Standard Clamp Lite Assembly (12 V = 05702176; 24 V = 05702177)								
Pressure Range										
Dual Scale					Single Scale					
		psi		kPa/MPa		bar				
15	=	0-15	psi	0-103	kPa	1B	=	0-1	bar	
30	=	0-30	psi	0-207	kPa	2B	=	0-2	bar	
50	=	0-50	psi	0-345	kPa	3.5B	=	0-3.5	bar	
75	=	0-75	psi	0-517	kPa	5B	=	0-5	bar	
100	=	0-100	psi	0-689	kPa	7B	=	0-7	bar	
150	=	0-150	psi	0-1.03	MPa	10B	=	0-10	bar	
200	=	0-200	psi	0-1.38	MPa	14B	=	0-14	bar	
300	=	0-300	psi	0-2.07	MPa	20B	=	0-20	bar	
400	=	0-400	psi	0-2.76	MPa	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.										

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