

# SwichgageMitter® Instrument Series

## Pressure Swichgage® Instrument with 4–20 mA Output



### Reasons to Use a SwichgageMitter Instrument

- Easily Add Pressure Transmitter Upgrades.
- Cost Effective – Less Downtime for Installation; Fewer Parts.
- Combination Indicating Gage, Pressure Limit Switches and 4-20 mA Output (0.5% Accuracy).
- High Visibility Dial 4-1/2 inch (114 mm) Dia.
- Adjustable High and Low Pressure Limit Contacts Fed Through Strain Relief Cord Grips.
- Environmentally Sealed Option Available.

### Description

The SGM45F SwichgageMitter instrument is a combination 4-20 mA pressure transmitter and a pressure indicating gage with adjustable low and high limit contacts or snap acting switches. Limit switches can be wired directly to electric pilot circuits to operate alarms, shut down or start/stop engines and electric motors.

The SGM45F features a 4-1/2 in. (114 mm) dial for easy viewing. Adjustable limit switches are accessible from the front and limit contacts have self-cleaning motion to enhance electrical continuity. Gage-only models, without switches (GageMitter) are available.

### Swichgage® Specifications

**Case:** Die cast aluminum; weatherproof.

**Contacts:** See *Installation Manual*.

**Dial:** 4-1/2 in. (114 mm) white on black, dual scaled psi / kPa.

**Gage Accuracy:** ±2% for the first and last quarters of the scale, the middle half is ±1%.

**Geared Movement:** 302 & 304 stainless steel.

**Lens:** Optically clear polycarbonate.

**Pointer:** High visibility, has pointer calibration hub.

**Temperature Effect:** 1.5 % per 100°F.

**Over Pressure/Proof Pressure:** No more than 10% without calibration shift.

**Sensing Element:** 316 stainless steel bourdon tube.

**Process Connection:** 1/4 NPT Drawn C-Tube

Thru 1,000 psi (6.89 MPa) [68.95 bar]

1/2 NPT Drawn Helical 1,500/2,000 psi  
(10.3/13.8 MPa) [103.4/137.9 Bar].

### 4–20 mA Output Specifications

**Accuracy (Full Scale, Best Straight Line):**

±0.5% including non-linearity, hysteresis and repeatability.

**Over Pressure / Proof Pressure / Burst Pressure:**  
See *Installations Manual*.

**Temperature:**

**Operating:** -40 to 180°F (-40 to 82°C).

**Compensated:** +14 to 120°F (-10 to 50°C).

**Total Thermal Effects Over Compensated**

**Range:** ±2% FS TEB

**Environmental Effect:**

**Humidity:** No effect.

**Shock/Vibration:** Negligible effect unless severe.

**Physical: Wetted Parts:** 316L stainless steel, Hastelloy C276.

**Electrical Cable:** Shielded cord set with female plug to mate with sealed male connector (on the back of the unit), 78.74 in. (2 m) long.

**Power Requirements:** Typically 24 VDC required. Using the Loop Resistance Graph, 10-30 VDC.

**Output:** 4–20 mA, 2-wire.

**Insulation:** Greater than 100 Mohms @ 500 VDC. Contact lead termination is by pigtail wires.

**Shipping Weights:** 3 lbs 7 oz (1.6 kg).

**Shipping Dimensions:** 9-1/4 x 8-1/4 x 5-1/2 in.  
(235 x 210 x 140 mm).

### Options

**Environmentally Sealed:** The "ES" option helps minimize damage caused by the elements.



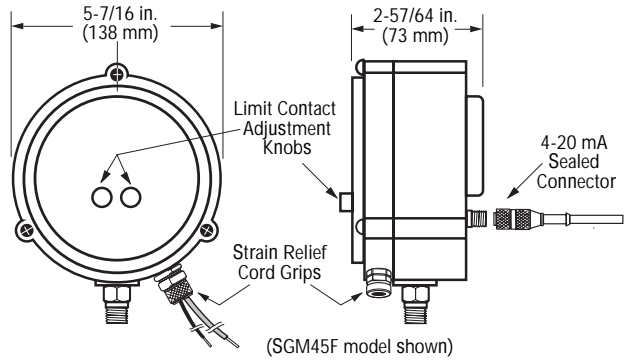
# Pulsation Dampener

Eliminate pointer contact flutter on pressure SwichgageMitter instruments which are subject to pulsating pressure from reciprocating pumps or compressors. Available in brass, carbon steel and stainless steel. For ordering instructions, refer to bulletin number PD-95145B.



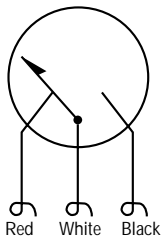
**Special Note:** "When used in pulsating service such as positive displacement pumps or compressor discharge monitoring, a pulsation dampener must be used or product may not be covered by warranty."

## Dimensions



## Typical Wiring Diagrams

### SGM45F



SPST Contacts: 1 SPST; Center off; 2A, 30 V DC, 1A, 125 VAC pilot duty.

**NOTE:** When using in Hazardous Environment defined by CSA as Class I, Group C & D, Div. 2, energy level across switch contacts must not exceed non-incendive levels as defined by CSA.

## How to Order

### Specify the model = **SGM45F-1000-ES**

#### Base Model

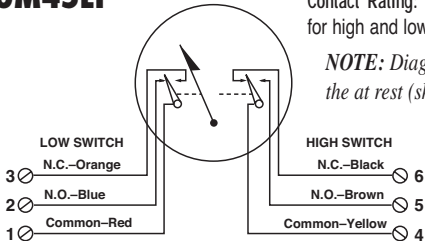
SGM45F= Round Case; SPST Contacts, Center off.

\*SGM45EF= Round Case; SPDT Snap Switches

\*SGM45FG= Round Case; w/ 4-20 mA only; w/o contacts.

\*Non-stock—call for delivery.

### SGM45EF



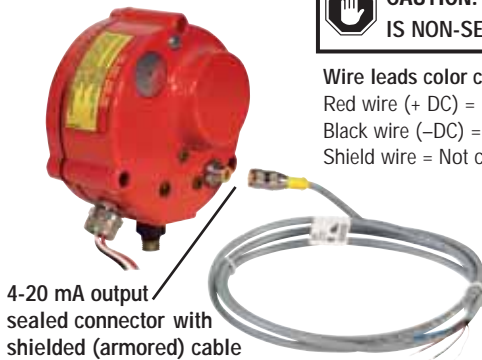
Contact Rating: 2-SPDT snap-switches (one for high and low pressure); 2 A @ 250 VAC

**NOTE:** Diagrams show the pointer in the at rest (shelf) position.

### 4-20 mA Output



Wire leads color coding:  
Red wire (+ DC) = Power Supply.  
Black wire (-DC) = 4-20 mA output.  
Shield wire = Not connected.



4-20 mA output sealed connector with shielded (armored) cable

Gage Range (psi)	Transmitter range
30V30	30V30
30V100	30V100
30	30
60	100
100	100
200	400
400	400
600	1000
1000	1000
1500	2000
2000	2000

#### Options

ES= Environmentally Sealed  
Blank= No Options

#### Note:

Transmitter and Gage ranges may be different. Verify actual range on product nameplate.

### Indicating Dials

All dials are dual scaled psi and kPa/MPa. Single scale dials and custom dials available (Additional charges may apply).

### Warranty

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



918.317.4100 Email: sales@fwmurphy.com

In order to consistently bring you the highest quality, full featured products, we reserve the right to change our specifications and designs at any time. MURPHY, the Murphy logo, and SwichgageMitter® are registered and/or common law trademarks of Murphy Industries, Inc. This document, including textual matter and illustrations, is copyright protected by Murphy Industries, Inc., with all rights reserved. (c) 2006 Murphy Industries, Inc.