



# Pressure

## Table of Contents

Magnehelic Principles	2-3
Series 2000 Magnehelic® Differential Pressure Gages	4-5
Series 4000 Capsuhelic® Differential Pressure Gages	6-7
Series 2-5000 Minihelic® II Differential Pressure Gages	8-9
Typical Gage Applications	10-11
Series DH Dighelic® Differential Pressure Controller	12-13
Series A3000 Photohelic® Pressure Switch/Gages	14-15
Series 3000MR/3000MRS Photohelic® Switch/Gages	16
Series 3000SGT Photohelic® Pressure Switch/Gage with Integral Transmitter	17
Series MP Mini-Photohelic Differential Pressure Switch/Gage	18
Series 43000 Capsu-Photohelic® Pressure Switch/Gages	19
Introduction to Manometers	20-21
Durablock® Solid Plastic Portable Gages	22-23
Durablock® Solid Plastic Stationary Gages	24-25
Durablock® Inclined-Vertical Manometers	26
Flex-Tube® Well-Type Manometers	27
Slack-Tube® Manometers	28
Series 1213 Gas Pressure Manometer	29
Model 1430 Microtector® Portable Electronic Point Gage	29
Flex-Tube® U-Tube Manometers	30
Dual Range Flex-Tube® U-Inclined Manometers	31
Mark II Molded Plastic Manometers	32
Model 476-0 Digital Manometer	33
Model 478-0 Digital Differential Manometer	34
Series 475 Mk III Handheld Digital Manometer	35
Series 477 Handheld Digital Manometer	36
Series 477A Handheld Digital Manometer	37
Series HM28 Handheld Digital Manometer	38
Series 490 Wet/Wet Handheld Digital Manometer	39
Air Filter Gages and Switches	40-41
250-AF Series Inclined Manometer Air Filter Gages	42
Differential Pressure Switches	43-45
Series 1620 Single and Dual Pressure Switches	46
Series 1630 Large Diaphragm Pressure Switches	47
Model 1640 Floating Contact Null Switch	48
Series 1800 Low Differential Pressure Switches	49
Series 1900 Compact Low Differential Pressure Switches	50
Series 1950/1950G Explosion-Proof Differential Pressure Switches	51
Series H3 Explosion-Proof Differential Pressure Switches	52
Series MTR Minitactor™ Differential Pressure Switch	53
Series MDS Miniature Pressure Switch	54
Series MDA Miniature Adjustable Pressure Switch	54
Series MVS Miniature Vacuum Switch	55
Series A2 Subminiature Pressure Switch	55
Series A4 Differential Pressure Switch	56
Series BB Bourdon Tube Differential Pressure Switches	56
Series DP Double Bellows Differential Pressure Switches	57
Series PG Gas Pressure/Diff. Pressure Switch	57
Series PQ Ultra Sensitive Pressure Switches	58
Series AP Diaphragm Operated Pressure Switches	58
Series DA/DS Bourdon Tube Pressure Switches	59-61
Series XTBX Diaphragm Seal for DA Series Pressure Switch	62
Series ES Electronic Pressure Switch	62
Series H2 Dual-Action Explosion-Proof Pressure Switches	63
Series A1N Low Cost OEM Pressure Switch	63
Series A1S & A1B Low Cost OEM Pressure Switch	64-65
Series A1PS/A1VS Economical Pressure Switch	66
Series APS/AVS Adjustable Pressure Switch	66
Series SA1100 Diaphragm Operated Pressure Switches	67
Series 1000W Diaphragm Operated Pressure Switches	68
Series 1000E Explosion-Proof Diaphragm Operated Pressure Switch	68
Series 1996 Gas Pressure Switches	69
Series CS & CD Low Cost Diaphragm Pressure Switches	69
Series 761 Process Pressure Gage	70
Series 762 Process Pressure Gage	71
Series SGL 4.5" Stainless Steel Industrial Pressure Gage	72
Series SGS 4" Stainless Steel Industrial Pressure Gage	73
Series SGI 4" Stainless Steel Safety Gage	74
Series SGK 8" & 10" Stainless Steel Pressure Gage	75
Series 64000 2.5" Stainless Steel Pressure Gage	76
Series 63000M 2.5" Stainless Steel Pressure Gage	76
Series 62000M 2.5" Stainless Steel Pressure Gage	77
Series 62000MU 2.5" Stainless Steel Pressure Gage	77
Series SGB 1.5" Stainless Steel Industrial Pressure Gages	78
Series SGB 2" Stainless Steel Industrial Pressure Gages	79
Series SGX 2.5" Stainless Steel Low Pressure Gage	80
Series SGF 2.5" Stainless Steel Low Pressure Gage	81
Series UGA 2.5" Utility Pressure Gage	82
Series SGC Spiral Tube Pressure Gage	83
Series AGD & AGL 2.5" & 4.5" Pressure Gages with Ammonia Scales	84
Series FGA & FGS 2.5" & 4" Pressure Gages with Freon Scales	85
Series SGR 6" Stainless Steel Test Gage	86
Series SGJ 6" Stainless Steel Safety Test Gage	87
Series SSD 2.5" Stainless Steel Gage with Tri-Clover Connection	88
Series SSL 4" Stainless Steel Gage with Tri-Clover Connection	89
Series SGO 4" Stainless Steel Schaeffer Gage	90
Series SGP 4" Stainless Steel Low Pressure Schaeffer Gage	91
Series 61000 Pressure Gages	92
Series 66000 Pressure Gages	92
Series DPG-000 Digital Pressure Gage	93
Series DPG-100 Digital Pressure Gage	94
Series 67000 Digital Pressure Gages	95
Series VG Digital Vacuum Gage	95
Series DCG Digital Calibration Gage	96
Series 68000 Digital Pressure Gages	97
Series 69000 Pressure Gages	97
Series 7000 Spirahelic® Pressure Gages	98-103
Series 7116 & 7116B Spirahelic® Pressure Transmitter	104
Series 6000 Spirahelic® Pressure Gages	105
Series 760 Pressure Gages	105
Series 603A Differential Pressure Transmitters	106
Series 605 Magnehelic® Differential Pressure Indicating Transmitter	107
Series 604A Differential Pressure Transmitter	108
Series 604D Minihelic® Differential Pressure Indicating Transmitter	108
Series 616C Differential Pressure Transmitter	109
Series 616 Differential Pressure Transmitter	109
Series 616W Differential Pressure Transmitter	110
Series 616D Differential Pressure Transmitter	110
Series 620 Differential Indicating Pressure Transmitter	111
Series 621 Differential Indicating Pressure Transmitter	111
Series 607 Differential Pressure Transmitter	112
Series 677 Differential Pressure Transmitter	113
Series 648 Differential Pressure Transmitter	113
Series 666 Rangeable Differential Pressure Transmitter	114
Series 646 Differential Pressure Transducer	114
Series 668 Differential Pressure Transmitter	115
Series 674 Differential Pressure Transmitter	115
Series 676 Duct Pressure Transmitter	116
Series 655 Wet/Wet Differential Pressure Transmitter	117
Series 629 Wet/Wet Differential Pressure Transmitter	118
Series 647 Wet/Wet Differential Pressure Transmitter	119
Series 645 Wet/Wet Differential Pressure Transmitter	119
Series 626 & 628 Industrial Pressure Transmitter	120-121
Series 673 Pressure Transmitter	122
Series 683 Industrial Pressure Transducer	123
Series 638 Pressure Transmitter	123
Series 642 Pressure Transmitter	124
Series 682 Industrial Pressure Transmitter	124
Series 634ES Adjustable Range Pressure Transmitter	125
Series 679 Weatherproof Pressure Transmitter	125
Series 636 Fixed Range Pressure Transmitter	126
Series 636D Fixed Range Differential Pressure Transmitter	126
Series 637 Adjustable Range Pressure Transmitter	127
Series 637S Sanitary Pressure Transmitter	127
Series 681 Sanitary Pressure Transmitter	128
Series 7116 Spirahelic® Pressure Transmitter	128
Series 619 Pressure Indicating Transmitter	129
Series DSGT Digital Indicating Transmitter	130
Series DCT1000 Dust Collector Timer Controller	131
Series DCT1000DC Dust Collector Timer Controller	132
Series DCT500 Low Cost Timer Controller	133
Series DCT500DC Low Cost Timer Controller	134
Related Products for Pressure Control	135
A-464 Flush Mount Kit for Magnehelic®	136
A-465 Flush Mount Space Pressure Sensor	136
Special Application Products	137



# Magnehelic Principle

The Dwyer feature that has created new standards in the measurement and control of low differential air pressures

Dwyer's exclusive Magnehelic Principle eliminates wear, backlash and hysteresis in Magnehelic®, Capsuhelic®, Minihelic® and Photohelic® Gages. The result is a remarkably high standard of accurate, dependable gage performance at a modest price.

## WHAT IT IS

The Magnehelic Principle is Dwyer's method of transmitting the effect of changes in air pressure from a diaphragm to an indicating pointer – by means of magnetic linkage and *without* the use of gears or other direct mechanical linkages. This system avoids wear and physical contact which might destroy the accuracy and sensitivity of the instrument.

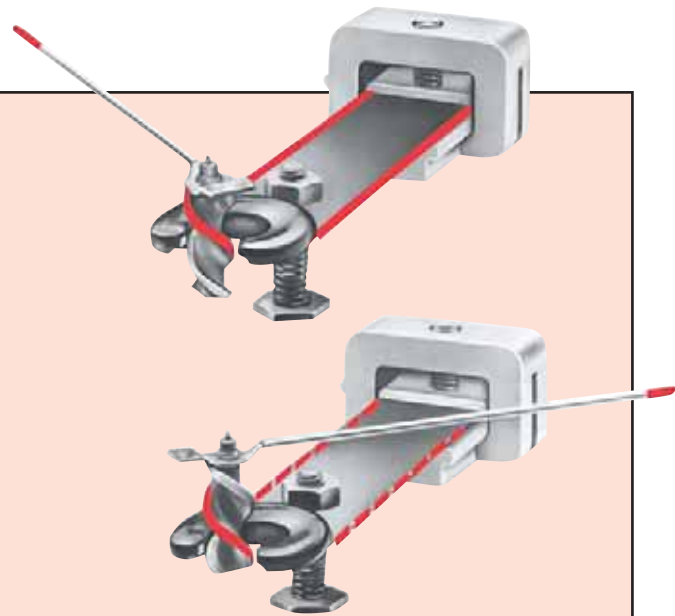
### HOW THE MAGNETIC LINKAGE WORKS

(1) With pointer at zero, pressures on both sides of the diaphragm are equal. The diaphragm is linked to the leaf spring, which is anchored at one end. A magnet attached to the free end of the spring is in close proximity to – but **does not touch** – the helix.

The helix is of high magnetic permeability. It aligns itself with the magnetic field, thus maintaining the minimum gap between the magnet and the outer edge of the helix.

(2) When air pressure changes move the diaphragm, spring and magnet, the helix turns to maintain the minimum gap, and the pointer turns with it.

The flat spring (which determines the range of the instrument) resists the diaphragm's movement. Precise calibration of the instrument is accomplished by varying the live length of spring through adjustment of a spring clamp.



## ADVANTAGES

Each gage based on the Magnehelic Principle offers these operating and installation advantages:

- It is exceptionally responsive. Accuracy is guaranteed within 2% of full scale. (3% on Capsuhelic®, 5% on Minihelic®).
- Inertia-free, drift-free pointer movement.
- Virtually no hysteresis.
- High resistance to shock and vibration.
- Unharmed by pressure surges up to 15 psig (500 psig on Capsuhelic®, 50 psig on Minihelic®).
- Ambient temperature range, 20 to 140°F. (Magnehelic® lower limit to -20°F on special order.)
- Operation in any position. (Low ranges require special calibration for other than vertical position.)
- Choice of more than 60 standard Magnehelic®, Capsuhelic® and Photohelic® ranges, from .25" w.c. to 300 psig, in a single case size for each series.
- Magnehelic®, Capsuhelic®, and Minihelic® Gages can be surface or flush mounted. Magnehelic® has both side and back connections.
- Prices are modest for these responsive precision gages.

## CONSIDER THIS VERSATILITY

The Magnehelic Principle adds to the unusual versatility of Dwyer's Differential Pressure Gages. They are suitable for a wide range of fixed and portable applications where differential pressure is less than 30 psig and total pressure is less than 500 psig in compatible fluids. See page 4 for numerous Magnehelic options and accessories and page 11 for special OEM models.

A few typical gage applications are listed below.

### USES INCLUDE:

**As an air filter gage** to measure pressure drop across an air filter to indicate when filters need servicing.

**Sensing static pressure** in an air stream.

**To measure air velocity** in determining volume of flow.

**Liquid level measurement** by measuring back pressure of purge air in a dip tube.

**As an orifice meter** by measuring back pressure of purge air or compatible fluids.

Now-five series of gages and switch/gages serve a variety of needs...

Series  
2000

## Magnehelic® and Series 4000 Capsuhelic® Differential Pressure Gages

Metric scales available.



**Magnehelic®** — More than 80 models, from 0-.25" w.c. to 0-30 psig. Zero center from .25-0-.25" w.c. to 15-0-15" w.c. Low (to 15 psig), medium (to 35 psig) and high total internal pressure styles to 80 psig. Accuracy  $\pm 2\%$  of full scale for most models.

**Capsuhelic®** — More than 60 models, from 0-.50" w.c. to 0-300 psig. Zero center from 1-0-1" w.c. to 15-0-15" w.c. Sensitive to low differential pressures yet withstands internal pressures to 500 psig. Accuracy  $\pm 3\%$  of full scale for most models.

Both Magnehelic® and Capsuhelic® gages have easy-to-read 4" dials that quickly indicate low air or gas pressures — positive, negative or differential. Both include the frictionless Magnehelic® magnetic movement; resistant to shock, vibration and overpressure. No fluid — no evaporation, freezing or toxicity problems. Capsuhelic® gages handle compatible fluids internally.

Common applications include measurement of fan and blower pressures, filter resistance, air velocity, furnace draft, pressure drop across orifice plates, liquid levels with bubbler systems, pressures in fluid amplifier or fluidic systems; to check gas-air ratio controls, automatic valves, and monitor blood or respiratory pressures in medical equipment. See applications, page 10.

Series  
2-5000

## Minihelic® Differential Pressure Gages



**14 Ranges** — From 0-0.5" w.c. to 0-30 psig. Special ranges and scales available for OEM volume requirements.

**Standard Accessories** — Steel bracket, screw studs and nuts for panel mounting. Optional surface mounting bracket available.

The Minihelic® II gage is our smallest, least expensive dial type differential pressure gage using the Magnehelic® principle. It features a large easy-to-read circular dial. The design allows for panel mounting with hardware included or surface mounting with an optional bracket. Barbed connections are standard for use with flexible tubing, for tubing  $\frac{1}{8}$ " male NPT pipe connections are also available. The mineral and glass filled nylon case withstands rough use and exposure.

The 5% accuracy of the Minihelic® gage makes it well suited for use as an air filter gage on large stationary and portable engines, compressors, ventilators, air handling units and as a monitor on fluidic power supplies. The Minihelic® gage is also suitable for many of the same applications as the Magnehelic® gage where the greater accuracy, sensitivity and total pressure capability of the latter are not required.

**They're 3-in One:**

1. Indicating gage
2. Lo-Limit control
3. Hi-Limit control

Series  
3000

## Photohelic® and Series 43000 Capsu-Photohelic® Pressure Switch/Gages



Both offer more than 60 models. From 0-.25" w.c. to 0-6000 psig.

Photohelic® and Capsu-Photohelic® models combine our most precise pressure switch with time-proven Magnehelic® gage design (above). Knob controls adjust set points. Applied pressure and switch set points are fully visible. Gage readings are not affected by switch operation. Phototransistor actuated DPDT relays can be interlocked for variable deadband control. Deadband is less than 1% of scale. For positive, negative or differential pressures from 0-.25" WC to 0-6000 psig full scale.

Used to control pressures in air conditioning systems, clean rooms, fluidic and pneumatic systems, materials handling; alarm or control fume exhaust systems; monitor respiratory and blood pressures. See applications on page 10.

Series  
2000

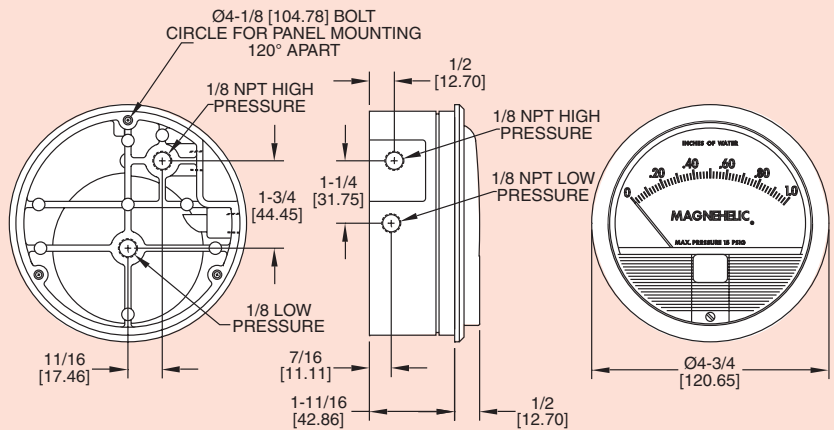
# Magnehelic® Differential Pressure Gages

Indicate Positive, Negative or Differential, Accurate within 2%



Patent Nos. 4,030,365  
5,012,678

Standard Magnehelic® Pressure Gage has a large, easy-to-read 4" dial.



Select the Dwyer Magnehelic® gage for high accuracy – guaranteed within 2% of full scale – and for the wide choice of 81 models available to suit your needs precisely. Using Dwyer's simple, frictionless Magnehelic® movement, it quickly indicates low air or non-corrosive gas pressures – either positive, negative (vacuum) or differential. The design resists shock, vibration and over-pressures. No manometer fluid to evaporate, freeze or cause toxic or leveling problems. It's inexpensive, too.

The Magnehelic® is the industry standard to measure fan and blower pressures, filter resistance, air velocity, furnace draft, pressure drop across orifice plates, liquid levels with bubbler systems and pressures in fluid amplifier or fluidic systems. It also checks gas-air ratio controls and automatic valves, and monitors blood and respiratory pressures in medical care equipment.

**Note:** May be used with Hydrogen where pressures are less than 35 psi.

**MOUNTING.** A single case size is used for most models of Magnehelic® gages. They can be flush or surface mounted with standard hardware supplied. With the optional A-610

Pipe Mounting Kit they may be conveniently installed on horizontal or vertical 1/4" - 2" pipe. Although calibrated for vertical position, many ranges above 1" may be used at any angle by simply re-zeroing. However, for maximum accuracy, they must be calibrated in the same position in which they are used. These characteristics make Magnehelic® gages ideal for both stationary and portable applications. A 4/16" hole is required for flush panel mounting. Complete mounting and connection fittings plus instructions are furnished with each instrument.

## VENT VALVES

In applications where pressure is continuous and the Magnehelic® gage is connected by metal or plastic tubing which cannot be easily removed, we suggest using Dwyer A-310A vent valves to connect gage. Pressure can then be removed to check or re-zero the gage.

## HIGH AND MEDIUM PRESSURE MODELS

Installation is similar to standard gages except that a 4/16" hole is needed for flush mounting. The medium pressure construction is rated for internal pressures up to 35 psig and the high pressure up to 80 psig. Available for all models. Because of larger case, the medium pressure and high pressure models will not fit in a portable case size. Installation of the A-321 safety relief valve on standard Magnehelic® gages often provides adequate protection against infrequent overpressure.



Flush ...Surface...or Pipe Mounted



## SPECIFICATIONS

**Service:** Air and non-combustible, compatible gases. (Natural Gas option available.)

**Wetted Materials:** Consult factory.

**Housing:** Die cast aluminum case and bezel, with acrylic cover. Exterior finish is coated gray to withstand 168 hour salt spray corrosion test.

**Accuracy:** ±2% of full scale (±3% on -0, -100 Pa, -125 Pa, 10MM and ±4% on -00, -60 Pa, -6MM ranges), throughout range at 70°F (21.1°C).

**Pressure Limits:** -20" Hg. to 15 psig.† (-0.677 bar to 1.034 bar); MP option: 35 psig (2.41 bar), HP option: 80 psig (5.52 bar).

**Overpressure:** Relief plug opens at approximately 25 psig (1.72 bar), standard gages only.

**Temperature Limits:** 20 to 140°F.\* (-6.67 to 60°C).

**Size:** 4" (101.6 mm) Diameter dial face.

**Mounting Orientation:** Diaphragm in vertical position. Consult factory for other position orientations.

**Process Connections:** 1/8" female NPT duplicate high and low pressure taps - one pair side and one pair back.

**Weight:** 1 lb 2 oz (510 g), MP & HP 2 lb 2 oz (963 g).

**Standard Accessories:** Two 1/8" NPT plugs for duplicate pressure taps, two 1/8" pipe thread to rubber tubing adapter and three flush mounting adapters with screws. (Mounting and snap ring retainer substituted for 3 adapters in MP & HP gage accessories.)

\*Low temperature models available as special option.

†For applications with high cycle rate within gage total pressure rating, next higher rating is recommended. See Medium and High pressure options at lower left.

## OPTIONS AND ACCESSORIES

### Transparent Overlays

Furnished in red and green to highlight and emphasize critical pressures.



### Adjustable Signal Flag

Integral with plastic gage cover. Available for most models except those with medium or high pressure construction. Can be ordered with gage or separate.



### LED Setpoint Indicator

Bright red LED on right of scale shows when setpoint is reached. Field adjustable from gage face, unit operates on 12-24 VDC. Requires MP or HP style cover and bezel.



### Portable Units

Combine carrying case with any Magnehelic® gage of standard range, except high pressure connection. Includes 9 ft. (2.7 m) of 3/16" I.D. rubber tubing, standhang bracket and terminal tube with holder.



### Air Filter Gage Accessory Package

Adapts any standard Magnehelic® for use as an air filter gage. Includes aluminum surface mounting bracket with screws, two 5 ft. (1.5 m) lengths of 1/4" aluminum tubing two static pressure taps and two molded plastic vent valves, integral compression fittings on both tips and valves.

# Quality design and construction features

**Bezel** provides flange for flush mounting in panel.

**Clear plastic face** is highly resistant to breakage. Provides undistorted viewing of pointer and scale.

**Precision litho-printed scale** is accurate and easy to read.

**Red tipped pointer** of heat treated aluminum tubing is easy to see. It is rigidly mounted on the helix shaft.

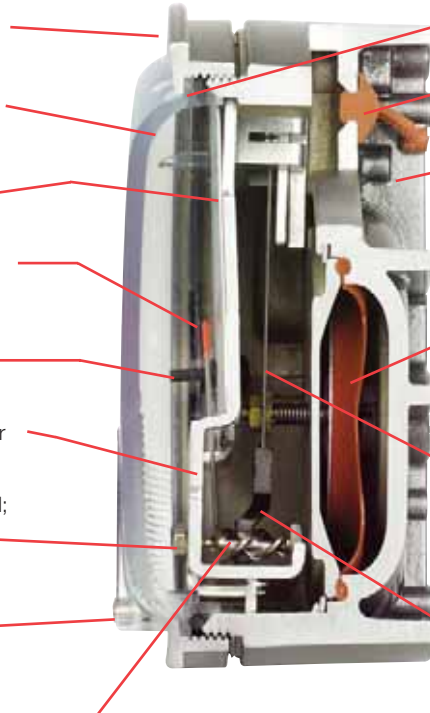
**Pointer stops** of molded rubber prevent pointer over-travel without damage.

**"Wishbone" assembly** provides mounting for helix, helix bearings and pointer shaft.

**Jeweled bearings** are shock-resistant mounted; provide virtually friction-free motion for helix. Motion damped with high viscosity silicone fluid.

**Zero adjustment screw** is conveniently located in the plastic cover, and is accessible without removing cover. O-ring seal provides pressure tightness.

**Helix** is precision made from an alloy of high magnetic permeability. Mounted in jeweled bearings, it turns freely, following the magnetic field to move the pointer across the scale.



**O-ring seal** for cover assures pressure integrity of case.

**Blowout plug** of silicone rubber protects against overpressure on 15 psig rated models. Opens at approximately 25 psig.

**Die cast aluminum case** is precision made and iridite-dipped to withstand 168 hour salt spray corrosion test. Exterior finished in baked dark gray hammerloid. One case size is used for all standard pressure options, and for both surface and flush mounting.

**Silicone rubber diaphragm** with integrally molded O-ring is supported by front and rear plates. It is locked and sealed in position with a sealing plate and retaining ring. Diaphragm motion is restricted to prevent damage due to overpressures.

**Calibrated range** spring is flat spring steel. Small amplitude of motion assures consistency and long life. It reacts to pressure on diaphragm. Live length adjustable for calibration.

**Samarium Cobalt magnet** mounted at one end of range spring rotates helix without mechanical linkages.

## MODELS

Dual Scale English/Metric Models		
Model Number	Range, In. W.C.	Range, Pa or kPa
2000-0D	0-0.5	0-125 Pa
2001D	0-1.0	0-250 Pa
2002D	0-2.0	0-500 Pa
2003D	0-3.0	0-750 Pa
2004D	0-4.0	0-1.0 kPa
2006D	0-6.0	0-1.5 kPa
2008D	0-8.0	0-2.0 kPa
2010D	0-10	0-2.5 kPa

## SERIES 2000 MAGNEHELIC® — MODELS AND RANGES

The models below will fulfill most requirements. Page 11 also shows examples of special models built for OEM customers. For special scales furnished in ounces per square inch, inches of mercury, metric units, etc., contact the factory.

Model Number	Range Inches of Water	Model Number	Range Zero Center Inches of Water	Dual Scale Air Velocity Units		Model Number	Range, CM of Water	Model Number	Range, Pascals
				Model Number	Range in W.C. Velocity, F.P.M.				
2000-00† • •	0-25	2300-0† •	.25-0-.25	2000-00AV† • •	0-.25/300-2000	2000-15CM	0-15	2000-60PA† • •	0-60
2000-0† •	0-50	2301	.5-0-.5	2000-0AV† •	0-.50/500-2800	2000-20CM	0-20	2000-100PA† • •	0-100
2001	0-1.0	2302	1-0-1	2001AV	0-1.0/500-4000	2000-25CM	0-25	2000-125PA† •	0-125
2002	0-2.0	2304	2-0-2	2002AV	0-2.0/1000-5600	2000-50CM	0-50	2000-250PA	0-250
2003	0-3.0	2310	5-0-5	2010AV	0-10/2000-12500	2000-80CM	0-80	2000-300PA	0-300
2004	0-4.0	2320	10-0-10	For use with pitot tube.		2000-100CM	0-100	2000-500PA	0-500
2005	0-5.0	2330	15-0-15			2000-150CM	0-150	2000-750PA	0-750
2006	0-6.0					2000-200CM	0-200	Zero Center Ranges	
2008	0-8.0					2000-250CM	0-250	2300-250PA	125-0-125
2010	0-10					2000-300CM	0-300	2300-500PA	250-0-250
2015	0-15					Zero Center Ranges			
2020	0-20	2201	0-1	2000-6MM† • •	0-6	2300-4CM	2-0-2	Model Number	Range, Kilopascals
2025	0-25	2202	0-2	2000-10MM† • •	0-10	2300-10CM	5-0-5	2000-1KPA	0-1
2030	0-30	2203	0-3	2000-25MM	0-25	2300-30CM	15-0-15	2000-1.5KPA	0-1.5
2040	0-40	2204	0-4	2000-50MM	0-50			2000-2KPA	0-2
2050	0-50	2205	0-5	2000-80MM	0-80			2000-3KPA	0-3
2060	0-60	2210*	0-10	2000-100MM	0-100			2000-4KPA	0-4
2080	0-80	2215*	0-15	Zero Center Ranges				2000-5KPA	0-5
2100	0-100	2220*	0-20	2300-20MM†	10-0-10			2000-8KPA	0-8
2150	0-150	2230**	0-30					2000-10KPA	0-10
<b>Accessories</b>				<b>Options</b> — To order, add suffix: I.E. 2001-ASF		<b>Special Purpose Ranges</b>			
A-299, Surface Mounting Bracket				ASF (Adjustable Signal Flag)		Scale No. 2401		2000-15KPA	
A-300, Flat Flush Mounting Bracket				HP (High Pressure Option)		Scale No. 2402		2000-20KPA	
A-310A, 3-Way Vent Valve				LT (Low Temperatures to -20°F)		Square Root		2000-25KPA	
A-321, Safety Relief Valve				MP (Med. Pressure Option)		Blank Scale		2000-30KPA	
A-432, Portable Kit				SP (Setpoint Indicator)		Specify Range		2000-30KPA	
A-605, Air Filter Kit						Model 2000-00N. range -.05 to +.20" W.C. For room pressure monitoring		Zero Center Ranges	
A-610, Pipe Mount Kit								2300-1KPA	
Scale Overlays — Red, Green, Mirrored or Combination, Specify Locations								2300-3KPA	
								.5-0-.5	
								1.5-0-1.5	

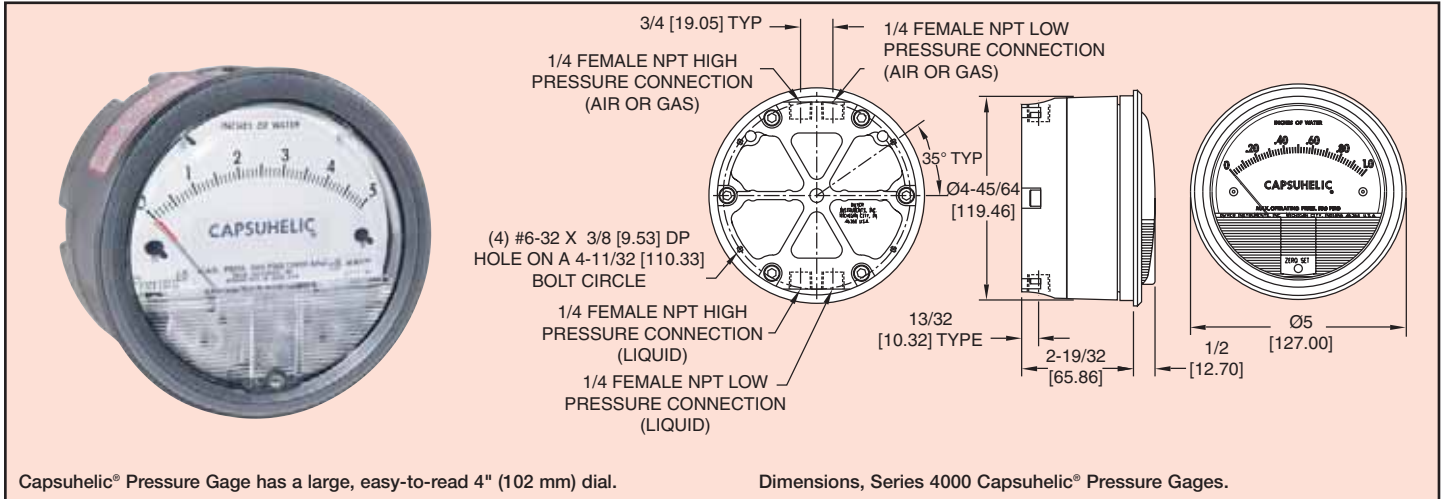
†These ranges calibrated for vertical scale position.  
• Accuracy +/-3%. •• Accuracy +/-4%

1011R01-0298P

Series  
4000

# Capsuhelic® Differential Pressure Gages

Measures Pressure, Vacuum or Differential, Suitable for Internal Pressures to 500 psig



Capsuhelic® Pressure Gage has a large, easy-to-read 4" (102 mm) dial.

Dimensions, Series 4000 Capsuhelic® Pressure Gages.

The Capsuhelic® gage is designed to give fast, accurate indication of differential pressures. The gage may be used as a read-out device when measuring flowing fluids, pressure drop across filters, liquid levels in storage tanks and many other applications involving pressure, vacuum or differential pressure.

Using the basic design of Dwyer's time-proven Magnehelic® gage, the Capsuhelic® contains a simple, frictionless movement that permits full scale readings as low as 0.5 inch water column. The pressure being measured is held within a capsule which is an integral part of the gage. This containment of the pressure permits the use of the gage on system pressures of up to 500 psig, even when differentials to be read are less than 0.1 inch w.c.

The diaphragm-actuated Capsuhelic® gage requires no filling liquid which might limit its outdoor applications. Zero and range adjustments are made from outside the gage, and there is no need to disassemble the gage in normal service.

**Note:** May be used with hydrogen where pressures are less than 35 psi.

## SPECIFICATIONS

**Service:** Aluminum Case: Air and compatible gases and oil based liquids. Brass Case: Air and compatible gases and water based liquids.

**Wetted Materials:** Consult factory.

**Housing:** Die cast aluminum with impregnated hard coating, standard. Optional forged brass housing is required for water or water based fluids. Special material diaphragms available, contact factory.

**Accuracy:** ±3% of full scale at 70°F (21.1°C). (±2% on 4000S models, ±4% on 4200, 4210, 4215, 4220, 4300, 4400, and 4500).

**Pressure Limits:** -20" Hg to 500 psig. (-0.677 bar to 34.4 bar).

**Temperature Limits:** 20 to 200°F (-6.67 to 93.3°C).

**Size:** 4" (101.6 mm) diameter dial face.

**Mounting Orientation:** Diaphragm in vertical position. Consult factory for other position orientations.

**Process Connections:** 1/4" female NPT high and low pressure taps, duplicated - one pair top for air and gas, and one pair bottom for liquids.

**Weight:** 3 lb, 3 oz (1.45 kg) aluminum case; 7 lb, 13 oz (3.54 kg) brass case.

**Standard Accessories:** Two 1/4" NPT plugs for duplicate pressure taps, four flush mounting adapters with screws and four surface mounting screws.

## MOUNTING

Capsuhelic® gages may be flush mounted in a panel or surface mounted. Hardware is included for either. For flush mounting, a 4 1/8" diameter cutout in panel is required. Where high shock or vibration are problems, order optional A-496 Heavy Duty flush mount bracket. Optional A-610 kit provides simple means of attaching gage to 1 1/4"-2" horizontal or vertical pipe. Installation is same as Magnehelic® gage shown on page 4. All standard models are calibrated for vertical mounting. Gages with ranges above 5 in. w.c. can be factory calibrated for horizontal or inclined mounting on special order.



Flush mounted in panel.



Back view shows flush mounting adapters.



Back view for surface mounting.

## OPTIONS AND ACCESSORIES



**Adjustable Signal Flag** — Integral with plastic gage cover; has external reset screw. May be ordered factory installed on gage or separately for field installation. Specify ASF suffix after model number.



**A-314 Bleed Fitting** — For easier, safer purging of trapped air when using gage with liquids. Also useful for draining condensate when installed in lower ports. To open, simply loosen hex nut. Solid brass.



**Forged Brass Case** — For applications involving water or water based liquids. To order, add suffix "B" after model number. Example: 4205B.



**Transparent Scale Overlays** — Available in bright red, green or yellow to accent critical pressure zones. Specify which color and portion of scale to be covered with each.

**A-471 Portable Kit** — Includes plastic case, mounting bracket, A-309 3-way manifold valve, (2) A-230 high pressure hoses and all necessary fittings. Assembly required. Gage not included.

# Straightforward design assures maintenance-free performance

**Top low pressure connection** (for Air or Gas) connects to chamber in back of diaphragm. High pressure air or gas port (cut away; not shown) connects with chamber in front of diaphragm through passageways in case.

**Precision made case** is offered in two materials. Standard is die cast aluminum coated inside for resistance to most oils and similar fluids. Optional forged brass case is recommended when using water or water based liquids. One case size for all pressure ranges — can be either surface or flush mounted.

**Silicone rubber diaphragm** with integrally molded O-ring is sealed between the case and backplate. Diaphragm motion is restricted to prevent damage due to over-pressure.

**Diaphragm support plate** of stainless steel minimizes position or attitude sensitivity.

**Calibrated range spring** is a flat leaf of nickel plated spring steel. Small amplitude of motion assures consistency and long life. It reacts to pressure on diaphragm. Live length factory adjusted for calibration.

**Bottom high pressure connection** (for Liquids) connects to chamber in front of diaphragm. Low pressure liquid connection (not visible) connects with chamber in back of diaphragm through passageways in case.

**Range spring calibration** is set by custom camlock. Rate adjust and rate adjust lock are coaxial and are factory set and sealed.

**Bezel** provides flange for flush mounting in panel.

**O-ring seal** for cover assures dust tight integrity of case.

**Clear plastic front cover** is highly resistant to breakage. Provides undistorted viewing of pointer and scale.

**Precision scale**, screen printed on aluminum, is accurate and easy to read.

**Samarium cobalt magnet** mounted at end of range spring rotates helix without mechanical linkages.

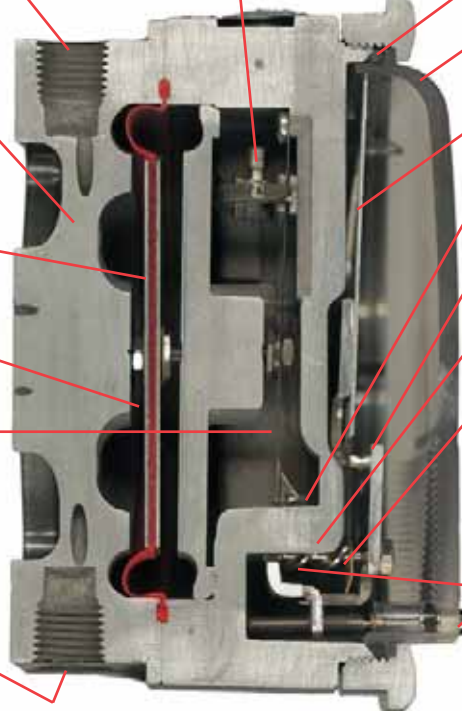
**“Wishbone” assembly** provides mounting for helix, helix bearings and pointer shaft.

**Thin wall magnetic “window”** is well braced and of minimum area for maximum pressure capability.

**Jeweled bearings for helix** are shock resistant mounted. They provide virtually friction-free rotation for helix. Rotation is damped with high viscosity silicone fluid.

**Helix** is precision milled from an alloy of high magnetic permeability, mounted in jeweled bearings, and rotates to align with magnetic field of magnet and transmit pressure indication to pointer.

**Zero adjustment screw** is conveniently located in plastic cover, accessible without removing cover. “O” ring seal provides dust seal.



Patent Nos. 4,011,759  
4,030,365

## SERIES 400 CAPSUHELIC® — MODELS AND RANGES

Scales reading directly in flow, heights, etc., are also available.

### MODELS

Model Number	Range, Inches of Water	Model Number	Range Zero Center Inches of Water	Model Number	Range MM of Water	Model Number	Range, CM of Water	Model Number	Range, Pascals																														
*4000-0	0-.50	*4302	1-0-1	*4000-25MM	0-25	4000-15CM	0-15	*4000-125PA	0-125																														
*4001	0-1.0	*4304	2-0-2	*4000-50MM	0-50	4000-20CM	0-20	*4000-250PA	0-250																														
*4002	0-2.0	4310	5-0-5	*4000-80MM	0-80	4000-25CM	0-25	*4000-500PA	0-500																														
*4003	0-3.0	4320	10-0-10	*4000-100MM	0-100	4000-40CM	0-40	*4000-750PA	0-750																														
*4004	0-4.0	4330	15-0-15	<b>Special Purpose Ranges</b>  Scale No. 4401 Square Root Specify Range  Scale No. 4402 Blank Scale Specify Range	4000-50CM	0-50	Zero Center Ranges																																
*4005	0-5.0	Model Number	Range PSI		4000-80CM	0-80	Zero Center Ranges		*4300-500PA	250-0-250																													
4006	0-6.0	4201	0-1		4000-100CM	0-100			Model Number	Range, Kilopascals																													
4008	0-8.0	4202	0-2		4000-150CM	0-150	Zero Center Ranges		*4000-1KPA	0-1																													
4010	0-10	4203	0-3		4000-200CM	0-200			*4000-1.5KPA	0-1.5																													
4015	0-15	4204	0-4		4000-250CM	0-250	4000-2KPA	0-2	4000-3KPA	0-3																													
4020	0-20	4205	0-5		4000-300CM	0-300	4000-4KPA	0-4	4000-5KPA	0-5																													
4025	0-25	4210	0-10		Zero Center Ranges		4000-8KPA	0-8	4000-8KPA	0-8																													
4030	0-30	4215	0-15		*4300-4CM	2-0-2	4000-10KPA	0-10	4000-10KPA	0-10																													
4040	0-40	4220	0-20		4300-10CM	5-0-5	4000-15KPA	0-15	4000-15KPA	0-15																													
4050	0-50	†4230S	0-30		4300-30CM	15-0-15	4000-20KPA	0-20	4000-20KPA	0-20																													
4060	0-60	†4240S	0-40		<b>Options</b>  Add Options as Suffix, Example 4001-ASF -ASF (Adjustable Signal Flag) B (Brass Case) Scale Overlays - Red, Green, Mirrored or combination. Specify Locations		4000-25KPA	0-25	4000-25KPA	0-25																													
4080	0-80	†4260S	0-60				4000-30KPA	0-30	4000-30KPA	0-30	Zero Center Ranges																												
4100	0-100	†4280S	0-80				Zero Center Ranges		Zero Center Ranges		*4300-1KPA	.5-0 .5																											
4150	0-150	†42100S	0-100								*4300-3KPA	1.5-0-1.5	Zero Center Ranges																										
4200	0-200	†42200S	0-200	Zero Center Ranges			Zero Center Ranges																																
4300	0-300	†42300S	0-300						Zero Center Ranges		Zero Center Ranges																												
4400	0-400	<b>Accessories</b> A-298 Flat Flush Mounting Bracket A-309 3-way Manifold Valve A-314 Bleed Fitting A-370 Mounting Bracket A-471 Portable Kit A-496 Flush Mount Bracket A-610 Pipe Mount Kit		<b>Options</b>  Add Options as Suffix, Example 4001-ASF -ASF (Adjustable Signal Flag) B (Brass Case) Scale Overlays - Red, Green, Mirrored or combination. Specify Locations			<b>Options</b>  Add Options as Suffix, Example 4001-ASF -ASF (Adjustable Signal Flag) B (Brass Case) Scale Overlays - Red, Green, Mirrored or combination. Specify Locations																																
4500	0-500								<b>Accessories</b> A-298 Flat Flush Mounting Bracket A-309 3-way Manifold Valve A-314 Bleed Fitting A-370 Mounting Bracket A-471 Portable Kit A-496 Flush Mount Bracket A-610 Pipe Mount Kit		<b>Options</b>  Add Options as Suffix, Example 4001-ASF -ASF (Adjustable Signal Flag) B (Brass Case) Scale Overlays - Red, Green, Mirrored or combination. Specify Locations		<b>Options</b>  Add Options as Suffix, Example 4001-ASF -ASF (Adjustable Signal Flag) B (Brass Case) Scale Overlays - Red, Green, Mirrored or combination. Specify Locations																										
Model Number	Range Feet of Water														<b>Accessories</b> A-298 Flat Flush Mounting Bracket A-309 3-way Manifold Valve A-314 Bleed Fitting A-370 Mounting Bracket A-471 Portable Kit A-496 Flush Mount Bracket A-610 Pipe Mount Kit		<b>Options</b>  Add Options as Suffix, Example 4001-ASF -ASF (Adjustable Signal Flag) B (Brass Case) Scale Overlays - Red, Green, Mirrored or combination. Specify Locations		<b>Options</b>  Add Options as Suffix, Example 4001-ASF -ASF (Adjustable Signal Flag) B (Brass Case) Scale Overlays - Red, Green, Mirrored or combination. Specify Locations																				
4616B	0-16																				<b>Accessories</b> A-298 Flat Flush Mounting Bracket A-309 3-way Manifold Valve A-314 Bleed Fitting A-370 Mounting Bracket A-471 Portable Kit A-496 Flush Mount Bracket A-610 Pipe Mount Kit		<b>Options</b>  Add Options as Suffix, Example 4001-ASF -ASF (Adjustable Signal Flag) B (Brass Case) Scale Overlays - Red, Green, Mirrored or combination. Specify Locations		<b>Options</b>  Add Options as Suffix, Example 4001-ASF -ASF (Adjustable Signal Flag) B (Brass Case) Scale Overlays - Red, Green, Mirrored or combination. Specify Locations														
4635B	0-35																										<b>Accessories</b> A-298 Flat Flush Mounting Bracket A-309 3-way Manifold Valve A-314 Bleed Fitting A-370 Mounting Bracket A-471 Portable Kit A-496 Flush Mount Bracket A-610 Pipe Mount Kit		<b>Options</b>  Add Options as Suffix, Example 4001-ASF -ASF (Adjustable Signal Flag) B (Brass Case) Scale Overlays - Red, Green, Mirrored or combination. Specify Locations		<b>Options</b>  Add Options as Suffix, Example 4001-ASF -ASF (Adjustable Signal Flag) B (Brass Case) Scale Overlays - Red, Green, Mirrored or combination. Specify Locations								
Available with brass case only																																	<b>Accessories</b> A-298 Flat Flush Mounting Bracket A-309 3-way Manifold Valve A-314 Bleed Fitting A-370 Mounting Bracket A-471 Portable Kit A-496 Flush Mount Bracket A-610 Pipe Mount Kit		<b>Options</b>  Add Options as Suffix, Example 4001-ASF -ASF (Adjustable Signal Flag) B (Brass Case) Scale Overlays - Red, Green, Mirrored or combination. Specify Locations		<b>Options</b>  Add Options as Suffix, Example 4001-ASF -ASF (Adjustable Signal Flag) B (Brass Case) Scale Overlays - Red, Green, Mirrored or combination. Specify Locations		

\*These ranges available for vertical scale position only.

†These ranges use Spirahelic® movement.



Series  
2-5000

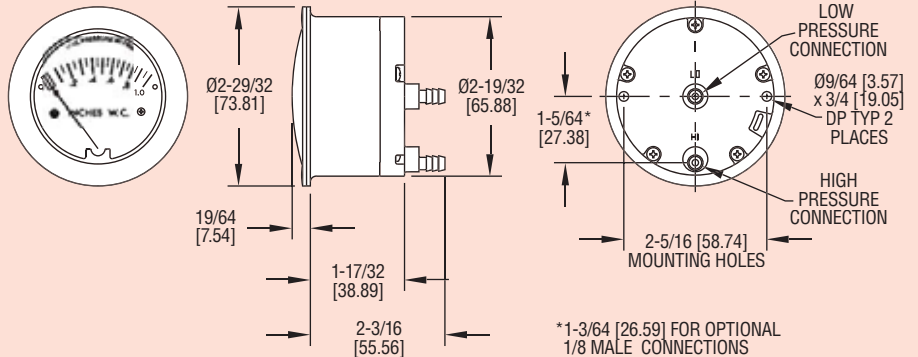
# Minihelic® II Differential Pressure Gages

Combining High Accuracy, Compactness, Dependability, and Low Cost



Patent No. 4,347,744

The Series 2-5000 Minihelic® II low differential pressure gage provides excellent readability in a compact size.



Dimensions, Series 2-5000 Minihelic® II Gage.

**Combining clean design**, small size and low cost with enough accuracy for all but the most demanding applications our Minihelic® II gage offers the latest in design features for a dial type differential pressure gage. It is our most compact gage but is easy to read and can safely operate at total pressures up to 30 psig. The Minihelic® II is designed for panel mounting in a single 2" diameter hole. Standard pressure connections are barbed fittings for  $3/16$ " I.D. tubing; optional  $1/8$ " male NPT connections are also available. Over-pressure protection is built into the Minihelic® II gage by means of a blow-out membrane molded in conjunction with the diaphragm. Accidental over-ranging up to the rated total pressure will not damage the gage. With removable lens and rear housing, the gage may be easily serviced at minimum cost.

With the housing molded from mineral and glass filled nylon and the lens molded from polycarbonate, the gage will withstand rough use and exposure as well as high total pressure. The 5% accuracy and low cost of the Minihelic® II gage make it well-suited for a wide variety of OEM and user applications. OEM applications include cabinet air purging, medical respiratory therapy equipment, air samplers, laminar flow hoods, and electronic air cooling systems. As an air filter gage, the Minihelic® II finds many end use applications on large stationary engines, compressors, ventilators, and air handling units. The

Minihelic® II gage is suitable for many of the same applications as the Magnehelic® gage where the greater accuracy, sensitivity, and higher and lower differential pressure ranges of the Magnehelic® gage are not required.

## SPECIFICATIONS

**Service:** Air and compatible gases.

**Wetted Materials:** Consult factory.

**Housing:** Glass filled nylon; polycarbonate lens.

**Accuracy:**  $\pm 5\%$  of full scale at 70°F (21.1°C).

**Pressure Limits:** 30 psig (2.067 bar) continuous to either pressure connection.

**Temperature Limits:** 20 to 120°F (-6.67 to 48.9°C).

**Size:** 2-1/16" (52.39 mm) diameter dial face.

**Mounting Orientation:** Diaphragm in vertical position. Consult factory for other position orientations.

**Process Connections:** Barbed, for  $3/16$ " I.D. tubing (standard);  $1/8$ " male NPT (optional).

**Weight:** 6 oz (170.1g).

**CAUTION: FOR USE ONLY WITH AIR OR COMPATIBLE GASES.**

## PRESSURE CONNECTIONS



**A** The standard Minihelic® II gage is supplied with two barbed pressure taps molded into the rear housing of the gage. These connections allow easy, fast connection to the gage using  $3/16$ " I.D. rubber or plastic tubing.

**B** For applications in systems having higher total operating pressures, optional male  $1/8$ " NPT pressure connections can be supplied.

Note the oblong over-pressure vent hole on the back of the gage at the right of the connections. This vent is sealed by a membrane molded in conjunction with the diaphragm and will blow out at approximately 75 psi.



# Simplicity of Design Ensures Reliable Operation

**Housing** is molded from strong mineral and glass filled nylon.

**Pointer stops** of molded rubber prevent pointer over-travel without damage.

**Full view lens** is removable and molded of tough polycarbonate.

**Aluminum scale** litho-printed black on white, enhances readability.

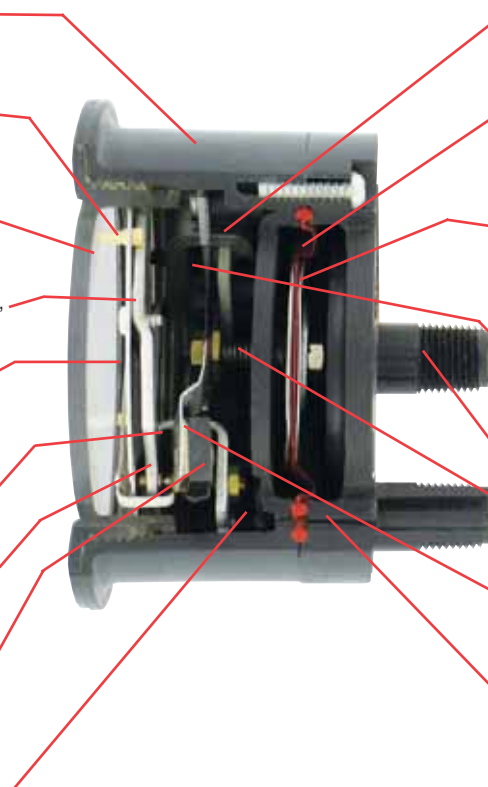
**Red tipped aluminum pointer**, rigidly mounted to helix is easy to see.

**Wishbone assembly** provides mounting for helix, helix bearings, and pointer shaft.

**Jewel bearings** provide virtually friction-free helix motion.

**Helix** is free to rotate in jewel bearings. It aligns with magnetic field of magnet to transmit pressure indications to pointer.

**Zero adjustment screw**, located behind the removable lens, eliminates tampering.



**Range spring calibration clamp** fixes live length of spring for proper gage calibration and is factory set and sealed.

**Silicone rubber diaphragm** allows accurate response to a broad range of temperatures and at extremely low pressure. Incorporates blow out area for overpressure protection.

**Diaphragm support plates** of lightweight aluminum on each side of the diaphragm minimize position or attitude sensitivity and help define pressure area.

**Flat leaf range spring** reacts to pressure on the diaphragm. Live length is adjustable for calibration. Small amplitude of motion minimizes inaccuracies and assures long life.

**Low pressure tap** connects to rear chamber.

**Coil spring link** provides a resilient connection between the diaphragm and the range spring.

**Ceramic magnet** mounted on a molded bracket at the end of the range spring rotates the helix without direct mechanical linkage.

**High pressure tap** connects with the front chamber through passageway in the plastic case and a sealing ring molded into the edge of the diaphragm.

Patent No. 4,347,744

## PANEL MOUNTING



Mounting hardware is supplied with the MiniHelic® II gage for panel mounting through a single hole, 2-5/8" (67 mm) in diameter. Panel thickness up to 1/2" (13 mm) can be accommodated with the hardware supplied. If necessary, surface mounting of the gage can be accomplished by means of two 4-40 screws into the tapped mounting bracket stud holes in the rear of the gage. Surface mounting requires clearance holes in the panel for the two pressure taps.

## MODELS

Model Number	Range, Inches of Water	Model Number	Range, PSI	Model Number	Range, MM of Water
2-5000-0	0-0.5	2-5205 2-5210 2-5215 *2-5230	0-5 0-10 0-15 0-30	2-5000-25MM	0-25
2-5001	0-1.0			2-5000-50MM	0-50
2-5002	0-2.0			2-5000-100MM	0-100
2-5003	0-3.0				
2-5005	0-5.0				
2-5010	0-10				
2-5020	0-20				
2-5040	0-40				
2-5060	0-60				
2-5100	0-100				
<b>Accessories</b>					
A-434 Portable Kit . . . . .			*THIS RANGE EMPLOYS SPIRALLY WOUND BERYLLIUM COPPER BOURDON TUBE POINTER DRIVE MECHANISM. NOTE: CONSULT FACTORY REGARDING AVAILABILITY OF ADDITIONAL RANGES.		
A-497 Surface Mtg. Brkt. . . . .					
A-609 Air Filter Kit . . . . .					
				Model Number	Range, Pascals
				2-5000-125Pa	0-125
				2-5000-250Pa	0-250
				2-5000-500Pa	0-500
				Model Number	Range, kPa
				2-5000-1 kPa	0-1
				2-5000-3 kPa	0-3

For optional 1/8" male NPT connections, add suffix -NPT to model numbers listed above. Example: 2-5001-NPT. No extra charge.

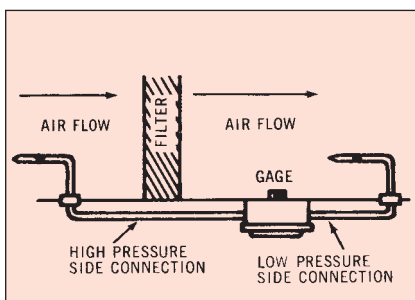


# Typical Gage Applications — and Ideas

## For Magnehelic®, Capsuhelic® and Minihelic® Gages

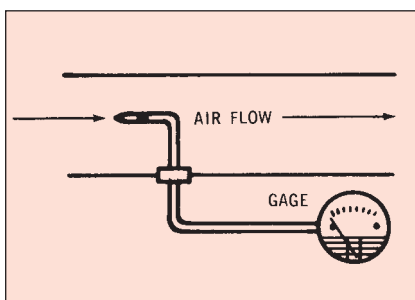
These applications serve only to suggest the wide range of applications served by the versatile Magnehelic®, Capsuhelic® and Minihelic® series of low pressure gages.

Although many of the applications obviously solve problems for users of air conditioning, heating and ventilating equipment, a number of others involve monitoring low pressures in pollution control devices, clean rooms, fluidic systems, medical-surgical patient care equipment and similar uses.



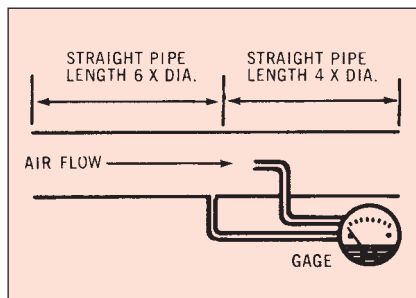
## As a gage to check air filters

Magnehelic® or Minihelic® gages provide an instant visual indication when filters need servicing. Select a model with range appropriate to the filter manufacturer's recommendation for maximum permissible pressure drop across a filter. Install a gage with a red pointer flag (an option), to be set at the maximum allowable pressure drop point for air volume being handled. This assures easy reading of the gage, even by relatively inexperienced operators.



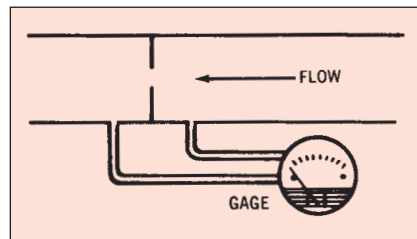
## To sense static pressure

For the most accurate measurement of static pressure in an air stream, use a Magnehelic® or Minihelic® gage connected to a static pressure tip such as Dwyer Model A-301. The next most accurate pick-up is a smooth, burr-free soldered connection flush with the inside surface of the duct. Only slightly less accurate is a simple connection such as the Dwyer Model A-307.



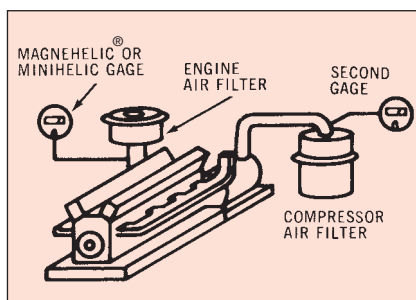
## To measure air velocity

Connect a Magnehelic® or Minihelic® gage to a pitot tube in the air stream. Or, the simple alternative method pictured above shows a static tap plus a simple tube installed in the center of duct to pick up total pressure. The differential pressure reading on the gage is center velocity pressure which may be converted to air velocity.



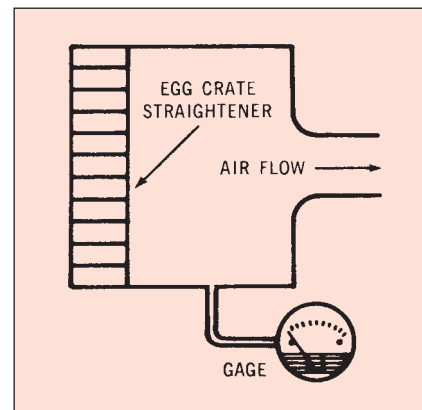
## To determine flow

In this set-up, the Magnehelic® or Minihelic® gage measures the pressure drop across a sharp-edged orifice plate. Details regarding available sizes, ranges, installation, and limitations are available from orifice plate manufacturers and from standard handbooks.



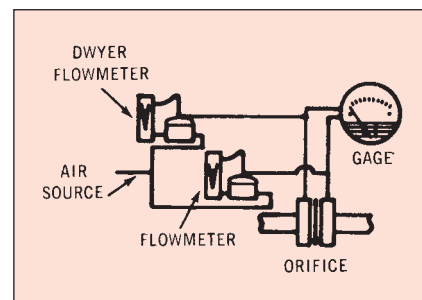
## To monitor engine or compressor air filters

Gage gives continual reading of air pressure drop across filter and signals need for cleaning or replacement of filter. Gage is installed with negative or low pressure port connected to intake pipe between filter and engine or compressor. A Capsuhelic® gage can be used to monitor pressure drop across the oil filter.



## Air volume measurement

An elliptical flow nozzle with an egg crate air straightener located upstream provides an accurate, easily constructed air volume measurement system. Air velocity distribution at the point of discharge across the outlet of the nozzle is uniform; static pressure is zero. Consequently, the total pressure upstream from the nozzle is the velocity pressure at the nozzle outlet — and the volume of flow is easily calculated.



## As an orifice meter

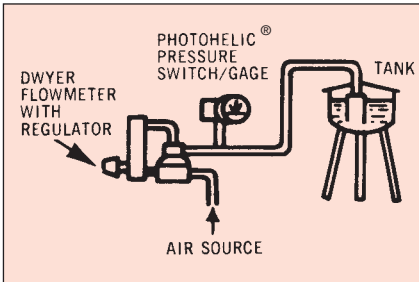
Magnehelic® or Minihelic® gages can be used as orifice meters by purging the orifice with air pressure to protect gage from direct contact with fluid or to prevent clogged meter lines. Gage is shown connected to two Dwyer flowmeters with constant differential pressure regulators — one for the low pressure tap line and one for the high pressure side. (Capsuhelic® gage may be used without purge on compatible liquid streams.)



The low pressure people®

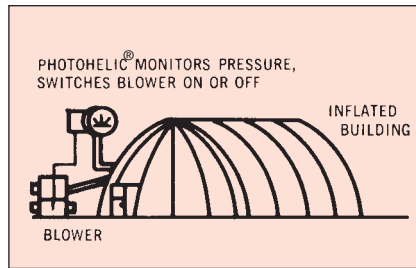
## For Photohelic® and Capsu-Photohelic® Gages

Dwyer Photohelic® and Capsu-Photohelic® switch/gages furnish all the advantages of the Magnehelic® gage plus one or two easily set pressure switches with visible set point indicators. The switches provide an electrical signal to operate audio or visual alarms or control motors, fans, valves and other equipment with reliable accuracy.



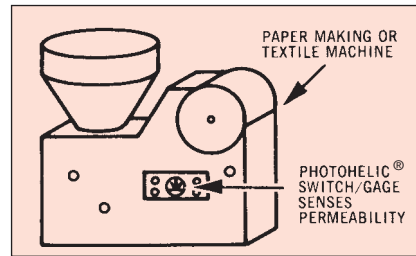
### To measure liquid level

Use a Photohelic®, Magnehelic® or Minihelic® gage in conjunction with a Dwyer flowmeter with constant differential pressure regulator as shown. The flowmeter provides constant rate of purge air to dip tube. Changes in liquid level affect head, causing static pressure changes inside the tube. These changes are sensed by the gage. Using the same configuration, specific gravity changes can be detected in the liquid if level is kept constant. Using a Dwyer Photohelic® pressure switch/gage instead of the Magnehelic® permits both measuring and controlling liquid level plus easily changing the level control settings.



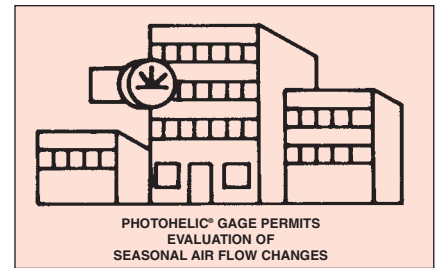
### To control pressure in air-inflated buildings

Photohelic® switch/gage senses over-pressure that may extend building, or loss of pressure that may cause collapse, and controls the blower to maintain correct pressure. The Photohelic® gage is easily reset to conserve power — or provide extra pressure to resist strong winds.



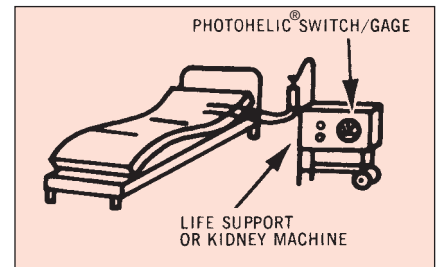
### To control material weight

On paper making or textile machinery, a Photohelic® switch/gage controls weight of material gathered by sensing pressure changes caused by changes in permeability and thickness of the material.



### Monitor air conditioning systems

Adjustments in air flow due to seasonal changes may require resetting the control points on a regular basis. The Photohelic® can monitor pressures through the gage portion and permits accumulation of operating data. This is useful in adjusting operation of variable pressure and volume systems and in making system changes when necessary.



### For life support or kidney machines

Photohelic® switch/gage controls pressure on circulating system of machine and alarms in event of too high or low pressure.

# Special Models for OEM Requirements - Customized for You

Offered in a wide variety of designs, features and scales.

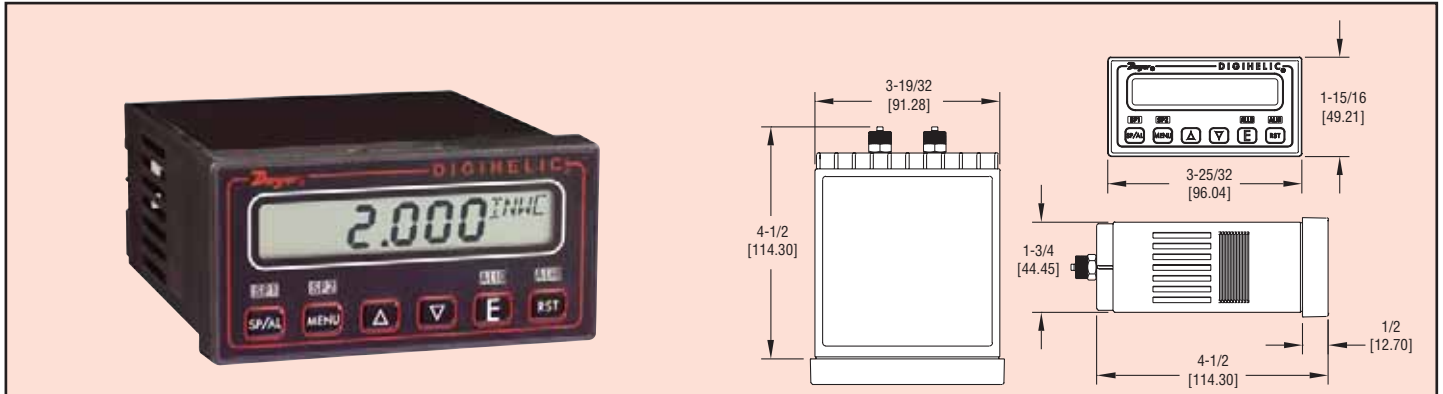
Special gage designs can be supplied to meet a wide range of OEM requirements and specific application needs from 1/2" WC to 12,000 psi. Custom scales and private brand identification can easily be furnished. These include: additional contacts on Photohelic® switch/gage, external replaceable diaphragm on Photohelic® switch/gage, 80 psi total pressure units, chrome or specially painted bezels, glass and metal fronts, special ranges and calibrations, dual scales, reflective scales, special cleaning, OEM identification and small portable Bourdon tube units. For specific information please contact our customer service department.



Series  
DH

# Digihelic® Differential Pressure Controller

3-in-1 Instrument: Gage, Switch and Transmitter



The Dwyer Series DH Digihelic® Differential Pressure Controller is a 3-in-1 instrument possessing a digital display gage, control relay switches, and a transmitter with current output. Combining these three features allows the reduction of several instruments with one product, saving inventory, installation time and money. The Digihelic® is the ideal instrument for pressure, velocity and flow applications, achieving a 0.5% full scale accuracy on ranges from 5 to 100 in. w.c.

The Digihelic® allows the selection of pressure, velocity or volumetric flow operation in several commonly used engineering units. Two SPDT control relays with adjustable dead bands are provided along with a scalable 4-20mA process output. The Series DH provides extreme flexibility in power usage by allowing 120/220 VAC and also 24 VDC power which is often used in control panels.

Programming is easy using the menu key to access five simplified menus which provide access to: security level; selection of pressure, velocity or flow operation; selection of engineering units; K-factor for use with flow sensors; rectangular or circular duct for inputting area in flow applications; set point control or set point and alarm operation; alarm operation as a high, low or high/low alarm; automatic or manual alarm reset; alarm delay; view peak and valley process readings; digital dampening for smoothing erratic process applications; scaling the 4-20mA process output to fit your application's range; Modbus® communications; and field calibration.

With all this packed into one product it is easy to see why the Digihelic® is the only instrument you will need for all your pressure applications.

## APPLICATIONS

- Dust Collection Bag Filters
- SCFM Flow In Ducts
- Air Flow for Industrial Ovens
- Filter Status
- Clean Room Pressure
- Fume Hood Air Flow
- Pharmaceutical or Bio-Medical Glove Box Pressures
- Static Pressures in Ducts or Buildings
- Damper Control
- Fan Control

## SPECIFICATIONS

**Service:** Air and non-combustible, compatible gases.

**Wetted Materials:** Consult factory.

**Housing Material:** ABS plastic, UL approved 94-V-0.

**Accuracy:** ±0.5% at 77°F (25°C) including hysteresis and repeatability.

**Stability:** < ±1% per year.

**Pressure Limits:** Ranges ≤ 2.5 in. w.c. = 2 psi

5": 5 psi; 10": 5 psi; 25": 5 psi; 50": 5 psi; 100": 9 psi.

**Temperature Limits:** 32 to 140°F (0 to 60°C).

**Compensated Temperature Limits:** 32 to 140°F (0 to 60°C).

**Thermal Effects:** 0.020%/°F (0.036%/°C) from 77°F (25°C).

**Power Requirements:** High Voltage Power = 100 to 240 VAC, 50 to 400 Hz or 132 to 240 VDC.

Low Voltage Power = 24 VDC ±20%.

**Power Consumption:**

Low Voltage Power = 24 VDC - 130 mA max.

High Voltage Power = 100 to 240 VAC, 132 to 240 VDC - 7VA max.

**Output Signal:** 4-20 mA DC into 900 ohms max.

**Zero & Span Adjustments:** Accessible via menus.

**Response Time:** 250 ms.

**Display:** 4 digit LCD 0.4" height.

LED indicators for set point and alarm status.

**Electrical Connections:** Screw terminals.

**Process Connections:** Compression fitting for use with 1/8" ID X 1/4" OD tubing (3.175 mm ID x 6.35 mm OD).

**Enclosure Rating:** Face designed to meet NEMA 4X (IP66).

**Mounting Orientation:** Mount unit in horizontal plane.

**Size:** 1/8 DIN.

**Panel Cutout:** 1.772 x 3.620 in (45 x 92 mm).

**Weight:** 14.4 oz. (408 g).

**Serial Communications:** Modbus® RTU, RS485, 9600 Baud.

**Agency Approvals:** CE, UL.

## SWITCH SPECIFICATIONS

**Switch Type:** 2 SPDT relays.

**Electrical Rating:** 8 Amps at 240 VAC resistive.

**Set Point Adjustment:** Adjustable via keypad on face.

*Modbus® is a registered trademark of Schneider Automation.*

# One Control for all your Pressure Applications

Reduces Instruments, Inventory, Installation Time and Cost

**Compact** 1/8 DIN housing reduces panel space.

**Set Point** Status LED Indicators display set point activation. Allows user to view process status from a distance.

**"Hot Key"** saves time by allowing instant access to set point and alarms. Set points/alarms can be easily adjusted with arrow keys.

**Menu Key** Scrolls through menus to adjust settings. 5 simple menus allow for quick set-up and reduced installation time.

**Adjustable clip** for panel mounting

**Set point 2** or alarm output (SPDT). Selectable direct acting control relay with adjustable deadband or high, low or high low alarm.

**4-20 mA** process output. View process remotely or send signal to PLC. Alleviates purchase of a separate transmitter.

**24 VDC** power supply. Universal power supply eliminates options, inventory and ordering mistakes.



**Selectable** Engineering Units in Pressure, Velocity or Flow, programmed on one unit. Alleviates time consuming conversions and flow charts

**Alarm** LED Indicator shows alarm activation status. View alarm status from a distance.

**Reset button** for clearing an alarm when alarm is set for manual operation.

**Enter** a menu or store a value. From home display press to view full scale range.

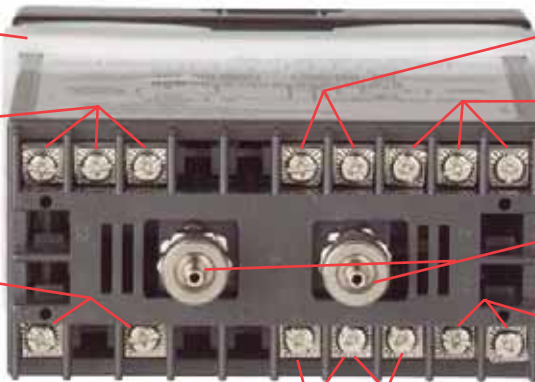
**120-240 VAC** power supply. Reduce inventory and eliminate lead times with universal power supply.

**Set point 1** output (SPDT). Direct or reverse acting control relay with adjustable deadband.

**Durable compression fittings** for 1/4" O.D. x 1/8" I.D. plastic tubing. Secures tubing in harsh applications where vibration & temperature fluctuations occur.

**RS-485** serial communications. View, record, and adjust control settings remotely from a computer with Modbus® protocol.

**Remote reset switch** for alarm. Acknowledge alarm from remote location. For users that need quick alarm reset from a distance.



## MODELS

Available Pressure Engineering Units												
Model No.	in. wc	ft. wc	mm wc	cm wc	psi	in. Hg	mm Hg	mbar	Pa	kPa	hPa	oz. in.
DH-002	.2500		6.350	0.635			0.467	0.623	62.28		0.623	0.144
DH-004	1.000		25.40	2.540			1.868	2.491	249.1	0.249	2.491	0.578
DH-006	5.000	.4167	127.0	12.70	.1806	.3678	9.342	12.45	1245	1.245	12.45	2.890
DH-007	10.00	.8333	254.0	25.40	.3613	.7356	18.68	24.91	2491	2.491	24.91	5.780
DH-008	25.00	2.083	635.0	63.50	.9032	1.839	46.71	62.27	6227	6.227	62.27	14.45
DH-009*	50.00	4.167	1270	127.0	1.806	3.678	93.42	124.5		12.45	124.5	28.90
DH-010*	100.0	8.333	2540	254.0	3.613	7.356	186.8	249.1		24.91	249.1	57.80

**Bi-Directional\*** Ranges also available: **DH-012** Range: 0.25 - 0 - 0.25" w.c.

**DH-014** Range: 1.0 - 0 - 1.0" w.c.

**DH-015** Range: 2.5 - 0 - 2.5" w.c.

**DH-016** Range: 5 - 0 - 5" w.c.

**DH-017** Range: 10 - 0 - 10" w.c.

\*Velocity and volumetric flow not available on bi-directional range units and models DH-009 & DH-010.

## ACCESSORIES

The Mother Node™ converter is an easy solution for utilizing the Digihelic's® RS-485 serial communication and connecting to virtually any PC.

**351-9N**, Mother Node™ silver RS-232 to RS-485 Converter with DB9F Connector.

**351-9**, Mother Node™ silver RS-232 to RS-485 Converter with DB9F Connector. Includes 120 VAC to 12 VDC adapter.

**A-266**, Digihelic® surface mounting bracket.

**A-203**, 1/8" I.D. x 1/4" O.D. PVC tubing.



Series  
A3000

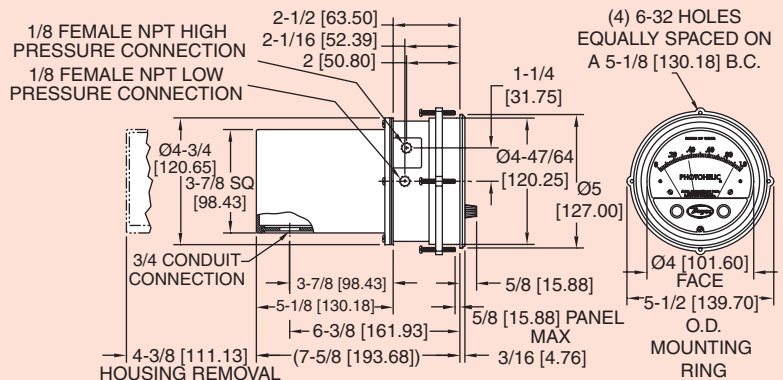
# Photohelic® Pressure Switch/Gages

## 3-in-One Indicating Gage, Lo-Limit and Hi-Limit Control



Series A3000  
Photohelic®  
Switch/Gage.

Set points are instantly  
adjusted with front knobs.



**Photohelic® Switch/Gages** function as versatile, highly repeatable pressure switches combined with a precise pressure gage employing the time-proven Magnehelic® design. The Photohelic® measures and controls positive, negative or differential pressures of air and compatible gases. Standard models are rated to 25 psig (1.7 bar) with options to 35 (2.4) or 80 (5.5 bar) psig. Single pressure 36000S models measure to 6000 psig (413 bar) with a 9000 psig (620 bar) rating.

Two phototransistor actuated, DPDT relays are included for low/high limit control. Easy to adjust setpoint indicators are controlled by knobs located on the gage face. Individual setpoint deadband is one pointer width – less than 1% of full scale. Setpoints can be interlocked to provide variable deadband – ideal for control of fans, dampers, etc. Gage reading is continuous and unaffected by switch operation, even during loss of electrical power. Choose from full scale pressure ranges from a low 0-.25" (0-6 mm) w.c. up to 30 psi (21 bar); single positive pressure to 6000 psig (413 bar).

### PHOTOHELIC SENSING — HOW IT WORKS

In typical applications, these Dwyer switch/gages control between high and low pressure set points. When pressure changes, reaching either set point pressure, the infrared light to the limiting phototransistor is cut off by the helix-driven light shutter. The resulting phototransistor signal is electronically amplified to actuate its DPDT slave relay and switching occurs. Dead band between make and break is 1% of full scale or less – just enough to assure positive, chatter-free operation.

### RELAY-TRANSFORMER FEATURES

A plastic housing protects all electronic components. Solid-state and integrated circuit electronics are on glass-epoxy printed circuit boards and self-extinguishing terminal boards (for the Series A3000 only).

### APPLICATIONS — PHOTOHELIC SWITCH/GAGES

In both series of pressure switch/gages, you get the convenience of a visual indication plus high-low limit switching. For both OEM and in-plant applications, the Photohelic® switch/gage is used to control pressures in air conditioning systems, clean rooms, fluidic and pneumatic control systems, materials handling equipment, alarm or control fume exhaust systems, control pressure in air structures, and monitor respiratory and blood pressures.

### SPECIFICATIONS

#### GAGE SPECIFICATIONS

**Service:** Air and non-combustible, compatible gases.

**Wetted Materials:** Consult factory.

**Accuracy:** ±2% of full scale at 70°F (21.1°C). ±3% on -0 and ±4% on -00 models.

**Pressure Limits:** -20" Hg. to 25 psig (-0.677 to 1.72 bar). MP option; 35 psig (2.41 bar), HP option; 80 psig (5.52 bar). 36003S – 36010S; 150 psig (10.34 bar). 36020S and higher; 1.2 x full scale pressure.

**Temperature Limits:** 20 to 120°F.

(-6.67 to 48.9°C) Low temperature option available.

**Process Connections:** 1/8" female NPT.

**Size:** 4" (101.6 mm) dial face, 5" (127 mm) O.D. x 8-1/4" (209.55 mm).

**Weight:** 4 lb (1.81 kg).

#### SWITCH SPECIFICATIONS

**Switch Type:** Each setpoint has 2 Form C relays (DPDT).

**Repeatability:** ±1% of full scale.

**Electrical Rating:** 10A @ 28 VDC, 10A @ 120, 240 VAC.

**Electrical Connections:** Screw terminals. Use 167°F (75°C) copper conductors only.

**Power Requirements:** 120 VAC, 50/60 Hz; 240 VAC & 24 VAC Power optional.

**Mounting Orientation:** Diaphragm in vertical position. Consult factory for other position orientations.

**Set Point Adjustment:** Adjustable knobs on face.

**Agency Approvals:** UL, CSA, CE.

### STANDARD MODEL

Two phototransistor-actuated circuits and two DPDT relays permit both high and low alarms or limit controls. Relays are de-energized when gage pointer is to the left of respective set points; relays are energized as pointer passes to the right of set points. Loss of electrical power or loss of pressure provide "fail safe" protection.

### OPTIONS

**Single contact,** right set point, for actuation on increasing or decreasing pressure.

**OEM Model,** less relay and transformer components and housing but including infrared diodes and phototransistor(s), light shutter and set pointer(s). For single or double contact.

**Remote-Mounted Relay,** relay pack may be mounted remotely from gage. Standard length is 5 ft. For other lengths, specify cable length required.

**Tamper-proof knobs,** low temperature option, special scales, voltages and other features and modifications are available.

**Special Housings** available include Weatherproof (NEMA 4) and Explosion-proof (NEMA 7 CD, 9 EFG; NEC Class I, Div. 1 & 2, Groups C, D, Class II, Div. 1 & 2, Groups E, F, G, Class III. Contact Customer Service for detailed dimension drawings.

### HIGH AND LOW LATCHING CIRCUITS

Dwyer Photohelic® switch/gages can be wired for **high-latching**, **low-latching** or combination **high-low latching** circuits. That is, the equipment will hold in these respective positions once activated and until manually reset. This can be particularly useful for alarm and signal applications where control is accomplished by another Photohelic® switch/gage or other means. Complete wiring and operational instructions are included. Where manual reset is required a dry circuit push button such as Dwyer Part A-601 should be used.

# Check these features for dependable control

**Bezel and front cover** (with set point knobs and zero adjustment screw) removed to expose Photohelic® set point mechanism. Cover is clear polycarbonate plastic.

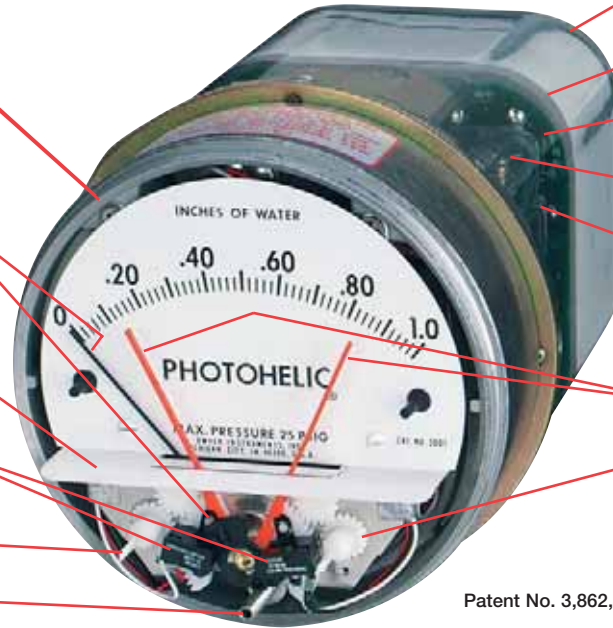
**Gage pointer and light shutter** are mounted on helix and balancing counterweight. Shutter passes through slot in optical limit switch to expose phototransistors to integral infrared light source or mask them depending on applied pressure.

**Light shield** effectively protects phototransistors from strong outside light sources yet allows free pointer movement. It also gives interior a clean "finished" look.

**Optical limit switches** are used for reliability and long service life. Attached directly to set pointers, they are individually aligned to assure precise switching accuracy.

**Semi-Flexible drive shaft** connects to set point knobs.

**Zero adjustment screw** connects to screw in cover to adjust zero pressure reading.



**Plastic enclosure** protects electronic components and electrical connections.

**Polycarbonate connection** or terminal board is self-extinguishing (A3000 only).

**Glass-epoxy printed circuit boards** for durability and performance.

**Load relays** are DPDT with latching feature for maximum application versatility.

**Electronics** are designed to operate on 50/60 Hz, 120 volt current with 10% over or under voltage. Special units for other voltages are available.

**Switch set pointers** show switch settings at all times.

**Spring loaded friction clutch** prevents operator damage of set point mechanism.

Patent No. 3,862,416



## MODELS AND RANGES — SERIES A3000 PHOTOHELIC® SWITCH/GAGES

**NOTE:** Special models can be built to OEM customers' specifications with scales reading in special pressure units like ounces per square inch, inches of mercury, etc. Square Root Scales reading in FPM or SCFM are also available. Custom logos and special graduations can also be included. Contact factory for minimum quantities and pricing.

### MODELS

Model Number	Range, In W.C.	Model Number	Range, PSI	Model Number	Range, MM W.C.	Model Number	Range, Pascals
A3000-00	0-.25	A3201	0-1	A3000-6MM	0-6	A3000-60PA	0-60
A3000-0	0-.50	A3202	0-2	A3000-10MM	0-10	A3000-125PA	0-125
A3001	0-1.0	A3203	0-3	A3000-25MM	0-25	A3000-250PA	0-250
A3002	0-2.0	A3204	0-4	A3000-50MM	0-50	A3000-500PA	0-500
A3003	0-3.0	A3205	0-5	A3000-80MM	0-80	A3000-750PA	0-750
A3004	0-4.0	A3210**	0-10	A3000-100MM	0-100		
A3005	0-5.0	A3215**	0-15	Zero Center Ranges		Zero Center Ranges	
A3006	0-6.0	A3220**	0-20	A3300-20MM	10-0-10	A3300-250PA	125-0-125
A3008	0-8.0	A3230***	0-30	A3300-30MM	15-0-15	A3300-500PA	250-0-250
A3010	0-10	**MP or ***HP option standard		Model Number		Model Number	
A3015	0-15	Photohelic®— Single Pressure		Range, CM W.C.		Range, Kilopascals	
A3020	0-20	A36003S	0-30	A3000-15CM	0-15	A3000-1kPA	0-1
A3025	0-25	A36006S	0-60	A3000 20CM	0-20	A3000-1.5kPA	0-1.5
A3030	0-30	A36010S	0-100	A3000-25CM	0-25	A3000-2kPA	0-2
A3040	0-40	A36020S	0-200	A3000-50CM	0-50	A3000-3kPA	0-3
A3050	0-50	A36030S	0-300	A3000-80CM	0-80	A3000-4kPA	0-4
A3060	0-60	A36060S	0-600	A3000-100CM	0-100	A3000-5kPA	0-5
A3080	0-80	A36100S	0-1000	A3000-150CM	0-150	A3000-8kPA	0-8
A3100	0-100	A36300S	0-3000	A3000-200CM	0-200	A3000-10kPA	0-10
A3150	0-150	A36500S	0-5000	A3000-250CM	0-250	A3000-15kPA	0-15
<b>Bi-Directional Range</b>				A3000-300CM	0-300	A3000-20kPA	0-20
A3000-00N	.05-.20			Zero Center Ranges		A3000-25kPA	0-25
						A3000-30kPA	0-30
Zero Center Ranges		Model Number	Range In W.C./ Air Velocity, F.P.M.	Zero Center Ranges		Zero Center Ranges	
A3300-0	.25-0-.25	A3000-00AV	0-25/300-2000	A3300-4CM	2-0-2	A3300-1kPA	.5-0-.5
A3301	.5-0-.5	A3000-0AV	0-50/500-2800	A3300-10CM	5-0-5	A3300-3kPA	1.5-0-1.5
A3302	1-0-1	A3001AV	0-1.0/500-4000	A3300-30CM	15-0-15		
A3304	2-0-2	A3002AV	0-2.0/1000-5600	<b>Options and Accessories</b> — Add options as a suffix. Example: A3001-LT			
A3310	5-0-5	A3010AV	0-10/2000-12500	-SRH, Single Relay Activates on Increase .....	-MP, Medium pressure .....		
A3320	10-0-10			-SRL, Single Relay Activates on Decrease .....	-HP, High pressure .....		
A3330	15-0-15			-OLS, OEM model .....	-LT, Low temperature (-20°F) .....		
				-RMR, Remote mounted relay .....	A-298 Flat Flush Mounting Bracket .....		
				-TAMP, Tamper proof knobs .....	A-601, Manual reset switch .....		

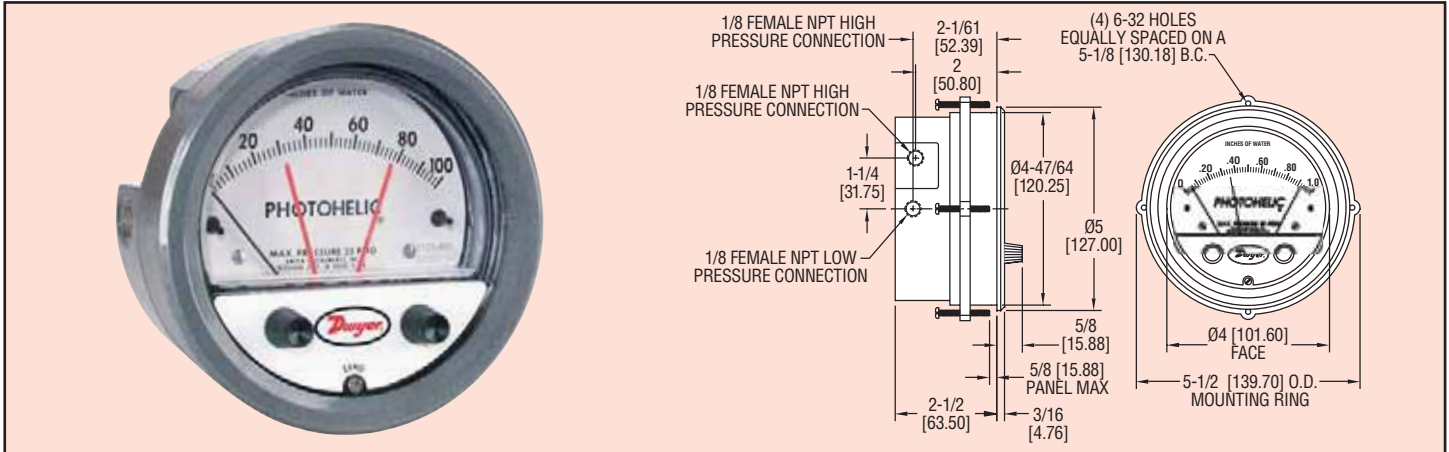
Pitot tube required



Series  
3000MR  
3000MRS

# Photohelic® Switch/Gages

Combines Differential Pressure Gage with Low/High Set-points



Using solid state technology, the Series 3000MR and 3000MRS Photohelic® switch/gages combine the functions of a precise, highly repeatable differential pressure switch with a large easy-to-read analog pressure gage employing the durable, time-proven Magnehelic® design. Switch setting is easy to adjust with large external knobs on the gage face. Gage reading is unaffected by switch operation — will indicate accurately even if power is interrupted. Solid state design now results in greatly reduced size and weight. Units can be flush mounted in 4-13/16" (122 mm) hole or surface mounted with hardware supplied. 3000MR models employ versatile electromechanical relays with gold over silver contacts — ideal for dry circuits. For applications requiring high cycle rates, choose 3000MRS models with SPST (N.O.) solid state relays. All models provide both low and high limit control and include 18-inch (45 cm) cable assemblies for electrical connections.

Gage accuracy is  $\pm 2\%$  of full scale and switch repeatability is  $\pm 1\%$ . Switch deadband is one pointer width — less than 1% of full scale. Compatible with air and other non-combustible, non-corrosive gases, they can be used in systems with pressures to 25 psig (1.725 bar). Optional construction is available for use to either 35 psig (2.42 bar) or 80 psig (5.51 bar).

#### Included Accessories

Mounting ring, snap ring (4) 6-32 x 1/4" RH machine screws  
18" (45 cm) cable assembly (panel mounting)  
(2) 3/8" tubing to 1/8" NPT adapters (3) 6-32 x 5/16" RH machine screws  
(2) 1/8" NPT pipe plugs (surface mounting)

#### SERIES 3000MR, 3000MRS PHOTOHELIC® MODELS & RANGES

Model Number	Range, Inches w.c.	Minor Divs.	Model Number	Range, Kilopascals	Minor Divs.
3000(MR)(MRS)**-00	0-0.25	.005	3000(MR)(MRS)-1kPa	0-1.0	.02
3000(MR)(MRS)*-0	0-0.5	.01	3000(MR)(MRS)-3kPa	0-3.0	.10
3001(MR)(MRS)	0-1.0	.02	3000(MR)(MRS)-4kPa	0-4.0	.10
3002(MR)(MRS)	0-2.0	.05			
3003(MR)(MRS)	0-3.0	.10	Model Number	Range, MM W.C.	Minor Divs.
3005(MR)(MRS)	0-5.0	.10	3000(MR)(MRS)-6MM*	0-6	.20
3010(MR)(MRS)	0-10	.20	3000(MR)(MRS)-10MM	0-10	.50
3015(MR)(MRS)	0-15	.50	3000(MR)(MRS)-25MM	0-25	.50
3020(MR)(MRS)	0-20	.50	3000(MR)(MRS)-50MM	0-50	1.0
3030(MR)(MRS)	0-30	1.0	3000(MR)(MRS)-100MM	0-100	2.0
3050(MR)(MRS)	0-50	1.0			
3100(MR)(MRS)	0-100	2.0	Model Number	Range, CM W.C.	Minor Divs.
			3000(MR)(MRS)-20CM	0-20	.50
			When ordering, select either MR or MRS suffix to Series 3000 number. Examples: 3001MR or 3001MRS		
	Range, Pascals	Minor Divs.			
	3000(MR)(MRS)-60Pa*	0-60			2.0
	3000(MR)(MRS)-125Pa	0-125			5.0
	3000(MR)(MRS)-250Pa	0-250			5.0
	3000(MR)(MRS)-500Pa	0-500			10.0

\*  $\pm 3\%$  of full scale. \*\*  $\pm 4\%$  of full scale.

#### SPECIFICATIONS

##### GAGE SPECIFICATIONS

**Service:** Air and non-combustible, compatible gases.

**Wetted Materials:** Consult factory.

**Accuracy:**  $\pm 2\%$  of full scale (3000-0  $\pm 3\%$  of full scale). (3000-00  $\pm 4\%$  of full scale).

**Pressure Limit:** -20" Hg. to 25 psig (-0.677 bar to 1.72 bar). MP option; 35 psig (2.41 bar), HP option; 80 psig (5.52 bar).

**Temperature Limits:** 20 to 120°F. (-6.67 to 48.9°C).

**Process Connections:** 1/8 female NPT (duplicated side and back).

**Size:** 4" (101.6 mm) dial face, 5" (127 mm) O.D. x 3-1/8" (79.38 mm).

**Weight:** 1.8 lb (816 g).

##### SWITCH SPECIFICATIONS 3000MR

**Switch Type:** Each setpoint has 2 Form C relays (SPDT).

**Relay Contacts:** (resistive load) 1 Form C rated 1.0A @ 30 VDC, 0.3A @ 110 VDC or 0.5A @ 125 VAC. Gold over clad silver - suitable for dry circuits.

**Electrical Connections:** 18" (46 cm) cable assembly with 8 conductors. Optional lengths to 100' (30.5 m).

**Power Requirements:** 24 VDC, regulated  $\pm 10\%$ .

**Mounting Orientation:** Diaphragm in vertical position. Consult factory for other position orientations.

**Set Point Adjustment:** Adjustable knobs on face.

**Agency Approvals:** CE.

##### SWITCH SPECIFICATIONS 3000MRS

**Switch Type:** Each setpoint has a solid state relay.

**Switching Voltage:** 20-280 VAC (47 - 63 Hz).

**Switching Current:** 1.0 amp (AC) max., 0.01 mA (AC) min., (2) SPST N.O.

**Electrical Connections:** 18" (46 cm) cable assembly with 6 conductors, Optional lengths to 100' (30.5 m).

**Power Requirements:** 24 VDC, regulated  $\pm 10\%$ .

**Mounting Orientation:** Diaphragm in vertical position. Consult factory for other position orientations.

**Set Point Adjustment:** Adjustable knobs on face.

**Agency Approvals:** CE.

#### OPTIONS — ACCESSORIES

**Tamper-proof Knobs,** require spanner type key (supplied) to change set-points. Add suffix **-TAMP**

**Low Temperature Option** for use under 20°F (-6.7°C).

Add suffix **-LT**

**Medium Pressure** increases maximum rated pressure to 35 psig

(2.41 bar). Add suffix **-MP**

**High Pressure** increases maximum rated pressure to 80 psig (5.5 bar). Add suffix **-HP**

**A-298 Flat Aluminum Bracket,** for flush mounting 3000MR/MRS

**A-370 Mounting Bracket,** flush mount 3000MR/MRS bracket. Bracket is then surface mounted. Steel with gray hammertone epoxy finish

**A-600 R/C Snubber:** Recommended for inductive loads like a solenoid or contactor



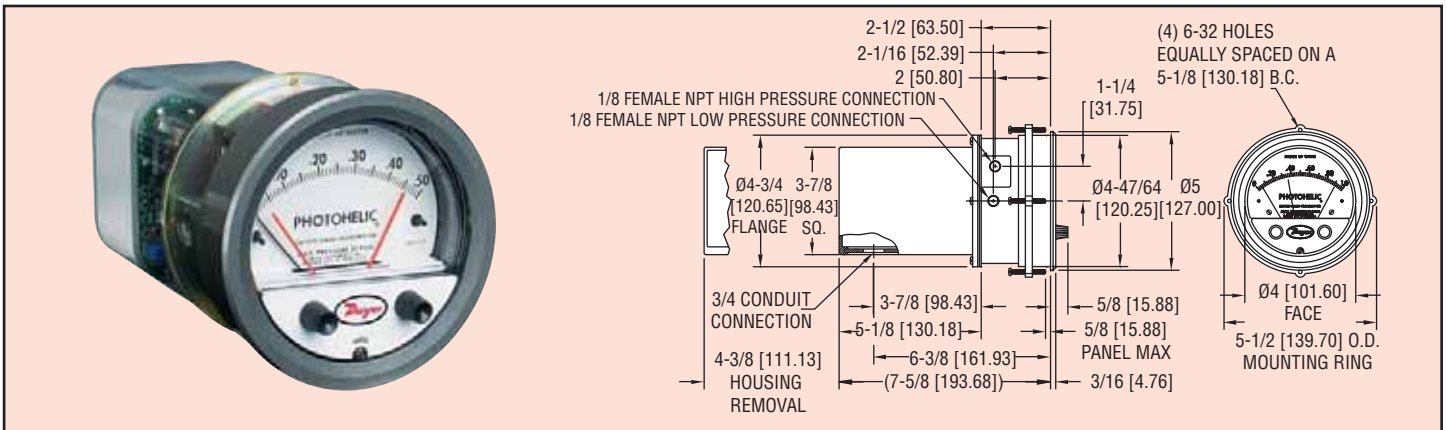


Series  
3000SGT

# Photohelic® Pressure Switch/Gage with Integral Transmitter

Indicating Gage, Low and High Limit Control, 4-20 mA Transmitter

Pressure



The Series 3000SGT Photohelic® Switch/Gage/Transmitter combines several critical control functions into a single, easy-to-install package. This versatile instrument starts with the universally accepted standard for reliable low air pressure measurement, the Dwyer Magnehelic® Gage. It measures positive, negative or differential pressures within ±2% of full scale accuracy. This time-proven component provides highly reliable analog indication of air or compatible gas pressure on a 4", 80° scale. Gage operation is completely independent – functions normally even if power is interrupted to electrical elements of the control.

Next, two DPDT relays are added which serve as Low/High limit controls (or pressure switches) capable of handling up to 10 amps @ 28 VDC or 120/240 VAC directly. Individual setpoint deadband is one pointer width – less than 1% of full scale; just enough to assure positive, chatter-free operation. Integral holding coils enable user to connect the two so they work like a single control with variable deadband – ideal for applications such as clean room and building pressurization, HVAC systems, automatic air filter or level control and much more. Actuation points are fully adjustable over the entire pressure range with convenient front mounted knobs linked to bright red setpoint indicators.

Finally, the Photohelic® SGT includes a separate 4-20 mA, 2-wire transmitter operating from an external 10.0 - 35 VDC power supply. Separate adjustments are included for zero and span inside the rear electronics enclosure. Optional A-700 Power Supply is a perfect companion rated for AC inputs from 100-240V; DC outputs from 24 - 28V. The transmitter component is an ideal driver for variable speed blowers and fans, damper positioners and for continuous data logging on computerized VAV systems or strip chart recorders.

Besides the obvious cost and space saving advantages of combining all these control functions in a single unit, think of the additional savings in time and material with just one set of pneumatic lines to connect instead of three or four.

## SPECIFICATIONS

### GAGE SPECIFICATIONS

**Service:** Air and non-combustible, compatible gases.

**Wetted Materials:** Consult factory.

**Accuracy:** See model chart below.

**Pressure Limits:** See model chart below.

**Temperature Limits:** 20 to 120°F (-6.67 to 48.9°C).

**Process Connections:** 1/8" female NPT.

**Size:** 4" (101.6 mm) dial face, 5" (127 mm) O.D. x 8-1/4" (209.55 mm).

**Weight:** 3 lb, 14.5 oz (1.77 kg).

### SWITCH SPECIFICATIONS

**Switch Type:** Each set point has 2 Form C relays (DPDT).

**Repeatability:** ±1% of full scale.

**Electrical Rating:** 10A @ 24 VDC or 120 VAC, 6A @ 240 VAC.

**Electrical Connections:** Screw terminals.

**Power Requirements:** 120 VAC, ±10%.

**Mounting Orientation:** Diaphragm in vertical position. Consult factory for other position orientations.

**Set Point Adjustment:** Adjustable knobs on face.

### TRANSMITTER SPECIFICATIONS

**Accuracy:** See model chart below.

**Temperature Limits:** 20 to 120°F (-6.67 to 48.9°C).

**Pressure Limits:** See model chart below.

**Thermal Effects:** ±0.025% F.S./°F (0.045% F.S./°C).

**Power Requirements:** 10.0 to 35 VDC (2-wire).

**Output Signal:** 4-20 mA DC.

**Zero & Span Adjustments:** Multi-turn potentiometers, internally accessible.

**Response Time:** 250 mSec.

**Loop Resistance:** 0 - 1250 ohms.

**Current Consumption:** 38 mA DC, maximum.

**Electrical Connections:** Terminal block.

**Warm-up Time:** 10 minutes.

### OPTIONS-ACCESSORIES

**Tamper-Proof Knobs** — Require special spanner-type key (included) to adjust set points. Add suffix **-TAMP**

**A-700 Power Supply** — AC input: 100/120/220/230-240 VAC ±10%, 47-63 Hz. DC output: 24-28 VDC regulated

**A-298 Flat Aluminum Bracket**, for flush mounting 3000SGT

## MODELS

Model Number	Range, In. w.c.	Maximum Pressure	Electrical Accuracy +/-%	Mechanical Accuracy +/-%	Model Number	Range, Pascals	Maximum Pressure	Electrical Accuracy +/-%	Mechanical Accuracy +/-%
3000SGT-0	0-0.5	25 psi (1.7 bar)	2	3	3000SGT-250Pa	0-250	25 psi (1.7 bar)	2	2
3001SGT	0-1.0	25 psi (1.7 bar)	2	2	3000SGT-500Pa	0-500	10 in. w.c. (2.5 kPa)	0.5	2
3002SGT	0-2.0	10 in w.c. (2.5 kPa)	0.5	2					
3003SGT	0-3.0	5 psi (34.5 kPa)	0.5	2					
3006SGT	0-6.0	5 psi (34.5 kPa)	0.5	2					
3010SGT	0-10	5 psi (34.5 kPa)	0.5	2					
3020SGT	0-20	10 psi (69 kPa)	0.5	2					
3030SGT	0-30	10 psi (69 kPa)	0.5	2					
					Model Number	Range, Kilopascals			
					3000SGT-1.5kPa	0-1.5	5 psi (34.5 kPa)	0.5	2

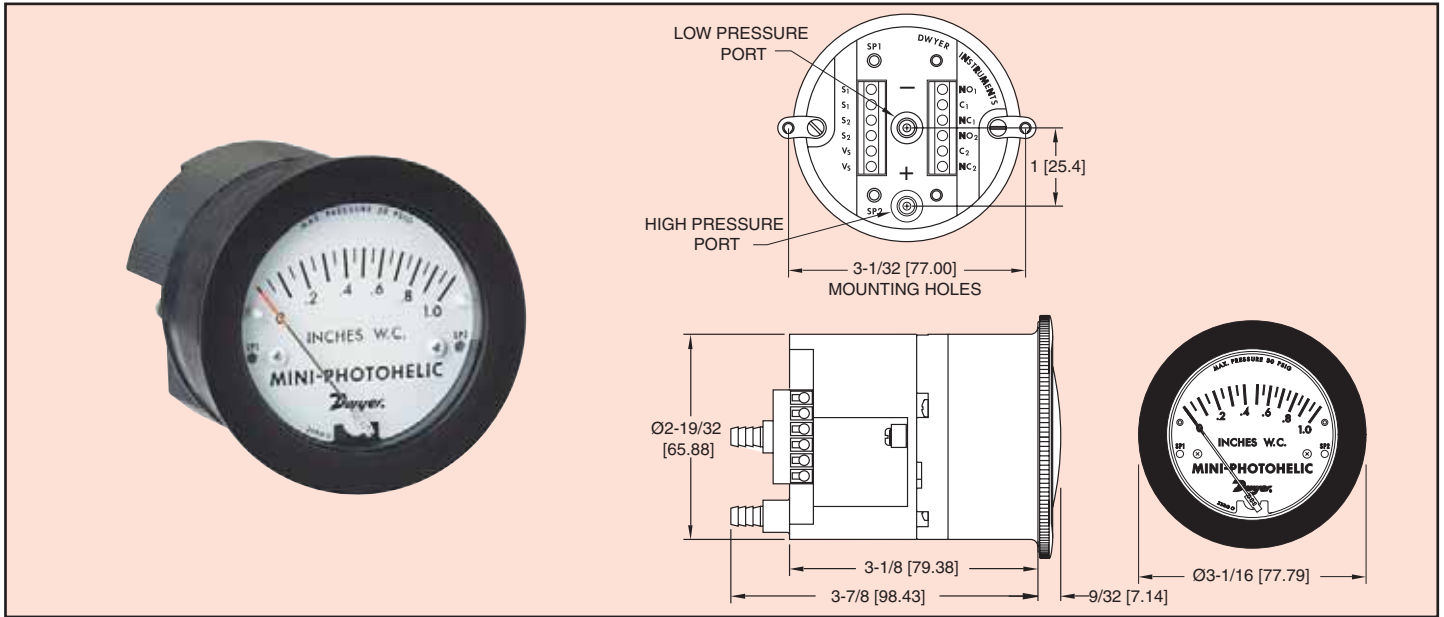
CALL TO ORDER: U.S. Phone 219 879-8000 • U.K. Phone (+44) (0)1494-461707 • Asia Pacific Phone 61 2 4272-2055



Series MP

# Mini-Photohelic® Differential Pressure Switch/Gage

Compact, Low Cost Switch Gage



The Series MP Mini-Photohelic® differential pressure switch/gage combines the time proven Minihelic® II differential pressure gage with two SPDT switching setpoints. The Mini-Photohelic® is designed to measure and control positive, negative, or differential pressures consisting of non-combustible and non-corrosive gases. Gage reading is independent of switch operation. Switching status is visible by LED indicators located on the front and rear of the gage. Set points are adjusted with push buttons on back of unit. This extremely compact switch/gage is ideal for fume hoods, dust collection, pneumatic conveying and clean room applications.

## SPECIFICATIONS

### GAGE SPECIFICATIONS

- Service:** Air and non-combustible, compatible gases.
- Wetted Materials:** Consult factory.
- Accuracy:** ±5% of full scale @ 70°F (21.1°C). Gage face mounted in vertical position.
- Pressure Limits:** 30 psig (2.067 bar).
- Temperature Limits:** 20 to 120°F (-6.7 to 49°C).
- Process Connections:** Barbed for 3/16" I.D. tubing (STD); 1/8" male NPT (optional).
- Size:** 4-1/8" (104.78 mm) depth x 3-1/16" (77.79 mm) diameter.
- Weight:** 23 oz (652 g).

### SWITCH SPECIFICATIONS

- Switch Type:** (2) SPDT relays.
- Electrical Rating:** 5A @ 120/240 VAC Resistive; 5A @ 30 VDC.
- Electrical Connections:** Screw type terminal block. Accepts 22-12 AWG wire.
- Power Requirements:** 24 VDC / 24 VAC 50/60 Hz 4 watts.
- Mounting Orientation:** Gage face in vertical position.
- Set Point Adjustment:** Push Buttons.
- Standard Accessories:** (2) mounting screws, (1) .050" hex allen wrench.
- Agency Approvals:** UL, cUL, CE.

## MODELS

Model Number	Range, Inches of Water	Model Number	Range, MM of Water
MP-000	0-0.5	MP-25MM	0-25
MP-001	0-1.0	MP-50MM	0-50
MP-002	0-2.0	MP-100MM	0-100
MP-003	0-3.0		
MP-005	0-5.0	<b>Model Number</b>	<b>Range, Pascals</b>
MP-010	0-10	MP-125Pa	0-125
MP-020	0-20	MP-250Pa	0-250
MP-040	0-40	MP-500 Pa	0-500
MP-060	0-60		
MP-100	0-100		
<b>Model Number</b>	<b>Range, PSI</b>	<b>Model Number</b>	<b>Range, kPa</b>
MP-5PSI	0-5	MP-1KPa	0-1
MP-10PSI	0-10	MP-3KPa	0-3
MP-15PSI	0-15		

For optional 1/8" male NPT connections, add suffix -NPT to model numbers listed above. Example: MP-000-NPT. No extra charge. Allow additional lead time.



Series  
43000

# Capsu-Photohelic® Pressure Switch/Gages

Lo-Limit and Hi-Limit Control, Aluminum or Brass Case Available

Pressure

Set points are instantly adjusted with front knobs.

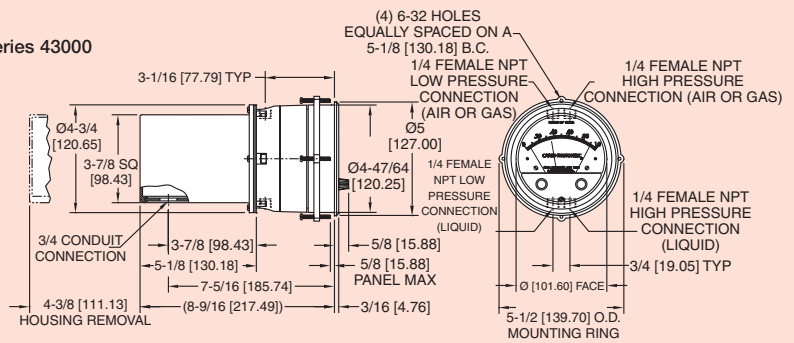


Series 43000  
Capsu-Photohelic®  
Switch/Gage.

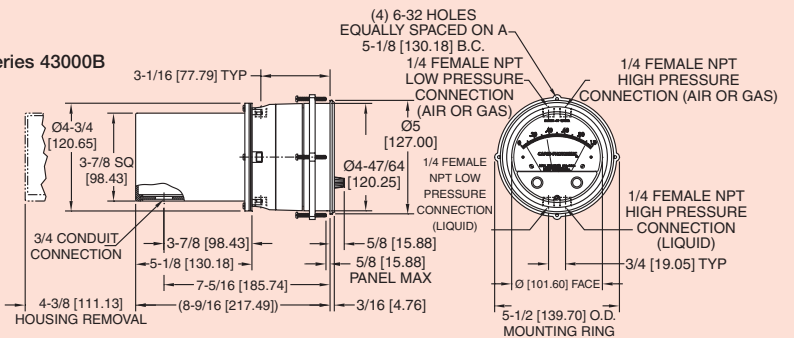


Series 43000  
Capsu-Photohelic®  
Switch/Gage with  
Brass Body

Series 43000



Series 43000B



**Capsu-Photohelic® Switch/Gages** function as versatile, highly repeatable pressure switches combined with a precise pressure gage employing the time-proven Magnehelic® design. The Capsu-Photohelic® employs an encapsulated sensing element for use with both liquids and gases at pressures to 500 psig (34 bar). Optional cast brass case is available for water or water based liquids. Two phototransistor actuated, DPDT relays are included for low/high limit control. Easy to adjust setpoint indicators are controlled by knobs located on the gage face. Individual setpoint deadband is one pointer width – less than 1% of full scale. Setpoints can be interlocked to provide variable deadband – ideal for control of pumps, etc.

## ACCESSORY

**A-298** Flat Aluminum Bracket for Flush Mounting

## SPECIFICATIONS

### GAGE SPECIFICATIONS

**Service:** Compatible gases and liquids. Brass case option required for water based liquids.

**Wetted Materials:** Consult factory.

**Accuracy:** ±3% of full scale at 70°F (21.1°C). ±2% on 43000S models; ±4% on 43215, 43220 and 43500.

**Pressure Limits:** -20 Hg to 500 psig (-0.677 to 34.5 bar).

**Temperature Limits:** 20 to 120°F (-6.67 to 48.9°C) Low temperature option available.

**Process Connections:** 1/4" female NPT.

**Size:** 4" (101.6 mm) dial face, 5" (127 mm) O.D. x 9-3/16" (233.36 mm).

**Weight:** 5 lb, 8 oz (2.49 kg). Brass 11 lb, 2 oz (5.05 kg).

### SWITCH SPECIFICATIONS

**Switch Type:** Each setpoint has 2 Form C relays (DPDT).

**Repeatability:** ±1% of full scale.

**Electrical Rating:** 10A @ 120 VAC, 6A @ 240 VAC, 60 Hz res. 10A @ 28 VDC.

**Electrical Connections:** Screw Terminals.

**Power Requirements:** 120 VAC, 50/60 Hz; 240 VAC & 24 VAC power optional.

### Mounting Orientation:

Diaphragm in vertical position. Consult factory for other position orientations.

**Set Point Adjustment:** Adjustable knobs on face.

## MODELS

Model Number	Range, in. w.c.	Model Number	Range, in. w.c.	Model Number	Range, psi
43000-0	0-5	43060	0-60	43201	0-1
43001	0-1.0	43080	0-80	43202	0-2
43002	0-2.0	43100	0-100	43203	0-3
43003	0-3.0	43150	0-150	43204	0-4
43004	0-4.0	43200	0-200	43205	0-5
43005	0-5.0	43300	0-300	43210	0-10
43006	0-6.0	43400	0-400	43215	0-15
43008	0-8.0	43500	0-500	43220	0-20
43010	0-10	43302	1-0-1	43230S	0-30
43015	0-15	43304	2-0-2	43240S	0-40
43020	0-20	43310	5-0-5	43260S	0-60
43025	0-25	43320	10-0-10	43280S	0-80
43030	0-30	43330	15-0-15	432100S	0-100
43040	0-40			432200S	0-200
43050	0-50			432300S	0-300

## OPTIONS

**Single Contact,** right set point, for actuation on increasing or decreasing pressure.

**Power Supply,** 24 VAC or 220 VAC powered relay pack.

**Remote-Mounted Relay,** relay pack may be mounted remotely from gage. Specify cable length required.

**Tamper-proof Knobs,** low temperature option, special scales, voltages and other features and modifications are available.

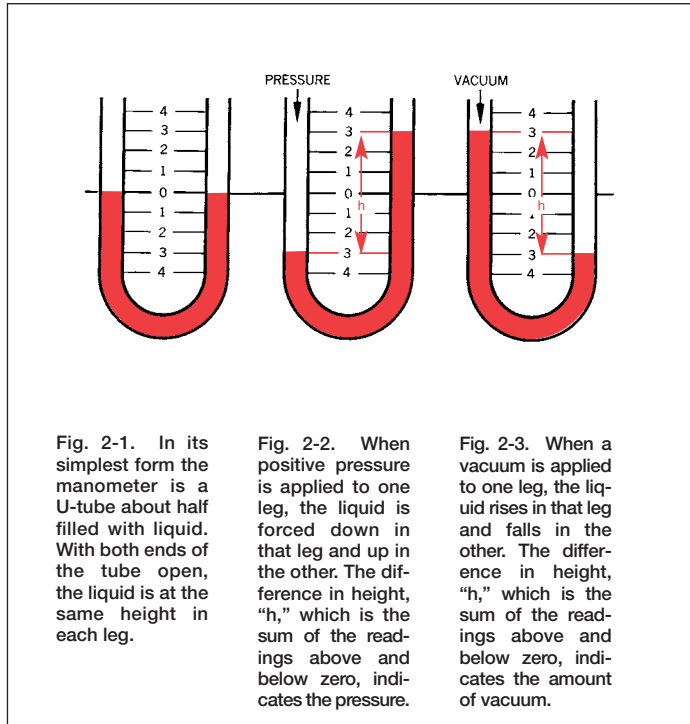
**Special Housings** available include Weatherproof (NEMA 4) and Explosion-proof (NEMA 7 CD, 9 EFG; NEC Class I, DIV. 1 & 2, Groups C, D, Class II, Div. 1 & 2, Groups E, F, G, Class III. Contact Customer Service for detailed dimension drawings.

**Brass Body,** for water based liquids order optional brass case by adding "B" to the end of the model number. Example: 43001B



# Manometers

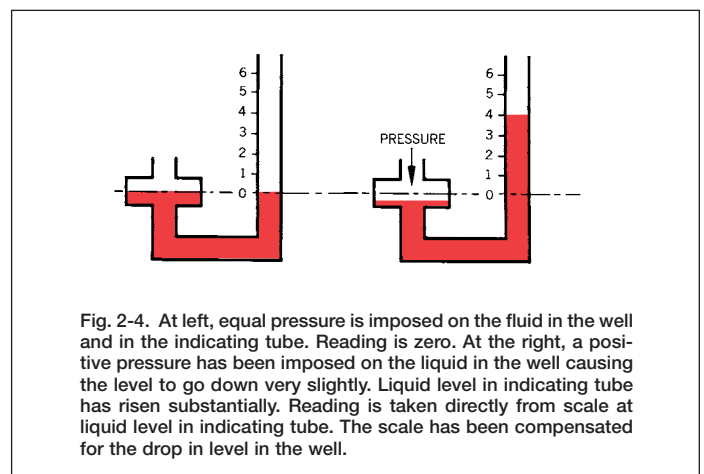
Pressure is defined as a force per unit area – and the most accurate way to measure low air pressure is to balance a column of liquid of known weight against it and measure the height of the liquid column so balanced. The units of measure commonly used are inches of mercury (in. Hg.), using mercury as the fluid and inches of water (in. w.c.), using water or oil as the fluid.



Instruments employing this principle are called manometers. The simplest form is the basic and well-known U-tube manometer. (Fig. 2-1). This device indicates the difference between two pressures (differential pressure), or between a single pressure and atmosphere (gage pressure), when one side is open to atmosphere.

If a U-tube is filled to the half way point with water and air pressure is exerted on one of the columns, the fluid will be displaced. Thus one leg of water column will rise and the other falls. The difference in height "h" which is the *sum* of the readings above and below the half way point, indicates the pressure in inches of water column.

The U-tube manometer is a primary standard because the difference in height between the two columns is always a true indication of the pressure regardless of variations in the internal diameter of the tubing. This principle makes even the Dwyer Slack-Tube® *roll-up* manometer as accurate as a laboratory instrument. This provides a real convenience to the person who might otherwise have to board an airplane carrying a 60" long rigid glass U-tube manometer.



While the basic manometer principle of hydrostatic balance is inherently 100% accurate, there are factors that can affect the actual pressure measurement obtained. Careful design and construction plus careful usage can eliminate or greatly reduce the effect of these factors.

**CHARACTERISTICS OF INDICATING FLUID.** No manometer can be read more accurately than the accuracy with which the specific gravity of the fluid is known. The fluid must also have good "wetting" characteristics and be capable of forming a consistent, well shaped meniscus in the indicating tube to facilitate accurate, repeatable readings.

The fluid used also affects the operating range of the manometer. Mercury being 13.6 times the weight of water will move 1/13.6th the distance water will move in response to a given pressure. Dwyer .826 sp. gr. gage oil being lighter than water will move about 1.2 times farther than water in response to a given pressure. This, obviously, expands the scale for easier, more precise reading.

Dwyer U-tube and well-type manometers are furnished with inch scales for use with water or mercury or adjusted scales for use with .826 sp. gr. gage oil. Dwyer solid plastic vertical, inclined and inclined-vertical gages use gage oil.

## FACTORS AFFECTING MANOMETER

Dwyer colored gage oil is a stable petroleum base oil with carefully controlled specific gravity which gives an excellent, consistent, high visibility meniscus. Dwyer manometers for use with water are furnished with a fluorescein green concentrate which when added to water serves as a wetting agent and a dye to improve the consistency and visibility of the meniscus for easier more accurate readability.

**READABILITY.** As we have seen, inclining the indicating tube and scale of a manometer, the use of lower specific gravity indicating fluids and the use of fluids that give a uniform, well defined meniscus facilitate accurate reading. Scales must be clear, sharp, accurate and easy to read. For accuracy, it is essential that the



**Fig. 2-5.** Portion of the scale of a Dwyer No. 250.5 solid plastic inclined manometer shown full size. Parallax free reading is made by aligning meniscus with its reflection in the polished scale.

## VARIATIONS IN MANOMETER DESIGN

To overcome the U-tube requirement of readings at two different places, the well-type manometer was developed. See Fig. 2-4. The reservoir (well) may be made large enough so that the change of level in the reservoir is negligible, or the scale may be compensated for the change in reservoir liquid level. For purposes of a more practical instrument the Dwyer well-type manometer uses a precision bored well that requires approximately a 10% scale correction for well drop effect, thus avoiding an overly large and bulky reservoir.

To improve and expand readability, certain Dwyer U-tube and well-type manometers are available with a .826 sp. gr. red oil indicating fluid, and scales compensated to read pressure directly in inches of water. To further increase readability and sensitivity, the well-type manometer indicating tube is inclined, as in Fig. 3-1, to cause a greater linear movement along the tube for a given pressure difference. The inclined manometer is frequently called a Draft Gage because it is widely used for determining the over-fire draft in boiler uptakes and flues.

For an inclined manometer to be a primary device, the inclined tube must be straight and uniform. Dwyer's precision machined solid plastic construction has been applied to a basic line of rugged manometers, inclined and inclined-vertical, which are industry accepted as primary instruments. See discussion below.

The combination of an inclined and a vertical manometer is very useful in air movement determination. See Fig. 3-2. For air velocity measurement, an inclined scale, generally up to 1" w.c. is used (1" w.c. velocity pressure=4000 fpm). In the Dwyer Durablock® inclined-vertical instrument, this scale is combined with a vertical section allowing readings of high pressures, usually 1" w.c. to 5 to 10" w.c., to be taken. The vertical section is used primarily for determining static pressure above the range of the inclined section.

Many special purpose types of manometers exist. Examples are the Dwyer Hook Gage and Microtector®. These are simply U-tube manometers modified so the liquid level can be read with a micrometer, yet retaining the basic "Physics" of the hydrostatic U-tube primary standard. Readings accurate to  $\pm 0.001$ " w.c. in a range of differential pressures from 0-24" w.c. are accomplished with Dwyer Model No. 1425-24 Hook Gage. The Model 1430 Microtector® incorporates modern electronics to increase the accuracy of readings to  $\pm 0.00025$ " w.c. on a 2" w.c. scale.

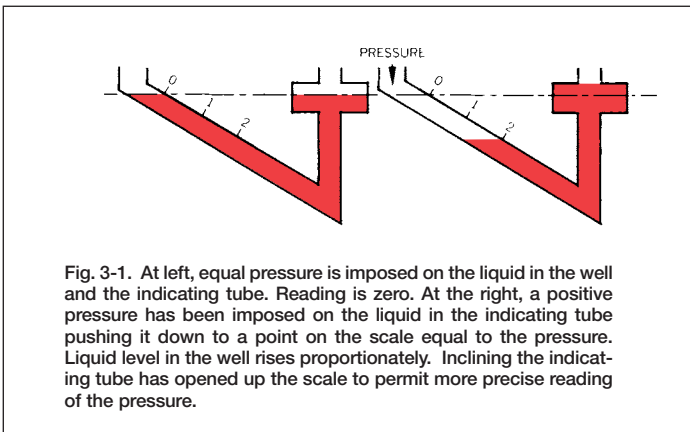


Fig. 3-1. At left, equal pressure is imposed on the liquid in the well and the indicating tube. Reading is zero. At the right, a positive pressure has been imposed on the liquid in the indicating tube pushing it down to a point on the scale equal to the pressure. Liquid level in the well rises proportionately. Inclining the indicating tube has opened up the scale to permit more precise reading of the pressure.

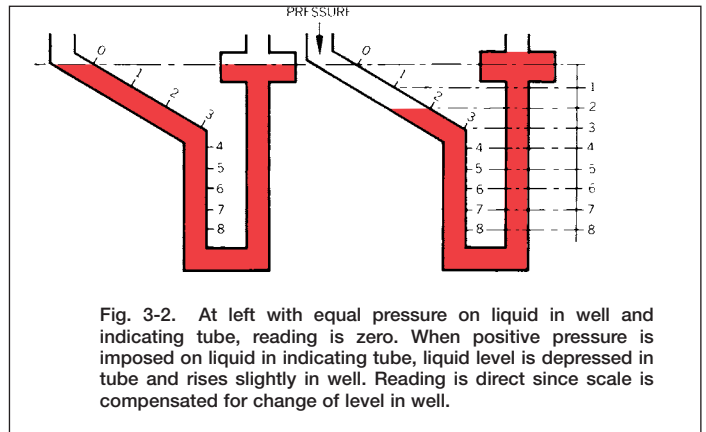


Fig. 3-2. At left with equal pressure on liquid in well and indicating tube, reading is zero. When positive pressure is imposed on liquid in indicating tube, liquid level is depressed in tube and rises slightly in well. Reading is direct since scale is compensated for change of level in well.

## PERFORMANCE AND USAGE

readings be made with the line of sight perpendicular to the fluid column to eliminate parallax error.

Dwyer solid plastic manometers assure parallax-free readings by the use of silk-screened scales on polished aluminum which reflect the image of the meniscus. When the meniscus and its reflection are aligned, the line of sight is perpendicular to the fluid column at the meniscus and an accurate reading is assured. Smoothly machined bores further enhance the visibility of the meniscus.

**LEVELING.** Accurate readings with inclined and inclined-vertical manometers require that the inclined portion of the scale be at the exact angle for which it is designed. All Dwyer solid plastic inclined and inclined-vertical manometers are equipped with integral, sensitive spirit levels to facilitate this requirement; most also have a screw type leveling adjustment.

### FACTORS IN DESIGN AND MANUFACTURE THAT AFFECT INCLINED MANOMETER ACCURACY

**1. "Well Drop"** (ratio of the area of the reservoir to the area of the indicating tube). As the fluid rises or falls in the indicating tube the level in the reservoir will fall or rise correspondingly and the scale must be compensated accordingly. Inaccuracies in the diameter of the reservoir or the indicating tube will create errors in

this compensation. In glass tube instruments this error can only be minimized by a large ratio of reservoir to indicating tube area, by the use of precision bore tubing or by both. In the Dwyer solid plastic design, the use of machining techniques accurate to .0002" for wells and indicating bores reduces this error to insignificance.

**2. Indicating Bore Straightness.** This is a very real problem with glass tubing. Even with precision bore glass tubing, concentricity between I.D. and O.D. is difficult to control. Additionally, there is the problem of supporting the tube by its O.D. in perfect linearity with its I.D. Magnitude of error from this cause is, therefore, a function of the quality of this particular piece of precision bore tubing and the manner of tube mounting. Variations in accuracy from gage to gage and in a given gage over a period of time can be anticipated as the tube is bumped or bent in use. In contrast, indicating tube bores up to 24" long in Dwyer solid plastic manometers are straight to within .002" over their entire length. It should also be noted that in the Dwyer design with a massive solid block of acrylic plastic, this straightness tolerance is effective for the life of the instrument.



# Durablock® Solid Plastic Portable Gages

Dwyer solid plastic portable manometers are precision instruments in inclined and vertical (well-type) styles for the measurement of static pressure, vacuum or differential pressure. To assure the accuracy required in instruments of this type, all machining of bores and wells is to the highest standards of precision backed by Dwyer's years of experience in the fabrication of acrylic instruments.

## Design and Service Features

- **1" Thick Acrylic Plastic Body** is a solid block, virtually unbreakable, stable and free of the danger of distortion.
- **Drilled Bore Accurate to  $\pm .0002$ "** are permanently free of bends or crooks, will not require recalibration because of distortion.
- **Selected Gage Oil** with high wettability characteristics forms a consistent, well shaped meniscus for easy readability.
- **Adjustable Reflective Chrome Finish Scales** with thumbscrew locking for easy zeroing.
- **Parallax-Free Reading** for maximum accuracy and consistency is achieved by simply aligning the meniscus with its image reflected in the polished aluminum scale.
- **Screw Type Leveling Adjustment** for inclined style gages provides rapid and accurate leveling with reference to integral sensitive ground glass bubble level.
- **Furnished Complete** with accessories and plastic carrying case.



Fig. 4-1. No. 100.5 solid plastic portable gage with .10-0-1.0" w.c. range. Shown with carrying case and standard accessories.



Fig. 4-2. No. 170 solid plastic gage shown on stand provided for all Dwyer portable inclined gages. Magnetic clips are also furnished to permit easy mounting on any vertical steel surface.



Fig. 4-3. No. 104 solid plastic portable vertical manometer shown attached to inside of carrying case cover. Gage may also be removed from case and used in standing position or attached to any vertical steel surface with magnetic clips provided.

## Special Purpose Portable Gage Kits

### NO. 400 AIR VELOCITY METER KIT



Fig. 4-4

Dual scale inclined-vertical manometer reads in feet per minute from 500 FPM and inches of water with 0.01" w.c. minor divisions. Complete kit includes red gage oil, pitot tube, tubing and air velocity calculator.

### NO. 102-AV and NO. 115-AV AIR VELOCITY KITS



Fig. 4-5

Complete kits include solid plastic gages No. 102 or No. 115 described above with dual scales in feet per minute and inches of water and all accessories necessary for measurement of air velocity.



# Ranges And Dimensions

Suitable for Total Pressures up to 100 psig, Temperatures Up to 150°F, Accuracy ±2% of Full Scale (1% on Model 115 Only)

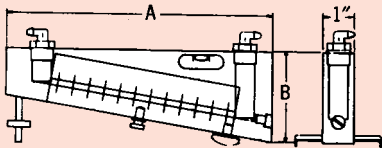


Fig. 5-1.

## MODELS

## INCLINED TYPE

Model No.	Range Inches of Water	Minor Scale Divisions	Scale Length	Dimensions		Carrying Case		Weight lbs-oz.
				A	B	Type	Dimensions	
100.5	.10-0-1.0	.01	8 <sup>1</sup> / <sub>2</sub> "	11 <sup>1</sup> / <sub>6</sub> "	2 <sup>5</sup> / <sub>6</sub> "	Plastic	13 <sup>1</sup> / <sub>2</sub> x 10 x 2 <sup>3</sup> / <sub>8</sub> "	5-1
101	.05-0- .50	.01	5"	8 <sup>1</sup> / <sub>2</sub> "	2 <sup>5</sup> / <sub>6</sub> "	Plastic	12 <sup>1</sup> / <sub>4</sub> x 6 <sup>1</sup> / <sub>4</sub> x 1 <sup>1</sup> / <sub>4</sub> "	3-5
102.5	.20-0-2.0	.01	8 <sup>3</sup> / <sub>4</sub> "	12"	4 <sup>1</sup> / <sub>2</sub> "	Plastic	13 <sup>1</sup> / <sub>2</sub> x 10 x 2 <sup>3</sup> / <sub>8</sub> "	5-10
109	.20-0-3.0	.02	8 <sup>3</sup> / <sub>4</sub> "	11 <sup>1</sup> / <sub>2</sub> "	5 <sup>1</sup> / <sub>6</sub> "	Plastic	13 <sup>1</sup> / <sub>2</sub> x 10 x 2 <sup>3</sup> / <sub>8</sub> "	6
115	.05-0- .25	.005	6"	9 <sup>1</sup> / <sub>2</sub> "	3 <sup>3</sup> / <sub>8</sub> "	Plastic	12 <sup>1</sup> / <sub>4</sub> x 6 <sup>1</sup> / <sub>4</sub> x 1 <sup>1</sup> / <sub>4</sub> "	3-10
170	0-.50	.02	2 <sup>1</sup> / <sub>2</sub> "	5 <sup>1</sup> / <sub>2</sub> "	2 <sup>1</sup> / <sub>6</sub> "	Plastic	7 x 9	1-7
171	0-.25	.01	2 <sup>1</sup> / <sub>2</sub> "	5 <sup>1</sup> / <sub>2</sub> "	1 <sup>1</sup> / <sub>2</sub> "	Plastic	7 x 9	1-6

NOTE: Model 100.5 replaces model 100. Model 102.5 replaces model 102.

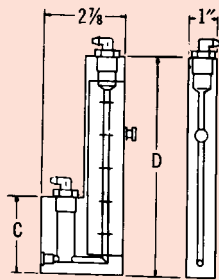


Fig. 5-2.

## MODELS

## VERTICAL TYPE

Model No.	Range Inches of Water	Minor Scale Divisions	Scale Length	Dimensions		Carrying Case		Weight lbs-oz.
				C	D	Type	Dimensions	
104	0-4	.10	4 <sup>1</sup> / <sub>2</sub> "	3 <sup>1</sup> / <sub>6</sub> "	8 <sup>1</sup> / <sub>2</sub> "	Plastic	12 <sup>1</sup> / <sub>4</sub> x 6 <sup>1</sup> / <sub>4</sub> x 1 <sup>1</sup> / <sub>4</sub> "	3-0
104-6	0-6	.10	7 <sup>3</sup> / <sub>4</sub> "	4 <sup>1</sup> / <sub>6</sub> "	10 <sup>1</sup> / <sub>2</sub> "	Plastic	13 <sup>1</sup> / <sub>2</sub> x 10 x 2 <sup>3</sup> / <sub>8</sub> "	4-8
104-8	0-8	.10	9"	4 <sup>1</sup> / <sub>6</sub> "	13 <sup>3</sup> / <sub>6</sub> "	Metal	18 <sup>1</sup> / <sub>2</sub> x 4 <sup>1</sup> / <sub>2</sub> x 2 <sup>1</sup> / <sub>4</sub> "	4-12
104-10	0-10	.10	11 <sup>1</sup> / <sub>8</sub> "	5 <sup>1</sup> / <sub>6</sub> "	15 <sup>1</sup> / <sub>4</sub> "	Metal	18 <sup>1</sup> / <sub>2</sub> x 4 <sup>1</sup> / <sub>2</sub> x 2 <sup>1</sup> / <sub>4</sub> "	4-15

**STANDARD ACCESSORIES:** Plastic or steel carrying case (plastic pouch for 170, 171 and 172), two magnetic mounting clips, two rapid shut-off nylon tubing connections, one 9' length rubber tubing, terminal tube and extra bottle .826 red gage oil.

**A-396A Calibration Pump** — Use as pressure source to calibrate gages, set switches, etc. Has volume adjuster, bleed valve and fine adjustment for pressures up to 72 psi (5 bar). Accessories include barbed fitting, tee connector, three 36 in. lengths of vinyl tubing and instructions.



1031R00-0198P

## Standard Equipment For Solid Plastic Portable Manometers

MOLDED NYLON RAPID SHUT OFF TUBING CONNECTORS

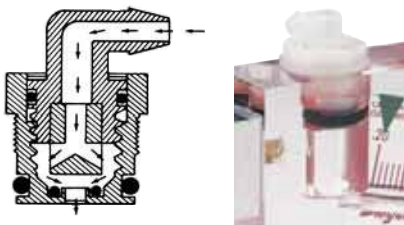


Fig. 5-3. Exclusive Dwyer leak-proof, corrosion-proof, virtually unbreakable molded nylon connector requires just one counter clockwise turn to open, one clockwise turn to close. Rotating connector seats on O-ring for absolute closure and is O-ring sealed at top. Connector body is also O-ring sealed and is easily removed for cleaning or adding fluid.

MAGNECLIPS FOR SPLIT SECOND MOUNTING ON ANY STEEL SURFACE



Fig. 5-4. Dwyer mounting magnets are attached to all Dwyer solid plastic inclined portable gages (left, above) and furnished as clips that can be attached to all Dwyer solid plastic vertical portable gages (right, above). Just touch the magnets to any vertical steel surface; gage will "stay put" until it is forcibly detached.

HIGH DENSITY POLYETHYLENE FOAM LINED CARRYING CASES



Fig. 5-5. Most Dwyer portable gages are furnished with carrying cases of high density polyethylene. Models 104-8 & 104-10 have steel cases. For protection of the gage and accessories, both plastic and steel cases are lined with resilient polyurethane plastic foam. Nos. 170, 171 & 172 include plastic pouch.



## Durablock® Solid Plastic Stationary Gages

Dwyer solid plastic stationary gages – or draft gages – are offered in inclined and vertical (well-type) styles for highly accurate laboratory or general industrial service, for measurement of low range gas and air pressures, positive, negative or differential. To assure the accuracy required in instruments of this type, all machining of bores and wells is to the highest standards of precision backed by Dwyer's years of experience in the fabrication of acrylic instruments.

### Design and Service Features

- **1" Thick Acrylic Plastic Body** is a solid block, virtually unbreakable, stable and free of the danger of distortion.
- **Drilled Bores Accurate To  $\pm .0002$ "** is stable, free of bends or crooks, will never require recalibration because of distortion.
- **Selected Gage Oil** with high wetability characteristics forms a consistent, well shaped meniscus for most accurate reading.
- **Adjustable Reflective Polished Aluminum Scales** with thumbscrew locking for easy zeroing.
- **Parallax-Free Reading** for maximum accuracy and consistency is achieved by simply aligning the meniscus with its image reflected in the scale.
- **Over Pressure Safety Traps** prevent loss of fluid due to over range pressures or surges in pressure. (Not required on No. 215.)
- **Leveling Adjustment** for inclined style gages is achieved by simply loosening a locking thumb screw on the side or bottom of the gage, adjusting with reference to the integral sensitive ground glass bubble level and retightening.
- **Heavy Gauge Steel Mounting Panels** are gray hammerloid finished.



Fig. 6-1. No. 200.5 solid plastic inclined style stationary gage with .10-0-1.0" w.c. range.



Fig. 6-2. No. 310 solid plastic vertical style stationary gage with 0-10" w.c. range.



Fig. 6-3. No. 246 solid plastic inclined style stationary gage with 0-6" w.c. range.

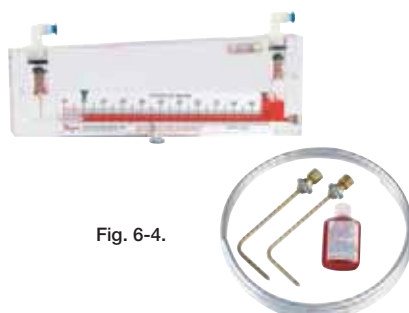


Fig. 6-4.

## Kits For Air Filter Gage Service

Dwyer solid plastic gages and other gages are available in kits especially developed for air filter gage service. They include the gage, two static pressure tips with integral compression fittings and two 5 foot lengths of 1/4" aluminum tubing. The static pressure tips are installed in the duct upstream and downstream of the filter and connected to the gage to provide a continuous visual indication of the stat-

ic pressure drop across the filter. When the filter's resistance in terms of static pressure drop reaches the maximum specified by the filter manufacturer, it is an indication that the filter should be cleaned or replaced.

For complete details on Dwyer Air Filter Gage kits, refer to Pressure Section, Air Filter Gages and Switches.





# Ranges And Dimensions

Suitable for Total Pressures up to 100 psig, Temperatures up to 150°F.  
Accuracy ±2% of Full Scale ( 1% on Models 215, 244, 246 only)

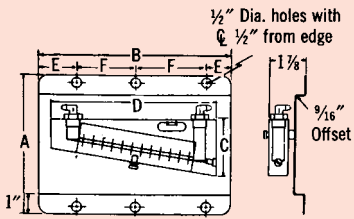


Fig. 7-1.

## MODELS

Model No.	Range Inches of Water	Minor Scale Divisions	Scale Length Inches	Dimensions, Inches						Weight lbs-oz.
				A	B	C	D	E	F	
200.5	.10-0-1.0	.01	8 3/4	7	13	3 1/16	11 1/2	2	4 1/2	3-11
201	.05-0-.50	.01	5 1/2	7	10	3 1/16	8 3/4	2	3	2-12
202.5	.20-0-2.0	.01	8 3/4	9	13	5 1/8	12	2	4 1/2	4-7
209	.20-0-3.0	.02	8 3/4	9	13	7	11 1/4	2	4 1/2	4-11
215	.05-0-.25	.005	6	7	10	3 1/16	9 1/2	2	3	2-14
244	0-4	.02	13 1/2	11	16 1/2	8 3/8	15 1/2	4	8 3/8	9-11
246	0-6	.02	20	13 1/2	23	11	22	4	15	13-14

NOTE: Model 200.5 replaces Model 200. Model 202.5 replaces model 202.

## INCLINED TYPE

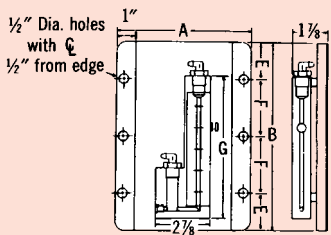


Fig. 7-2.

## MODELS

Model No.	Range, Inches of Water	Minor Scale Divisions	Scale Length Inches	Dimensions, Inches					Weight lbs-oz.
				A	B	E	F	G	
300	0-4	.10	4 1/2	7	10	2	3	8 1/4	2-5
306	0-6	.10	7 3/4	7	16	4	4	10 1/2	3-3
308	0-8	.10	9	7	16	4	4	13 1/16	3-7
310	0-10	.10	11 1/2	7	16	4	4	15 1/4	3-10

## VERTICAL OR WELL-TYPE

**STANDARD ACCESSORIES:** One extra bottle of .826 red gage oil, instructions and one set of type "a" connections, described below, unless other connection option is specified.

**A-396A Calibration Pump** — Use as pressure source to calibrate gages, set switches, etc. Has volume adjuster, bleed valve and fine adjustment for pressures up to 72 psi (5 bar). Accessories include barbed fitting, tee connector, three 36 in. lengths of vinyl tubing and instructions.



## Over-Pressure Safety Traps Prevent Fluid Loss



**Fig. 7-3.** Exclusive Dwyer over pressure safety traps assure that over range pressures whether gradual or a sudden surge will not force the liquid out of the gage. Over pressures simply float the cork, force the O-ring over the opening and seal the fluid in the gage. When pressure is reduced, cork drops down releasing the O-ring safety trap opens and the gage continues in operation.

## Connection Options For Dwyer Solid Plastic Stationary Gages

Unless otherwise specified, Dwyer solid plastic stationary gages will be furnished with Type "a" connections consisting of two rapid shutoff type, molded nylon tubing connectors (see Fig. 5-3, page 23), two 3ft. lengths flexible Tygon plastic tubing, and two 1/8" pipe thread adapters.

If so specified on the order, Dwyer solid plastic stationary gages will be furnished with your choice of the following connection options:

**Type "b":** Two molded nylon tubing connectors, rapid shutoff type, one 9' length rubber tubing, and one brass terminal tube.

**Type "c":** Two 1/8" pipe thread openings.

**Type "d":** Two compression fittings for 1/4" O.D copper or aluminum tubing.

**Type "e":** 3-way vent valves, 1/8" S.P.T. to 1/4" metal tubing, at additional cost.



Fig. 7-4. Type "a" and "b"



Fig. 7-5. Type "c" with shipping plugs in place.



Fig. 7-6. Type "d"



Fig. 7-7 Type "e"



# Durablock<sup>®</sup> Inclined-Vertical Manometers

Series 424 — Accuracy To  $\pm 1/4$  Of 1%

Dwyer No. 424 inclined-vertical manometers are extremely accurate instruments designed and made especially for precision measurement of low differential pressures in laboratory and test applications. The inclined range bore has a length of 20" to provide ample multiplication of indicating fluid movement in this critical lower part of the range.

## Features of the Model 424

- **1 1/4" THICK ACRYLIC PLASTIC BODY** is a solid block, virtually unbreakable, stable and absolutely free of the danger of distortion.
- **3/16" BORES, ACCURATE TO  $\pm .0002$ "** are permanently free of bends or crooks, will not require recalibration because of distortion.
- **GROUND GLASS BUBBLE LEVEL** sensitive to 115-125 sec./2 mm. is 1 1/2" long x .375" diameter and provided with two red lines for easy visibility and alignment.
- **PARALLAX-FREE READING** for maximum accuracy and consistency is achieved by simply aligning the meniscus with its image reflected in the polished aluminum scale.
- **SELECTED GAGE OIL** with high wettability characteristics forms a consistent, well shaped meniscus for perfect readability.
- **O-RING SEALED FLUID LEVEL PLUNGER \ ADJUSTMENT** for easy zeroing.



Fig. 8-1. No. 424-10 Inclined-Vertical Manometer, 0-10" water range. The inset shows a segment of the inclined scale in actual size. No. 424-5, 0-5" water range is similar.

## Series 420 Inclined-Vertical Manometers Accurate To $\pm 1\%$



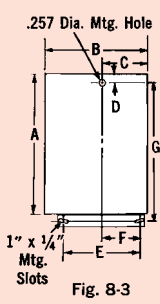
Fig. 8-2. Typical of Series 420 Inclined-Vertical Manometers is this No. 422-10 double column manometer with a total range of 0 to 10" of water. Single column models are also furnished. Design features are essentially the same as for the Series 424. They are accurate to  $\pm 1\%$  and are particularly suited for use with pitot tubes and in flow measurement or similar applications.

# Ranges And Dimensions

Suitable for Total Pressure up to 100 psig, Temperatures up to 150°F

MODELS		Model No.	Inclined Range Inches of Water	In-clined Minor Div.	Length of Inclined Scale	Vertical Range Inches of Water	Vertical Minor Div.	Length of Vertical Scale	Dimensions							Weight lbs.-ozs.
									A	B	C	D	E	F	G	
SINGLE COLUMN	424-5	0-2.0	.01	20"	2.1-5	.10	3 1/4"	10 1/2"	25 1/4"	12 5/8"	1"	10 1/2"	5 3/8"	10"	14-8	
	424-10	0-2.0	.01	20"	2.1-10	.10	9"	16 1/2"	25 1/4"	12 5/8"	1"	10 1/2"	5 3/8"	16"	22-12	
	421-5	0-1.0	.01	6 1/2"	1.1-5	.10	4 5/8"	9 7/8"	9 5/8"	4 7/8"	5/8"	6 1/2"	3 3/4"	9 7/8"	4-12	
	421-10	0-1.0	.01	6 1/2"	1.1-10	.10	10 1/8"	15 1/2"	9 5/8"	4 7/8"	5/8"	6 1/2"	3 3/4"	15 1/2"	6-10	
DOUBLE COLUMN	421-23	0-2.2	.02	6 1/8"	2.4-23.0	.20	10 1/4"	15 1/2"	9 5/8"	4 7/8"	5/8"	6 1/2"	3 3/4"	15 1/2"	6-10	
	422-5	0-1.0	.01	6 1/2"	1.1-5	.10	4 5/8"	10 1/2"	11 1/2"	5 1/8"	5/8"	6 1/2"	3 3/4"	10 1/2"	6-10	
	422-10	0-1.0	.01	6 1/2"	1.1-10	.10	10 1/8"	16 1/8"	11 1/2"	5 1/8"	5/8"	6 1/2"	3 3/4"	16 1/8"	10-13	
	422-23	0-2.2	.02	6 1/8"	2.4-23.0	.20	10 1/4"	16 1/8"	11 1/2"	5 1/8"	5/8"	6 1/2"	3 3/4"	16 1/8"	10-12	
*424-250MM		0-50MM	.2MM	19 5/8"	52-250MM	2.0MM	8 3/8"	16 1/2"	25 1/4"	12 5/8"	1"	10 1/2"	5 3/8"	16"	22-12	

\*Single column metric-ranges and divisions in millimeters.



**STANDARD ACCESSORIES** include two 1/2 oz. bottles of .826 red gage oil (1.91 blue gage oil for models 421-23 and 422-23), rapid shut-off type "a" connections, two 3 ft. lengths of clear plastic tubing and two 1/2" NPT tubing adapters — two sets for double column models.

Model Number	Model Number
421-5 .....	422-10 .....
421-10 .....	422-23 .....
421-23 .....	424-5 .....
422-5 .....	424-10 .....



# Flex-Tube® Well-Type Manometers

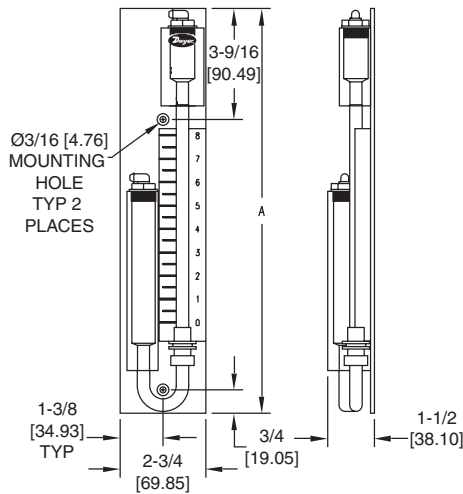


Fig. 9-1. No. 1230-8 wall mounting well-type manometer.



Fig. 9-2. No. 1235-8 panel mounting well-type manometer, side and front view to show rear connections.



Fig 9-3. Series 1235 manometers are also available with multiple tubes mounted on 1 1/2" centers on a common panel.

Dwyer Flex-Tube® Well Type Manometers are designed to meet the need for a direct reading single column instrument providing highly accurate pressure readings; positive, negative or differential. Unlike other makes, Dwyer manometers have no hidden wells or packing glands. These instruments are constructed of shatterproof clear plastic tubing permanently bonded to well assemblies with leakproof glued joints. Well assemblies are precisely machined from solid acrylic plastic. Overpressure safety traps assure protection against loss of fluid. Heavy pure white acrylic plastic scales have sharp black silk screened figures and graduations sealed with clear mylar coating. Scales are adjusted with quick-acting positive mechanism. Heavy heat treated aluminum back plates have durable gray hammerloid finish. These manometers are rated to 100 psig (6.89 bar). Not recommended for vacuum service beyond 5 in. Hg (68 in w.c.).

**Series No.1230 Manometers** (wall mounting type), Fig.9-1, have mounting holes for easy installation. They may also be used as portable manometers and can be hung or attached to any vertical steel surface by magnetic mounting clips. All parts are fully visible and readily accessible for cleaning.

**Series No. 1235 Manometers** (panel mounting type), Fig. 9-2. All pressure connections are made from the back, with the micrometer zero scale adjustment in front at the base of the liquid column.

**Multi-Tube Manometer**, Fig. 9-3, of the same design as the No. 1235 series are available with any number of tubes mounted on a single panel. They are designed for semi-flush panel mounting with all pressure connections made from the back. Reading columns are on 1 1/2" centers.

**Special Scales.** Psi and metric scales, available in aluminum panel. Higher ranges and other special scales in Benelex panel.

**Standard Accessories** include one set of type "a" connections, .826 sp. gr. red gage oil for "D" style or fluorescein green dye concentrate with wetting agent for "W/M" styles, two 3 ft. lengths of clear vinyl tubing and two 1/2" NPT tubing adapters.

**To Order**, please indicate scale desired. Specify "W/M" with Model Number for inches of water, using water or inches of mercury, using mercury; and "D" for inches of water using .826 sp. gr. red gage oil. Red gage oil is often preferred for readings in inches of water because of the longer scale and slower evaporation rate. This lessens the need for frequent re-zeroing and refilling. If not otherwise indicated, "W/M" style manometers will be shipped.

## NO. 1230 SERIES WALL MOUNTING

## NO. 1235 SERIES PANEL MOUNTING

MODELS						
Model No.	Scale in Inches of Water or Mercury	DIMENSIONS				Mercury Req'd to Fill (Wt.)
		A	B		C	
			W/M	D		
1230-8	0-8	2 3/4	15 3/16	16 3/4	1 1/2	12 oz.
1230-12	0-12	2 3/4	19 3/16	21 1/4	1 1/2	14 oz.
1230-16	0-16	2 3/4	23 3/16	27	1 1/2	16 oz.
1230-20	0-20	2 3/4	27 3/16	32 1/2	1 1/2	18 oz.
1230-24	0-24	2 3/4	32 3/16	37 3/16	1 1/2	20 oz.
1230-36	0-36	2 3/4	43 3/16	51 1/4	1 1/2	26 oz.

Fig. 9-4.

MODELS						
Model No.	Scale in Inches of Water or Mercury	DIMENSIONS				Mercury Req'd to Fill (Wt.)
		A	B		C	
			W/M	D		
1235-8	0-8	2 3/4	17 3/16	18 3/4	2 1/2	12 oz.
1235-20	0-20	2 3/4	29 3/16	33 3/16	2 1/2	18 oz.
1235-36	0-36	2 3/4	45 3/16	51 3/16	2 1/2	26 oz.

Fig. 9-5.

<b>Model No.</b>	<b>Model No.</b>
1230-8-W/M.....	1230-20-W/M.....
1230-12-W/M.....	1230-24-W/M.....
1230-16-W/M.....	1230-36-W/M.....

<b>Model No.</b>
1235-8-W/M.....
1235-20-W/M.....
1235-36-W/M.....

**Note:** Water/Mercury models for 0.826 S.P. Gage Oil models change -W/M to a "-D".



# Slack-Tube® Manometers

## The Handy Roll-Up Manometer With Laboratory Accuracy

Dwyer Slack-Tube® Manometers are as accurate as the finest laboratory “U” gages – yet they are made to roll up compactly for easy carrying and to withstand rough usage.

Simply unroll the Dwyer Slack-Tube® Manometer and set up to read static pressure, vacuum, or differential pressure. Magnetic clips hold it firmly to any steel surface or hang it on a nail. Turn connectors one revolution to open. When the pressure is imposed, add the number of inches one column travels up to the number of inches the other column travels down. When reading is completed turn connectors to seal columns, roll up manometer into compact coil and tuck it away in its circular metal case or a tool box. No fluid lost. No loose caps or inserts to lose.

Dwyer Slack-Tube® Manometers cover a wide range of pressure readings – from 4-0-4 inches up to 60-0-60 inches. Use them in determining velocity and static pressures, for leakage, fan and blower tests, calibrating control devices, checking gas pressure and many other applications. All models have flexible vinyl-plastic columns and flexible spring steel scale calibrated in inches of water using water, and inches of mercury using mercury. Scale is center-mounted between columns to eliminate parallax error and has a full 2-inch sliding zero adjustment.

All Dwyer Slack-Tube® Manometers feature exclusive molded nylon tubing connector assemblies with rapid shutoff design in an acrylic plastic top (see Fig. 5-3).. One turn counter clockwise and the instrument is ready for use. Another turn seals the tubes completely. Molded all-nylon construction makes this assembly corrosion-proof, leakproof and practically

unbreakable. Tubing connectors extend horizontally allowing 360° freedom. Tubes won't bend or pinch off.

All models have over pressure safety traps in the top of both columns to prevent loss of fluid due to over range pressures or surges in pressure. See Fig. 7-3.

Slack-Tube® Manometers are suitable for intermittent total pressure to 50 psi and vacuum not exceeding 20" Hg. Avoid temperatures above 130°F and continuous high total pressure. Not for use with red gage oil; use only water or mercury.

### MODELS

Model	Range, In.	Hg Req'd (oz.)
1211-8	4-0-4	6
1211-12	6-0-6	7
1211-16	8-0-8	9
1211-24	12-0-12	12-½
1211-30	15-0-15	15
1211-36	18-0-18	17-½
1211-48	24-0-24	22-½
1211-60	30-0-30	27
1211-72	36-0-36	32
1211-120	60-0-60	57
Metric	Range, CM	Hg Req'd (oz.)
1211-50	25-0-25	11
1211-100	50-0-50	18-½
1211-200	100-0-100	35

**Standard Accessories** are metal carrying case, magnetic mounting clips, two rapid shutoff type molded nylon rubber tubing connectors and one bottle of fluorescein green color concentrate with wetting agent. Mercury is not included but will be furnished at added cost when specified.

**Optional Accessories** are available in a wide choice and are listed on the Accessories pages, in the Misc. Section.

## NO. 1212 Gas Pressure Kit For Servicing Gas Appliances

A handy, complete kit containing a 16" Slack-Tube® Manometer, necessary tubing and connection fittings for checking gas pressures in virtually all gas appliances such as water heaters, furnaces, stoves and dryers. Different range manometers may be specified at corresponding prices. Compared to the cost of purchasing items separately the assembly of component parts into kit form represents substantial savings.

### 1212 Gas Pressure Kit

#### What the kit consists of:

- 1 – #1211-16 Slack-Tube® Manometer, reads pressure to 16" water.\*
- 1 – Carrying case, plastic, 8½" x 7" x 3½"
- 1 – ¼ oz. bottle Fluorescein green color concentrate with wetting agent
- 2 – ¼" pipe thread rubber tubing adapters
- 1 – ¼" to ½" pipe thread bushing
- 1 – 3 ft. length ¾" rubber tubing
- 1 – Rubber tubing adapter to fit standard ¼" dia. spud.

\*Other ranges available.



Fig. 12-2. (At right). Slack-Tube® Manometer extended.



Fig. 12-1. (left). Slack-Tube® Manometer rolled up for easy handling and storage.



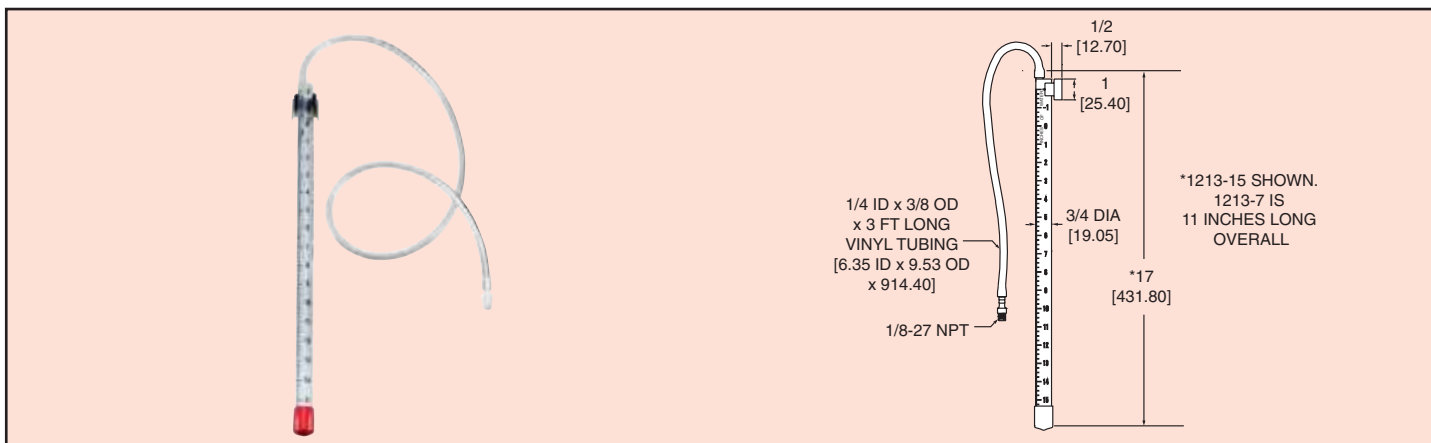
Fig. 12-3



Series  
1213

# Gas Pressure Manometer

The "Tube in a Tube" Direct Reading Manometer



Provide visual indication of pressure with the Series 1213 Gas Pressure Manometer. Designed for use with natural gas, the manometer can also be used to monitor any compatible gases up to 15 inches of water column. Tap water is used as the sensing media and a magnetic clip provides temporary or permanent mounting. Economically priced and made of durable plastic for years of trouble-free service. Includes three feet of vinyl tubing and 1/8" nylon male NPT to barb fitting.

### SPECIFICATIONS

**Temperature Limit:** 140°F (60°C) maximum.  
**Pressure Limits:** 15 in. w.c. (381 mm).

**Piping Connections:** 1/8" male NPT connector provided.  
**Wetted Materials:** Vinyl, PVC and Nylon.  
**Weight:** 5 oz (142 g).

### MODELS

Model Number	Length (mm)
1213-7	7" (177.8)
1213-15	15" (381)



Model  
1430

# Microtector® Portable Electronic Point Gage

Accurate To  $\pm 0.00025$ " w.c., Battery Operated, Self-Contained

Fast, accurate pressure measurements at moderate cost. Combines modern, solid state integrated circuit electronics with the timeproven point gage manometer. Delivers repeatable accuracy in measuring positive, negative or differential pressures to  $\pm 0.00025$ " water column over a 0 to 2" w.c. range. Metric model M-1430 reads from 0-50 mm w.c.

Calibrates other instruments. Provides high precision for test laboratories of manufacturers of fans, air conditioning and heating equipment, pneumatic or fluidic controls, etc. Used in college, university and consultant laboratories – wherever precision measurements are required. Used with pitot tube (at extra cost) for precision measurement of low air velocities.

Measures positive, negative or differential pressures to 2.0" w.c. Easy to maintain and clean. Battery replacement and instrument cleaning are quick and simple-use mild soap and water. Indicating fluid consists of distilled water and a small amount of Dwyer A-126 Fluorescein green color concentrate. Max. press. 100 psig (6.89 bar).

Microtector® kit includes everything needed:

**Microtector® Gage\*** – A Durablock® solid, precision machined acrylic plastic body, mounted on heavy, 1/2" thick steel base. 3-point base mounting has two leveling screws and level vial for quick setup.

**Gage Meter** – Sensitive 0-50 microamp D.C. meter acts as detector. Powered by 1-1/2 volt penlight cell (included). No external power needed. Meter also indicates battery and hook probe condition.

**Electronic Circuitry** – Solid state integrated circuit electronic components are mounted on glass epoxy board enclosed in a molded styrene acrylonitrile compartment for protection. A.C. Detector current eliminates hook plating.

**Micrometer** – Adjusts point with precision. Complies with Federal Specification GGG-C-105C and is traceable to a master at the NIST.

**Dwyer Gage Fluid** – 3/4" oz non-toxic concentrate of fluorescein green color, wetting agent and distilled water. Use with distilled water.

**Accessories** – Two 3-foot lengths of tygon tubing, two 1/8" pipe thread adapters, micrometer wrench and crocus cloth for cleaning point.

**Carrying Case-Cover** – Rugged sheet steel, gray finish. Carrying handle and latches. Complete instructions included.



### MODELS

Model Number	Range
1430	0-2 in. w.c.
M1430	0-50 mm w.c.



# Flex-Tube® U-Tube Manometers

These inexpensive manometers measure positive, negative and differential pressures. Dwyer Flex-Tube® U-Tube Manometers combine the inherent accuracy of the simple "U" Tube with the durability of tough, long-lasting plastic construction. Columns are of .375" O.D. flexible and shatter proof clear butyrate tubing. They are easily accessible for cleaning. Indicating tube is backed by white scale channel to provide maximum color contrast. Scales are extruded high impact polystyrene plastic, formed to hold columns in perfect alignment. Stark white scales have graduations and numbers silkscreen-printed in black for maximum legibility.

You can choose from numerous models and features including over-pressure safety traps, in full scale ranges from 8" to 36" of water or mercury. All are suitable for total pressures to 100 psi – for determining velocity and static pressures, leakage, fan and blower efficiency, filter resistance, and gas pressures. Ideal wherever a portable, direct reading manometer is needed. Standard ranges and markings as shown, or special ranges, colors, logos and brand names for OEM quantity orders are available.

**Minor Divisions** of 1/10 inch water column (or 2 mm water column on metric units) are silkscreened in jet black on stark white scale for positive definition. Easy to read, even at a distance, they are acrylic coated for permanence. All models are furnished with one 3/4 ounce bottle of fluorescein green color concentrate with special wetting agent for W/M models, or 3/4 ounce bottle of red gage oil for "D" units.

**Series 1221 Manometer**, Fig. 10-1. Our simplest, lowest cost basic U-gage. A dependable U-tube manometer that withstands hard use and provides accurate, high visibility readings. For use with water, mercury or red gage oil. For mercury filled manometers, a scale clamp bar, Dwyer Part No. A-363 (available as an extra for Series 1221 — and standard on Series 1222) is recommended. One pair of carrying plugs and a pair of non-kink vinyl tube connectors are included with each manometer.

**Series 1222 Manometer**, Fig. 10-2. All the features of the 1221 plus magnetic clips for mounting to any vertical steel surface, and clamp bar to insure against U-tube slipping. (Especially recommended for manometers used with mercury.) Both magnets are easily removed and replaced at the user's convenience.

**Series 1223 Manometer**, Fig 11-1 Our finest U-gage — for either portable or stationary use. Safety traps prevent loss of indicating fluid in case of accidental over-pressure. Tubing is permanently bonded to a molded, high impact acrylic plastic top that contains safety traps. Large magnetic clips and clamp bar are provided. Standard type "a" connections include two rapid shut-off type molded nylon tubing connections, two 3-foot lengths of flexible Tygon plastic tubing, and two 1/2" pipe thread to tube adapters.

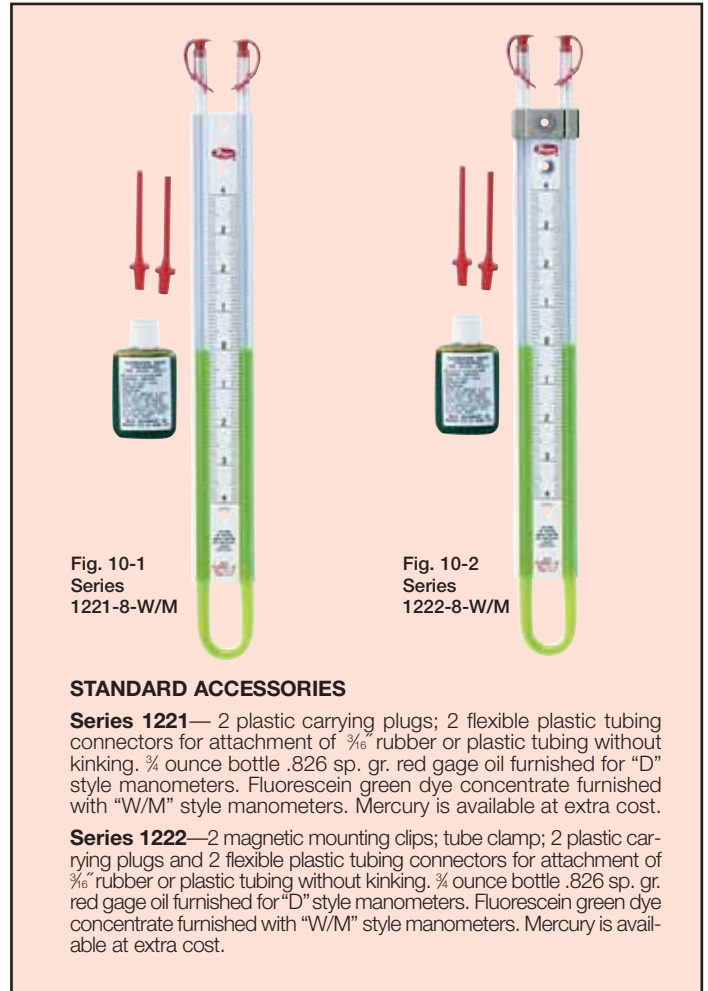


Fig. 10-1  
Series  
1221-8-W/M

Fig. 10-2  
Series  
1222-8-W/M

### STANDARD ACCESSORIES

**Series 1221**— 2 plastic carrying plugs; 2 flexible plastic tubing connectors for attachment of 3/16" rubber or plastic tubing without kinking. 3/4 ounce bottle .826 sp. gr. red gage oil furnished for "D" style manometers. Fluorescein green dye concentrate furnished with "W/M" style manometers. Mercury is available at extra cost.

**Series 1222**—2 magnetic mounting clips; tube clamp; 2 plastic carrying plugs and 2 flexible plastic tubing connectors for attachment of 3/16" rubber or plastic tubing without kinking. 3/4 ounce bottle .826 sp. gr. red gage oil furnished for "D" style manometers. Fluorescein green dye concentrate furnished with "W/M" style manometers. Mercury is available at extra cost.

### MODELS


1221-8-W/M	1222-8-W/M	1221-8-D	1222-8-D
1221-12-W/M	1222-12-W/M	1221-12-D	1222-12-D
1221-16-W/M	1222-16-W/M	1221-16-D	1222-16-D
1221-20-W/M	1222-20-W/M	1221-20-D	1222-20-D
1221-24-W/M	1222-24-W/M	1221-24-D	1222-24-D
1221-36-W/M	1222-36-W/M	1221-36-D	1222-36-D
1221-M200-W/M	1222-M200-W/M	1221-M200-D	1222-M200-D
1221-M300-W/M	1222-M300-W/M	1221-M300-D	1222-M300-D
1221-M400-W/M	1222-M400-W/M	1221-M400-D	1222-M400-D
1221-M600-W/M	1222-M600-W/M	1221-M600-D	1222-M600-D
1221-M1000-W/M	1222-M1000-W/M	1221-M1000-D	1222-M1000-D

## Ranges And Dimensions

MODEL OR RANGE		Hg REQUIRED TO FILL		1221, 2 & 3 SCALE LENGTH "A"		1221 & 2 O.A. LENGTH "B"		1223 O.A. LENGTH "B"	
INCHES H.O.	MILLIMETERS H.O.	GRAMS	OUNCES	W/M	D	W/M	D	W/M	D
8 (4-0-4)	M200 (100-0-100)	178.5	6.3	12%	14	15%	17	18%	19%
12 (6-0-6)	M300 (150-0-150)	225.5	7.9	16%	18%	19%	21%	21%	24%
16 (8-0-8)	M400 (200-0-200)	269	9.5	20%	23%	23%	26%	26%	30%
20 (10-0-10)	M600 (300-0-300)	314.5	11.1	24%	28%	27%	31%	30%	34%
		353.1	12.4	27%	32%	30%	35%	33%	38%
24 (12-0-12)		379.7	13.4	28%	33%	31%	36%	33%	39%
36 (18-0-18)	M1000 (500-500)	491.1	17.3	40%	47%	43%	50%	46%	53%
		526.6	18.5	43%	52	46%	55	49%	57%

Not recommended for vacuum service above 5 in. Hg (68 in. w.c.)

# Dual Range Flex-Tube® U-Inclined Manometers



Over-Pressure Safety Traps are featured on Dwyer Series 1223 U-tube manometers. The action is simple but positive. Over-pressures, whether gradual or a sudden surge, simply raise the cork and seal the fluid in the gage. When pressure drops, trap opens and gage resumes operation.

**Fig. 11-1**  
**Series**  
**1223-8-W/M**


**STANDARD ACCESSORIES** — Magnetic mounting clips; tube clamp and Type “a” connections consisting of two rapid shut off molded nylon tubing connectors; two 1/8” pipe thread to tube adapters; two 3-foot lengths of Tygon plastic tubing, 3/4 ounce bottle .826 sp. gr. red gage oil is furnished for “D” style manometers; fluorescein green dye concentrate with “W/M” style. Mercury is available at extra cost.

## MODELS

1223-8-W/M	1223-8-D
1223-12-W/M	1223-12-D
1223-16-W/M	1223-16-D
1223-20-W/M	1223-20-D
1223-24-W/M	1223-24-D
1223-36-W/M	1223-36-D
1223-M200-W/M	1223-M200-D
1223-M300-W/M	1223-M300-D
1223-M400-W/M	1223-M400-D
1223-M600-W/M	1223-M600-D
1223-M1000-W/M	1223-M1000-D

**How To Order:** 1. Indicate series such as 1222. 2. Indicate range desired such as: 8, 12 or M200. 3. Specify “W/M” with model number for inches\* of water, using water or inches\* of mercury, using mercury. Specify “D” with model number for inches\* of water using .826 sp. gr. red gage oil. Red gage oil is often preferred for readings in inches of water because of the longer scale and slower evaporation rate. This lessens the need for frequent re-zeroing and refilling. (If not otherwise indicated, “W/M” style manometers will be shipped.) 4. For Series 1223 only, state the connection option desired if other than standard type “a”. For example, 1223-12-D-“b” manometer is a Series 1223, range 12” w.c. (scale 6-0-6), using red gage oil with type “b” connections.

\*Metric units are in millimeters.



**Fig. 11-2**  
**Model 1227**  
**Dual Range**

**STANDARD ACCESSORIES** — Two plastic carrying plugs with retainers for use when manometer is not in service. Two magnetic clips to hold instrument to metal surface. Flexible red vinyl plastic tubing connectors. Brass terminal tube 1/8” diameter x 8” long. One terminal tube holder. Brass adapter, 1/8” pipe thread to plastic tubing. One 4 1/2-foot length of Tygon plastic tubing. One 3/4 ounce bottle .826 sp. gr. red gage fluid. Vinyl carrying case.



**Above** — Fig. 11-3 Use Series 1227 as a regular U-tube manometer to read high-range pressure on the right leg, or as an inclined manometer (shown here) to read low-range pressure on the bottom leg. Simply incline manometer until fluid levels read zero. No spirit level required. Magnetic clips hold the gage in position on a steel duct surface.

**Series 1227 Manometer,** Fig. 11-2. Most versatile and useful low cost manometer we know of. Designed for installation and servicemen. A sturdy, clear plastic manometer, it offers single, direct readings in two ranges: As a U-tube, it reads from 0 to 16” of water; as an inclined gage, it reads from -.20 to 0 to 2.6” of water. Model 1227M (Metric) is 0 – 400mm water column as a U-tube and -5 to 0 to 70mm water column as an inclined gage. “How-to-use” instructions are printed directly on the scale.

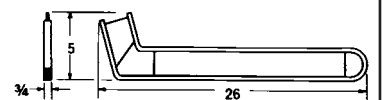
**Indicating Tubing** — Clear .400” O.D., tough, shatterproof butyrate. Pressure connection end is bent to provide over pressure protection when used as an inclined gage. One 4 1/2” x 3/8” Tygon tube included for pressure source connection.

**Scale** — Stark white high-impact styrene, 21” long. Adjustable for precise zeroing.

**Markings** — 1” major, .2” minor graduations on high range; .02” graduations on low range (50 mm major, 10 mm minor graduations on high range, 10 mm major, 1 mm minor graduations on low range for metric model). Silkscreened in black on stark white for positive definition. Acrylic-coated for permanence.

## MODELS

AS VERTICAL U-TUBE MANOMETER	AS INCLINED MANOMETER
0-16" water with 1" major divisions, .2" minor divisions	Scale is 17" long, reading .20-0-2.6" water with .02" minor divisions
Model 1227M (metric) is 0-400 mm water column	Model 1227M (metric) is -5 to 0 to 70 mm water column





# Mark II Molded Plastic Manometers

3% Accuracy For Stationary And Portable Applications At Minimum Cost



Fig. 13-1, Mark II Model No. 25 inclined-vertical manometer. (shown with optional A-612 portable stand)

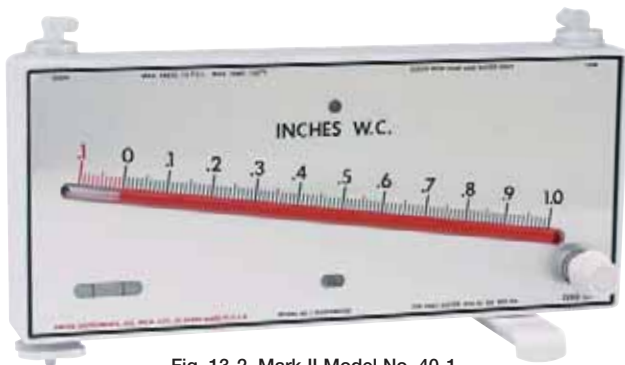


Fig. 13-2, Mark II Model No. 40-1 inclined manometer

Dwyer Mark II series molded manometers are of the inclined and inclined-vertical types. The curved inclined-vertical tube of the Model 25 gage provides higher ranges with more easily read increments at low readings. The Model 25 is excellent for general purpose work. The Model 40 inclined gage provides linear calibration and excellent resolution throughout its range. The Model 40 is ideally suited for air velocity and air filter gage applications. Both gage types are capable of pressure measurements above and below atmospheric as well as differential pressure measurements.

**Construction** — Mark II manometers are economically priced, compact and available in both stationary and portable configurations. Portable stand is standard on Model 40, available as optional A-612 stand for Model 25. Construction is simple with virtually indestructible molded white styrene-acrylonitrile housing, indicating tube and fluid wells, molded ABS knobs and zero adjust plunger, shock mounted glass level vial and leak proof "O" ring seals. Moderate overpressures are accommodated by an overflow tank incorporated in the Model 25. Greater protection is provided by float operated overflow traps in the Model 40. Scales are lithograph printed on aluminum and epoxy coated.

**Installation** — Mark II manometers can be mounted on any vertical surface with the two mounting screws provided. A built-in spirit level simplifies leveling before mounting screws are tightened. Simply fill the reservoir, adjust fluid level to zero, connect the tubing, and the gage is ready for operation.

**Accessories** — Included with each Mark II manometer are two tubing connectors for 1/8" pipe or sheet metal ducts, two mounting screws, 3/4 ounce bottle of indicating fluid, red and green pointer flags and complete instructions.

The Model 25 also includes 8 feet of flexible double column plastic tubing. Portable operation of the Model 25 is made possible by the use of the optional A-612 portable stand. A short piece of tubing can be slipped over the Model 25 pressure connections to contain the gage oil in transit.

The Model 40 contains two 4 1/2 foot lengths of clear plastic tubing, a plastic swing-out stand and leveling screw for portable operation. It also features convenient rapid shutoff pressure connections and integral overpressure safety traps.

**OEM Specials** — All Dwyer Mark II molded plastic manometers can be supplied in OEM quantities with your name or special graphics and scales.

## MODELS

Model	Range	Fluid Used
Mark II 25	0-3 in. w.c.	Red oil, .826 s.g.
Mark II 26	0-7 in. w.c.	Blue oil, 1.91 s.g.
Mark II 27*	0-7000 fpm	Red oil, .826 s.g.
Mark II 28*	0-10,500 fpm	Blue oil, 1.91 s.g.
Mark II MM-80	0-80 mm w.c.	Red oil, .826 s.g.
Mark II MM-180	0-180 mm w.c.	Blue oil, 1.91 s.g.
Mark II M-700Pa	10-0-700 Pa	Red oil, .826 s.g.

\*Require Pitot tube at additional cost. See Air Velocity section

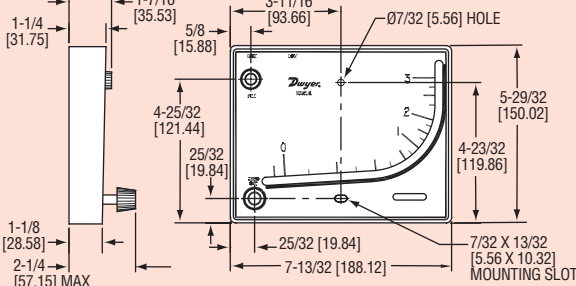
A-612, Portable Stand

## Specifications

Accuracy: ±3% full scale.

Maximum Internal Working Pressure: 10 psi (70 kPa).

Maximum Working Temperature: 140°F. (60°C).



## MODELS

Model	Range	Fluid Used
Mark II 40-1	.1-0-1.0 in. w.c.	Red oil, .826 s.g.
Mark II 40-25 mm	0-26 mm w.c.	Red oil, .826 s.g.
Mark II 40-250 Pa	10-0-250 Pa	Red oil, .826 s.g.
Mark II 41-2	.2-0-2.4 in. w.c.	Blue oil, 1.91 s.g.
Mark II 41-60 mm	0-60 mm w.c.	Blue oil, 1.91 s.g.
Mark II 41-600 Pa	20-0-600 Pa	Blue oil, 1.91 s.g.
Mark II 40-1-AV*	0-1.1 in. w.c. & 0-4200 fpm	Red oil, .826 s.g.
Mark II 40-250 Pa-AV*	0-260 Pa & 0-21 mps	Red oil, .826 s.g.
Mark II 41 -2-AV*	0-2.5 in. w.c. & 0-6300 fpm	Blue oil, 1.91 s.g.

\*Require Pitot tube at additional cost. See Air Velocity section

A-606, Air Filter Kit

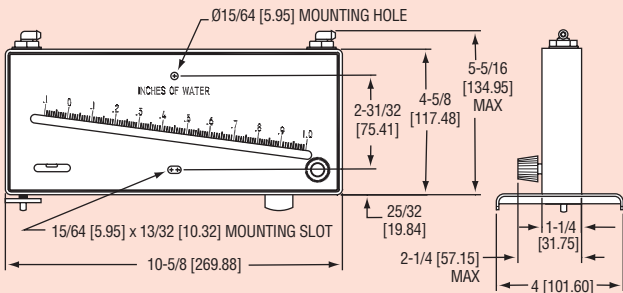
## Specifications

Accuracy: ±3% full scale.

Maximum Internal Working Pressure: 15 psi (100 kPa).

Maximum Working Temperature: 130°F. (54°C).

Scale Length: Approx. 8 3/4". (21 centimeters).







Model  
476-0

# Digital Manometer

Single Pressure Measurement, Electronic Zeroing,  $\pm 1.5\%$  Accuracy



- Measures Positive and Negative Pressures.
- Zero Function for Offset Measurements.
- Auto Power Off.
- Large, Easy-to-Read Display.
- Extruded Aluminum Case.



**Ideal for field or laboratory use**, the Model 476-0 Single Pressure Digital Manometer measures low pressures from -20 to 20" w.c. with  $\pm 1.5\%$  full scale accuracy. Designed especially for the HVAC contractor, the Model 476-0 can be used to set gas supply pressures, verify pressure switch operation, adjust regulators, check pneumatic systems and computer peripherals. The rugged, handheld unit is constructed with an extruded aluminum case for exceptional durability.

Pressure measurements can be quickly viewed on the large 4-1/2 digit LCD. The Model 476-0 Manometer features electronic zeroing to null out any minor pressure differences. Auto power off after five minutes conserves battery life.

The 476-0 Single Pressure Digital Manometer includes a quick start reference guide and a 9V battery.

## Model 476-0 Digital Manometer

### SPECIFICATIONS

**Service:** Air and compatible gases.

**Wetted Materials:** Consult factory.

**Accuracy:**  $\pm 1.5\%$  F.S. from 32 to 104°F (0 to 40°C).

**Pressure Limits:** -20 to 20" w.c. (-50 to 50 mbar).

**Temperature Limits:** 32 to 104°F (0 to 40°C).

**Storage Temperature Limits:** -4 to 176°F (-20 to 80°C).

**Display:** 0.42" (10.6 mm) 4-1/2 digit liquid crystal.

**Resolution:** 0.05" from -9.99" w.c. to 9.99" w.c.; 0.1" <-10" w.c., >10" w.c.

**Power Requirements:** 9V alkaline battery, (up to 50 hours of operation). Battery included but not connected.

**Weight:** 10.8 oz (306 g).

**Connections:** Barbed connection for use with 1/8" (3.18 mm) or 3/16" (4.76 mm) I.D. tubing.

**Agency Approvals:** CE.

**Dimensions:** 6-9/16" H x 2-13/16" W x 29/32" D.

**A-402A CARRYING CASE** — Tough gray nylon pouch protects any Series 476-0 Manometer. Double zippered for quick and easy access. With belt loop that snaps closed.

7 1/2"H x 3"W x 2 1/4"D  
(191 x 76 x 57 mm)





Model  
478-0

# Digital Differential Manometer

Selectable Engineering Units, Min/Max, Backlight,  $\pm 1.5\%$  Accuracy



- Economically Priced.
- Multi-Functioning: Positive, Negative, or Differential Measurement.
- Display Readings in Inches w.c. or mbar.
- Min/Max, Hold and Zero Functions.
- Backlit Display.
- Extruded Aluminum Case.

**Quickly verify** filter condition, monitor cleanrooms, troubleshoot HVAC systems, or perform field calibrations with the Model 478-0 Digital Differential Manometer. The Model 478-0 is an indispensable tool for the HVAC technician, plant engineer, or industrial hygienist. The electronics are housed in a rugged extruded aluminum case to provide long life and exceptional durability.

The manometer can be used to measure positive, negative, or differential pressures from -60 to 60" w.c. (-150 to 150 mbar). The unit features selectable units in inches w.c. or mbar and a Min/Max function. Press the Hold key to freeze the current pressure measurement on the display. The 478-0 manometer includes a zeroing button to null out any minor pressure differences. To view the display clearly in poorly lighted areas, use the backlight key.

The Model 478-0 Digital Differential Manometer includes a quick start reference guide and a 9V battery.



## SPECIFICATIONS

**Service:** Air and compatible gases.

**Wetted Materials:** Consult factory.

**Accuracy:**  $\pm 1.5\%$  F.S. from 32 to 104°F (0 to 40°C).

**Pressure Hysteresis:**  $\pm 0.1\%$  of full scale.

**Pressure Limits:** -60 to 60" w.c. (-150 to 150 mbar).

**Temperature Limits:** 32 to 104°F (0 to 40°C).

**Storage Temperature Limits:** -4 to 176°F (-20 to 80°C).

**Display:** 0.42" (10.6 mm) 4-1/2 digit liquid crystal.

**Resolution:** 0.01" from -9.99" w.c. to 9.99" w.c.; 0.1" <-10" w.c., >10" w.c.

**Power Requirements:** 9V alkaline battery, (up to 40 hours of operation). Battery included but not connected.

**Weight:** 10.8 oz (306 g).

**Connections:** Two barbed connections for use with 1/8" (3.18 mm) or 3/16" (4.76 mm) I.D. tubing.

**Agency Approvals:** CE.

**Dimensions:** 6-9/16" H x 2-13/16" W x 29/32" D.

**A-402A CARRYING CASE** — Tough gray nylon pouch protects any Series 478-0 Manometer. Double zippered for quick and easy access. With belt loop that snaps closed.

7½"H x 3"W x 2¼"D  
(191 x 76 x 57 mm)



## Model 478-0 Digital Differential Manometer



Series  
475

# Mk III Handheld Digital Manometer

Ranges from 1 in. w.c. to 150 psid,  $\pm 0.5\%$  Accuracy



- **New LOW Range Option 0-1.00 in. w.c.**
- Measures Positive, Negative and Differential Pressures
- Rugged, Extruded Aluminum Case
- Lightweight, Fast and Easy to Use
- Dual Calibration with English and Metric Units
- FM Approved

## Applications

The Dwyer Series 475-FM Mark III Handheld Digital Manometer is ideal for field calibration, monitoring or trouble shooting HVAC systems, clean rooms, or a wide range of other low pressure pneumatic systems. This handy instrument measures positive, negative or differential pressures of air and natural gases in ranges from 1 in. w.c. (0.249 kPa) to 150 psid (10.34 bar). The Series 475-FM is approved and is intrinsically safe for hazardous locations, Class 1, Div. 1, Group A, B, C, D, T4. Its simple operation and easy to read digital display make it an indispensable test instrument for the plant engineer, industrial hygienist and HVAC technician. When used with a Dwyer Pitot tube (see Flow and Air Velocity), the Series 475-FM Mark III can also be used as an air velocity gage. See the complete 475-1-FM-AV kit described below.

The Series 475-FM Mark III is housed in a durable extruded aluminum case with its solid state circuitry mounted on a tough fiberglass epoxy circuit board. To meet the most demanding applications and to provide stability of instrument reading, the 1 in. w.c. range is compensated for position sensitivity through the use of a unique patented dual sensor system. A standard 9 volt battery provides up to 100 hours of operation. Dual push pads on the front panel control on-off operation and English or metric pressure unit selection. No set-up or leveling. Zero adjust knob is conveniently located on top. The large  $\frac{1}{2}$ " LCD display is easy to read, minimizing data collection errors. Units include a "low battery" indicator. The pressure sensor used is a highly stable silicon piezoresistive device. Standard connections are dual sized for  $\frac{1}{8}$ " or  $\frac{3}{16}$ " I.D. vinyl or rubber tubing. Complete instructions are conveniently printed on rear of housing.



## SPECIFICATIONS

**Service:** Air and compatible gases.

**Wetted Materials:** Consult factory.

**Accuracy:**  $\pm 0.5\%$  F.S., 60 to 78°F (15.6 to 25.6°C);  $\pm 1.5\%$  F.S. from 32 to 60°F and 78 to 104°F (0 to 15.6°C and 25.6 to 40°C).

**Pressure Hysteresis:**  $\pm 0.1\%$  of full scale.

**Pressure Limits:** See chart.

**Temperature Limits:** 0 to 140°F (-17.8 to 60°C).

**Compensated Temperature Limits:** 32 to 104°F (-0 to 40°C).

**Storage Temperature Limits:** -4 to 176°F (-20 to 80°C).

**Display:** 0.5" liquid crystal. 3-1/2 digits.

**Resolution:** See chart.

**Power Requirements:** 9 volt alkaline battery. Battery not connected.

**Weight:** 10.8 oz (306 g).

**Connections:** Two barbed connections for use with  $\frac{1}{8}$ " (3.18 mm) or  $\frac{3}{16}$ " (4.76 mm) I.D. tubing. Two compression fittings for use with  $\frac{1}{8}$ " (3.18 mm) I.D. x  $\frac{3}{16}$ " (4.76 mm) O.D. tubing for 475-7-FM & 475-8-FM only.

**Agency Approvals:** FM, CE.

**A-402A CARRYING CASE** — Tough gray nylon pouch protects any Series 475 Manometer. Double zippered for quick and easy access. With belt loop that snaps closed.  
7½"H x 3"W x 2¼"D (191 x 76 x 57 mm) . . . . .



**475-AV AIR VELOCITY KIT** — Includes the Series 475-FM Manometer, two A-303 static pressure tips two 9 ft. lengths  $\frac{3}{16}$ " I.D. rubber tubing, no. 166-6-CF Pitot tube, A-397 step drill, A-532 air velocity slide chart and instruction bulletin H-11, all packed in a tough, molded plastic carrying case with die cut foam liner. To order, add AV suffix to any standard 475 model no.  
Example: 475-1-FM-AV . . . . .  
475-000-FM-AV . . . . .

## MODELS

Model Number	English Range	Metric Range	Maximum Pressure
475-000-FM	0-1.000 in. w.c.	0-.249 kPa	10 in. w.c./2.5 kPa
475-00-FM	0-4.00 in. w.c.	0-.995 kPa	5 psig/35 kPa
475-0-FM	0-10.00 in. w.c.	0-2.49 kPa	5 psig/35 kPa
475-1-FM	0-19.99 in. w.c.	0-4.97 kPa	10 psig/68.9 kPa
475-2-FM	0-40.0 in. w.c.	0-9.95 kPa	10 psig/68.9 kPa
475-3-FM	0-199.9 in. w.c.	0-49.7 kPa	30 psig/207 kPa
475-4-FM	0-10.00 psid	0-.689 bar	30 psig/207 bar
475-5-FM	0-19.99 psid	0-1.378 bar	60 psig/4 bar
475-6-FM	0-30.0 psid	0-2.07 bar	60 psig/4 bar
475-7-FM	0-100 psid	0-6.89 bar	150 psig/10 bar
475-8-FM	0-150 psid	0-10.34 bar	200 psig/14 bar



Series 477

# Handheld Digital Manometer

Selectable Pressure Units,  $\pm 0.5\%$  Accuracy, FM Approved Intrinsically Safe for Hazardous Locations, Class 1, Div. 1, Group A, B, C, D, T4

- Instant Selection from up to Nine English/Metric Units.
- Stores 20 Readings in Memory for Later Reference.
- Measure Positive, Negative or Differential Pressures.
- Large Easy-to-Read 0.4" LCD Display Includes Switchable Backlight for Great Visibility — Anywhere!
- Both Audible and Visual Overpressure Alarms.
- Includes + and - Indicators plus Low Battery Warning.
- Operates up to 100 Hours on a Single 9 Volt Battery.
- FM & CE Approved

**Series 477 Handheld Digital Manometers** are packed with features you need to make pressure measurement and recording faster, easier and more accurate than ever. First, you can instantly select from up to nine of the most widely used pressure units without having to waste time and risk mistakes with tedious conversions. Next, a non-volatile memory function enables storage of up to 20 readings — perfect for HVAC technicians making Pitot tube traverses of airflow readings across a duct. The Series 477 is FM approved intrinsically safe for hazardous locations, Class 1, Div. 1, Group A, B, C, D, T4.

When working in poorly lighted areas, just switch on the handy backlight feature. It automatically shuts itself off after 20 minutes to minimize battery drain. Electronic zeroing means you simply touch a single key to perfectly null out any minor pressure differences. A display HOLD key freezes the current pressure for those all-too-common situations where readings fluctuate. We even included an audible alarm to warn you of overpressure plus a visual alarm warning in case ambient noise levels are too high to hear the alarm. Audible alarm also confirms a value has been stored, eliminating the need to observe display during a duct traverse.

Clear, concise operating instructions for all functions are printed on the rear of the rugged extruded aluminum case for quick reference. One-piece front membrane fully protects all keys from dust and moisture; wipes clean in seconds. Detailed written instructions, a wrist strap and 9 volt alkaline battery are included.



**Now FM Approved**

### SPECIFICATIONS

- Service:** Air and compatible gases.
- Wetted Materials:** Consult factory.
- Accuracy:**  $\pm 0.5\%$  F.S., 60 to 78°F (15.6 to 25.6°C);  $\pm 1.5\%$  F.S. from 32 to 60°F and 78 to 104°F (0 to 15.6°C and 25.6 to 40°C).
- Pressure Hysteresis:**  $\pm 0.1\%$  of full scale.
- Pressure Limits:** See chart.
- Temperature Limits:** 0 to 140°F (-17.8 to 60°C).
- Compensated Temperature Limits:** 32 to 104°F (-0 to 40°C).
- Storage Temperature Limits:** -4 to 176°F (-20 to 80°C).
- Display:** 0.42" (10.6 mm) 4-1/2" digit liquid crystal.
- Resolution:** See chart.
- Power Requirements:** 9 volt alkaline battery. Battery included but not connected.
- Weight:** 10.2 oz (289 g).
- Connections:** Two barbed connections for use with 1/8" (3.18 mm) or 3/16" (4.76 mm) I.D. tubing. Two compression fittings for use with 1/8" (3.18 mm) I.D. x 1/4" (6.35 mm) O.D. tubing for 477-6-FM & 477-7-FM only.
- Agency Approvals:** FM, CE.

**A-402A CARRYING CASE** — Tough gray nylon pouch protects any Series 477 Manometer. Double zippered for quick and easy access. With belt loop that snaps closed.

7 1/2"H x 3"W x 2 1/4"D  
(191 x 76 x 57 mm)



### MODELS

Model Number	English Range	Metric Range	Maximum Pressure
477-1-FM	0-20.00 in. w.c.	0-5 kPa	11 psi (0.75 bar)
477-2-FM	0-40.00 in. w.c.	0-10 kPa	11 psi (0.75 bar)
477-3-FM	0-200.0 in. w.c.	0-50 kPa	29 psi (1.99 bar)
477-4-FM	0-10.00 psid	0-70 kPa	58 psi (3.99 bar)
477-5-FM	0-30.00 psid	0-200 kPa	58 psi (3.99 bar)
477-6-FM	0-100.0 psid	0-700 kPa	150 psi (10.3 bar)
477-7-FM	0-150.0 psid	0-1000 kPa	150 psi (10.3 bar)

### PRESSURE UNITS AVAILABLE

Model Number	in.		mm		Pa	kPa	bar	mbar
	psid	H <sub>2</sub> O	H <sub>2</sub> O	Hg				
477-1-FM	▲	▲	▲	▲	▲	▲	▲	▲
477-2-FM	▲	▲	▲	▲	▲	▲	▲	▲
477-3-FM	▲	▲	▲	▲	▲	▲	▲	▲
477-4-FM	▲	▲	▲	▲	▲	▲	▲	▲
477-5-FM	▲	▲	▲	▲	▲	▲	▲	▲
477-6-FM	▲	▲	▲	▲	▲	▲	▲	▲
477-7-FM	▲	▲	▲	▲	▲	▲	▲	▲



Series  
477A

# Handheld Digital Manometer

Precise Air Pressure Measurement,  $\pm 0.1\%$  F.S. Accuracy

- Measure Positive, Negative, or Differential Pressures.
- Instant Selection from up to Nine English/Metric Units.
- Stores 20 Readings in Memory for Later Reference.
- Both Audible and Visual Overpressure Alarms.
- Operates up to 100 Hours on a Single 9 Volt Battery.

The Popular Dwyer model 477 is now available with 0.1% full scale accuracy in the new Series 477A. The 477A contains a highly accurate differential pressure sensor that offers a 0.1% full scale accuracy on air ranges from 20" w.c. to 100 psid. Series 477A Handheld Digital Manometers are packed with features needed to make pressure measurement and recording faster, easier and more accurate than ever. Instantly select from up to nine of the most widely used pressure units without having to waste time and risk mistakes with tedious conversions. A non-volatile memory function enables storage of up to 20 readings – perfect for HVAC technicians making Pitot tube traverses of airflow readings across a duct. The 477A is also ideal for maintenance personnel or technicians that require a highly accurate standard to check their instrumentation or equipment to ensure proper performance.

When working in poorly lighted areas, just switch on the handy back-light feature. The manometer automatically shuts itself off after 20 minutes to minimize battery drain. Electronic zeroing means you simply touch a single key to perfectly null out any minor pressure differences. A display HOLD key freezes the current pressure for those all-too-common situations where readings fluctuate. Included is an audible alarm to warn of overpressure plus a visual alarm warning in case ambient noise levels are too high to hear the alarm. Audible alarm also confirms a value has been stored, eliminating the need to observe display during a duct traverse.

Clear, concise operating instructions for all functions are printed on the rear of the rugged extruded aluminum case for quick reference. One-piece front membrane fully protects all keys from dust and moisture; wipes clean in seconds. Detailed written instructions, a wrist strap and 9 volt alkaline battery are included.



## MODELS

Model Number	English Range	Metric Range	Maximum Pressure
477A-1	0-20.00 in. w.c.	0-5 kPa	3 psi (0.21 bar)
477A-2	0-40.00 in. w.c.	0-10 kPa	3 psi (0.21 bar)
477A-3	0-200.0 in. w.c.	0-50 kPa	15 psi (1.03 bar)
477A-4	0-10.00 psi	0-70 kPa	30 psi (2.07 bar)
477A-5	0-30.00 psi	0-200 kPa	60 psi (4.13 bar)
477A-6	0-50.0 psi	0-350 kPa	100 psi (6.89 bar)
477A-7	0-100.0 psi	0-700 kPa	200 psi (13.78 bar)

## SPECIFICATIONS

**Service:** Air and non-combustible compatible gases.

**Wetted Parts:** Consult factory.

**Accuracy:**  $\pm 0.10\%$  of full scale from 60 to 78°F (15.6 to 25.6°C);  $\pm 1\%$  of full scale from 32-60 and 78-104°F (0-15.6 and 25.6-40°C).

**Pressure Hysteresis:**  $\pm 0.1\%$  of full scale.

**Pressure Limits:** See chart.

**Temperature Limits:** 32 to 104°F (0 to 40°C).

**Storage Temperature Limits:** -4 to 176°F (-20 to 80°C).

**Display:** 0.42" (10.6 mm) 4-1/2" digit liquid crystal.

**Resolution:** See chart.

**Power Requirements:** 9 volt alkaline battery. Battery included but not connected.

**Weight:** 10.2 oz. (289 g).

**Connections:** Two barbed connections for use with 1/8" (3.18 mm) or 3/16" (4.76 mm) I.D. tubing for 477A-1, 477A-2, 477A-3, 477A-4 and 477A-5 only. Two compression fittings for use with 1/8" (3.18 mm) I.D. x 1/4" (6.35 mm) O.D. tubing for 477A-6 and 477A-7 only.



Series  
HM28

# Handheld Digital Manometer

High Accuracy (0.2%, 0.1% or 0.05%), Differential, Gauge or Absolute



## STANDARD FEATURES

- Microprocessor based
- Differential, Gauge, or Absolute
- High Accuracy, 0.2%, 0.1%, or 0.05% with Calibration Certificate
- Selectable Scales
- Resolution to 0.000 of Selected Unit
- Peak and Valley Indication
- Hold Function
- Programmable Display
- Memory for up to 964 Readings
- Output for Optional Printer or Computer Interface

The Love Controls Series HM28 Digital Hand-Held Manometer is a precision instrument designed to measure a wide range of pressures to a very high accuracy. The unit incorporates a variety of features in an easy to use format that makes it useful in a wide variety of applications. Features include: measurement in all common pressure ranges, display resolution to 0.001, differential or relative measurement, two line liquid crystal display, and adjustable auto power off to conserve battery.

We are so proud of the accuracy of the HM28 that we provide a certificate of calibration with the unit at no additional cost. Depending on your application, the HM28 can be used as a secondary calibration standard for your other pressure instrumentation.

## INPUT RANGES

RANGE (US)	RANGE (METRIC)	OVERPRESSURE
Gauge, underpressure and differential pressure		
0-10 in H <sub>2</sub> O	0-2.5 kPa	12.5 kPa (50 in H <sub>2</sub> O)
0-28 in H <sub>2</sub> O	0-7 kPa	35.0 kPa (140 in H <sub>2</sub> O)
0-80 in H <sub>2</sub> O	0-20 kPa	150 kPa (600 in H <sub>2</sub> O)
0-120 in H <sub>2</sub> O	0-30 kPa	150 kPa (600 in H <sub>2</sub> O)
0-200 in H <sub>2</sub> O	0-50 kPa	400 kPa (1600 in H <sub>2</sub> O)
0-14.5 psi	0-100 kPa	400 kPa (58 psi)
0-29 psi	0-200 kPa	700 kPa (100 psi)
0-100 psi	0-700 kPa	1700 kPa (246 psi)
0-145 psi	0-1000 kPa	2700 kPa (390 psi)
0-245 psi	0-1700 kPa	2700 kPa (390 psi)
for Gauge, media compatible with 18/8 SS (DIN 1.4305)		
0-14.5 psi	0-100 kPa	200 kPa (29 psi)
0-29 psi	0-200 kPa	400 kPa (58 psi)
0-100 psi	0-700 kPa	1400 kPa (203 psi)
0-145 psi	0-1000 kPa	3400 kPa (493 psi)
0-245 psi	0-1700 kPa	3400 kPa (493 psi)
0-435 psi	0-3000 kPa	7000 kPa (1015 psi)
0-1000 psi	0-7000 kPa	14000 kPa (2030 psi)

## Accessories

- HM28-0** 1/8" NPT Adaptor 2 pieces . . . . .
- HM28-1** Communication Software & Cable . . . . .
- HM28-2** Universal Power Adaptor . . . . .



## SPECIFICATIONS

**Pressure Connection:** Hose; 4/6 mm or 1/8" NPT.

**Accuracy** (includes linearity, hysteresis, and repeatability): per order code.

- ±0.20% full scale ±1 digit
- ±0.10% full scale ±1 digit
- ±0.05% full scale ±1 digit

**Measuring Media:** Instrument Air or Inert Gases. For HM28G3XXXXX, Any material compatible with 18/8 stainless steel.

**Temperature Limits:** 23 to 122°F (-5 to 50°C).

**Storage Temperature:** -4 to 140°F (-20 to 60°C).

**Humidity:** 30 to 95% rH, non-condensing.

**Display:** 2 line, 16 character, dot matrix LCD, with switchable display sizes.

**Battery:** 9V alkaline (included). Can operate from external power supply of 7 to 14 VDC.

**Current Consumption:** <9 mA.

**Memory:** 964 measured values. Recording intervals adjustable from manual, 1, 5, 10, 20, 30 seconds, 1, 2, 3, 5, 10, 30, 60 minutes.

**Case Protection:** IP54.

**Case Dimensions:** 6 x 3.27 x 1.34 in (152 x 83 x 34 mm).

**Weight:** 9.5 oz (270 g).

**Maximum Measurement Rates:** Stand alone: 2-1/2 readings/sec (0.1% and 0.05% ratings), 5 readings/sec (0.2% rating). Output to RS-232: 20 measurements/sec (0.2% rating), 10 measurements/sec (0.1% and 0.05% ratings).

**RS-232 Baud Rate:** Adjustable, 1200, 2400, 4800, or 9600 baud.

**Agency Approvals:** CE.

## MODELS

Part Number	Features
<b>Error limit 0.2% F.S. for gauge, underpressure and differential pressure</b>	
HM28D3B10000	0-10 in H <sub>2</sub> O (2.5 kPa)
HM28D3C10000	0-28 in H <sub>2</sub> O (7 kPa)
HM28D3F10000	0-120 in H <sub>2</sub> O (30 kPa)
HM28D3H10000	0-14.5 psi (100 kPa)
<b>Error limit 0.05% F.S. for gauge, underpressure and differential pressure</b>	
HM28D3C30000	0-28 in H <sub>2</sub> O (7 kPa)
HM28D3F30000	0-120 in H <sub>2</sub> O (30 kPa)
HM28D3H30000	0-14.5 psi (100 kPa)
HM28D3K30000	0-100 psi (700 kPa)
HM28D3M30000	0-245 psi (1700 kPa)
<b>For Absolute pressure</b>	
HM28A3I10000	0-15.9 pisa (0.2% F.S. (110 kPa abs))



Series 490

# Wet/Wet Handheld Digital Manometer

Liquid & Gas Pressure Measurement,  $\pm 0.5\%$  F.S. Accuracy



- Measures Virtually any Liquid Media Compatible with 316L SS.
- Instant Selection from up to Seven English/Metric Units.
- Stores 20 Readings in Memory for Later Reference.
- Both Audible and Visual Overpressure Alarms.
- Operates up to 100 Hours on a Single 9 Volt Battery.



**Series 490 Digital Manometers** are versatile, hand-held, battery operated manometers available in several basic ranges from 0-15.0 psi (0-100 kPa) to 0-500 psi (0-3450 kPa). Units are highly accurate ( $\pm 0.5\%$  FS) for positive or positive differential pressure measurement and can tolerate most liquid media compatible with 316LSS.

You can select from up to seven common English and metric pressure units (psi, in. H<sub>2</sub>O, in. Hg, mm Hg, kPa, bar or mbar) so conversions are not necessary. A memory function allows storage of up to 20 readings for later recall and a backlight provides auxiliary lighting for hard-to-see locations.

Standard are a hold feature and both visual and audible overpressure alarms. A 9V alkaline battery is included that provides up to 100 hours of operation. Units have dual 1/8" female NPT connections.

## MODELS

Model Number	English Range	Metric Range	Maximum Pressure
490-1	0-15.000 psi	0-100 kPa	30 psi (2.7 bar)
490-2	0-30.00 psi	0-200 kPa	60 psi (4.13 bar)
490-3	0-50.00 psi	0-350 kPa	120 psi (6.89 bar)
490-4	0-100.00 psi	0-700 kPa	200 psi (13.78 bar)
490-5	0-500.0 psi	0-3450 kPa	1000 psi (68.9 bar)

## SPECIFICATIONS

**Service:** Compatible gases & liquids.

**Wetted Materials:** Type 316L SS.

**Accuracy:**  $\pm 0.5\%$  F.S., 60 to 78°F (15.6 to 25.6°C);  $\pm 1.5\%$  F.S. from 32 to 60°F and 78 to 104°F (0 to 15.6°C and 25.6 to 40°C).

**Pressure Hysteresis:**  $\pm 0.1\%$  of full scale.

**Pressure Limits:** See chart.

**Temperature Limits:** 32 to 104°F (0 to 40°C).

**Storage Temperature Limits:** -4 to 176°F (-20 to 80°C).

**Display:** 0.42" (10.6 mm) 4-1/2" digit liquid crystal.

**Resolution:** See chart.

**Power Requirements:** 9 volt alkaline battery. Battery included but not connected.

**Weight:** 14.1 oz (400 g).

**Connections:** Two 1/8" (3.18 mm) female NPT.

**Agency Approvals:** CE.



**A-402A Carrying Case** — Tough gray nylon pouch protects any Series 490 Wet/Wet Handheld Digital Manometer. Double zippered for quick and easy access. With belt loop that snaps closed.

7 1/2"H x 3"W x 2 1/4"D  
(191 x 76 x 57 mm)





# Air Filter Gages And Switches

## The application of . . .

Air filters used in ventilating systems are called upon to remove an extremely wide variety of contaminants from the air, ranging from soot and smoke and the common dusts to mold spores, bacteria and pollen. Particle sizes vary from less than a micron (.000039") to insects and leaves. The concentration will vary hourly, daily and seasonally.

These variables combined with filtering requirements that range from the simple needs of a household furnace to the absolute filtration required for a clean room make air cleaning a complex science. Filter selection should, therefore, be made by a qualified engineer or in cooperation with the filter manufacturer.

The same variables that affect filter selection also contribute to the problem of determining when a filter has reached the tolerable limit of its effective life span as a result of the accumulation of contaminants. Because of wide variation in contaminant load in the air being filtered, time is an uncertain measurement. Visual inspection of the condition of the filter tells little or nothing. The most widely used method of checking filter condition is to measure pressure drop across the filter by means of an air filter gage.

### The Function of the Air Filter Gage

A clarification of terminology is essential to understanding the function of an air filter gage. The air filter gage measures pressure drop across the filter for the purpose of determining whether or not the filter is operating within its designed range of effective utilization. It *does not* measure filter efficiency.

*Filter efficiency* as defined by the ASHRAE GUIDE, "is synonymous with the term arresstance and measures the ability of the air cleaner to remove particulate matter from an air stream." Several methods of determining filter efficiency exist, because of variations in filters and application requirements.

One method is by weight, in which a carefully compounded mixture of standardized dust is fed into the air stream and the amount trapped by the filter related to the amount released in the test determines the filter efficiency in percentage. A second method, the dust spot method originated by the National Bureau of Standards, compares the opacity of the dust collected on filter paper from two air samples of equal flow rate, one of which samples filtered air. The efficiency of the filter is thus evaluated on the basis of the darkness of the dust spots. A third method measures arresstance of DOP (Dioctyl-phthalate) smoke, a homogenous aerosol of 0.3 micron size, to test a special class of high efficiency filters used to control particulate matter of high toxicity or where extreme cleanliness is required.

The "dust holding capacity" of an air filter is defined by ASHRAE GUIDE as, "the amount of a particular dust that an air filter can hold and *determines the operating life of the air cleaner which is fixed mainly by some figure of tolerable resistance.*" Thus, an air filter gage, sensing the differential in static pressure across an air filter, will permit the air filter to be used to its maximum dust holding capacity as determined by the filter manufacturer and specified in terms of maximum filter resistance. It should be noted that servicing a filter when it has reached its point of specified maximum resistance is the only method which will guarantee that the filters are being used to their full dust holding capacity and at the same time not being used beyond the point where their increased resistance could affect balance of the system, increase air leakage and, for some types of filters, begin to pass contaminants.

### Type of Filters and Recommended Resistance for Servicing

All filter manufacturers supply technical data which will permit full utilization of their filters. This data will include initial resistance in inches of water column for the filter at its rated air flow and a recommended resistance at which point the filter should be replaced or serviced. The following describes the broad classifications of air filters:

## HOW TO INSTALL DWYER AIR FILTER GAGES AND SWITCHES

Dwyer Air Filter Gages and Switches are offered in a variety of types to meet the needs of your system. All types are customarily mounted on the outside of the air handling duct or plenum near the filter bank. The type of static pressure tips used and their location is of primary importance in securing reliable readings. For maximum accuracy, it is essential that the influence of the velocity of the air be eliminated to permit sensing the true static pressure. Note that some filter installations do not provide a straight duct approach to the filter bank which may cause air to swirl and eddy.

Right angle static pressure tips give the most accurate sensing and are furnished with 2000 Series Magnehelic® and 250-AF Series Gages. Flush static pressure fittings inserted at right angles to the flow are lower in cost and less likely to plug up, but are more susceptible to velocity and turbulence influence.

Tips should be located as recommended by the specifying engineer or by the filter manufacturer. In the absence of such recommendations, locate the tips at least 12" upstream and downstream from the filters in a zone of minimum turbulence.

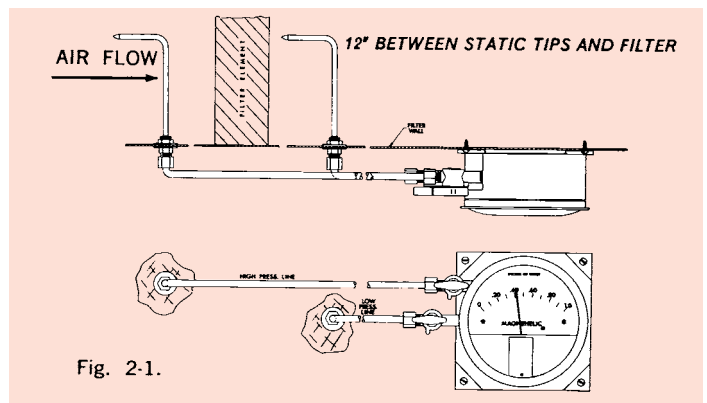


Fig. 2-1.

**Fig. 2-1 2000 SERIES MAGNEHELIC® GAGES** are diaphragm actuated pointer type gages. The gage is attached to the mounting plate which is furnished and the mounting plate screwed to the wall of the air duct. The static pressure tips are installed through  $\frac{1}{8}$ " holes in the filter wall with tips pointing into air flow. The static tips are connected to the plastic vent valves using the  $\frac{1}{8}$ " aluminum tubing and compression fittings which are furnished. Zeroing is accomplished by turning the vent valves to venting position and then turning the zero adjustment screw in the face of the gage with a screwdriver. For detailed instructions, see Bulletins A-27 and A-28.



**Viscous Impingement Filters** have the filter element treated with an oil or adhesive which holds dust particles coming in contact. The initial resistance of a typical filter will usually run from .08 to .15" water, and servicing will be called for at .50" water. In the automatic moving curtain type, resistance will usually be maintained between .40 and .50" water by means of a pressure actuated switch or timer with over-riding pressure switch operating an electric drive.

**Dry Type Filters** are available in a multiplicity of materials, in varying thicknesses, in batts, woven or bonded materials, natural or synthetic, and in pleated form or in tubes or bags to obtain greater filter area. Efficiencies are usually at least equivalent to the viscous impingement type and may run to virtually 100%. Dust holding capacity is high and resistance values vary so widely no rule of thumb figures are possible. The manufacturer should always be consulted for proper initial and final pressure drop figures for these filters.

**Electronic Air Cleaners** using the electrostatic precipitation principle have no characteristic increase in pressure drop as they accumulate dust and must therefore be serviced on a pre-set schedule. The mechanical filter normally used with such equipment should, however, be serviced on the basis of increased pressure drop.

**Significance of High or Low Initial Resistance Readings** Due to the many variables inherent in an air distribution system, the initial pressure drop in some systems may be found to be below that specified by the filter manufacturer. If the system has been carefully checked over and found to be in order, this need not be a source of concern, as it simply indicates that less than rated air volume is passing through the filter. Generally, this will mean increased filter life before the filter requires servicing. Conversely, if initial pressure drop exceeds the filter manufacturer's rating, it indicates that a greater volume of air is being handled than the filter is rated for and filter life will be shortened.

Excessive variation from the filter manufacturer's published initial resistance figure will probably indicate one or more of the following problems:

### Low Pressure Drop

1. Less than rated air volume being handled due to over design of filter area, improper air balancing of system, open bypasses, etc.
2. Incorrect filter installed.
3. Velocity influence.
4. Air leakage around filters, past frames, and possibly through damaged filter.

**IMPORTANT.** An initial pressure drop 30% to 40% or more below the rated value for the filter means that approach velocities may be sufficiently low to impair the efficiency of some types of filters.

### High Pressure Drop

1. Incorrect filter installed.
2. System handling more than rated air volume. Suggest thorough check of system to be certain all controls are properly set and operating. If unable to reduce pressure drop to less than ten percent or fifteen percent above rated value additional filter area should be provided or air volume reduced.

**IMPORTANT.** An initial pressure drop 10% to 15% or more above the rated value for the filter, means that approach velocities may be sufficiently high to impair the efficiency of some types of filters.

### Installation Check and Trouble Shooting

Before putting your air filter gage into service or in the event of initial pressure drop readings that don't agree with the filter manufacturer's specified pressure drop, make the following checks:

1. Check zero adjustment of the gage. Remove both tubing leads or open vent valves to atmosphere.
2. Check all tubing connections for tightness from gage to the static tip or fitting connection.
3. Check static pressure tips or fittings to be sure they are not plugged.
4. Check installation of static tips or fittings. Angle type static pressure tips must point directly into the air stream. Flange type static pressure fittings should be mounted on a duct wall in such a location that the opening is at a right angle to the moving air stream. A velocity pressure error can be created if the air blows directly into the opening.

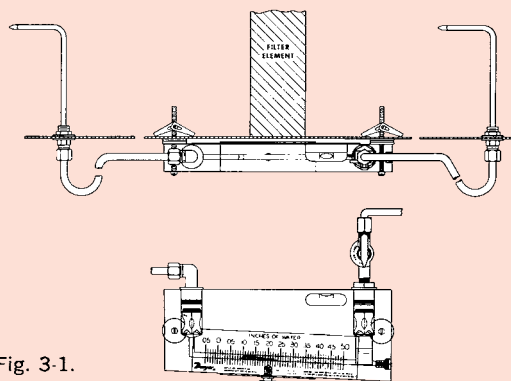


Fig. 3-1.

**Fig. 3-1. 250-AF SERIES SOLID PLASTIC GAGES** are manometer type gages which are customarily mounted directly on the wall of the filter housing. The static pressure tips are installed through  $\frac{1}{8}$ " holes in the filter wall with tips pointing into the air flow using the  $\frac{1}{4}$ " aluminum tubing and compression fittings which are furnished. Zeroing is accomplished by turning the vent valves (optional at extra cost) to "vent" position — or by pulling the connections from the gage body if vent valves are not used — and sliding the adjustable scale until the zero mark lies directly behind the indicating fluid meniscus.

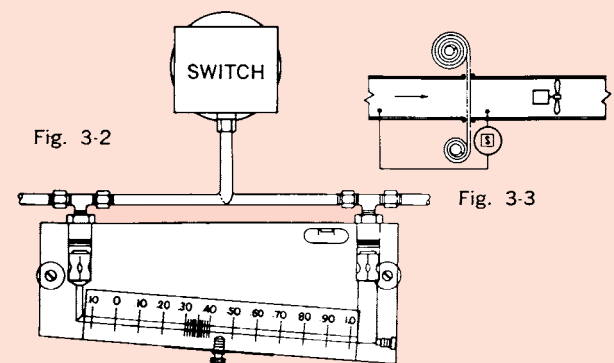


Fig. 3-2

Fig. 3-3

**Fig. 3-2.** shows a typical hook-up of a Model 1823 compact, diaphragm-actuated differential pressure switch in parallel with a gage using tees. The switch is set to energize an electric circuit when the maximum allowable pressure drop is reached.

**Fig. 3-3.** shows schematically how a Model 1638 switch with visual set point adjustment can be hooked up to trigger the advancement of an automatic roll filter when the segment in use becomes too dirty for efficient service.

For detailed instructions, see Bulletins E-52 (Model No. 1638), E-53 (Model No. 1823) and E-55 (Air filter switch service).



# 250-AF Series Inclined Manometer Air Filter Gages

Precision Machined, Solid Acrylic Plastic Gages, Accurate To  $\pm 1\%$  Of Full Scale



MODEL NO. 250.5-AF

## MODELS

Model No.	Range: Water Column	Minor Divisions	Scale Length (Inclined) (Inches)	Overall Size (Inches)
250-AF	.10-0-1.0"	.02"	5½"	8½ x 4¼ x 1"
250.5-AF	.10-0-1.0"	.01"	8"	11¾ x 4 x 1"
251-AF	.05-0-.50"	.01"	5½"	8¼ x 3¾ x 1"
252-AF	.20-0-2.0"	.02"	8"	11½ x 6¾ x 1"
209-AF	.20-0-3.0"	.02"	8"	11¼ x 6¾ x 1"
260-AF	0-1.5"	.02"	5½"	8¾ x 5¾ x 1"
350-AF*	0-4"	.10"	4½"	3 x 8¼ x 1"
451-AF▲	0-1"	.01"	8"	11 x 2½ x ¾"
452-AF▲	0-2"	.02"	8"	11 x 4 x ¾"

\*Vertical Scale

▲ 2 PSI MAXIMUM WORKING PRESSURE



•ECONOMY MODEL 451-AF

## STANDARD ACCESSORIES AND OPTIONS



Standard accessories furnished are two static pressure tips with integral compression fittings, two five foot lengths of ¼" aluminum tubing, two compression fittings, mounting hardware and extra bottle of gage oil.



A-310B (3 Way Vent Valve)  
A-317 (Plastic Gage Plug)

Optional vent valves for easy zeroing of gage are available at extra cost. Two are required per gage.

## FEATURES

Highly accurate and easy to use yet almost indestructible, Dwyer Series 250-AF Inclined Air Filter Gages are foolproof and dependable. There are no moving parts – no mechanical linkages – nothing to wear out, jam or deteriorate from vibration. They never need calibration. The mirror polished inclined scale allows the operator to easily read minute differences in differential pressure across the filter accurately without parallax error. The only servicing required is occasional zeroing. If cleaning is necessary, it is easily done with soap and water.

## CONSTRUCTION

Dwyer DURABLOCK® Series 250-AF Gages are precision machined 1" thick solid acrylic plastic, virtually unbreakable and free of distortion. The fluid bore is precision drilled to  $\pm .0002"$  to assure life long accuracy. A glass spirit level is built into the body and encapsulated to prevent damage or tampering. The scale is mirror polished chrome plated brass to assure parallax free reading by alignment of the meniscus with its reflection. Safety traps are incorporated in the body to prevent loss of fluid due to pressure surges. Red and green signal flags indicate clearly when a filter change is necessary. Gages are suitable for use in ambient temperatures of -20 to 150°F. Connection fittings are positively sealed by "O" rings but easily removed for zeroing or addition of fluid. Furnished complete with instructions.

▲ Economy Models 451-AF and 452-AF are similar to the 250 Series except they are not equipped with over pressure traps. Two A-324 ¼" compression fittings are included with each gage but not shown. Bodies are of ¾" thick acrylic and scales are mirror polished, epoxy coated aluminum. See illustration.

250-AF.....	209-AF.....	451-AF.....
250.5-AF.....	260-AF.....	452-AF.....
251-AF.....	350-AF.....	A-310B.....
252-AF.....		A-317.....

## SUGGESTED SPECIFICATION for Architects and Engineers

An air filter gage for measuring the resistance to air flow through the filters shall be installed, one for each bank of filters. The gage shall be of inclined tube differential type (equipped with vent valves for zeroing) shall be of solid acrylic plastic construction with built-in level vial (and over pressure safety traps 250 Series only), shall have an adjustable mirror-polished scale, shall be furnished complete with two 5-foot lengths ¼" tubing, two static pressure tips, mounting hardware, additional bottle of red gage oil and instructions. Gage shall be Dwyer Instruments, Inc. Catalog No. \_\_, reading to \_\_ in. divisions.



# Differential Pressure Switches

For Air Filter Service UL & CSA Listed, FM Approved

## Three Basic Models Made Exclusively For Very Low Differential Pressure Ranges



### Model 1910

Our newest, smallest, lowest cost precision pressure switch (3½" dia.). It out performs many larger, more expensive units. "Z" bracket mounting is simple and all connections are conveniently located on one side. Set point adjustment screw is protected inside the conduit enclosure.

#### MODELS

Model No.	Range, in. w.c.
1910-00	.07-.15
1910-0	.15-.55
1910-1	.4-1.6
1910-5	1.4-5.5

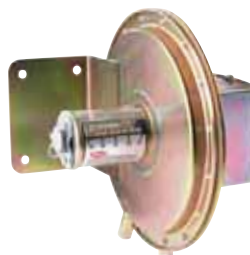


### Model 1823

Our most popular compact, low cost, pressure switch (4" dia.), for general industrial service. Performance has been field proven in many thousands of successful installations. It features high repetitive accuracy, easy set point adjustment, and convenient spud mounting.

#### MODELS

Model No.	Range, in. w.c.
1823-00	.07-.22
1823-0	.15-.5
1823-1	.3-1
1823-2	.5-2
1823-5	1.5-5



### Model 1638

This quality switch (7¾" dia.) provides power and precision for the most demanding switching applications including extremely low ranges. Repetitive accuracy and reliability are unsurpassed. Set point is visually adjustable for maximum convenience.

#### MODELS

Model No.	Range, in. w.c.
1638-0	.05-.25
1638-1	.2-1
1638-2	1-3
1638-5	2-6

### SPECIFICATIONS — ALL MODELS

**Electrical Rating:** 15 amp  
120-480V AC, 1/8 HP @ 125V AC, 1/4 HP @ 250V AC.

**Wiring Connections:** (3)  
Screw type — common, normally open, normally closed.

**Switch:** Single-pole-double-throw snap type.

**Maximum Pressure Surge:**  
Model 1910, 10 psi;  
Models 1823, 1638, 25 psi.

**Pressure Connections:** (2)  
1/8" female NPT.

## OPTIONAL ACCESSORY KITS FOR AIR FILTER SWITCHES



No. A-602 Air Filter Kit. Accessory package for using switch without a gage includes two pressure tips with integral compression fittings, two 5 ft. lengths of ¼" aluminum tubing and two ¼" NPT to ¼" tubing compression fittings



No. A-603 "T" Kit. Accessory package for using pressure switch in conjunction with an air filter kit equipped Magnehelic® or Series 250 AF gages. Includes two ¼" NPT to ¼" tubing compression fittings and two compression tees.



No. A-604 "T" Kit. Accessory package for using pressure switch in conjunction with Mark II gages includes two plastic tubing connector tees and two plastic tubing to ¼" NPT adapters.

## Special models for OEM requirements

Special pressure and flow switches can be supplied to meet a wide range of OEM requirements and specific application needs. These include private brand labels, fixed set-points, special electrical or pneumatic connections, pre-installed or special length electrical leads, visible set-point adjustments, manual reset or gold contact switches.

Please contact the factory for specific information and supply a detailed outline or sketch of your specific requirements.

## GLOSSARY OF SWITCH TERMS

**RANGE** — The span of differential pressures or flow rates within which the sensing element of a given switch can be set to actuate an electric switch.

**SET OR ACTUATION POINT** — The exact air pressure or flow rate which will cause the electric switch to actuate.

**RATED PRESSURE** — The maximum pressure that the actuating components of the switch in contact with the media can withstand continuously and/or repeatedly without risk of permanent damage.

**MAXIMUM SURGE PRESSURE** — Safe pressure for the switch housing but which may damage the mechanism by continuous or repetitive application.

**NORMALLY OPEN SWITCH** — A switch in which the contacts are normally open. Actuation closes the contacts.

**NORMALLY CLOSED SWITCH** — A switch in which the contacts are normally closed. Actuation opens the contacts.

**SINGLE POLE DOUBLE THROW (SPDT) SWITCH** — A switch combining both normally open and normally closed switch contacts.

**NULL SWITCH** — A floating contact switch with a zone of no contact. Often used to operate reversible motors.

**REPETITIVE ACCURACY** — The ability of a pressure or flow switch to operate repetitively at its set point under consistent conditions.



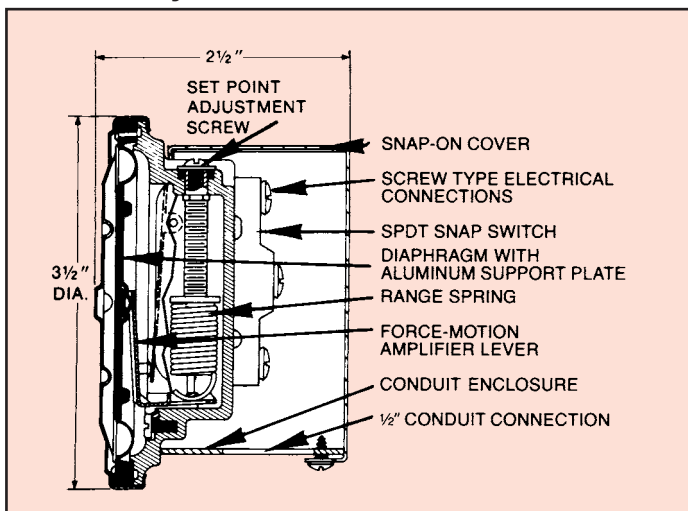
# Introduction to precision low range Differential Pressure Switches

## What are they?

A differential pressure switch is a device which utilizes differential air pressure to actuate an electric switch at a pre-set actuation point. This may be the difference between two positive or two negative pressures, one of each, or a positive and atmospheric or a negative and atmospheric pressure. The electric switch may be used to start or stop motors or fans, open or close dampers or louvers, light a warning signal, sound alarms, etc.

Dwyer Differential Pressure Switches are built exclusively for low and very low pressure differentials ranging from .01" water column (.0004 psig) to 50 psig. Within this range, Dwyer offers a wide selection of precision-pressure switch models.

## How do they work?



Cross section shows a typical Dwyer Differential Pressure Switch. Some models employ other methods of transmitting diaphragm motion to the electric switch button.

When a change occurs in the differential pressure between the two sides of the diaphragm, the spring loaded diaphragm moves, transmitting a force to a snap switch. The switch may be designed to actuate on either increasing or decreasing differential pressure.

Diaphragm motion is resisted by a calibrated spring. This spring determines the range of differential pressure within which the diaphragm motion will actuate the electric switch. The actuation point is set by adjusting the compression or tension of the spring.

## What is the Dead Band?

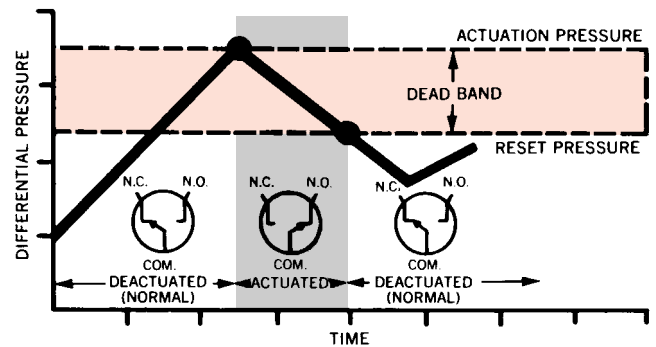
When a change in air pressure (or pressure differential) occurs, causing the diaphragm to move and actuate the switch, some of that pressure must be removed before the switch will reset for another cycle.

The dead band is the pressure that must be removed before the switch resets for another cycle after the set point has been reached and the switch actuated.

A dead band is inherent in a snap switch. It results from two things: The spring rate of the range spring at the chosen set point and the de-actuation travel of the switch lever. Thus the dead band is different at each set point. When the set point is at the lowest end of the

pressure switch range, the dead band is minimum. Conversely, when the set point is at the highest end of the pressure switch range, dead band is maximum.

Differential pressure plot, illustrating dead band.



*For example:* A pressure switch is set to actuate when an increasing differential pressure reaches  $3\frac{1}{2}$ " w.c. When the differential pressure in the system being monitored builds up to  $3\frac{1}{2}$ " w.c., the switch actuates and causes a corrective action to occur. The differential pressure then begins to drop. The switch remains actuated, and will not reset, until the differential pressure drops to approximately 2.4" w.c. This difference of 1.1" w.c. is the "dead band." It is the overlap or pressure difference between the set point at which the switch actuates when pressure increases and the point at which the switch resets when pressure drops.

## Considerations in Selecting a Pressure Switch

**Diaphragm size** – Dwyer Pressure Switches are offered in 3 series based on diaphragm size. Series 1600 models have a  $7\frac{1}{4}$ " diaphragm diameter which provides the greatest actuating force for maximum sensitivity and repetitive accuracy. Series 1800 models with 4" diaphragms are compact and low in cost, yet they deliver excellent performance for OEM and general service. Series 1900 models have  $3\frac{1}{2}$ " diaphragms operating through Dwyer-engineered force-motion amplifier levers, assuring high sensitivity and repeatability in these compact, low cost switches.

**Range selection** – We recommend selection of the range which has a set point (actuation point) as close as possible to the middle of the total adjustment range.

**Set point** – For service where the set point is known, the unit can be set at the installation point or for OEM quantities, preset at the factory. For service where field changes in set point are anticipated, Series 1638 pressure switches with visual set point adjustment offer extra convenience. Where pressures will be reset frequently, the Photohelic® Pressure Switch/Gage offers outstanding convenience. Where two set points are required, choose Model 1627 or the Photohelic® Series. Both have dual switches. Two separate pressure switches may also be used.

**Dead band** – For OEM applications, special snap switches are available with an extra wide dead band. Consult factory. Photohelic® Switch/Gages have the narrowest dead band of all Dwyer switches and the low/high setpoints can be interlocked to provide adjustable dead band control.

**Maximum PSI rating** — All Dwyer models are rated at 10 psig or more surge pressure except the No. 1626 and No. 1627. These have the sealing diaphragm and are rated at 2 psig. They should not be used for higher total pressure.

**Temperature rating** — Dwyer switches are assembled, calibrated and tested at 70°F. Recommended application temperature limits are 32° (-30° for dry air) to 130°F. With reduced electrical rating, the upper limit can be extended to 180°F. See specifications for each model for details. Where higher temperatures exist, a coil of copper or aluminum tubing will often provide adequate heat dissipation.

**Installation** — Select a location free of excessive vibration where oil or water will not drip on switch and where ambient temperature is as close

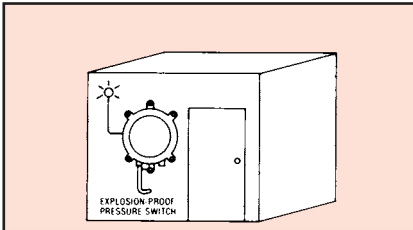
to 70°F as possible. See specification pages for weatherproof enclosures, explosion-proof housings and environmental switches. As a general rule, differential pressure switches should be mounted with diaphragm in a vertical plane. It is essential that set point be adjusted with diaphragm in the position in which it will be mounted.

**Pressure connections** — All are 1/8" NPT. To use rubber or plastic tubing, order No. A-339 1/8" NPT to 3/16" tubing adapters. For 1/4" metal tubing, order No. A-324 1/8" NPT to 1/4" tubing compression fittings. See Misc. Section of catalog.

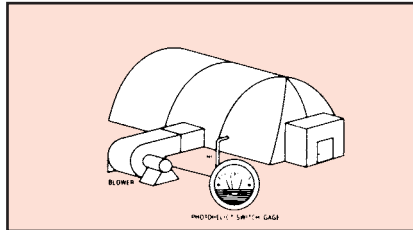
**Electrical connections** — Each switch has 3 screw type connections. Conduit enclosures have 3/8" hole for a 1/2" conduit fitting.



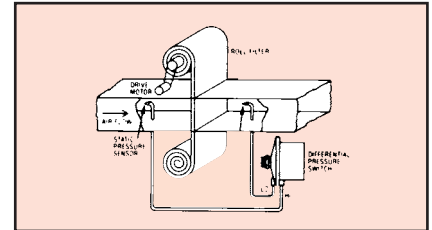
## How to use Precision Low Range Differential Pressure Switches



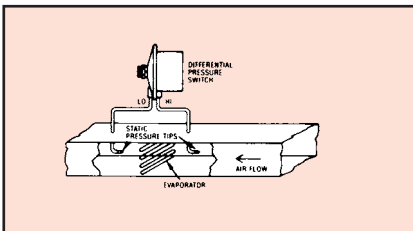
**A Dwyer explosion-proof pressure switch detects loss of control room purge air pressure and signals an alarm.** The flow of conditioned air must be maintained to provide adequate positive room pressure compared to atmosphere. This ensures that control or instrumentation rooms located in hazardous environments are safe for the operation of electrical devices.



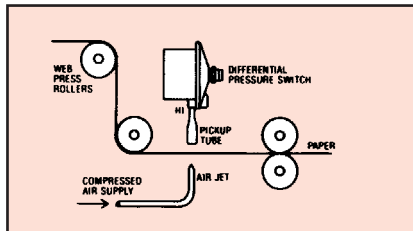
**Switch/gage regulates pressure in air-inflated building.** The unit senses overpressure that may over-inflate the building — or loss of pressure that may result in collapse — and controls the blower to maintain correct pressure. The gage is easily reset to conserve power or provide extra pressure to resist strong winds.



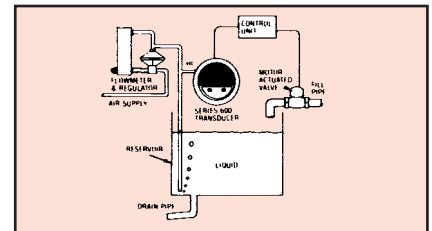
**Differential pressure switch actuates roll filter motor when dust reduces air flow.** When dust build-up on this roll filter increases the filter's resistance to air flow, the increased pressure drop across the filter is sensed by the differential pressure switch, which starts a motor to roll a new section of filter into place.



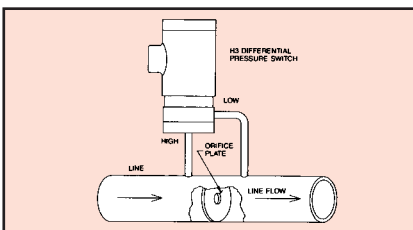
**Dwyer switch senses ice build-up on cooling coils and actuates defrost cycle.** In this cooling application, the Dwyer differential pressure switch senses the increasing restriction to air flow caused by icing and actuates the defrost cycle. Two static taps are installed to sense the differential pressure across the cooling coils.



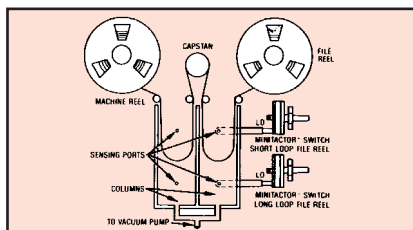
**When paper web breaks on printing press, air jet reaches pressure switch, which signals controls to stop press.** When the paper strip, or web, breaks accidentally, a large amount of paper is lost. To prevent such losses, the integrity of the web is often monitored by a Dwyer differential pressure switch. When the web breaks, the air flow from the jet causes pressure to rise in the pickup tube, closing the switch which signals the main control unit to shut down the press.



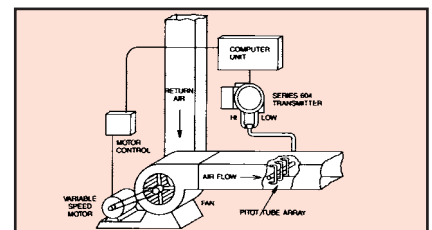
**Transducer maintains constant level in reservoir by controlling motor-actuated fill valve.** The air pressure required to purge the dip tube of liquid is equal to the reservoir depth expressed in inches of water. Any change in reservoir level results in a proportional change in output current from the transducer which, when fed back through the control circuit, adjusts the valve to either increase or decrease the fill pipe flow to maintain the desired level.



**Pressure switch monitors flow in high pressure system.** In a liquid process high pressure line, the process may be adversely affected by flows above (or below) the desired flow. The Anderson Model H3 can monitor flow in systems with operating pressures to 1500 psig as a function of pressure drop across a calibrated orifice plate. The H3 set point is adjusted so that an alarm sounds or the process is automatically shut down if flow exceeds (or falls below) the desired rate.



**Tape drive speed varied by Minitactor™ switch to control tape loop length.** Dwyer Minitactor™ differential pressure switches function to maintain the proper loops in tape drives for computer systems. The loop columns are subject to vacuum with pressure switches monitoring the upper and lower ports in each column. When a short loop senses the vacuum, the switch signals the appropriate reel drive to change speed slightly and supply more tape loop. A long loop senses atmospheric pressure, and the switch then signals the drive to reduce the loop length. The system is identical for both the machine reel and file reel columns in this illustration.



**Dwyer Transmitter signals precise air velocity adjustment to computer-controlled variable-speed fan motor.** In variable air volume (VAV) HVAC systems, a computerized control provides precise adjustment of air volume to meet changing system needs with maximum energy efficiency. A Dwyer Series 604A differential pressure Transmitter is used with a Pitot tube array to provide a 4-20 mA signal to the computer. The signal is directly proportional to the differential pressure developed across the Pitot array as a function of air velocity. The computer reacts to any change in velocity by signaling the motor control to increase or decrease fan speed to maintain the required velocity. The computer, taking inputs from other ambient condition sensors, will establish a new required air velocity and signal an appropriate adjustment in fan speed until the new velocity is achieved as sensed by the Pitot tube array and transmitter.



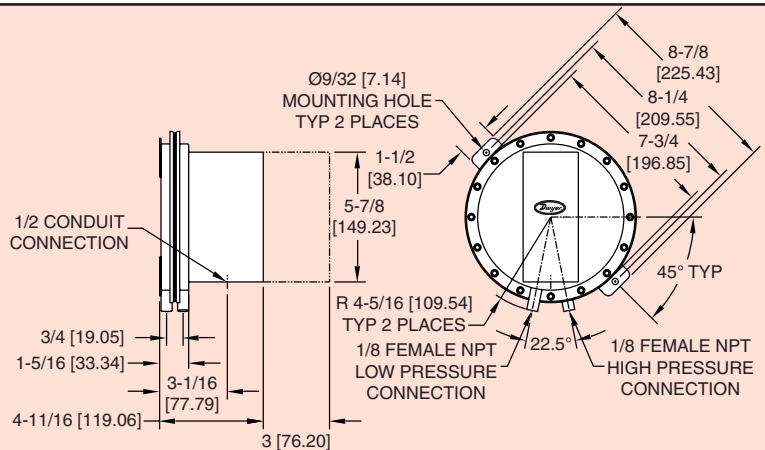
Series 1620

# Single and Dual Pressure Switches

High Reliability . . . Repetitive Accuracy within  $\pm 1\%$



Series 1620 Pressure Switch



Dimensions and construction detail. Shown is model 1627. Model 1626 is identical except has single snap switch on right side.

**Our old faithful** switch design is still best where highest precision combined with diaphragm sealed leak proof construction and mounting simplicity are required. Model 1626 and 1627 differential pressure switches are identical in design and construction except that Model 1626 has a single electric switch and Model 1627 has dual electric switches. Model 1627 can therefore provide dual control when required. It can be set to open or close two independent electrical circuits, each preset for its own actuation pressure. Both units have diaphragm sealed motion take outs providing maximum protection against leakage.

1626 (All Models) .....	1627 (All Models).....
Mil Option (1626) .....	Mil Option (1627).....
WP Housing.....	EXPL Housing .....

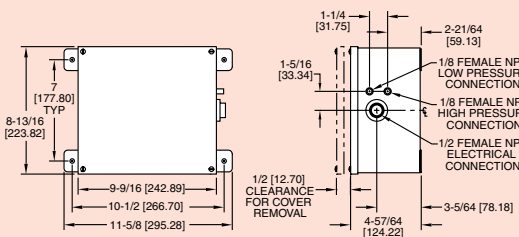
## SPECIAL MODELS AVAILABLE

**Environmental (MIL) Construction.** Can be furnished with a special snap switch sealed against the environment for temperatures down to -65°F, high humidity, exposure to fungus, and/or for military applications. Dead band is slightly greater and some lower set points may not be available. Specify Model 1626 or 1627 – (Range No.) – “MIL” and required set point in ordering.

## HOUSINGS FOR USE WITH SERIES 1620 SWITCHES

### Weatherproof Housing

16-ga. steel enclosure for unusually wet or oily conditions. Withstands 200 hour salt spray test. Gasketed cover. Weight, 20 lbs. Switch must be installed at factory. Specify “WP” in addition to switch catalog number.



## SPECIFICATIONS

**Service:** Air and non-combustible, compatible gases.  
**Wetted Materials:** Consult factory.  
**Temperature Limits:** -30 to 130°F (-34.4 to 54.4°C).  
**Pressure Limits:** Max. 50 in. w.c. (12.44 kPa) continuous, 2 psig (13.79 kPa) surge.  
**Switch Type:** 1626, Single-pole double-throw (SPDT); 1627, two Single-pole double-throw (SPDT) .  
**Repeatability:**  $\pm 1\%$ .

**Electrical Rating:** 15 A @ 120-480 VAC, 60 Hz. Resistive, 1/8 HP @ 125 VAC, 1/4 HP @ 250 VAC, 60 Hz.  
**Electrical Connections:** 3 screw type, common, normally open and normally closed.  
**Process Connections:** 1/8" female NPT.  
**Mounting Orientation:** Diaphragm in vertical position. Consult factory for other position orientations.  
**Set Point Adjustment:** Screw Adjustment.  
**Weight:** Model 1626, 3 lb, 9.8 oz (1.64 kg); Model 1627, 3 lb, 11.8 oz (1.69 kg).  
**Agency Approvals:** CE.

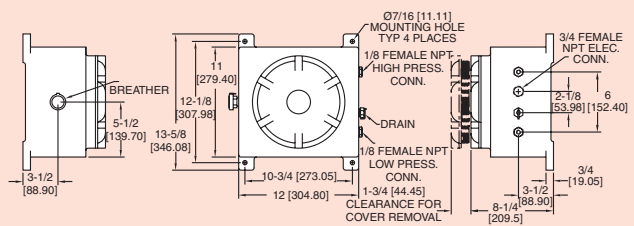
**CAUTION: FOR USE ONLY WITH AIR OR COMPATIBLE GASES.**

## MODELS

Model Number (1626 shown, 1627 similar)	Operating Range Inches, w.c.	Approx. Dead Band		Adj. Diff. Between Set Points (1627 Only)
		Min.	Max.	
1626-1	.15 to 1.5	.10	.20	0.5
1626-5	.5 to 6.0	.15	.35	1.2
1626-10	2.0 to 11	.25	.65	2.3
1626-20	8.0 to 24	.50	1.20	5.0

### Explosion-proof Housing

Killark cast alum. housing No. GRH with flat cover for No. 1626 and 1627 switches rated for Class I, Div. 1 & 2, Groups C, D; Class II, Div. 1 & 2, Groups E, F, G; Class III and NEMA 7 CD, 9 EFG. Approximate weight 47 lbs. Specify “EXPL” in addition to switch catalog number.

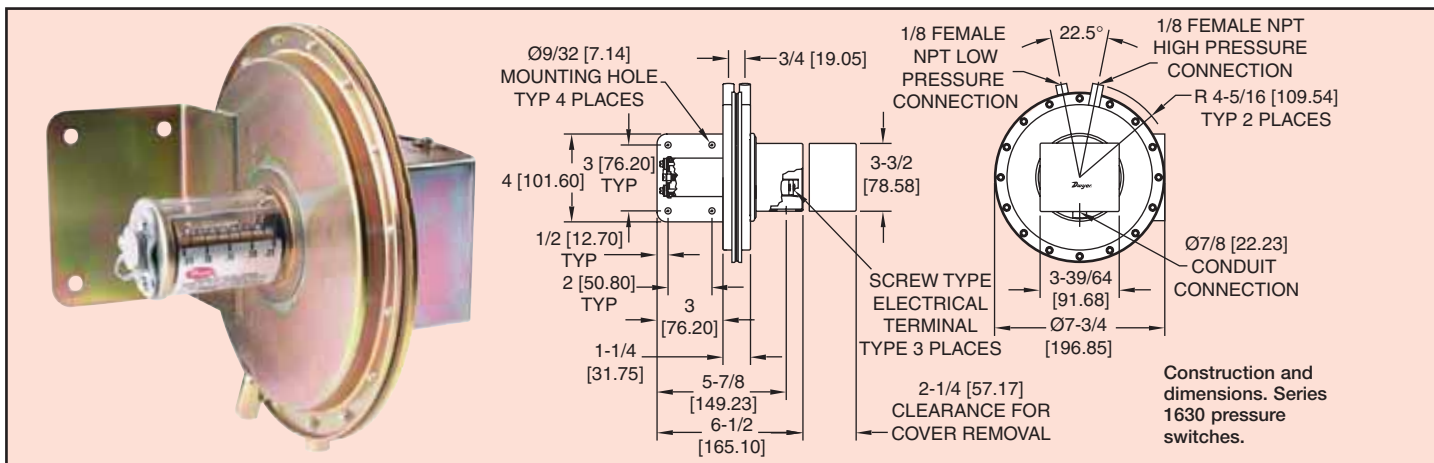




Series  
1630

# Large Diaphragm Pressure Switches

Visual Set Point Adjustment in 5 Standard Ranges, 0.05" to 12" w.c.  
Repetitive Accuracy within  $\pm 1\%$



Our highest precision conventional large diaphragm pressure switch provides maximum dependability. In addition, it incorporates a visible set point indicator for maximum convenience. UL and CSA listed, FM approved for general service, these switches are suitable for most applications in air conditioning and industrial service. Electrical capability of 15 amps handles most small electrical loads.

1638 (All Models) ..... Mil Option (1635).....  
WP Housing..... EXPL Housing .....

## SPECIAL MODELS AVAILABLE

**Environmental (MIL) Construction.** Unlisted Model 1635 can be furnished with a special snap switch sealed against the environment for high humidity, exposure to fungus, and/or for military applications. Similar to Model 1638 except dead band is slightly greater and some lower set points may not be available. Specify Model 1635 - (Range No.) - "MIL" and required set point in ordering.

## MODELS

Model Number	Operating Range, Inches, W.C.	Approximate Dead Band	
		At Min. Set Point	At Max. Set Point
1638-0	0.05 to 0.25	0.04	0.05
1638-1	0.20 to 1.0	0.04	0.06
1638-2	1.0 to 3.0	0.06	0.08
1638-5	2.0 to 6.0	0.07	0.25
1638-10	3.0 to 12	0.11	0.30

## SPECIFICATIONS

**Service:** Air and non-combustible, compatible gases.

**Wetted Materials:** Consult factory.

**Temperature Limits:** -30 to 110°F (-34.4 to 43.3°C).

**Pressure Limits:** 10 psig (68.95 kPa) continuous, 25 (172.4 kPa) psig surge.

**Switch Type:** Single-pole double-throw (SPDT).

**Repeatability:**  $\pm 1\%$ .

**Electrical Rating:** 15 A @ 120-480 VAC, 60 Hz. Resistive 1/8 HP @ 125 VAC, 1/4 HP @ 250 VAC, 60 Hz.

**Electrical Connections:** 3 screw type, common, normally open and normally closed.

**Process Connections:** 1/8" female NPT.

**Mounting Orientation:** Diaphragm in vertical position. Consult factory for other position orientations.

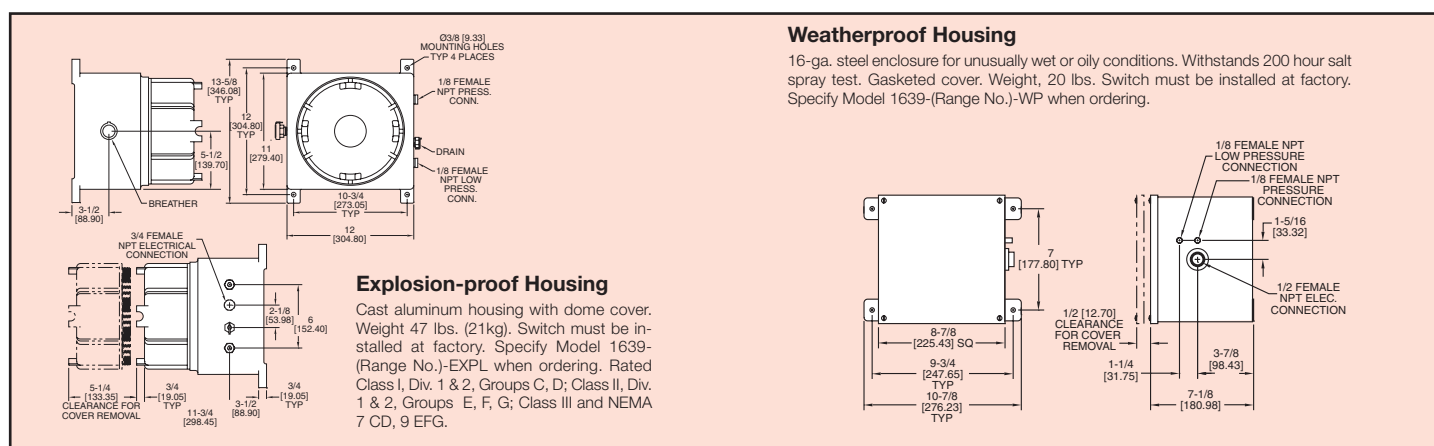
**Set Point Adjustment:** Screw type with enclosed scale.

**Weight:** 4 lb, 14 oz (2.21 kg).

**Agency Approvals:** UL, CSA, FM.

**CAUTION: FOR USE ONLY WITH AIR OR COMPATIBLE GASES.**

## HOUSINGS FOR USE WITH MODEL 1638 SWITCHES



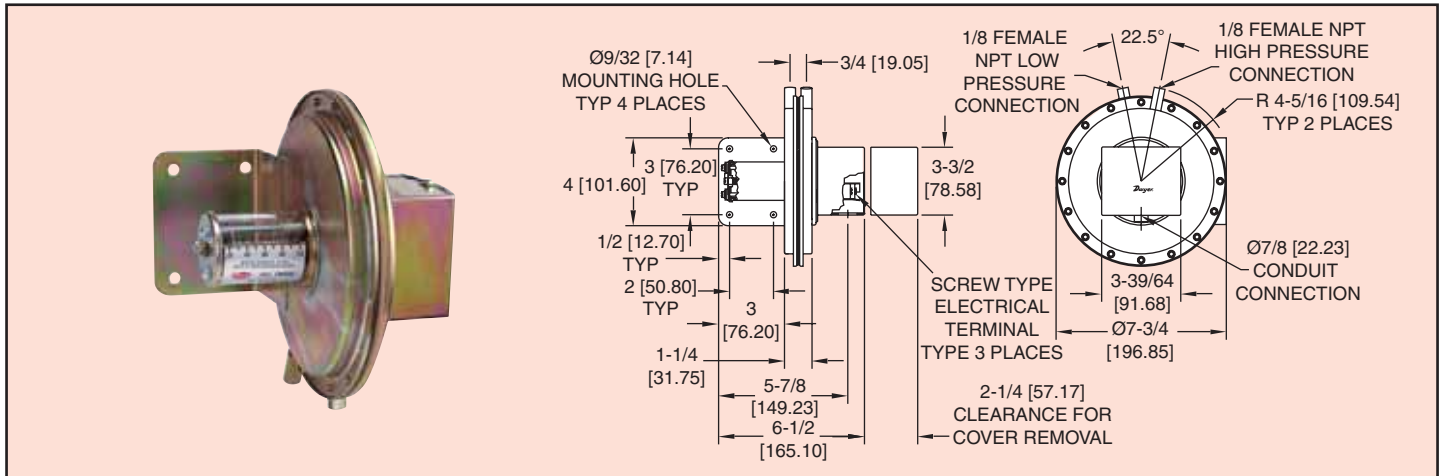
CALL TO ORDER: U.S. Phone 219 879-8000 • U.K. Phone (+44) (0)1494-461707 • Asia Pacific Phone 61 2 4272-2055



Series 1640

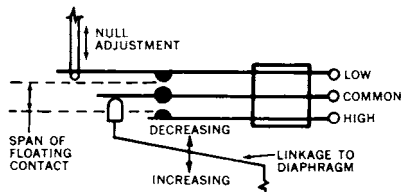
# Floating Contact Null Switch for High and Low Actuation

Visual Set Point Adjustment . . . Adjustable Null Zone



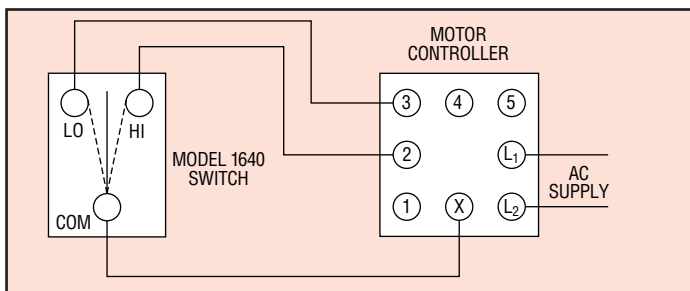
**The unique electric switch design in the 1640 is another Dwyer innovation.** The Dwyer Model 1640 Differential Pressure Switch resembles the Series 1630 switches described on the previous page. The Model 1640, however, is equipped with a single pole, double throw floating contact switch (not snap acting) so it functions as a null switch. Drawing shows the switching action schematically. As the diaphragm moves in response to pressure changes, it moves the floating contact to cause switching action at two preset points with no switching action between these points. The “high” circuit will be closed when rising pressure differential reaches the preset level. The “low” circuit will be closed when falling pressure differential reaches the preset level. A typical example of usage is to position motorized dampers when static pressure in a duct system reaches a desired maximum and reposition the dampers when the static pressure falls to a pre-established minimum. By using a pitot tube sensing element the Model 1640 switch can serve in the same way to control air velocity and maintain a constant volume of air in a supply duct.

**CAUTION:** Because of the very low electrical rating, the 1640 switch is almost always used with a relay which has suitable current carrying capability.



## Typical Wiring Hook-Up

Rising pressure closes the “high” contact which causes the motor to rotate in a counterclockwise direction. Decreasing pressure closes the “low” contact and causes the motor to rotate in a clockwise direction. When the floating contact is in the null zone there is no switching action and motor is at rest.



## Adjustment of the Switch

The “high” actuation point of the Model 1640 switch is indicated on a calibrated scale secured to the transparent range screw enclosure. Re-setting is accomplished simply by turning the adjustment screw with a screwdriver to the desired setting on the scale.

The “low” actuation point is set by adjusting the span of the null by turning the Span Adjusting Screw on top of the switch element inside conduit enclosure (See photo).

## SPECIFICATIONS

**Service:** Air and non-combustible, compatible gases.

**Wetted Materials:** Consult factory.

**Temperature Limits:** -30 to 110°F (-34.4 to 43.3°C).

**Pressure Limits:** 10 psig (68.95 kPa) continuous, 25 psig (172.4 kPa) surge.

**Switch Type:** Single-pole double-throw (SPDT) floating contact (not snap action).

**Electrical Rating:** Non-inductive — 2.5 A @ 110 VAC; 1.5 A @ 220 VAC; 1 A @ 24 VDC; 0.5 A @ 110 VAC; Inductive — 1 A @ 110 VAC; 0.5 A @ 220 VAC; 0.5 A @ 24 VDC (De-rate 70-80% for very slow pressure changes).

**Electrical Connections:** 3 screw type, common, normally open and normally closed.

**Process Connections:** 1/8” female NPT.

**Mounting Orientation:** Diaphragm in vertical position. Consult factory for other position orientations.

**Set Point Adjustment:** Screw type.

**Weight:** 4 lb, 13 oz (2.18 kg).

**Agency Approvals:** CE.

**CAUTION: FOR USE ONLY WITH AIR OR COMPATIBLE GASES.**

## MODELS

Model Number	Ranges Inches, w.c.	Adjustable Null Span	
		Min. Set	Max. Set
1640-0	.01 to 0.2	.01	.03
1640-1	0.2 to 1.0	.02	.06
1640-2	1.0 to 4.0	.03	.12
1640-5	2.0 to 6.0	.03	.18
1640-10	3.0 to 12.0	.04	.20

1640 (All Models) ..... WP Housing .....  
EXPL Housing .....

**SPECIAL MODELS AVAILABLE** (Housing options same as 1630)





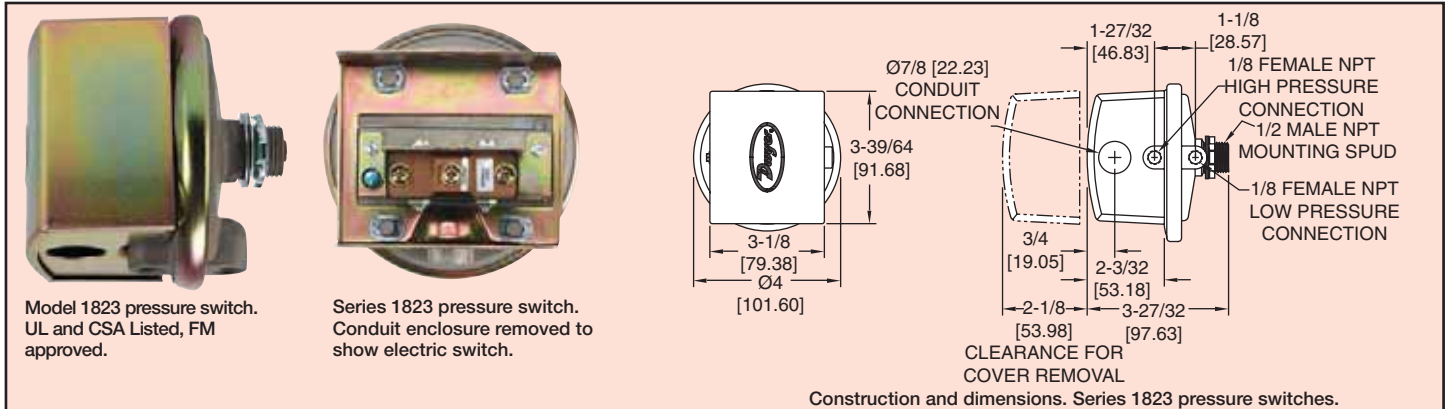
Series  
1800

# Low Differential Pressure Switches for General Industrial Service

Set Points from 0.07" to 85" w.c. Repetitive Accuracy within 2%



Pressure



**Essential for industrial environments, the Series 1800** combines small size and low price with 2% repeatability for enough accuracy for all but the most demanding applications. Set point adjustment inside the mounting stud permits mounting switch on one side of a wall or panel with adjustment easily accessible on the opposite side. UL and CSA listed, FM approved.

**CAUTION: FOR USE ONLY WITH AIR OR COMPATIBLE GASES.**

## SERIES 1823 SWITCHES — MODELS OPERATING RANGES & DEADBANDS

Model Number	Operating Range, Inches W.C.	Approximate Dead Band	
		At Min. Set Point	At Max. Set Point
1823-00	0.07 to 0.22	0.05	0.05
1823-0	0.15 to 0.5	0.06	0.06
1823-1	0.3 to 1.0	0.08	0.08
1823-2	0.5 to 2.0	0.10	0.12
1823-5	1.5 to 5.0	0.14	0.28
1823-10	2.0 to 10	0.18	0.45
1823-20	3 to 22	0.35	0.70
1823-40	5 to 44	0.56	1.10
1823-80	9 to 85	1.30	3.0

## SPECIAL MODELS AVAILABLE

**ATEX (Approval Pending) Housing:** Cast iron base with brass cover. Explosion-proof housing, EExd and NEMA-7&9 rated; Change base number to 1824 and add -CN suffix.  
Example: 1824-1-CN



**MIL Environmental Construction** — Unlisted Model 1820 can be furnished with a special sealed snap switch for protection against high humidity, fungus and/or military applications. Similar to Model 1823 except dead band is slightly greater and some lower setpoints may not be possible. To order, add suffix -MIL.  
Example: 1820-2-MIL.

**No. A-389 Mounting Bracket** is 16 ga. steel, zinc plated and dichromate dipped for corrosion resistance. Provides rugged, permanent mounting and speeds installation.

## SPECIFICATIONS

**Service:** Air and non-combustible, compatible gases.

**Wetted Materials:** Consult Factory.

**Temperature Limits:** -30 to 180°F (-34 to 82.2°C). 1823-00, -20 to 180°F (-28.9 to 82.2°C).

**Pressure Limits:** 10 psig (68.95 kPa) continuous, 25 psig (172.4 kPa) surge.

**Switch Type:** Single-pole double-throw (SPDT).

**Repeatability:** ±2%.

**Electrical Rating:** 15 A @ 120-480 VAC, 60 Hz. Resistive 1/8 HP @125 VAC, 1/4 HP @ 250 VAC, 60 Hz. De-rate to 10 A for operation at high cycle rates.

**Electrical Connections:** 3 screw type, common, normally open and normally closed.

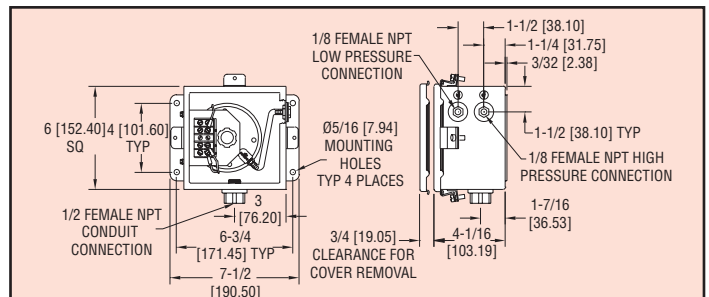
**Process Connections:** 1/8" female NPT.

**Mounting Orientation:** Diaphragm in vertical position. Consult factory for other position orientations.

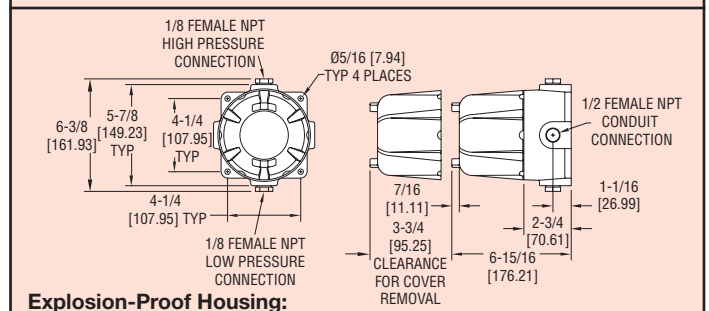
**Set Point Adjustment:** Screw type inside mounting spud.

**Weight:** 1 lb, 5 oz (595 g).

**Agency Approvals:** CE, UL, CSA, FM.



16 ga. steel enclosure with gasketed cover (NEMA 4, IP66) for wet or oily conditions. Withstands 200 hour salt spray test. Wt. 5½ lbs. (2.5 kg). Switch must be factory installed. Change 1823 base number to 1824 and add -WP suffix.  
Example: 1824-1-WP



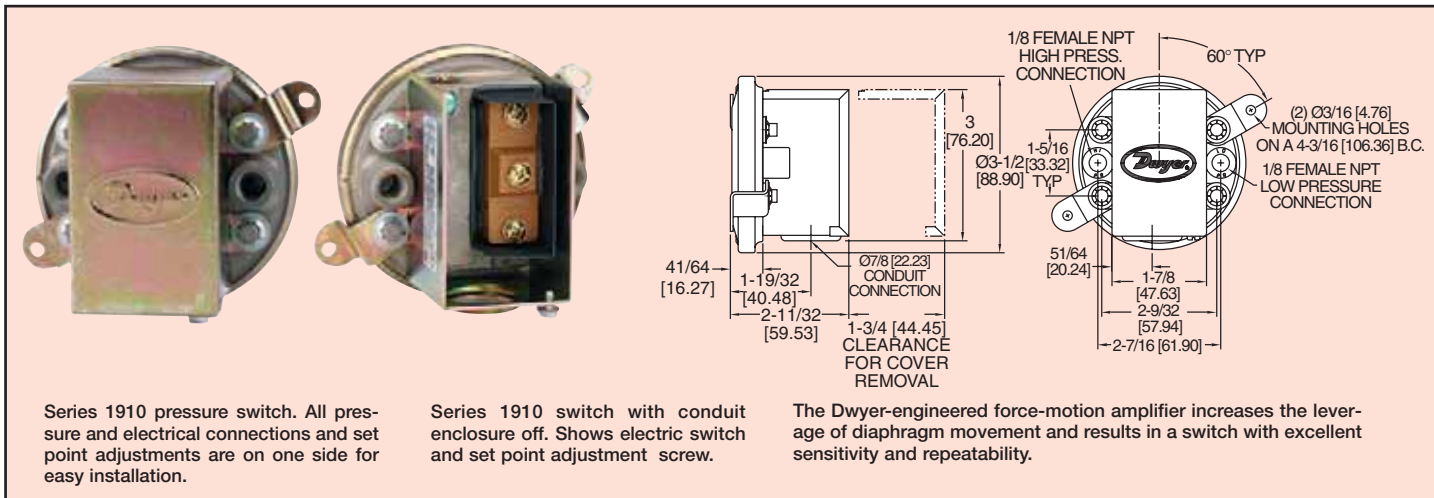
Cast iron base with aluminum cover. Rated Class I, Div. 1 & 2, Group D; Class II, Div. 1 & 2, Groups E, F, G; Class III and NEMA 7 CD, 9 EFG. Wt. 7½ lbs. (3.4kg). Switch must be factory installed. Change base number to 1824 and add -EXPL suffix.  
Example: 1824-1-EXPL



Series 1900

# Compact Low Differential Pressure Switches

Set Points from 0.07" to 20" W.C. Repetitive Accuracy within 3%



Series 1910 pressure switch. All pressure and electrical connections and set point adjustments are on one side for easy installation.

Series 1910 switch with conduit enclosure off. Shows electric switch and set point adjustment screw.

The Dwyer-engineered force-motion amplifier increases the leverage of diaphragm movement and results in a switch with excellent sensitivity and repeatability.

**Our most popular series** combines advanced design and precision construction to make these switches able to perform many of the tasks of larger, costlier units. Designed for air conditioning service, they also serve many fluidics, refrigeration, oven and dryer applications. For air and non combustible compatible gases, Series 1900 switches have set points from 0.07 to 20" (1.8 to 508 mm) w.c. Set point adjustment is easy with range screw located inside conduit enclosure. Internal location helps prevent tampering. UL, CE, CSA listed, and FM approved.

### SPECIAL MODELS AND ACCESSORIES

**MANUAL RESET MODEL 1900 MR** includes special snap switch which latches on pressure increase above the setpoint. Switch must be manually reset after pressure drops below the setpoint. To order, change base model to 1900 and add MR suffix after range number. Example: 1900-10-MR. Available on -1, -5, -10 or -20 ranges only. Option is not UL, CSA or FM listed.

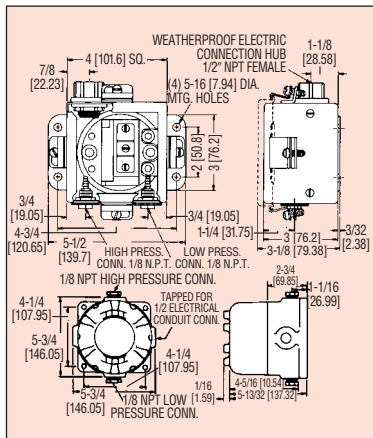
**Note:** Manual Reset (MR) Option for use only in single positive pressure applications.

**A-399 Duct Pressure Monitor Kit** — For use with standard or manual reset model switches. Includes mounting flange, tubing and adapters

**A-329 Street Ell** — Brass adapter for applications requiring right angle connections. Two required for differential pressures

### Weatherproof Housing

16 ga. steel enclosure with gasketed cover (NEMA 4, IP66) for wet or oily conditions. Withstands 200 hour salt spray test. Wt. 5 lbs. (2.3 kg). Switch must be factory installed. Change 1910 base number to 1911 and add -WP suffix. Example: 1911-1-WP.



### Explosion-Proof Housing

Cast iron base with brass cover. Rated Class I, Div. 1 & 2, Groups D; Class II, Div. 1 & 2, Groups E,F,G; Class III and NEMA 7, 9 NEMA 3. (7 lbs). Switch must be factory installed. Change model to 1911 and add -EXPL suffix. Example: 1911-1-EXPL.

### SPECIFICATIONS

**Service:** Air and non-combustible, compatible gases.

**Wetted Materials:** Consult Factory.

**Temperature Limits:** -30 to 180°F (-34 to 82.2°C).

**Pressure Limits:** 45" w.c. (11.2 kPa) continuous, 10 psig (68.95 kPa) surge.

**Switch Type:** Single-pole double-throw (SPDT).

**Repeatability:** ±3%.

**Electrical Rating:** 15 A @ 120-480 VAC, 60 Hz. Resistive 1/8 HP @ 125 VAC, 1/4 HP @ 250 VAC, 60 Hz. Derate to 10 A for operation at high cycle rates.

**Electrical Connections:** 3 screw type, common, normally open and normally closed.

**Process Connections:** 1/8" female NPT.

**Mounting Orientation:** Diaphragm in vertical position. Consult factory for other position orientations.

**Set Point Adjustment:** Screw type inside conduit enclosure.

**Weight:** 1lb, 4.5 oz (581 g).

**Agency Approvals:** CE, UL, CSA, FM.

**CAUTION: FOR USE ONLY WITH AIR OR COMPATIBLE GASES.**

**ATEX (Approval Pending) Housing, Model 1911-CN.** Explosion-proof housing, EExd II B T6 IP6S. Change base number to 1911 and add -CN suffix. Example: 1911-1-CN.



### SERIES 1910 SWITCHES — MODELS OPERATING RANGES, DEADBANDS

Model Number	Operating Range, Inches W.C.	Approximate Dead Band	
		At Min. Set Point	At Max. Set Point
1910-00	0.07 to 0.15	0.04	0.04
1910-0	0.15 to 0.55	0.10	0.10
1910-1	0.40 to 1.6	0.15	0.16
1910-5	1.40 to 5.5	0.30	0.30
1910-10	3.0 to 11.75	0.40	0.40
1910-20	4.0 to 20.0	0.40	0.50



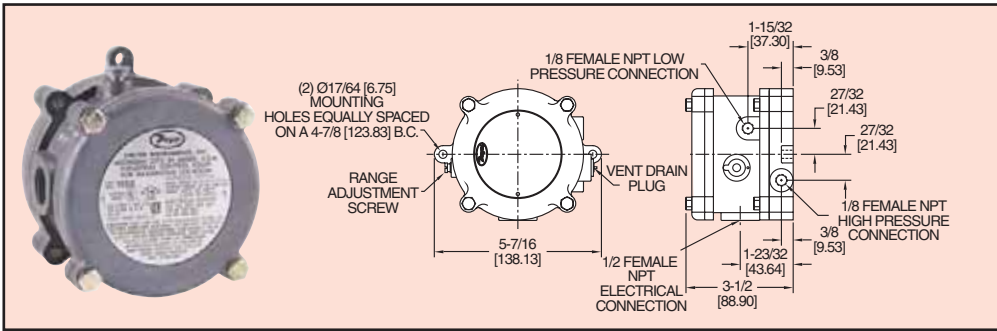
Series  
1950

# Explosion-Proof Differential Pressure Switches

Compact, Low Cost, Explosion-proof and Weatherproof



Pressure



**Model 1950 Explosion-Proof Differential Pressure Switch** combines the best features of the popular Dwyer series 1900 with an integral explosion-proof and weather-proof housing, making it an exceptional value for either application. It is CE, UL and CSA listed, FM approved for use in Class I, Div 1, Groups C and D, Class II Groups E, F, and G and Class III hazardous atmospheres (NEMA 7 & 9), Raintight (NEMA 3). Weatherproof features include a drain plug and O-ring seal in cover. Electrical connections are easily made by removing front cover. For convenience the set point adjustment screw is located on the outside of the housing. Twelve models offer set points from .03 to 20" w.c. (7.5 to 5 kPa) and from .5 to 50 psi (0.035 to 3.5 bar). The unit is very light and compact – about half the weight and bulk of other explosion-proof or weather-proof switches with separate enclosures.

## SPECIFICATIONS

**Service:** Air and non-combustible, compatible gases.

**Wetted Materials:** Consult factory.

**Temperature Limits:** -40 to 140°F (-40 to 60°C); 0 to 140°F (-17.8 to 60°C) for 1950P-8, 15, 25, and 50. -30 to 130°F (-34.4 to 54.4°C) for 1950-02.

### Pressure Limits:

Continuous: 1950's - 45" w.c. (0.11 bar); 1950P's - 35 psi (2.41 bar); 1950P-50 only - 70 psi (4.83 bar).

Surge: 1950's - 10 psi (0.69 bar), 1950P's - 50 psi (3.45 bar), 1950P-50 only - 90 psi (6.21 bar).

**Enclosure Rating:** IP64, NEMA 3, 7 and 9.

**Switch Type:** Single-pole double-throw (SPDT).

**Electrical Rating:** 15 A @, 125, 250, 480 VAC, 60 Hz. Resistive 1/8 HP @ 125 VAC, 1/4 HP @ 250 VAC, 60 Hz.

**Electrical Connections:** 3 screw type, common, normally open and normally closed.

**Process Connections:** 1/8" female NPT.

**Mounting Orientation:** Diaphragm in vertical position. Consult factory for other position orientations.

**Set Point Adjustment:** Screw type on top of housing.

**Weight:** 3.25 lb (1.5 kg); 1950-02 model, 4.4 lb (2 kg).

**Agency Approvals:** CE, UL, CSA, FM.

## SERIES 1950 SWITCHES - MODELS, OPERATING RANGES AND DEAD BANDS

Model Number	Range, Inches W.C.	Approximate Dead Band at	
		Min. Set Point	Max. Set Point
1950-02-2S	.03 to .10	.025	.05
1950-00-2F	.07 to .15	.04	.05
1950-0-2F	.15 to .50	.10	.15
1950-1-2F	.4 to 1.6	.15	.20
1950-5-2F	1.4 to 5.5	.30	.40
1950-10-2F	3 to 11	.40	.50
1950-20-2F	4 to 20	.40	.60

Model* Number	Range, PSID	Approximate Dead Band at	
		Min. Set Point	Max. Set Point
1950P-2-2F	0.5 to 2	.3	.3
1950P-8-2F	1.5 to 8	1.0	1.0
1950P-15-2F	3 to 15	.9	.9
1950P-25-2F	4 to 25	.7	.7
1950P-50-2F	15 to 50	1.0	1.5

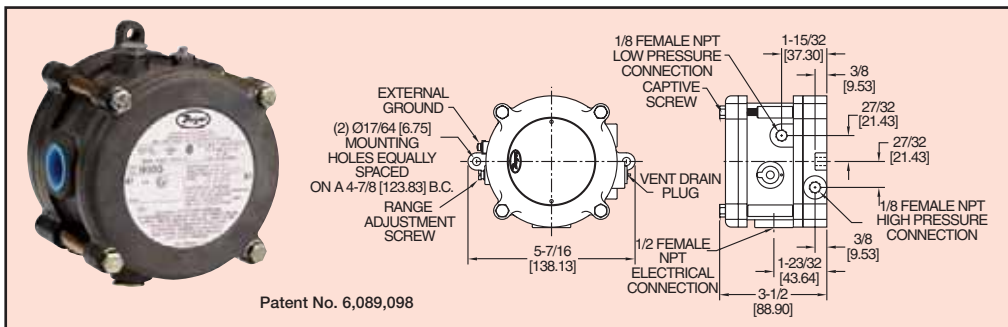
CAUTION: For use only with air or compatible gases. Applications with hazardous atmospheres and a single positive pressure may require special venting.  
\*P=PSID range models



Series  
1950G

# Explosion-Proof Differential Pressure Switch

Explosion-Proof, Weatherproof, Compatible with Natural Gases



Patent No. 6,089,098

**The Model 1950G Explosion-Proof Switch** combines the best features of the popular Dwyer Series 1950 Pressure Switch with the benefit of natural gas compatibility. Units are rain-tight for outdoor installations, and are UL listed for use in Class I, Groups A, B, C, & D; Class II, Groups E, F, & G and Class III atmospheres, Directive 94/9/EC (ATEX) Compliant for CE Ex 11 2 G EExd IIB & Hydrogen T6 and CSA & FM approved for Class I, Div 1, Groups B, C, D; Class II, Div 1, Groups E, F, G and Class III atmospheres. The 1950G is very compact, about half the weight and bulk of equivalent conventional explosion-proof switches.

Easy access to the SPDT relay and power supply terminals is provided by removing the top plate of the aluminum housing. A supply voltage of 24 VDC, 120 or 240 VAC is required. A captive screw allows the cover to swing aside while remaining attached to the unit. Adjustment to the set point of the switch can be made without disassembly of the housing.

## SPECIFICATIONS

**Service:** Air and compatible combustible gases.

**Wetted Materials:** Contact Factory.

**Temperature Limits:** 0 to 140°F (-17 to 60°C).

Note: Set point drift may occur with ambient temperature changes.

**Pressure Limits:** 45" w.c. (11.2 kPa) continuous; 10 psig (68.95 kPa) surge.

**Enclosure Rating:** IP64, NEMA 3, 7 and 9.

**Switch Type:** 1 Form C relay (SPDT).

**Electrical Rating:** 10A, 120/240 VAC, 28 VDC.

Resistive 50mA, 125 VDC.

**Power Requirements:** 24 VDC ±10%. 120 or 240 VAC ±10% optional.

**Electrical Connections:** Internal terminal block.

**Process Connections:** 1/8" female NPT.

**Mounting Orientation:** Diaphragm in vertical position. Consult factory for other position orientations.

**Set Point Adjustment:** Screw type on top of housing.

**Weight:** 2 lb, 15.7 oz (1.35 kg).

**Agency Approvals:** CE, UL, CSA, FM, ATEX.

## MODELS

Model Number <sup>1</sup>	Range, Inches W.C.	Approximate Dead Band at	
		Min. Set Point	Max. Set Point
1950G-00-B-24	.07 to .15	.04	.06
1950G-0-B-24	.15 to .50	.06	.11
1950G-1-B-24	.4 to 1.6	.11	.29
1950G-5-B-24	1.4 to 5.5	.4	.9
1950G-10-B-24	3 to 11	.9	1.8
1950G-20-B-24	4 to 20	1.2	3.0

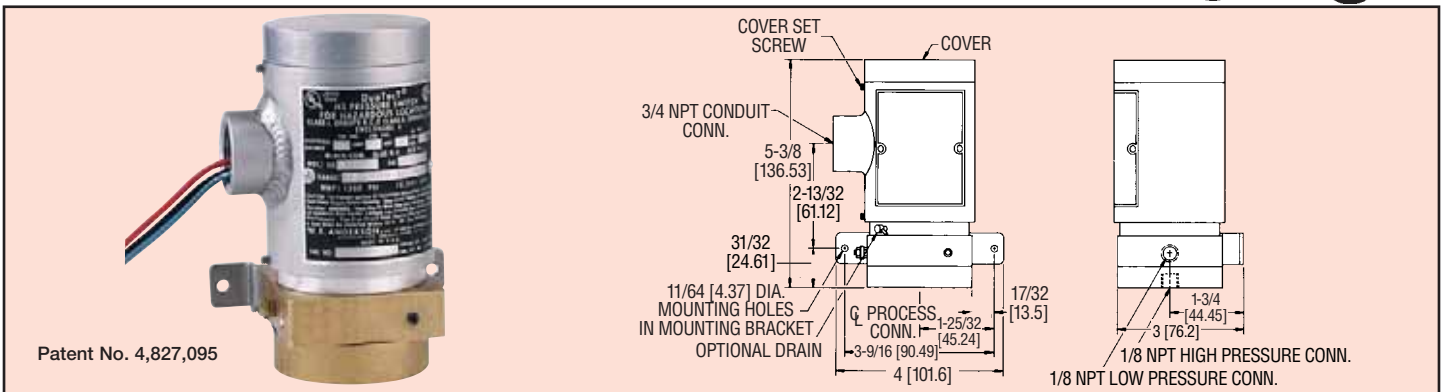
<sup>1</sup>Note: For alternate supply voltages change 24 to 120 or 240. Example: 1950G-00-B-120.



Series H3

# Explosion-Proof Differential Pressure Switches

Setpoints from 10" w.c. to 200 psid — Rated 1500 psig, Weatherproof



Patent No. 4,827,095

**Explosion-proof**, heavy duty, industrial unit has patented and unique new design which provides sensitivity to differential pressures as low as 10 inches of water (254 mm w.c.), yet handles total pressure of 1500 psi (103 bar). Unlike common differential pressure switches that use a piston-type motion transfer, the Series H3 utilizes a rotary motion transfer shaft that prevents a change in total pressure from causing a setpoint shift. Unit yields deadbands approximately 5% of range, with zero setpoint shift due to variation in working pressures. Friction is minimized and repeatability increased by allowing range spring to act directly on diaphragm plate. Rolling diaphragm design maintains constant effective area to further reduce friction. Diaphragm is allowed to "seat", allowing application of full rated pressure, up to 1500 psi (103 bar), on either high or low pressure port, without damage. Special overtravel feature prevents overtightening of range adjust screw. Choose optional brass chamber for water and water-based fluids or 316 SS for harsher applications.

### SPECIFICATIONS

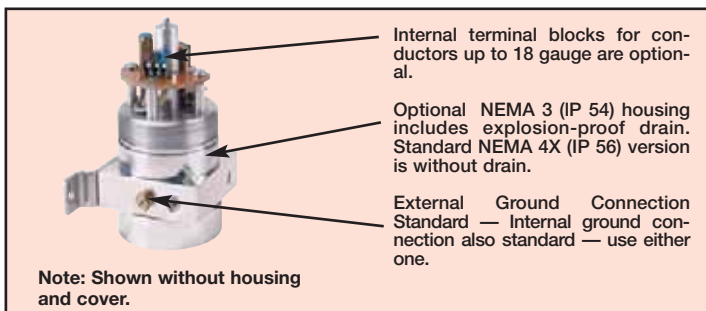
- Wetted Materials:** See pressure chamber and diaphragm material in model chart.
- Temperature Limit:** -4 to 220°F (-20 to 104°C), ATEX: -20 to 90°C (-4 to 194°F).
- Pressure Limit:** 1500 psig (103 bar).
- Enclosure Rating:** See ratings chart.
- Switch Type:** SPDT or DPDT snap switch.
- Electrical Rating:** 5A @ 125/250 VAC, 30 VDC.
- Electrical Connections:** See model chart.
- Conduit Connection:** 3/4" female NPT.
- Process Connection:** 1/8" female NPT.
- Mounting Orientation:** Vertical.
- Set Point Adjustment:** Internal screw.
- Weight:** 4 lb, 2 oz (2 kg).
- Deadband:** Approximately 5% of range.
- Agency Approvals:** UL, CSA, CE, and ATEX see ratings chart.

- Model H3A-1SL
- Model H3A-2SL
- Model H3A-3SL
- Model H3S-1SL
- Model H3S-2SL
- Model H3S-3SL
- A-610-Pipe Mounting Kit for 1-1/4 to 2" pipe

### Model Chart - Series H3

Example	H3	S	2	S	C	MV	
							H3S-2SC-MV Differential Pressure Control; 316 SS pressure chamber and Viton® diaphragm; weather-proof and ATEX; SPDT snap action switch with gold contacts; fixed deadband, automatic reset; adjustable range 0.5-15 psid
<b>Construction</b>	H3						Series designator, weatherproof and explosion-proof
<b>Pressure Chamber &amp; Diaphragm Material (Wetted)</b>		A					Aluminum chamber with Nitrile diaphragm
		S					316 SS chamber with Viton® diaphragm
<b>Adjustable Operating Range</b>			1				Adjustable range 10-180 in. w.c. (2.48-44.78 kPa)
			2				Adjustable range 0.5-15 psid (0.03-1 bar)
			3				Adjustable range 5-70 psid (.34-4.8 bar)
<b>Deadband approximately 5% of range</b>			4				Adjustable range 10-200 psid (.7-13.8 bar) Maximum pressure for all ranges is 1500 psi (103 bar)
<b>Circuit (Switch) Options</b>				S			SPDT snap action switch rated 5A @ 125/250 VAC, 30 VDC
				D			DPDT snap action switch rated 5A @ 125/250 VAC, 30 VDC
<b>Electrical Connection</b>					L		18 AWG x 18 inch lead wires
					T		UL, CSA approved internal terminal block
<b>Options</b>						C	ATEX approved internal terminal block
						DRAIN	Housing with drain - allows condensate to be drained from inside enclosure (meets NEMA 3 instead of 4X)
						MV	Gold contacts on snap switch for dry circuits rated 1A @ 125 VAC, 1A resistive or 0.5 A inductive @ 30 VDC
						VIT	Viton® diaphragm option where not standard

HAZARDOUS LOCATION/WEATHERPROOF RATINGS			
MODEL	UL	CSA	Directive 94/9/EC ATEX Compliant
H3 _ _ _ C	—	—	CE 0344 Ex II 2 G EEx d IIB -20°C ≤ T amb ≤ 75°C T6 EC-Type Certificate No. KEMA 03ATEX 2584
H3 _ _ _ L H3 _ _ _ T	Cl. I, Gr.B, C & D NEMA 4X	Cl. I, Gr.B, C & D Cl. II, Gr.E, F & G NEMA 4	—
H3 _ _ _ C-DR	—	—	CE 0344 Ex II 2 G EEx d IIB -20°C ≤ T amb ≤ 75°C T6 EC-Type Certificate No. KEMA 03ATEX 2584
H3 _ _ _ L-DR	Cl. I, Gr.B, C & D Cl. II, Gr.E, F & G NEMA 3	—	—

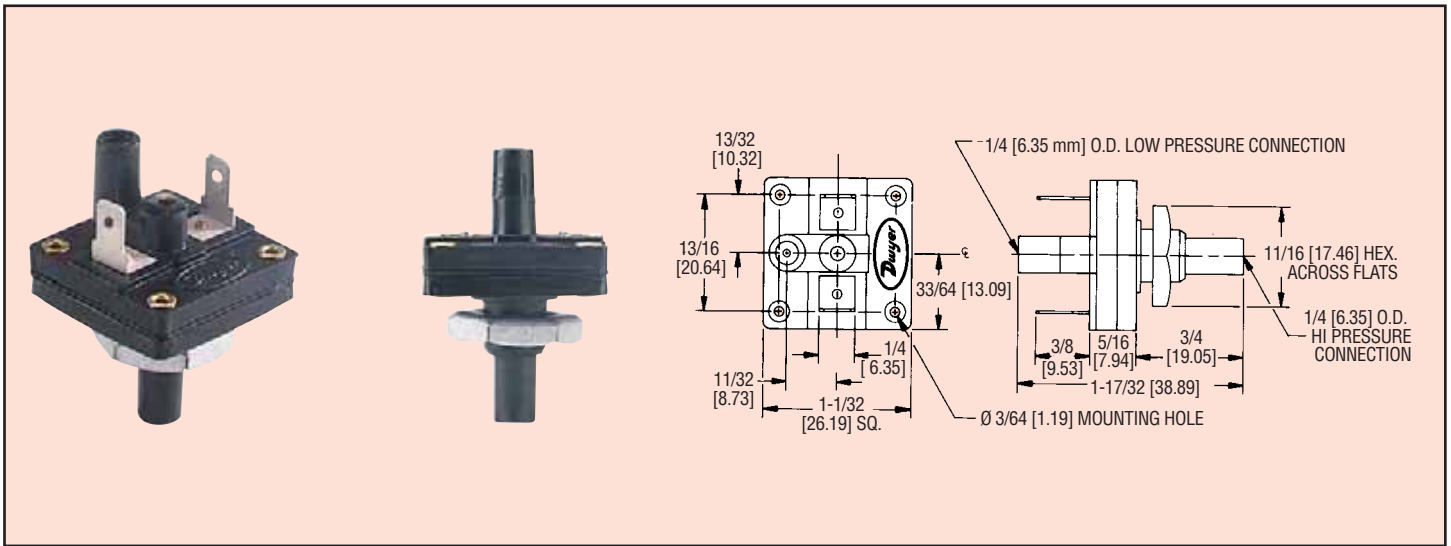




Series  
MTR

# Minitactor™ Differential Pressure Switches

For Air and Compatible Gases, Set Points from 2" w.c. to 7 psi



**For quantity OEM applications** the Dwyer Minitactor™ differential pressure switch is ideal as a flow or pressure sensor on analyzers, testers, fluidic systems, computers and peripheral equipment. Normally open, it will switch on from positive, negative or differential pressures. For OEM orders, the small (1" square), low cost units are factory calibrated with required set points ranging from 2" w.c. to 7 psig. Diaphragm is molded Buna-N; housing is mineral filled Nylon. Easily mounted in any position by 3/8" panel nut on H.P. port or screws through case eyelets. Life expectancy is a minimum of one million cycles zero to actuation pressure or 10 million cycles deactuation pressure to actuation pressure.

**Ranges from 6.1 to 200 in. w.c.**

Silver contacts..... Gold contacts .....  
Specify setpoint when ordering. Minimum quantity 25 pieces.

**Ranges from 2 to 6 in. w.c.**

Silver contacts..... Gold contacts .....  
Specify setpoint when ordering. Minimum quantity 25 pieces.

**SPECIFICATIONS**

- Service:** Air and non-combustible, compatible gases.
- Wetted Materials:** Consult factory.
- Temperature Limits:** 32 to 140°F (0 to 60°C).
- Pressure Limit:** 250" w.c. (62.21 kPa) maximum.
- Switch Type:** Non-snap acting. Normally open, closes on increase pressure.
- Repeatability:** +/-5%.
- Electrical Rating:** Silver contacts: 5 VAC. 0.5A resistive; gold plated contacts: 5 VAC, 50 mA resistive.
- Electrical Connections:** 3/16" male push-on tab terminals.
- Process Connections:** 1/4" (635 mm) O.D. ports.
- Mounting Orientation:** Diaphragm in vertical position. Consult factory for other position orientations.
- Set Point Adjustment:** 0.050" (1.27 mm) hex socket.
- Weight:** 0.5 oz (14.2 g).

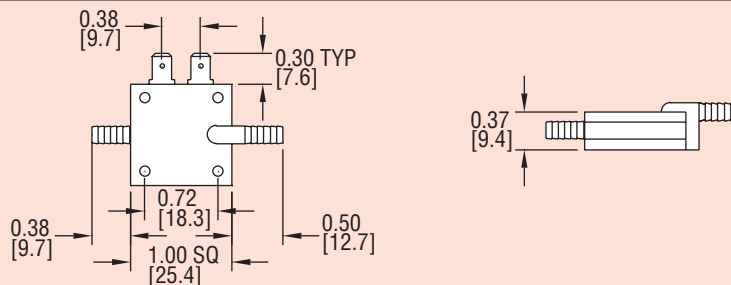
**MODEL CHART**

Series	MTR			
<b>Contacts</b>		G S		Gold Silver
<b>Diaphragm</b>			B V S N	Buna-N Viton® Silicone Neoprene
<b>Range</b>			1 2 3 4	2.0 - 6.0 in. w.c. 6.1 - 25.9 in. w.c. 26.0 - 100.9 in. w.c. 101.0 - 200 in.w.c.

Series  
MDS

# Miniature Pressure Switch

Shock and Vibration Resistant, Lightweight and Compact, Gold Contacts



The Series MDS Pressure Switch is designed with a double diaphragm to protect false actuation due to shock and vibration. This low cost pressure switch has a minimum 20 million cycle life expectancy, and an extremely fast response time, making this an ideal device for OEM orders.

## SPECIFICATIONS

**Switch Type:** SPST normally open.

**Switching Media:** Air or compatible fluids on "high" side.

**Pressure Limits:** Set point <3.0 in H<sub>2</sub>O: 8 psi; Set point >3.0 in H<sub>2</sub>O: 15 psi.

**Current Rating:** 40 mA resistive for life in excess of 20 million cycles.

**Temperature Limits:** 40 to 150°F (4 to 66°C).

**Electrical Connections:** Gold tab-type for use with quick disconnections.

**Pressure Connections:** Two barbed ports for use with 1/8"-3/16" ID tubing.

**Housing:** Polycarbonate.

**Diaphragm Material:** Polyurethane.

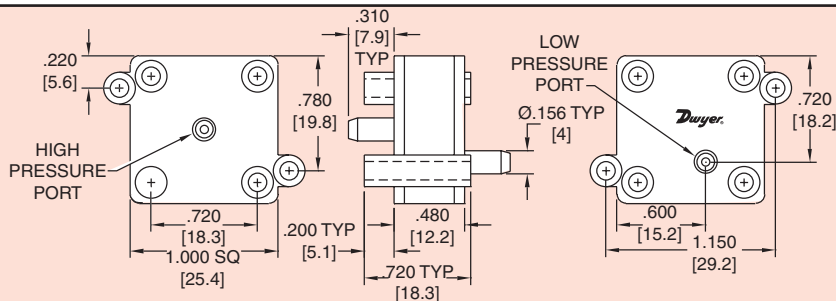
**Weight:** Less than 10 grams.

## MODELS

Model Number	Set Point	Model Number	Set Point
MDS-0	0.5 in. H <sub>2</sub> O	MDS-7	8.0 in. H <sub>2</sub> O
MDS-1	1.0 in. H <sub>2</sub> O	MDS-8	10.0 in. H <sub>2</sub> O
MDS-2	1.5 in. H <sub>2</sub> O	MDS-10	15.0 in. H <sub>2</sub> O
MDS-3	2.0 in. H <sub>2</sub> O	MDS-12	30.0 in. H <sub>2</sub> O
MDS-4	3.0 in. H <sub>2</sub> O	MDS-14	50.0 in. H <sub>2</sub> O
MDS-6	6.0 in. H <sub>2</sub> O		

Series  
MDA

# Miniature Adjustable Pressure Switch

Adjustable Set Points from 0.1 to 100 in. of H<sub>2</sub>O

Sense differential pressure with the Series MDA Miniature Adjustable Pressure Switch. The switch features field adjustable set point and gold inlay contacts. Air or other compatible fluids can be used on the "high side". The lightweight and compact size make the MDA ideal for any application with space constraints. Applications include industrial, HVAC, pump and motor control, medical, automotive, pools and spas.

## SPECIFICATIONS

**Switch Type:** SPST normally open.

**Switching Media:** Air or compatible fluids on "high side".

**Pressure Limits:** MDA-011: 2 psi; MDA-111: 4 psi; MDA-211: 8 psi; MDA-311: 15 psi.

**Current Rating:** 40 mA resistive for life in excess of 20 million cycles.

**Temperature Limits:** 40 to 150°F (4 to 66°C).

**Contacts:** 18K gold inlay.

**Electrical Connections:** Terminals - 0.187" x 0.20: spade (recessed) for use with quick disconnects.

**Pressure Connections:** Smooth port 5/32" diameter for 1/8" ID tubing.

**Housing:** Polycarbonate.

**Diaphragm Material:** Polyurethane.

**Operating Voltage:** AC/DC - 30V or less with resistive load.

**Mounting:** Use #4 screws through mounting lugs or #2 screws through eyelets.

**Weight:** Less than 10 grams.

## MODELS

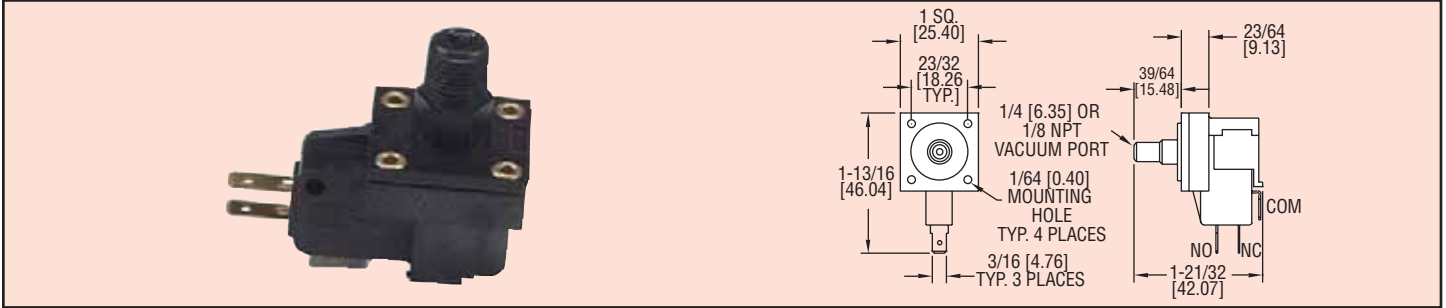
Model Number	Set Point in. H <sub>2</sub> O (mbar)	
	Minimum	Maximum
MDA-011	0.1 (0.25)	0.5 (1.25)
MDA-111	0.5 (1.25)	2.0 (4.98)
MDA-211	2.0 (4.98)	15 (37.37)
MDA-311	15 (37.37)	100 (249.10)



Series  
MVS

# Miniature Vacuum Switch

SPDT N/O or N/C Switch, Adjustable Set Point, Ideal for OEM's



**Compact, lightweight, and adjustable,** the Series MVS Miniature Vacuum Switch is specially designed for OEM applications. This low cost switch has a minimum life expectancy of 10 million cycles and has an extremely fast response time. Typical applications for the MVS are HVAC, home appliance, dairy systems, medical, office equipment, and pump control.

**MODELS**

Model Number	Set Point in. H <sub>2</sub> O (mbar)	
	Minimum	Maximum
MVS-1	3 (8)	8 (20)
MVS-2	9 (21)	80 (199)
MVS-3	81 (200)	330 (822)
MVS-4*	3 (8)	8 (20)
MVS-5*	9 (21)	80 (199)
MVS-6*	81 (200)	330 (822)

\* Models have 1/8" male NPT process connections.

**SPECIFICATIONS**

**Service:** Air or compatible fluids on "high side".  
**Wetted Materials:** Housing: polycarbonate; Diaphragm: polyurethane.  
**Temperature Limits:** 40 to 150°F (4 to 66°C).  
**Pressure Limits:** Up to Maximum Range.  
**Repeatability:** ±20%.  
**Switch Type:** SPDT normally open or normally closed.  
**Electrical Rating:** Range 3 to 8 in w.c.: 3A, 125/250 VAC; Range 9 to 80 in w.c.: 10A, 125/250 VAC; Range 81 to 330 in w.c.: 15A, 125/250 VAC.

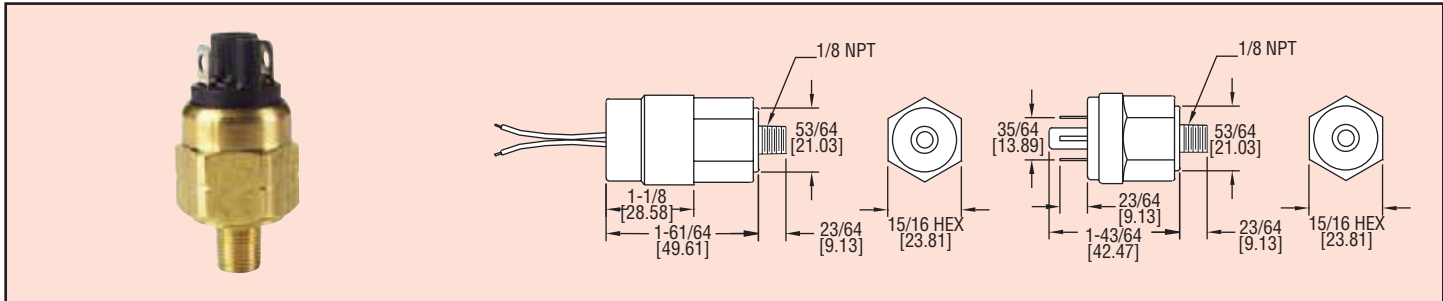
**Contacts:** Silver with brass terminals.  
**Electrical Connections:** Terminals - 0.187" x 0.20: spade for use with quick disconnects.  
**Process Connections:** Models MVS 1 to MVS 3: Smooth port 0.25" diameter; Models MVS 4 to MVS 6: 1/8" male NPT.  
**Mounting:** Use #2 screws through eyelets.  
**Weight:** Less than 19 g.



Series  
A2

# Subminiature Pressure Switch

Designed for OEM Use, Field Adjustable, Submersible Models Available



**Designed for OEM applications,** the Series A2 is economical and is equipped with high proof pressure capabilities for demanding applications. The A2 is available with either spade terminals or flying leads (submersible). Switches with spade terminals can be easily adjusted in the field.

**MODELS**

Model Number	Range psi (bar)	Electrical Connection	NO/NC	Model Number	Range psi (bar)	Electrical Connection	NO/NC
A2-1801	2-10 (.14-.69)	Spade Terminals	NO	A2-3801	20-60 (1.4-4.1)	Spade Terminals	NO
A2-18032*	2-10 (.14-.69)	Flying Leads (Submersible)	NO	A2-38032*	20-60 (1.4-4.1)	Flying Leads (Submersible)	NO
A2-1811	2-10 (.14-.69)	Spade Terminals	NC	A2-3811	20-60 (1.4-4.1)	Spade Terminals	NC
A2-18132*	2-10 (.14-.69)	Flying Leads (Submersible)	NC	A2-38132*	20-60 (1.4-4.1)	Flying Leads (Submersible)	NC
A2-2801	7-25 (.48-1.72)	Spade Terminals	NO	A2-4801	50-150 (3.5-10.3)	Spade Terminals	NO
A2-28032*	7-25 (.48-1.72)	Flying Leads (Submersible)	NO	A2-48032*	50-150 (3.5-10.3)	Flying Leads (Submersible)	NO
A2-2811	7-25 (.48-1.72)	Spade Terminals	NC	A2-4811	50-150 (3.5-10.3)	Spade Terminals	NC
A2-28132*	7-25 (.48-1.72)	Flying Leads (Submersible)	NC	A2-48132*	50-150 (3.5-10.3)	Flying Leads (Submersible)	NC

\* Submersible models are not field adjustable. Set point must be given at time of order.

**SPECIFICATIONS**

**Service:** Compatible liquids and gases.  
**Wetted Materials:** Kapton® and brass.  
**Temperature Limits:** -40 to 250°F (-40 to 121°C).  
**Pressure Limits:** 500 psi (34 bar).  
**Enclosure Rating:** IP68 (Submersible models only).

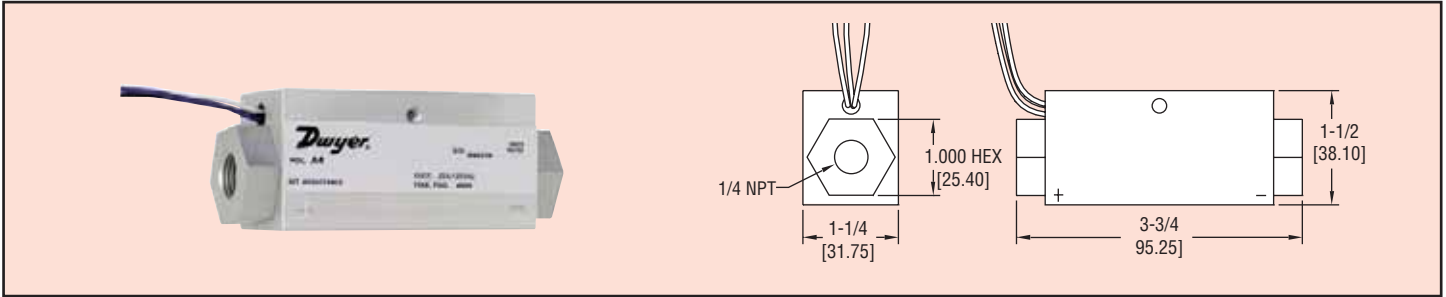
**Repeatability:** ±5% of highest set point.  
**Switch Type:** SPST, 100VA, 42V.  
**Electrical Connection:** 1/4" (6.3 mm). (6.3 mm) Spade terminals or flying leads.  
**Process Connection:** 1/8" male NPT.  
**Weight:** 0.14 lb (0.06 kg).  
**Deadband:** 1-2 psi (.14 bar).  
**Agency Approvals:** CE.



Series A4

# Differential Pressure Switch

Adjustable Set Point, High Overpressure



**Rugged Series A4** Differential Pressure Switch offers field adjustments and can handle system pressures up to 6000 psig. Piston design allows mounting in any orientation. The switch is capable of carrying moderate shock and vibratory loads.

## SPECIFICATIONS

- Service:** Compatible gases.
- Wetted Materials:** Body, piston, and fittings: anodized aluminum; spring: steel.
- Temperature Limits:** -65 to 225°F (-54 to 107°C).
- Pressure Limits:** 2000 psid (138 bar), 6000 psig (413 bar).
- Repeatability:** See table.
- Switch Type:** SPDT.
- Electrical Rating:** AC: 3 VA, 0.25A @ 120 VAC; DC: 5 VA, 0.25A @ 175 VDC.
- Electrical Connection:** 24 AWG X 12" (30.5 cm) wire leads.
- Process Connection:** 1/4" female NPT.
- Mounting Orientation:** Any.
- Set Point Adjustment:** See table.
- Weight:** 8.5 oz (241 g).
- Agency Approvals:** CE.

## MODELS

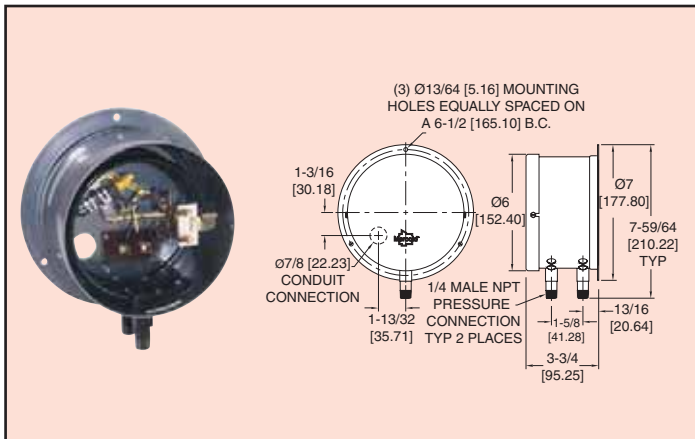
Model Number	Repeatability psi (bar)	Set Point psid (bar)	
		Increasing	Decreasing
A4-1	±2 (.14)	7-13 (.48-.89)	2-7 (.14-.48)
A4-2	±4 (.28)	13-25 (.89-1.7)	5-16 (.34-1.1)
A4-3	±8 (.55)	25-45 (1.7-3.1)	10-21 (.68-1.5)
A4-4	±16 (1.1)	35-160 (2.4-11.0)	20-80 (1.4-5.5)
A4-5	±32 (2.2)	120-250 (8.3-17.2)	35-120 (2.4-8.3)



Series BB

# Bourdon Tube Differential Pressure Switches

Stainless Steel Bourdon Tubes, Adjustable Deadband, High Pressure



**Welded stainless steel Bourdon tubes** reduce chance of leakage, (even in the event of fire), in model BB differential pressure switches. Units are ideal for checking differential pressure (head) across high pressure pumps and filters. Hermetically sealed mercury wetted contacts help ensure reliable operations. Extra sensitive (fixed deadband) units are available on special order, as are weatherproof and explosion-proof enclosures.

## SPECIFICATIONS

- Wetted Materials:** 403 SS Bourdon tube. 316 SS optional.
- Temperature Limits:** -10 to 180°F (-23 to 82°C).
- Pressure Limit:** Maximum pressure of the operating range.
- Enclosure Rating:** General purpose. Weatherproof and explosion-proof optional.
- Switch Type:** SPST mercury switch. Models shown close on increase of differential pressure. Replace "-3" with "-2" in model number for open on increase.
- Electrical Rating:** 5A @ 120 VAC, 2.5A @ 240 VAC, 2.5A @ 120 VDC, 1A @ 240 VDC.
- Electrical Connections:** Screw type.
- Conduit Connection:** 7/8" (22.23 mm) hole for 1/2" (12.7 mm) conduit hub.
- Process Connection:** 1/4" male NPT. 1/2" male NPT on ranges 15S and 16S.
- Mounting Orientation:** Vertical. Vibration free.
- Set Point Adjustment:** Thumbwheel screw.
- Weight:** 4 lb (1.8 kg).
- Deadband:** See model chart.
- Agency Approvals:** CSA.

## MODELS

Model	Operating Range psig (bar)	Differential Range psid (bar)	Min./Max. Deadband psig (bar)
BB-523-3-6S	5-100 (3-6.9)	0-40 (0-2.8)	3/40 (.21/2.8)
BB-523-3-8S	10-200 (7-13.8)	0-120 (0-8.3)	4/120 (.28/8.3)
BB-523-3-9S	10-300 (7-20.7)	0-180 (0-12.4)	6/80 (.41/5.5)
BB-523-3-10S	25-600 (1.7-41.4)	0-360 (0-24.8)	15/360 (1.0/24.8)
BB-523-3-11S	50-1000 (3.5-69.0)	0-600 (0-41.4)	20/600 (1.4/41.4)
BB-523-3-12S	100-1500 (6.9-103.4)	0-900 (0-62.1)	40/900 (2.8/62.1)
BB-523-3-13S	300-2500 (20.7-172.4)	0-1500 (0-103.4)	50/1500 (3.5/103.4)
BB-523-3-15S	500-5000 (34.5-344.7)	0-3000 (0-206.8)	200/3000 (8.6/206.8)
BB-523-3-16S	1000-8000 (69.9-551.6)	0-5000 (0-344.7)	500/5000 (34.5-344.7)

Maximum pressure not to exceed maximum adjustable operating pressure range.

## Suggested Specification:

Differential pressure switches shall be operated by welded type 403 SS Bourdon tubes. No elastomeric or plastic O-rings, diaphragms or packing shall be used in pressure containment. Contacts shall be hermetically sealed and mercury wetted. Units shall be Mercoïd Model No. BB ( ).

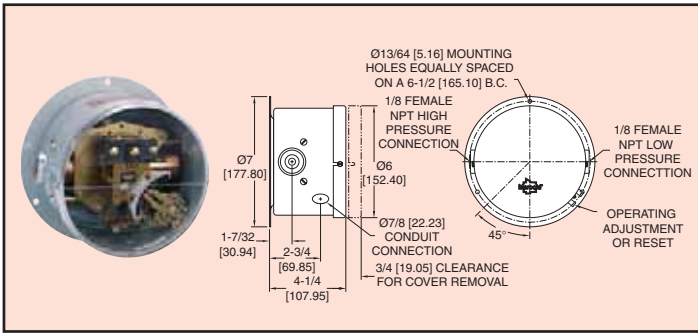




Series DP

# Double Bellows Differential Pressure Switches

Visible Setpoints, Adjustable or Fixed Deadband . . . High Pressure Ranges



**Two opposing bellows** combine maximum sensitivity and vibration resistance with moderate cost in the Series DP differential pressure switches. Both set and reset points are easily adjustable through non-interactive, externally accessible controls. Visible set-point indicators simplify changes. SPDT snap action or mercury switch, 316 stainless steel or brass bellows, flanged steel housing. Rated pressures to 600 psig.

### OPTIONAL ENCLOSURES

**Weatherproof Housing** — to order add “W” suffix after DPA.

Example: D P A W – 7033-153-61

**Explosion-Proof Housing** — to order add “E” suffix after DPA.

Example: D P A E – 7033-153-61

### MODELS

Bellows Material	Range psid (bar)	Max. Press psig (bar)	Snap Action Switch SPDT, 15A @ 120/240 VAC		Snap Action Switch SPDT, 15A @ 120/240 VAC		Mercury Switch* SPDT, 4A @ 120V, 2A @ 240V, AC/DC.	
			Min. D.B. psid	Model Number	Fixed D.B. psid (bar)	Model Number	Min. D.B. psid (bar)	Model Number
Brass	0-10 (0-0.7)	50 (3.5)	1.5 (.10)	DPA-7033-153-61	0.5 (.03)	DPS-7233-153-61	1.0 (.07)	DPA-33-153-61
Brass	0-20 (0-1.4)	100 (6.9)	2.5 (.17)	DPA-7033-153-62	1.0 (.07)	DPS-7233-153-62	1.5 (.10)	DPA-33-153-62
Brass	0-30 (0-2.1)	300 (20.7)	6.0 (.41)	DPA-7033-153-64	1.5 (.10)	DPS-7233-153-64	3.0 (.21)	DPA-33-153-64
316SS	0-20 (0-1.4)	100 (6.9)	3.0 (.21)	DPA-7043-153-62E	1.5 (.10)	DPS-7243-153-62E	2.0 (.14)	DPA-43-153-62E
316SS	0-30 (0-2.1)	300 (20.7)	6.0 (.41)	DPA-7043-153-64E	2.0 (.14)	DPS-7243-153-64E	3.5 (.24)	DPA-43-153-64E
316SS	0-80 (0-5.5)	600 (41.4)	20 (1.4)	DPA-7043-153-65E	6.0 (.41)	DPS-7243-153-65E	16 (1.1)	DPA-43-153-65E

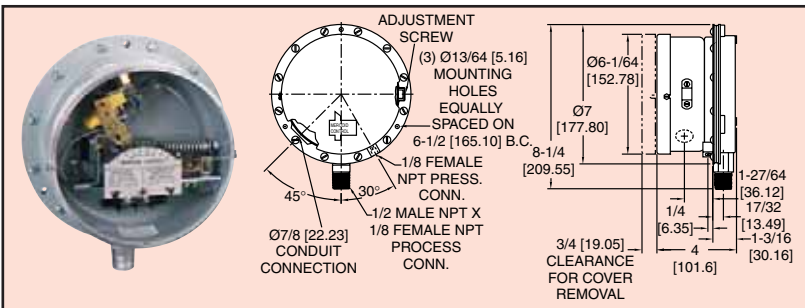
\* Mercury switch units are not CE approved.



Series PG

# Gas Pressure/Differential Pressure Switches

External Adjustment, Visible Dial, Hermetically Sealed Snap or Mercury Switch



### SPECIFICATIONS

**Wetted Materials:** Fairprene, brass, steel, and aluminum.

**Temperature Limits:** -10 to 180°F (-23 to 82°C).

**Pressure Limit:**

Single Pressure Use on High Side:

Sustained Pressure: 15 psig (1.0 bar).

Surge Limit: 20 psig (1.4 bar).

Differential Pressure Use:

Sustained Pressure, Range P1: 2 psig (.14 bar).

Sustained Pressure, Range P2: 10 psig (0.7 bar).

**Enclosure Rating:** General purpose. Weatherproof and explosion-proof optional.

**Repeatability:** ±1% of full range.

**Switch Type:** SPST mercury switch, SPDT mercury switch, SPDT snap switch, or SPDT hermetically sealed snap switch. Optional DPDT.

**Electrical Rating:** SPDT Mercury: 4A @ 120 VAC/VDC, 2A @ 240 VAC/VDC. SPST Mercury: 6A @ 120 VAC/VDC, 3A @ 240 VAC/VDC. SPDT Snap: 15A @ 120 VAC, 8A @ 240 VAC, 0.5A @ 120 VDC, 0.25A @ 240 VDC. SPDT H.S. Silver Snap: 5A @ 125/250 VAC, 30 VDC resistive. SPDT H.S. Gold Snap: 1A @ 125 VAC, 30 VDC resistive.

**Electrical Connections:** Screw type.

**Conduit Connection:** 7/8" (22.23 mm) hole for 1/2" (12.7 mm) conduit hub.

**Process Connection:** 1/2" male NPT and 1/8" female NPT used for single positive pressure or high differential pressure, 1/8" female NPT used for single vacuum or low differential pressure.

**Mounting Orientation:** Vertical.

**Set Point Adjustment:** External screw.

**Weight:** 4.5 lb (2 kg).

**Deadband:** See model chart.

**Agency Approvals:** UL, CSA, FM for mercury switch models. UL only on snap switch models.

**Large diaphragm sensitivity** and time proven dependable design are combined in model PG differential pressure switches. Visible dial reduces “start up” time and helps prevent calibration errors. External adjustment allows set point change without removal of cover. Unit is listed by UL, FM and CSA.

### MODELS

Model Number	Range	Maximum Deadband	Switch Type
PG-153-P1	1-30" wc (.25-7.47 kPa)	1.9" wc (0.47 kPa)	SPDT Mercury
PG-153-P2	0.5-5 psid (0.3-3.45 bar)	0.4 psid (0.38 bar)	SPDT Mercury
PG-3-P1	1-30" wc (.25-7.47 kPa)	1.3" wc (0.32 kPa)	SPST Mercury*
PG-3-P2	0.5-5 psid (.03-3.45 bar)	0.3 psid (0.21 kPa)	SPST Mercury*
PG-7000-153-P1	1-30" wc (.25-7.47 kPa)	4" wc (1.0 kPa)	SPDT Snap
PG-7000-153-P2	0.5-5 psid (.03-3.45 bar)	.5 psid (.035 bar)	SPDT Snap
PG-7000-153HS-P1	1-30" wc (.25-7.47 kPa)	4" wc (1.0 kPa)	SPDT Hermetically Sealed Silver Snap
PG-7000-153HG-P1	1-30" wc (.25-7.47 kPa)	4" wc (1.0 kPa)	SPDT Hermetically Sealed Gold Snap

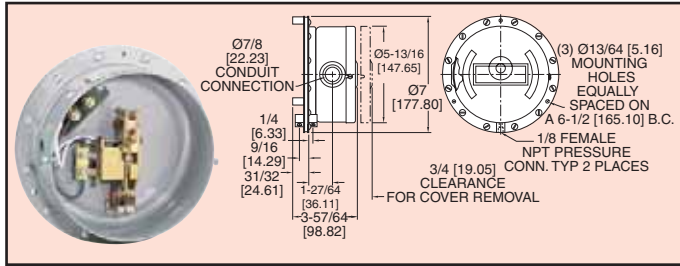
\* SPST switches shown are close on increase of pressure. For open on increase of pressure replace 3 in middle of model number with 2. Example: PG-2-P1.



Series PQ

# Ultra Sensitive Pressure Switches

Large Diaphragm, Magnetic Mercury Switch



## SPECIFICATIONS

- Wetted Materials:** Nylon reinforced Buna-N, steel, brass, and aluminum.
- Temperature Limits:** -10 to 180°F (-23 to 82°C).
- Pressure Limit:** See model chart.
- Enclosure Rating:** General purpose. Weatherproof and explosion-proof optional.
- Switch Type:** SPST mercury switch. Models shown close on increase of pressure or decrease of vacuum. Replace "-3" with "-2" in model number for open on increase of pressure or decrease of vacuum.
- Electrical Rating:** 0.3A @ 120 VAC, 0.15A @ 240 VAC, 0.9A @ 24 VAC, 0.15A @ 120 VDC, 0.07A @ 240 VDC, 0.45A @ 24 VDC.
- Electrical Connections:** Screw terminal.
- Conduit Connection:** 7/8" (22.23 mm) hole for 1/2" (12.7 mm) conduit hub.
- Process Connection:** 1/8" female NPT.
- Mounting Orientation:** Vertical, vibration free.
- Set Point Adjustment:** Internal screw.
- Weight:** General purpose: 4.5 lb (2 kg).
- Deadband:** See model chart.
- Agency Approvals:** UL & CSA.

An ultra sensitive pressure switch, Series PQ is designed for use on air or non-corrosive gas applications. Large diaphragm operates special magnetic mercury switch. Operating point is adjustable over entire range. Unit is also available in weatherproof or explosion-proof housing.

## MODELS

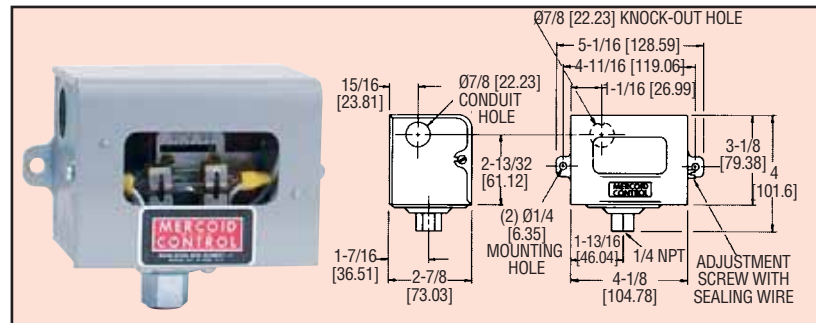
Model Number	Operating Range Inches w.c. (kPa)	Approx. Mid-Range Deadband in. w.c. (Pa)	Maximum Surge Pressure in. w.c. (kPa)
PQ-3-X1	0-0.1 (0-.025)	0.1 (25)	1.0 (.25)
PQ-3-X2	0.1-1.0 (.025-.25)	0.02 (5)	10.0 (2.5)
PQ-3-X2.6	0.1-6.0 (.025-1.5)	0.02 (5)	10.0 (2.5)
PQ-3-X3	1.0-30 (.25-7.5)	0.15 (37)	60.0 (15)
PQ-3-X4	0-0.1(vac.) (0-.025)	0.01 (2.5)	1.0 (.25)
PQ-3-X5	0.1-1.0 (vac.) (.025-.25)	0.15 (37)	10.0 (2.5)
PQ-3-X6	1.0-30 (vac.) (.25-7.5)	0.15 (37)	60.0 (15)



Series AP

# Diaphragm Operated Pressure Switches

Visible Setpoint Adjustment Compact, Low Cost



## SPECIFICATIONS

- Wetted Materials:** Nylon reinforced Buna-N and steel. Teflon® and 316 SS optional.
- Temperature Limits:** -30 to 150°F (-35 to 66°C).
- Pressure Limit:** See model chart.
- Enclosure Rating:** General purpose. Weatherproof and explosion-proof optional.
- Switch Type:** SPDT mercury switch or SPDT snap switch. Other switch types available.
- Electrical Rating:** Mercury switch: 4A @ 120 VAC/DC, 2A @ 240 VAC/DC. Snap switch: 15A @ 120 VAC, 8A @ 240VAC, 0.5A @ 120 VDC, 0.25A @ 240 VDC.
- Electrical Connections:** Screw terminal.
- Conduit Connection:** 7/8" (22.23 mm) hole for 1/2" (12.7 mm) conduit hub.
- Process Connection:** 1/4" female NPT.
- Mounting Orientation:** Vertical for mercury switch models, any position for snap switch models.
- Set Point Adjustment:** External screw.
- Weight:** General purpose: 2 lbs. (0.9 kg).
- Deadband:** See model chart.
- Agency Approvals:** UL, CSA. For FM consult factory.

## MODELS

Model Number	Ranges	Switch* Type SPDT	Switch Dead Band		Maximum Pressure
			Low	High	
AP-153-33	10" vac-50" wc (2.5-12.4 kPa)	Mercury	5" wc (1.2 kPa)	6" wc (1.49 kPa)	15 psig (1.03 bar)
AP-153-37	1-30 psig (.07-2.1 bar)	Mercury	0.4 psig (0.03 bar)	0.75 psig (0.05 bar)	60 psig (4.14 bar)
AP-153-39	10-125 psig (.69-8.6 bar)	Mercury	2 psig (0.14 bar)	6 psig (0.04 bar)	160 psig (11.0 bar)
AP-7021-153-33	10" vac-50" wc (2.5-12.4 kPa)	Snap	8" wc (2.0 kPa)	10" wc (2.49 kPa)	15 psig (1.03 bar)
AP-7021-153-37	1-30 psig (.07-2.1 bar)	Snap	0.75 psig (0.05 bar)	1.5 psig (0.10 bar)	60 psig (4.14 bar)
AP-7021-153-39	10-125 psig (.69-8.6 bar)	Snap	3 psig (0.21 bar)	7 psig (0.48 bar)	160 psig (11.0 bar)

\*Mercury Switch units are not CE approved.

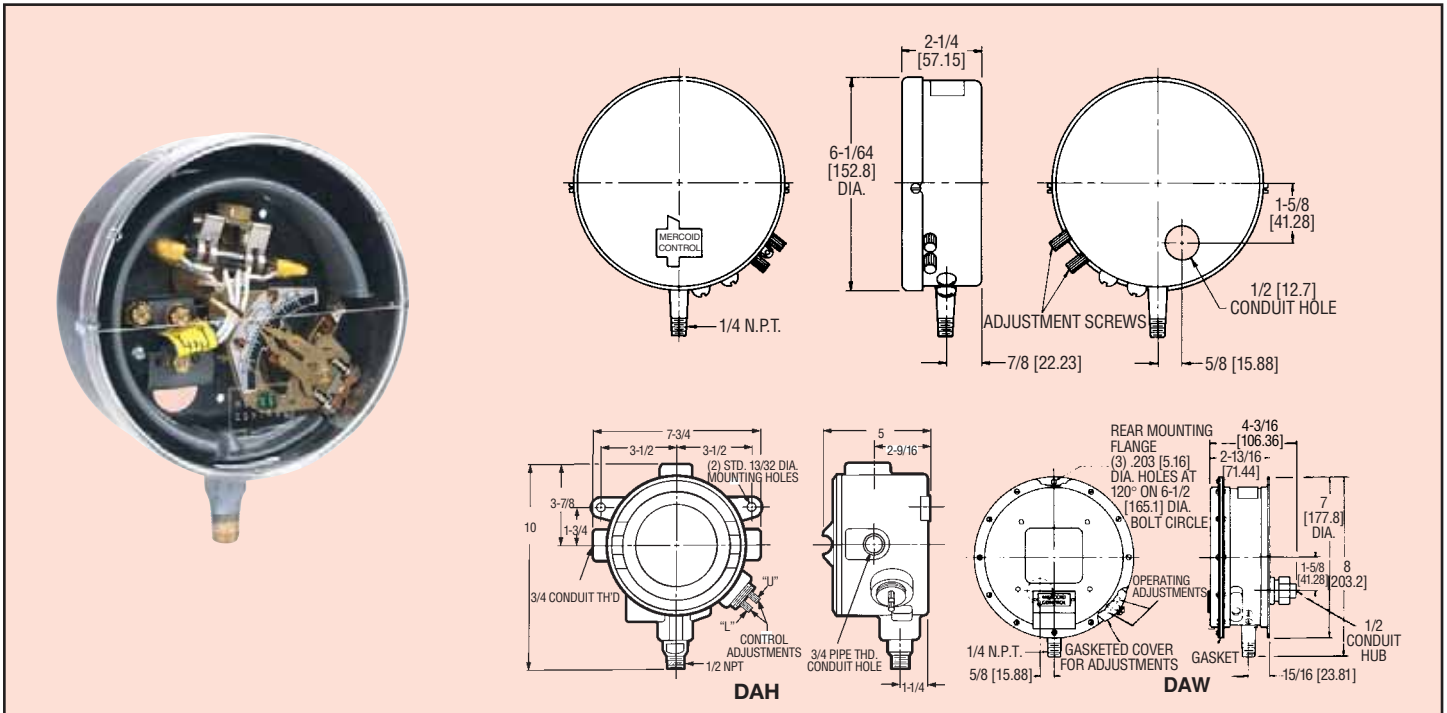
**Reliable and convenient**, series AP pressure switch is a compact low cost switch for instrument air or other low pressure applications. Visible set point and external adjustment add convenience. Used on air, noncorrosive gas or liquid service compatible with wetted parts. Unit also available in weatherproof and explosion-proof housing.



Series  
DA/DS

# Bourdon Tube Pressure Switches

Pressure Ranges to 8000 psi (551.6 bar)



**Customers tell us** that this is the best pressure switch made. The Mercoïd D Series is one of the world's broadest lines of pressure switches. Whatever your application might be, it is most probable it can be fully satisfied with a D Series pressure switch. The D Series has extremely high sensitivity and great repeatability. The DA Models are equipped with two external adjustments, one for setting high pressure operating point, the other for setting low pressure operating point. Deadband, the difference between high and low setpoints, is adjustable over the full scale. The DS Models are equipped with a single external adjustment for setting operating point only. The deadband is fixed at a factory setting and cannot be altered in the field. For switches choose between the snap action switch, hermetically sealed snap action switch and hermetically sealed mercury switch.

## Options

**Explosion-Proof Enclosure, Series DAH** – Suitable for Class I, Groups C and D; NEMA 7; Class II, Groups E, F, G; Class III NEMA 9 and 9A, Division 1. Add "H" to model number after DA or DS.

Example: DAH-31-153-7

**FM Approved:** For general purpose and explosion-proof models listed above in agency approvals. Add "F" to model number after DA, DS, DAH or DSH.

Examples: DAF-31-153-7 or DAHF-31-153-7

**Other Options (Consult Factory):** DPDT switches or other switch types, fixed deadband mercury switch units for low deadband applications, manual reset operation, two-stage operation, Delrin® bushed movement for applications with high amounts of vibration and/or pulsation, fungus proofing, siphon, diaphragm seals, mounting flange and remote connection.

## FEATURES

- Visible calibrated dial.
- On/off indication (except hermetically sealed snap switch models).
- Adjustable or fixed deadband.
- SPDT snap-action, hermetically sealed snap action or hermetically sealed mercury switch.
- External switch setpoint adjustments.
- Minimum deadband is obtainable at any point in the range.
- Pressure ranges of full vacuum to 8000 psig.
- UL listed, CSA approved. Many models FM approved.
- General purpose, weatherproof or explosion-proof enclosures.

## SPECIFICATIONS

**Wetted Materials:** Brass, 403 SS, or 316 SS.

**Temperature Limit:** 180°F (82°C).

**Pressure Limit:** Maximum pressure of the operating range.

**Enclosure Rating:** General purpose, weatherproof or explosion-proof.

**Repeatability:** ±1% of full operating range, ±1.5% on DS-7300 models.

**Switch Type:** SPST mercury switch, SPDT mercury switch, SPDT snap switch, or SPDT hermetically sealed snap switch. Other circuit types available.

**Electrical Rating:** See model charts.

**Electrical Connections:** Screw terminal.

**Conduit Connection:** General purpose: 1/2" hole for conduit hub. Weatherproof: 1/2" conduit hub. Explosion-proof: 3/4" female NPT.

**Process Connection:** General purpose and weatherproof: 1/4" male NPT, 1/2" male NPT on ranges 15S and 16S. Explosion-proof: 1/2" male NPT and 1/4" female NPT.

**Mounting Orientation:** Vertical.

**Set Point Adjustment:** Thumbscrew.

**Weight:** General purpose: 4 lb (1.8 kg), weatherproof: 6 lb (2.7 kg), explosion-proof: 8 lb (3.5 kg).

**Deadband:** See model chart.

**Agency Approvals:** CE, UL, CSA, FM.

**MODELS**

<b>D Series Pressure Switch with Mercury Switch and General Purpose Enclosure</b>										
Bourdon Tube Material	Adjustable Operating Range (psig)	Adjustable Deadband								
		Minimum Deadband (psig)	SPDT 4A @ 120 V 2A @ 240 V AC/DC	SPST Open on Increase 10A @ 120 V 5A @ 240 V AC/DC	SPST Close on Increase 10A @ 120 V 5A @ 240 V AC/DC		Minimum Deadband (psig)	SPST Open on Increase 5A @ 120 VAC 2A @ 240 VDC 2.5A @ 120 VDC 1A @ 240 VDC	SPST Close on Increase 5A @ 120 VAC 2A @ 240 VDC 2.5A @ 120 VDC 1A @ 240 VDC	
Brass	0-30" Hg Vac	2" Hg	DA-31-153-2	DA-31-2-2	DA-31-3-2		1" Hg	DA-531-2-2	DA-531-3-2	
	10" Hg Vac - 12	1	DA-31-153-3	DA-31-2-3	DA-31-3-3		0.5	DA-531-2-3	DA-531-3-3	
	25" Hg Vac - 50	3.5	DA-31-153-27	DA-31-2-27	DA-31-3-27		2	DA-531-2-27	DA-531-3-27	
	1/8 - 15	1	DA-31-153-1	DA-31-2-1	DA-31-3-1		0.5	DA-531-2-1	DA-531-3-1	
	1/8 - 20	1	DA-31-153-3A	DA-31-2-3A	DA-31-3-3A		0.5	DA-531-2-3A	DA-531-3-3A	
	1 - 35	1.75	DA-31-153-4	DA-31-2-4	DA-31-3-4		0.75	DA-531-2-4	DA-531-3-4	
	2 - 60	3	DA-31-153-5	DA-31-2-5	DA-31-3-5		1	DA-531-2-5	DA-531-3-5	
	5 - 100	3.75	DA-31-153-6	DA-31-2-6	DA-31-3-6		2	DA-531-2-6	DA-531-3-6	
	5 - 150	6	DA-31-153-7	DA-31-2-7	DA-31-3-7		3	DA-531-2-7	DA-531-3-7	
	10 - 200	8	DA-31-153-8	DA-31-2-8	DA-31-3-8		3.5	DA-531-2-8	DA-531-3-8	
10 - 300	12	DA-31-153-9	DA-31-2-9	DA-31-3-9		6	DA-531-2-9	DA-531-3-9		
403 Stainless Steel	30" Hg Vac - 60	6	DA-21-153-25S	DA-21-2-25S	DA-21-3-25S		3	DA-521-2-25S	DA-521-3-25S	
	30" Hg Vac - 75	8	DA-21-153-26S	DA-21-2-26S	DA-21-3-26S		4	DA-521-2-26S	DA-521-3-26S	
	2 - 60	4	DA-21-153-5S	DA-21-2-5S	DA-21-3-5S		2.5	DA-521-2-5S	DA-521-3-5S	
	5 - 100	6	DA-21-153-6S	DA-21-2-6S	DA-21-3-6S		3	DA-521-2-6S	DA-521-3-6S	
	10 - 200	8	DA-21-153-8S	DA-21-2-8S	DA-21-3-8S		4	DA-521-2-8S	DA-521-3-8S	
	10 - 300	14	DA-21-153-9S	DA-21-2-9S	DA-21-3-9S		7	DA-521-2-9S	DA-521-3-9S	
	40 - 350	14	DA-21-153-9AS	DA-21-2-9AS	DA-21-3-9AS		7	DA-521-2-9AS	DA-521-3-9AS	
	25 - 600	25	DA-21-153-10S	DA-21-2-10S	DA-21-3-10S		15	DA-521-2-10S	DA-521-3-10S	
	50 - 1000	60	DA-21-153-11S	DA-21-2-11S	DA-21-3-11S		40	DA-521-2-11S	DA-521-3-11S	
	100 - 1500	90	DA-21-153-12S	DA-21-2-12S	DA-21-3-12S		50	DA-521-2-12S	DA-521-3-12S	
300 - 2500	150	DA-21-153-13S	DA-21-2-13S	DA-21-3-13S		100	DA-521-2-13S	DA-521-3-13S		
500 - 5000	450	DA-21-153-15S	DA-21-2-15S	DA-21-3-15S		200	DA-521-2-15S	DA-521-3-15S		
800 - 8000	750	DA-21-153-16S	DA-21-2-16S	DA-21-3-16S		400	DA-521-2-16S	DA-521-3-16S		
316 Stainless Steel	30" Hg Vac - 75	7	DA-41-153-26E	DA-41-2-26E	DA-41-3-26E		3.5	DA-541-2-26E	DA-541-3-26E	
	5 - 75	3	DA-41-153-23E	DA-41-2-23E	DA-41-3-23E		2	DA-541-2-23E	DA-541-3-23E	
	10 - 100	7	DA-41-153-6E	DA-41-2-6E	DA-41-3-6E		3.5	DA-541-2-6E	DA-541-3-6E	
	10 - 150	6	DA-41-153-24E	DA-41-2-24E	DA-41-3-24E		3	DA-541-2-24E	DA-541-3-24E	
	10 - 300	18	DA-41-153-9E	DA-41-2-9E	DA-41-3-9E		5	DA-541-2-9E	DA-541-3-9E	
	30 - 400	30	DA-41-153-21E	DA-41-2-21E	DA-41-3-21E		15	DA-541-2-21E	DA-541-3-21E	
	75 - 800	75	DA-41-153-22E	DA-41-2-22E	DA-41-3-22E		35	DA-541-2-22E	DA-541-3-22E	
	100 - 1000	100	DA-41-153-11E	DA-41-2-11E	DA-41-3-11E		45	DA-541-2-11E	DA-541-3-11E	
	200 - 2500	210	DA-41-153-13E	DA-41-2-13E	DA-41-3-13E		110	DA-541-2-13E	DA-541-3-13E	

<b>D Series Pressure Switch with Snap Action Switch and General Purpose Enclosure</b>										
Bourdon Tube Material	Adjustable Operating Range (psig)	Adjustable Deadband SPDT: 15A @ 120/240 VAC			Fixed Deadband SPDT: 15A @ 120/240 AC		Hermetically Sealed, Fixed Deadband SPDT: 5A @ 120/240 VAC, 5A res. @ 30 VDC			
		Minimum Deadband (psig)	Model Number		Fixed Deadband (psig)	Model Number	Fixed Deadband (psig)	Model Number		
Brass	0-30" Hg Vac	9" Hg	DA-7031-153-2		3" Hg	DS-7231-153-2		5" Hg	DS-7331-153-2	
	10" Hg Vac - 12	4	DA-7031-153-3		1.5	DS-7231-153-3		3	DS-7331-153-3	
	25" Hg Vac - 50	8	DA-7031-153-27		2.5	DS-7231-153-27		3.75	DS-7331-153-27	
	1/8 - 15	4	DA-7031-153-1		1.5	DS-7231-153-1		3	DS-7331-153-1	
	1/8 - 20	4	DA-7031-153-3A		1.5	DS-7231-153-3A		3	DS-7331-153-3A	
	1 - 35	5	DA-7031-153-4		1.5	DS-7231-153-4		3	DS-7331-153-4	
	2 - 60	6	DA-7031-153-5		2	DS-7231-153-5		3	DS-7331-153-5	
	5 - 100	9	DA-7031-153-6		2.5	DS-7231-153-6		3.75	DS-7331-153-6	
	5 - 150	16	DA-7031-153-7		3	DS-7231-153-7		5.25	DS-7331-153-7	
	10 - 200	16	DA-7031-153-8		4	DS-7231-153-8		6.75	DS-7331-153-8	
10 - 300	25	DA-7031-153-9		5	DS-7231-153-9		9	DS-7331-153-9		
403 Stainless Steel	30" Hg Vac - 60	12	DA-7021-153-25S		3.5	DS-7221-153-25S		5.25	DS-7321-153-25S	
	30" Hg Vac - 75	15	DA-7021-153-26S		3.5	DS-7221-153-26S		5.25	DS-7321-153-26S	
	2 - 60	9	DA-7021-153-5S		3	DS-7221-153-5S		4.5	DS-7321-153-5S	
	5 - 100	13	DA-7021-153-6S		3.5	DS-7221-153-6S		5.25	DS-7321-153-6S	
	10 - 200	15	DA-7021-153-8S		4	DS-7221-153-8S		7.125	DS-7321-153-8S	
	10 - 300	19	DA-7021-153-9S		6	DS-7221-153-9S		10.5	DS-7321-153-9S	
	40 - 350	20	DA-7021-153-9AS		6	DS-7221-153-9AS		10.5	DS-7321-153-9AS	
	25 - 600	45	DA-7021-153-10S		10	DS-7221-153-10S		18	DS-7321-153-10S	
	50 - 1000	95	DA-7021-153-11S		20	DS-7221-153-11S		33	DS-7321-153-11S	
	100 - 1500	130	DA-7021-153-12S		30	DS-7221-153-12S		52.5	DS-7321-153-12S	
300 - 2500	260	DA-7021-153-13S		60	DS-7221-153-13S		90	DS-7321-153-13S		
500 - 5000	900	DA-7021-153-15S		200	DS-7221-153-15S		300	DS-7321-153-15S		
800 - 8000	1500	DA-7021-153-16S		500	DS-7221-153-16S					
316 Stainless Steel	30" Hg Vac - 75	10	DA-7041-153-26E		3.5	DS-7241-153-26E		5.25	DS-7341-153-26E	
	5 - 75	8	DA-7041-153-23E		4	DS-7241-153-23E		6	DS-7341-153-23E	
	10 - 100	10	DA-7041-153-6E		3.5	DS-7241-153-6E		5.25	DS-7341-153-6E	
	10 - 150	11	DA-7041-153-24E		4	DS-7241-153-24E		6.75	DS-7341-153-24E	
	10 - 300	28	DA-7041-153-9E		8	DS-7241-153-9E		12	DS-7341-153-9E	
	30 - 400	52	DA-7041-153-21E		10	DS-7241-153-21E		18	DS-7341-153-21E	
	75 - 800	120	DA-7041-153-22E		25	DS-7241-153-22E		37.5	DS-7341-153-22E	
	100 - 1000	190	DA-7041-153-11E		35	DS-7241-153-11E		52.5	DS-7341-153-11E	
	200 - 2500	400	DA-7041-153-13E		75	DS-7241-153-13E		112.5	DS-7341-153-13E	

## MODELS

D Series Pressure Switch with Mercury Switch and Weatherproof Enclosure										
Bourdon Tube Material	Adjustable Operating Range (psig)	Adjustable Deadband								
		Minimum Deadband (psig)	SPDT 4A @ 120 V 2A @ 240 V AC/DC	SPST Open on Increase 10A @ 120 V 5A @ 240 V AC/DC	SPST Close on Increase 10A @ 120 V 5A @ 240 V AC/DC		Minimum Deadband (psig)	SPST Open on Increase 5A @ 120 VAC 2A @ 240 VAC 2.5A @ 120 VDC 1A @ 240 VDC	SPST Close on Increase 5A @ 120 VAC 2A @ 240 VAC 2.5A @ 120 VDC 1A @ 240 VDC	
Brass	0-30" Hg Vac	2" Hg	DAW-33-153-2	DAW-33-2-2	DAW-33-3-2		1" Hg	DAW-533-2-2	DAW-533-3-2	
	10" Hg Vac - 12	1	DAW-33-153-3	DAW-33-2-3	DAW-33-3-3		0.5	DAW-533-2-3	DAW-533-3-3	
	25" Hg Vac - 50	3.5	DAW-33-153-27	DAW-33-2-27	DAW-33-3-27		2	DAW-533-2-27	DAW-533-3-27	
	1/8 - 15	1	DAW-33-153-1	DAW-33-2-1	DAW-33-3-1		0.5	DAW-533-2-1	DAW-533-3-1	
	1/8 - 20	1	DAW-33-153-3A	DAW-33-2-3A	DAW-33-3-3A		0.5	DAW-533-2-3A	DAW-533-3-3A	
	1 - 35	1.75	DAW-33-153-4	DAW-33-2-4	DAW-33-3-4		0.75	DAW-533-2-4	DAW-533-3-4	
	2 - 60	3	DAW-33-153-5	DAW-33-2-5	DAW-33-3-5		1	DAW-533-2-5	DAW-533-3-5	
	5 - 100	3.75	DAW-33-153-6	DAW-33-2-6	DAW-33-3-6		2	DAW-533-2-6	DAW-533-3-6	
	5 - 150	6	DAW-33-153-7	DAW-33-2-7	DAW-33-3-7		3	DAW-533-2-7	DAW-533-3-7	
	10 - 200	8	DAW-33-153-8	DAW-33-2-8	DAW-33-3-8		3.5	DAW-533-2-8	DAW-533-3-8	
10 - 300	12	DAW-33-153-9	DAW-33-2-9	DAW-33-3-9		6	DAW-533-2-9	DAW-533-3-9		
403 Stainless Steel	30" Hg Vac - 60	6	DAW-23-153-25S	DAW-23-2-25S	DAW-23-3-25S		3	DAW-523-2-25S	DAW-523-3-25S	
	30" Hg Vac - 75	8	DAW-23-153-26S	DAW-23-2-26S	DAW-23-3-26S		4	DAW-523-2-26S	DAW-523-3-26S	
	2 - 60	4	DAW-23-153-5S	DAW-23-2-5S	DAW-23-3-5S		2.5	DAW-523-2-5S	DAW-523-3-5S	
	5 - 100	6	DAW-23-153-6S	DAW-23-2-6S	DAW-23-3-6S		3	DAW-523-2-6S	DAW-523-3-6S	
	10 - 200	8	DAW-23-153-8S	DAW-23-2-8S	DAW-23-3-8S		4	DAW-523-2-8S	DAW-523-3-8S	
	10 - 300	14	DAW-23-153-9S	DAW-23-2-9S	DAW-23-3-9S		7	DAW-523-2-9S	DAW-523-3-9S	
	40 - 350	14	DAW-23-153-9AS	DAW-23-2-9AS	DAW-23-3-9AS		7	DAW-523-2-9AS	DAW-523-3-9AS	
	25 - 600	25	DAW-23-153-10S	DAW-23-2-10S	DAW-23-3-10S		15	DAW-523-2-10S	DAW-523-3-10S	
	50 - 1000	60	DAW-23-153-11S	DAW-23-2-11S	DAW-23-3-11S		40	DAW-523-2-11S	DAW-523-3-11S	
	100 - 1500	90	DAW-23-153-12S	DAW-23-2-12S	DAW-23-3-12S		50	DAW-523-2-12S	DAW-523-3-12S	
300 - 2500	150	DAW-23-153-13S	DAW-23-2-13S	DAW-23-3-13S		100	DAW-523-2-13S	DAW-523-3-13S		
500 - 5000	450	DAW-23-153-15S	DAW-23-2-15S	DAW-23-3-15S		200	DAW-523-2-15S	DAW-523-3-15S		
800 - 8000	750	DAW-23-153-16S	DAW-23-2-16S	DAW-23-3-16S		400	DAW-523-2-16S	DAW-523-3-16S		
316 Stainless Steel	30" Hg Vac - 75	7	DAW-43-153-26E	DAW-43-2-26E	DAW-43-3-26E		3.5	DAW-543-2-26E	DAW-543-3-26E	
	5 - 75	3	DAW-43-153-23E	DAW-43-2-23E	DAW-43-3-23E		2	DAW-543-2-23E	DAW-543-3-23E	
	10 - 100	7	DAW-43-153-6E	DAW-43-2-6E	DAW-43-3-6E		3.5	DAW-543-2-6E	DAW-543-3-6E	
	10 - 150	6	DAW-43-153-24E	DAW-43-2-24E	DAW-43-3-24E		3	DAW-543-2-24E	DAW-543-3-24E	
	10 - 300	18	DAW-43-153-9E	DAW-43-2-9E	DAW-43-3-9E		5	DAW-543-2-9E	DAW-543-3-9E	
	30 - 400	30	DAW-43-153-21E	DAW-43-2-21E	DAW-43-3-21E		15	DAW-543-2-21E	DAW-543-3-21E	
	75 - 800	75	DAW-43-153-22E	DAW-43-2-22E	DAW-43-3-22E		35	DAW-543-2-22E	DAW-543-3-22E	
	100 - 1000	100	DAW-43-153-11E	DAW-43-2-11E	DAW-43-3-11E		45	DAW-543-2-11E	DAW-543-3-11E	
	200 - 2500	210	DAW-43-153-13E	DAW-43-2-13E	DAW-43-3-13E		110	DAW-543-2-13E	DAW-543-3-13E	

D Series Pressure Switch with Snap Action Switch and Weatherproof Enclosure										
Bourdon Tube Material	Adjustable Operating Range (psig)	Adjustable Deadband SPDT: 15A @ 120/240 VAC			Fixed Deadband SPDT: 15A @ 120/240 VAC			Hermetically Sealed, Fixed Deadband SPDT: 5A @ 120/240 VAC, 5A res.@30 VDC		
		Minimum Deadband (psig)	Model Number		Fixed Deadband (psig)	Model Number		Fixed Deadband (psig)	Model Number	
Brass	0-30" Hg Vac	9" Hg	DAW-7033-153-2		3" Hg	DSW-7233-153-2		5" Hg	DSW-7333-153-2	
	10" Hg Vac - 12	4	DAW-7033-153-3		1.5	DSW-7233-153-3		3	DSW-7333-153-3	
	25" Hg Vac - 50	8	DAW-7033-153-27		2.5	DSW-7233-153-27		3.75	DSW-7333-153-27	
	1/8 - 15	4	DAW-7033-153-1		1.5	DSW-7233-153-1		3	DSW-7333-153-1	
	1/8 - 20	4	DAW-7033-153-3A		1.5	DSW-7233-153-3A		3	DSW-7333-153-3A	
	1 - 35	5	DAW-7033-153-4		1.5	DSW-7233-153-4		3	DSW-7333-153-4	
	2 - 60	6	DAW-7033-153-5		2	DSW-7233-153-5		3	DSW-7333-153-5	
	5 - 100	9	DAW-7033-153-6		2.5	DSW-7233-153-6		3.75	DSW-7333-153-6	
	5 - 150	16	DAW-7033-153-7		3	DSW-7233-153-7		5.25	DSW-7333-153-7	
	10 - 200	16	DAW-7033-153-8		4	DSW-7233-153-8		6.75	DSW-7333-153-8	
10 - 300	25	DAW-7033-153-9		5	DSW-7233-153-9		9	DSW-7333-153-9		
403 Stainless Steel	30" Hg Vac - 60	12	DAW-7023-153-25S		3.5	DSW-7223-153-25S		5.25	DSW-7323-153-25S	
	30" Hg Vac - 75	15	DAW-7023-153-26S		3.5	DSW-7223-153-26S		5.25	DSW-7323-153-26S	
	2 - 60	9	DAW-7023-153-5S		3	DSW-7223-153-5S		4.5	DSW-7323-153-5S	
	5 - 100	13	DAW-7023-153-6S		3.5	DSW-7223-153-6S		5.25	DSW-7323-153-6S	
	10 - 200	15	DAW-7023-153-8S		4	DSW-7223-153-8S		7.125	DSW-7323-153-8S	
	10 - 300	19	DAW-7023-153-9S		6	DSW-7223-153-9S		10.5	DSW-7323-153-9S	
	40 - 350	20	DAW-7023-153-9AS		6	DSW-7223-153-9AS		10.5	DSW-7323-153-9AS	
	25 - 600	45	DAW-7023-153-10S		10	DSW-7223-153-10S		18	DSW-7323-153-10S	
	50 - 1000	95	DAW-7023-153-11S		20	DSW-7223-153-11S		33	DSW-7323-153-11S	
	100 - 1500	130	DAW-7023-153-12S		30	DSW-7223-153-12S		52.5	DSW-7323-153-12S	
300 - 2500	260	DAW-7023-153-13S		60	DSW-7223-153-13S		90	DSW-7323-153-13S		
500 - 5000	900	DAW-7023-153-15S		200	DSW-7223-153-15S		300	DSW-7323-153-15S		
800 - 8000	1500	DAW-7023-153-16S		500	DSW-7223-153-16S					
316 Stainless Steel	30" Hg Vac - 75	10	DAW-7043-153-26E		3.5	DSW-7243-153-26E		5.25	DSW-7343-153-26E	
	5 - 75	8	DAW-7043-153-23E		4	DSW-7243-153-23E		6	DSW-7343-153-23E	
	10 - 100	10	DAW-7043-153-6E		3.5	DSW-7243-153-6E		5.25	DSW-7343-153-6E	
	10 - 150	11	DAW-7043-153-24E		4	DSW-7243-153-24E		6.75	DSW-7343-153-24E	
	10 - 300	28	DAW-7043-153-9E		8	DSW-7243-153-9E		12	DSW-7343-153-9E	
	30 - 400	52	DAW-7043-153-21E		10	DSW-7243-153-21E		18	DSW-7343-153-21E	
	75 - 800	120	DAW-7043-153-22E		25	DSW-7243-153-22E		37.5	DSW-7343-153-22E	
	100 - 1000	190	DAW-7043-153-11E		35	DSW-7243-153-11E		52.5	DSW-7343-153-11E	
	200 - 2500	400	DAW-7043-153-13E		75	DSW-7243-153-13E		112.5	DSW-7343-153-13E	



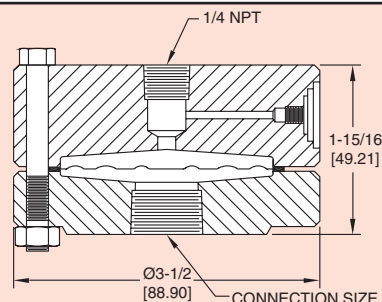
Series  
XTBX

# Diaphragm Seal for DA Series Pressure Switch

PVC and Teflon® Construction for Corrosive Applications



Seal shown mounted on  
DA Series Pressure  
Switch.



The **Series XTBX** is a diaphragm seal constructed of PVC and Teflon® making it perfect for corrosive applications that would damage metal wetted material pressure switches. The seal is available direct mounted on all model DA pressure switches with ranges under 100 psi (6.9 bar). Ideal for commercial pool/spa applications for pump shut down due to excessive vacuum.

## MODEL NUMBER:

**XTBX4\_NPQ3\***

**Connection Size:** B=1½", A= 1¼", 1=1", 2=½", 3=¾", 4=¼"

\*Specify connection size in the underlined part of the model number. Example: XTBX42NPQ3

## SPECIFICATIONS

**Wetted Materials:** PVC bottom bowl, Teflon® diaphragm.

**Temperature Limit:** 100°F (38°C).

**Pressure Limits:** 20" Hg (508 mm Hg) vacuum to 100 psig (6.9 bar).

**Process Connection:** Female NPT, available in ¼", ½", ¾", 1", 1-¼", and 1-½".

## OPTIONS:

**Remote Mounted, Fluorolube Fill**

## Popular Models with DA Switch:

**DA-7031-153-1-XTBX44NPQ3-2-0-0**

**Description:** DA pressure switch with range 1/8 to 15 psi, direct mounted XTBX seal with ¼" NPT connection, adjustable differential, SPDT snap switch rated 15A @ 120/240 VAC, general purpose enclosure.

**DRW-7033-153U-2-XTBX42NPQ3-5-0-0**

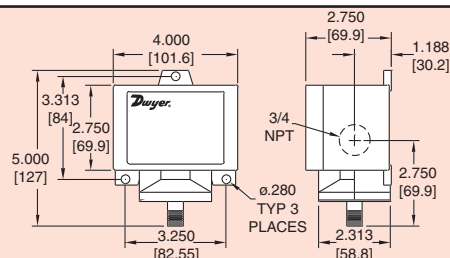
**Description:** DA pressure switch with range 0 to 20" Hg, direct mount XTBX seal with ½" NPT connection, Fluorolube fill, manual reset switch - automatic operation on increase of vacuum, SPDT snap switch rated 15A @ 120/240 VAC, weatherproof (NEMA 4X) enclosure.



Series  
ES

# Electronic Pressure Switch

Adjustable Set Point, Status Light, NEMA-4 Enclosure



**Series ES Electronic Pressure Switch** is proven reliable, even in the toughest industrial applications. The switch uses a thin film pressure sensor that is rated for 10,000,000 cycles at the rated load, allowing the ES to outlast mechanical switches in high cycle applications. The switch is designed with narrow, adjustable deadbands that can be adjusted to less than 0.5% of range with multi-turn potentiometers. Features include status light for indication of process pressure, setpoint, reset and relay output status. Optional 3-1/2 digit LED provides local indication of process pressure. The electronics are housed in a watertight epoxy coated aluminum enclosure for additional corrosion resistance. The Series ES is ideal for pressure alarms, shutdown and control on metal stamping, presses, injection molding machines and other process equipment.

## MODELS

Model Number	Setpoint Range psi (bar)	Max. Pressure psi (bar)	LED
ES04021	3-60 (.21-4.1)	120 (8.3)	No
ES04022	5-100 (.34-6.9)	200 (13.8)	No
ES04024	15-300 (1.0-20.7)	600 (41.4)	No
ES04029	150-3000 (10.3-206)	4500 (310)	No
ES14021	3-60 (.21-4.1)	120 (8.3)	Yes
ES14022	5-100 (.34-6.9)	200 (13.8)	Yes
ES14024	15-300 (1.0-20.7)	600 (41.4)	Yes
ES14029	150-3000 (10.3-206)	4500 (310)	Yes

## SPECIFICATIONS

**Service:** Compatible liquids or gases.

**Power Supply:** 110 VAC; 50/60 Hz.

**Repeatability:** ±0.5% of nominal range.

**Temperature Limits:** -20 to 160°F (-28.9 to 71.1°C).

**Process Connection:** ¼" male NPT.

**Electrical Connections:** ¾" male NPT.

**Switch Type:** SPDT relay.

**Electrical Ratings:** 10 amps (resistive) @ 250 VAC; 10 amp (resistive) @ 30 VDC.

**Setpoint:** Adjustable via internal multi-turn potentiometers.

**Deadband Adjustment:** Between 0.1% and 95% of nominal range.

**Cycle:** Ten million @ rated load.

**Sensor Element:** Thin film pressure sensor.

**Display:** (on ES1 models only) 3-1/2 digit LED.

**Resolution:** ±1%.

**Wetted Parts:** Diaphragm: 17-4 PH stainless steel; Pressure connection: AISI/316 SS.

**Housing:** NEMA 4 (IP66) watertight epoxy coated aluminum enclosure.

**Weight:** 1lb, 9 oz (709 g).

**Agency Approvals:** CE, UL, CSA.



Series  
H2

# Dual-Action Explosion-Proof Pressure Switches

Explosion-proof and Weatherproof Housing



**Explosion-Proof, UL & CSA Listed for Class I, Groups B, C & D and Class II, Groups E, F & G.** The H2 is designed for sequencing two different actions as pressure of a liquid or gas increases or decreases. The patented design consists of two concentric pistons operated by a single diaphragm with one pressure chamber. Each piston actuates a separate switch independent of the other. The switches may be adjusted to operate together, at opposite ends of the range or at two intermediate set points. The threaded top is removed to field adjust or service switches without disturbing electrical or pressure connections. The Duo-tect® switch is explosion-proof and weatherproof. It can be mounted in any position and is not affected by vibration.

**MODELS**

Model Number	Low Range psig (bar)	High Range psig (bar)
H2A-1	3-40 (0.21-2.76)	5-75 (0.35-5.17)
H2A-2	25-250 (1.72-17.2)	30-400 (2.07-27.6)
H2A-3	100-1000 (6.89-68.9)	150-1500 (10.3-103)

**SPECIFICATIONS**

**Wetted Materials:** Aluminum chamber with Mylar diaphragm and Buna-N O-ring standard. Brass chamber or 316 SS chamber optional. Teflon® diaphragm optional. Viton® or EPDM O-ring optional.  
**Temperature Limit:** 275°F (135°C).  
**Pressure Limit:** 1500 psig (103 bar).  
**Enclosure Rating:** UL listed explosion-proof, Class I, Groups B, C, and D. Class II Groups E, F, and G. Weatherproof, NEMA 4. CSA optional.  
**Switch Type:** Two SPDT snap switches.

**Electrical Rating:** 5A @ 125/250 VAC. 5A res., 3A ind. @ 30 VDC. Gold contacts or 10A switch optional.  
**Electrical Connections:** 18 AWG, 18" (460 mm) long.  
**Conduit Connection:** 3/4" female NPT.  
**Process Connection:** 1/4" female NPT.  
**Mounting Orientation:** Any position.  
**Set Point Adjustment:** Internal nut.  
**Weight:** 2 lb (.9 kg).  
**Deadband:** Approximately 10% of range.  
**Agency Approvals:** CE, UL, CSA.



Series  
A1N

# Low Cost OEM Pressure Switch

5 Amp Rating, Field Adjustable Set Points, Buna-N Diaphragm



**Low cost and compact, the Series A1N Pressure Switch** is a UL-recognized component control for water, oil, and non-combustible gas service with an electrical rating of 5 amperes at 125/250 VAC. The Series A1N control is available in field adjustable operating ranges from as low as 1.5 to 4.5 psig up to 41 to 100 psig (10.3-31.0 to 283-690 kPa). A low temperature option of -20 to 180°F (-29 to 82°C) is available.

**MODELS**

Model No.	Range, psig	Range, kPa	Typical Deadband in psig (kPa) at min./max.	Low Temp. Model No.	Range, psig	Range, kPa	Typical Deadband in psig (kPa) at min./max.
A1N-11	1.5-4.5	10-31	.35/.65 (2.4/4.5)	A1N-12	2.0-4.5	13.8-31	.55/.60 (3.8/4.1)
A1N-21	4.5-15	31-103	.65/.90 (4.5/6.2)	A1N-22	4.5-15	31-103	.75/1.0 (5.2/6.9)
A1N-31	15-41	103-283	1/1.7 (6.9/11.7)	A1N-32	15-41	103-283	1.4/1.6 (9.7/11)
A1N-41	41-100	283-690	3.7/4.5 (25.5/31)	A1N-42	41-100	283-690	4.8/6.0 (33/41)

**SPECIFICATIONS**

**Wetted Materials:** Zinc chamber and Buna-N diaphragm.  
**Temperature Limits:** 0 to 180°F (-18 to 82°C). Low temperature models: -20 to 180°F (-29 to 82°C).  
**Pressure Limit:** 200 psig (13.8 bar).  
**Enclosure Rating:** None.  
**Switch Type:** SPDT snap switch.  
**Electrical Rating:** 5A @ 125/250 VAC, 1/10 HP @ 125/250 VAC.

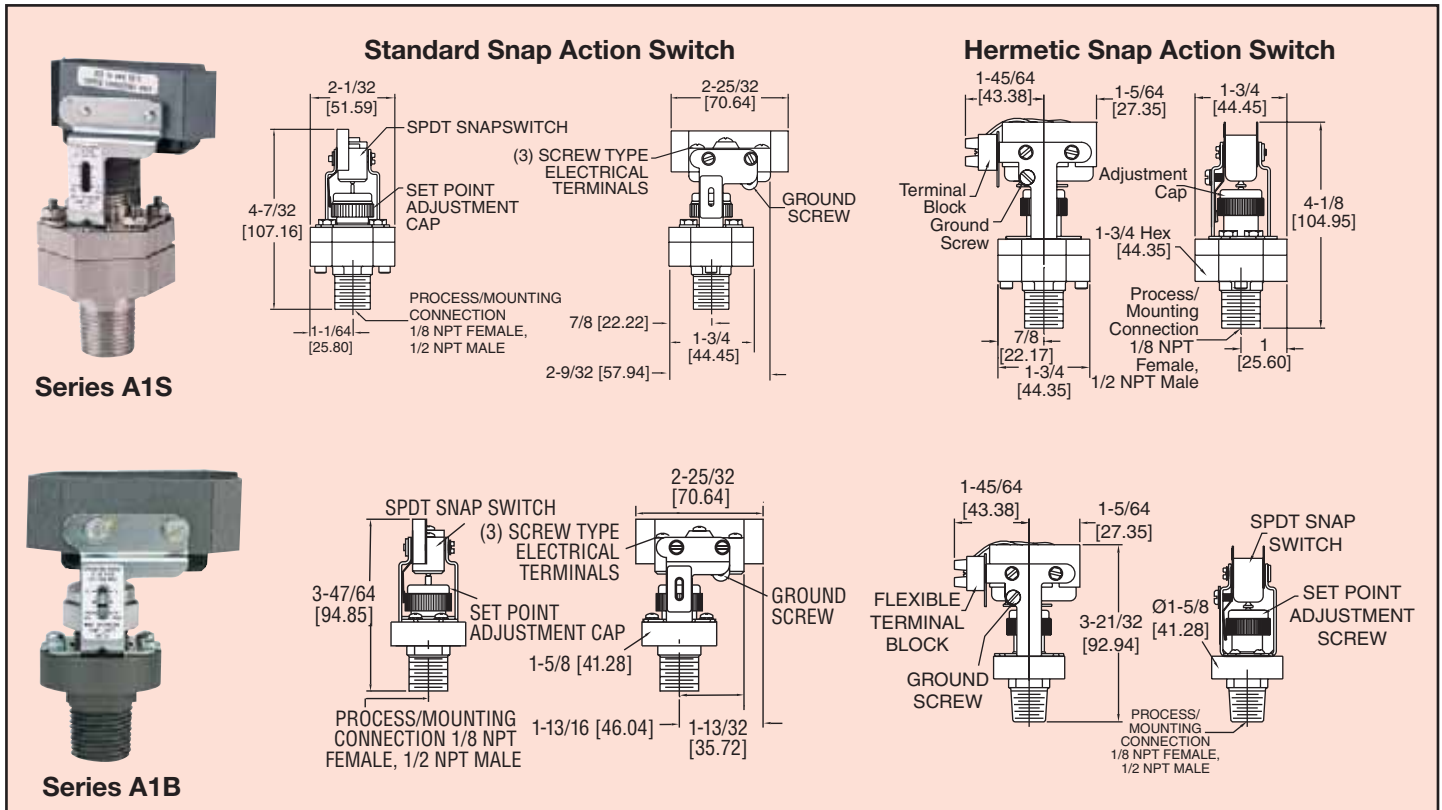
**Electrical Connections:** .11 x .02 quick connect tabs.  
**Process Connection:** 1/8" male NPT.  
**Mounting Orientation:** Within 20° of vertical.  
**Set Point Adjustment:** Slotted screw.  
**Weight:** 6 oz (.17 kg).  
**Deadband:** See model chart.



Series  
A1S  
&  
A1B

# Low Cost OEM Pressure Switch

316 SS or Buna-N Diaphragm, Optional Weatherproof Enclosure,  
Ranges from 3-20 to 50-500 psig



**Low Cost and Precision Made.** The A1 Pressure Control provides the flexibility required for industrial applications. The A1 pressure switch is ideal for panel mounting wherever a high quality economical open case control is required. Optional weatherproof housing meets NEMA 4X standards. Superior 15A contact allows direct control of a motor or pump without the use of external relays - a true time and money savings. Unique features include broad temperature limits for increased application possibilities and convenient indicating scale for quick and easy field adjustment. The rugged A1S construction incorporates the features most often requested by customers; a 316 SS diaphragm pressure element for exceptional compatibility and long service life. The A1B construction offers a lower cost Buna-N diaphragm for those applications not requiring 316 SS. Pressure chambers available are: aluminum with Teflon® impregnated hard coating perfect for oil based hydraulic fluids and noncorrosive air and gases, brass for water and water based fluids, and 316 SS for harsher applications. Optional hermetically sealed snap switches are available for harsh environments.

OP enclosure and mounting configuration offers a unit that can be directly mounted through the panel wall keeping the process outside of the panel. Unit has a flush bottom and includes a gasket and mounting nut to insure a tight weatherproof seal against the panel.

## Features

- 316 SS or Buna-N diaphragm
- Aluminum, Brass, or 316 SS pressure chamber
- High current SPDT snap switch
- Weatherproof enclosure available in Polycarbonate or 316 SS
- Hermetically sealed snap switch option

## SPECIFICATIONS

### Wetted Materials:

**Pressure Chamber:** Aluminum with Teflon® impregnated anodized coating, brass, or 316 SS.

**Diaphragm:** 316 SS on A1S, Buna-N on A1B.

**O-ring:** Viton® on A1S, Buna-N on A1B.

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

**Pressure Limits:** 750 psig (51 bar).

**Enclosure Rating:** O, and OP enclosure none. PC, PN, SC, and SN enclosures meet NEMA 4X standards.

**Switch Type:** Type 1: SPDT snap switch. Type 1HS: SPDT hermetically sealed snap switch.

**Electrical Rating:** Switch Type 1: 15A @ 120/240/480 VAC, 1/8 HP @ 125 VAC, 1/4 HP @ 250 VAC. Switch Type 1HS: 5A @ 120/240 VAC.

**Electrical Connection:** Screw terminals on Type 1 switch, terminal block on Type 1HS switch.

**Process Connection:** 1/8" female NPT and 1/2" male NPT. OP style has 1/8" female NPT and 1/2" male straight thread.

**Mounting Orientation:** Within 20° of vertical.

**Set Point Adjustment:** Knurled screw cap with indicating scale.

**Weight:** A1S: 9 oz (.25 kg), A1B: 6 oz (.17 kg).

**Deadband:** Fixed, see deadband chart.





Series  
A1S  
&  
A1B

# Low Cost OEM Pressure Switch

316 SS or Buna-N Diaphragm, Optional Weatherproof Enclosure,  
Ranges from 3-20 to 50-500 psig

<b>Example</b>	A1	S	PC	SS	1	2	A1S-PC-SS-1-2 Pressure Control; 316 SS diaphragm and Viton® O-ring; weatherproof enclosure, NEMA-4X, polycarbonate with conduit entry; 316 SS pressure chamber; fixed deadband, automatic reset; SPDT snap acting switch; adjustable range 15-150 psig.
<b>Construction</b>	A1						Series Designator
<b>Diaphragm Material</b>		S B					316 SS diaphragm and Viton® O-ring Buna-N diaphragm and Buna-N O-ring
<b>Enclosure &amp; Mounting</b>			O OP  PC SC				Open case Open case - panel mount, has 1/2" straight thread and flush bottom, includes gasket and mounting nut (only available on A1B with brass chamber)  Weatherproof enclosure, NEMA 4X, polycarbonate with conduit entry Weatherproof enclosure, NEMA 4X, 316 SS with conduit entry
<b>Pressure Chamber Material</b>				AL BR SS			Aluminum with Teflon® impregnated anodized coating Brass 316 SS
<b>Circuit (Switch) Type</b>					1  1HS		SPDT snap action switch, rated 15A @ 120/240/480 VAC, 1/8 HP @ 125 VAC, 1/4 HP @ 250 VAC SPDT Hermetically sealed snap switch rated 5A @ 120/240 VAC
<b>Adjustable Pressure Range</b>						1 2 3 4	3-20 psig (.21-1.4 bar) 15-150 psig (1.0-10.3 bar) 25-250 psig (1.7-17.2 bar) 50-500 psig (3.4-34.5 bar)

## Optional Enclosures & Mounting:

### Weatherproof



### Open Case-Panel Mount



## Series A1S and A1B Deadband Chart - psig (bar)

Model	Range	Deadband at Minimum Range	Deadband at Maximum Range
<b>A1S or A1B with Type 1 Switch</b>	3-20 (.21-1.4)	1 (.07)	3 (.21)
	15-150 (1.0-10.3)	5 (.34)	15 (1.0)
	25-250 (1.7-17.2)	8 (.55)	25 (1.7)
	50-500 (3.4-34.5)	15 (1.0)	50 (3.5)
<b>A1S with Type 1HS Switch</b>	3-20 (.21-1.4)	1.5 (.10)	4 (.28)
	15-150 (1.0-10.3)	10.5 (.72)	40 (2.8)
	25-250 (1.7-17.2)	9 (.62)	50 (3.5)
	50-500 (3.4-34.5)	14.5 (.99)	42 (2.9)
<b>A1B with Type 1HS Switch</b>	3-20 (.21-1.4)	2 (.14)	6 (.41)
	15-150 (1.0-10.3)	6 (.41)	25 (1.7)
	25-250 (1.7-17.2)	17 (1.17)	50 (3.5)
	50-500 (3.4-34.5)	12.5 (.86)	44 (3.0)

### Series A1S - Type O enclosure and Type 1 switch

AL chamber models base price .....

BR chamber models base price .....

SS chamber models base price .....

### Series A1B - Type O enclosure and Type 1 switch

AL chamber models base price .....

BR chamber models base price .....

SS chamber models base price .....

### Enclosures:

PC .....

SC .....

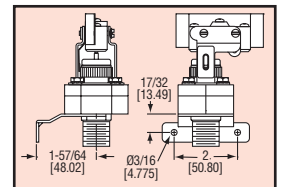
Switches:

1HS .....

### Accessories:

#### A-613 Mounting Bracket

Optional accessory is formed from 14 ga. steel, zinc plated for corrosion resistance. Provides rugged permanent mounting and speeds installation. Two 1/4" 6-32 mounting screws are included to attach switch to bracket.



## MODELS

Model Number	Range psig (bar)
A1S-O-AL-1-1	3-20 (.21-1.4)
A1S-O-AL-1-2	15-150 (1.0-10.3)
A1S-O-AL-1-3	25-250 (1.7-17.2)
A1S-O-AL-1-4	50-500 (3.4-34.5)
A1S-O-AL-1HS-2	15-150 (1.0-10.3)
A1S-O-BR-1-1	3-20 (.21-1.4)
A1S-O-SS-1-1	3-20 (.21-1.4)
A1S-O-SS-1-2	15-150 (1.0-10.3)
A1S-PC-SS-1-1	3-20 (.21-1.4)
A1S-PC-SS-1-2	15-150 (1.0-10.3)
A1B-O-AL-1-1	3-20 (.21-1.4)
A1B-O-AL-1-2	15-150 (1.0-10.3)
A1B-OP-BR-1-2	15-150 (1.0-10.3)
A1B-O-AL-1HS-1	3-20 (.21-1.4)
A1B-PC-AL-1-1	3-20 (.21-1.4)
A1B-SC-BR-1-2	15-150 (1.0-10.3)



Series  
A1PS/  
A1VS

# Economical Pressure Switch

Vacuum and Compound Ranges Available, Adjustable Set Point



**Series A1PS/A1VS Economical Pressure Switches** are designed with a 15 Amp SPDT switch for direct control of pumps and motors. Available in pressure, vacuum, or compound ranges, the switches offer a field adjustable set point. Easily adjust the switch by aligning the top of the self locking adjusting nut with the desired setting indicated on the adjacent range scale. Connection is 1/4" male NPT for quick installation and can be mounted in any position.

**SPECIFICATIONS**  
**Service:** Compatible liquids or gases.  
**Wetted Materials:** Diaphragm: Buna-N; Body with Fitting: Zinc alloy, chromate finish.  
**Temperature Limits:** -31 to 185°F (-35 to 85°C).  
**Pressure Limits:** 600 psig.  
**Vacuum Limits:** 29.9" Hg (vacuum and compound models only).  
**Switch Type:** SPDT snap action.

**Electrical Ratings:** 15A (resistive) @ 250 VAC, 1/2 HP @ 250 VAC.  
**Electrical Connections:** Three screw terminals.  
**Process Connection:** 1/4" male NPT.  
**Setpoint:** Field adjustable via knurled screw cap.  
**Cycling:** Not to exceed 1 Hz.  
**Sensor Element:** Diaphragm.  
**Weight:** 7.4 oz (209 g).  
**Agency Approvals:** UL.

**MODELS**

Model Number	Set Point Range (kPa)	Repeatability (kPa)	Deadband (approx.) (kPa)	Model Number	Set Point Range (kPa)	Repeatability (kPa)	Deadband (approx.) (kPa)
A1PS-14	1.5-3.5 psi (10-24)	±0.15 psi (1)	0.5-1.7 psi (3-11)	A1VS-14	6-28" Hg (-20 to -94)	±1.2" Hg (-4)	3-14" Hg (-10 to -47)
A1PS-24	3-40 psi (21-276)	±1.0 psi (7)	2-5 psi (14-34)	A1VS-24	28" Hg to 3.5 psig (-94 to 24)	±1.2" Hg (-4)	3-14" Hg (-10 to -47)
A1PS-34	30-150 psi (207-1034)	±5.0 psi (34)	5-30 psi (34-207)			±0.15 psi (1)	0.5-1.7 psi (3-11)
A1PS-44	100-500 psi (689-3445)	±20.0 psi (138)	30-120 psi (207-827)				



Series  
APS/  
AVS

# Adjustable Pressure Switch

Vacuum and Pressure Ranges, 5A Switch, Compact Size



**Miniature Series APS/AVS Adjustable Switches** offer reliable switching for pressure/vacuum alarm, shutdown or control. The units are readily adjustable throughout their range using the locking adjusting ring and indicating pointer. The body is constructed of stainless steel for durability in harsh environments. Switches include 12" (30 cm) wire leads sealed with epoxy for additional protection.

**SPECIFICATIONS**  
**Service:** Compatible liquids or gases.  
**Wetted Materials:** Capsule: 17-7 PH; Fitting: 303 SS.  
**Temperature Limits:** -65 to 225°F (-54 to 107°C), a set point change of up to 2% when used below -10°F (-23°C) or above 125°F (52°C).  
**Pressure/Vacuum Limits:** 150% of range.  
**Switch Type:** SPDT snap action.  
**Electrical Ratings:** 5A @ 250 VAC, 3A @ 28 VDC.  
**Electrical Connections:** 3-wire, 20 AWG insulated with PVC, 12" (30 cm) length.  
**Process Connection:** 1/8" male NPT.  
**Setpoint:** Field adjustable.  
**Cycling:** Not to exceed 20 CPM.  
**Sensor Element:** Capsule.  
**Weight:** 3 oz (85 g).

**MODELS**

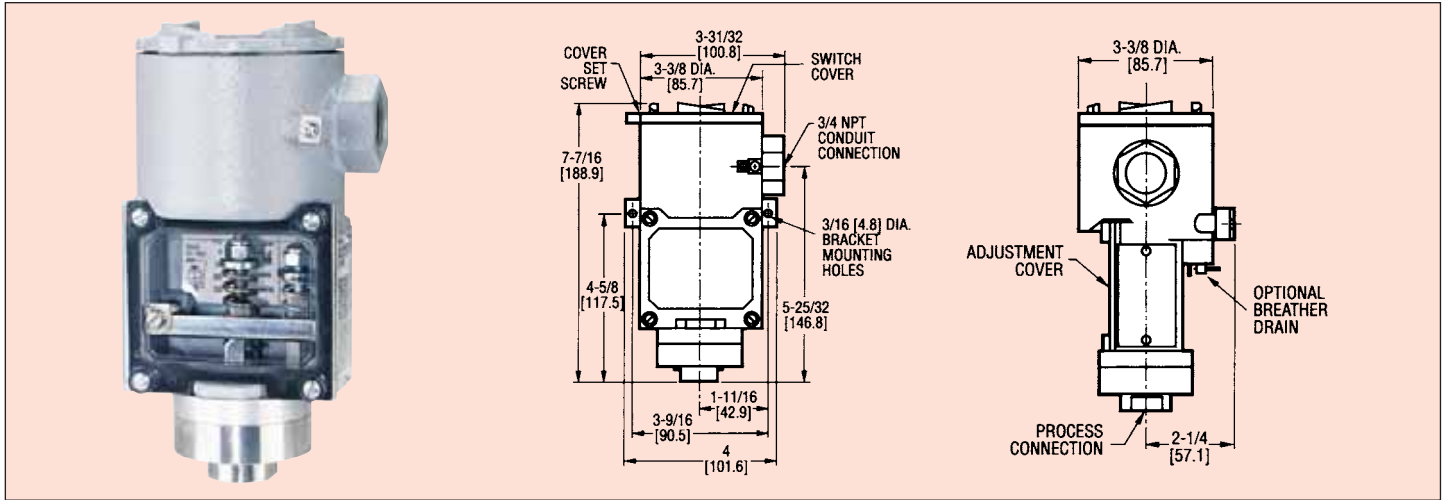
Model Number	Set Point Range psi (bar)		Repeatability psi (bar)	Deadband psi (bar)	Model Number	Set Point Range "Hg (cm Hg) Vac		Repeatability "Hg (cm Hg)	Deadband "Hg (cm Hg)
	Increasing	Decreasing				Increasing	Decreasing		
APS-150	0.8-28.5(.06-2.0)	1.6-30.0(.11-2.1)	±0.6(.04)	0.8-1.3(.06-.09)	AVS-150	1.6-27.1(4.1-68.6)	2.7-28.2(6.9-71.6)	±1.2(3.1)	1.3-2.7(3.3-6.9)
APS-250	2.0-48.0(.14-3.3)	3.0-50.0(.21-3.5)	±1.0(0.7)	1-1.7(.07-.12)	AVS-250	4.0-24.8(10.2-63.0)	5.1-28.2(13.0-71.6)	±2.0(5.1)	1.5-3.2(3.8-8.1)
APS-350	3.0-96.5(.21-6.7)	4.5-100(.31-6.9)	±2.0(.14)	1.6-4(.11-.28)	AVS-350	6.0-21.5(15.2-54.6)	8.4-28.2(21.3-71.6)	±4.0(10.2)	2.6-7.3(6.6-18.5)
APS-450	7.5-242(.52-16.7)	9.7-250(.67-17.2)	±5.0(.35)	2.5-9(.17-.62)					
APS-550	15.0-485(1.0-33.4)	20.0-500(1.4-34.5)	±10.0(.69)	5-22(.35-1.5)					



Series  
SA1100

# Diaphragm Operated Pressure Switches

Visible Setpoint, Adjustable Deadband, Hermetically Sealed Snap Switch,  
Weatherproof and Explosion-proof



## Weatherproof and Explosion-Proof in One Economical Enclosure

Extremely rugged construction assures excellent reliability in chemical, petroleum and industrial plants. New design also provides burst pressure protection to 3000 psi (206 bar). The rolling diaphragm design maintains a constant effective area to minimize friction. This results in a minimum deadband as low as 5% of full scale. Since many applications require higher deadbands, the SA1100 includes a separate adjustment of this when necessary. A pump being used to control liquid level in a tank would be a typical situation where this feature would be important. Both setpoint and deadband adjustments are protected, yet clearly visible behind a clear polycarbonate window and are fully isolated from the electrical components for additional safety. A 7/16" open-end wrench is the only tool required to change settings. Terminal blocks are provided for switch wiring connections and both internal and external ground screws are included. Standard housing is weatherproof to NEMA standards 1 through 4X and 13; explosion-proof to NEMA 7, Class I, Groups B, C & D; NEMA 9, Class II, Groups E, F & G. Optional construction adds drain to meet IP54.

## APPLICATIONS

Chemical, petroleum, food and drug processing industries. Used indoor, outdoor or in explosion-proof area.

## SPECIFICATIONS

**Wetted Materials:** See pressure chamber and diaphragm material in model chart.

**Temperature Limits:** -30 to 180°F (-35 to 82°C).

**Pressure Limit:** 1200 psig (82.6 bar).

**Enclosure Rating:** Weatherproof and Explosion-proof. Listed with UL and CSA for Class I, Groups B, C and D; Class II Groups E, F, and G. UL-NEMA 4X, CSA-NEMA 4. ATEX Compliant  $\text{CE}$  0344  $\text{Ex}$  II 2 G EEx d IIC T6 Process Temperature  $\leq 75^\circ\text{C}$ .

**Switch Type:** SPDT or DPDT snap switch.

**Electrical Rating:** See model chart.

**Electrical Connections:** Screw terminal.

**Conduit Connection:** 3/4" female NPT.

**Process Connection:** 1/4" or 1/2" female NPT.

**Mounting Orientation:** Within 20° of vertical.

**Set Point Adjustment:** Internal 7/16" hex nuts.

**Weight:** 3.5 lb (1.6 kg).

**Deadband:** See deadband chart.

**Agency Approvals:** UL, CSA, CE and ATEX.

## MODEL CHART - Series SA1100

Example	SA11	13	E	A	4	K	1	
								SA1113E-A4-K1 Pressure Control; weatherproof, NEMA 4X, explosion-proof NEMA 7&9; aluminum pressure chamber, Buna-N diaphragm and O-ring; 1/4 inch female NPT process connection; adjustable deadband, automatic reset; SPDT snap acting switch; adjustable range 30-500 psig
<b>Construction</b>	SA11							Series Designator, weatherproof NEMA 4X, explosion-proof NEMA 7, 9
<b>Adjustable Pressure Ranges</b>		11 12 13						Adjustable range 10-150 psig (0.7-10 bar) Adjustable range 20-250 psig (1.4-17.2 bar) Adjustable range 30-500 psig (2.0-34.0 bar)
<b>Circuit (Switch) Options</b>			E HS HG					Snap action switch rated 15A @ 125/250/480 VAC, 1/8 HP @ 125 VAC, 1/4 HP @ 250 VAC, 1/2 A @ 125 VDC resistive, 1/4 A @ 250 VDC resistive Hermetically sealed snap action switch rated 5A @ 125/250 VAC, 5A resistive @ 30 VDC* Hermetically sealed snap action switch with gold contacts rated 1A @ 125 VAC, 1A resistive @ 30 VDC*
<b>Pressure Chamber Material (Wetted)</b>				A B S				Aluminum Brass 316 SS
<b>Diaphragm Material (Wetted)</b>					4 5			Buna-N diaphragm and O-ring Fluorocarbon diaphragm and O-ring
<b>Circuit (Switch) Type</b>						K L		SPDT DPDT (not available with HS or HG switch options)
<b>Process Connection</b>							1 2	1/4 inch female NPT 1/2 inch female NPT
<b>Options</b>							AT DRAIN	ATEX certified construction Housing with drain - allows condensate to be drained from inside enclosure (meets NEMA 3R instead of 4X)

\* Options that do not have ATEX.

## MODELS

MODEL NUMBER	MODEL NUMBER
SA1111E-A4-K1	SA1111E-S5-K2

## SWITCH DEADBAND CHART

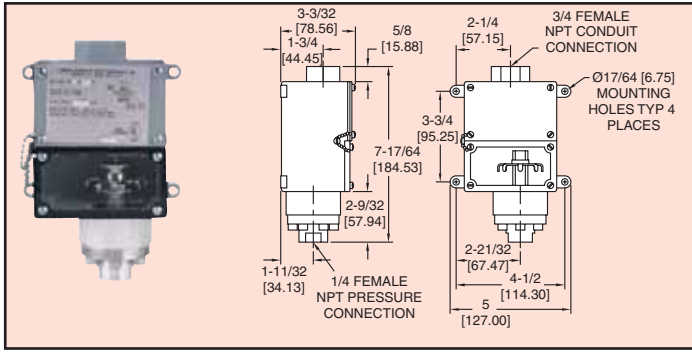
Range Number	Adjustable Operating Range		Approximate Minimum Deadband				Approximate Maximum Deadband	
			Low		High			
	psig	bar	psig	bar	psig	bar	psig	bar
11	10-150	0.7-10	4.0	0.28	7.5	0.52	75	5.2
12	20-250	1.4-17.2	5.0	0.35	12.5	0.86	150	10
13	30-500	2.0-34	12	0.83	45	3.1	300	21



Series 1000W

# Weatherproof Diaphragm Operated Pressure Switches

Visible Setpoint, Fixed Deadband, Pressure Ranges to 1400 psi



**Extremely rugged construction** provides excellent reliability in chemical, petroleum and industrial plants. Bellville spring movement permits mounting of control in any position and helps prevent contact chatter. New design also provides high over-pressure protection. Weatherproof housing is standard.

### SPECIFICATIONS

**Wetted Materials:** See pressure chamber and diaphragm material in model chart.

**Temperature Limits:** -30 to 170°F (-35 to 77°C).

**Pressure Limit:** 3000 psig (206.8 bar).

**Enclosure Rating:** Weatherproof, NEMA 4X.

**Switch Type:** SPDT snap switch. DPDT optional.

**Electrical Rating:** 15A @ 125/250 VAC resistive.

**Electrical Connections:** Screw type.

**Conduit Connection:** 3/4" female NPT.

**Process Connection:** 1/4" female NPT.

**Mounting Orientation:** Any position.

**Set Point Adjustment:** Internal thumbwheel.

**Weight:** 3 lb (1.4 kg).

**Deadband:** See model chart.

**Agency Approvals:** CE, UL.

### MODELS

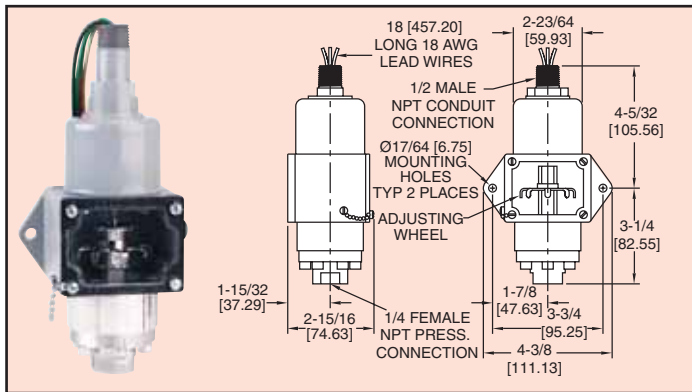
Aluminum Press. Chamber Polyimide Diaph. Model Number	316 SS Pressure Chamber Teflon® Diaphragm Model Number	Adjustable Operating Range psig (bar)	Approx.* Deadband (Fixed) psig (bar)
1003W-A1-D	1003W-B3-D	5-40 (.48-2.8)	2 (.14)
1004W-A1-D	1004W-B3-D	10-70 (.69-4.8)	4 (.28)
1005W-A1-D	1005W-B3-D	25-200 (1.7-13.8)	8 (.55)
1006W-A1-D	1006W-B3-D	50-350 (3.5-24.1)	15 (1.0)
1007W-A1-D	1007W-B3-D	75-550 (5.2-37.9)	30 (2.1)
1008W-A1-D	1008W-B3-D	100-900 (6.9-62.1)	50 (3.5)
1009W-A1-D	1009W-B3-D	200-1400 (13.8-96.5)	75 (5.2)

\*Deadband 10-15% larger when using 316SS diaphragm. Change A1 to B2 for 316 SS diaphragm and pressure chamber e.g. 1003W-B2-D. Values shown are for mid-scale.

Series 1000E

# Explosion-Proof Diaphragm Operated Pressure Switches

Visible Setpoint, Fixed Deadband, Pressure Ranges to 1400 psi



**Same rugged construction** as used in Series 1000W plus explosion-proof design are combined in this new unit. UL listed for Class I, Groups A, B, C & D; Class II, Groups E, F & G. Bellville spring movement permits mounting of control in any position and helps prevent contact chatter. High over-pressure protection and vibration resistance are also featured.

### SPECIFICATIONS

**Wetted Materials:** See pressure chamber and diaphragm material in model chart.

**Temperature Limits:** -30 to 170°F (-35 to 77°C).

**Pressure Limit:** 3000 psig (206.8 bar).

**Enclosure Rating:** Explosion-proof, UL listed for Class I, Groups A, B, C and D; Class II, Groups E, F, and G.

**Switch Type:** SPDT snap switch. DPDT or hermetically sealed optional.

**Electrical Rating:** 15A @ 125/250/480 VAC res., 0.5A @ 125 VDC, 0.25A @ 250 VDC.

**Electrical Connections:** 18 AWG, 18" (460 mm) long.

**Conduit Connection:** 1/2" male NPT.

**Process Connection:** 1/4" female NPT.

**Mounting Orientation:** Any position.

**Set Point Adjustment:** Internal thumbwheel.

**Weight:** 3 lb (1.4 kg).

**Deadband:** See model chart.

**Agency Approvals:** CE, UL.

### MODELS

Aluminum Press. Chamber Polyimide Diaph. Model Number	316 SS Pressure Chamber Teflon Diaphragm Model Number	Adjustable Operating Range psig (bar)	Approx.* Deadband (Fixed) psig (bar)
1003E-A1-J	1003E-B3-J	5-40 (.48-2.8)	2.5 (.17)
1004E-A1-J	1004E-B3-J	10-70 (.69-4.8)	5 (.34)
1005E-A1-J	1005E-B3-J	25-200 (1.7-13.8)	10 (.69)
1006E-A1-J	1006E-B3-J	50-350 (3.5-24.1)	18 (1.2)
1007E-A1-J	1007E-B3-J	75-550 (5.2-37.9)	36 (2.5)
1008E-A1-J	1008E-B3-J	100-900 (6.9-62.1)	60 (4.1)
1009E-A1-J	1009E-B3-J	200-1400 (13.8-96.5)	90 (6.2)

\*Deadband 10-15% larger when using 316SS diaphragm. Change A1 to B2 for 316 SS diaphragm and pressure chamber e.g. 1003E-B2-J. Values shown are for mid-scale.



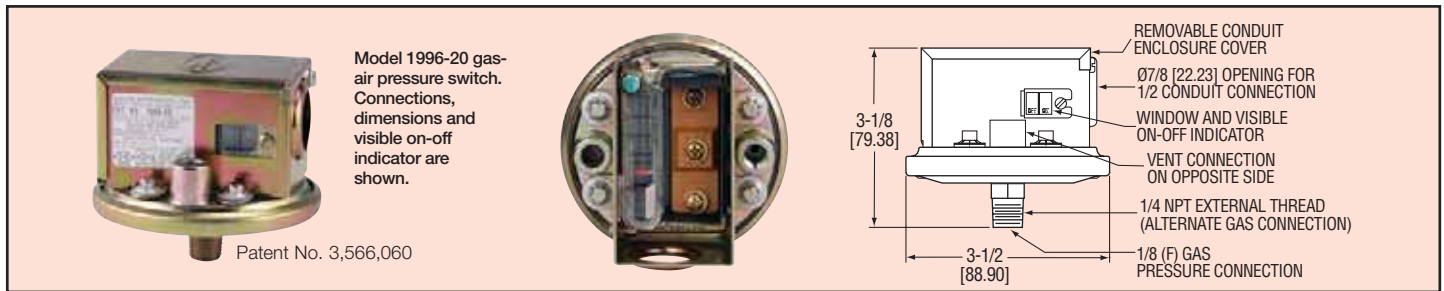
Series  
1996

# Gas Pressure Switches

Compact, Low Cost, 4" - 20" w.c. Range



Pressure



Model 1996-20 gas-air pressure switch. Connections, dimensions and visible on-off indicator are shown.

Patent No. 3,566,060

**Reliable and convenient**, the 1996-5 and the 1996-20 Gas Pressure Switches serve as a compact, low cost switch for gas fired furnaces and equipment. Pressure ranges for both models are ideal for high or low gas pressure interlock. Visible set point and on-off indicators add convenience in servicing. Use either NO or NC contacts on SPDT switch. Bottom connection has both 1/8" female and 1/4" male threads for pipe nipple or coupling. Top connection vents diaphragm chamber to outside or to furnace combustion chamber. Mount switch with diaphragm in a horizontal position and gas pressure connection at bottom. Used with natural, manufactured or LP gas. Also see Model 1950G.

## SPECIFICATIONS

**Service:** Air, natural & manufactured gas, LP gas.  
**Wetted Materials:** Consult factory.  
**Temperature Limits:** 32 to 110°F (0 to 43.3°C). -30 to 110°F (-34.4 to 43.3°C) for dry gas or dry air.  
**Pressure Limits:** 45" w.c. (11.2 kPa) continuous; 10 psig (68.95 kPa) surge.  
**Switch Type:** Single-pole double-throw (SPDT).  
**Electrical Rating:** 15A @ 120-480 VAC, 60 Hz. Resistive 1/8 H.P. @ 125 VAC, 1/4 H.P. @ 250 VAC 60 Hz.

**Electrical Connections:** 3 screw type, common, normally open, normally closed.  
**Process Connections:** 1/8" female NPT or 1/4" male NPT.  
**Vent Connection:** 1/8" female NPT.  
**Mounting Orientation:** Diaphragm in horizontal position. Consult factory for other position orientations.  
**Set Point Adjustment:** Screw type with visible indicator, inside conduit enclosure.  
**Weight:** 1 lb 2.3 oz (349 g).  
**Agency Approvals:** CE, UL, CSA, FM.

## MODELS

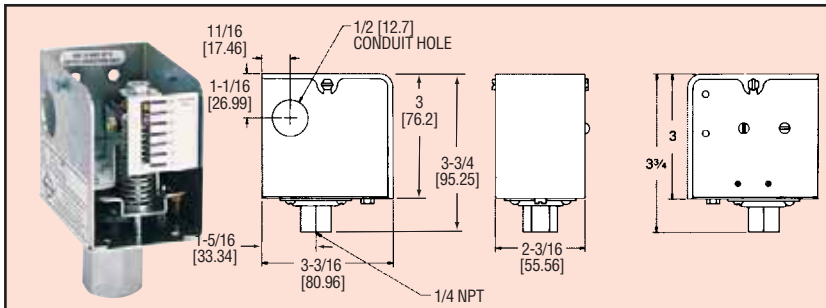
Model	Range
1996-5	1.4" - 5.5" w.c.
1996-20	4" - 20" w.c.



Series  
CS & CD

# Low Cost Diaphragm Pressure Switches

Visible Set Points, Fixed or Adjustable Deadband



**Series CS and CD** combine advanced design and precision construction with small size and low price. Unit is ideal for instrument panels, small compressors and general industrial applications. Visible set point and easy to wire SPDT snap switch reduce installation time. Operates in any position and is vibration resistant.

## SPECIFICATIONS

**Wetted Materials:** Nylon reinforced Buna-N and steel.  
**Temperature Limits:** -30 to 150°F (-35 to 66°C).  
**Pressure Limit:** 30 psig (2.1 bar) for ranges 1, 3, and 10. 50 psig (3.5 bar) for range 30. 175 psig (12.1 bar) for range 150.  
**Enclosure Rating:** General purpose.  
**Switch Type:** SPDT snap switch.  
**Electrical Rating:** 15A @ 120 VAC, 8A @ 240 VAC.  
**Electrical Connections:** Screw terminal.  
**Conduit Connection:** 1/2" hole for conduit hub.  
**Process Connection:** 1/4" female NPT.  
**Mounting Orientation:** Any position.  
**Set Point Adjustment:** Internal screw.  
**Weight:** .5 lb (0.23 kg).  
**Deadband:** See model chart.  
**Agency Approvals:** CE, UL.

## MODELS

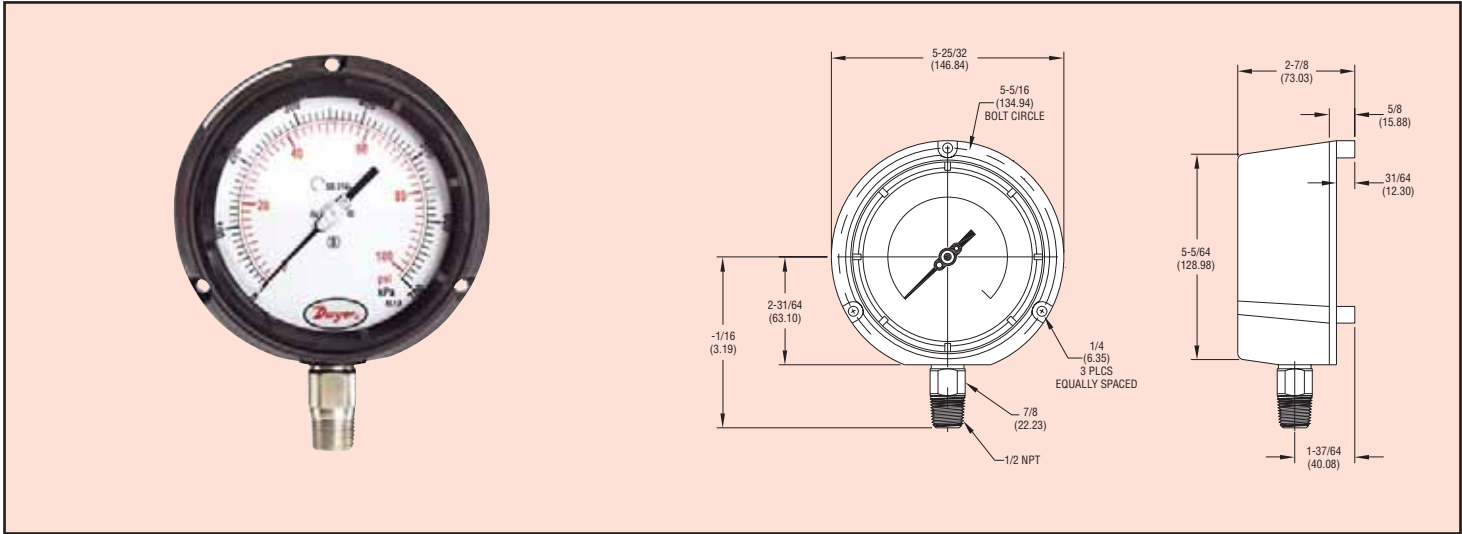
Model No.	Adjustable Operating Range	Deadband	Deadband Value
CS-1	1-30" Hg. Vac. (25.4-762 mm Hg)	Fixed	1.5" Hg. (38 mm Hg)
CS-3	1-100" w.c. (.25-24.9 kPa)	Fixed	7" w.c. (1.74 kPa)
CS-10	1-10 psig (.07-.69 bar)	Fixed	0.4 psig (0.03 bar)
CS-30	1-30 psig (.07-2.1 bar)	Fixed	1.0 psig (0.07 bar)
CS-150	10-150 psig (.69-10.3 bar)	Fixed	5 psig (0.35 bar)
CD-10	1-10 psig (.07-.69 bar)	Adjustable	Min: 1.5 psig (.1 bar), Max: 11.5 psig (.79 bar)
CD-30	1-30 psig (.07-2.1 bar)	Adjustable	Min: 2 psig (.14 bar), Max: 12 psig (.83 bar)
CD-150	10-150 psig (.69-10.3 bar)	Adjustable	Min: 14 psig (.97 bar), Max: 24 psig (1.7 bar)



Series  
761

# Process Pressure Gage

Liquid-Fillable,  $\pm 0.5\%$  Full Scale Accuracy



**Series 761 Process Pressure Gages** have a dual English/metric scale with  $\pm 0.5\%$  full scale accuracy. Series 761 gages may be easily liquid filled in the field without the need for a separate kit. The gages are designed with 316L SS tube and socket for excellent chemical compatibility and are offered in a wide selection of ranges, from full vacuum, compound to 20,000 psi.

### APPLICATIONS

Chemical, Refinery, Fertilizer, Petrochemical, Pharmaceutical, Power, Oil, Cement, Sugar, Food and Beverage, Pulp and Paper, and Waste Water.

### SPECIFICATIONS

**Service:** Compatible gases and liquids.

**Wetted Materials:** 316L SS Bourdon tube & connection.

**Housing:** Fiberglass reinforced Polypropylene with safety glass.

**Accuracy:**  $\pm 0.5\%$  full scale, ASME B40.1, Grade 2A.

**Pressure Limit:** 130% of full scale for ranges 8000 psi or less.

115% of full scale for ranges greater than 8000 psi.

**Temperature Limit:**

Ambient:  $-4$  to  $150^{\circ}\text{F}$  ( $-20$  to  $65^{\circ}\text{C}$ );

Process:  $300^{\circ}\text{F}$  max ( $150^{\circ}\text{C}$  max).

**Size:** 4-1/2" (115 mm).

**Process Connection:** 1/2" male NPT.

**Enclosure Rating:** NEMA 3 (IP55).

**Weight:** 1.4 lb (650 g).

### MODELS

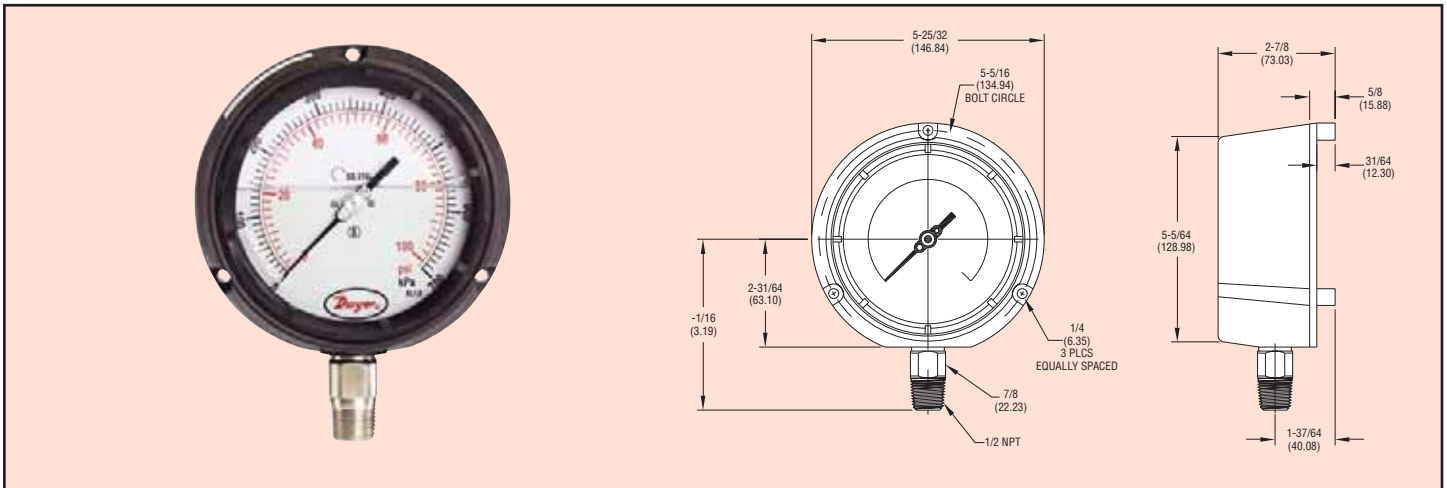
Model Number	Range	Model Number	Range
761-1	0-15 psi (0 to 100 kPa)	761-15	0-3000 psi (0 to 20 MPa)
761-2	0-30 psi (0 to 200 kPa)	761-16	0-4000 psi (0 to 28 MPa)
761-3	0-60 psi (0 to 400 kPa)	761-17	0-5000 psi (0 to 34 MPa)
761-4	0-100 psi (0 to 700 kPa)	761-18	0-6000 psi (0 to 40 MPa)
761-5	0-160 psi (0 to 1100 kPa)	761-19	0-10000 psi (0 to 70 MPa)
761-6	0-30" Hg Vac (0 to -100 kPa)	761-20	0-15000 psi (0 to 100 MPa)
761-7	0-200 psi (0 to 1.4 MPa)	761-21	0-20000 psi (0 to 140 MPa)
761-8	0-300 psi (0 to 2 MPa)	761-22	30" Hg to 15 psi (-100 to 100 kPa)
761-9	0-400 psi (0 to 2.8 MPa)	761-23	30" Hg to 30 psi (-100 to 200 kPa)
761-10	0-500 psi (0 to 3.4 MPa)	761-24	30" Hg to 60 psi (-100 to 400 kPa)
761-11	0-600 psi (0 to 4 MPa)	761-25	30" Hg to 100 psi (-100 to 700 kPa)
761-12	0-1000 psi (0 to 7 MPa)	761-26	30" Hg to 150 psi (-0.1 to 1 MPa)
761-13	0-1500 psi (0 to 10 MPa)	761-27	30" Hg to 200 psi (-0.1 to 1.4 MPa)
761-14	0-2000 psi (0 to 14 MPa)	761-28	30" Hg to 300 psi (-0.1 to 2 MPa)



Series  
762

# Process Pressure Gage

Glycerin Filled,  $\pm 1\%$  Full Scale Accuracy



**Series 762 Process Pressure Gages** have a dual English/metric scale with  $\pm 1\%$  full scale accuracy. Series 762 gages have a glycerin-filled housing, providing superior performance in applications where vibration, pulsation, mechanical shock, and pressure spikes are common. The gages are designed with 316L SS tube and socket for excellent chemical compatibility and are offered in a wide selection of ranges from full vacuum, compound to 20,000 psi.

### APPLICATIONS

Chemical, Refinery, Fertilizer, Petrochemical, Pharmaceutical, Power, Oil, Cement, Sugar, Food and Beverage, Pulp and Paper, and Waste Water.

### SPECIFICATIONS

**Service:** Compatible gases and liquids.

**Wetted Materials:** 316L SS Bourdon tube & connection.

**Housing:** Fiberglass reinforced Polypropylene with safety glass.

**Fill Solution:** Glycerin.

**Accuracy:**  $\pm 1\%$  full scale.

**Pressure Limit:** 130% of full scale for ranges 8000 psi or less.

115% of full scale for ranges greater than 8000 psi.

**Temperature Limit:** Ambient: -4 to 150°F (-20 to 65°C);

Process: 150°F max (65°C max).

**Size:** 4-1/2" (115 mm).

**Process Connection:** 1/2" male NPT.

**Enclosure Rating:** NEMA 3 (IP55).

**Weight:** 1.6 lb (750 g).

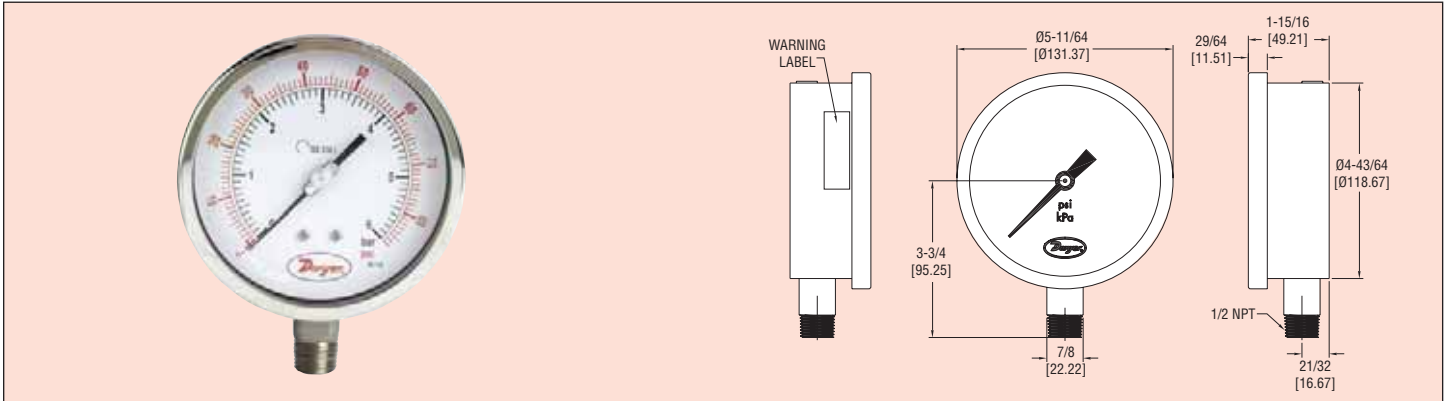
### MODELS

Model Number	Range	Model Number	Range
762-1	0-15 psi (0 to 100 kPa)	762-15	0-3000 psi (0 to 20 MPa)
762-2	0-30 psi (0 to 200 kPa)	762-16	0-4000 psi (0 to 28 MPa)
762-3	0-60 psi (0 to 400 kPa)	762-17	0-5000 psi (0 to 34 MPa)
762-4	0-100 psi (0 to 700 kPa)	762-18	0-6000 psi (0 to 40 MPa)
762-5	0-160 psi (0 to 1100 kPa)	762-19	0-10000 psi (0 to 70 MPa)
762-6	0-30" Hg Vac (0 to -100 kPa)	762-20	0-15000 psi (0 to 100 MPa)
762-7	0-200 psi (0 to 1.4 MPa)	762-21	0-20000 psi (0 to 140 MPa)
762-8	0-300 psi (0 to 2 MPa)	762-22	30" Hg to 15 psi (-100 to 100 kPa)
762-9	0-400 psi (0 to 2.8 MPa)	762-23	30" Hg to 30 psi (-100 to 200 kPa)
762-10	0-500 psi (0 to 3.4 MPa)	762-24	30" Hg to 60 psi (-100 to 400 kPa)
762-11	0-600 psi (0 to 4 MPa)	762-25	30" Hg to 100 psi (-100 to 700 kPa)
762-12	0-1000 psi (0 to 7 MPa)	762-26	30" Hg to 150 psi (-0.1 to 1 MPa)
762-13	0-1500 psi (0 to 10 MPa)	762-27	30" Hg to 200 psi (-0.1 to 1.4 MPa)
762-14	0-2000 psi (0 to 14 MPa)	762-28	30" Hg to 300 psi (-0.1 to 2 MPa)

Series  
SGL

# 4.5" Stainless Steel Industrial Pressure Gage

## 1% Full Scale Accuracy, 316 SS Wetted Parts, NEMA 4X



The Series SGL Gages have dual English/metric scales with  $\pm 1.0\%$  full scale accuracy. For excellent chemical compatibility, the Series SGL gages are designed with 304 SS housings and 316L SS wetted parts. Units can withstand ambient temperatures up to 149°F (65°C) and process temperatures up to 572°F (300°C). Series SGL gages may be easily liquid filled in the field without the need for a separate kit. A wide selection of ranges are available from full vacuum, compound to 20,000 psi.

### APPLICATIONS

Cryogenics, Pharmaceutical, Chemical, Petrochemical, Food and Beverage, Conventional and Nuclear Power, Pumps, Presses, Diesel Engines, Turbines and Compressors.

### SPECIFICATIONS

**Service:** Compatible gases & liquids.

**Wetted Materials:** 316L SS.

**Housing:** 304 SS.

**Accuracy:**  $\pm 1.0\%$  full scale.

**Pressure Limit:** 130% full scale for ranges <10,000 psi, 115% for 10,000 psi and greater.

**Temperature Limits:**

Ambient: -13 to 149°F (-25 to 65°C)

Process: 572°F max. (300°C max.).

**Size:** 4.5" (115 mm).

**Process Connections:** 1/2" male NPT.

**Enclosure Rating:** NEMA 4X (IP65).

**Weight:** 1.5 lb (0.70 kg).

### MODELS

Model Number	Ranges	Model Number	Ranges
SGL-G0124N	0-30" Hg (-100-0 kPa)	SGL-G1624N	0-4000 psi (0-28 MPa)
SGL-G0224N	0-15 psi (0-100 kPa)	SGL-G1724N	0-5000 psi (0-34 MPa)
SGL-G0324N	0-30 psi (0-200 kPa)	SGL-G1824N	0-6000 psi (0-40 MPa)
SGL-G0424N	0-60 psi (0-400 kPa)	SGL-G1924N	0-10000 psi (0-70 MPa)
SGL-G0524N	0-100 psi (0-700 kPa)	SGL-G2024N	0-15000 psi (0-100 MPa)
SGL-G0624N	0-150 psi (0-1 MPa)	SGL-G2124N	30" Hg-0-15 psi (-100-0-100 kPa)
SGL-G0724N	0-200 psi (0-1.4 MPa)	SGL-G2224N	30" Hg-0-30 psi (-100-0-200 kPa)
SGL-G0824N	0-300 psi (0-2 MPa)	SGL-G2324N	30" Hg-0-60 psi (-100-0-400 kPa)
SGL-G0924N	0-400 psi (0-2.8 MPa)	SGL-G2424N	30" Hg-0-100 psi (-100-0-700 kPa)
SGL-G1024N	0-500 psi (0-3.4 MPa)	SGL-G2524N	30" Hg-0-150 psi (-0.1-0-1 MPa)
SGL-G1124N	0-600 psi (0-4 MPa)	SGL-G2624N	30" Hg-0-200 psi (-0.1-0-1.4 MPa)
SGL-G1224N	0-1000 psi (0-7 MPa)	SGL-G2724N	30" Hg-0-300 psi (-0.1-0-2 MPa)
SGL-G1324N	0-1500 psi (0-10 MPa)	SGL-G2924N	0-20000 psi (0-140 MPa)
SGL-G1424N	0-2000 psi (0-14 MPa)		
SGL-G1524N	0-3000 psi (0-20 MPa)		

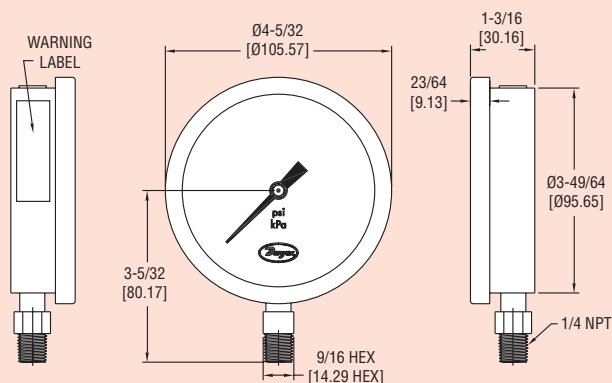




Series  
SGS

# 4" Stainless Steel Industrial Pressure Gage

1.6% Full Scale Accuracy, Brass Wetted Parts



The Series SGS Gages have dual English/metric scales with  $\pm 1.6\%$  full scale accuracy. Series SGS gages are designed with 304 SS housings and brass wetted parts. Units can withstand ambient temperatures up to 149°F (65°C) and process temperatures up to 257°F (125°C). These gages may be easily liquid filled in the field without the need for a separate kit. A wide selection of ranges are available from full vacuum, compound to 15,000 psi.

## SPECIFICATIONS

**Service:** Compatible gases and liquids.

**Wetted Materials:** Brass for ranges  $\Phi 1000$  psi; 316L SS for ranges greater than 1000 psi.

**Housing:** 304 SS.

**Accuracy:**  $\pm 1.6\%$  full scale.

**Pressure Limits:** 125% full scale for ranges <1500 psi; 115% for ranges 1500 psi and greater.

**Temperature Limits:**

Ambient: -4 to 149°F (-20 to 65°C);

Process: 257°F max. (125°C max.).

**Size:** 4" (100 mm).

**Process Connection:** 1/4" male NPT.

**Enclosure Rating:** NEMA 3 (IP55).

**Weight:** 1.1 lb (0.49 kg).

## APPLICATIONS

Pneumatics, Hydraulics, Pumps, Compressors, Diesel Engines.

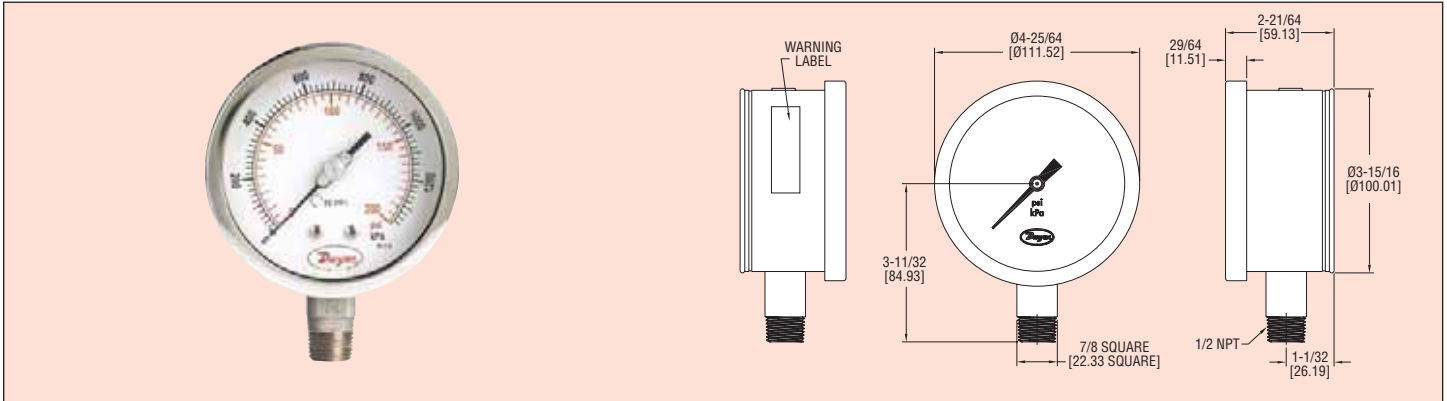
## MODELS

Model Number	Ranges	Model Number	Ranges
SGS-F0122N	0-30" Hg (-100-0 kPa)	SGS-F1622N	0-4000 psi (0-28 MPa)
SGS-F0222N	0-15 psi (0-100 kPa)	SGS-F1722N	0-5000 psi (0-34 MPa)
SGS-F0322N	0-30 psi (0-200 kPa)	SGS-F1822N	0-6000 psi (0-40 MPa)
SGS-F0422N	0-60 psi (0-400 kPa)	SGS-F1922N	0-10000 psi (0-70 MPa)
SGS-F0522N	0-100 psi (0-700 kPa)	SGS-F2022N	0-15000 psi (0-100 MPa)
SGS-F0622N	0-150 psi (0-1 MPa)	SGS-F2122N	30" Hg-0-15 psi (-100-0-100 kPa)
SGS-F0722N	0-200 psi (0-1.4 MPa)	SGS-F2222N	30" Hg-0-30 psi (-100-0-200 kPa)
SGS-F0822N	0-300 psi (0-2 MPa)	SGS-F2322N	30" Hg-0-60 psi (-100-0-400 kPa)
SGS-F0922N	0-400 psi (0-2.8 MPa)	SGS-F2422N	30" Hg-0-100 psi (-100-0-700 kPa)
SGS-F1022N	0-500 psi (0-3.4 MPa)	SGS-F2522N	30" Hg-0-150 psi (-0.1-0-1 MPa)
SGS-F1122N	0-600 psi (0-4 MPa)	SGS-F2622N	30" Hg-0-200 psi (-0.1-0-1.4 MPa)
SGS-F1222N	0-1000 psi (0-7 MPa)	SGS-F2722N	30" Hg-0-300 psi (-0.1-0-2 MPa)
SGS-F1322N	0-1500 psi (0-10 MPa)		
SGS-F1422N	0-2000 psi (0-14 MPa)		
SGS-F1522N	0-3000 psi (0-20 MPa)		

Series  
SGI

# 4" Stainless Steel Safety Gage

0.5% Full Scale Accuracy, 316L SS Wetted Parts



The **Series SGI Gages** have dual English/metric scales with  $\pm 0.5\%$  ASME Grade 2A Accuracy. The solid front design with baffle wall interposed between the sensing element and the window face, plus a pressure relieving back, provides the increased safety required for potentially dangerous applications.

Series SGI gages are designed with 304 SS housings and 316L SS wetted parts for excellent chemical compatibility. Units can withstand ambient temperatures up to 149°F (65°C) and process temperatures up to 518°F (270°C). Series SGI gages may be easily liquid filled in the field without the need for a separate kit. A wide selection of ranges are available from full vacuum, compound to 20,000 psi.

## APPLICATIONS

Oil and Gas, Chemical, Refinery, Petrochemical, Cement, Pharmaceutical, Power, Pulp and Paper, Food and Beverage.

## SPECIFICATIONS

**Service:** Compatible gases and liquids.

**Wetted Materials:** 316L SS.

**Housing:** 304 SS.

**Accuracy:**  $\pm 0.5\%$  full scale.

**Pressure Limit:** 130% full scale for ranges <10,000 psi, 115% for 10,000 psi and greater.

### Temperature Limits:

Ambient: -4 to 149°F (-20 to 65°C);

Process: 518°F max. (270°C max.).

**Size:** 4" (100 mm).

**Process Connections:** 1/2" male NPT.

**Enclosure Rating:** NEMA 3 (IP55).

**Weight:** 1.3 lb (0.6 kg).

## MODELS

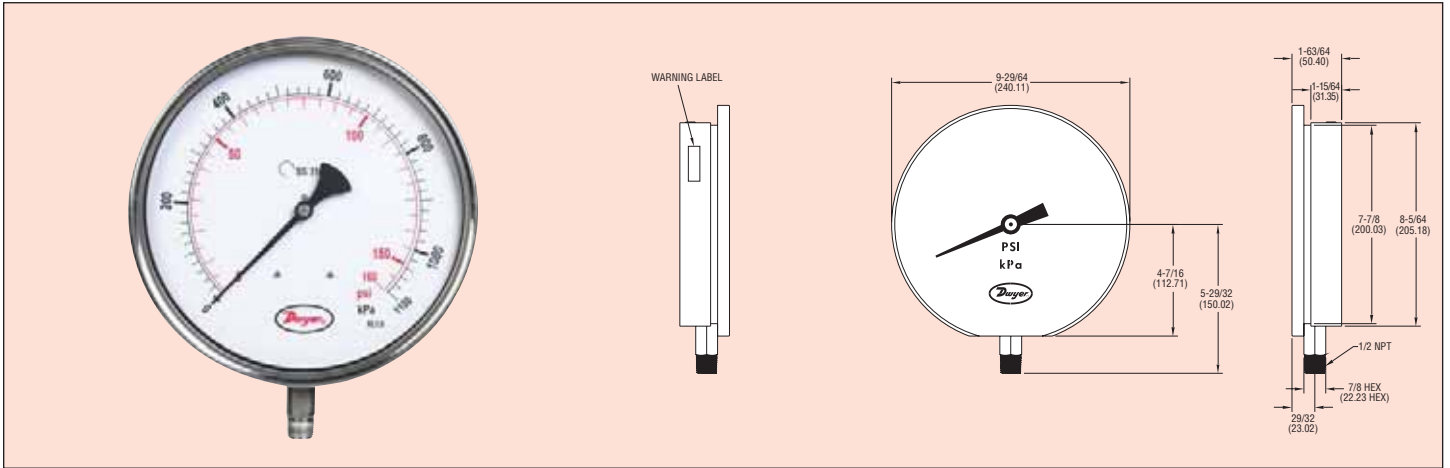
Model Number	Ranges	Model Number	Ranges
<b>SGI-F0124N</b>	0-30" Hg (-100-0 kPa)	<b>SGI-F1624N</b>	0-4000 psi (0-28 MPa)
<b>SGI-F0224N</b>	0-15 psi (0-100 kPa)	<b>SGI-F1724N</b>	0-5000 psi (0-34 MPa)
<b>SGI-F0324N</b>	0-30 psi (0-200 kPa)	<b>SGI-F1824N</b>	0-6000 psi (0-40 MPa)
<b>SGI-F0424N</b>	0-60 psi (0-400 kPa)	<b>SGI-F1924N</b>	0-10000 psi (0-70 MPa)
<b>SGI-F0524N</b>	0-100 psi (0-700 kPa)	<b>SGI-F2024N</b>	0-15000 psi (0-100 MPa)
<b>SGI-F0624N</b>	0-150 psi (0-1 MPa)	<b>SGI-F2124N</b>	30" Hg-0-15 psi (-100-0-100 kPa)
<b>SGI-F0724N</b>	0-200 psi (0-1.4 MPa)	<b>SGI-F2224N</b>	30" Hg-0-30 psi (-100-0-200 kPa)
<b>SGI-F0824N</b>	0-300 psi (0-2 MPa)	<b>SGI-F2324N</b>	30" Hg-0-60 psi (-100-0-400 kPa)
<b>SGI-F0924N</b>	0-400 psi (0-2.8 MPa)	<b>SGI-F2424N</b>	30" Hg-0-100 psi (-100-0-700 kPa)
<b>SGI-F1024N</b>	0-500 psi (0-3.4 MPa)	<b>SGI-F2524N</b>	30" Hg-0-150 psi (-0.1-0-1 MPa)
<b>SGI-F1124N</b>	0-600 psi (0-4 MPa)	<b>SGI-F2624N</b>	30" Hg-0-200 psi (-0.1-0-1.4 MPa)
<b>SGI-F1224N</b>	0-1000 psi (0-7 MPa)	<b>SGI-F2724N</b>	30" Hg-0-300 psi (-0.1-0-2 MPa)
<b>SGI-F1324N</b>	0-1500 psi (0-10 MPa)	<b>SGI-F2924N</b>	0-20000 psi (0-140 MPa)
<b>SGI-F1424N</b>	0-2000 psi (0-14 MPa)		
<b>SGI-F1524N</b>	0-3000 psi (0-20 MPa)		



Series  
SGK

# 8" & 10" Stainless Steel Pressure Gage

1.0% Full Scale Accuracy, 316L SS Wetted Parts



The Series SGK Gages have dual English/metric scales with  $\pm 1\%$  full scale accuracy. Series SGK gages are designed with 304 SS housings and 316L SS wetted parts. Units can withstand ambient temperatures up to 149°F (65°C) and process temperatures up to 518°F (270°C). SGK-I models have 8" dial faces while the SGK-J models have large 10" dial faces. A wide selection of ranges are available from full vacuum, compound to 15,000 psi.

## APPLICATIONS

Boilers, Food and Beverage, Pumps, Machine Presses, Engine Compressors, Turbines, Conventional and Nuclear Power, Diesel Engines.

## SPECIFICATIONS

**Service:** Compatible gases and liquids.

**Wetted Materials:** 316L SS.

**Housing:** 304 SS.

**Accuracy:**  $\pm 1\%$  full scale.

**Pressure Limit:** 130% full scale for ranges <10,000 psi; 115% for 10,000 psi and greater.

**Temperature Limit:**

Ambient: -4 to 149°F (-20 to 65°C);

Process: 518°F max. (270°C max.).

**Size:** 8" (200 mm); 10" (250 mm).

**Process Connection:** 1/2" male NPT.

**Enclosure Rating:** NEMA 3 (IP55).

**Weight:** 8": 3.1 lb (1.42 kg); 10": 4.7 lb (2.12 kg).

## MODELS

Model Number*	Ranges	Model Number	Ranges
SGK-I0124N	0-30" Hg (-100-0 kPa)	SGK-I1624N	0-4000 psi (0-28 MPa)
SGK-I0224N	0-15 psi (0-100 kPa)	SGK-I1724N	0-5000 psi (0-34 MPa)
SGK-I0324N	0-30 psi (0-200 kPa)	SGK-I1824N	0-6000 psi (0-40 MPa)
SGK-I0424N	0-60 psi (0-400 kPa)	SGK-I1924N	0-10000 psi (0-70 MPa)
SGK-I0524N	0-100 psi (0-700 kPa)	SGK-I2124N	30" Hg-0-15 psi (-100-0-100 kPa)
SGK-I0624N	0-150 psi (0-1 MPa)	SGK-I2224N	30" Hg-0-30 psi (-100-0-200 kPa)
SGK-I0724N	0-200 psi (0-1.4 MPa)	SGK-I2324N	30" Hg-0-60 psi (-100-0-400 kPa)
SGK-I0824N	0-300 psi (0-2 MPa)	SGK-I2424N	30" Hg-0-100 psi (-100-0-700 kPa)
SGK-I0924N	0-400 psi (0-2.8 MPa)	SGK-I2524N	30" Hg-0-150 psi (-0.1-0-1 MPa)
SGK-I1024N	0-500 psi (0-3.4 MPa)	SGK-I2624N	30" Hg-0-200 psi (-0.1-0-1.4 MPa)
SGK-I1124N	0-600 psi (0-4 MPa)	SGK-I2724N	30" Hg-0-300 psi (-0.1-0-2 MPa)
SGK-I1224N	0-1000 psi (0-7 MPa)		
SGK-I1324N	0-1500 psi (0-10 MPa)		
SGK-I1424N	0-2000 psi (0-14 MPa)		
SGK-I1524N	0-3000 psi (0-20 MPa)		

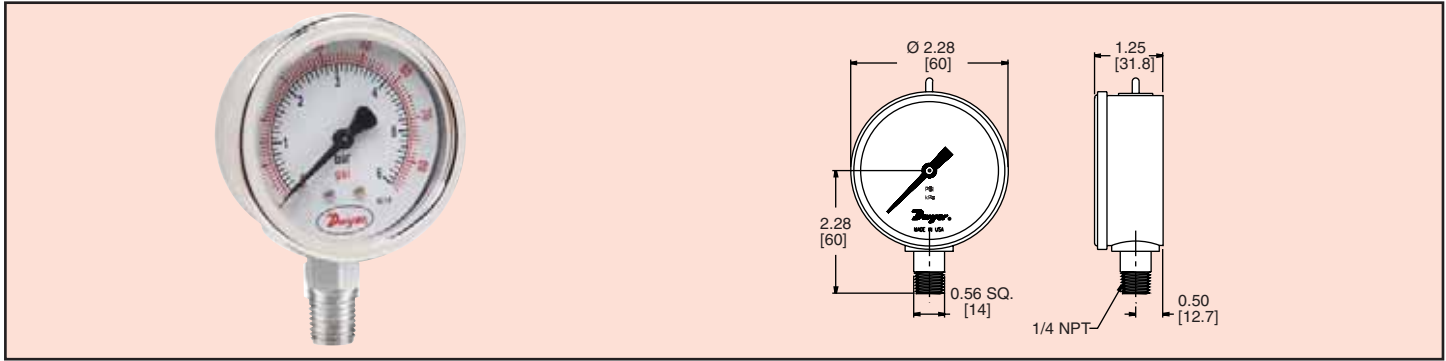
\* For 10" dial gages change above models from SGK-I to SGK-J



Series  
64000

# 2.5" Stainless Steel Pressure Gage

## 316 SS Wetted Parts, Glycerin Filled



Pressure spikes, vibration, and pulsation are overcome with the Series 64000 Liquid Filled Stainless Steel Pressure Gage. The unit's glycerin fill provides superior performance for many mechanical applications. All internal parts are constructed of 316 SS for greater chemical compatibility. The 2.5" (63 mm) diameter gage features  $\pm 1.6\%$  accuracy and is housed in a 304 SS case.

### MODELS

Model Number	Ranges
64030V	0 to 30" Hg Vac (0 to -100 kPa)
64015	0 to 15 psi (0 to 100 kPa)
64030	0 to 30 psi (0 to 200 kPa)
64060	0 to 60 psi (0 to 400 kPa)
64100	0 to 100 psi (0 to 700 kPa)
64160	0 to 160 psi (0 to 1100 kPa)
64200	0 to 200 psi (0 to 1400 kPa)
64300	0 to 300 psi (0 to 2000 kPa)

### SPECIFICATIONS

**Service:** Compatible liquids or gases.

**Wetted Materials:** 316 SS.

**Fill Solution:** Glycerin.

**Housing:** 304 SS.

**Accuracy:**  $\pm 1.6\%$  full scale.

**Pressure Limit:** 130% x full scale.

**Temperature Limit:**

Ambient: -13 to 150°F (-25 to 65°C);

Process: 60 to 150°F (15 to 65°C).

**Size:** 2-1/2" (63 mm) diameter.

**Process Connection:** 1/4" male NPT.

**Enclosure Rating:** NEMA 3 (IP55).

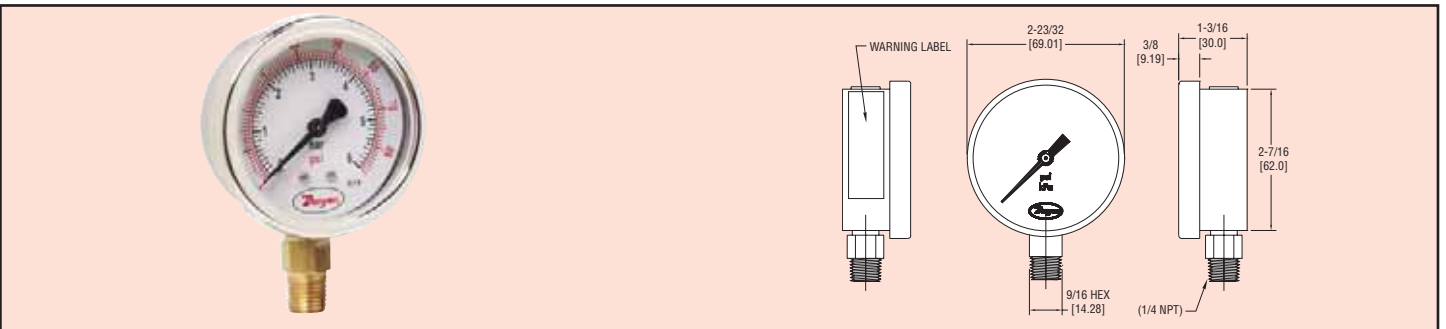
**Weight:** 9 oz (255 g).



Series  
63000M

# 2.5" Stainless Steel Pressure Gage

## Brass Wetted Parts, Glycerin Filled



The Series 63000M Liquid Filled Pressure Gages provide superior performance in applications where vibration, pulsation, mechanical shock and pressure spikes are common. The Series 63000M gages have dual English/metric scales with  $\pm 1.6\%$  full scale accuracy and are available in 2.5" dial sizes. Units are designed with 304 SS housings and brass wetted parts. These gages can withstand ambient temperatures up to 140°F (60°C) and process temperatures up to 149°F (65°C).

### MODELS

Model Number	Ranges
63030VM	0 to 30 in. Hg Vac (0 to -100 kPa)
63015M	0 to 15 psi (0 to 100 kPa)
63030M	0 to 30 psi (0 to 200 kPa)
63060M	0 to 60 psi (0 to 400 kPa)
63100M	0 to 100 psi (0 to 700 kPa)
63200M	0 to 200 psi (0 to 1400 kPa)
63300M	0 to 300 psi (0 to 2000 kPa)

### SPECIFICATIONS

**Service:** Compatible gases and liquids.

**Wetted Materials:** Brass.

**Housing:** 304 SS.

**Fill Solution:** Glycerin.

**Accuracy:**  $\pm 1.6\%$  full scale.

**Pressure Limits:** 130% of full scale.

**Temperature Limits:**

Ambient: -4 to 140°F (-20 to 60°C);

Process: 149°F max. (65°C max.).

**Size:** 2-1/2" (63 mm).

**Process Connection:** 1/4" male NPT.

**Enclosure Rating:** NEMA 3 (IP55).

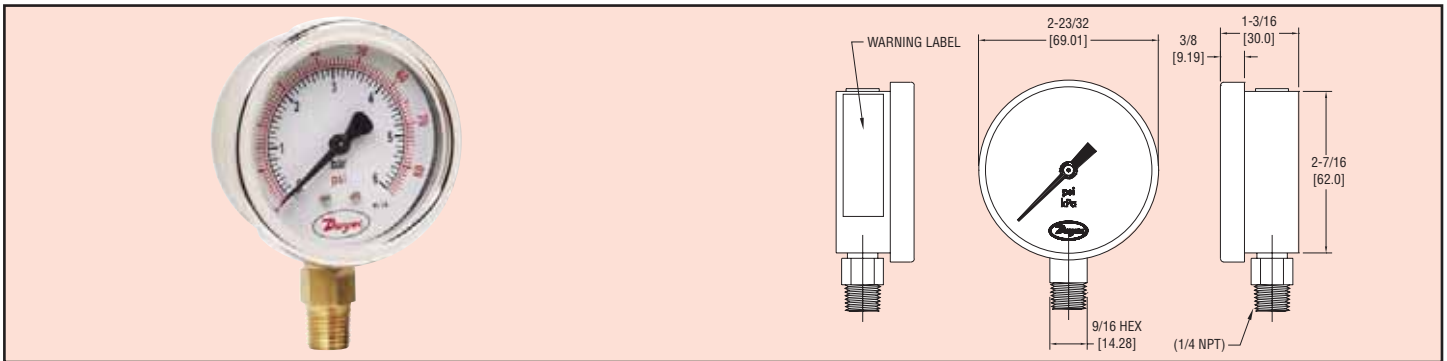
**Weight:** 8.6 oz (245 g).



Series  
62000M

# 2.5" Stainless Steel Pressure Gage

Brass Wetted Parts, Bottom Connection



The Series 62000M Gages have dual English/metric scales with  $\pm 1.6\%$  full scale accuracy, and are available in 2.5" dial sizes. The 62000M gages are designed with 304 SS housings and brass wetted parts. Units are available with standard bottom 1/4" male NPT connection, and can withstand ambient temperatures up to 140°F (60°C) and process temperatures up to 248°F (120°C). The 62000M gages may be easily liquid filled in the field without the need for a separate kit.

## MODELS

Model Number	Ranges
62030VM	0 to 30 in. Hg Vac (-100 to 0 kPa)
62015M	0 to 15 psi (0 to 100 kPa)
62030M	0 to 30 psi (0 to 200 kPa)
62060M	0 to 60 psi (0 to 400 kPa)
62100M	0 to 100 psi (0 to 700 kPa)
62160M	0 to 160 psi (0 to 1100 kPa)
62200M	0 to 200 psi (0 to 1400 kPa)
62300M	0 to 300 psi (0 to 2000 kPa)

## SPECIFICATIONS

**Service:** Compatible gases and liquids.

**Wetted Materials:** Brass.

**Housing:** 304 SS.

**Accuracy:**  $\pm 1.6\%$  full scale.

**Pressure Limits:** 130% of full scale.

**Temperature Limits:**

Ambient: -4 to 140°F (-20 to 60°C);

Process: 248°F max. (120°C max.).

**Size:** 2-1/2" (63 mm).

**Process Connection:** 1/4" male NPT.

**Enclosure Rating:** NEMA 3 (IP55).

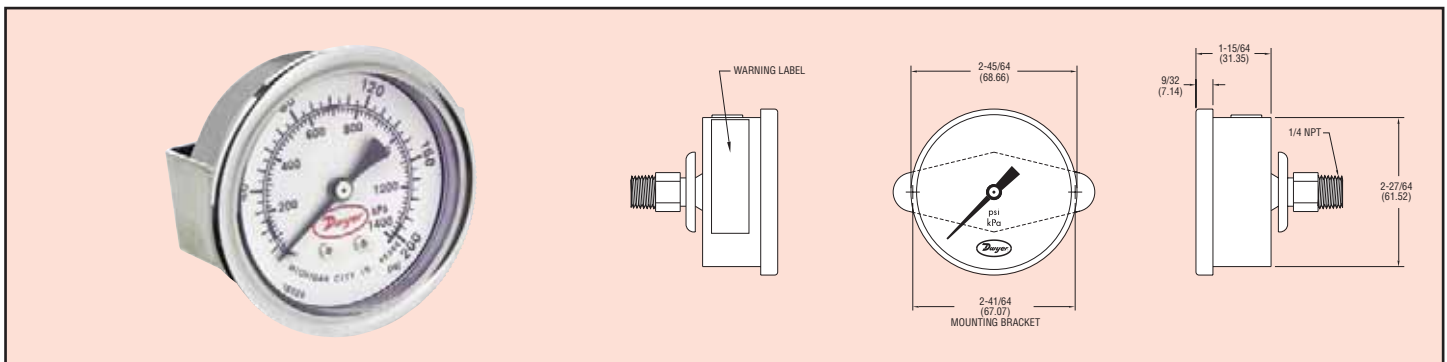
**Weight:** 4.9 oz (0.14 kg).



Series  
62000MU

# 2.5" Stainless Steel Pressure Gage

Brass Wetted Parts, Back Connection



The Series 62000MU Gages have dual English/metric scales with  $\pm 1.6\%$  full scale accuracy, and are available in 2.5" dial sizes. Series 62000MU gages are designed with 304 SS housings and brass wetted parts, and includes a back u-clamp connection for panel mounting. Units can withstand ambient temperatures up to 140°F (60°C) and process temperatures up to 248°F (120°C). The 62000MU gages may be easily liquid filled in the field without the need for a separate kit.

## MODELS

Model Number	Ranges
62030VMU	0 to 30 in. Hg Vac (-100 to 0 kPa)
62015MU	0 to 15 psi (0 to 100 kPa)
62030MU	0 to 30 psi (0 to 200 kPa)
62060MU	0 to 60 psi (0 to 400 kPa)
62100MU	0 to 100 psi (0 to 700 kPa)
62160MU	0 to 160 psi (0 to 1100 kPa)
62200MU	0 to 200 psi (0 to 1400 kPa)
62300MU	0 to 300 psi (0 to 2000 kPa)

## SPECIFICATIONS

**Service:** Compatible gases and liquids.

**Wetted Materials:** Brass.

**Housing:** 304 SS.

**Accuracy:**  $\pm 1.6\%$  full scale.

**Pressure Limits:** 130% of full scale.

**Temperature Limits:**

Ambient: -4 to 140°F (-20 to 60°C);

Process: 248°F max. (120°C max.).

**Size:** 2-1/2" (63 mm).

**Process Connection:** 1/4" male NPT.

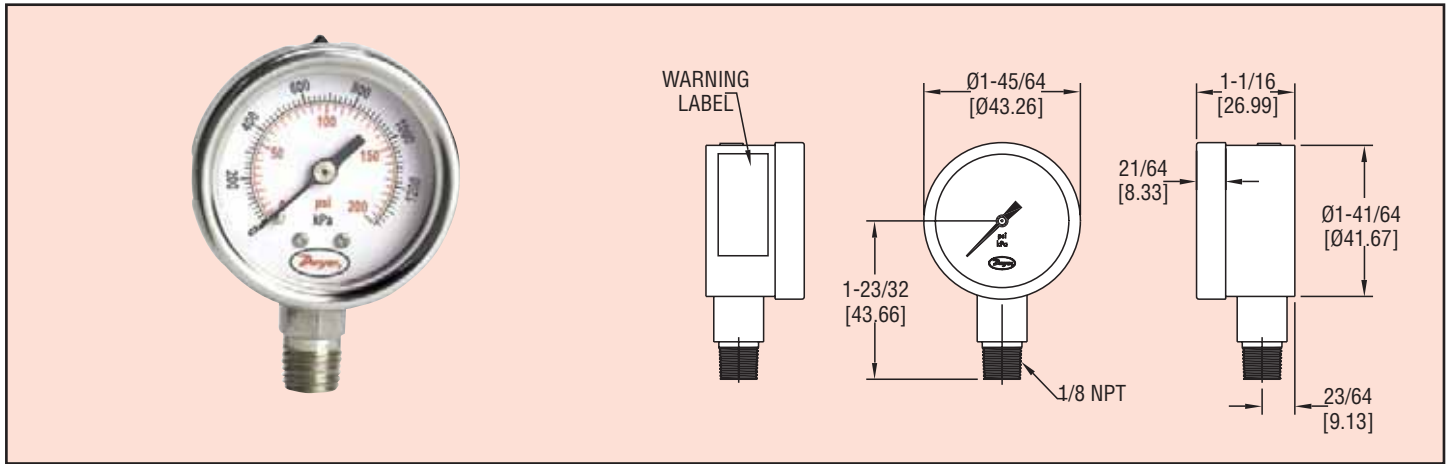
**Enclosure Rating:** NEMA 3 (IP55).

**Weight:** 4.9 oz (0.14 kg).

Series  
SGB

# 1.5" Stainless Steel Industrial Pressure Gages

2.5% Full Scale Accuracy, 316 SS Wetted Parts



The Series SGB Gages have dual English/metric scales with  $\pm 2.5\%$  full scale accuracy. The Series SGB gages are designed with 304 SS housings and 316 SS wetted parts for excellent chemical compatibility. These gages cover a wide variety of ranges from full vacuum to 4,000 psi. Units can withstand ambient temperatures up to 140°F (60°C) and process temperatures up to 356°F (180°C).

## APPLICATIONS

Food and Beverage Equipment, Regulators, Pumps, Presses, Engine Compressors, Refrigeration Systems.

## SPECIFICATIONS

**Service:** Compatible gases and liquids.

**Wetted Materials:** 316 SS.

**Housing:** 304 SS.

**Accuracy:**  $\pm 2.5\%$  full scale.

**Pressure Limit:** 125% full scale for ranges <1500 psi, 115% for 1500 psi and greater.

**Temperature Limits:**

Ambient: -4 to 140°F (-20 to 60°C);

Process: 356°F max. (180°C max.).

**Size:** 1.5" (40 mm)

**Process Connections:** 1/8" male NPT.

**Enclosure Rating:** NEMA 3 (IP55).

**Weight:** 3.5 oz (0.1 kg).

## MODELS

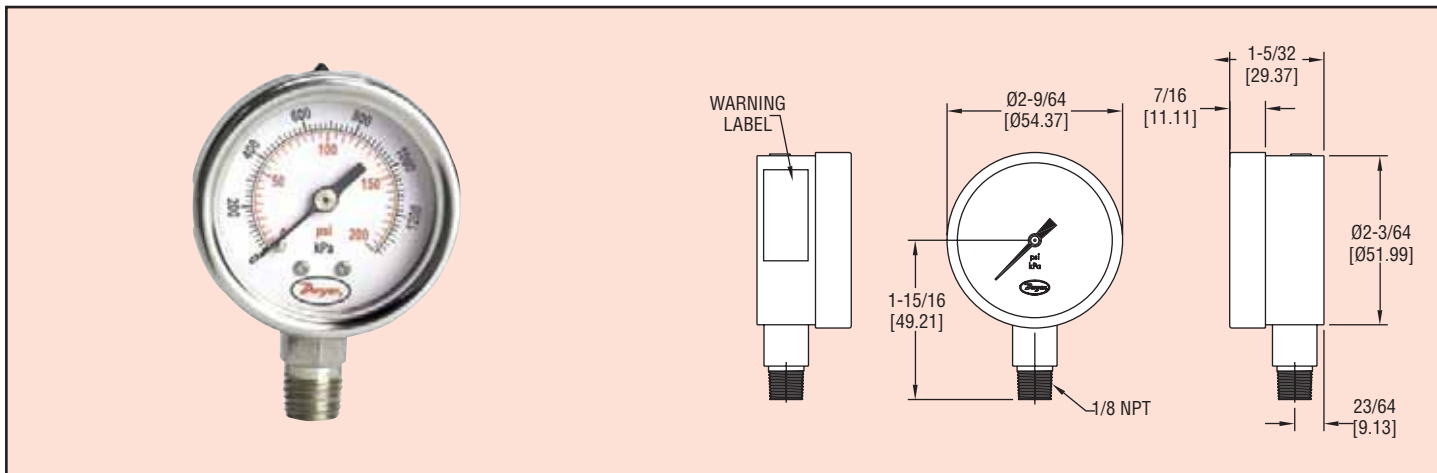
Model Number	Ranges	Model Number	Ranges
SGB-B0121N	0-30" Hg (-100-0 kPa)	SGB-B0921N	0-400 psi (0-2.8 MPa)
SGB-B0221N	0-15 psi (0-100 kPa)	SGB-B1021N	0-500 psi (0-3.4 MPa)
SGB-B0321N	0-30 psi (0-200 kPa)	SGB-B1121N	0-600 psi (0-4 MPa)
SGB-B0421N	0-60 psi (0-400 kPa)	SGB-B1221N	0-1000 psi (0-7 MPa)
SGB-B0521N	0-100 psi (0-700 kPa)	SGB-B1321N	0-1500 psi (0-10 MPa)
SGB-B0621N	0-150 psi (0-1 MPa)	SGB-B1421N	0-2000 psi (0-14 MPa)
SGB-B0721N	0-200 psi (0-1.4 MPa)	SGB-B1521N	0-3000 psi (0-20 MPa)
SGB-B0821N	0-300 psi (0-2 MPa)	SGB-B1621N	0-4000 psi (0-28 MPa)



Series  
SGB

# 2" Stainless Steel Industrial Pressure Gages

2.5% Full Scale Accuracy, 316 SS Wetted Parts



The Series SGB Gages have dual English/metric scales with 2.5% full scale accuracy. The Series SGB gages are designed with 304 SS housings and 316 SS wetted parts for excellent chemical compatibility. These gages cover a wide variety of ranges from full vacuum to 4,000 psi. Units can withstand ambient temperatures up to 140°F (60°C) and process temperatures up to 356°F (180°C).

## APPLICATIONS

Food and Beverage Equipment, Regulators, Pumps, Presses, Engine Compressors, Refrigeration Systems.

## SPECIFICATIONS

**Service:** Compatible gases and liquids.

**Wetted Materials:** 316 SS.

**Housing:** 304 SS.

**Accuracy:** ±2.5% full scale.

**Pressure Limit:** 125% full scale for ranges <1500 psi, 115% for 1500 psi and greater.

**Temperature Limits:**

Ambient: -4 to 140°F (-20 to 60°C);

Process: 356°F max. (180°C max.).

**Size:** 2" (50 mm).

**Process Connections:** 1/8" male NPT.

**Enclosure Rating:** NEMA 3 (IP55).

**Weight:** 3.5 oz (0.1 kg).

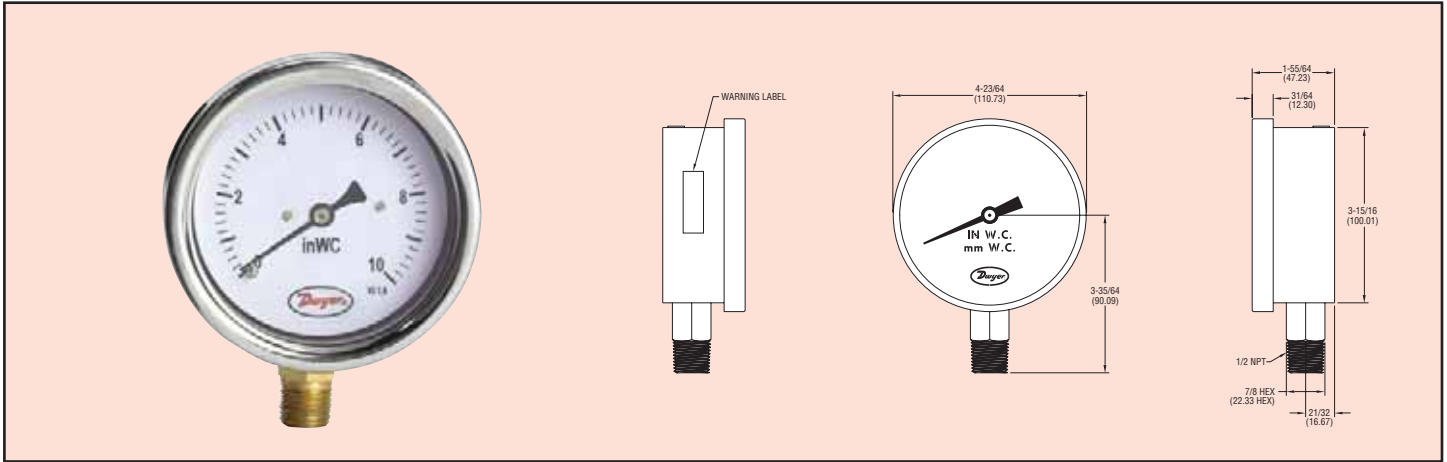
## MODELS

Model Number	Ranges	Model Number	Ranges
<b>SGB-C0121N</b>	0-30" Hg (-100-0 kPa)	<b>SGB-C0921N</b>	0-400 psi (0-2.8 MPa)
<b>SGB-C0221N</b>	0-15 psi (0-100 kPa)	<b>SGB-C1021N</b>	0-500 psi (0-3.4 MPa)
<b>SGB-C0321N</b>	0-30 psi (0-200 kPa)	<b>SGB-C1121N</b>	0-600 psi (0-4 MPa)
<b>SGB-C0421N</b>	0-60 psi (0-400 kPa)	<b>SGB-C1221N</b>	0-1000 psi (0-7 MPa)
<b>SGB-C0521N</b>	0-100 psi (0-700 kPa)	<b>SGB-C1321N</b>	0-1500 psi (0-10 MPa)
<b>SGB-C0621N</b>	0-150 psi (0-1 MPa)	<b>SGB-C1421N</b>	0-2000 psi (0-14 MPa)
<b>SGB-C0721N</b>	0-200 psi (0-1.4 MPa)	<b>SGB-C1521N</b>	0-3000 psi (0-20 MPa)
<b>SGB-C0821N</b>	0-300 psi (0-2 MPa)	<b>SGB-C1621N</b>	0-4000 psi (0-28 MPa)

Series  
SGX

# 2.5" Stainless Steel Low Pressure Gage

1.6% Full Scale Accuracy, Brass Wetted Parts



The Series SGX Gages have dual English/metric scales with  $\pm 1.6\%$  full scale accuracy. The Series SGX gages are designed with 304 SS housing and brass wetted parts. Units can withstand ambient temperatures up to 149°F (65°C) and process temperatures up to 212°F (100°C). Ranges of vacuum, compound and pressures to 235 inches w.c. are available.

## SPECIFICATIONS

**Service:** Compatible gases & liquids.

**Wetted Materials:** Brass.

**Housing:** 304 SS.

**Accuracy:**  $\pm 1.6\%$  full scale.

**Pressure Limit:** Full scale value.

**Temperature Limits:**

Ambient: -13 to 149°F (-25 to 65°C);

Process: 212°F max. (100°C max.).

**Size:** 2.5" (63 mm).

**Process Connections:** 1/4" male NPT.

**Enclosure Rating:** NEMA 3 (IP55).

**Weight:** 4.6 oz (0.13 kg).

## APPLICATIONS

Pneumatic, Draft Measurement, Filter Monitoring, Liquid Level.

## MODELS

Model Number	Ranges	Model Number	Ranges
SGX-D7122N	-10-0 in. w.c. (-250-0 mm)	SGX-D8722N	0-160 in. w.c. (0-4000 mm)
SGX-D7222N	-15-0 in. w.c. (-400-0 mm)	SGX-D8822N	0-235 in. w.c. (0-6000 mm)
SGX-D7322N	-25-0 in. w.c. (-600-0 mm)	SGX-D8922N	-4-0-6 in. w.c. (-100-0-150 mm)
SGX-D7422N	-40-0 in. w.c. (-1000-0 mm)	SGX-D9022N	-6-0-10 in. w.c. (-150-0-250 mm)
SGX-D7522N	-60-0 in. w.c. (-1600-0 mm)	SGX-D9122N	-8-0-16 in. w.c. (-200-0-400 mm)
SGX-D7622N	-80-0 in. w.c. (-2000-0 mm)	SGX-D9222N	-16-0-24 in. w.c. (-400-0-600 mm)
SGX-D7722N	-100-0 in. w.c. (-2500-0 mm)	SGX-D9322N	-24-0-40 in. w.c. (-600-0-1000 mm)
SGX-D7822N	-160-0 in. w.c. (-4000-0 mm)	SGX-D9422N	-30-0-50 in. w.c. (-800-0-1200 mm)
SGX-D7922N	-235-0 in. w.c. (-6000-0 mm)	SGX-D9522N	-40-0-60 in. w.c. (-1000-0-1500 mm)
SGX-D8022N	0-10 in. w.c. (0-250 mm)	SGX-D9622N	-60-0-100 in. w.c. (-1500-0-2500 mm)
SGX-D8122N	0-15 in. w.c. (0-400 mm)	SGX-D9722N	-80-0-160 in. w.c. (-2000-0-4000 mm)
SGX-D8222N	0-25 in. w.c. (0-600 mm)		
SGX-D8322N	0-40 in. w.c. (0-1000 mm)		
SGX-D8422N	0-60 in. w.c. (0-1600 mm)		
SGX-D8522N	0-80 in. w.c. (0-2500 mm)		

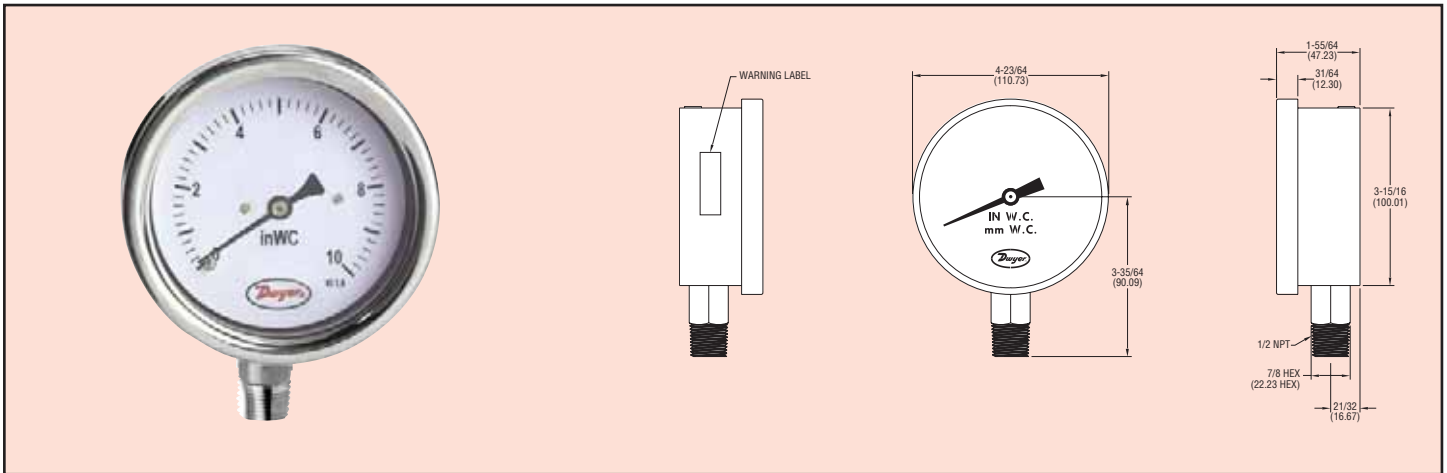




Series  
SGF

# 2.5" Stainless Steel Low Pressure Gage

1.6% Full Scale Accuracy, 316 SS Wetted Parts



The Series SGF Gages have dual English/metric scales with  $\pm 1.6\%$  full scale accuracy. The SGF gages are designed with 304 SS housings and 316/316L SS wetted parts. Units can withstand ambient temperatures up to 149°F (65°C) and process temperatures up to 212°F (100°C). Ranges of vacuum, compound and pressures to 235 inches w.c. are available.

## SPECIFICATIONS

**Service:** Compatible gases and liquids.

**Wetted Materials:** 316/316L SS.

**Housing:** 304 SS.

**Accuracy:**  $\pm 1.6\%$  full scale.

**Pressure Limit:** Full scale value.

**Temperature Limit:**

Ambient: -13 to 149°F (-25 to 65°C);

Process: 212°F max. (100°C max.).

**Size:** 2.5" (63 mm).

**Process Connection:** 1/4" male NPT.

**Enclosure Rating:** NEMA 3 (IP55).

**Weight:** 4.6 oz (0.13 kg).

## APPLICATIONS

Pneumatic, Draft Measurement, Filter Monitoring, Liquid Level.

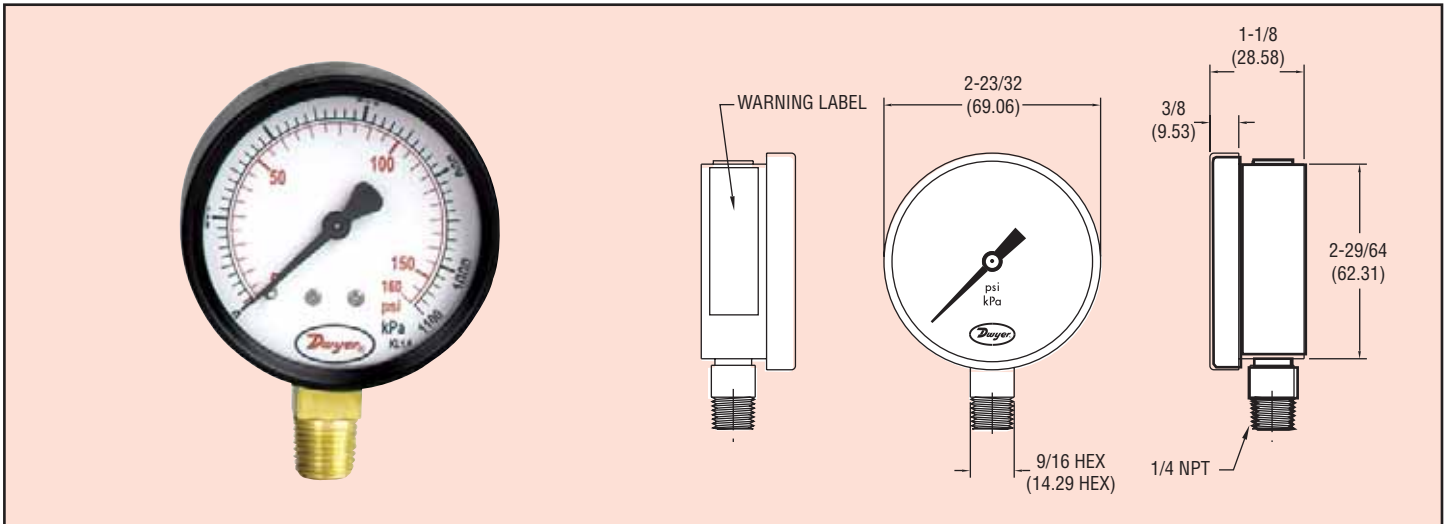
## MODELS

Model Number	Ranges	Model Number	Ranges
SGF-D7122N	-10-0 in. w.c. (-250-0 mm)	SGF-D8622N	0-100 in. w.c. (0-2500 mm)
SGF-D7222N	-15-0 in. w.c. (-400-0 mm)	SGF-D8722N	0-160 in. w.c. (0-4000 mm)
SGF-D7322N	-25-0 in. w.c. (-600-0 mm)	SGF-D8822N	0-235 in. w.c. (0-6000 mm)
SGF-D7422N	-40-0 in. w.c. (-1000-0 mm)	SGF-D8922N	-4-0-6 in. w.c. (-100-0-150 mm)
SGF-D7522N	-60-0 in. w.c. (-1600-0 mm)	SGF-D9022N	-6-0-10 in. w.c. (-150-0-250 mm)
SGF-D7622N	-80-0 in. w.c. (-2000-0 mm)	SGF-D9122N	-8-0-16 in. w.c. (-200-0-400 mm)
SGF-D7722N	-100-0 in. w.c. (-2500-0 mm)	SGF-D9222N	-16-0-24 in. w.c. (-400-0-600 mm)
SGF-D7822N	-160-0 in. w.c. (-4000-0 mm)	SGF-D9322N	-24-0-40 in. w.c. (-600-0-1000 mm)
SGF-D7922N	-235-0 in. w.c. (-6000-0 mm)	SGF-D9422N	-30-0-50 in. w.c. (-800-0-1200 mm)
SGF-D8022N	0-10 in. w.c. (0-250 mm)	SGF-D9522N	-40-0-60 in. w.c. (-1000-0-1500 mm)
SGF-D8122N	0-15 in. w.c. (0-400 mm)	SGF-D9622N	-60-0-100 in. w.c. (-1500-0-2500 mm)
SGF-D8222N	0-25 in. w.c. (0-600 mm)	SGF-D9722N	-80-0-160 in. w.c. (-2000-0-4000 mm)
SGF-D8322N	0-40 in. w.c. (0-1000 mm)		
SGF-D8422N	0-60 in. w.c. (0-1600 mm)		



# Series UGA 2.5" Utility Pressure Gage

2.5% Accuracy, Brass Wetted Parts



The Series UGA Gages have dual English/metric scales with  $\pm 2.5\%$  accuracy. The Series UGA gages are designed with brass wetted parts, and can withstand ambient temperatures up to 140°F (60°C) and process temperatures up to 248°F (120°C). A wide variety of ranges are available in this economical gage from full vacuum, compound to 15,000 psi.

### APPLICATIONS

Pneumatic, Hydraulic, Portable Equipment, Pumps, Compressors.

### SPECIFICATIONS

- Service:** Compatible gases and liquids.
- Wetted Materials:** Brass.
- Housing:** Black powder coated steel.
- Accuracy:**  $\pm 2.5\%$  between 10-90% of span.
- Pressure Limit:** Full scale value.
- Temperature Limits:**
  - Ambient: -4 to 140°F (-20 to 60°C);
  - Process: 248°F max. (120°C max.).
- Size:** 2.5" (63 mm).
- Process Connections:** 1/4" male NPT.
- Enclosure Rating:** NEMA 3 (IP55).
- Weight:** 5.2 oz (0.15 kg).

### MODELS

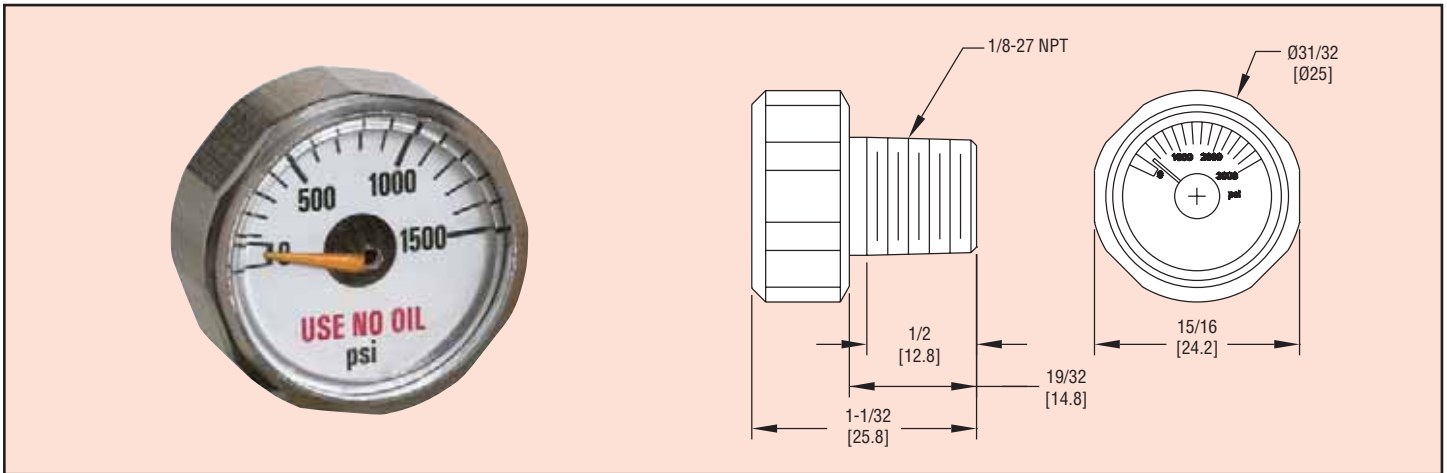
Model Number	Ranges	Model Number	Ranges
UGA-D0122N	0-30" Hg (-100-0 kPa)	UGA-D1622N	0-4000 psi (0-28 MPa)
UGA-D0222N	0-15 psi (0-100 kPa)	UGA-D1722N	0-5000 psi (0-34 MPa)
UGA-D0322N	0-30 psi (0-200 kPa)	UGA-D1822N	0-6000 psi (0-40 MPa)
UGA-D0422N	0-60 psi (0-400 kPa)	UGA-D1922N	0-10000 psi (0-70 MPa)
UGA-D0522N	0-100 psi (0-700 kPa)	UGA-D2022N	0-15000 psi (0-100 MPa)
UGA-D0622N	0-150 psi (0-1 MPa)	UGA-D2122N	30" Hg-0-15 psi (-100-0-100 kPa)
UGA-D0722N	0-200 psi (0-1.4 MPa)	UGA-D2222N	30" Hg-0-30 psi (-100-0-200 kPa)
UGA-D0822N	0-300 psi (0-2 MPa)	UGA-D2322N	30" Hg-0-60 psi (-100-0-400 kPa)
UGA-D0922N	0-400 psi (0-2.8 MPa)	UGA-D2422N	30" Hg-0-100 psi (-100-0-700 kPa)
UGA-D1022N	0-500 psi (0-3.4 MPa)	UGA-D2522N	30" Hg-0-150 psi (-0.1-0-1 MPa)
UGA-D1122N	0-600 psi (0-4 MPa)		
UGA-D1222N	0-1000 psi (0-7 MPa)		
UGA-D1322N	0-1500 psi (0-10 MPa)		
UGA-D1422N	0-2000 psi (0-14 MPa)		
UGA-D1522N	0-3000 psi (0-20 MPa)		



Series  
SGC

# Spiral Tube Pressure Gage

ASME Grade B Accuracy in a Compact 1" Dial



The compact Series SGC Pressure Gages are an economical solution for monitoring high pressure applications where space is limited. These 1" gages are perfect for OEM applications for use on pumps, compressors and portable cylinders. The Series SGC Gages are housed in a rugged 304 SS case and feature ASME Grade B accuracy.

## SPECIFICATIONS

- Service:** Compatible gases and liquids.
- Wetted Materials:** Brass Bourdon tube.
- Housing:** 304 SS.
- Accuracy:** ASME Grade B (3-2-3%).
- Pressure Limit:** 1.1 x full scale.
- Temperature Limits:** -40 to 150°F (-40 to 65°C).
- Size:** 1" (25 mm).
- Process Connections:** 1/8" male NPT.
- Weight:** 1.0 oz (28.3 g).

## APPLICATIONS

Pumps, Compressors, Portable Cylinders.

## MODELS

Model Number*	Ranges
SGC-05	0-100 psig
SGC-06	0-160 psig
SGC-07	0-200 psig
SGC-08	0-300 psig
SGC-11	0-600 psig
SGC-12	0-1000 psig
SGC-13	0-1500 psig
SGC-14	0-2000 psig
SGC-15	0-3000 psig
SGC-16	0-4000 psig
SGC-17	0-5000 psig

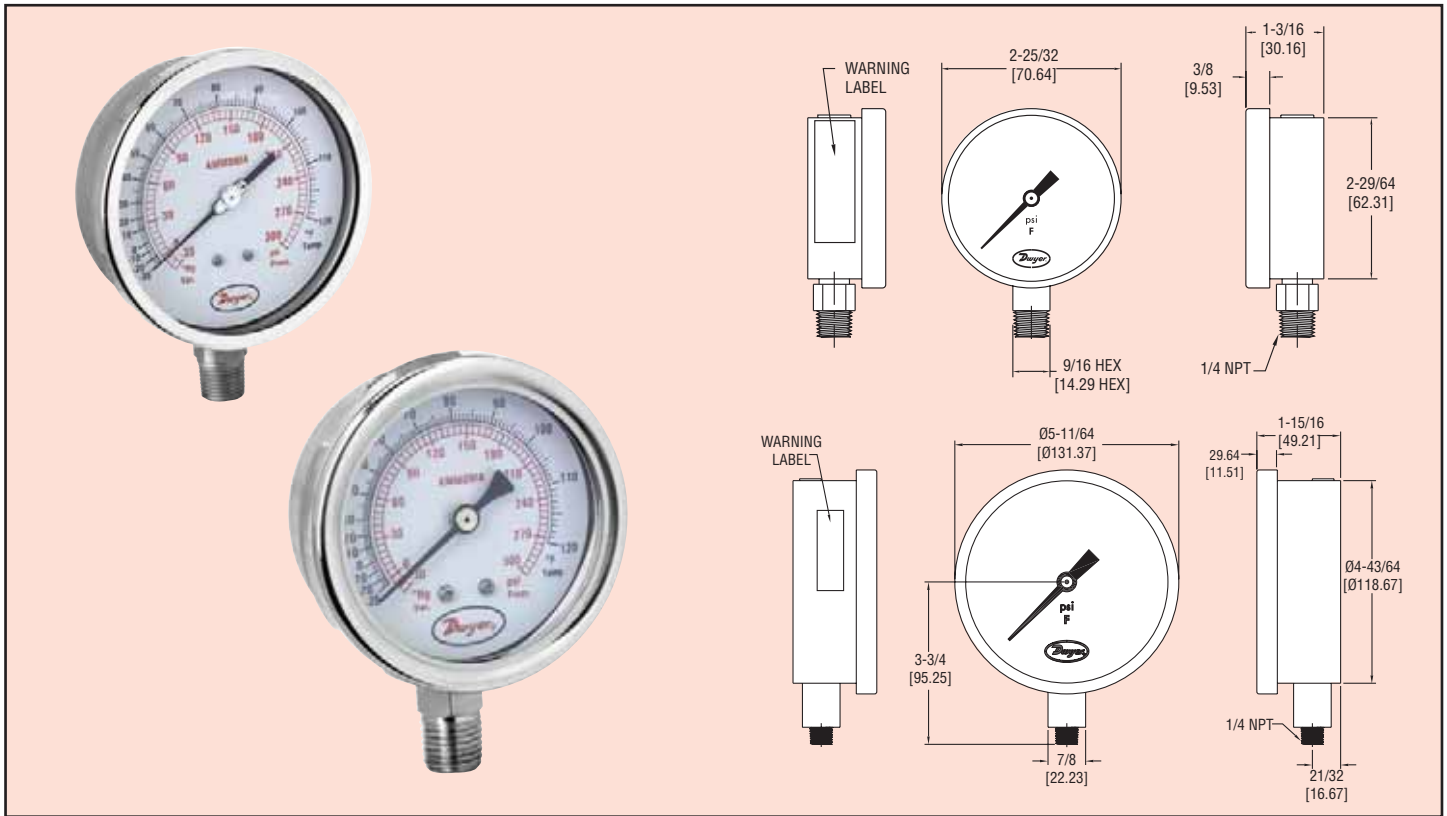
\*Minimum Order Quantity of 100 pieces.



Series  
AGD  
&  
AGL

# 2.5" & 4.5" Pressure Gages with Ammonia Scales

## Dual Pressure and Temperature Scales for Ammonia



The Series AGD & AGL Pressure Gages provide an economic solution for measuring pressures in ammonia systems. With dual psi and corresponding degrees F scale calibrated for ammonia, these gages allow for quick servicing of ammonia systems. The Series AGD Gage provides  $\pm 1.6\%$  full scale accuracy in a 2.5" gage while the Series AGL Gage is a 4.5" unit with 1.0% full scale accuracy.

### APPLICATIONS

Systems & Equipment containing ammonia.

### MODELS

Model Number	Ranges
AGD-D6822N	30" Hg-150 psi/°F scale
AGD-D6922N	30" Hg-300 psi/°F scale
AGL-G6822N	30" Hg-150 psi/°F scale
AGL-G6922N	30" Hg-300 psi/°F scale

### SPECIFICATIONS

**Service:** Compatible gases and liquids.

**Wetted Materials:** 316L SS.

**Housing:** 304 SS.

**Accuracy:** AGD:  $\pm 1.6\%$  full scale; AGL:  $\pm 1.0\%$  full scale.

**Pressure Limit:** 130% of full scale.

**Temperature Limit:**

AGD: Ambient: -13 to 149°F (-25 to 65°C);

Process: 518°F max. (270°C max.).

AGL: Ambient: -13 to 149°F (-25 to 65°C);

Process: 572°F max. (300°C max.).

**Size:** AGD: 2.5" (63 mm); AGL: 4.5" (115 mm).

**Process Connection:** 1/4" male NPT.

**Enclosure Rating:** NEMA 3 (IP55).

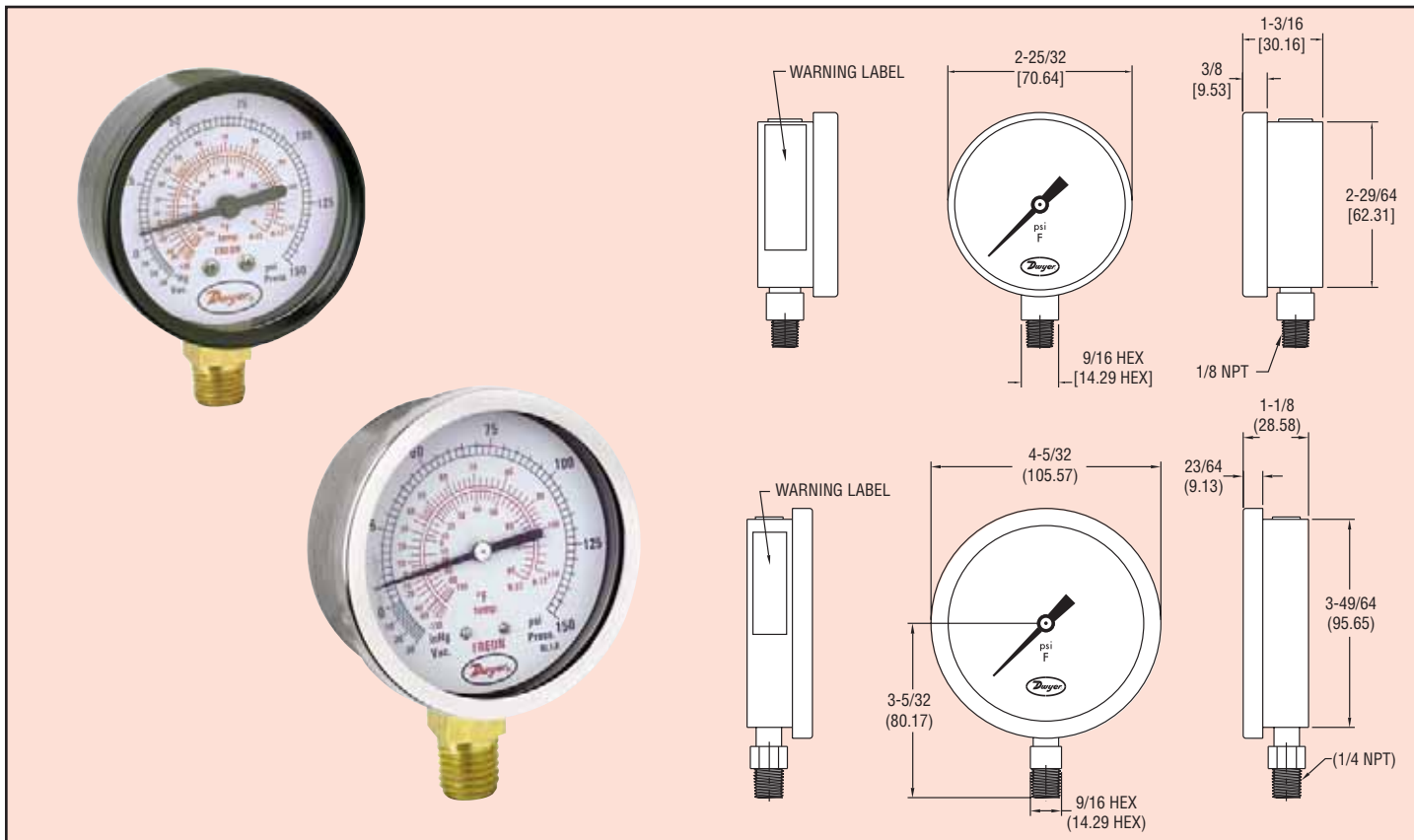
**Weight:** AGD: 4.6 oz (0.13 kg); AGL: 1.5 lb (0.70 kg).



Series  
FGA  
&  
FGS

# 2.5" & 4" Pressure Gages with Freon Scales

Dual Pressure and Temperature Scales for R-12 and R-22



The Series FGA & FGS Pressure Gages provide an economic solution for measuring pressures in refrigerant systems containing freon. With dual psi and corresponding degrees F scale calibrated for both R-12 and R-22, these gages allow for quick servicing of systems containing freon. The Series FGA Gage provides  $\pm 2.5\%$  accuracy in a 2.5" gage while the Series FGS Gage is a 4" unit with 1.6% full scale accuracy.

### APPLICATIONS

Systems & Equipment containing freon.

### MODELS

Model Number	Ranges
FGA-D6321N	30" Hg-150 psi/°F scales
FGA-D6421N	30" Hg-300 psi/°F scales
FGA-D6621N	0-300 psi/°F scales
FGA-D6721N	0-500 psi/°F scales
FGS-F6322N	30" Hg-150 psi/°F scales
FGS-F6422N	30" Hg-300 psi/°F scales
FGS-F6522N	30" Hg-500 psi/°F scales
FGS-F6622N	0-300 psi/°F scales
FGS-F6722N	0-500 psi/°F scales

### SPECIFICATIONS

**Service:** Compatible gases and liquids.

**Wetted Materials:** Brass.

**Housing:** FGA: Black powder coated steel; FGS: 304 stainless steel.

**Accuracy:** FGA:  $\pm 2.5\%$  between 10-90% of span; FGS:  $\pm 1.6\%$  full scale.

**Pressure Limit:** FGA: Full scale value; FGS: 125% of full scale.

#### Temperature Limits:

FGA: Ambient: -4 to 140°F (-20 to 60°C);

Process: 248°F max. (120°C max.).

FGS: Ambient: -4 to 149°F (-20 to 65°C);

Process: 257°F max. (125°C max.).

**Size:** FGA: 2.5" (63 mm); FGS: 4" (100 mm).

**Process Connections:** FGA: 1/8" male NPT; FGS: 1/4" male NPT.

**Enclosure Rating:** NEMA 3 (IP55).

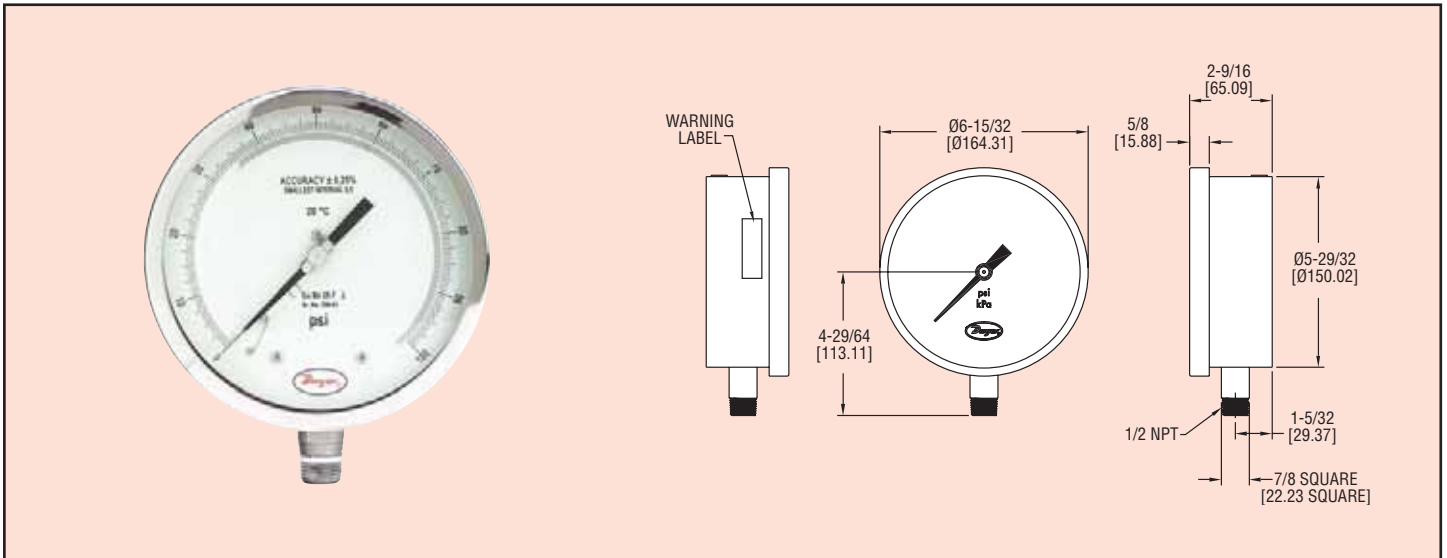
**Weight:** FGA: 5.2 oz (0.15 kg); FGS: 1.1 lb (0.49 kg).



Series  
SGR

# 6" Stainless Steel Test Gage

0.25% Full Scale Accuracy, Beryllium Copper & 316L SS Wetted Parts



The Series SGR Gages have dual English/metric scales with  $\pm 0.25\%$  ASME Grade 3A accuracy, and contain a green dial with anti-parallax mirror for ease of reading measurements by the user.

The Series SGR gages are designed with 304 SS housing and beryllium copper plus 316L SS wetted parts. Units can withstand ambient and process temperatures up to 149°F (65°C). A wide selection of ranges are available from full vacuum to 15,000 psi. Included with the SGR is a protective portable carrying case.

## APPLICATIONS

Calibration, Laboratory.

**Test Gage Carrying Case** - Included with the SGR is a convenient, protective portable carrying case for the 6" test gages.



## SPECIFICATIONS

**Service:** Compatible gases and liquids.

**Wetted Materials:** 316L SS connection & beryllium copper Bourdon tube.

**Housing:** 304 SS.

**Accuracy:**  $\pm 0.25\%$  full scale @ 77°F (25°C).

**Pressure Limit:** Full scale value.

**Temperature Limits:** Ambient & Process up to 149°F (65°C).

**Size:** 6" (150 mm).

**Process Connections:** 1/2" male NPT.

**Enclosure Rating:** NEMA 3 (IP55).

**Weight:** 2.2 lb (1.0 kg).

## MODELS

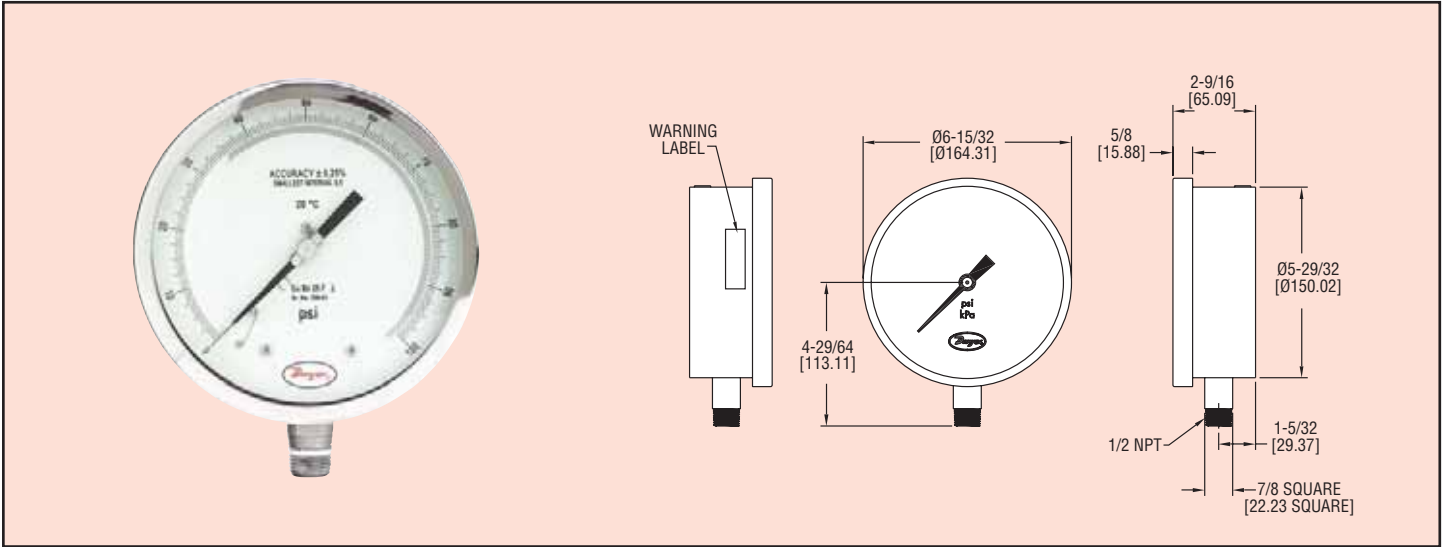
Model Number	Ranges	Model Number	Ranges
SGR-H0124N	0-30" Hg (-100-0 kPa)	SGR-H1124N	0-600 psi (0-4 MPa)
SGR-H0224N	0-15 psi (0-100 kPa)	SGR-H1224N	0-1000 psi (0-7 MPa)
SGR-H0324N	0-30 psi (0-200 kPa)	SGR-H1324N	0-1500 psi (0-10 MPa)
SGR-H0424N	0-60 psi (0-400 kPa)	SGR-H1424N	0-2000 psi (0-14 MPa)
SGR-H0524N	0-100 psi (0-700 kPa)	SGR-H1524N	0-3000 psi (0-20 MPa)
SGR-H0624N	0-150 psi (0-1 MPa)	SGR-H1624N	0-4000 psi (0-28 MPa)
SGR-H0724N	0-200 psi (0-1.4 MPa)	SGR-H1724N	0-5000 psi (0-34 MPa)
SGR-H0824N	0-300 psi (0-2 MPa)	SGR-H1824N	0-6000 psi (0-40 MPa)
SGR-H0924N	0-400 psi (0-2.8 MPa)	SGR-H1924N	0-10000 psi (0-70 MPa)
SGR-H1024N	0-500 psi (0-3.4 MPa)	SGR-H2024N	0-15000 psi (0-100 MPa)



Series  
SGJ

# 6" Stainless Steel Safety Test Gage

0.25% Full Scale Accuracy, Beryllium Copper & 316L SS Wetted Parts



The Series SGJ Gages have dual English/metric scales with  $\pm 0.25\%$  ASME Grade 3A accuracy, and contain a green dial with anti-parallax mirror for ease of reading measurements by the user. The solid front design with baffle wall interposed between the sensing element and the window face, plus a pressure relieving back, provide the increased safety required for potentially dangerous applications.

The Series SGJ gages are designed with 304 SS housings and 316L SS and beryllium copper wetted parts. Units can withstand ambient and process temperatures up to 149°F (65°C). A wide selection of ranges are available from full vacuum to 15,000 psi. Included with the SGJ is a protective portable carrying case.

## APPLICATIONS

Calibration, Laboratory.

## MODELS

Model Number	Ranges
SGJ-H0124N	0-30" Hg (-100-0 kPa)
SGJ-H0224N	0-15 psi (0-100 kPa)
SGJ-H0324N	0-30 psi (0-200 kPa)
SGJ-H0424N	0-60 psi (0-400 kPa)
SGJ-H0524N	0-100 psi (0-700 kPa)
SGJ-H0624N	0-150 psi (0-1 MPa)
SGJ-H0724N	0-200 psi (0-1.4 MPa)
SGJ-H0824N	0-300 psi (0-2 MPa)
SGJ-H0924N	0-400 psi (0-2.8 MPa)
SGJ-H1024N	0-500 psi (0-3.4 MPa)
SGJ-H1124N	0-600 psi (0-4 MPa)
SGJ-H1224N	0-1000 psi (0-7 MPa)
SGJ-H1324N	0-1500 psi (0-10 MPa)
SGJ-H1424N	0-2000 psi (0-14 MPa)
SGJ-H1524N	0-3000 psi (0-20 MPa)
SGJ-H1624N	0-4000 psi (0-28 MPa)
SGJ-H1724N	0-5000 psi (0-34 MPa)
SGJ-H1824N	0-6000 psi (0-40 MPa)
SGJ-H1924N	0-10000 psi (0-70 MPa)
SGJ-H2024N	0-15000 psi (0-100 MPa)

## SPECIFICATIONS

**Service:** Compatible gases and liquids.

**Wetted Materials:** 316L SS connection & beryllium copper Bourdon tube.

**Housing:** 304 SS.

**Accuracy:**  $\pm 0.25\%$  full scale @ 77°F (25°C).

**Pressure Limit:** Full scale value.

**Temperature Limit:** Ambient & Process up to 149°F (65°C).

**Size:** 6" (150 mm).

**Process Connection:** 1/2" male NPT.

**Enclosure Rating:** NEMA 3 (IP55).

**Weight:** 2.2 lb (1.0 kg).

**Test Gage Carrying Case** - Included with the SGJ is a convenient, protective portable carrying case for the 6" test gages.

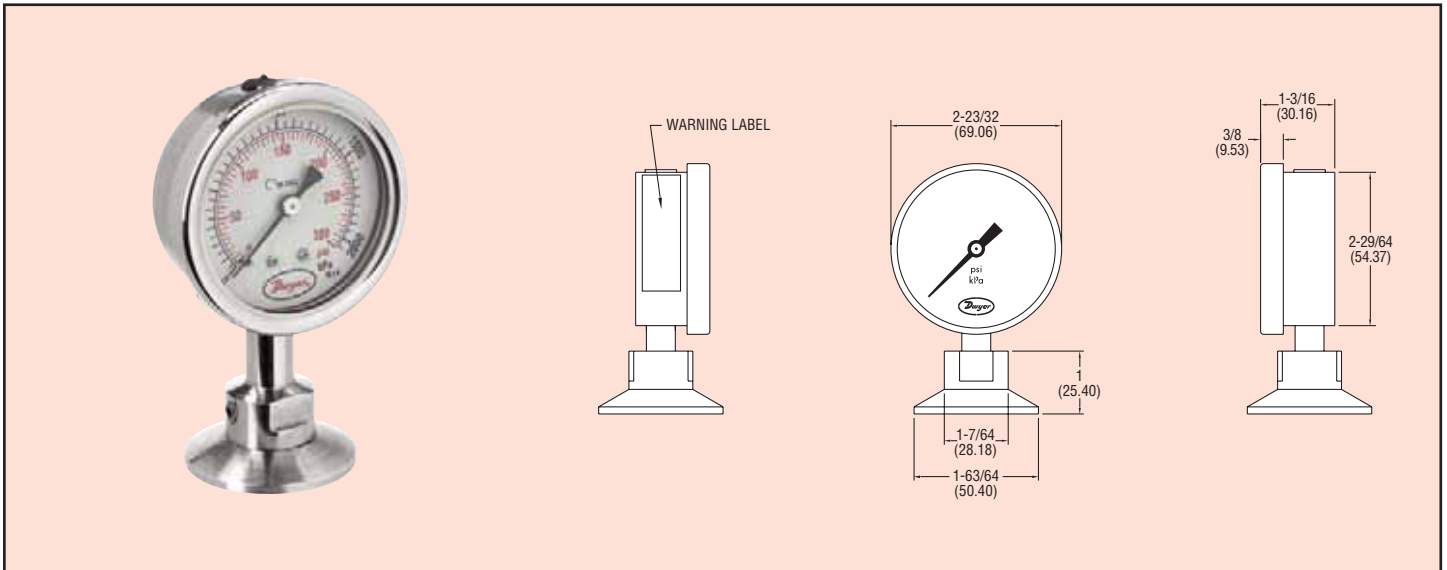




Series  
SSD

# 2.5" Stainless Steel Gage with Tri-Clover Connection

1.6% Full Scale Accuracy, Glycerin Filled



The Series SSD Gages with flush 1.5" Tri-Clover connections have dual English/metric scales with  $\pm 1.6\%$  full scale accuracy. The glycerin filled 2.5" Series SSD gages are designed with 304 stainless steel housings and 316L SS wetted parts for excellent chemical compatibility. Units can withstand temperatures up to 149°F (65°C). A wide selection of ranges are available from full vacuum, compound to 300 psi.

## SPECIFICATIONS

**Service:** Compatible gases and liquids.

**Wetted Materials:** 316L SS.

**Fill Solution:** Glycerin.

**Housing:** 304 SS.

**Accuracy:**  $\pm 1.6\%$  full scale.

**Pressure Limit:** 130% full scale.

**Temperature Limit:** 60 to 149°F (15 to 65°C).

**Size:** 2.5" (63 mm).

**Process Connection:** 1.5" Tri-Clover. Optional 2" Tri-Clover.

**Enclosure Rating:** NEMA 3 (IP55).

**Weight:** 15.6 oz (.442 kg).

## APPLICATIONS

Food and Beverage, Pharmaceutical, Cryogenics.

## MODELS

Model Number	Ranges	Model Number	Ranges
SSD-D0121S	0-30" Hg (-100-0 kPa)	SSD-D2121S	30" Hg-0-15 psi (-100-0-100 kPa)
SSD-D0221S	0-15 psi (0-100 kPa)	SSD-D2221S	30" Hg-0-30 psi (-100-0-200 kPa)
SSD-D0321S	0-30 psi (0-200 kPa)	SSD-D2321S	30" Hg-0-60 psi (-100-0-400 kPa)
SSD-D0421S	0-60 psi (0-400 kPa)	SSD-D2421S	30" Hg-0-100 psi (-100-0-700 kPa)
SSD-D0521S	0-100 psi (0-700 kPa)	SSD-D2521S	30" Hg-0-150 psi (-0.1-0-1 MPa)
SSD-D0621S	0-150 psi (0-1 MPa)	SSD-D2621S	30" Hg-0-200 psi (-0.1-0-1.4 MPa)
SSD-D0721S	0-200 psi (0-1.4 MPa)	SSD-D2721S	30" Hg-0-300 psi (-0.1-0-2 MPa)
SSD-D0821S	0-300 psi (0-2 MPa)		

**Note:** For 2" Tri-Clover Connection, change end of model number from 1S to 2S.

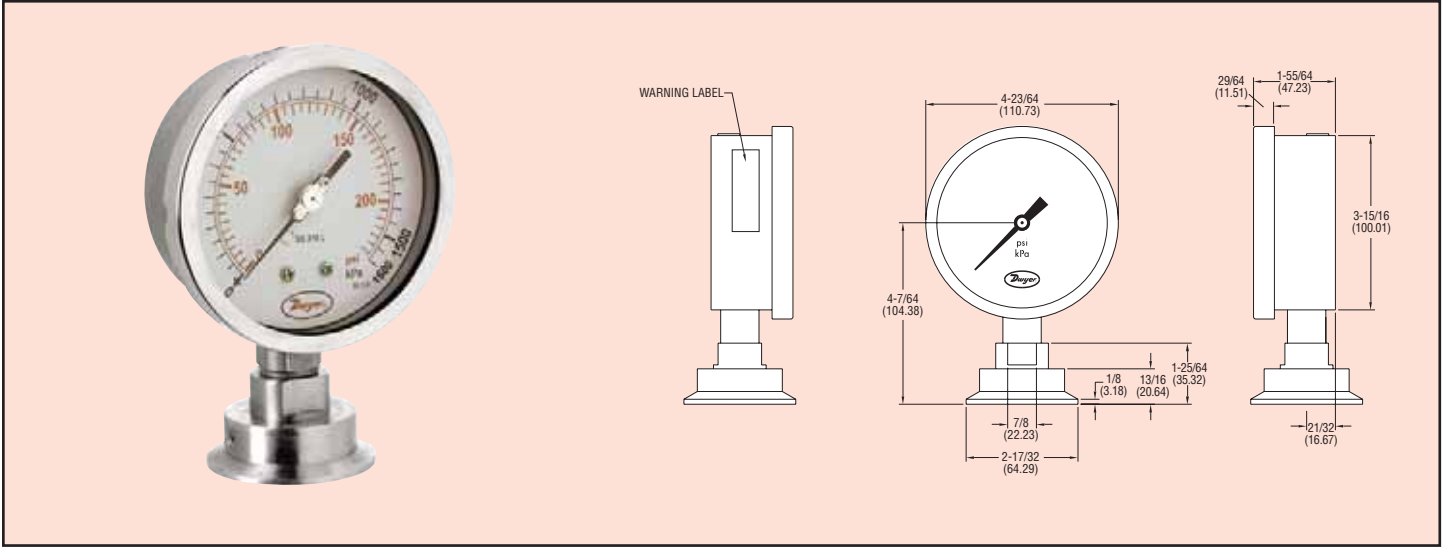




Series  
SSL

# 4" Stainless Steel Gage with Tri-Clover Connection

1% Grade A Accuracy, Glycerin Filled



The Series SSL Gages with flush 1.5" Tri-Clover connections have dual English/metric scales with  $\pm 1\%$  full scale accuracy. The glycerin filled 4" Series SSL gages are designed with 304 SS housings and 316L SS wetted parts for excellent chemical compatibility. Units can withstand temperatures up to 149°F (65°C). A wide offering of ranges are available from full vacuum, compound to 300 psi.

### SPECIFICATIONS

- Service:** Compatible gases and liquids.
- Wetted Materials:** 316L SS.
- Fill Solution:** Glycerin.
- Housing:** 304 SS.
- Accuracy:**  $\pm 1\%$  full scale.
- Pressure Limit:** 130% full scale.
- Temperature Limit:** 60 to 149°F (15 to 65°C).
- Size:** 4" (100 mm).
- Process Connection:** 1.5" Tri-Clover. Optional 2" Tri-Clover.
- Enclosure Rating:** NEMA 3 (IP55).
- Weight:** 2.3 lb (1.04 kg).

### APPLICATIONS

Food & Beverage, Pharmaceutical, Cryogenics.

### MODELS

Model Number	Ranges	Model Number	Ranges
SSL-F0121S	0-30" Hg (-100-0 kPa)	SSL-F2121S	30" Hg-0-15 psi (-100-0-100 kPa)
SSL-F0221S	0-15 psi (0-100 kPa)	SSL-F2221S	30" Hg-0-30 psi (-100-0-200 kPa)
SSL-F0321S	0-30 psi (0-200 kPa)	SSL-F2321S	30" Hg-0-60 psi (-100-0-400 kPa)
SSL-F0421S	0-60 psi (0-400 kPa)	SSL-F2421S	30" Hg-0-100 psi (-100-0-700 kPa)
SSL-F0521S	0-100 psi (0-700 kPa)	SSL-F2521S	30" Hg-0-150 psi (-0.1-0-1 MPa)
SSL-F0621S	0-150 psi (0-1 MPa)	SSL-F2621S	30" Hg-0-200 psi (-0.1-0-1.4 MPa)
SSL-F0721S	0-200 psi (0-1.4 MPa)	SSL-F2721S	30" Hg-0-300 psi (-0.1-0-2 MPa)
SSL-F0821S	0-300 psi (0-2 MPa)		

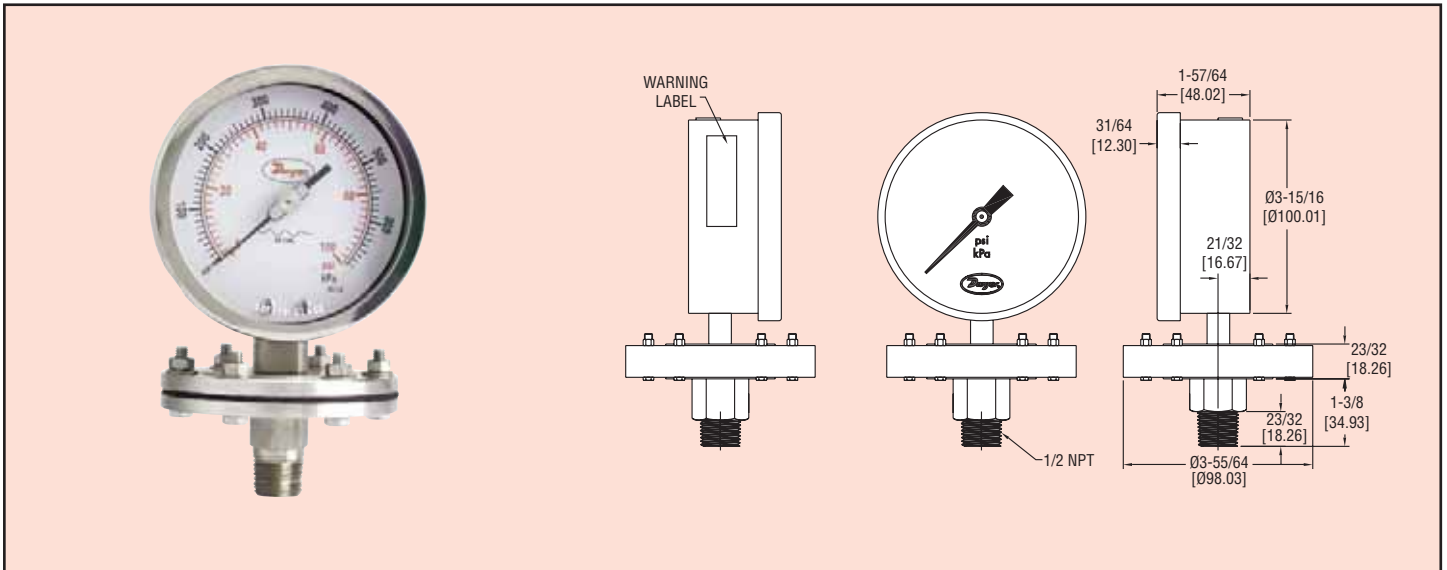
**Note:** For 2" Tri-Clover Connection, change end of model number from 1S to 2S.



Series SGO

# 4" Stainless Steel Schaeffer Gage

1.6% Full Scale Accuracy, 316L SS & PTFE Wetted Parts



The Series SGO Gages have dual English/metric scales with  $\pm 1.6\%$  full scale accuracy. The Series SGO gages are designed with 304 SS housing, a 316L SS chamber and PTFE coated diaphragm for excellent chemical compatibility. Units can withstand ambient temperatures up to 149°F (65°C) and process temperatures up to 248°F (120°C). Ranges are available from full vacuum, compound to 300 psi.

### SPECIFICATIONS

- Service:** Compatible gases & liquids.
- Wetted Materials:** 316L SS chamber with PTFE protected steel diaphragm.
- Housing:** 304 SS.
- Accuracy:**  $\pm 1.6\%$  full scale.
- Pressure Limit:** 130% full scale.
- Temperature Limits:**
  - Ambient: -13 to 149°F (-25 to 65°C);
  - Process: 248°F max. (120°C max.).
- Size:** 4" (100 mm).
- Process Connections:** 1/2" male NPT.
- Enclosure Rating:** NEMA 3 (IP55).
- Weight:** 3.0 lb (1.34 kg).

### APPLICATIONS

Chemical, Refinery, Fertilizer, Petrochemical, Power, Pharmaceutical, Pulp and Paper, and Cement.

### MODELS

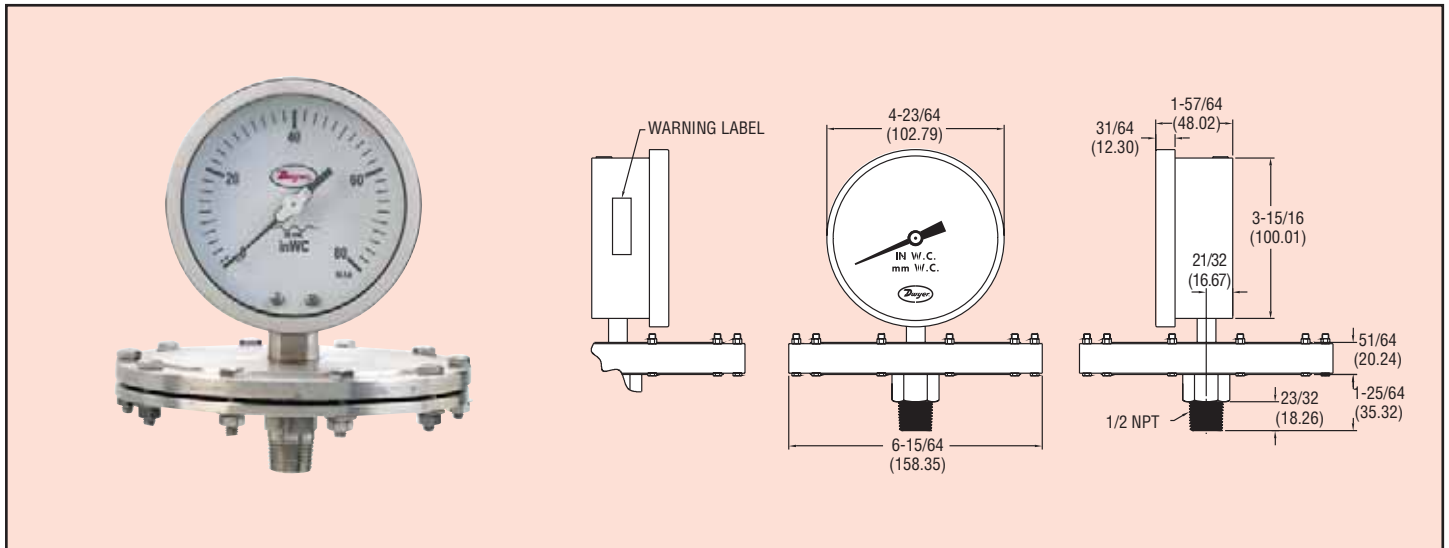
Model Number	Ranges	Model Number	Ranges
SGO-F0124N	0-30" Hg (-100-0 kPa)	SGO-F2124N	30" Hg-0-15 psi (-100-0-100 kPa)
SGO-F0224N	0-15 psi (0-100 kPa)	SGO-F2224N	30" Hg-0-30 psi (-100-0-200 kPa)
SGO-F0324N	0-30 psi (0-200 kPa)	SGO-F2324N	30" Hg-0-60 psi (-100-0-400 kPa)
SGO-F0424N	0-60 psi (0-400 kPa)	SGO-F2424N	30" Hg-0-100 psi (-100-0-700 kPa)
SGO-F0524N	0-100 psi (0-700 kPa)	SGO-F2524N	30" Hg-0-150 psi (-0.1-0-1 MPa)
SGO-F0624N	0-150 psi (0-1 MPa)	SGO-F2624N	30" Hg-0-200 psi (-0.1-0-1.4 MPa)
SGO-F0724N	0-200 psi (0-1.4 MPa)	SGO-F2724N	30" Hg-0-300 psi (-0.1-0-2 MPa)
SGO-F0824N	0-300 psi (0-2 MPa)		



# Series SGP 4" Stainless Steel Low Pressure Schaeffer Gage

1.6% Full Scale Accuracy, 316 & 316L SS Wetted Parts

Pressure



The Series SGP Gages have dual English/metric scales with  $\pm 1.6\%$  full scale accuracy. The Series SGP gages are designed with 304 stainless steel housings, a 316L SS chamber and a 316 SS diaphragm for excellent chemical compatibility. Units can withstand ambient temperatures up to 149°F (65°C) and process temperatures up to 248°F (120°C). Ranges of vacuum, compound and pressures to 235 inches w.c. are available.

### APPLICATIONS

Chemical, Refinery, Fertilizer, Petrochemical, Power, Pharmaceutical, Pulp and Paper, and Cement.

### SPECIFICATIONS

- Service:** Compatible gases and liquids.
- Wetted Materials:** 316L SS chamber with 316 SS diaphragm.
- Housing:** 304 SS.
- Accuracy:**  $\pm 1.6\%$  full scale.
- Pressure Limit:** 130% full scale.
- Temperature Limit:**
  - Ambient: -13 to 149°F (-25 to 65°C).
  - Process: 248°F max. (120°C max.).
- Size:** 4" (100 mm).
- Process Connection:** 1/2" male NPT.
- Enclosure Rating:** NEMA 3 (IP55).
- Weight:** 3.1 lb (1.4 kg).

### MODELS

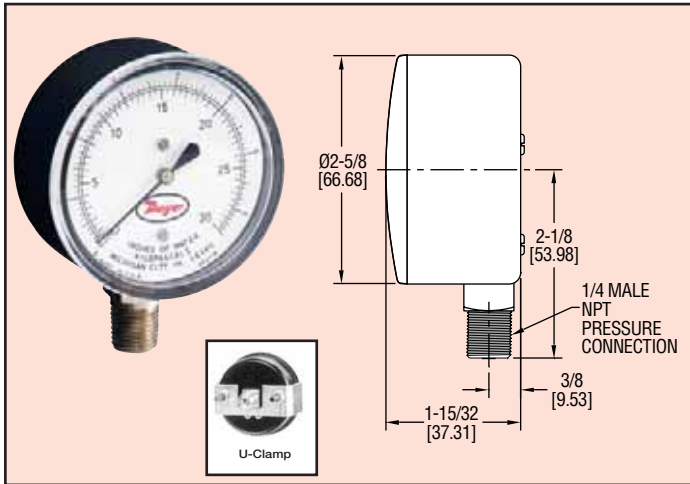
Model Number	Ranges	Model Number	Ranges
SGP-F7124N	-10-0 in. w.c. (-250-0 mm)	SGP-F8624N	0-100 in. w.c. (0-2500 mm)
SGP-F7224N	-15-0 in. w.c. (-400-0 mm)	SGP-F8724N	0-160 in. w.c. (0-4000 mm)
SGP-F7324N	-25-0 in. w.c. (-600-0 mm)	SGP-F8824N	0-235 in. w.c. (0-6000 mm)
SGP-F7424N	-40-0 in. w.c. (-1000-0 mm)	SGP-F8924N	-4-0-6 in. w.c. (-100-0-150 mm)
SGP-F7524N	-60-0 in. w.c. (-1600-0 mm)	SGP-F9024N	-6-0-10 in. w.c. (-150-0-250 mm)
SGP-F7624N	-80-0 in. w.c. (-2000-0 mm)	SGP-F9124N	-8-0-16 in. w.c. (-200-0-400 mm)
SGP-F7724N	-100-0 in. w.c. (-2500-0 mm)	SGP-F9224N	-16-0-24 in. w.c. (-400-0-600 mm)
SGP-F7824N	-160-0 in. w.c. (-4000-0 mm)	SGP-F9324N	-24-0-40 in. w.c. (-600-0-1000 mm)
SGP-F7924N	-235-0 in. w.c. (-6000-0 mm)	SGP-F9424N	-30-0-50 in. w.c. (-800-0-1200 mm)
SGP-F8024N	0-10 in. w.c. (0-250 mm)	SGP-F9524N	-40-0-60 in. w.c. (-1000-0-1500 mm)
SGP-F8124N	0-15 in. w.c. (0-400 mm)	SGP-F9624N	-60-0-100 in. w.c. (-1500-0-2500 mm)
SGP-F8224N	0-25 in. w.c. (0-600 mm)	SGP-F9724N	-80-0-160 in. w.c. (-2000-0-4000 mm)
SGP-F8324N	0-40 in. w.c. (0-1000 mm)		
SGP-F8424N	0-60 in. w.c. (0-1600 mm)		
SGP-F8524N	0-80 in. w.c. (0-2000 mm)		



Series 61000

# Pressure Gages

Exceptional Value in a 2 1/2" Gage



Series 61000 gages feature an extra sensitive bronze diaphragm for ASME Grade A accuracy in ranges to 100 inches w.c. The gage measures pressure of air, natural gas and other compatible gases and liquids.

### SPECIFICATIONS

- Service:** Compatible gases and liquids.
- Wetted Materials:** Phosphor bronze diaphragm, brass and polycarbonate.
- Housing:** Steel with black baked enamel finish.
- Dial/Pointer:** Aluminum.
- Accuracy:** 61000, ASME Grade A — 1% middle half of scale, 2% remainder; 61015 only — 1% middle half of scale, 3% remainder.
- Pressure Limit:** 110% FS.
- Temperature Limits:** -40 to 160°F (-40 to 71°C).
- Size:** 2-1/2".
- Process Connection:** 1/4" male NPT bottom-std. 1/4" male NPT back 61000U.
- Weight:** 6.5 oz (184 g).

### MODELS

Model Number	Range in. w.c.	Range kPa
61015	0-15	0-4
61030	0-30	0-7.5
61060	0-60	0-15
61100	0-100	0-25

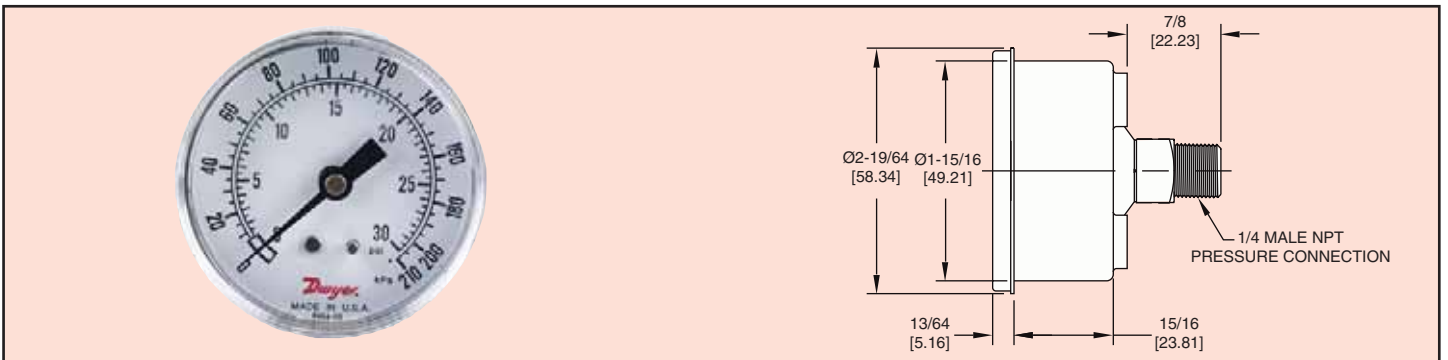
Options — Add options as a suffix. **U**-U-clamp (panel mount)



Series 66000

# Pressure Gage

2" (51 mm) Dual Scale Dial, Center Back Connection, ASME Grade B Accuracy



General purpose Series 66000 Pressure Gages are suitable for use with air, oil, water or compatible gases. The brass internals are housed within a rugged ABS plastic case. The aluminum dial and pointer are protected by an impact resistant polycarbonate window. Accuracy is ±3-2-3% per ASME Grade B. Brass back connection is 1/4" male NPT.

### MODELS

Model Numbers	Range psig	Range kPa
66015	0-15	0-100
66030	0-30	0-200
66060	0-60	0-400
66120	0-120	0-800

### SPECIFICATIONS

- Service:** Clean, noncorrosive liquids or gases.
- Wetted Materials:** Brass.
- Housing:** Black ABS plastic with clear polycarbonate window.
- Dial/Pointer:** 2" (51 mm) aluminum dial with black enameled pointer.
- Accuracy:** ±3-2-3% per ASME Grade B.
- Pressure Limit:** 1.5 x full scale.
- Temperature Limits:** 14 to 176°F (-10 to 80°C).
- Size:** 2".
- Process Connections:** 1/4" male NPT, center back.
- Weight:** 1 lb (0.5 kg).

### APPLICATIONS

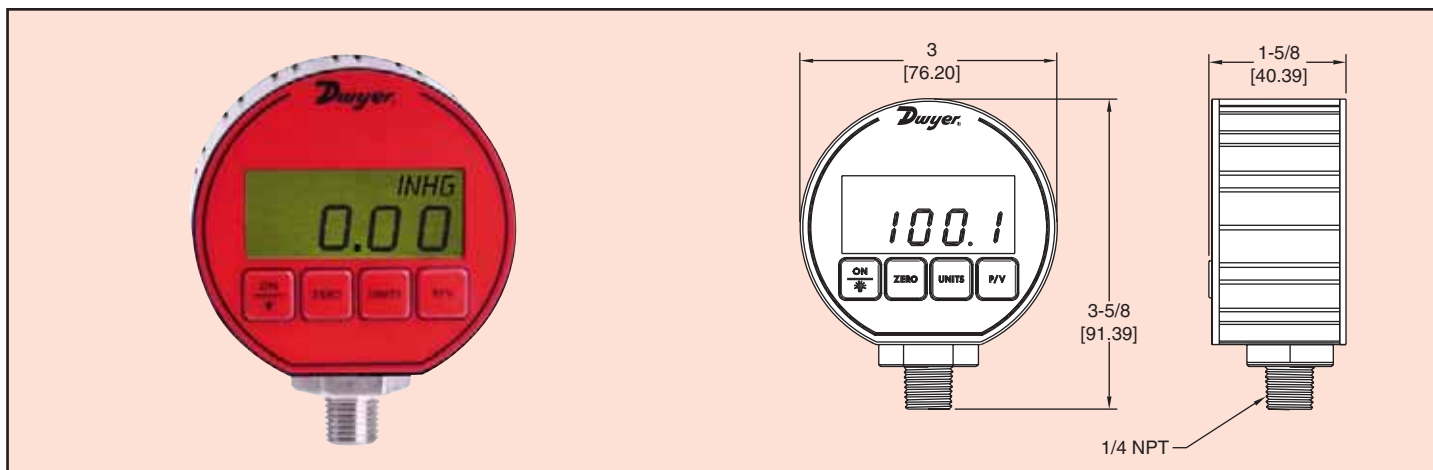
Compressors, water pumps, industrial machinery and regulators.



Series  
DPG-000

# Digital Pressure Gage

± 0.5% Full Scale Accuracy, NEMA 4X Housing



Replace your outdated analog gages with the new **Series DPG-000 Digital Pressure Gage**. The Series DPG-000 possesses a  $\pm 0.5\%$  full scale accuracy sensor. The 4 digit digital display will reduce the potential for errors in readings by eliminating parallax error commonly produced with analog gages.

The Series DPG-000 is battery powered and has an auto-shut off to conserve battery life. Battery life, on average, will last 2000 hours. A 4 button key pad allows easy access to features without the need to work through complex menus or difficult key combinations. These features include backlight, peak and valley, auto zero and conversion of the pressure units.

## APPLICATIONS

- Lab and Research
- Compressors
- Irrigation Equipment
- Analog Gage Calibration

## SPECIFICATIONS

**Service:** Liquids and compatible gases.

**Wetted Materials:** Type 316L SS.

**Housing Materials:** Polycarbonate front & back cover, anodized aluminum extruded housing with recessed grooves, Polycarbonate Overlay, Buna-N O-Rings, 316L SS Sensor Construction.

**Accuracy:** 0.50% F.S. +/- 1 least significant digit 32 to 130°F (0 to 55°C). (Includes linearity, hysteresis, repeatability)  $\pm 2\%$  F.S. @ 10°F.  $\pm 5\%$  F.S. @ 0°F.

**Pressure Limit:** 2x pressure range for models  $\Phi 1000$  psi; 5000 psi for 3000 psi range; 7500 psi for 5000 psi range.

**Enclosure Rating:** Designed to meet NEMA 4/4X (IP65).

**Temperature Limits:** 0 to 130°F (-18 to 55°C).

**Thermal Effect:** Between 70 to 130°F is 0.016%/F.

Between 32 to 70°F is 0.026%/F. Between 10 to 32°F is 0.09%/F.

Between 0 to 10°F is 0.50%/F.

**Size:** 3.00" OD x 1.90 Deep (max).

**Process Connection:** 1/4" male NPT.

**Weight:** 8.84 oz (275 g).

**Display:** 4 digit (.425 H x .234 W digits).

**Power Requirements:** Two AAA batteries.

**Battery Life:** 2000 hours typical; Low battery indicator.

**Auto Shut-Off:**

Gage: 60 minute auto shut off. Auto shut-off may be disengaged.

Backlight: 2 minute auto shut-off.

**Agency Approvals:** CE.

## MODELS

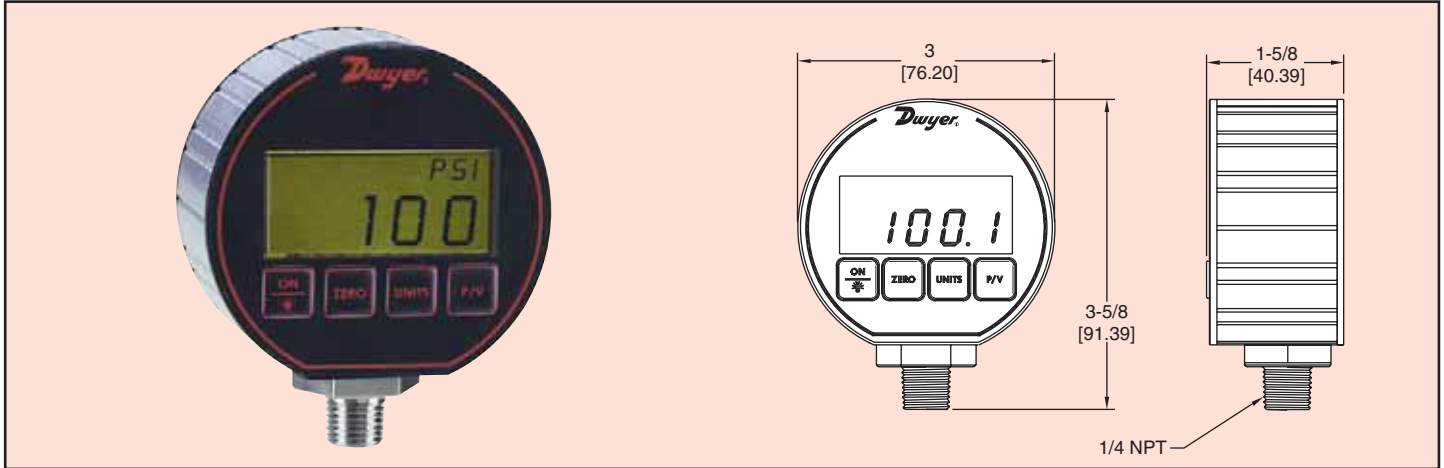
Model Number	Range psi	Pressure Ranges									
		kg/cm <sup>2</sup>	bar	in Hg	ft wc	kPa	oz/in <sup>2</sup>	in wc	mbar	cm wc	mm Hg
DPG-000	-14.70-0	-1.033	-1.013	-29.93	-33.94	-101.4	-235.2	-407.3	-1013	-1034	-760.7
DPG-002	15.00	1.055	1.034	30.54	34.61	103.4	240	415.2	1034	1055	775.7
DPG-003	30.00	2.109	2.069	61.08	69.21	206.9	480	830.4	2069	2109	1551
DPG-004	50.00	3.515	3.448	101.8	115.4	344.8	800	1384	3448	3515	2586
DPG-005	100.0	7.03	6.895	203.6	230.7	689.5	1600	2768	6895	7031	5172
DPG-006	200.0	14.06	13.79	407.2	461.4	1379	3200	5536			
DPG-007	300.0	21.09	20.69	610.8	692.1	2069	4800	8304			
DPG-008	500.0	35.15	34.48	1018	1154	3448	8000				
DPG-009	1000	70.3	68.98	2036	2307	6895					
DPG-010	3000	210.9	206.9	6108	6921						
DPG-011	5000	351.5	344.8								

Compound Range available: DPG-020 Range: 30" Hg-0-15 psi

Series  
DPG-100

# Digital Pressure Gage

± 0.25% Full Scale Accuracy, NEMA 4X Housing



Replace your outdated analog gages with the new **Series DPG-100 Digital Pressure Gage**. The Series DPG-100 has a high  $\pm 0.25\%$  full scale accuracy. The 4 digit digital display will reduce the potential for errors in readings by eliminating parallax error commonly produced with analog gages.

Series DPG-100 is battery powered and has an auto-shut off to conserve battery life. Battery life, on average, will last 2000 hours. A 4 button key pad allows easy access to features without the need to work through complex menus or difficult key combinations. These features include backlight, peak and valley, tare or auto zero and conversion of the pressure units.

## APPLICATIONS

- Lab and Research
- Compressors
- Irrigation Equipment
- Analog Gage Calibration
- Gas Mixing for Scuba Diving

## SPECIFICATIONS

**Service:** Compatible liquids and gases (for FM listing see Agency Approvals below).

**Wetted Materials:** Type 316L SS.

**Housing Materials:** Black Polycarbonate front & back cover, anodized aluminum extruded housing with recessed grooves, Polycarbonate overlay, Buna-N O-rings, 316L SS sensor construction.

**Accuracy:** 0.25% F.S. +/- 1 least significant digit @ 70°F (21°C) (Includes linearity, hysteresis, repeatability).

**Pressure Limit:** 2x pressure range for models  $\Phi 1000$  psi; 5000 psi for 3000 psi range; 7500 psi for 5000 psi range.

**Enclosure Rating:** Designed to meet NEMA 4/4X (IP66).

**Temperature Limits:** 0 to 130°F (-18 to 55°C).

**Thermal Effect:** Between 70 to 130°F is 0.016%/F.

Between 32 to 70°F is 0.026%/F. Between 10 to 32°F is 0.09%/F.

**Size:** 3.00" OD x 1.90 deep (max).

**Process Connection:** 1/4" male NPT.

**Weight:** 8.84 oz (275 g).

**Display:** 4 digit (.425 H x .234 W digits).

**Power Requirements:** Two AAA batteries.

**Battery Life:** 2000 hours typical; Low battery indicator.

### Auto Shut-Off:

Gage: 60 minute auto shut off. Auto shut-off may be disengaged.

Backlight: 2 minute auto shut-off.

**Agency Approvals:** CE, FM approved to be intrinsically safe for Class I, Division I, Groups A, B, C and D, for ranges 0-15 to 0-3000 psi.

## MODELS

Model Number	Range psi	Pressure Ranges									
		kg/cm <sup>2</sup>	bar	in Hg	ft wc	kPa	oz/in <sup>2</sup>	in wc	mbar	cm wc	mm Hg
DPG-100*	-14.70-0	-1.033	-1.013	-29.93	-33.94	-101.4	-235.2	-407.3	-1013	-1034	-760.7
DPG-102	15.00	1.055	1.034	30.54	34.61	103.4	240	415.2	1034	1055	775.7
DPG-103	30.00	2.109	2.069	61.08	69.21	206.9	480	830.4	2069	2109	1551
DPG-104	50.00	3.515	3.448	101.8	115.4	344.8	800	1384	3448	3515	2586
DPG-105	100.0	7.03	6.895	203.6	230.7	689.5	1600	2768	6895	7031	5172
DPG-106	200.0	14.06	13.79	407.2	461.4	1379	3200	5536			
DPG-107	300.0	21.09	20.69	610.8	692.1	2069	4800	8304			
DPG-108	500.0	35.15	34.48	1018	1154	3448	8000				
DPG-109	1000	70.3	68.98	2036	2307	6895					
DPG-110	3000	210.9	206.9	6108	6921						
DPG-111*	5000	351.5	344.8								

Compound Ranges Available: DPG-120\* Range: 30" Hg-0-15 psi; DPG-121\* Range: 30" Hg-0-30 psi; DPG-122\* Range: 30" Hg-0-45 psi; DPG-123\*: Range 30" Hg-0-60 psi; DPG-124\*: 30" Hg-0-100 psi.

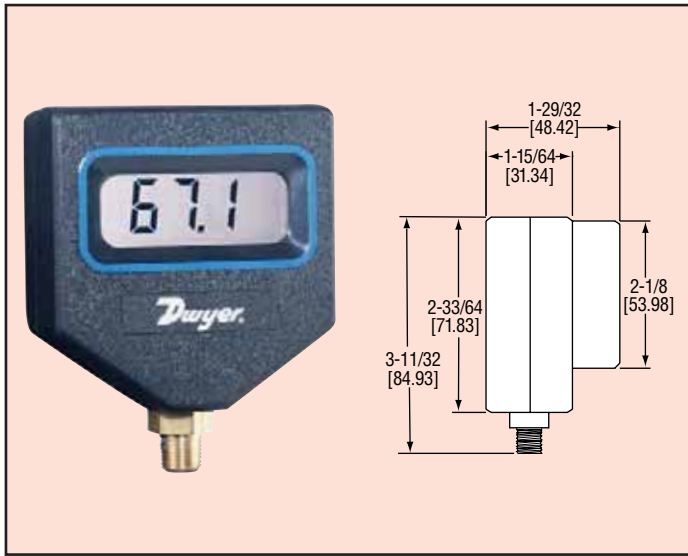
\* Models DPG-100, DPG-11, DPG-120, DPG-121, DPG-122, DPG-123 and DPG-124 are not FM approved.



Series  
67000

# Digital Pressure Gages

Low Cost,  $\pm 2\%$  Accuracy



The Series 67000 Digital Pressure Gages are an ideal alternative to mechanical gages. Gages feature low battery indication and manual zero adjustment for easy recalibration.

## SPECIFICATIONS

**Service:** Clean, noncorrosive liquids or gases.

**Wetted Materials:** Brass.

**Accuracy:**  $\pm 2\%$  of reading.

**Pressure Limits:** 700 psi.

**Temperature Limits:** 30 to 120°F (-1 to 49°C).

**Process Connection:** 1/8" male NPT, brass.

**Display:** 3-digit LCD, 2" H.

**Power:** One 9V alkaline battery (included).

**Weight:** 5.7 oz (0.16 kg).

**Agency Approvals:** CE.

## MODELS

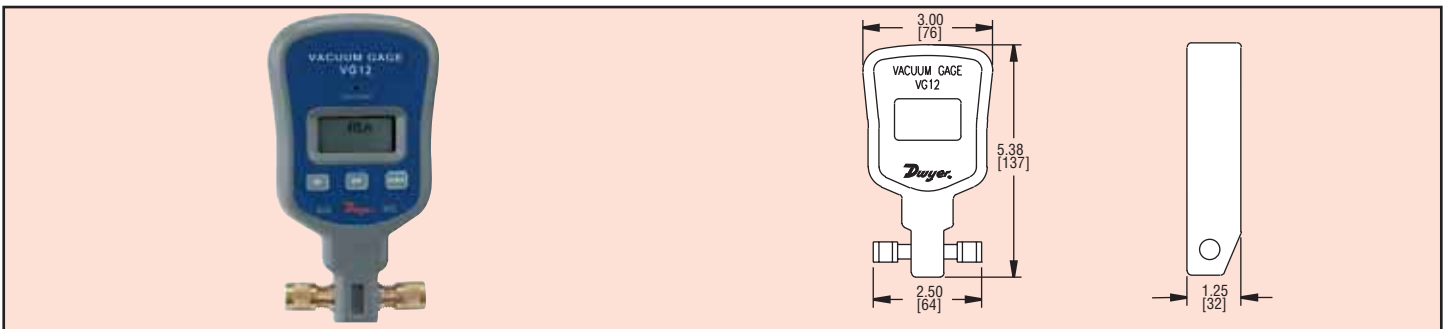
MODEL NUMBER	RANGE	RESOLUTION
67100	0 to 29.9" Hg (vac) 0 to 99.9 psig	0.1" Hg 0.1 psig
67500	0 to 500 psig	1 psig



Series  
VG

# Digital Vacuum Gage

Displays in 7 Different Engineering Units, Alpha Numeric Display



Suitable for field or laboratory use, the Series VG Digital Vacuum Gage delivers high precision at a low price. It can accurately read vacuum from 12,000 microns down to 0 and has a wide temperature range. The large LCD can be displayed in user selectable units, milliTorrs, Torr, psi, milliBars, microns, Inches of Hg and Pascals. The gage features a cleanable sensor, auto shut off, a built-in hanger and operates on a standard 9 volt battery.

**Model VG12** Digital Vacuum Gage

## SPECIFICATIONS

**Service:** Clean, non-corrosive liquids or gases.

**Wetted Materials:** Brass.

**Housing:** ABS plastic.

**Vacuum Range:** 0-12,000 microns, (0-1600 Pascals) with vacuum increasing/decreasing indicating when above 12,000 microns.

**Accuracy:**  $\pm 10\%$  of FS.

**Pressure Limits:** 500 psi max. (34 bar).

**Temperature Limits:** 35 to 125°F (1.7 to 51°C).

**Process Connection:** Standard 1/4" flare fitting.

**Power Supply:** Standard 9 volt battery (not included).

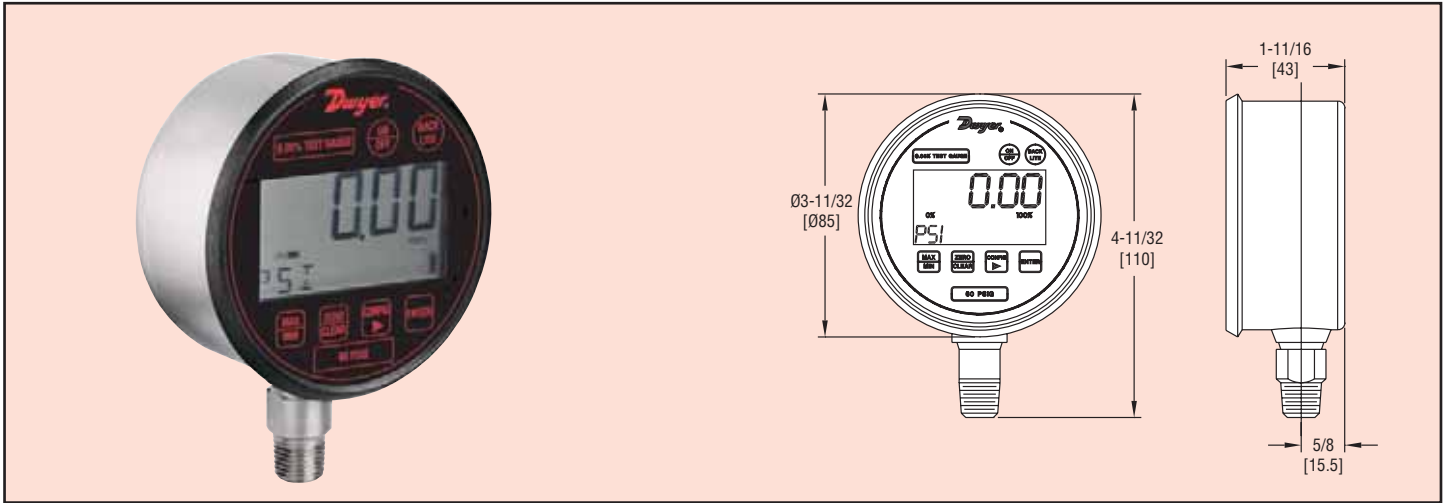
**Auto Shut-off:** After 10 minutes when vacuum is reading above 12,000 microns.

**Weight:** 6.7 oz (0.19 kg).

Series  
DCG

# Digital Calibration Gage

±0.05% Full Scale Accuracy, 316 SS Wetted Parts



The Series DCG Digital Calibration Gage features a remarkable 0.05% full scale accuracy that includes the effects of linearity, hysteresis, repeatability, and temperature across the entire compensated temperature range. This gage was specifically designed to be a portable test gage where its unmatched accuracy is required. This is a highly durable gage that is housed in a rugged and compact 3 inch stainless steel case.

This highly accurate test gage offers menu configurable and password protected features that include engineering unit conversion, seven selectable languages, field calibration capabilities, as well as an adjustable bar graph and update/dampening rates.

## SPECIFICATIONS

**Service:** Compatible, non-combustible liquids & gases.

**Wetted Materials:** 316 SS.

**Housing Materials:** 300 Series SS.

**Accuracy:** 0.05% full scale including linearity, hysteresis, repeatability, and thermal effects across entire compensated temperature range.

**Pressure Limit:** 2 x full scale range.

**Temperature Limits:** 0 to 150°F (-18 to 66°C).

**Compensated Temperature Range:** 0 to 150°F (-18 to 66°C).

**Size:** 3.00" OD x 1.70" Deep.

**Process Connection:** 1/4" male NPT.

**Enclosure Rating:** NEMA 4 (IP65).

**Display:** 4-1/2 digit (0.66" high).

**Power Requirements:** Three AAA batteries.

**Battery Life:** >1000 hours.

**Auto Shut-off:** Gage: On/off, 2 min., 5 min., 15 min., 30 min.;

Backlight: On/off, 10 sec., 30 sec., 1 min., 5 min.

**Weight:** 8 oz (.23 kg).

**Agency Approvals:** CE.

## MODELS

Model Number	Range	Model Number	Range
DCG-100	30" Hg-0 psig	DCG-111	0-300 psig
DCG-101	30" Hg-0-15 psig	DCG-112	0-500 psig
DCG-102	30" Hg-0-30 psig	DCG-113	0-600 psig
DCG-103	0-5 psig	DCG-114	0-800 psig
DCG-104	0-10 psig	DCG-115	0-1000 psig
DCG-105	0-15 psig	DCG-116	0-1500 psig
DCG-106	0-30 psig	DCG-117	0-2000 psig
DCG-107	0-60 psig	DCG-118	0-2500 psig
DCG-108	0-100 psig	DCG-119	0-3000 psig
DCG-109	0-160 psig	DCG-120	0-5000 psig
DCG-110	0-200 psig	DCG-121	0-7000 psig

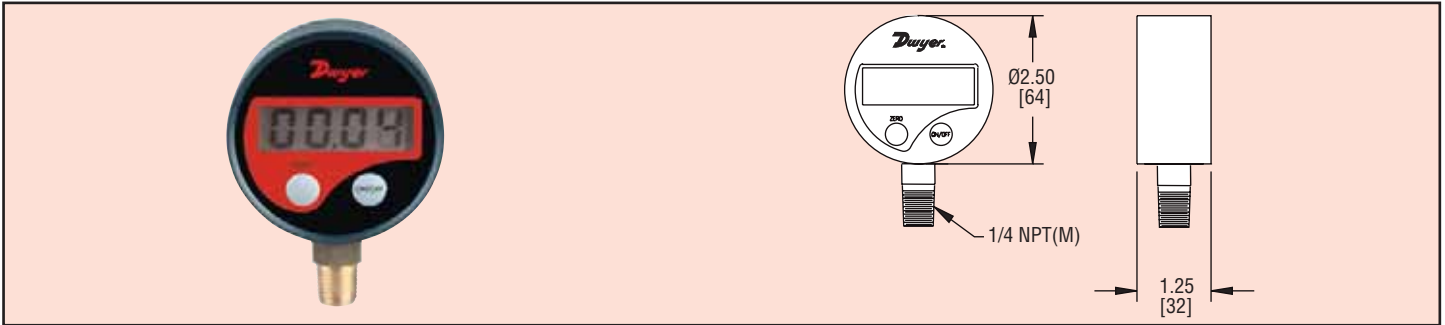




Series  
68000

# Digital Pressure Gage

Large Easy-To-Read 4-Digit LCD, 1% F.S. Accuracy, Push Button Zero



**Eliminate the guess work** in taking readings from an analog pressure gage with Series 68000 Digital Pressure Gage. Pressure readings are displayed continuously for three minutes before auto shut-off to conserve battery life. The large 4-digit LCD can be re-zeroed by a push button. Series 68000 incorporates a micromachined silicone sensor with no moving parts to ensure long life. The gage operates on one 9V battery to ensure long life.

### MODELS

Model Number	Range	Resolution
68030V	0 to 30" Hg Vac	0.1" Hg
68030	0 to 30 psi	0.02 psi
68100	0 to 100 psi	0.1 psi
68300	0 to 300 psi	0.2 psi

### SPECIFICATIONS

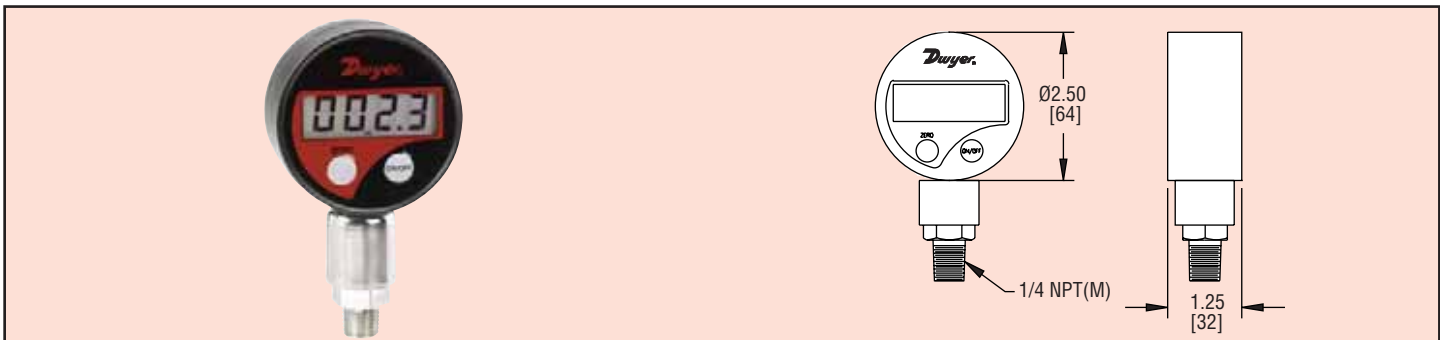
- Service:** Compatible with clean dry air and non-corrosive gases.
- Wetted Materials:** Silicone sensor, Brass connection.
- Housing:** ABS plastic.
- Accuracy:** 1.0% full scale.
- Pressure Limits:** 200% of full scale.
- Temperature Limits:** 30 to 120°F (-1 to 48.9°C).
- Size:** 2-1/2" diameter.
- Process Connection:** 1/4" male NPT.
- Power Supply:** One 9V battery.
- Battery Life:** Approximately 2-1/2 years.
- Weight:** 4.5 oz (128 g).
- Agency Approvals:** CE.



Series  
69000

# Pressure Gage

For Corrosive Fluids, Stainless Steel Wetted Parts, 1% FS Accuracy



**Take pressure measurements** at the touch of a button with Series 69000 Digital Pressure Gage. Series 69000 utilizes a thin film pressure sensor and is constructed with stainless steel wetted parts for compatibility with most corrosive fluids. The gage displays pressure measurements on a large 4-digit display with a 1% full scale accuracy. These digital gages feature push button zero and auto shut-off after 3 minutes of continuous display.

### MODELS

Model Number	Range	Resolution
69010	0 to 100 psi	0.1 psi
69020	0 to 200 psi	0.1 psi
69050	0 to 500 psi	0.2 psi
69100	0 to 1000 psi	1 psi
69300	0 to 3000 psi	1 psi
69500	0 to 5000 psi	1 psi

### SPECIFICATIONS

- Service:** Fluids compatible with 316 SS.
- Wetted Materials:** Stainless steel.
- Housing:** ABS plastic.
- Accuracy:** 1.0% full scale.
- Pressure Limits:** 150% of full scale or 6000 psi whichever is lower.
- Temperature Limits:** 30 to 120°F (-1 to 48.9°C).
- Size:** 2-1/2" diameter.
- Process Connection:** 1/4" male NPT.
- Power Supply:** One 9V battery.
- Battery Life:** Approximately 2-1/2 years.
- Weight:** 4.5 oz (128 g).



# Spirahelic® Direct Drive Pressure Gages

## Tired of replacing your pressure gages? That's why you need Spirahelic® Direct Drive Pressure Gages!



Available in 4-1/2" Turret Mount and 4-1/2", 6", and 8-1/2" Panel Mount Housings

Not just another pretty gage, the Series 7000 Spirahelic® Direct Drive Pressure Gages were originally developed in response to military needs for unbelievable resistance to shock and vibration while delivering premium accuracy.

The Dwyer Spirahelic® features a triple coil spiral/helical wound Bourdon tube which provides the ultimate in operator safety, while continuing to incorporate the advantages of a low inertia movement without gears or linkages. This low inertia movement is provided by the unique Bourdon tube design. The direct drive helical coil eliminates complex mechanical movements such as gears that are common in conventional "C" Bourdon tube gages, which wear and cause inaccuracy or early failure. Expensive and leaky liquid filled gages are no longer necessary due to the triple wound Bourdon design which withstands shock and vibration.

The direct drive movement of the lightweight, precision balanced pointer reduces friction and mass, improving responsiveness and accuracy. So well in fact that on ASME Grade 2A or 3A models the accuracy is built-in for life! Center post bearing carrier ensures precise bearing alignment for nearly friction free operation. Low volume Bourdon tube reduces fluid volume and stored energy, reducing potential for damage if tube ruptures from overpressure or other causes. A large area filter keeps dirt out and restricts flow from damaging the Bourdon tube. The small diameter tubing combined with a solid front case and rear blowout plug provides added safety.

Convenience is enhanced by dual bottom and back process connections on panel mount models while turret housing gages possess a dual 1/4" female NPT and 1/2" male NPT bottom connection. Impact resistant plastic case is sized to conform to ASME B40.1, replacing existing gages without changes in panel cutout or mounting holes. Compound ranges are available in either panel or turret style housings for applications where vacuum is present in the process.

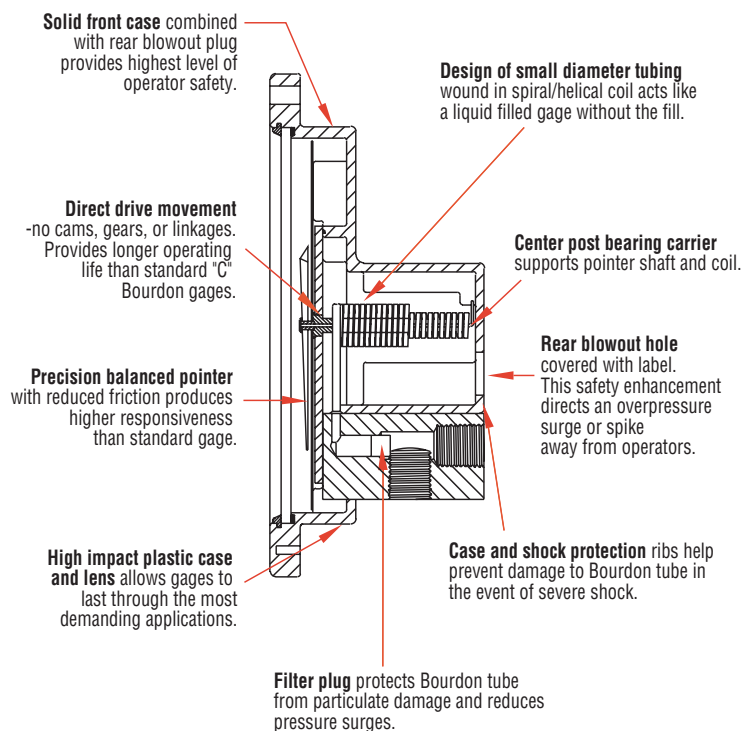
### Designed to exceed industry standards... here's how:

- Acts Like a Liquid-Filled Gage without the Fill.
- Maintenance Free.
- No Recalibration Required.
- Only 1 Moving Part – No Gears or Linkages.
- Not Affected by Pulsations, Vibrations or Shock.
- Longer Service Life.
- Accuracy Built-In for Life!

### Use Spirahelic® Gages for:

- Systems with High Cycle Rates.
- Processes with Problematic Pressure Surges and Spikes.
- Environments with Continuous Vibration or Shock.

### Precision design ensures maintenance-free performance.

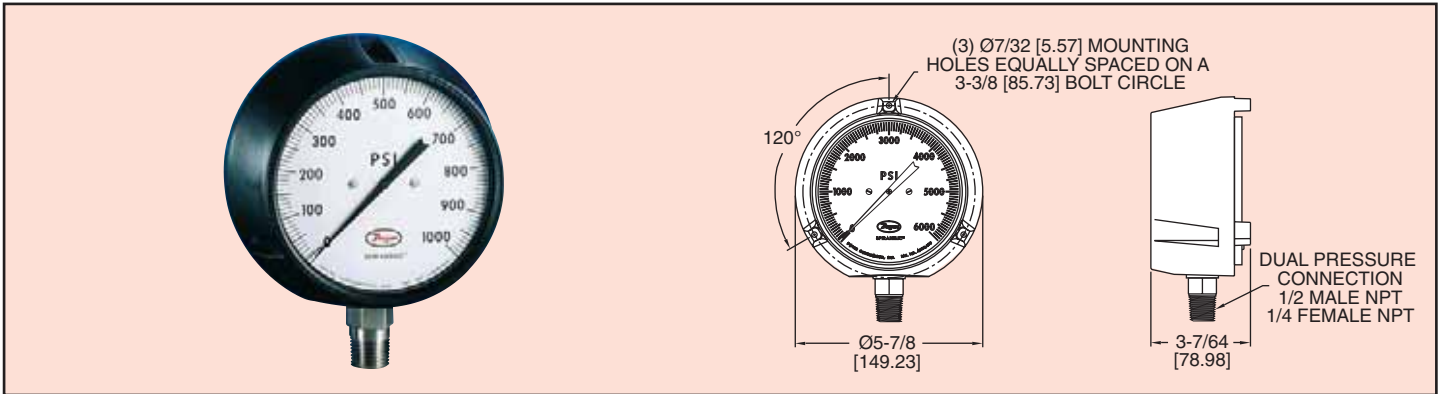


Patent #4,838,090



# Series 7000B Spirahelic® Direct Drive Pressure Gages

4 1/2" Turret Mount Gage, ASME Grades A & 2A



**Series 7000B Spirahelic® Direct Drive Pressure Gages** with turret mount housings feature a triple coil spiral/helical wound Bourdon tube to provide dependable service. Bourdon tube design eliminates gears, springs, linkages and complex movements which can wear and cause inaccuracy or early failure. Series 7000B gages come standard with a dual-size 1/2" male NPT and 1/4" female NPT process connection.

## SPECIFICATIONS

**Service:** Compatible gases & liquids.

**Wetted Materials:** Grade A Accuracy: Beryllium Copper Bourdon tube, nickel plated brass connection block. Grade 2A Accuracy: Inconel® X-750 Bourdon tube, type 316L SS connection block.

**Housing:** Black polycarbonate case and clear acrylic cover.

**Accuracy:** Grade A (2%-1%-2%); Grade 2A (0.5% F.S.).

**Pressure Limit:** 150% of full scale. Gage will maintain its specifications for overpressures up to 150% maximum range. Normal operation should be between 25% and 75% of full scale.

**Temperature Limits:** -65 to 180°F (-53.9 to 82.2°C).

**Size:** 4-1/2" (114.3 mm) dial face – Design conforms to ASME B40.1.

**Process Connections:** Dual size 1/2" male NPT / 1/4" female NPT, bottom connections.

**Weight:** 18.2 oz (516 g).

## MODELS

Grade A Accuracy (2%-1%-2%)	
Model Number	Ranges (psig)
7100B-G060	60
7100B-G100	100
7100B-G200	200
7100B-G300	300
7100B-G600	600
7100B-GC010	1000
7100B-GC020	2000
7100B-GC030	3000
7100B-GC060	6000

## STOCKED MODELS

Grade 2A Accuracy (1/2% of F.S.)	
Model Number	Ranges (psig)
7112B-G030	30
7112B-G060	60
7112B-G100	100
7112B-G160	160
7112B-G200	200
7112B-G300	300
7112B-G600	600
7112B-GC010	1000
7112B-GC020	2000
7112B-GC030	3000
7112B-GC060	6000
7112B-GC100	10000

## ACCESSORY

**A-170,** 316 Stainless Steel Pigtail Siphon 1/4" male NPT

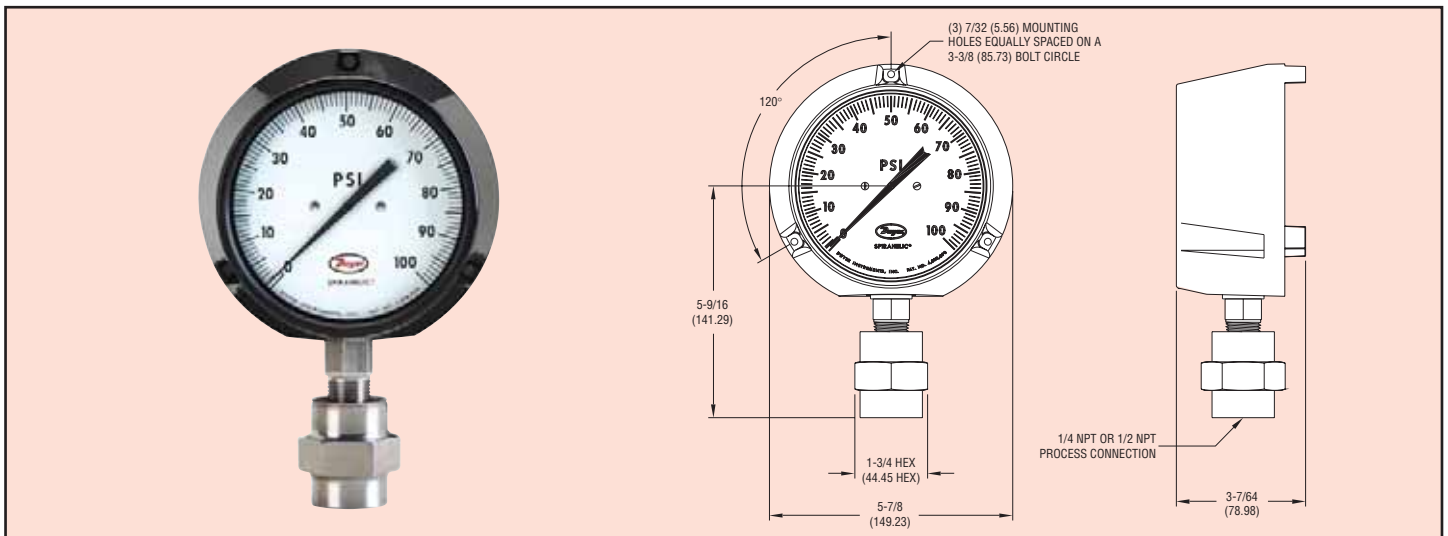
## MODELS

Compound Gages - Grade 2A Accuracy (1/2% of F.S.)	
Model Number	Ranges (psig)
7112B-G030C	30" Hg-0-30
7112B-G045C	30" Hg-0-45
7112B-G060C	30" Hg-0-60
7112B-G100C	30" Hg-0-100

Series  
7112B

# Spirahelic® Pressure Gages with Diaphragm Seals

## All 316L SS with ASME Grade 2A Gage



The Spirahelic® Direct Drive Pressure Gage is now available with a 316L SS diaphragm. Due to the small volume of the triple wound Bourdon tube inside the Spirahelic®, a much smaller diaphragm seal may be selected versus a standard “C” Bourdon tube gage. This smaller seal is extremely compact, light weight, and durable which eliminates difficult installation issues with bulky diaphragm seals. These seals are also offered with an optional 1/4” NPT flush port which makes clean outs quick and easy.

### MODELS

Model Number	Ranges (psig)
7112B-G030-S150	30
7112B-G060-S150	60
7112B-G100-S150	100
7112B-G200-S150	200
7112B-G300-S150	300
7112B-G600-S150	600
7112B-GC010-S150	1000

### 1/4” NPT FLUSH PORT MODELS

Model Number	Ranges (psig)
7112B-G030-S250	30
7112B-G060-S250	60
7112B-G100-S250	100
7112B-G200-S250	200
7112B-G300-S250	300
7112B-G600-S250	600
7112B-GC010-S250	1000

Note: For other process connections and wetted materials contact the factory.

### SPECIFICATIONS

#### GAGE SPECIFICATIONS

**Service:** Compatible gases & liquids.

**Wetted Materials:** Beryllium Copper Bourdon tube with nickel plated brass connection block.

**Housing:** Black polycarbonate case and clear acrylic cover.

**Accuracy:** Grade 2A (0.5% full scale).

**Pressure Limit:** 150% of full scale. Normal operation should be between 25% and 75% of full scale.

**Temperature Limits:** -65 to 180°F (-53.9 to 82.2°C).

**Size:** 4-1/2” (114.3 mm) dial face – Design conforms to ASME B40.1.

**Process Connections:** Dual size 1/2” male NPT x 1/4” female NPT, bottom connections.

**Weight:** 18.2 oz (516 g).

#### DIAPHRAGM SEAL SPECIFICATIONS

**Wetted Materials:** 316L SS.

**Temperature Limits:** -65 to 180°F (-53.9 to 82.2°C).

**Pressure Limits:** 2500 psig (172.4 bar).

**Fill Fluid:** Silicone.

**Process Connection:** 1/2” female NPT.

**Weight:** 3 lb (1 oz).



Series  
7000

# Spirahelic® Direct Drive Pressure Gages

Panel Mount, 4½", 6" & 8½" Dials, ASME Grades 2A



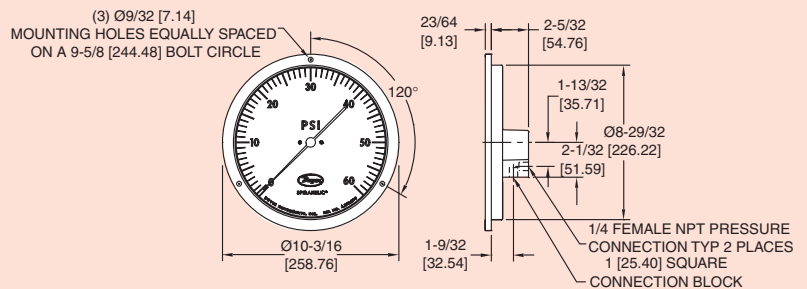
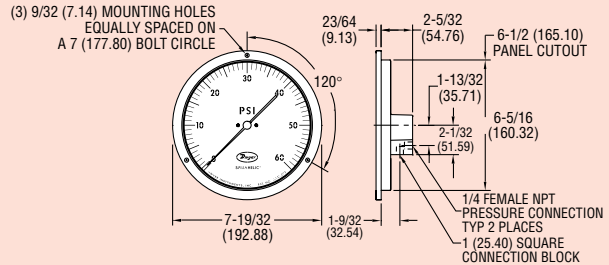
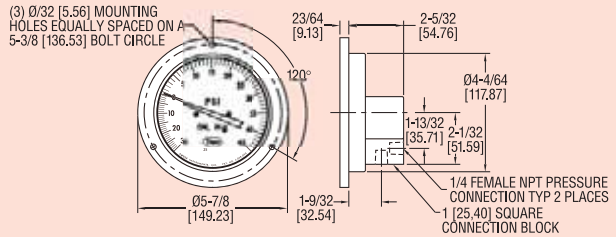
**Model 7112**  
4-1/2" Dial,  
Grade 2A  
Accuracy



**Model 7212**  
6" Dial,  
Grade 2A  
Accuracy



**Model 7312**  
8-1/2" Dial,  
Grade 2A  
Accuracy



## MODELS

4½" Dial, Grade 2A Accuracy (½% of F.S.)					
Model No.	Ranges (psig)		Model No.	Ranges (psig)	
7112-G030	30		7112-G600	600	
7112-G060	60		7112-GC010	1000	
7112-G100	100		7112-GC020	2000	
7112-G200	200		7112-GC030	3000	
7112-G300	300		7112-GC060	6000	
			7112-GC100	10000	
6" Dial, Grade 2A Accuracy (½% of F.S.)					
Model No.	Ranges (psig)	Price	Model No.	Ranges (psig)	Price
7212-G060	60		7212-GC010	1000	
7212-G100	100		7212-GC020	2000	
7212-G200	200		7212-GC030	3000	
7212-G300	300		7212-GC060	6000	
7212-G600	600				
8½" Dial, Grade 2A Accuracy (½% of F.S.)					
Model No.	Ranges (psig)	Price	Model No.	Ranges (psig)	Price
7312-G060	60		7312-GC010	1000	
7312-G100	100		7312-GC020	2000	
7312-G200	200		7312-GC030	3000	
7312-G300	300		7312-GC060	6000	
7312-G600	600				

## SPECIFICATIONS

**Service:** Compatible gases & liquids.

**Wetted Materials:** Inconel® X-750 Bourdon tube, type 316L SS connection block.

**Housing:** Black polycarbonate case and clear acrylic cover.

**Accuracy:** Grade 2A (0.5% F.S.).

**Pressure Limit:** 150% of full scale. Gage will maintain its specifications for overpressures up to 150% maximum range. Normal operation should be between 25% and 75% of full scale.

## Accessories

**A-341:** Brass Adapter, ¼" male NPT to G ½ A (per ISO 228/1) parallel thread 2-1/2" length

**A-341-1:** Brass Adapter, ½" male NPT x ¼" female NPT 3-3/4" length

**NOTE:** Additional ranges and accuracy requirements are available. Please consult the factory for details.

**Temperature Limits:** -65 to 180°F (-53.9 to 82.2°C).

**Sizes:** 4-1/2" dial face (114.3 mm), 6" dial face (152.4 mm), 8-1/2" dial face (215.9 mm), Design conforms to ASME B40.1.

**Process Connections:** Two ¼" female NPT field selectable back or bottom connection.

**Weight:** 4-1/2" dial face: 16.3 oz (462.1 g); 6" dial face: 19.6 oz. (555.6 g); 8-1/2" dial face: 27.3 oz (773.9 g).

**Standard Accessory:** One ¼" male NPT stainless steel plug.



Series 7000

# Spirahelic® Direct Drive Pressure Gages

Panel Mount, 4½", 6" & 8½" Dials, ASME Grades 3A



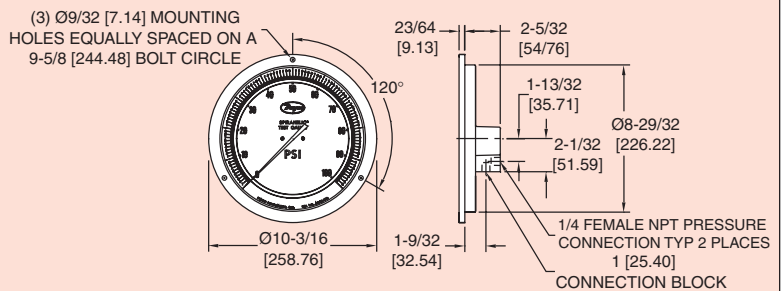
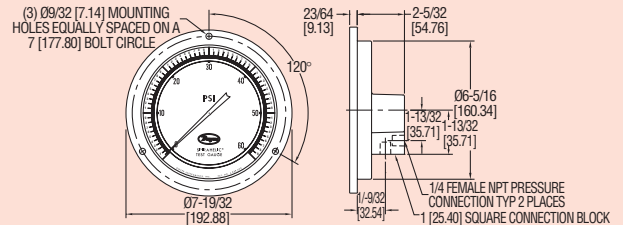
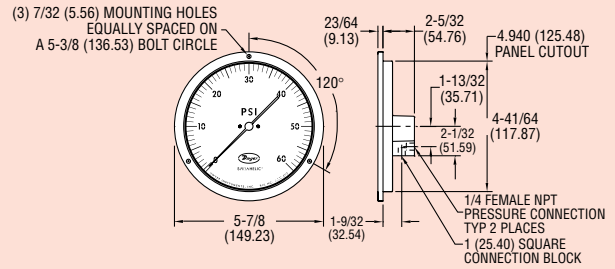
**Model 7114A**  
4-1/2" Dial,  
Grade 3A  
Accuracy



**Model 7214A**  
6" Dial,  
Grade 3A  
Accuracy



**Model 7314A**  
8-1/2" Dial,  
Grade 3A  
Accuracy



## MODELS

4½" Dial, Grade 3A Accuracy (¼% of F.S.) with Mirrored Scale					
Model No. (psig)	Ranges		Model No.	Ranges (psig)	
7114A-G060	60		7114A-GC010	1000	
7114A-G100	100		7114A-GC020	2000	
7114A-G200	200		7114A-GC030	3000	
7114A-G300	300		7114A-GC060	6000	
7114A-G600	600				

6" Dial, Grade 3A Accuracy (¼% of F.S.) with Mirrored Scale					
Model No.	Ranges (psig)		Model No.	Ranges (psig)	
7214A-G060	60		7214A-GC010	1000	
7214A-G100	100		7214A-GC020	2000	
7214A-G200	200		7214A-GC030	3000	
7214A-G300	300		7214A-GC060	6000	
7214A-G600	600				

8½" Dial, Grade 3A Accuracy (¼% of F.S.) with Mirrored Scale					
Model No.	Ranges (psig)		Model No.	Ranges (psig)	
7314A-G060	60		7314A-GC010	1000	
7314A-G100	100		7314A-GC020	2000	
7314A-G200	200		7314A-GC030	3000	
7314A-G300	300		7314A-GC060	6000	
7314A-G600	600				

## SPECIFICATIONS

**Service:** Compatible gases & liquids.

**Wetted Materials:** Inconel® X-750 Bourdon tube, type 316L SS connection block.

**Housing:** Black polycarbonate case and clear acrylic cover.

**Accuracy:** Grade 3A (0.25% F.S.) with mirrored scale.

**Pressure Limit:** 150% of full scale. Gage will maintain its specifications for overpressures up to 150% maximum range. Normal operation should be between 25% and 75% of full scale.

**Temperature Limits:** -65 to 180°F (-53.9 to 82.2°C).

**Sizes:** 4-1/2" dial face (114.3 mm), 6" dial face (152.4 mm), 8-1/2" dial face (215.9 mm). Design conforms to ASME B40.1.

**Process Connections:** Two 1/4" female NPT field selectable back or bottom connection.

**Weight:** 4-1/2" dial face: 16.3 oz (462.1 g); 6" dial face: 19.6 oz (555.6 g); 8-1/2" dial face: 27.3 oz (773.9 g).

**Standard Accessory:** One 1/4" male NPT stainless steel plug.

## Accessories

**A-341:** Brass Adapter, ¼" male NPT to G ½ A (per ISO 228/1) parallel thread 2-1/2" length

**A-341-1:** Brass Adapter, ½" male NPT x ¼" female NPT 3-3/4" length

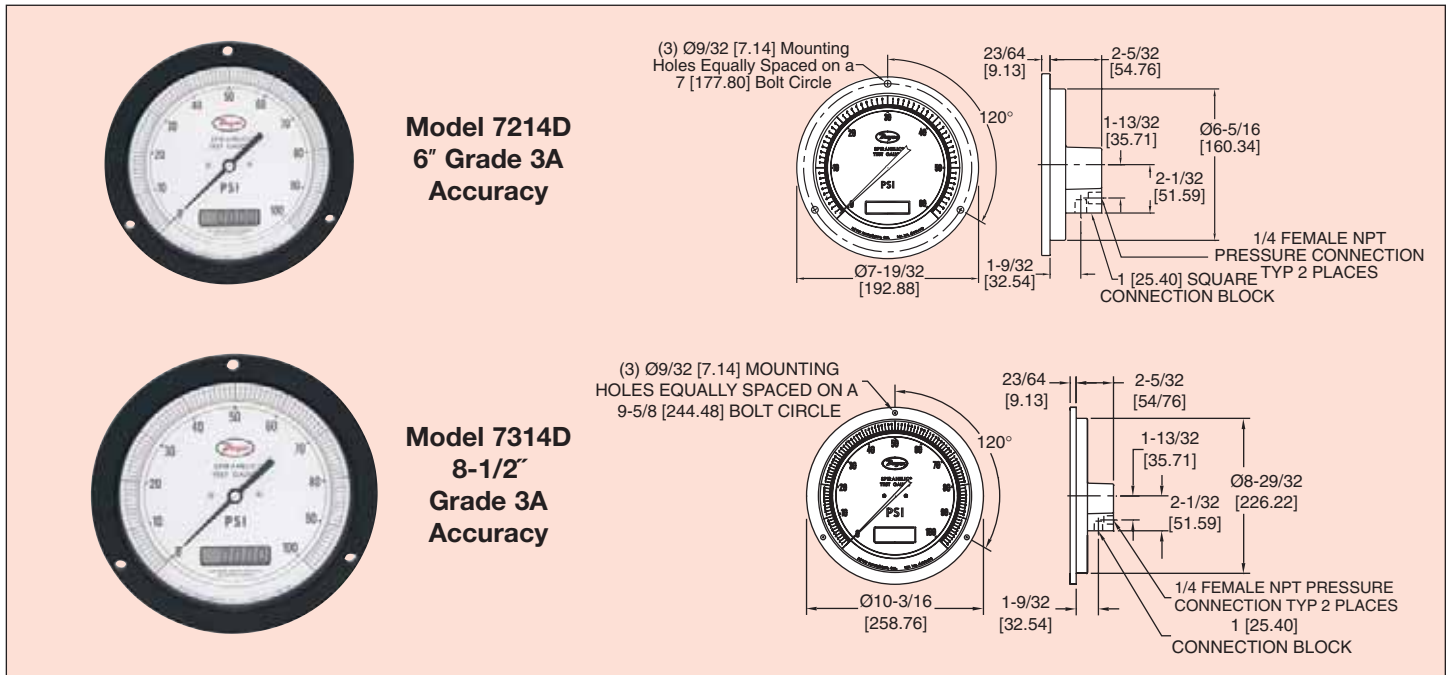
**NOTE:** Additional ranges and accuracy requirements are available. Please consult the factory for details.



Series  
7000

# Digital Spirahelic® Pressure Gages

Panel Mount, 6" & 8½" Dials with LCD Display, ASME Grade 3A



## MODELS

6" Dial, Grade 3A Accuracy (1/4% of F.S.) with Mirrored Scale	
Model Number	Ranges (psig)
7214D-G100	100
7214D-G200	200
7214D-G300	300
7214D-G600	600
8½" Dial, Grade 3A Accuracy (1/4% of F.S.) with Mirrored Scale	
Model Number	Ranges (psig)
7314D-G100	100
7314D-G200	200
7314D-G300	300
7314D-G600	600

## Accessories

**A-341:** Brass Adapter, 1/4" male NPT to G 1/2 A (per ISO 228/1) parallel thread 2-1/2" length.

**A-341-1:** Brass Adapter, 1/2" male NPT x 1/4" female NPT 3-3/4" length.

## SPECIFICATIONS

**Service:** Compatible gases & liquids.

**Wetted Materials:** Inconel® X-750 Bourdon tube, type 316L SS connection block.

**Housing:** Black polycarbonate case and clear acrylic cover.

**Accuracy:** Grade 3A (0.25% F.S.) with mirrored scale.

**Pressure Limit:** 150% of full scale. Gage will maintain its specifications for overpressures up to 150% maximum range. Normal operation should be between 25% and 75% of full scale.

**Temperature Limits:** -65 to 180°F (-53.9 to 82.2°C).

**Sizes:** 6" dial face (152.4 mm), 8-1/2" dial face (215.9 mm), design conforms to ASME B40.1.

**Process Connections:** Two 1/4" female NPT field selectable back or bottom connection.

**Power Requirements:** 10-35 VDC, 16-26 VAC.

**Current Consumption:** 38 mA max (DC); 76 mA max (AC).

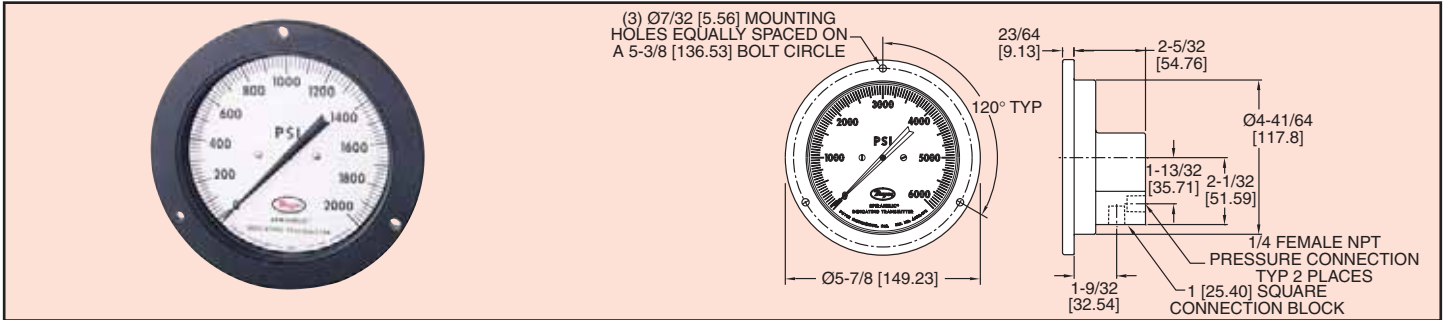
**Weight:** 6" dial size: 20.7 oz. (586.8 g); 8-1/2" dial size: 26.1 oz (739.9 g).



Series 7116

# Spirahelic® Pressure Indicating Transmitter

Dial Gage Indication,  $\pm 0.5\%$  F.S. Accuracy, Panel Mount



The Series 7116 Spirahelic® Pressure Indicating Transmitter provides both an ASME Grade 2A accuracy analog pressure gage for precise local indication and a 2-wire, 4-20 mA output signal for remote monitoring and control. Unique triple wound Bourdon tube movement drives pointer directly with no gears, cams or linkages which can wear and fail early. Stainless steel pressure connection block allows a choice of horizontal or vertical piping. Electrical connections, zero and span controls are located on rear.

**MODELS**

Model Number	Range PSIG	Model Number	Range PSIG
7116-G060	0-60	7116-GC010	0-1000
7116-G100	0-100	7116-GC020	0-2000
7116-G200	0-200	7116-GC030	0-3000
7116-G300	0-300		
7116-G600	0-600		

**SPECIFICATIONS**  
**GAGE SPECIFICATIONS**

**Service:** Compatible gases & liquids.  
**Wetted Materials:** Inconel® X-750 Bourdon tube, type 316L SS connection.  
**Housing:** Black polycarbonate case and clear acrylic cover.  
**Accuracy:** Grade 2A (0.5% F.S.).  
**Pressure Limit:** 150% of full scale. Gage will maintain its specifications for overpressures up to 150% maximum range. Normal operation should be between 25% and 75% of full scale.  
**Temperature Limits:** 20 to 120°F (-6.67 to 48.9°C).  
**Size:** 4-1/2" dial face (114.3 mm), Design conforms to ASME B40.1.  
**Process Connections:** Two 1/4" female NPT field selectable back or bottom connection.

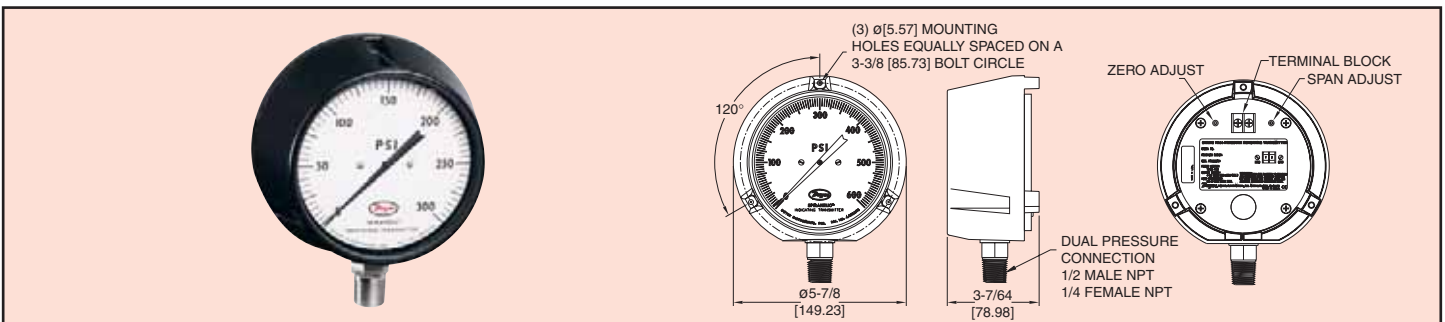
**Weight:** 17.1 oz (581 g).  
**TRANSMITTER SPECIFICATIONS**  
**Accuracy:** 0.5% F.S.  
**Stability:**  $\pm 1\%$  F.S./yr.  
**Temperature Limits:** 20 to 120°F (-6.67 to 48.9°C).  
**Thermal Effect:**  $\pm 0.025\%$  F.S./°F (0.045% F.S./°C).  
**Power Requirements:** 10-35 VDC (2-wire).  
**Output Signal:** 4-20 mA DC.  
**Zero & Span Adjustments:** Externally accessible potentiometers.  
**Loop Resistance:** DC, 0-1250 ohms.  
**Current Consumption:** DC, 38 mA max.  
**Electrical Connections:** Screw Terminals.  
**Mounting Orientation:** Vertical.  
**Agency Approvals:** CE.



Series 7116B

# Spirahelic® Pressure Indicating Transmitter

Large, Turret Mount, Accurate to  $\pm 0.5\%$  of Full Scale, 4-20 mA Output



The Series 7116B Spirahelic® Pressure Indicating Transmitter simultaneously provides local indication on an easily read 4-1/2" (114 mm) analog scale while also converting that pressure into a standard two wire, 4-20 mA signal. The gage employs a unique triple helix Bourdon tube for precision measurement of compatible gases and liquids accurately within  $\pm 0.5\%$  of full scale. The 316 SS connection features a convenient 1/4" female NPT internal and 1/2" male NPT external pressure connection also includes an integral filter plug to keep dirt out.

**MODELS**

Model Number	Range, PSIG
7116B-G060	0 - 60
7116B-G100	0 - 100
7116B-G200	0 - 200
7116B-G600	0 - 600

**SPECIFICATIONS**  
**GAGE SPECIFICATIONS**

**Service:** Compatible gases & liquids.  
**Wetted Materials:** Inconel® X-750 Bourdon tube, type 316L SS connection.  
**Housing:** Black polycarbonate case and clear acrylic cover.  
**Accuracy:** Grade 2A (0.5% F.S.).  
**Pressure Limit:** 150% of full scale. Gage will maintain its specifications for overpressures up to 150% maximum range. Normal operation should be between 25% and 75% of full scale.  
**Temperature Limits:** 20 to 120°F (-6.67 to 48.9°C).  
**Size:** 4-1/2" (114.3 mm) dial face, Design conforms to ASME B40.1.  
**Process Connections:** Dual size 1/2" male, 1/4" female NPT, bottom connection.  
**Weight:** 29.5 oz (836.3 g).

**TRANSMITTER SPECIFICATIONS**

**Accuracy:** 0.5% F.S.  
**Stability:**  $\pm 1\%$  F.S./yr.  
**Temperature Limits:** 20 to 120°F (-6.67 to 48.9°C).  
**Thermal Effect:**  $\pm 0.025\%$  F.S./°F (0.045% F.S./°C).  
**Power Requirements:** 10-35 VDC (2-wire).  
**Output Signal:** 4-20 mA DC.  
**Zero & Span Adjustments:** Externally accessible potentiometers.  
**Loop Resistance:** DC, 0-1250 ohms.  
**Current Consumption:** DC, 38 mA max.  
**Electrical Connections:** Screw Terminals  
**Mounting Orientation:** Vertical.  
**Agency Approvals:** CE.

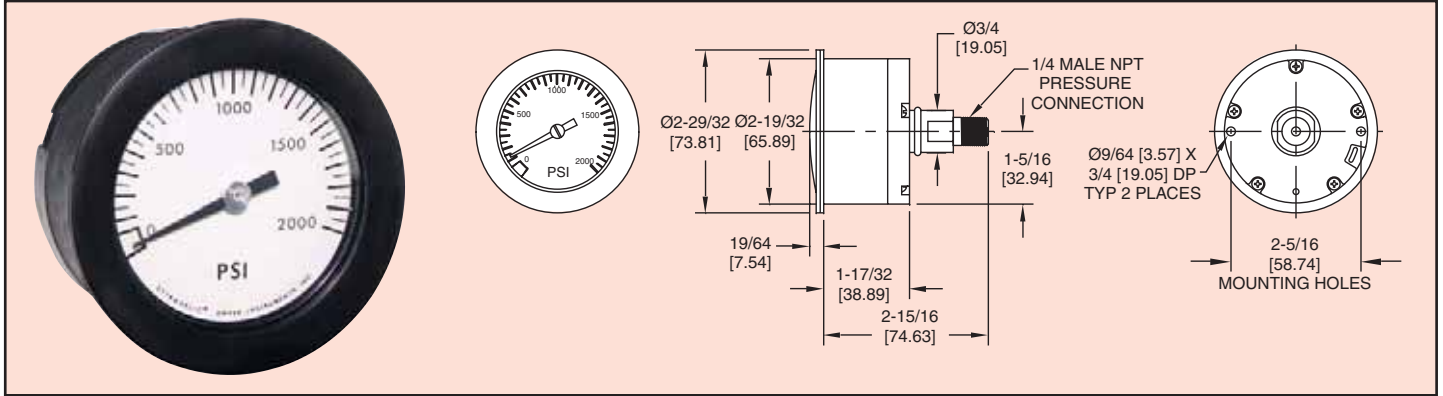




Series  
6000

# Spirahelic® Pressure Gages

Reliability and Accuracy in a 2½" Solid-front Gage



Series 6000 Spirahelic® high pressure gages are ideal for applications demanding reliability, operator safety.

## MODELS

Model Numbers	Range, PSI	Minor Divisions
6010	0-1000	10
6020	0-2000	50
6030	0-3000	100
6060	0-6000	200
6080	0-8000	200

## SPECIFICATIONS

**Service:** Compatible gases & liquids.

**Wetted Materials:** Beryllium Copper Bourdon tube.

**Housing:** Mineral and glass filled nylon; high impact clear acrylic cover.

**Accuracy:** Grade A (2%-1%-2%).

**Pressure Limit:** 150% of full scale. Gage will maintain its specifications for overpressures up to 150% maximum range. Normal operation should be between 25% and 75% of full scale.

**Temperature Limits:** -65 to 180°F (-53.9 to 82.2°C).

**Size:** 2-1/2" (63.5 mm) dial face – Design conforms to ASME B40.1.

**Process Connections:** 1/2" male NPT, back connection.

**Weight:** 16 oz (453.6 g).

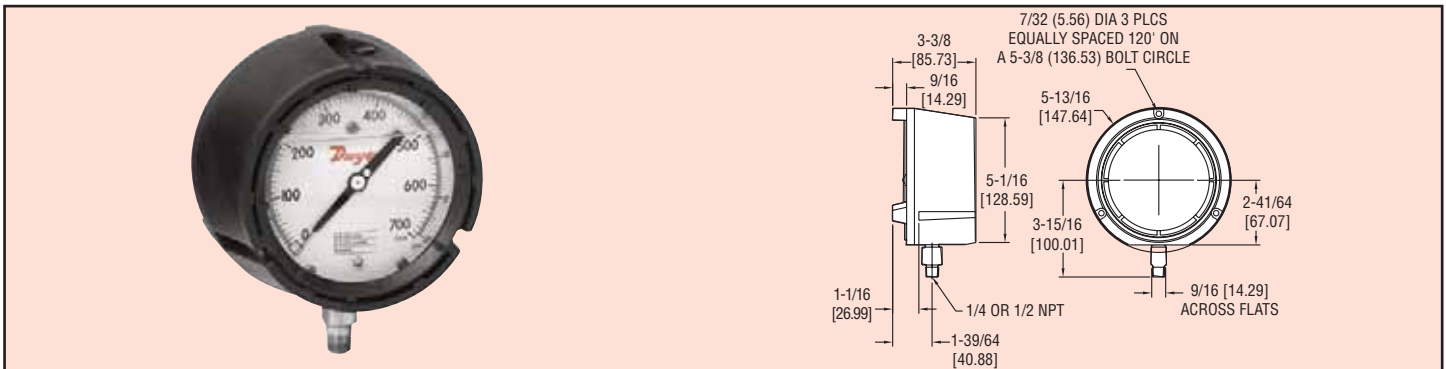
**Standard Accessory:** One 1/4" male NPT stainless steel plug.



Series  
760

# Pressure Gage

4-1/2" Dial, Liquid Filled, ±0.5% Full Scale Accuracy



Series 760 Liquid Filled Pressure Gages offer superior performance for applications where vibration, pulsation, mechanical shock, and pressure spikes are common. The gage is designed with a 316L SS tube and socket for greater chemical compatibility. The units feature glycerin fill and a micrometer adjustable pointer.

## MODELS

Model Number	Description
760-1	4-1/2" Turret Mount Gage, 15 psi
760-2	4-1/2" Turret Mount Gage, 30 psi
760-3	4-1/2" Turret Mount Gage, 60 psi
760-4	4-1/2" Turret Mount Gage, 100 psi
760-5	4-1/2" Turret Mount Gage, 160 psi
760-6	4-1/2" Turret Mount Gage, 30" Hg vacuum

## SPECIFICATIONS

**Service:** Clean, non-corrosive liquids or gases.

**Wetted Materials:** 316L SS Bourdon tube & socket, stainless steel connection.

**Fill Solution:** Glycerin.

**Housing:** Fiberglass reinforced thermoplastic.

**Window:** Acrylic.

**Accuracy:** ±0.5% full scale, ASME B40.1, Grade 2A.

**Pressure Limit:** 130% full scale.

**Size:** 4-1/2".

**Process Connection:** 1/4" male NPT, bottom.

**Weight:** 29.5 oz (830 g).



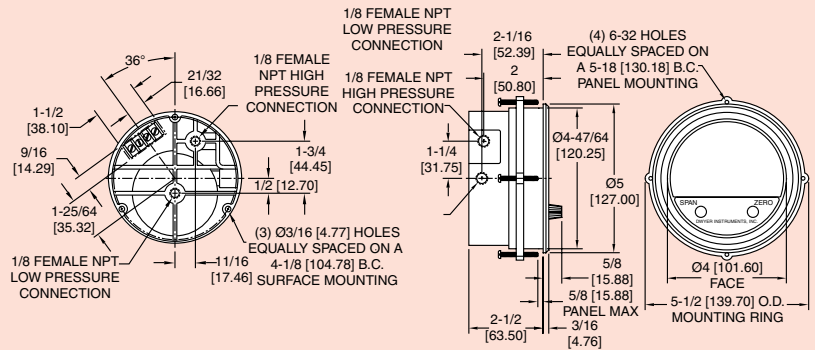
Series  
603A

# Differential Pressure Transmitters

Ranges from 0.2" Water Column to 30 psid



Patent No. 4, 385, 525



**Dwyer Series 603A** Differential Pressure Transmitters combine ultra low ranges, low cost, high accuracy and rugged construction – ideal for a wide range of HVAC and industrial applications. These transmitters provide a standard 4-20 mA analog output signal in ranges as low as 0.2" w.c.

The transmitter can be surface mounted or flush mounted in a 4-13/16" (122 mm) diameter panel hole. Hardware is included for either option. Duplicate 1/8" female NPT pressure connections on side and back ease installation.

## ACCESSORIES

**A-298 Flat Aluminum Bracket**, for flush mounting 603A.

**A-370 Mounting Bracket**, flush mount Series 600 Transmitter in bracket. Bracket is then surface mounted. Steel with gray hamertone epoxy finish.

## SPECIFICATIONS

**Service:** Air and non-combustible, compatible gases.

**Wetted Materials:** Consult factory.

**Accuracy:** (See Chart) (Includes linearity, hysteresis and repeatability).

**Stability:** ±1% F.S./yr.

**Temperature Limits:** 0 to 140°F (-17.8 to 60°C).

**Compensated Temperature Limits:** 20 to 120°F (-6.67 to 48.9°C).

**Pressure Limits:** See chart below.

**Thermal Effect:** ±0.025% F.S./°F (0.045% F.S./°C).

**Power Requirements:** 10-35 VDC

(2-wire).

**Output Signal:** 4-20 mA.

**Zero and Span Adjustments:** External potentiometers.

**Loop Resistance:** DC; 0-1250 ohms.

**Current Consumption:** DC; 38 mA max.

**Electrical Connections:** 4 screw terminal block.

**Process Connections:** 1/8" female NPT.

**Mounting Orientation:** Diaphragm in vertical position.

Consult factory for other position orientations.

**Weight:** 1 lb, 10 oz (737 g).

**Agency Approvals:** CE.

## MODELS

Model Number	Ranges in Inches W.C.			Maximum Pressure	Electrical Accuracy +/- %
	As Stocked	Minimum	Maximum		
603A-1	0-0.25 (6.34 mm)	0-0.20 (5.08 mm)	0.50 (12.7 mm)	25 psi (1.7 bar)	2
603A-2	0-0.50 (12.7 mm)	0-0.50 (12.7 mm)	0-1.50 (38.1 mm)	25 psi (1.7 bar)	2
603A-3	0-2.0 (50.8 mm)	0-1.5 (38.1 mm)	0-5.0 (127 mm)	10 in. w.c. (2.5 kPa)	0.5
603A-4	0-5.0 (127 mm)	0-4.0 (101.6 mm)	0-15 (381 mm)	5 psi (34.5 kPa)	0.5
603A-5	0-25 (634 mm)	0-10 (254 mm)	0-60 (1522 mm)	20 psi (1.4 bar)	0.5
603A-6	0-100 (2540 mm)	0-50 (1264 mm)	0-250 (6445 mm)	20 psi (1.4 bar)	0.5
603A-11	.25-0-.25 (12.7 mm)			25 psi (1.7 bar)	2
603A-12	1-0-1 (50.8 mm)			10 in w.c. (2.5 kPa)	0.5
603A-13	5-0-5 (254 mm)			5 psi (34.5 bar)	0.5
603A-14	10-0-10 (508 mm)			20 psi (1.4 bar)	0.5

**NOTE:** Optional 3½ digit LCD readout for Series 603A

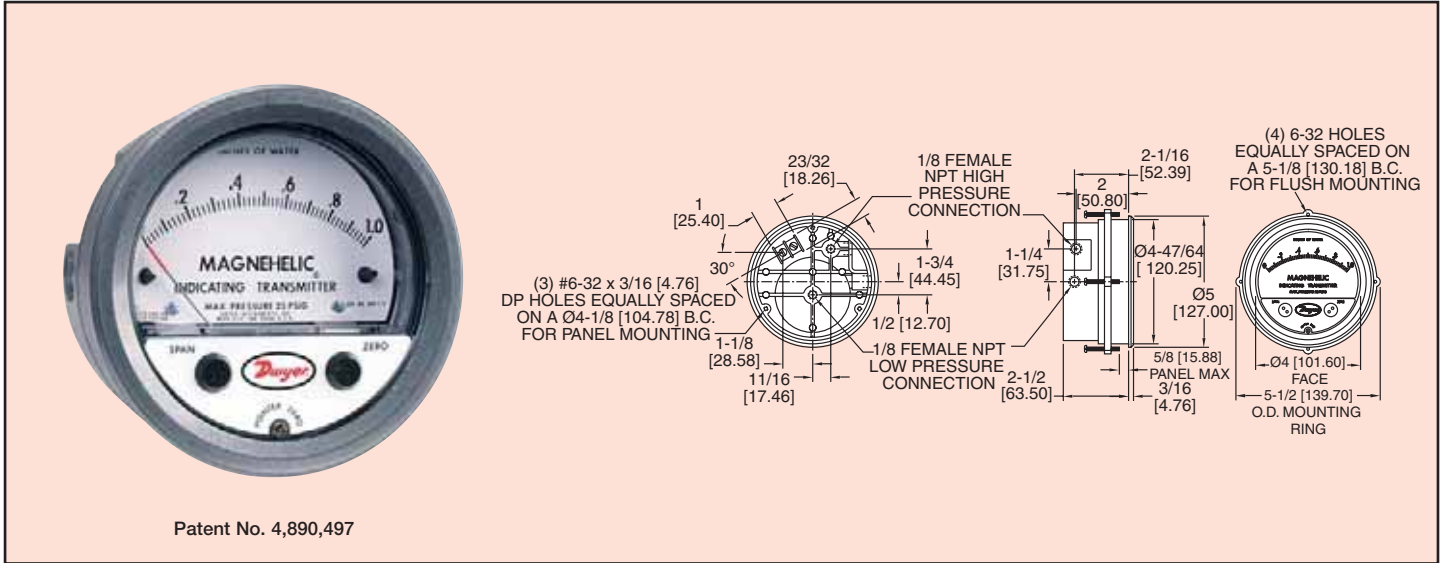


Series  
605

# Magnehelic® Differential Pressure Indicating Transmitter



Pressure



The Dwyer Series 605 Magnehelic® Indicating Transmitter provides for both visual monitoring and electronic control of very low differential pressure. The Series 605 is ideal for control applications in building HVAC systems where local indication is desired during routine maintenance checks or necessary when trouble shooting the system. The easily read dial gage is complimented by the two-wire, 4-20 mA control signal utilizing the time-proven Dwyer Magnehelic® gage mechanical design and Series 600 transmitter technology. The 2-wire design with terminal strip on the rear simplifies connection in any 4-20 mA control loop powered by a 10-35 VDC supply.

## SPECIFICATIONS

### GAGE SPECIFICATIONS

**Service:** Air and non-combustible, compatible gases.

**Wetted Materials:** Consult factory.

**Accuracy:** See chart.

**Stability:** ±1% F.S./yr.

**Pressure Limits:** See chart.

**Temperature Limits:** 20 to 120°F  
(-6.67 to 48.9°C).

**Process Connections:** 1/8" female NPT.

**Size:** 4" (101.6 mm) dial face, 5" (127 mm) O.D. x 2-11/16" (68.3 mm).

**Weight:** 1 lb, 12.6 oz (811 g).

**Agency Approvals:** CE.

### TRANSMITTER SPECIFICATIONS

**Accuracy:** See chart (includes linearity, hysteresis, repeatability).

**Temperature Limits:** 20 to 120°F  
(-6.67 to 48.9°C).

**Compensated Temperature Range:** 32 to 120°F (0 to 48.9°C).

**Thermal Effect:** ±0.025% F.S./°F  
(0.045% F.S./°C).

**Power Requirements:** 10-35 VDC (2-wire).

**Output Signal:** 4 to 20 mA.

**Zero and Span Adjustments:** Protected potentiometers.

**Loop Resistance:** DC; 0-1250 ohms maximum.

**Current Consumption:** DC; 38 mA maximum.

**Electrical Connections:** Screw terminal block.

**Mounting Orientation:** Diaphragm in vertical position. Consult factory for other position orientations.

## ACCESSORIES

**A-298 Flat Aluminum Bracket,** for flush mounting

**A-370 Mounting Bracket,** flush mount Series 605 Transmitter in bracket. Bracket is then surface mounted. Steel with gray hammer-tone epoxy finish

## MODELS

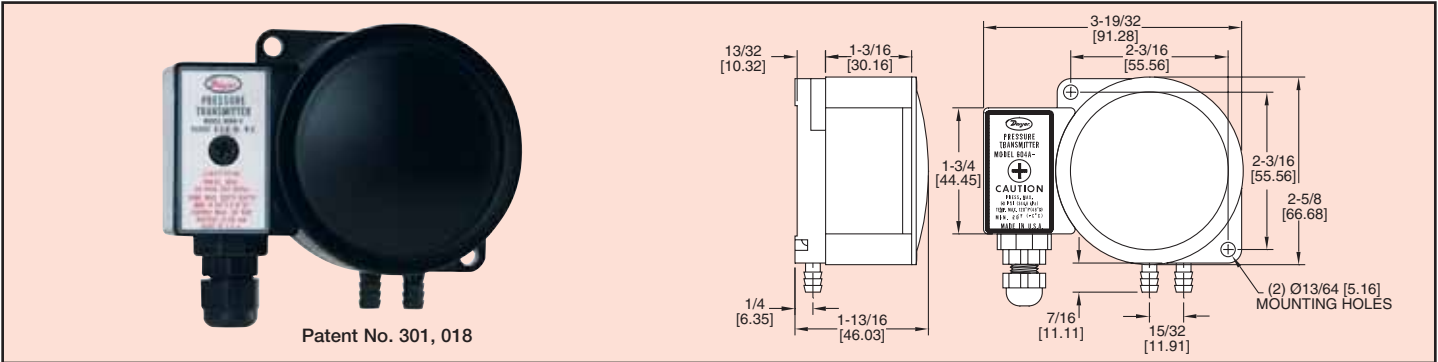
Model Number	Range in w.c.	Maximum Pressure	Electrical Accuracy +/-%	Mechanical Accuracy +/-%	Model Number	Range in w.c.	Maximum Pressure	Electrical Accuracy +/-%	Mechanical Accuracy +/-%																									
605-00N	.05-0-.20	25 psi (1.7 bar)	2	4	605-20	0-20.0	20 psi (1.4 bar)	0.5	2																									
605-11	.25-0-.25	25 psi (1.7 bar)	2	3	605-30	0-30	20 psi (1.4 bar)	0.5	2																									
605-0	0-.50	25 psi (1.7 bar)	2	2	605-50	0-50	20 psi (1.4 bar)	0.5	2																									
605-1	0-1.0	25 psi (1.7 bar)	2	2	<table border="1"> <thead> <tr> <th></th> <th>Range in Pa</th> <th>Maximum Pressure</th> <th>Electrical Accuracy +/-%</th> <th>Mechanical Accuracy +/-%</th> </tr> </thead> <tbody> <tr> <td>605-60Pa</td> <td>0-60</td> <td>25 psi (1.7 bar)</td> <td>2</td> <td>4</td> </tr> <tr> <td>605-125Pa</td> <td>0-125</td> <td>25 psi (1.7 bar)</td> <td>2</td> <td>2</td> </tr> <tr> <td>605-250Pa</td> <td>0-250</td> <td>25 psi (1.7 bar)</td> <td>2</td> <td>2</td> </tr> <tr> <td>605-500Pa</td> <td>0-500</td> <td>10 in. w.c. (2.5 kPa)</td> <td>0.5</td> <td>2</td> </tr> </tbody> </table>						Range in Pa	Maximum Pressure	Electrical Accuracy +/-%	Mechanical Accuracy +/-%	605-60Pa	0-60	25 psi (1.7 bar)	2	4	605-125Pa	0-125	25 psi (1.7 bar)	2	2	605-250Pa	0-250	25 psi (1.7 bar)	2	2	605-500Pa	0-500	10 in. w.c. (2.5 kPa)	0.5	2
	Range in Pa	Maximum Pressure	Electrical Accuracy +/-%	Mechanical Accuracy +/-%																														
605-60Pa	0-60	25 psi (1.7 bar)	2	4																														
605-125Pa	0-125	25 psi (1.7 bar)	2	2																														
605-250Pa	0-250	25 psi (1.7 bar)	2	2																														
605-500Pa	0-500	10 in. w.c. (2.5 kPa)	0.5	2																														
605-2	0-2.0	10 in. w.c. (2.5 kPa)	0.5	2																														
605-3	0-3.0	5 psi (34.5 kPa)	0.5	2																														
605-6	0-6.0	5 psi (34.5 kPa)	0.5	2																														
605-10	0-10	5 psi (34.5 kPa)	0.5	2																														



Series 604A

# Differential Pressure Transmitter

±2% Full Span Accuracy, Pressure Rated to 30 psig



Patent No. 301, 018

The Dwyer Series 604A Differential Pressure Transmitter offers very low ranges down to 0-0.1" w.c. (25 Pa) yet withstands continuous pressure to 30 psig (2 bar). The tough filled Nylon housing features simple surface mounting arrangement and barbed connections. The units are compact and lightweight yet provide overall accuracy of ±2%. Output signal is 4-20 mA. Zero and span adjustments plus terminal block connections are easily accessible but protected in auxiliary housing.

**MODELS**

Model Number	Ranges in Inches W.C.		
	As Stocked	Minimum	Maximum
604A-0	0-.50	0-.10	0-1.0
604A-1	0-2.0	0-.50	0-4.0
604A-2	0-10	0-2.0	0-20
604A-3	0-50	0-15	0-120

\* Optional 3, 4 wire configurations available, contact factory.

**SPECIFICATIONS**

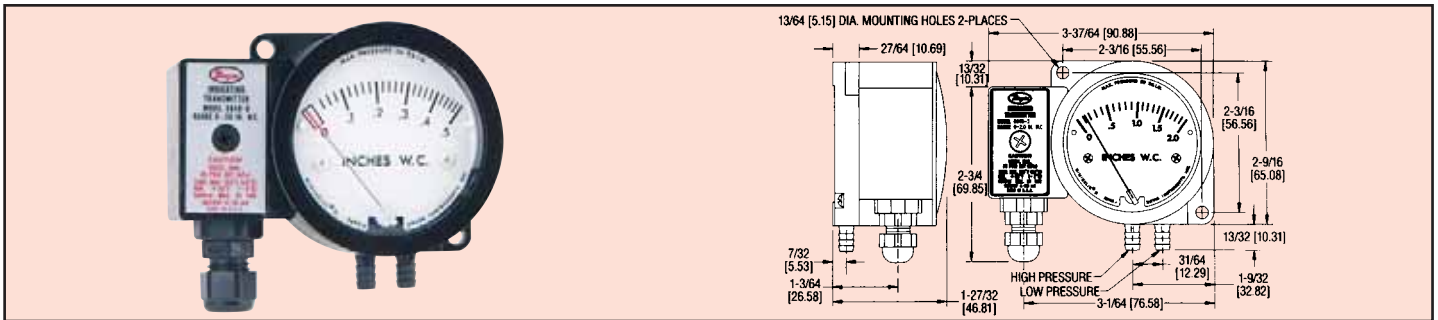
**Service:** Air and non-combustible, compatible gases.  
**Wetted Materials:** Consult factory.  
**Accuracy:** ±2% of full span output (Includes linearity, hysteresis and repeatability).  
**Stability:** ±1% F.S./yr.  
**Temperature Limits:** 0 to 140°F (-17.8 to 60°C).  
**Compensated Temperature Limits:** 20 to 120°F (-6.67 to 48.9°C).  
**Pressure Limits:** 30 psig (206.8 kPa) continuous; 50 psig (344.7 kPa) surge.  
**Thermal Effect:** ±0.025% F.S./°F (0.045% F.S./°C).  
**Power Requirements:** 10-35 VDC (2-wire\*).

**Output Signal:** 4 to 20 mA.  
**Zero and Span Adjustments:** Internally accessible Potentiometers.  
**Loop Resistance:** DC; 0-1250 ohms maximum.  
**Current Consumption:** DC; 38 mA maximum.  
**Electrical Connections:** Terminal block.  
**Process Connections:** Barbed, for 3/16" (4.76 mm) I.D. tubing.  
**Mounting Orientation:** Diaphragm in vertical position. Consult factory for other position orientations.  
**Weight:** 5.6 oz (159 g).  
**Agency Approvals:** CE.



Series 604D

# Minihelic® Differential Pressure Indicating Transmitter



The Dwyer Series 604D Minihelic® Indicating Transmitter combines visual monitoring with electronic control of low differential air or compatible gas pressures. This versatile device is ideal for building HVAC systems where local indication is needed during maintenance checks or when troubleshooting the system. The transmitter design employs the latest strain gage technology and operates in 2-wire control loop circuits. Separate Zero and Span controls plus a 4-screw terminal strip are protected in a gasketed side enclosure. Cable gland fits .10 - .25" round cable. A 10-35 VDC power supply is required.

**MODELS**

Model Number	Range Inches w.c.	Model Number	Range Inches w.c.
604D-0	0-0.5	604D-10	0-10
604D-1	0-1.0	604D-20	0-20
604D-2	0-2.0	604D-40	0-40
604D-3	0-3.0	604D-60	0-60
604D-5	0-5.0	604D-100	0-100

**SPECIFICATIONS GAGE SPECIFICATIONS**

**Service:** Air and non-combustible, compatible gases.  
**Wetted Materials:** Consult factory.  
**Accuracy:** ±5% F.S.O.  
**Stability:** ±1% F.S./yr.  
**Pressure Limits:** 30 psig (206.8 kPa) continuous; 50 psig (344.7 kPa) surge.  
**Temperature Limits:** 20 to 120°F (-6.67 to 48.9°C).  
**Process Connections:** Barbed, for 3/16" (4.76 mm) I.D. tubing.  
**Size:** 2-1/16" (52.39 mm) diameter dial face.  
**Weight:** 5.6 oz (159 g).  
**Agency Approvals:** CE.

**TRANSMITTER SPECIFICATIONS**

**Accuracy:** ±2% of full span output (includes linearity, hysteresis and repeatability).

**Temperature Limits:** 20 to 120°F (-6.67 to 48.9°C).  
**Compensated Temperature Range:** 32 to 120°F (0 to 48.9°C).  
**Thermal Effect:** ±0.025% F.S./°F (0.045% F.S./°C).  
**Power Requirements:** 10-35 VDC (2 wire\*).  
**Output Signal:** 4 to 20 mA.  
**Zero and Span Adjustments:** Internally accessible potentiometers.  
**Loop Resistance:** DC; 0-1250 ohms maximum.  
**Current Consumption:** DC; 38 mA maximum.  
**Electrical Connections:** Terminal block.  
**Mounting Orientation:** Diaphragm in vertical position. Consult factory for other position orientations.

\* Optional 3, 4 wire configurations available, contact factory.



Series 616C

# Differential Pressure Transmitter

Ranges from 0-3 in. w.c. to 0-100 psid, Accuracy  $\pm 1\%$  Full Span Output



Series 616C Transmitters feature exceptional  $\pm 1.0\%$  accuracy in several factory calibrated ranges. Choose the one just right for your application. Span and Zero controls included for fine tuning and minor re-calibration in the field.

**MODELS**

Model No.	Range	Max. Press.	Model No.	Range	Max. Press.
616C-1	0-3 in. w.c.	5 psig	616C-8	0-10 psid	58 psig
616C-2	0-6 in. w.c.	5 psig	616C-9	0-20 psid	58 psig
616C-3	0-10 in. w.c.	5 psig	616C-10	0-30 psid	58 psig
616C-4	0-20 in. w.c.	11 psig	616C-11	0-50 psid	150 psig
616C-5	0-40 in. w.c.	11 psig	616C-12	0-100 psid	150 psig
616C-6	0-100 in. w.c.	29 psig	616C-3B	1.5-0-1.5 in. w.c.	5 psig
616C-7	0-200 in. w.c.	29 psig	616C-6B	3-0-3 in. w.c.	5 psig
			616C-10B	5-0-5 in. w.c.	5 psig
			616C-20B	10-0-10 in. w.c.	11 psig

**SPECIFICATIONS**

- Service:** Air and non-combustible, compatible gases.
- Wetted Materials:** Consult factory.
- Accuracy:**  $\pm 1.0\%$  F.S.
- Stability:**  $\pm 1\%$  F.S./yr.
- Temperature Limits:** 0 to 140°F (-17.8 to 60°C).
- Compensated Temperature Limits:** 20 to 120°F (-6.67 to 48.9°C).
- Pressure Limits:** See Chart.
- Thermal Effect:**  $\pm 0.02\%$  F.S./°F ( $\pm 0.0012\%$  F.S./°C).
- Power Requirements:** 10-35 VDC (2-wire).
- Output Signal:** 4 to 20 mA.
- Zero Adjustments:** External potentiometers.
- Loop Resistance:** 0-1250 ohms from 10-35 VDC.
- Current Consumption:** 38 mA DC maximum.
- Electrical Connections:** Screw terminals.
- Process Connections:** Barbed, dual size to fit 1/8" and 3/16" (3.12 mm and 4.76 mm) I.D. rubber or vinyl tubing.
- Weight:** 1.8 oz (51 g).



Series 616

# Differential Pressure Transmitter

Ranges from 0-1 in. w.c. to 0-100 psid, Accuracy  $\pm 0.25\%$  Full Span Output



Series 616 Transmitters feature exceptional  $\pm 0.25\%$  accuracy in several factory calibrated ranges. Choose the one just right for your application. Span and Zero controls included for fine tuning and minor re-calibration in the field.

**MODELS**

Model No.	Range	Max. Press.	Model No.	Range	Max. Press.
616-00	0-1 in. w.c.	10 in. w.c.	616-8	0-10 psid	58 psig
616-0	0-2 in. w.c.	10 in. w.c.	616-9	0-20 psid	58 psig
616-1	0-3 in. w.c.	5 psig	616-10	0-30 psid	58 psig
616-2	0-6 in. w.c.	5 psig	616-11	0-50 psid	150 psig
616-3	0-10 in. w.c.	5 psig	616-12	0-100 psid	150 psig
616-4	0-20 in. w.c.	11 psig	616-3B	1.5-0-1.5 in. w.c.	5 psig
616-5	0-40 in. w.c.	11 psig	616-6B	3-0-3 in. w.c.	5 psig
616-6	0-100 in. w.c.	29 psig	616-10B	5-0-5 in. w.c.	5 psig
616-7	0-200 in. w.c.	29 psig	616-20B	10-0-10 in. w.c.	11 psig

**SPECIFICATIONS**

- Service:** Air and non-combustible, compatible gases.
- Wetted Materials:** Consult factory.
- Accuracy:**  $\pm 0.25\%$  F.S.
- Stability:**  $\pm 1\%$  F.S./yr.
- Temperature Limits:** 0 to 140°F (-17.8 to 60°C).
- Compensated Temperature Limits:** 20 to 120°F (-6.67 to 48.9°C).
- Pressure Limits:** See Chart.
- Thermal Effect:**  $\pm 0.02\%$  F.S./°F ( $\pm 0.0012\%$  F.S./°C).
- Power Requirements:** 10-35 VDC (2-wire).
- Output Signal:** 4 to 20 mA.
- Zero and Span Adjustments:** Potentiometers for zero and span.
- Loop Resistance:** DC; 0-1250 ohms maximum.
- Current Consumption:** DC; 38 mA maximum.
- Electrical Connections:** Screw-type terminal block.
- Process Connections:** Barbed, dual size to fit 1/8" and 3/16" (3.12 mm and 4.76 mm) I.D. rubber or vinyl tubing.
- Mounting Orientation:** Vertical, consult factory for other position orientations.
- Weight:** 1.8 oz (51 g).
- Agency Approvals:** CE.

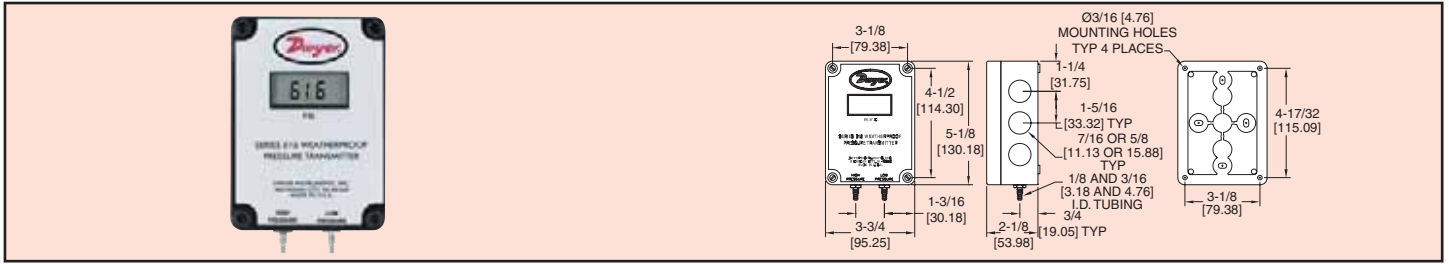


Series 616W

# Differential Pressure Transmitter



NEMA 4X Enclosure, 0.25% F.S. Accuracy, Ranges from 0-1 in. w.c. to 0-100 psid



Positive, negative and differential pressures can be measured within a full span accuracy of  $\pm 0.25\%$  with the Dwyer Series 616W Differential Pressure Transmitter. Units are enclosed in a polycarbonate case, rated NEMA 4X (IP66) and operate by sensing the pressure of air and compatible gases then sending a standard 4-20 mA output signal. Design enables operation in 2-wire current loops. A wide range of models are available factory calibrated to specific ranges. The span and zero controls are for use when checking calibration. They are not intended for re-ranging to a significantly different span. The LCD (as shown above) allows local indication of pressure. (If LCD is not needed, drop from model number).

**SPECIFICATIONS**

**Service:** Air and non-combustible, compatible gases.  
**Wetted Materials:** Consult factory.  
**Accuracy:**  $\pm 0.25\%$  F.S., display accuracy  $\pm 0.5\%$ .  
**Stability:**  $\pm 1\%$  F.S./yr.  
**Temperature Limits:** 0 to 140°F (-17.8 to 60°C).  
**Compensated Temperature Limits:** 20 to 120°F (-6.67 to 48.9°C).  
**Pressure Limits:** See chart.  
**Thermal Effect:**  $\pm 0.02\%$  F.S./°F (0.0012% F.S./°C).  
**Power Requirements:** 10-35 VDC (2-wire).  
**Output Signal:** 4 to 20 mA.

**Zero and Span Adjustments:**

Potentiometers for zero and span.  
**Loop Resistance:** DC; 0-1250 ohms maximum.  
**Current Consumption:** DC; 38 mA maximum.  
**Electrical Connections:** Screw-type terminal block.  
**Process Connections:** Barbed, dual size to fit 1/8" and 3/16" (3.12 and 4.76 mm) I.D. rubber or vinyl tubing.  
**Enclosure Rating:** NEMA 4X (IP66).  
**Mounting Orientation:** Vertical, consult factory for other position orientations.  
**Weight:** Without LCD 8.8 oz. (249 g); with LCD 9.6 oz (272 g).  
**Agency Approvals:** CE.

**MODELS**

Model No.	Range	Max. Press.	Model No.	Range	Max. Press.	Model No.	Range	Max. Press.
616W-00-LCD	0-1 in.w.c.	10 in.w.c.	616W-7-LCD	0-200 in.w.c.	29 psig	616W-10B-LCD	5-0-5 in.w.c.	5 psig
616W-0-LCD	0-2 in.w.c.	10 in.w.c.	616W-8-LCD	0-10 psid	58 psig	616W-20B-LCD	10-0-10 in.w.c.	11 psig
616W-1-LCD	0-3 in.w.c.	10 in.w.c.	616W-9-LCD	0-20 psid	58 psig	616W-0M-LCD	0-500 Pa	10 in. w.c.
616W-2-LCD	0-6 in.w.c.	5 psig	616W-10-LCD	0-30 psid	58 psig	616W-1M-LCD	0-750 Pa	2.5 kPa
616W-3-LCD	0-10 in.w.c.	5 psig	616W-11-LCD	0-50 psid	150 psig	616W-2M-LCD	0-1.5 kPa	34.5 kPa
616W-4-LCD	0-20 in.w.c.	11 psig	616W-12-LCD	0-100 psid	150 psig	616W-3M-LCD	0-2.5 kPa	34.5 kPa
616W-5-LCD	0-40 in.w.c.	11 psig	616W-3B-LCD	1.5-0-1.5 in.w.c.	10 in.w.c.	616W-4M-LCD	0-5.0 kPa	75.8 kPa
616W-6-LCD	0-100 in.w.c.	29 psig	616W-6B-LCD	3-0-3 in.w.c.	5 psig	616W-5M-LCD	0-25.0 kPa	200 kPa

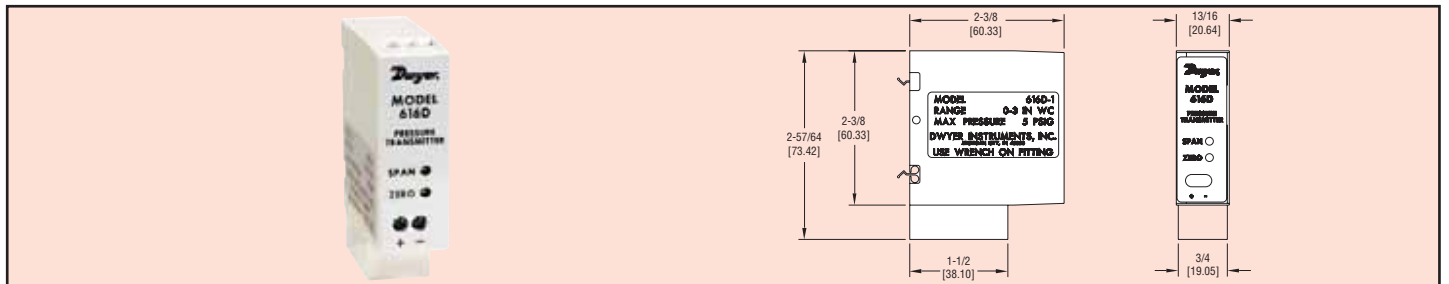
NOTE: Units with "M" in the model number are metric units.



Series 616D

# Differential Pressure Transmitter

Mounts on 35 mm DIN Rail



The Dwyer Series 616D Differential Pressure Transmitter senses the pressure of air and compatible gases and sends a standard 4-20 mA output signal. The 616D housing is specifically designed to mount on a 35 mm DIN rail in a panel. This mounting style allows for several units to be mounted closely together reducing required space. A wide range of models are available factory calibrated to specific ranges as listed in the chart below. The span and zero controls are for use when checking calibration. They are not intended for re-ranging to a significantly different span. Versatile circuit design enables operation in 2-wire current loops.

**SPECIFICATIONS**

**Service:** Air and non-combustible, compatible gases.  
**Wetted Materials:** Consult Factory.  
**Accuracy:**  $\pm 0.25\%$  F.S. at 70°F.  
**Stability:**  $\pm 1\%$  F.S./yr.  
**Temperature Limits:** 20 to 120°F (-6.67 to 48.9°C).  
**Pressure Limits:** See chart.  
**Thermal Effect:**  $\pm 0.02\%$  F.S./°F (0.0012% F.S./°C).  
**Power Requirements:** 10-35 VDC (2-wire).  
**Output Signal:** 4 to 20 mA.

**Zero and Span Adjustments:**

Potentiometers for zero and span.  
**Loop Resistance:** DC; 0-1250 ohms max.  
**Current Consumption:** DC; 38 mA max.  
**Electrical Connections:** Screw-type terminal block.  
**Process Connections:** 1/8" female NPT. Accessories included are 2 barbed fittings for 1/8" (3.12 mm) and 3/16" (4.77 mm) I.D. rubber or vinyl tubing.  
**Mounting Orientation:** Vertical, on a 1.378" (35 mm) DIN rail.  
**Weight:** 4.8 oz (136 g).

**MODELS**

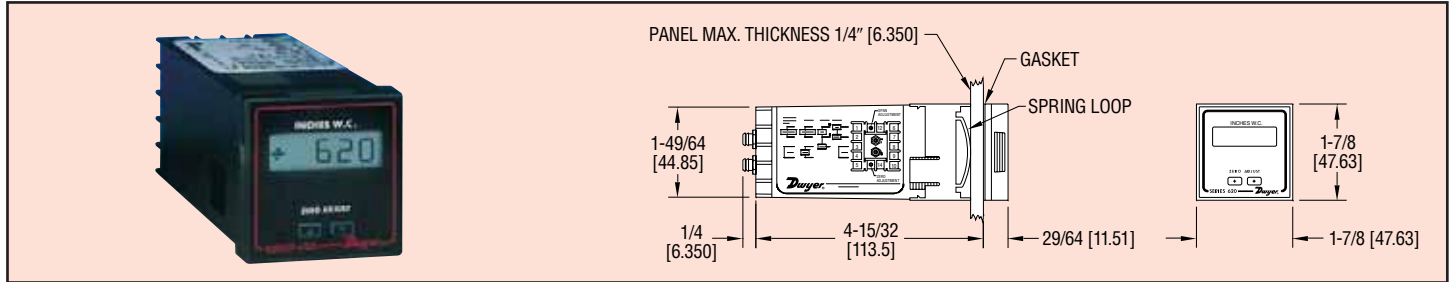
Model No.	Range	Max. Press.	Model No.	Range	Max. Press.
616D-1	0-3 in. w.c.	5 psig	616D-10	0-30 psid	58 psig
616D-2	0-6 in. w.c.	5 psig	616D-11	0-50 psid	150 psig
616D-3	0-10 in. w.c.	5 psig	616D-12	0-100 psid	150 psig
616D-4	0-20 in. w.c.	11 psig	616D-13	0-12 ft w.c.	29 psig
616D-5	0-40 in. w.c.	11 psig	616D-14	0-20 ft w.c.	58 psig
616D-6	0-100 in. w.c.	29 psig	616D-3B	1.5-0-1.5 in. w.c.	5 psig
616D-7	0-200 in. w.c.	29 psig	616D-6B	3-0-3 in. w.c.	5 psig
616D-8	0-10 psid	58 psig	616D-10B	5-0-5 in. w.c.	5 psig
616D-9	0-20 psid	58 psig	616D-20B	10-0-10 in. w.c.	11 psig



Series  
620

# Differential Indicating Pressure Transmitter

1/16 DIN Housing, Digital Readout, 0.5% Full Scale Accuracy



The Series 620 Pressure Indicating Transmitter is a 1/16 DIN instrument for measuring, controlling and indicating positive, negative or differential pressures of air and compatible gases. Pressure measurements are displayed on an easy-to-read 3½ digit display and converted to a standard 4 to 20 mA output signal. Versatile circuit design enables use in 2-wire current loops.

## SPECIFICATIONS

**Service:** Air and non-combustible, compatible gases.

**Wetted Materials:** Consult factory.

**Accuracy:** +/-0.5% F.S. (includes linearity, hysteresis & repeatability).

**Stability:** ±1% F.S./yr.

**Temperature Limits:** 0 to 140°F (-17.8 to 60°C).

**Compensated Temperature Limits:** 20 to 120°F (-6.67 to 48.9°C).

**Pressure Limits:** See chart.

**Thermal Effect:** 0.025% F.S./°F (0.045% F.S./°C).

**Power Requirements:** 10-35 VDC (2-wire).

**Output Signal:** 4 to 20 mA.

**Zero & Span Adjustments:** Accessible Potentiometers.

**Loop Resistance:** DC; 0-1250 ohms max.

**Current Consumption:** DC; 38 mA max.

**Electrical Connections:** Terminal block.

**Process Connections:** Barbed for 1/8" (3.18 mm) I.D. tubing.

**Enclosure Rating:** Face designed to meet NEMA 4 (IP66).

**Mounting Orientation:** Not position sensitive.

**Weight:** 4.7 oz (133 g).

**Agency Approvals:** CE.

## MODELS

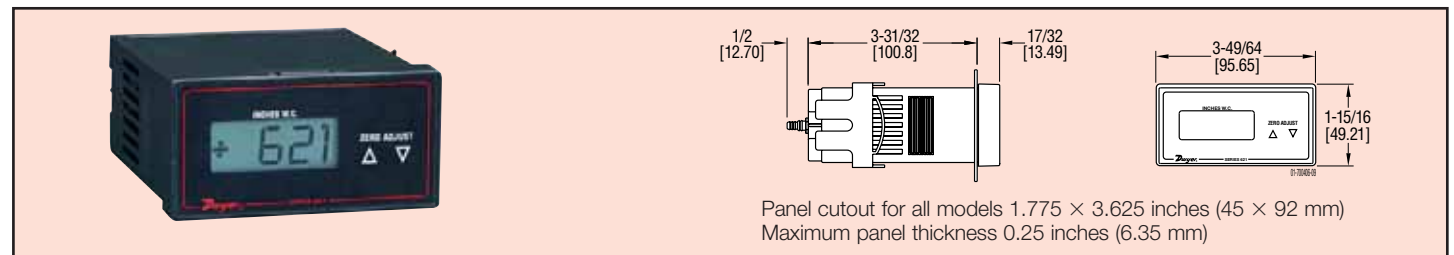
MODEL NUMBER	RANGE	MAXIMUM PRESSURE
620-3	0-3 in. w.c.	5 psig
620-6	0-6 in. w.c.	5 psig
620-10	0-10 in. w.c.	5 psig
620-20	0-20 in. w.c.	11 psig
620-40	0-40 in. w.c.	11 psig
620-100	0-100 in. w.c.	29 psig
620-200	0-200 in. w.c.	29 psig
620-1000	0-1000 in. w.c.	150 psig
620P-10	0-10 psid	58 psig
620P-20	0-20 psid	58 psig
620P-30	0-30 psid	58 psig
620P-50	0-50 psid	150 psig
620P-100	0-100 psid	150 psig



Series  
621

# Differential Indicating Pressure Transmitter

1/8 DIN Housing, 0.5% Full Scale Accuracy



Series 621 Pressure Indicator is a 1/8 DIN measuring and controlling instrument designed for positive, negative or differential pressures of air and compatible gases. Pressure readings are displayed on a large 3½ digit LCD display while unit simultaneously produces a standard 4-20 mA output signal. Over a dozen stocked ranges are available from 0-3 in. w.c. to 0-100 psid or choose metric units in ranges from 0-0.75 kPa to 0-690 kPa. Circuit design enables use in 2-wire current loops.

## SPECIFICATIONS

**Service:** Air and non-combustible, compatible gases.

**Wetted Materials:** Consult factory.

**Accuracy:** +/-0.5% F.S. (Includes linearity, hysteresis & repeatability).

**Stability:** ± 1% F.S./yr.

**Temperature Limits:** 0 to 140°F (-17.8 to 60°C).

**Compensated Temperature Limits:** 20 to 120°F (-6.67 to 48.9°C).

**Pressure Limits:** See chart.

**Thermal Effect:** 0.025% F.S./°F (0.045% F.S./°C).

**Power Requirements:** 10-35 VDC (2-wire).

**Output Signal:** 4 to 20 mA.

**Zero & Span Adjustments:** Accessible Potentiometers.

**Loop Resistance:** DC; 0-1250 ohms max.

**Current Consumption:** DC; 38 mA max.

**Electrical Connections:** Terminal block.

**Process Connections:** Barbed for 1/8" (3.18 mm) I.D. tubing.

**Enclosure Rating:** Face designed to meet NEMA 4 (IP66).

**Mounting Orientation:** Not position sensitive.

**Weight:** 7.8 oz (221 g).

**Agency Approvals:** CE.

## MODELS

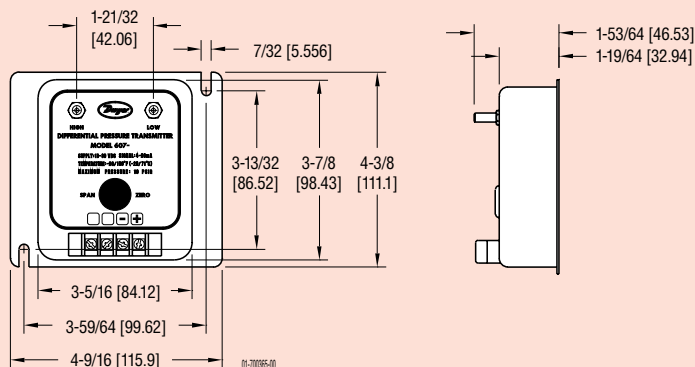
MODEL NUMBER	RANGE	MAX. PRESS.	MODEL NUMBER	RANGE	MAX. PRESS.
621-3	0-3 in. w.c.	5 psig	621-1000	0-1000 in. w.c.	150 psig
621-6	0-6 in. w.c.	5 psig	621P-10	0-10 psid	58 psig
621-10	0-10 in. w.c.	5 psig	621P-20	0-20 psid	58 psig
621-20	0-20 in. w.c.	11 psig	621P-30	0-30 psid	58 psig
621-40	0-40 in. w.c.	11 psig	621P-50	0-50 psid	150 psig
621-100	0-100 in. w.c.	29 psig	621P-100	0-100 psid	150 psig
621-200	0-200 in. w.c.	29 psig			



Series  
607

# Differential Pressure Transmitter

±0.25% or ±0.5% F.S. Accuracy, Ranges from 0-0.1" w.c.



**Series 607 Differential Pressure Transmitter** combines very low ranges with exceptional stability, reliability and either  $\pm 0.25\%$  or  $\pm 0.5\%$  accuracy for the most demanding applications. Ranges from 0-0.1 to 0-25" w.c. Ultra thin glass clad silicon diaphragm design resists shock and vibration, practically eliminates drift. Certification to NIST standards is included with each unit. Tough stainless steel housing is NEMA-2 rated to protect against moisture and dirt. Use with air and other compatible gases.

## SPECIFICATIONS

**Service:** Air and nonconductive, noncorrosive gases.

**Wetted Materials:** Contact factory.

**Accuracy:**  $\pm 0.5\%$  or  $\pm 0.25\%$  F.S.

**Stability:**  $\pm 0.5\%$  F.S.O./yr.

**Temperature Limits:**  $-20$  to  $160^\circ\text{F}$  ( $-29$  to  $71^\circ\text{C}$ ), 10 to 95% RH.

**Pressure Limits:** 10 psig (0.69 bar).

**Compensated Temp. Range:**  $35$  to  $135^\circ\text{F}$  ( $2$  to  $57^\circ\text{C}$ ).

**Thermal Effects:**  $\pm 0.015\%$  FS/ $^\circ\text{F}$  (zero and span).

**Power Requirements:** 12-36 VDC.

**Output Signal:** 4 to 20 mA DC, 2-wire.

**Zero & Span Adjustments:** Externally accessible potentiometers, non-interactive,  $\pm 10\%$  F.S. adjustment.

**Response Time:** 250 msec max.

**Loop Resistance:** 0 to 1045 ohms  $V_{\min} = 12V + [(0.22A)(R_L)]$ .

**Current Consumption:** 3.6 mA (min).

**Electrical Connection:** Screw terminals.

**Process Connection:** Barbed stainless steel for  $3/16"$  I.D. tubing.

**Housing:** 300 Series SS (NEMA 2).

**Weight:** 1.04 lb (472 g).

**Agency Approvals:** CE.

## MODELS

Model No.	Range (in w.c.)	Model No.	Range (in w.c.)
607-0	0-1.0	607-71*	0-5.0
607-01*	0-1.0	607-8	0-10
607-1	0-25	607-0B	.10-0-.10
607-11*	0-25	607-1B	.25-0-.25
607-2	0-50	607-2B	.50-0-.50
607-21*	0-50	607-9	0-25
607-3	0-1.0	607-3B	1.0-0-1.0
607-4	0-2.0	607-4B	2.0-0-2.0
607-7	0-5.0	607-7B	5.0-0-5.0

\* Models have a  $\pm 0.25\%$  F.S. accuracy.

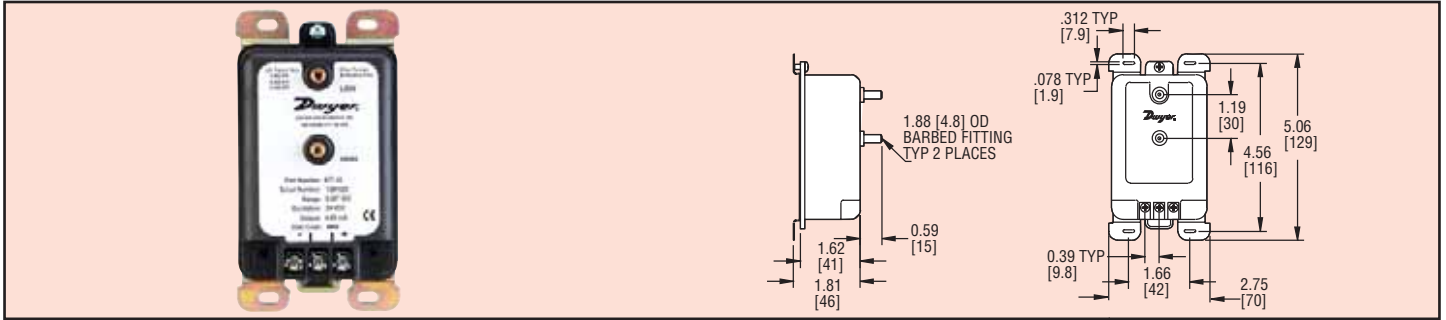




Series  
677

# Differential Pressure Transmitter

Ranges Down to 0.1" w.c., Low Cost,  $\pm 0.4\%$  Accuracy, 4 to 20 mA Output



**Series 677 Differential Pressure Transmitters** are designed to measure pressures as low as 0.1" w.c. with  $\pm 0.4\%$  accuracy. Use Series 677 for building energy management systems, environmental pollution control, oven pressurization, lab and fume hood control, HVAC and VAV applications. The transmitter features 10 psid overpressure, reverse polarity protection and EMI/RFI protection. Internal regulation permits use with unregulated DC power supplies.

### MODELS

Model Number	Range	Model Number	Range
677-1	0 to 0.1" w.c.	677-7	0 to 5" w.c.
677-2	0 to 0.25" w.c.	677-8	0 to 10" w.c.
677-3	0 to 0.5" w.c.	677-9	0 to 15" w.c.
677-4	0 to 1" w.c.	677-10	0 to 25" w.c.
677-5	0 to 2.5" w.c.	677-11	0 to 50" w.c.
677-6	0 to 3" w.c.	677-12	0 to 100" w.c.

### SPECIFICATIONS

**Service:** Air and nonconductive, noncorrosive gases.

**Wetted Materials:** Brass.

**Accuracy:**  $\pm 0.4\%$  full scale (RSS).

**Temperature Limits:** 0 to 175°F (-18 to 79°C).

**Pressure Limits:** 5 times full scale or 10 psi, (whichever is greater).

**Thermal Effects:**  $< \pm 0.033\%$  F.S. over 40 to 100°F range.

**Power Requirements:** 9 to 30 VDC.

**Output Signal:** 4 to 20 mA DC, 2-wire.

### Span and Zero Adjustments:

Externally accessible potentiometers, noninteractive,  $\pm 10\%$  F.S. adjustment.

**Response Time:** 250 msec maximum.

**Loop Resistance:** 0 to 800N (calibrated using 250N load @ 24 VDC).

**Electrical Connections:** Three screw terminals.

**Process Connection:** 3/16" O.D. barbed brass pressure fitting for 1/4" push-on tubing.

**Housing:** Fire retardant glass-filled polyester.

**Weight:** 10 oz (283 g).

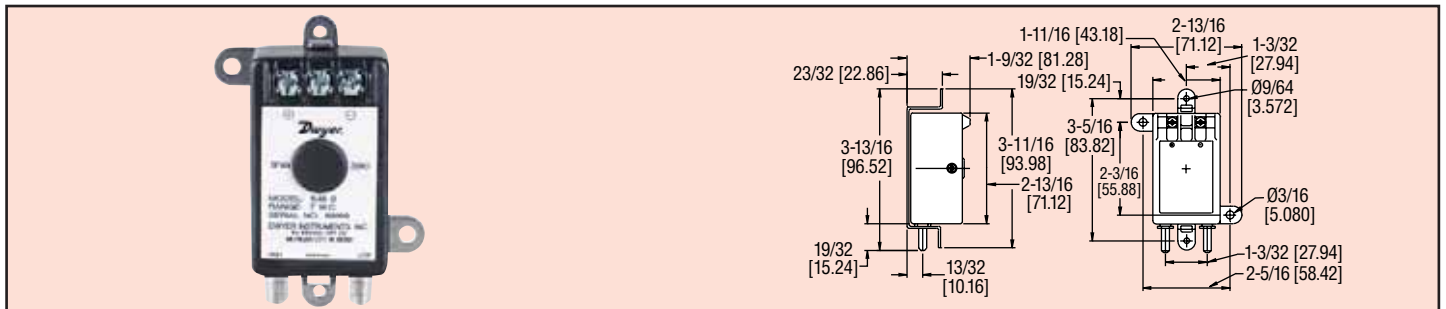
**Agency Approvals:** CE.



Series  
648

# Differential Pressure Transmitter

Ranges Down to 0.1" w.c.,  $\pm 1\%$  Accuracy, High Overpressure Protection



**Series 648 Differential Pressure Transmitter** enables precise measurement and control of differential pressures for filter monitoring, clean room pressurization monitoring, velocity pressure measurement, airflow control, fan tracking, and VAV control. The transmitter is designed with a variable-capacitance sensor for high sensitivity and greater repeatability. The compact size allows easy installation for panel or field mounting. Units include reverse polarity protection.

### MODELS

Model Number	Range	Model Number	Range
648-0	0 to 0.1" w.c.	648-6	0 to 2" w.c.
648-1	0 to 0.25" w.c.	648-9	0 to 5" w.c.
648-2	0 to 0.5" w.c.	648-10	0 to 10" w.c.
648-4	0 to 1" w.c.		

### SPECIFICATIONS

**Service:** Clean, dry air and compatible, non-corrosive gases.

**Wetted Materials:** Stainless steel, nickel plated brass, glass and silicon.

**Accuracy:**  $\pm 1.0\%$  F.S.O. (includes linearity, hysteresis, and repeatability).

**Stability:**  $\pm 1.0\%$  F.S.O./yr.

**Temperature Limits:** -20 to 160°F (-29 to 71°C).

**Pressure Limits:** 10 psig (0.7 kg/cm<sup>2</sup>).

**Compensated Temperature Range:** 40 to 125°F (4 to 52°C).

**Thermal Effects:** Zero:  $\pm 0.025\%$  F.S.O./°F, Span:  $\pm 0.025\%$  rdg/°F.

**Power Requirements:** 12 to 36 VDC.

**Output Signal:** 4 to 20 mA, 2-wire.

**Zero & Span Adjustments:** Zero adjustable:  $\pm 5\%$ , Span adjustable:  $\pm 3\%$ .

**Response Time:** 250 ms.

**Loop Resistance:** 600N @ 24 VDC.

**Current Consumption:** 3.6 mA.

**Electrical Connection:** Screw terminals.

**Process Connection:** Barbed for 1/8" or 1/4" I.D. tubing.

**Housing:** Stainless steel, NEMA 1 case.

**Weight:** 4.5 oz (128 g).

**Agency Approvals:** CE.



Series 666

# Rangeable Differential Pressure Transmitter

Field Selectable Pressure Ranges, 10 psig Overpressure, ±1% Accuracy



**NEW**  
Digital Display  
Available

**Versatility is the key** with our Series 666 Rangeable Differential Pressure Transmitter. Up to 6 field selectable pressure ranges are available in a single model. Four dipswitches located inside the transmitter case make calibration simple and easy. ABS plastic housing provides environmental protection per NEMA 4 (IP65). Units can withstand overpressure to 10 psig. Single range models are available with a digital display for local indication. Low pressure ranges and ±1% full scale accuracy make these transmitters ideal for HVAC and energy management applications.

**MODELS**

Model Number	Ranges, Inches W.C.	Model Number*	Ranges, Inches W.C.
666-1	0 to 0.1, 0 to ±0.05	666-1D	0 to 0.1"
666-2	0 to 0.25, 0 to 0.5, 0 to 1.0, 0 to ±0.125, 0 to ±0.25, 0 to ±0.5	666-2D	0 to 1"
666-3	0 to 1.25, 0 to 2.5, 0 to 5, 0 to ±0.625, 0 to ±1.25, 0 to ±2.5	666-3D	0 to 5"
666-4	0 to 7.5, 0 to 15, 0 to 30, 0 to ±3.75, 0 to ±7.5, 0 to ±15	666-4D	0 to 25"

\*Models with "D" suffix offer Digital Display.

**SPECIFICATIONS**

**Service:** Air and non-corrosive gases.  
**Wetted Materials:** Brass.  
**Accuracy:** ±1% of full scale (RSS) (includes non-linearity, hysteresis, and non-repeatability).  
**Temperature Limits:** Operating: 0 to 150°F (-18 to 65°C), Storage: -65 to 180°F (-54 to 82°C).  
**Pressure Limits:** 10 psig (0.7 kg/cm<sup>2</sup>).  
**Compensated Range:** 40 to 150°F (5 to 65°C).  
**Thermal Effects:** 0.033% FS/°F (0.06% FS/°C) includes zero and span.

**Power Requirements:** 9-30 VDC.

**Output Signal:** 4 to 20 mA, 2-wire.

**Response Time:** <60 msec.

**Loop Resistance:** 0-500 ohms.

**Electrical Connection:** Screw terminal strip with PG-9 cable strain relief.

**Pressure Connection:** 3/16" O.D. barbed brass pressure fitting for 1/4" I.D. tubing.

**Housing:** ABS plastic case, NEMA 4 (IP65).

**Mounting:** 2 mounting tabs with #8 holes.

**Weight:** 16.4 oz (465 g).

**Display:** 3-1/2 digit LCD.

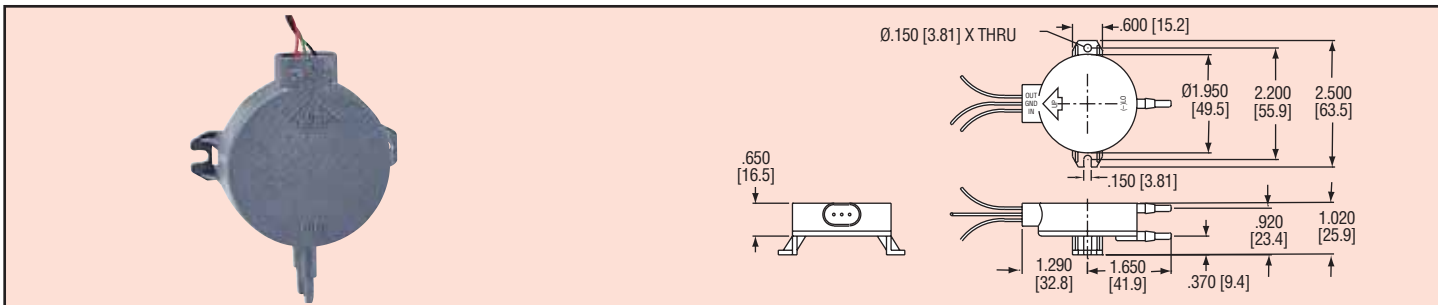
**Agency Approval:** CE.



Series 646

# Differential Pressure Transducer

Low Cost, Ranges from ±0.5" w.c., Voltage Output



**Low cost Series 646 Pressure Transducer** is designed for use with air and inert gases and can accurately measure differential pressure down to ±0.5" w.c. The transducer utilizes a fast response capacitive sensor and is temperature compensated for stable output. Units provide an amplified voltage output signal ideal for VAV systems, filter monitoring, HVAC fan control, building pressurization and leak detection systems.

**MODELS**

Model Number	Range	Model Number	Range
646-0	±0.5" w.c	646-5	0 to 5" w.c.
646-1	0 to 1" w.c.	646-6	0 to 10" w.c.
646-2	0 to 2" w.c.	646-7	±5.0" w.c.
646-3	±1.0" w.c.	646-8	±10.0" w.c.
646-4	±2.0" w.c.		

**SPECIFICATIONS**

**Service:** Compatible gas and air.  
**Wetted Materials:** Graphite filled, nylon housing, 96% alumina ceramic sensor, silicone seal.  
**Accuracy:** Non-linearity: ±0.5% FS max. Hysteresis and Repeatability: ±0.05% FS max.  
**Temperature Limits:** Operating: 14 to 140°F (-10 to 60°C).  
**Pressure Limits:** Line Pressure: 1 psi. Overload Pressure: High side: 5x rated pressure, Low side: 3x rated pressure.  
**Compensated Temperature Range:** 50 to 104°F (10 to 40°C).

**Thermal Effects:** Zero Temp Effects: ±1.5% FS (>2.0" H<sub>2</sub>O); ±3.0% FS (42.0" H<sub>2</sub>O).

Span Temp Effects: ±1.5% FS (>2.0" H<sub>2</sub>O); ±4.0% FS (42.0" H<sub>2</sub>O).

**Power Requirements:** 4.75 to 8 VDC.

**Output Signal:** 0.25 to 4.0 ±0.08 VDC @ 5.0V supply (0.5 to 4.25 ±0.12 VDC for ±0.5" range).

**Response Time:** 15 msec @ 63% FS step response change.

**Output Impedance:** <100N; short circuit protected.

**Electrical Connection:** Three color-coded leads, 24 AWG, 12" length.

**Process Connection:** 1/8" or 3/16" I.D. tubing.

**Weight:** 2.5 oz (0.07 kg).

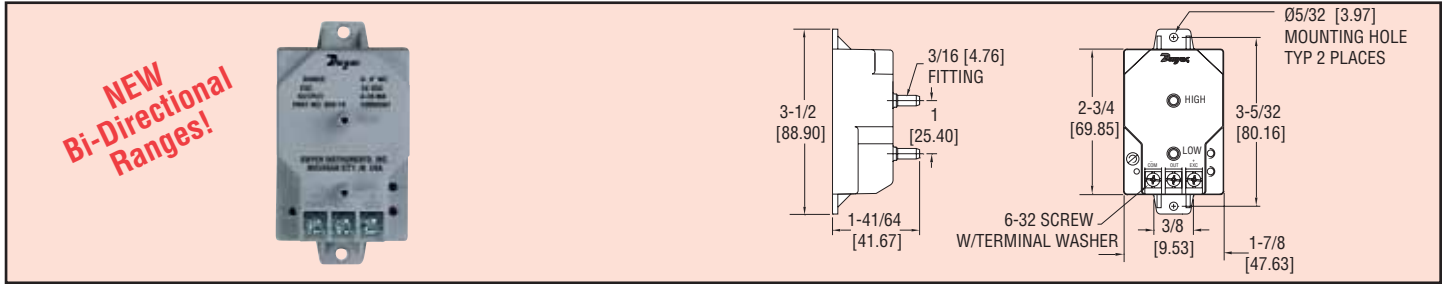


Series  
668

# Differential Pressure Transmitter



Ranges from 0 to 0.25 in. w.c., Overpressure Protection to 10 psig,  $\pm 1\%$  Accuracy



Our low cost Series 668 Differential Pressure Transmitter is capable of measuring low pressures with a  $\pm 1\%$  accuracy – ideally suited for proper building pressurization and air flow control. Transmitters can withstand up to 10 psig overpressure with no damage to the unit. Variable capacitance sensor design provides excellent sensitivity and long-term stability. Compact, lightweight design makes installation simple and easy. Units also feature reverse-polarity protection.

### SPECIFICATIONS

**Service:** Air and non-conductive gases.  
**Accuracy:**  $\pm 1\%$  of full scale (RSS) (includes non-linearity, hysteresis, and non-repeatability).  
**Temperature Limits:** Operating: 0 to 150°F (-18 to 65°C), Storage: -40 to 185°F (-40 to 85°C).  
**Pressure Limits:** 10 psig (0.7 kg/cm<sup>2</sup>).  
**Compensated Temperature Range:** 0 to 150°F (-18 to 65°C).  
**Thermal Effects:** 0.033% FS/°F (0.018% FS/°C).

**Supply Voltage:** 12-30 VDC.  
**Output:** 4 to 20 mA, 2-wire.  
**Zero and Span Adjust:**  $\pm 1$  mA, non-interactive.  
**Response Time:** <60 msec.  
**Loop Resistance:** 0-800 ohms.  
**Electrical Connection:** Terminal strip.  
**Pressure Connection:** 3/16" O.D. fitting for 1/4" I.D. tubing.  
**Housing:** Fire retardant glass filled polyester.  
**Weight:** 3 oz (85 g).  
**Agency Approvals:** CE.

### MODELS

Model Number*	Range	Model Number*	Range
668-1	0 to 0.25 in. w.c.	668-5	0 to 5.0 in. w.c.
668-2	0 to 0.5 in. w.c.	668-6	0 to 10 in. w.c.
668-3	0 to 1 in. w.c.	668-7	0 to 25 in. w.c.
668-4	0 to 2.5 in. w.c.	668-8	0 to 50 in. w.c.
		668-9	0 to 100 in. w.c.

\*Also available with optional conduit cover. To order add "C" to part number, i.e. 668C-1. Consult factory for additional information.

### MODELS - Bi-Directional Models

Model Number*	Range	Model Number*	Range
668-10	0 to $\pm 0.1$ in. w.c.	668-14	0 to $\pm 2.5$ in. w.c.
668-11	0 to $\pm 0.25$ in. w.c.	668-15	0 to $\pm 5$ in. w.c.
668-12	0 to $\pm 0.5$ in. w.c.	668-16	0 to $\pm 10$ in. w.c.
668-13	0 to $\pm 1$ in. w.c.	668-17	0 to $\pm 25$ in. w.c.
		668-18	0 to $\pm 50$ in. w.c.

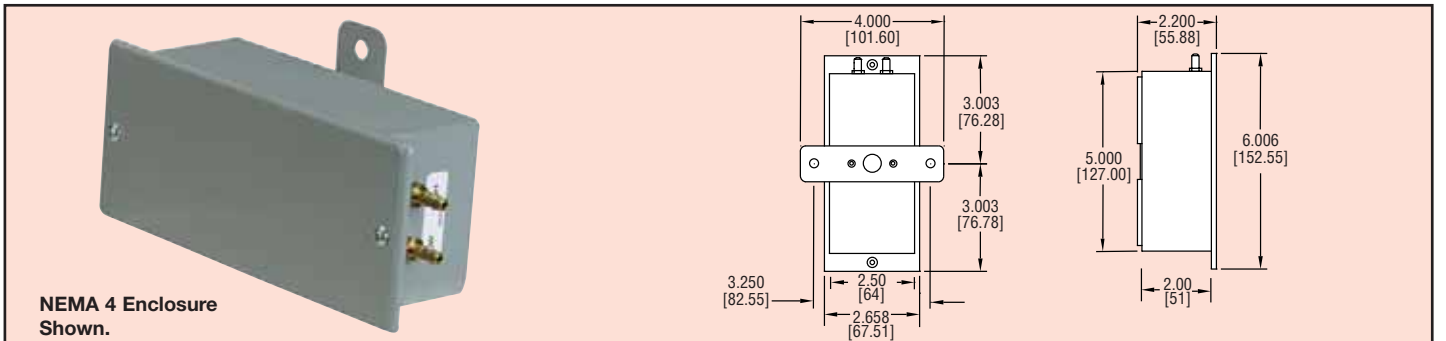


Series  
674

# Differential Pressure Transmitter



$\pm 1\%$  FS Accuracy, Up to Six Field Selectable Ranges, 10 psid Overpressure



NEMA 4 Enclosure Shown.

Measure and control building/room pressure, air flow, duct pressure or filter drop with the Series 674 Differential Pressure Transmitter. These versatile transmitters provide up to six field selectable direct or compound pressure ranges. Additional features include 10 psid overpressure without zero shift, non-interactive zero and span adjustment, temperature compensation, short circuit and reverse polarity protection.

### MODELS

Model Number	Enclosure	Range (inches of w.c.)
674-414	NEMA 4 (IP56)	0 to 0.1, $\pm 0.05$
674-114	Panel mount	
674-424	NEMA 4 (IP56)	0 to 1.0, 0 to 0.5, 0 to 0.25, $\pm 0.5, \pm 0.25, \pm 0.125$
674-124	Panel mount	
674-434	NEMA 4 (IP56)	0 to 5.0, 0 to 2.5, 0 to 1.25, $\pm 2.5, \pm 1.25, \pm 0.625$
674-134	Panel mount	
674-444	NEMA 4 (IP56)	0 to 30, 0 to 15, 0 to 7.5, $\pm 15.0, \pm 7.5, \pm 3.75$
674-144	Panel mount	

### SPECIFICATIONS

**Service:** Clean dry air or any inert gas.  
**Wetted Materials:** Brass hose barbs, silicone.  
**Accuracy:**  $\pm 1\%$  FS (includes non-linearity, hysteresis and non-repeatability).  
**Stability:** Less than 1% FS/year.  
**Temperature Limits:** 0 to 175°F (-18 to 80°C), 10 to 90% RH, non-condensing.  
**Pressure Limits:** 10 psid (0.69 bar).  
**Compensated Temperature Range:** 25 to 150°F (-4 to 65°C).  
**Thermal Errors:**  $\pm 0.0125\%/^{\circ}\text{F}$  (0.02%/°C).

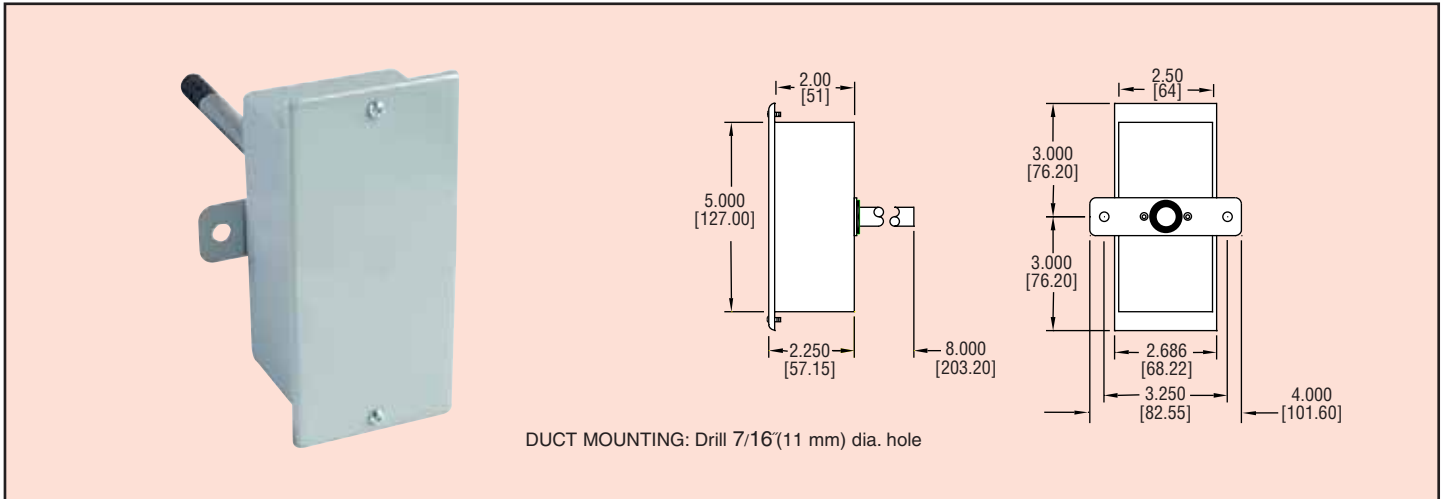
**Supply Voltage:** 12-40 VDC.  
**Output:** 4-20 mA, 2-wire.  
**Zero and Span Adjustment:**  $\pm 15\%$ , non-interactive.  
**Response Time:** 60 msec.  
**Loop Resistance:** 1600N @40VDC.  
**Electrical Connections:** Unpluggable screw terminal block.  
**Pressure Connections:** Barbed for 1/4" O.D. 5/32" I.D. tubing.  
**Enclosure:** Models 674-4XX: Cold-Rolled Steel, NEMA 4 (IP56); Models 674-1XX: Panel Mount.  
**Weight:** Models 674-4XX: 1.0 lb (.45 kg); Models 674-1XX: 0.5 lb (.25 kg).  
**Agency Approvals:** CE.

Series  
676

# Duct Pressure Transmitter

CE

±1% FS Accuracy, NEMA 4 (IP56) Enclosure, Three Field Selectable Ranges



**Lower installation costs** with the Series 676 Duct Pressure Transmitter. The Series 676 Transmitter incorporates a pressure sensor and a static pressure tip into a single unit, eliminating the need for costly control panels and reducing installation time. Each transmitter has three (3) field selectable pressure ranges.

A micro-machined glass-on-silicon capacitance sensor provides a high level, fully conditioned and temperature compensated 4-20 mA output. Rugged NEMA 4 (IP56) enclosure with gasketed cover protects the electronics and sensing element from condensation, corrosion and dust. Units also feature short circuit and reverse polarity protection.

## SPECIFICATIONS

**Service:** Clean dry air or any inert gas.

**Wetted Materials:** Aluminum alloy and nylon.

**Accuracy:** ±1% FS (includes non-linearity, hysteresis and non-repeatability).

**Temperature Limits:** 0 to 175°F (-18 to 80°C).

**Pressure Limits:** 10 psid (0.7 kg/cm<sup>2</sup>).

**Compensated Temperature Range:** 25 to 150°F (-4 to 65°C).

**Thermal Errors:** ±0.0125%/°F (0.02%/°C).

**Power Requirements:** 12-40 VDC.

**Output Signal:** 4-20 mA, 2-wire.

**Zero & Span Adjustment:** ±15%, non-interactive.

**Response Time:** 60 msec.

**Loop Resistance:** 3000 ohms max. @ 40 VDC.

**Stability:** <1% FS/year.

**Electrical Connections:** Unpluggable screw terminal block.

**Conduit Connection:** 1/2" (22.3 mm) knockout.

**Enclosure:** Cold-Rolled Steel, NEMA 4 (IP56).

**Weight:** 1.0 lb (.45 kg).

**Agency Approvals:** CE.

## MODELS

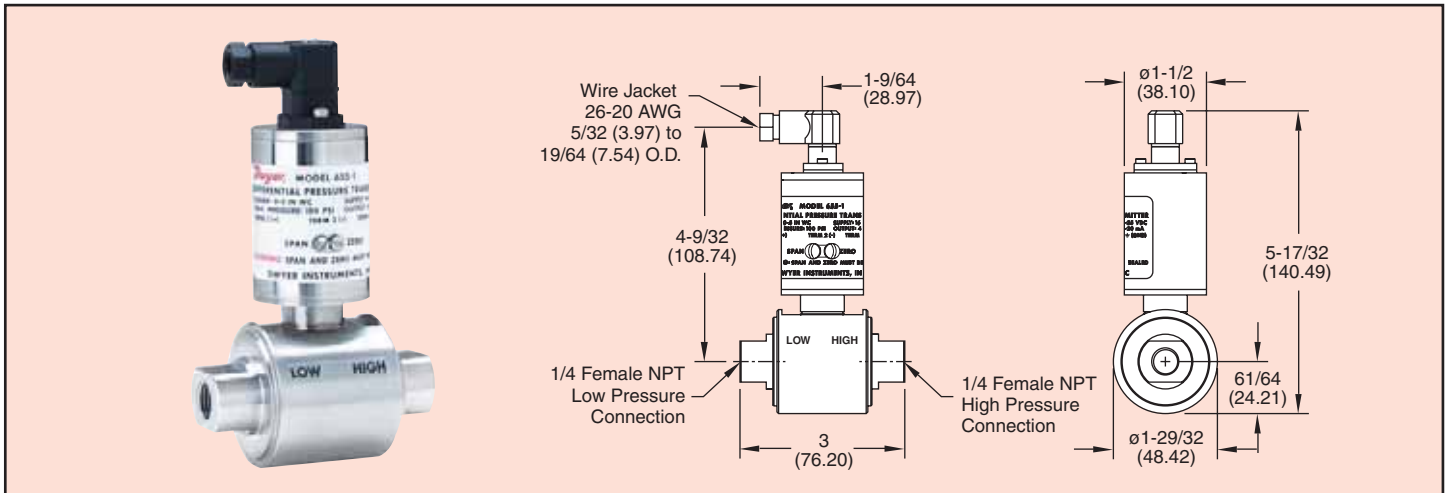
Model Number	Range (inches w.c.)
676-11	0 to 5.0, 0 to 2.5, 0 to 1.25
676-21	0 to 15.0, 0 to 7.5, 0 to 3.75



Series  
655

# Wet/Wet Differential Pressure Transmitter

Low Range, 0-5" w.c., High Maximum Working Pressure



**The Dwyer Series 655 Wet/Wet Differential Pressure Transmitter** converts a positive or a positive differential pressure measurement into a standard 4-20 mA output signal. Designed for use as a wet/wet differential pressure transmitter, units can be used to measure gas or liquid pressures compatible with 316/316L SS wetted parts. With an accuracy of  $\pm 0.5\%$  F.S, the Series 655 Pressure Transmitter can measure low differential pressures, but can withstand working pressures to a maximum of 300 psi (20.7 bar).

### Features

- Wet/Wet Low Differential Pressure
- Withstands High Pressure
- Excellent Wetted Materials  
316/316L SS
- External Span and Zero Adjustments  
 $\pm 10\%$  of Span
- Highly Accurate  
 $\pm 0.5\%$  Full Scale

### Applications

- Refrigeration & HVAC Equipment
- Chill Water Line Pump Monitoring
- Water Filter Monitoring
- Process Control

### MODELS

Model	Range
655-1	0-5" w.c. (1.24 kPa)
655-2	0-8" w.c. (1.99 kPa)
655-3	0-10" w.c. (2.49 kPa)
655-4	0-20" w.c. (4.98 kPa)
655-5	0-1 psid (6.895 kPa)

### SPECIFICATIONS

**Service:** Compatible gases & liquids.

**Wetted Materials:** Types 316, 316L SS.

**Accuracy:**  $\pm 0.5\%$  F.S. (Includes linearity, hysteresis & repeatability).

**Stability:**  $\pm 1\%$  F.S./yr.

**Temperature Limits:** 0 to 140°F (-17.8 to 60°C).

**Compensated Temperature Limits:** 40 to 120°F (4.44 to 48.9°C).

**Pressure Limits:** 300 psi (20.7 bar) continuous; 2000 psi (137.8 bar) burst. A zero shift of up to  $\pm 2\%$  F.S. may occur when 300 psi pressure is applied.

**Thermal Effect:** 0.025% F.S./°F (0.045% F.S./°C).

**Power Requirements:** 16-35 VDC (2-wire).

**Output Signal:** 4 to 20 mA.

**Zero & Span Adjustments:** Accessible potentiometers.  $\pm 10\%$  of span.

**Loop Resistance:** DC; 0-1250 ohms maximum.

**Current Consumption:** DC; 38 mA max.

**Electrical Connections:** 3 position plastic terminal block.

**Process Connections:** 1/4" female NPT.

**Enclosure Rating:** Designed to meet NEMA 4X (IP66).

**Mounting Orientation:** Not position sensitive.

**Weight:** 1 lb, 11.7 oz (785 g).

### OPTIONS

**A-228,** Stainless steel flex hose, 12" (30.48 cm) long, 1/8" male NPT connections.

**A-229,** Stainless steel flex hose, 18" (45.72 cm) long, 1/8" male NPT connections.

**A-332,** Brass adapter, 1/8" female NPT to 1/4" male NPT.

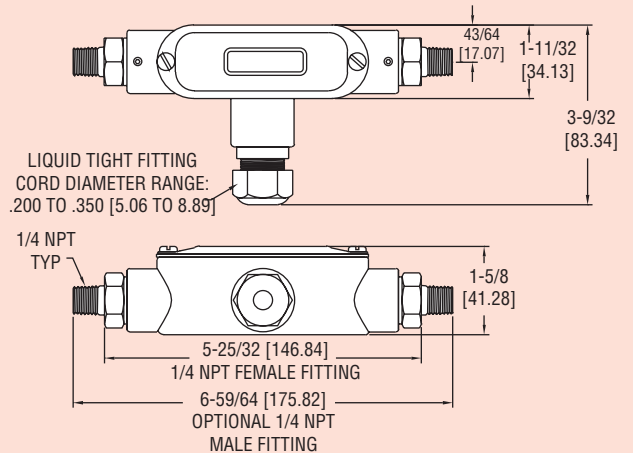
Series  
629

# Wet/Wet Differential Pressure Transmitter

0.5% Accuracy, NEMA 4X Enclosure



Series 629 shown with optional cable gland.



The Dwyer **Series 629 Differential Pressure Transmitter** monitors differential pressure of air and compatible gases and liquids with 0.5% accuracy. The design employs dual pressure sensors converting pressure changes into a standard 4-20 mA output signal for two wire circuits. Small internal volume and minimum moving parts result in exceptional response and reliability. Terminal block, zero and span adjustments are easily accessed under the top cover. The Series 629 Differential Pressure Transmitter is designed to meet NEMA-4X (IP66) construction.

## APPLICATIONS

Monitor Differential Pressures Across:

- Flow Elements
- Heat exchangers
- Filters
- Pumps
- Coils

## MODELS

Model Number	Pressure Limits		
	Range (psid)	Working* Pressure (psid)	Over Pressure (psi)
629-02-CH-P2-E5-S1	10	20	100
629-03-CH-P2-E5-S1	25	50	250
629-04-CH-P2-E5-S1	50	100	250
629-05-CH-P2-E5-S1	100	200	500

\* Pressures exceeding the working pressure limit may cause a calibration shift of up to  $\pm 3\%$  of full scale.

## SPECIFICATIONS

**Service:** Compatible gases & liquids.

**Wetted Materials:** Types 316, 316L SS.

**Accuracy:**  $\pm 0.5\%$  F.S. (includes linearity, hysteresis & repeatability).

**Temperature Limits:** 0 to 200°F (-18 to 93°C).

**Compensated Temperature Limits:** 0 to 175°F (-18 to 79°C).

**Pressure Limits:** See chart.

**Thermal Effect:** 0.02%/°F (0.036%/°C) includes zero & span.

**Power Requirements:** 13-30 VDC (2-wire).

**Output Signal:** 4 to 20 mA. Optional 0-5, 1-5, 0-10, 1-6 or 2-10 VDC.

**Response Time:** 50 msec.

**Loop Resistance:** 0-1300 ohms maximum for current output. For voltage outputs, minimum load resistance: 2000 ohms.

**Electrical Connections:** Terminal block; 1/2" female NPT conduit.

**Process Connections:** 1/4" female NPT.

**Enclosure Rating:** Designed to meet NEMA 4X (IP66).

**Mounting Orientation:** Not position sensitive.

**Weight:** 10.1 oz (286 g).

**Agency Approvals:** CE.

## OPTIONS

-3V, 3 Way Valve Package for Chillers

-LED, 4.5 Digit LED Display



## ACCESSORIES

**A-228,** Stainless steel flex hose, 12" (30.48 cm) long, 1/8" male NPT connections.

**A-229,** Stainless steel flex hose, 18" (45.72 cm) long, 1/8" male NPT connections.

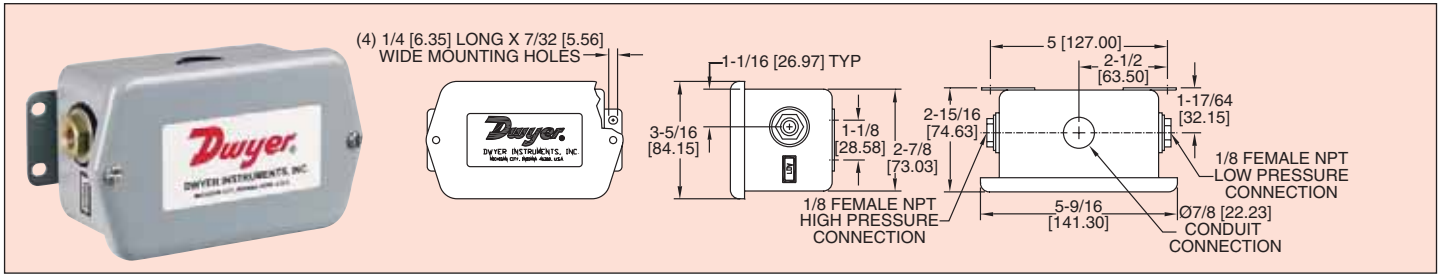
**A-332,** Brass adapter, 1/8" female NPT to 1/4" male NPT.



Series  
647

# Wet/Wet Differential Pressure Transmitter

Ranges from 0 to 1" w.c., ±1.0% Accuracy, NEMA 4 Enclosure, 2-Wire



**Monitor differential pressure** in air/liquid flow systems, HVAC automation, pneumatic systems and process control with the Series 647 Wet/Wet Differential Pressure Transmitter. Units are temperature compensated and provide a 4 to 20 mA output signal which can be interfaced with chart recorders, data loggers and computerized monitoring and control systems.

## SPECIFICATIONS

**Service:** Compatible gases or liquids on both pressure and reference sides.

**Wetted Materials:** Brass, vinyl, glass-filled polyester, silicon, and fluorosilicone.

**Accuracy:** ±1.0% FS.

**Stability:** ±1.5% FS

output/year.

**Temperature Limits:** 32 to 122°F (0 to 50°C).

**Pressure Limits:** Ranges 1" w.c. to 5 psi: 20 psi, 15 psi range: 45 psi, 30 psi range: 60 psi.

**Thermal Effects:** Zero: ±0.05% FS/°F, Span: ±0.05% rdg/°F.

**Power Requirements:** 18 to 30 VDC.

**Output Signal:** 4 to 20 mA, 2-wire.

**Zero and Span Adjustments:** Adjustable, ±10%.

**Loop Resistance:** 400N @ 18 VDC, 600N @ 24 VDC, 1000N @ 30 VDC.

**Electrical Connection:** Screw terminals, reverse polarity protected.

**Process Connections:** Two 1/8" female NPT.

**Housing:** Gasketed steel epoxy painted, NEMA 4 (IP56).

**Weight:** 14 oz (397 g).

**Agency Approvals:** CE.

## MODELS

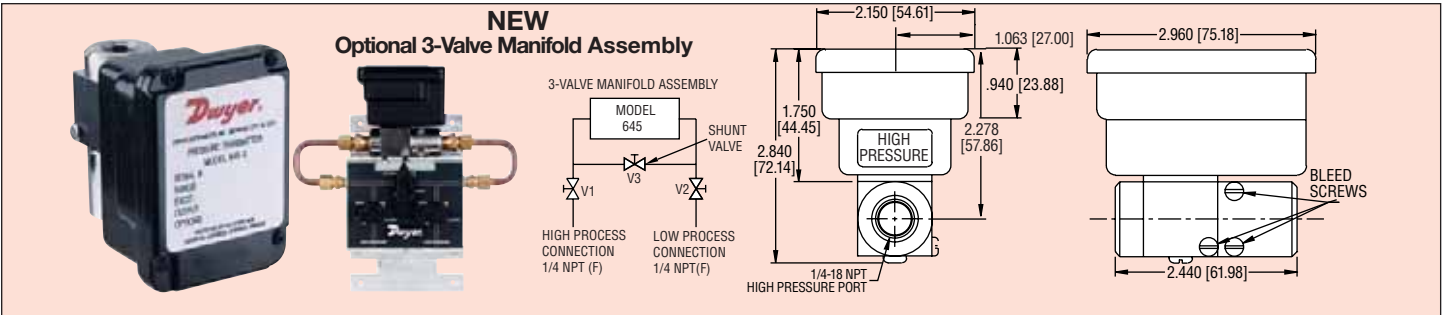
Model Number	Range	Model Number	Range
647-0	0 to 1" w.c.	647-5	0 to 1 psid
647-1	0 to 3" w.c.	647-6	0 to 5 psid
647-2	0 to 25" w.c.	647-7	0 to 15 psid
647-3	0 to 5" w.c.	647-8	0 to 30 psid
647-4	0 to 10" w.c.		



Series  
645

# Wet/Wet Differential Pressure Transmitter

±0.25% Accuracy, Quick Response, 2-Wire Design



**Series 645 Wet/Wet Differential Pressure Transmitters** are designed for use with compatible gases and liquids which can be applied to both the pressure and reference ports. Quick response capacitance sensor delivers a 4 to 20 mA output signal proportional to differential pressure with ±.25% accuracy. The Series 645 transmitters are ideal for process control, filter condition monitoring, refrigeration equipment, pump speed control, HVAC equipment, and liquid level measurement. For ease of installation and maintenance, order optional 3-valve manifold assembly. Bleed ports allow for total elimination of air in the line and pressure cavities.

## SPECIFICATIONS

**Service:** Compatible gases or liquids on both pressure and reference sides.

**Wetted Materials:** 17-4 PH stainless steel, 300 Series stainless steel, Viton® and Silicone O-rings and bleed screw seals.

**Accuracy:** ±0.25% FS (RSS).

**Temperature Limits:** Operating: 0 to 175°F (-22 to 80°C), Storage: -65 to 260°F (-54 to 126°C).

**Pressure Limits:** (High side) 1 to 5 psi: 20 x FS, 10 to 25 psi: 10 x FS, 50 psi: 5 x FS, 100 psi: 2.5 x FS; (Low side) 2.5 x FS.

**Thermal Effects:** (includes zero and span) ±0.02% FS/°F, 30 to 150°F (-1 to 65°C).

**Power Requirements:** 11 to 30 VDC.

**Output Signal:** 4 to 20 mA, 2-wire.

**Zero and Span Adjustments:**

Adjustable, ±1 mA, non-interactive.

**Response Time:** 30 to 50 msec.

**Loop Resistance:** 0 to 1000N.

**Electrical Connection:** Barrier strip terminal block with conduit enclosure and .875" (22 mm) diameter conduit opening.

**Process Connection:** 1/4"-18 female NPT.

**Housing:** Stainless steel/ Aluminum, NEMA 4X (IP56).

**Weight:** 14.4 oz (0.4 kg).

**Agency Approvals:** CE.

**3-Valve Manifold Assembly**

**Manifold:** Brass.

**Valve Type:** 90° On/Off.

**Process Connection:** 1/4"-18 female NPT.

## MODELS

Model Number*	Range	Model Number*	Range
645-0	0 to 1 psid	645-10	±0.5 psid
645-1	0 to 2 psid	645-11	±1 psid
645-2	0 to 5 psid	645-12	±2.5 psid
645-3	0 to 10 psid	645-13	±5 psid
645-4	0 to 25 psid	645-14	±10 psid
645-5	0 to 50 psid	645-15	±25 psid
645-6	0 to 100 psid	645-16	±50 psid

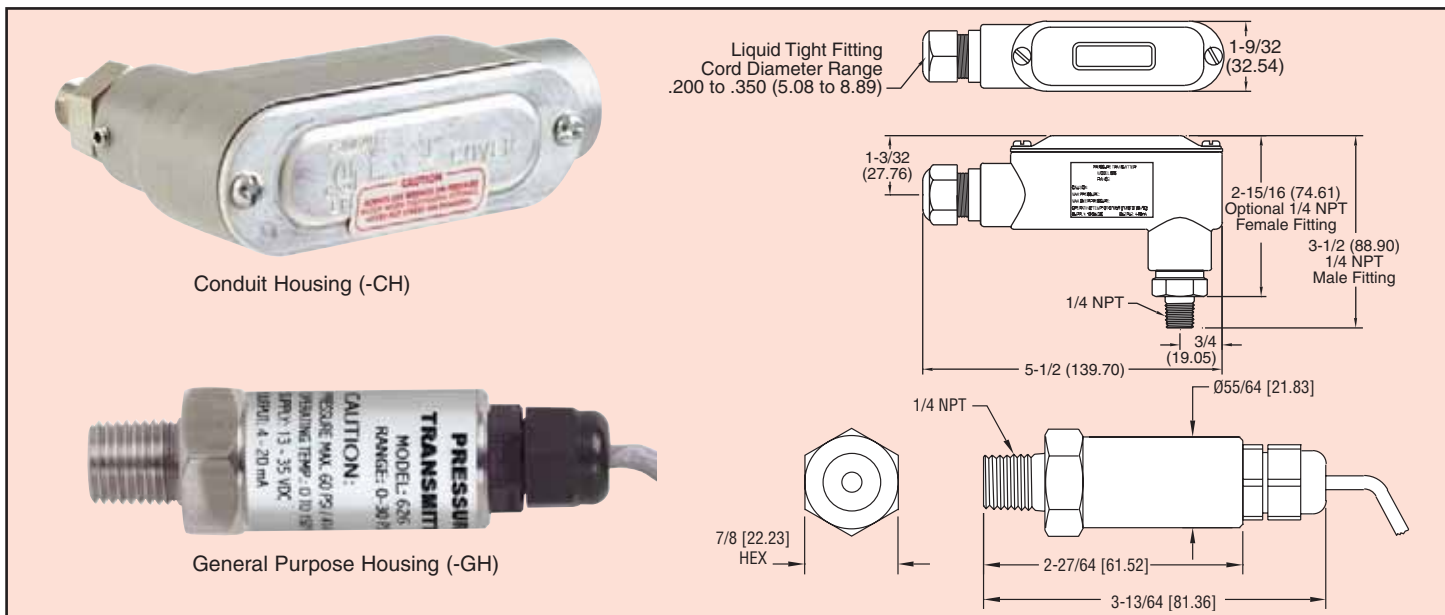
\* For optional 3-Valve Manifold Assembly, specify -3V as suffix



Series  
626  
&  
628

# Industrial Pressure Transmitter

Complete Offering of Ranges, Connections and Outputs



The Dwyer Series 626 Pressure Transmitters possess a highly precise 0.25% piezo-resistive sensor contained in a compact, rugged, NEMA 4X stainless steel general purpose housing or cast aluminum conduit housing.

The Series 628 Pressure Transmitters are ideal for OEMs with 1% full scale accuracy sensors. The transmitter is also available in the general purpose stainless steel housing and the cast aluminum conduit housing.

The highly corrosive resistant 316L stainless steel wetted parts allow the Series 626 and 628 transmitters to measure the pressure in a multitude of processes from hydraulic oils to chemicals. The Series 626 and 628 are available in ranges of vacuum, compound to 5000 psi with a variety of optional outputs, process connections and electrical terminations to allow you to select the right transmitter for your application.

## APPLICATIONS

- Compressors
- Pumping Systems
- Irrigation Equipment
- Hydraulic
- Industrial Process Monitoring

## SPECIFICATIONS

**Service:** Compatible gases and liquids.

**Wetted Materials:** Type 316 SS, 316L SS.

**Accuracy:** 626: 0.25% full scale. 628: 1% full scale (includes linearity, hysteresis, and repeatability).

**Temperature Limit:** 0 to 200°F (-18 to 93°C).

**Compensated Temperature Range:** 0 to 175°F (-18 to 79°C).

**Thermal Effect:** 626: ±0.02% FS/°F. 628: ±0.04% FS/°F (includes zero and span).

**Pressure Limits:** See table.

**Power Requirements:** 13 to 30 VDC.

**Output Signal:** 4 to 20 mA. Optional 0-5, 1-5, 0-10, 1-6 or 2-10.

**Response Time:** 50 msec.

**Loop Resistance:** 0 - 1300 ohms maximum for current. For voltage outputs, minimum load resistance: 2000 ohms.

**Current Consumption:** 38 mA (maximum).

**Electrical Connections:** Conduit Housing (-CH): terminal block, 1/2" female NPT conduit. General Purpose Housing (-GH): cable or DIN connector.

**Process Connection:** 1/4" male or female NPT and BSPT.

**Enclosure Rating:** NEMA 4X (IP66).

**Mounting Orientation:** Mount in any position.

**Weight:** 10 oz (283 g).

**Agency Approvals:** CE.

## PRESSURE LIMITS

Range Number	Pressure Range (psig)	Maximum Pressure (psig)	Over Pressure (psig)	Range Number	Pressure Range (psig)	Maximum Pressure (psig)	Over Pressure (psig)
00	30" Hg-0	30	150	11	0-150	300	750
01	30-0-15	30	150	12	0-200	400	1000
02	30-0-30	60	300	13	0-300	600	1500
03	30-0-45	100	300	14	0-500	1000	2500
04	30-0-60	200	500	15	0-1000	2000	5000
05	30-0-100	200	500	16	0-1500	3000	5000
06	0-5	10	50	17	0-2000	4000	5000
07	0-15	30	150	18	0-3000	6000	7500
08	0-30	60	300	19	0-5000	7500	10000
09	0-50	100	300				
10	0-100	200	500				



## MODEL ORDERING CHART

<b>Accuracy</b>	626 628							0.25% Full Scale Accuracy 1.0% Full Scale Accuracy
<b>Range</b>		-00 -01 -02 -03 -04 -05 -06 -07 -08 -09 -10 -11 -12 -13 -14 -15 -16 -17 -18 -19						0-30" Hg Vacuum 30-0-15 psi 30-0-30 psi 30-0-45 psi 30-0-60 psi 30-0-100 psi 0-5 psi 0-15 psi 0-30 psi 0-50 psi 0-100 psi 0-150 psi 0-200 psi 0-300 psi 0-500 psi 0-1000 psi 0-1500 psi 0-2000 psi 0-3000 psi 0-5000 psi
<b>Housing</b>			-CH -GH					Conduit Housing General Purpose Housing
<b>Process Connection</b>				-P1 -P2 -P3 -P4				1/4" male NPT 1/4" female NPT 1/4" male BSPT 1/4" female BSPT
<b>Electrical Connection</b>					-E1 -E2 -E3 -E4 -E5			Cable Gland with 3' of Prewired Cable Cable Gland with 6' of Prewired Cable Cable Gland with 9' of Prewired Cable DIN Connector Available with -GH Housing Only 1/2" female NPT Conduit Available with -CH Housing Only
<b>Signal Output</b>						-S1 -S2 -S3 -S4 -S5 -S6		4-20 mA 1-5 Volt 2-10 Volt 0-5 Volt 0-10 Volt 1-6 Volt
<b>Options</b>							-AT -NIST -LED	Aluminum Tag NIST Traceable Certificate Bright Red LED display. Available with -CH housing only

**626 with LED Display**

Note: LED option is not NEMA 4X rated.

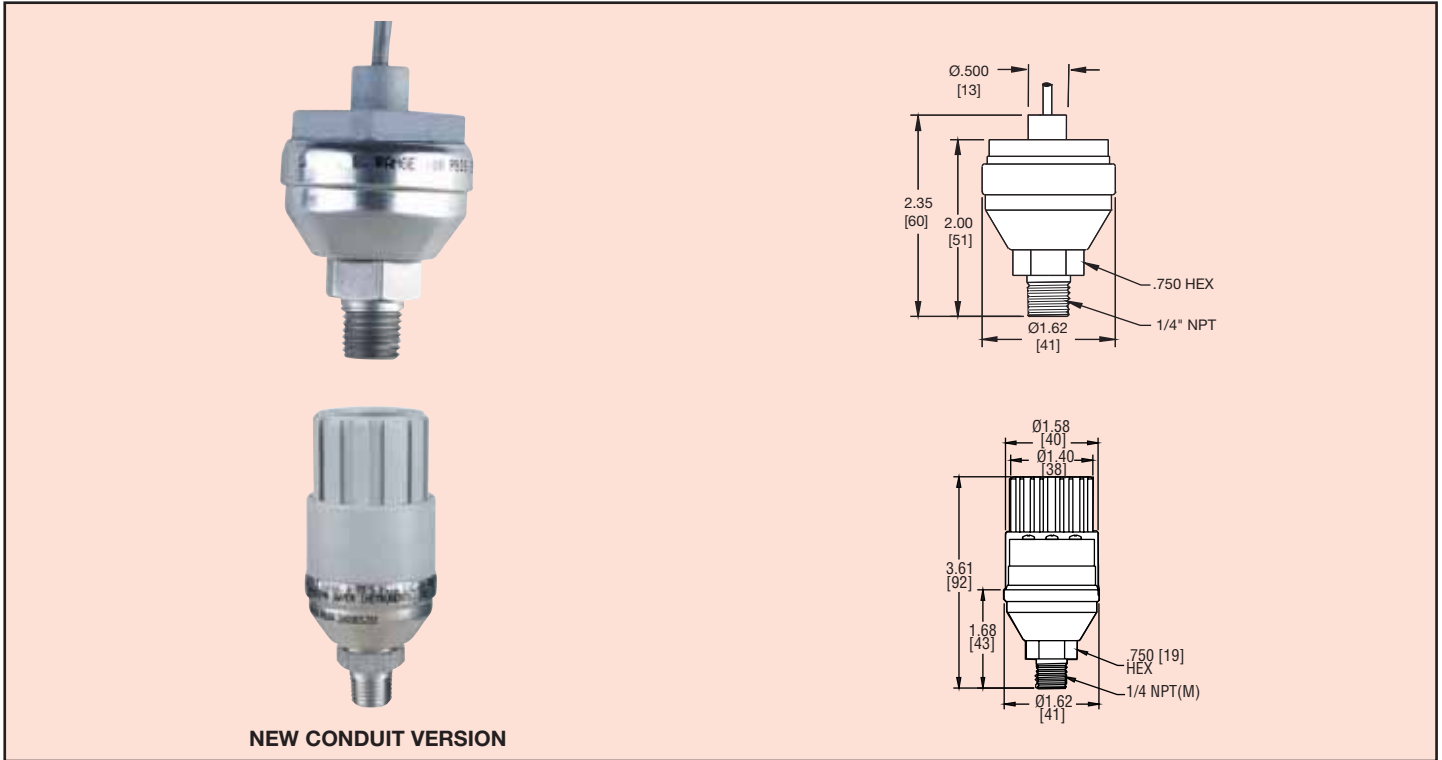




Series  
673

# Pressure Transmitter

±0.25% Full Span Accuracy, 4-20 mA Signal, Ranges to 1000 psi



NEW CONDUIT VERSION

The low cost Series 673 Pressure Transmitter is a fixed range transmitter designed for harsh environments and suitable for high shock and vibration applications. Constructed of stainless steel, the Series 673 provides a 4 to 20 mA output signal with 0.25% accuracy. Use the Series 673 in industrial OEM equipment, hydraulic systems, HVAC equipment, industrial engines and compressor control.

## SPECIFICATIONS

**Service:** Liquid, gas, or vapor.

**Wetted Materials:** 17-4 PH SS.

**Accuracy:** ±0.25% FS (RSS), (includes non-linearity, hysteresis and non-repeatability).

**Temperature Limits:**

-40 to 260°F (-40 to 125°C).

**Pressure Limits:** 2 x maximum range.

**Compensated Temperature Range:** 4 to 212°F (-20 to 100°C).

**Thermal Errors:** Zero: ±3.6% FS/100°F(100°C); Span: ±2.7% FS/100°F(100°C).

**Supply Voltage:** 9-30 VDC.

**Output:** 4-20 mA, 2-wire.

**Zero & Span Adjustment:** Fixed.

**Response Time:** <60 msec.

**Loop Resistance:** 0 to 800N.

**Stability:** 0.5% FS/year.

**Shock:** 200 g.

**Vibration:** 20 g.

**Electrical Connections:** 2 ft (61 cm) multiconductor cable.

**Conduit Connection:** 1/4"-18 (22.3 mm) knockout.

**Enclosure:** Stainless Steel and Valox.

**Weight:** 2.3 oz (65 g).

**Agency Approvals:** CE.

## MODELS

Model Number*	Range	Model Number*	Range
673-1	0-1 psi	673-7	100 psi
673-2	0-2 psi	673-8	200 psi
673-3	0-5 psi	673-9	500 psi
673-4	0-10 psi	673-10	1000 psi
673-5	0-25 psi	673-13	-14.7-30 psig
673-6	50 psi	673-14	-14.7-100 psig
673-1C	0-1 psi	673-7C	100 psi
673-2C	0-2 psi	673-8C	200 psi
673-3C	0-5 psi	673-9C	500 psi
673-4C	0-10 psi	673-10C	1000 psi
673-5C	0-25 psi	673-13C	-14.7-30 psig
673-6C	50 psi	673-14C	-14.7-100 psig

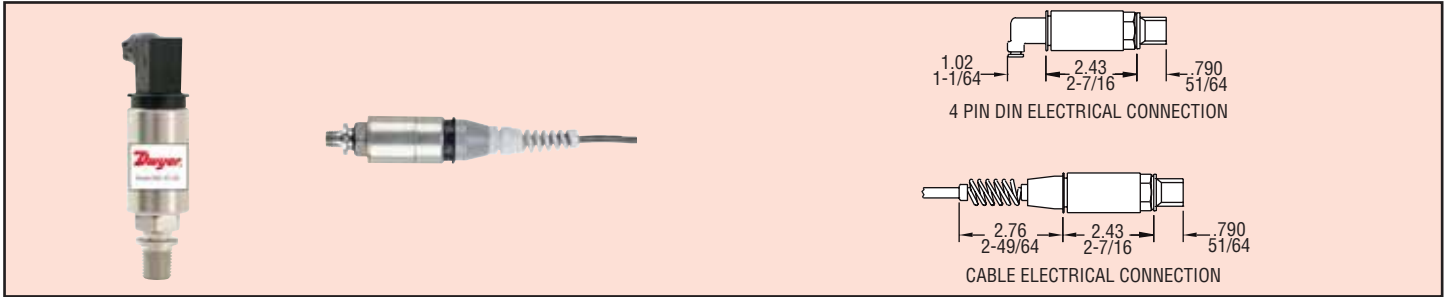
\* The model numbers followed by a "C" represent the conduit version.



Series  
683

# Industrial Pressure Transducer

±.25% Accuracy, 17-4 PH SS Wetted Parts, 4-20 mA or 5V Output



Designed for high repeatability and long term stability, the Series 683 Industrial Pressure Transducer is ideal for production machinery, pumps, compressors and many HVAC applications. The Series 683 is designed with RFI/EMI circuit protection against noise, voltage spikes, and static discharge.

### SPECIFICATIONS

**Service:** Compatible liquids and gases.  
**Wetted Materials:** 17-4 PH SS.  
**Accuracy:** ±0.25% FS.  
**Stability:** ±0.2 % of F.S. for 1-year (non-cumulative).  
**Temperature Limits:** DIN Models: -22 to 260°F (-40 to 125°C); Cable Models: -5 to 180°F (-20 to 80°C).  
**Pressure Limits:** 2 x FS.  
**Thermal Effect:** 1.5% FS.

**Power Requirements:** 24 VAC.  
**Output:** 4-20 mA DC or 0-5 VDC 2-wire.  
**Loop Resistance:** 850 ohms @24 VDC.  
**Electrical Connection:** DIN Connector or 3 ft cable.  
**Process Connection:** 1/4" male NPT.  
**Enclosure:** NEMA 4 (IP65).  
**Weight:** 1 lb (100 g).  
**Agency Approvals:** CE, UL.

### MODELS

Model Number	Range	Electrical Connection	Output	Model Number	Range	Electrical Connection	Output
683-40140	0-15 psi	DIN Connector	4-20 mA	683-10140	0-15 psi	DIN Connector	0-5V
683-40340	0-60 psi	DIN Connector	4-20 mA	683-10340	0-60 psi	DIN Connector	0-5V
683-40540	0-150 psi	DIN Connector	4-20 mA	683-10540	0-150 psi	DIN Connector	0-5V
683-40840	0-500 psi	DIN Connector	4-20 mA	683-10840	0-500 psi	DIN Connector	0-5V
683-41040	0-1000 psi	DIN Connector	4-20 mA	683-11040	0-1000 psi	DIN Connector	0-5V
683-40111	0-15 psi	3 ft (1 m) Cable	4-20 mA	683-10111	0-15 psi	3 ft (1 m) Cable	0-5V
683-40311	0-60 psi	3 ft (1 m) Cable	4-20 mA	683-10311	0-60 psi	3 ft (1 m) Cable	0-5V
683-40511	0-150 psi	3 ft (1 m) Cable	4-20 mA	683-10511	0-150 psi	3 ft (1 m) Cable	0-5V
683-40811	0-500 psi	3 ft (1 m) Cable	4-20 mA	683-10811	0-500 psi	3 ft (1 m) Cable	0-5V
683-41011	0-1000 psi	3 ft (1 m) Cable	4-20 mA	683-11011	0-1000 psi	3 ft (1 m) Cable	0-5V



Series  
638

# Pressure Transmitter

Stability, Stainless Steel, Intrinsically Safe, Accuracy ±0.50%, 4-20 mA Signal



Series 638 Pressure Transmitters employ a polysilicon sensor for superior longterm stability and repeatability with ±0.5% accuracy. They are FM approved intrinsically safe. Stainless steel NEMA 4X enclosure is ideal for corrosive media in hazardous environments. Output is 4-20 mA with 10-30 VDC power supply. NIST traceability with calibration certification is standard.

### SPECIFICATIONS

**Service:** Liquid, gas or vapor.  
**Wetted Materials:** 17-4PH SS.  
**Body:** 300 SS.  
**Accuracy:** ±0.50% F.S.  
**Repeatability:** ±0.05% F.S.  
**Hysteresis:** ±0.15% F.S.  
**Stability:** Less than 1% F.S./Yr.  
**Temperature Limits:**  
 Operating: -20 to 180°F (-29 to 82°C).  
**Compensated Temperature Range:**  
 -20 to 160°F (-29 to 71°C)  
 Storage: -65 to 250°F (-54 to 121°C).  
**Thermal Effects:** Zero: 0.028% F.S./°F  
 Span: 0.028% F.S./°F  
**Power Requirements:** 200% for ≤2000 psig, 150% for 3000-7500 psi.  
**Output Signal:** 4-20 mA DC, max. 30 mA DC (2-wire).  
**Zero and Span Adjust:** ±2.8% F.S. each.  
**Response Time:** Less than 10 ms.  
**Loop Resistance:** Vmin = 10V + (.022A x RL).

**Electrical Connection:** 36" (92 cm), 24 AWG.  
**Process Connection:** 1/8" male NPT  
**Weight:** 2 oz (56 g) approximate without cable.  
**Agency Approvals:** FM.

### MODELS

Model Number*	Operating Range, PSI	Operating Range, Bar	Model Number*	Operating Range, PSI	Operating Range, Bar
638-4-FM	0-100	0-7	638-10-FM	0-1000	0-69
638-5-FM	0-150	0-10	638-11-FM	0-2000	0-138
638-6-FM	0-200	0-14	638-12-FM	0-3000	0-207
638-7-FM	0-300	0-21	638-13-FM	0-5000	0-345
638-8-FM	0-500	0-35	638-14-FM	0-7500	0-517
638-9-FM	0-750	0-50	638-15-FM	0-10000	0-689

\*For low-cost non-FM version omit FM in model number.

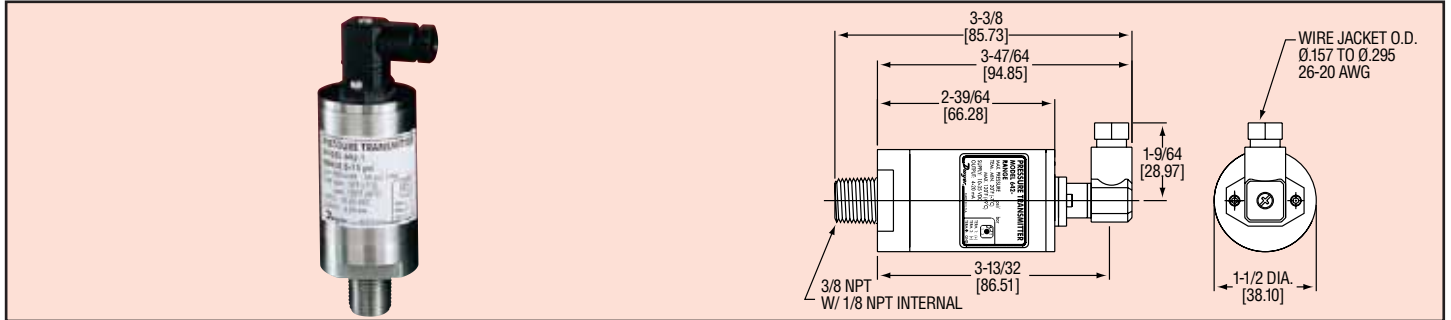
### Suggested Specifications

Pressure transmitter shall be stainless steel diaphragm and polysilicon strain gage bridge with 5 ranges from 0 to 500 psig (0 to 35 bar) and accuracy of ±0.50% F.S. Must have NIST traceable performance and a calibration test certificate. Unit shall be FM approved intrinsically safe for Class I, II, & III, Division 1, Group A, B, C, D, F & G for Hazardous Locations. Transmitter shall be Dwyer Model No. 638 \_\_\_\_.

Series  
642

# Pressure Transmitter

±0.1% Accuracy, SS Wetted Parts, Economical



The Series 642 Pressure Transmitter uses high end ASIC technology to compensate for both linearity and thermal errors, providing an output with an accuracy of 0.1% of F.S. The 642 is therefore well suited for applications where precision measurement and control is an absolute must. Units are constructed of 316 and 316L SS wetted parts for superior compatibility. Zero and span are independently adjustable. Transmitters feature simple two wire operation plus reverse polarity protection. Liquid fill provides shock and vibration resistant protection.

## MODELS

MODEL NUMBER	PRESSURE RANGE
642-1	0 - 15 psig (0 - 1.03 bar)
642-2	0 - 30 psig (0 - 2.07 bar)
642-3	0 - 50 psig (0 - 3.45 bar)
642-4	0 - 100 psig (0 - 6.90 bar)

## SPECIFICATIONS

**Service:** Compatible, gases & liquids.  
**Wetted Materials:** Types 316, 316L SS.  
**Accuracy:** ±0.1% F.S.  
**Stability:** ±1% F.S./yr.  
**Temperature Limits:** 0 to 150°F (-17.8 to 65°C).  
**Compensated Temperature Limits:** 20 to 120°F (-6.67 to 48.9°C).  
**Pressure Limit:** 2x pressure range.  
**Thermal Effect:** ±0.025% F.S./°F (0.045% F.S./°C).  
**Power Requirements:** 10 to 35 VDC (2-wire).  
**Output Signal:** 4 to 20 mA.

**Zero & Span Adjustments:** Accessible potentiometers adjustable to 0.05% of full span.

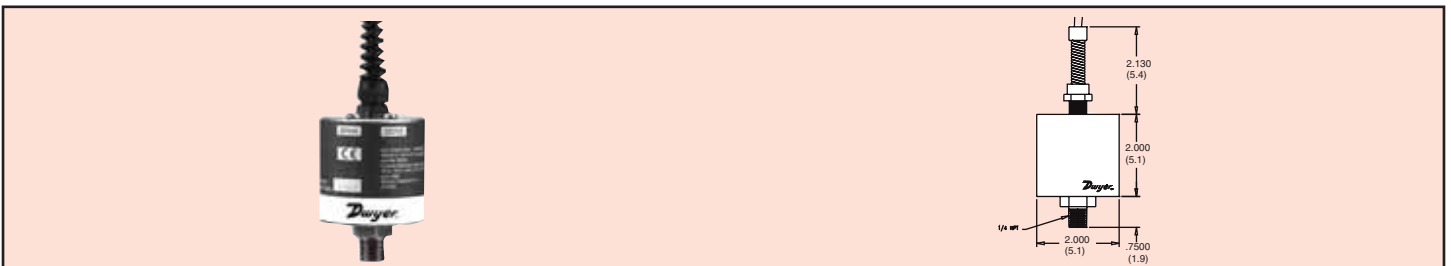
**Loop Resistance:** 1250 ohms DC max.  
**Current Consumption:** 38 mA DC max.  
**Electrical Connections:** 3-position terminal block.  
**Process Connection:** Dual-size 3/8" (9.53 mm) male NPT, 1/8" (3.18 mm) female NPT.  
**Enclosure Rating:** Designed to meet NEMA 4.  
**Mounting Orientation:** Not position sensitive.  
**Weight:** 11 oz (312 g).  
**Agency Approvals:** CE.

**Applications** include aerospace industries, factory automation, equipment monitoring and industrial research. The Series 642 Pressure Transmitter is ideal for use in harsh environments.

Series  
682

# Industrial Pressure Transmitter

±0.13% FS Accuracy, External Adjustments, 4-20 mA Output



The Series 682 Industrial Pressure Transmitter is designed to withstand environmental effects such as shock, vibration, temperature, and EMI/RFI. The electronics and capacitive sensor are packaged in a welded stainless steel housing and meets NEMA 4 (IP65) protection ratings. The transmitter features external zero and span adjustments and reverse polarity protection. The Series 682 delivers high performance in tough applications such as off road equipment, hydraulic systems, compressor control, industrial engines, or industrial refrigeration.

## MODELS

Model Number*	Range	Overpressure
682-0	0 to 25 psi	100 psi
682-1	0 to 50 psi	150 psi
682-2	0 to 100 psi	300 psi
682-3	0 to 250 psi	500 psi
682-4	0 to 500 psi	1000 psi
682-5	0 to 1000 psi	2000 psi
682-6	0 to 3000 psi	4500 psi
682-7	0 to 5000 psi	7500 psi
682-8	0 to 10,000 psi	12,500 psi

\* Units calibrated in bar also available. Consult factory.

## SPECIFICATIONS

**Service:** Compatible liquids and gases.  
**Wetted Parts:** 17-4 PH SS.  
**Accuracy:** ±.13% FS (includes non-linearity, hysteresis and non-repeatability).  
**Temperature Limits:** -40 to 260°F (-40 to 125°C) 10 to 90% RH, non-condensing.  
**Pressure Limit:** See table.  
**Compensated Temp. Range:** -4 to 176°F (-20 to 80°C).  
**Thermal Effect:** Zero shift: 1.0% FS/100°F (% FS/50°C); span shift: ±1.5% FS/100°F (% FS/50°C).

**Power Requirements:** 9-30 VDC.

**Output:** 4-20 mA, 2-wire.

**Zero and Span Adjustment:** ± 0.5 mA, non-interactive.

**Response Time:** 5 ms.

**Loop Resistance:** 800 ohms.

**Electrical Connections:** 2 ft (51 cm) multiconductor cable.

**Process Connection:** 1/4" male NPT.

**Enclosure Rating:** 17-4 PH SS.

**Weight:** 8 oz (227 g).

**Agency Approvals:** CE.

**Shock:** 200 g operating.

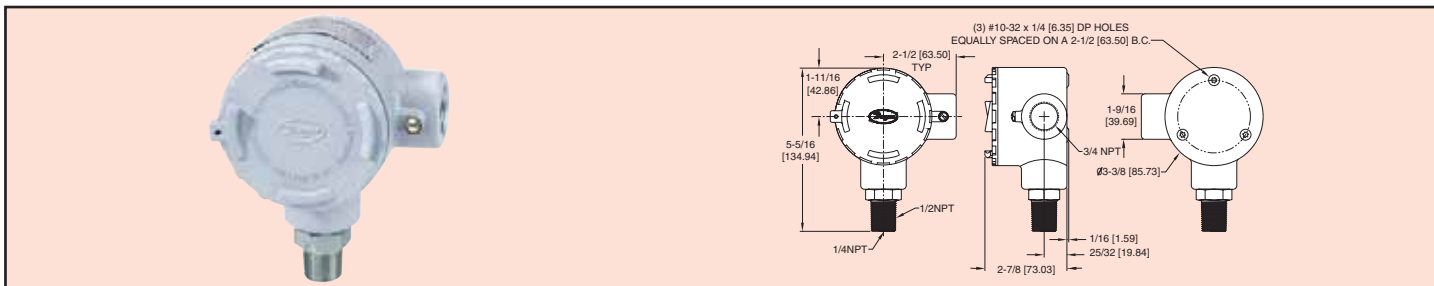
**Vibration:** 20 g 50-2000 Hz.



Series  
634ES

# Adjustable Range Pressure Transmitter

0.5% Full Span Accuracy, Ranges to 5000 psi



**Series 634ES Transmitters** sense a single pressure for air, compatible gas or liquid and provide 4-20 mA output signal. Positive pressure can be measured within an accuracy of  $\pm 0.5\%$  of span. The Series 634ES uses an isolated piezoresistive pressure sensor to produce a resistance change across a wheatstone bridge. Convenient 2-wire operation simplifies installation. Zero and span adjustments are fully protected inside a rugged die cast aluminum housing with durable gray polyurethane finish. Enclosure is designed to meet NEMA 4X requirements.

### MODELS

Model Number	Range in psi (bar)	Min. Range in psi (bar)	Max. Range in psi (bar)
634ES-0	15 (1.035)	7.5 (0.517)	40 (2.76)
634ES-1	30 (2.07)	20 (1.38)	40 (2.76)
634ES-2	50 (3.45)	40 (2.76)	60 (4.14)
634ES-3	100 (6.9)	60 (4.14)	120 (8.3)
634ES-4	200 (13.8)	100 (6.9)	250 (17.2)
634ES-5	300 (20.7)	250 (17.2)	350 (24.1)
634ES-6	500 (34.5)	350 (24.1)	600 (41.4)
634ES-7	1000 (69)	600 (41.4)	1250 (86)
634ES-8	2000 (138)	1250 (86)	2500 (172)
634ES-9	4000 (276)	2500 (172)	5000 (414)

### SPECIFICATIONS

**Service:** Compatible, gases & liquids.  
**Wetted Materials:** Types 316, 316L SS.

**Accuracy:**  $\pm 0.5\%$  F.S.

**Stability:**  $\pm 1\%$  F.S./yr.

**Temperature Limits:** 0 to 140°F (-17.8 to 60°C).

**Compensated Temperature Limits:** 20 to 120°F (-6.67 to 48.9°C).

**Pressure Limit:** 1.5x maximum pressure range.

**Thermal Effect:**  $\pm 0.025\%$  F.S./°F (0.045% F.S./°C).

**Power Requirements:** 10 to 35 VDC (2-wire).

**Output Signal:** 4 to 20 mA.

### Zero & Span Adjustments:

Protected potentiometers located in auxiliary housing.

**Loop Resistance:** 1250 ohms DC max.

**Current Consumption:** 38 mA DC max.

**Electrical Connections:** Terminal block.

**Process Connection:** 1/4" (6.35 mm) female NPT x 1/2" (12.7 mm) male NPT.

**Enclosure Rating:** Designed to meet NEMA 4x.

**Mounting Orientation:** Not position sensitive.

**Weight:** 1 lb, 10.6 oz (754 g).

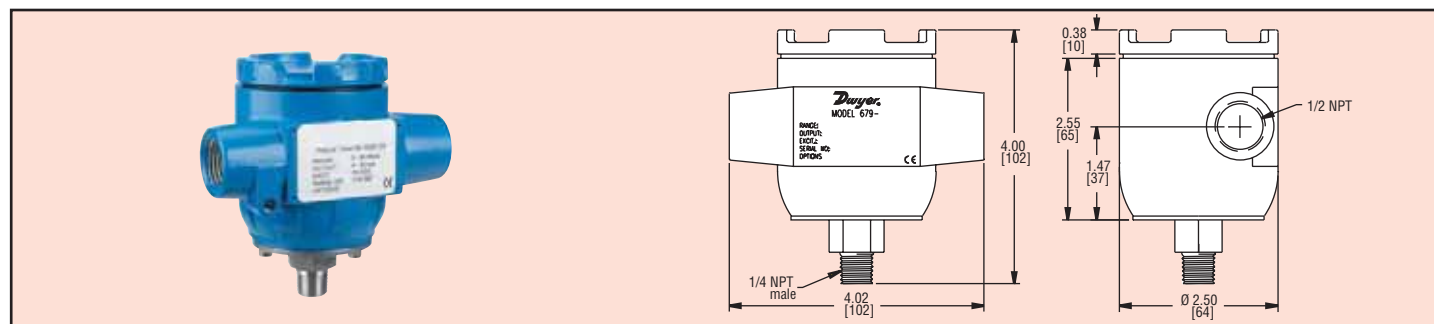
**Agency Approvals:** CE.



Series  
679

# Weatherproof Pressure Transmitter

$\pm 0.25\%$  FS Accuracy, Compatible with Corrosive Materials, 4-20 mA Output



The **Series 679 Pressure Transmitter** is compatible with a wide range of gases and liquids, and is specially designed for weatherproof service (NEMA 4/IP56). The Model 679 can measure pressures with an accuracy of  $\pm 0.25\%$ . This model provides a 4-20 mA output and is field adjustable.

### MODELS

Model Number	Range	Overpressure
679-0	0 to 25 psi	100 psi
679-1	0 to 50 psi	150 psi
679-2	0 to 100 psi	300 psi
679-3	0 to 250 psi	500 psi
679-4	0 to 500 psi	1000 psi
679-5	0 to 1000 psi	2000 psi
679-6	0 to 3000 psi	4500 psi
679-7	0 to 5000 psi	7500 psi
679-8	0 to 10,000 psi	12,000 psi

### SPECIFICATIONS

**Service:** Corrosive liquids and gases.

**Accuracy:**  $\pm 0.25\%$  FS (includes non-linearity, hysteresis and non-repeatability).

**Pressure Limits:** See table.

**Output:** 4-20 mA, 2-wire.

**Supply Voltage:** 9-30 VDC.

**Loop Resistance:** 800 ohms.

**Zero and Span Adjustment:**  $\pm 15\%$ , non-interactive.

**Stability:** Less than .5% FS/year.

**Temperature Limits:** -40 to 260°F (-40 to 125°C) 10 to 90% RH, non-condensing.

**Compensated Temperature Range:** -4 to 176°F (-20 to 80°C).

**Pressure Connection:** 1/4" male NPT.

**Wetted Parts:** Corrosive resistant 17-4 PH SS.

**Enclosure:** Aluminum.

**Electrical Connections:** Two 1/2" conduit ports.

**Weight:** 13.4 oz (380 g).

**Agency Approvals:** CE.

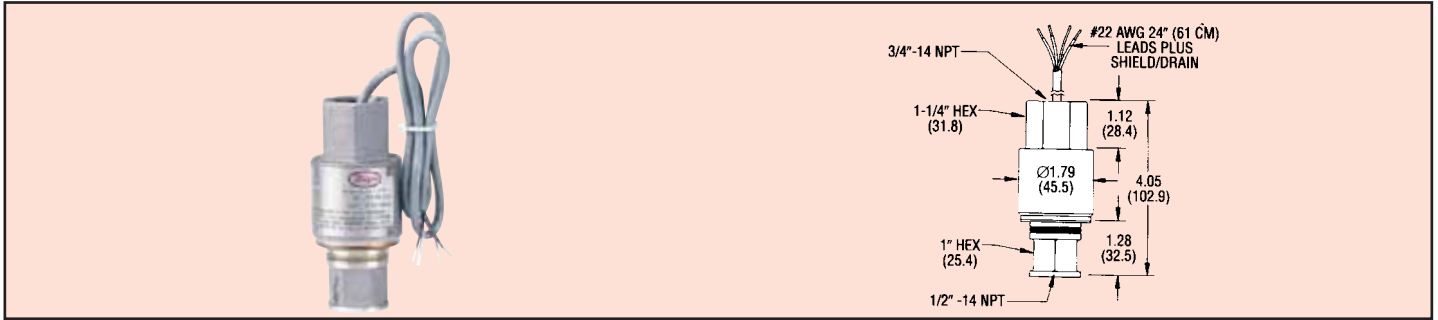


Series 636

# Fixed Range Pressure Transmitter



Stainless Steel, Explosion-proof, Accuracy  $\pm 0.30\%$ , 4-20 mA or 1-5 VDC Signal



The Series 636 Pressure Transmitter is a low cost, fixed range, stainless steel transmitter with  $\pm 0.30\%$  accuracy. It is designed to continuously measure pressure for years in even the toughest environmental and media conditions. Select from 4 ranges to 0-300 psig (0-20 bar) with choice of 4-20 mA output (model 636) or 1-5 VDC output (model 636LP). Transmitters are explosion-proof, (FM approved) and meet NACE standards for offshore applications.

## MODELS

Model Number		Operating Range, PSI	Operating Range, Bar
4-20 mA OUT	1-5 VDC OUT		
636-0	636-0-LP	0-15	0-1
636-1	636-1-LP	0-30	0-2
636-2	636-2-LP	0-100	0-7
636-3	636-3-LP	0-300	0-20

## SPECIFICATIONS

**Service:** Liquid, gas or vapor.  
**Wetted Materials:** 316 L SS.  
**Fill Fluid:** DC 200 Silicone (Standard).  
**Accuracy:**  $\pm 0.30\%$  of calibrated span.  
**Stability:**  $\pm 0.5\%$  of upper range limit for six months.  
**Temperature Limits:** Electronics (Ambient): -40 to 140°F (-40 to 60°C); Process interface: -40 to 212°F (-40 to 100°C).  
**Pressure Limits:** 300% upper range limit.  
**Compensated Temperature Range:** -20 to 180°F (-29 to 82°C).  
**Thermal Effect:** (includes zero and span). Between -20 and 180°F (-29 and 82°C).  $\pm 2.0\%$  per 50°F (28°C).

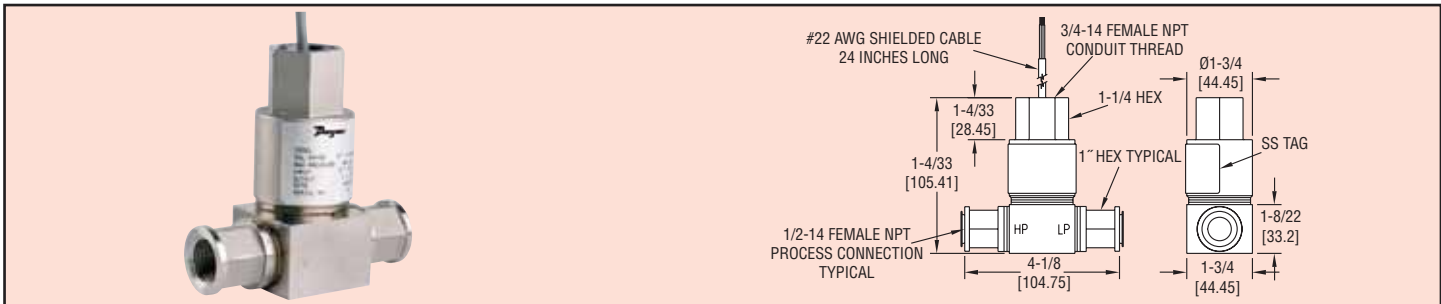
**Power Requirements:** 12 to 30 VDC (636), 8 to 14 VDC (636LP), reverse polarity protection.  
**Output Signal:** 4-20 mA DC, limited to 30 mA DC (636), 1-5 VDC (636LP).  
**Zero & Span Adjustments:** Null: 4.0mA  $\pm 2\%$  span (636), 1VDC  $\pm 1\%$  span (636LP); Span: 16.0 mA  $\pm 1\%$  span (636), 4 VDC  $\pm 1\%$  span (636LP).  
**Loop Resistance:** 900 ohms max @ 30 V.  
**Electrical Connection:** 3/4" female NPT 24" (61 cm), 22 AWG.  
**Process Connection:** 1/2" female NPT.  
**Enclosure Rating:** NEMA 4 (IP65).  
**Weight:** 0.83 lb (374 g).  
**Agency Approvals:** CE, FM, CSA. FM and CSA approved explosion-proof for Class I, Division 1, Groups B, C, & D, Class II Groups E, F, & G Class III.



Series 636D

# Fixed Range Differential Pressure Transmitter

Explosion-proof, 0.5% Accuracy



The Dwyer Series 636D Differential Pressure Transmitter can be used for measuring pressures of liquids, gases, & vapors. All available ranges have an excellent 0.5% F.S. accuracy with a 4-20 mA output standard or optional 1-5 VDC output. The NEMA 4 housing is an all 316 welded construction that is designed to withstand the harshest environmental conditions. With all 316L wetted materials this transmitter is compatible with most media. These units are CSA approved explosion-proof for use in the specified hazardous locations and meet NACE standards for off-shore applications.

## MODELS

Model Number 4-20 mA Out	Range	Model Number 1-5 VDC Out	Range
636D-0	0-6 psid	636D-0-LP	0-6 psid
636D-1	0-15 psid	636D-1-LP	0-15 psid
636D-2	0-30 psid	636D-2-LP	0-30 psid
636D-3	0-60 psid	636D-3-LP	0-60 psid
636D-4	0-100 psid	636D-4-LP	0-100 psid
636D-5	0-150 psid	636D-5-LP	0-150 psid
636D-6	0-200 psid	636D-6-LP	0-200 psid
636D-7	0-300 psid	636D-7-LP	0-300 psid
636D-8	0-500 psid	636D-8-LP	0-500 psid

## SPECIFICATIONS

**Service:** Compatible gases, liquids, or vapors.  
**Wetted Materials:** Types 316L SS.  
**Accuracy:** BFSL:  $\pm 0.5\%$  F.S. (includes linearity, hysteresis, & repeatability).  
**Stability:**  $\pm 1.0$  F.S./yr.  
**Pressure Limits:** 3 x full scale differential pressure; Burst: 2500 psig.  
**Temperature Limits:** Ambient Operating: -40 to 140°F (-40 to 60°C). Process Interface: -40 to 212°F (-40 to 100°C). Storage: -40 to 212°F (-40 to 100°C).  
**Compensated Temperature Range:** -20 to 160°F (-29 to 71°C).  
**Thermal Effect:**  $\pm 2\%$  F.S./50°F (reference to 77°F).  
**Power Requirements:** 12-30 VDC for 4-20 mA outputs; 8-14 VDC for 1-5 VDC outputs, both with reverse polarity protection.  
**Output Signal:** 4-20 mA DC or 1-5 VDC.

**Zero and Span Adjustment:** Fixed.  
**Response Time:** 20 ms.  
**Loop Resistance:** 900 ohms max @ 30 VDC for current outputs. For voltage outputs, minimum lead resistance 50k ohms.  
**Current Consumption:** 4-20 mA for current output models; 3 mA for voltage output models.  
**Electrical Connections:** 2 ft, 22 AWG cable; 3/4" female NPT conduit.  
**Process Connections:** Two 1/2" female NPT.  
**Enclosure Rating:** NEMA 4 (IP65).  
**Mounting Orientation:**  $\pm 0.05$  psi/90° rotation from horizontal.  
**Weight:** 1.8 lb (0.82 kg).  
**Agency Approvals:** CSA approved explosion-proof for Class I, Division 1, Groups B, C, and D; Class II, Groups E, F, and G; Class III.



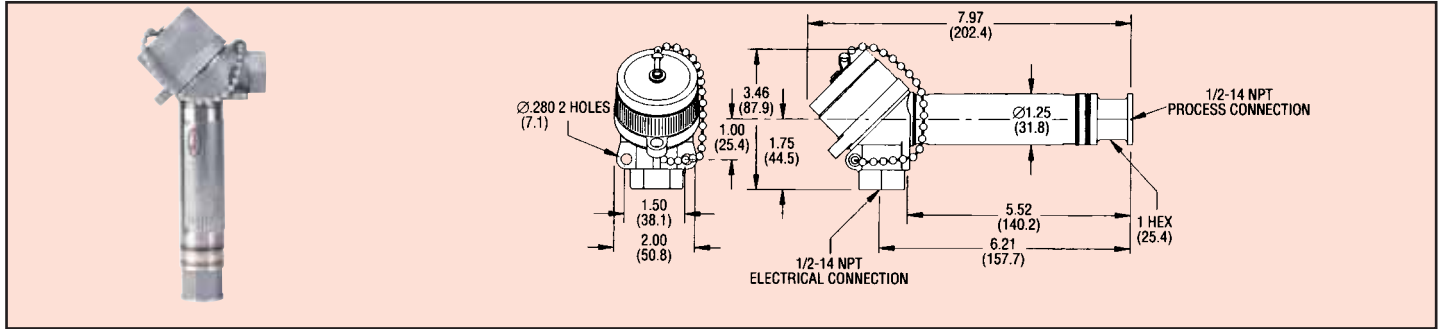
Series  
637

# Adjustable Range Pressure Transmitter

Stainless Steel, Intrinsically Safe, Explosion-proof, Accuracy  $\pm 0.25\%$ , 4-20 mA Signal



Pressure



Series 637 Pressure Transmitters are durable and compact with all welded 316 SS construction and exceptional  $\pm 0.25\%$  accuracy. Four ranges are offered up to 0-300 psig (0-20 bar). Zero and span are adjustable to  $\pm 10\%$  each; range turndown is a full 5:1. Integral junction box simplifies field wiring. Output is 4-20 mA with 12-40 VDC power supply. Units are explosion-proof, intrinsically safe with FM approval and they meet NACE standards for offshore applications.

## SPECIFICATIONS

**Service:** Liquid, gas or vapor.  
**Wetted Materials:** 316 L SS.  
**Body:** 316 SS.  
**Accuracy:**  $\pm 0.25\%$  of calibrated span.  
**Stability:**  $\pm 0.5\%$  of upper range limit for six months.  
**Temperature Limits:** Process Interface -40 to 212°F (-40 to 100°C).  
**Pressure Limits:** 300% full scale.  
**Compensated Temperature:** -20 to 180°F (-29 to 82°C).  
**Thermal Effect:** (includes zero and span)  $\pm 0.2\%$  upper range /°F (30 to 130°F)  $\pm 0.32\%$  upper range /°F (-20 to 180°F).  
**Power Requirements:** 12 to 40 VDC with rev. polarity protection.  
**Output Signal:** 4-20 mA DC, max. 30 mA DC (2-wire).  
**Zero and Span Adjustment:**  $\pm 10\%$  each.

**Loop Resistance:** 600 ohms @ 24 VDC; max. ohms = (supply voltage - 12) x 50.  
**Electrical Connection:** 1/2" female NPT.  
**Process Connection:** 1/2" female NPT.  
**Response Time:** Time constant of 20 ms.  
**Weight:** 1.67 lb (752 g).  
**Agency Approvals:** CE, FM.

**Suggested Specifications**  
 Pressure transmitter body shall be 316 SS with 4 adjustable ranges 0 to 300 psig (0 to 20 bar) with 5:1 turndown and accuracy of  $\pm 0.25\%$ . Unit shall be FM approved intrinsically safe for Class I, II, & III, Division 1, Group B,C, D, E, F & G for Hazardous Locations, and explosion-proof for Class I, Div. 1, Groups B, C, D; Dust-ignition proof for Class II, Div. 1, Groups E & G and suitable for Class III, Div. 1; Hazardous Locations, NEMA 4 Enclosure. Transmitter shall be Dwyer Model No. 637\_\_\_.

## MODELS

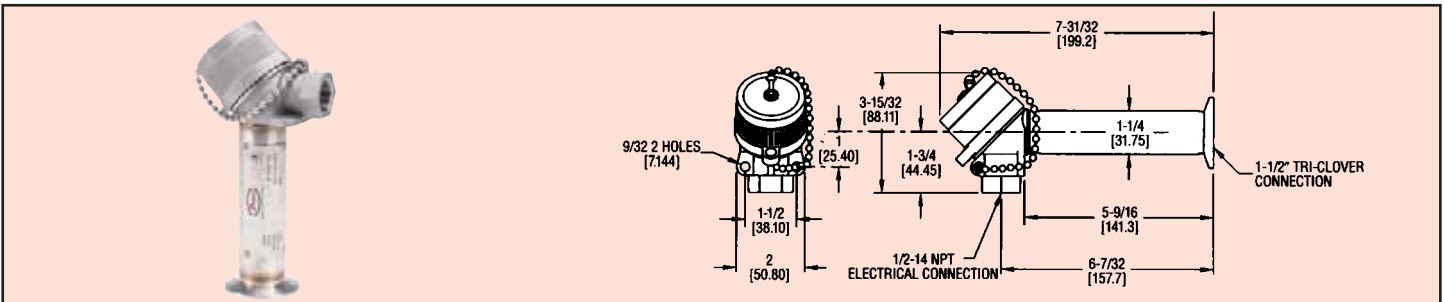
Model Number	Stock Range, PSI	Minimum Range, PSI	Stock Range, Bar	Minimum Range, Bar
637-0	0-15	0-3	0-1	0-0.2
637-1	0-30	0-6	0-2	0-0.4
637-2	0-100	0-20	0-7	0-1.4
637-3	0-300	0-60	0-20	0-4



Series  
637S

# Sanitary Pressure Transmitter

Meets NACE Standards, Accuracy  $\pm 0.25\%$



Low cost, durable sanitary pressure transmitter is designed to meet 3A standards allowing use in food, dairy, beverage and pharmaceutical industries. This unit features superior  $\pm 0.25\%$  accuracy and up to 5:1 turndown. Calibration is quick and easy with field accessible zero and span adjustments. All stainless steel construction resists the corrosive effects of caustic washes used in most food processing cleaning procedures. 1-1/2" Tri-Clover process connection is suitable for Clean-in-Place (CIP) applications, eliminating the need for expensive bypass piping, valving or removal requirements for steam cleaning.

## SPECIFICATIONS

**Service:** Liquid, gas or vapor.  
**Wetted Materials:** 316L SS.  
**Body:** 316 SS.  
**Accuracy:**  $\pm 0.25\%$  of calibrated span.  
**Temperature Limits:** Process interface -40 to 212°F (-40 to 100°C).  
**Pressure Limits:** 300% full scale.  
**Compensated Temperature Range:** -20 to 180°F (-25 to 80°C).  
**Thermal Effect:** (Includes zero and span)  $\pm 1\%$  of upper range limit per 50°F (30 to 130°F);  $\pm 1.6\%$  of upper range limit per 50°F (10 to 180°F).  
**Power Requirements:** 12-40 VDC with reverse polarity protection.  
**Output Signal:** 4-20 mA DC, max. 30 mA DC (2-wire).  
**Zero and Span Adjustments:**  $\pm 10\%$  each.  
**Response Time:** Time constant, 20 ms.

**Loop Resistance:** 600 ohms @ 24 VDC; max. ohms = (supply voltage - 12) x 50.  
**Electrical Connection:** 1/2" female NPT.  
**Process Connection:** 1-1/2" Tri-Clover  
**Weight:** 1.67 lb (752 g).  
**Agency Approvals:** CE.

## Suggested Specifications

Sanitary Pressure transmitter shall be 316 SS construction with 5:1 turndown and  $\pm 0.25\%$  F.S. accuracy. Unit shall meet NACE and 3A sanitary standards. Transmitter shall have 1-1/2" Tri-Clover process connection and be suitable for Clean-in-Place (CIP) applications. Unit shall have field accessible zero and span adjustments. Transmitter shall be Dwyer Model No. 637S\_\_\_.

## MODELS

Model Number	Stock Range, PSI (Bar)	Min. Range PSI (Bar)
637S-0	0-15 (0-1)	0-6 (0-0.4)
637S-1	0-30 (0-2)	0-15 (0-1)
637S-2	0-100 (0-7)	0-20 (0-1.4)
637S-3	0-300 (0-20)	0-60 (0-4)

Series  
681

# Sanitary Pressure Transmitter

Meets 3A Sanitary Standards, No Liquid Fill Diaphragm, Tri-Clover Fitting



The **Series 681 Sanitary Pressure Transmitter** is designed to meet 3A standards for applications in food, dairy, beverage and pharmaceutical processing, liquid level control, and sanitary pipelines. The unit is fully sealed to withstand high pressure washdown in Clean-in-Place (CIP) and Sterilize-in-Place (SIP) installations. The Series 681 is designed with a unique, no liquid fill diaphragm and a Tri-Clover sanitary pressure fitting for easy installation with negligible clamping effect. A conduit fitting, shielded cable with vent tube and sealed screws for zero and span adjustment combine to make the Series 681 completely watertight.

## MODELS

Model Number	Range	Overpressure	Connection
681-02	0 to 1 psi	50 psi	2" Tri-Clover
681-12	0 to 2 psi	100 psi	2" Tri-Clover
681-22	0 to 5 psi	150 psi	2" Tri-Clover
681-32	0 to 10 psi	150 psi	2" Tri-Clover
681-42	0 to 15 psi	150 psi	2" Tri-Clover
681-52	0 to 30 psi	150 psi	2" Tri-Clover
681-62	0 to 60 psi	180 psi	2" Tri-Clover
681-72	0 to 100 psi	200 psi	2" Tri-Clover
681-101	0 to 300 psi	1000 psi	1 1/2" Tri-Clover

## SPECIFICATIONS

**Service:** Compatible liquids and gases.

**Wetted Parts:** 316L SS.

**Accuracy:**  $\pm 0.20\%$  FS (includes non-linearity, hysteresis and non-repeatability).

**Temperature Limits:** -40 to 260 °F (-40 to 125°C) 10 to 90% RH, non-condensing.

**Pressure Limits:** See table.

**Compensated Temperature Range:**

20 to 180°F (-7 to 80°C).

**Thermal Effect:** Zero and span shift:  $\pm 2.0\%$  FS/100°F (% FS/50°C).

**Power Requirements:** 9-30 VDC.

**Output Signal:** 4-20 mA, 2-wire.

**Zero and Span Adjustment:**

$\pm 0.5$  mA, non-interactive.

**Response Time:**  $\Phi 10$  ms.

**Loop Resistance:** 800 ohms.

**Electrical Connections:** 1/2" conduit fitting and strain relief with 15 ft (4.5 m) cable.

**Process Connection:** 2" or 1-1/2" Tri-Clover fitting male NPT.

**Clamping Effect:** Zero and span shift:  $\pm 0.15\%$  FS for ranges up to 30 psi;  $\pm 0.25\%$  FS for ranges >30 psi.

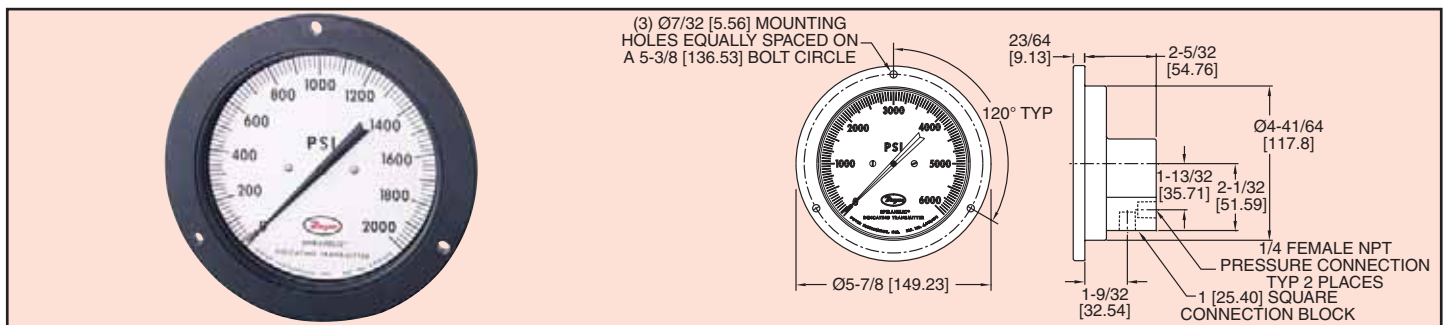
**Enclosure Rating:** 304 SS.

**Weight:** 8 oz (227 g).

**Agency Approvals:** 3A, CE.

Series  
7116

# Spirahelic® Pressure Indicating Transmitter

Dial Gage Indication,  $\pm 0.5\%$  F.S. Accuracy, Panel Mount

The **Series 7116 Spirahelic® Pressure Indicating Transmitter** provides both an ASME Grade 2A accuracy analog pressure gage for precise local indication and a 2 wire, 4-20 mA output signal for remote monitoring and control. Unique triple wound Bourdon tube movement drives pointer directly with no gears, cams or linkages which can wear and fail early. Stainless steel pressure connection block allows a choice of horizontal or vertical piping. Electrical connections, zero and span controls are located on rear.

## MODELS

Model Number	Range PSIG	Model Number	Range PSIG
7116-G060	0-60	7116-GC010	0-1000
7116-G100	0-100	7116-GC020	0-2000
7116-G200	0-200	7116-GC030	0-3000
7116-G300	0-300		
7116-G600	0-600		

## SPECIFICATIONS

### GAGE SPECIFICATIONS

**Service:** Compatible gases & liquids.

**Wetted Materials:** Inconel® X-750 Bourdon Tube, Type 316L SS connection.

**Housing:** Black polycarbonate case and clear acrylic cover.

**Accuracy:** Grade 2A (0.5% F.S.).

**Stability:**  $\pm 1\%$  F.S./yr.

**Pressure Limit:** 150% of full scale. Gage will maintain its specifications for overpressures up to 150% maximum range. Normal operation should be between 25% and 75% of full scale.

**Temperature Limits:** 20 to 120°F (-6.67 to 48.9°C).

**Size:** 4 -1/2" dial face (114.3 mm), Design conforms to ASME B40.1.

**Process Connections:** Two 1/4" female NPT field selectable back or bottom connection.

**Weight:** 17.1 oz (581 g).

### TRANSMITTER SPECIFICATIONS

**Accuracy:** 0.5% F.S.

**Temperature Limits:** 20 to 120°F (-6.67 to 48.9°C).

**Thermal Effect:**  $\pm 0.025\%$  F.S./°F (0.045% F.S./°C).

**Power Requirements:** 10-35 VDC (2 wire).

**Output Signal:** 4-20 mA DC.

**Zero & Span Adjustments:** Externally accessible potentiometers.

**Loop Resistance:** DC, 0-1250 ohms.

**Current Consumption:** DC, 38 mA max.

**Electrical Connections:** Screw Terminals.

**Mounting Orientation:** Vertical.

**Agency Approvals:** CE.

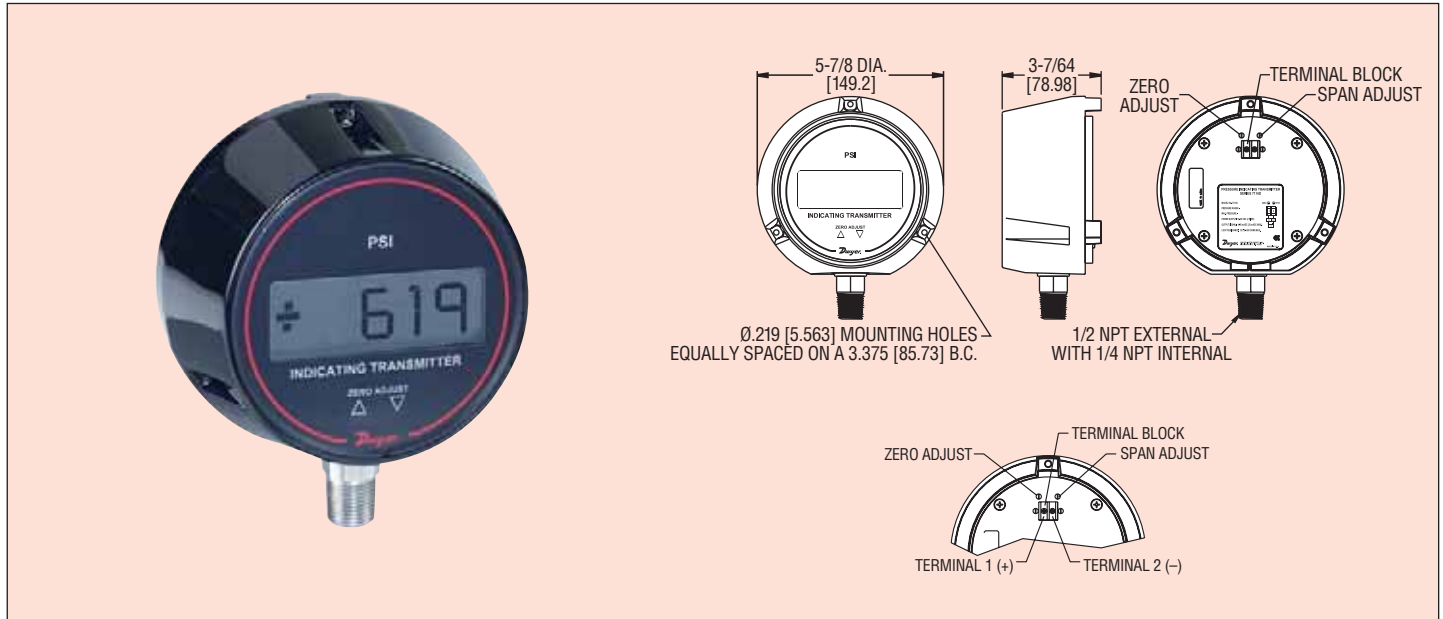




Series  
619

# Pressure Indicating Transmitter

Turret Mount Case, 3 1/2" LCD, 0.5% F.S. Accuracy



The Series 619 Pressure Indicating Transmitter simultaneously provides local indication on a large, easily read 3-1/2 digit liquid crystal display while also converting that pressure into a standard 2-wire, 4-20 mA signal for ranges from 0-15 to 0-500 psi. Positive pressure is measured to the accuracy of  $\pm 0.5\%$  of full scale. The electrical signal and conditioning is produced by a piezoresistive pressure cell for precision measurement of compatible gases and liquids. A 316L SS connection block features convenient 1/4" female NPT and 1/2" male NPT pressure connection.

## SPECIFICATIONS

**Service:** Compatible, gases & liquids.

**Wetted Materials:** Type 316L SS.

**Accuracy:**  $\pm 0.5\%$  F.S. (includes linearity, hysteresis and repeatability).

**Stability:**  $\pm 1\%$  F.S./yr.

**Temperature Limits:** 0 to 140°F (-17.8 to 60°C).

**Compensated Temperature Limits:** 20 to 120°F (-6.67 to 48.9°C).

**Pressure Limit:** 2 x maximum range.

**Thermal Effect:**  $\pm 0.025\%$  F.S./°F (0.045% F.S./°C).

**Power Requirements:** 10 to 35 VDC.

**Output Signal:** 4 to 20 mA.

**Display:** 1.0" (25.4 mm) liquid crystal. 3-1/2 digits.

**Zero & Span Adjustments:** Accessible potentiometers on back.

**Loop Resistance:** 1250 ohms DC max.

**Current Consumption:** 38 mA DC max.

**Electrical Connections:** Screw-type terminal block.

**Process Connection:** Dual 1/4" female NPT 1/2" male NPT, bottom connection.

**Enclosure Rating:** Designed to meet NEMA 1.

**Mounting Orientation:** Vertical.

**Weight:** 1 lb, 8 oz (680 g).

## MODELS

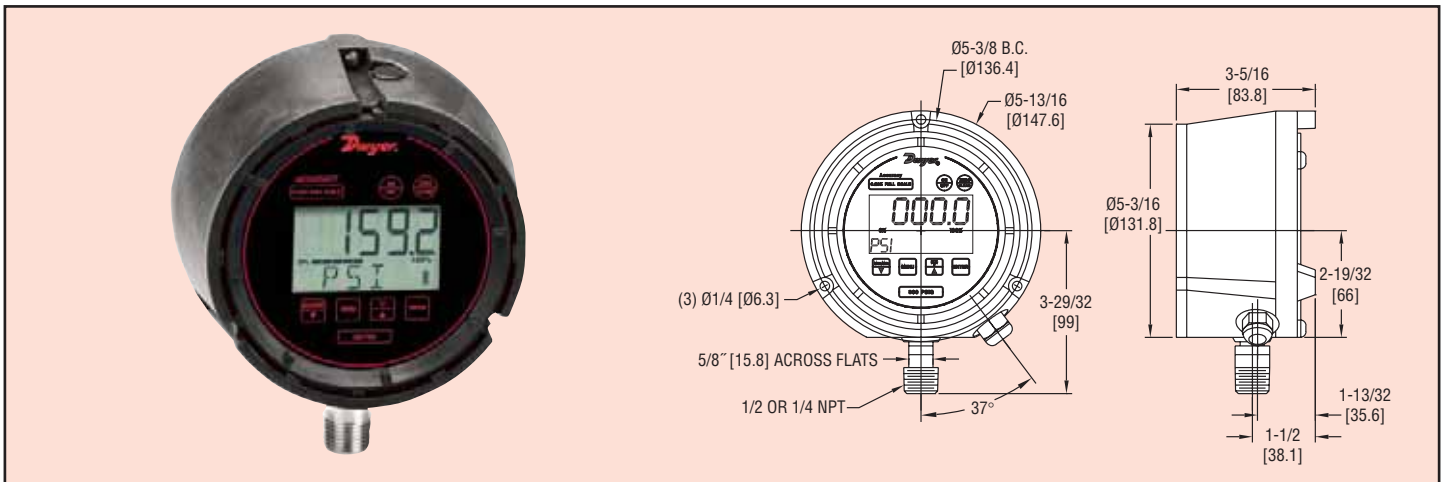
Model Number	Range	Maximum Pressure
619-1	0-15 psig	30 psig
619-2	0-30 psig	60 psig
619-3	0-50 psig	100 psig
619-4	0-100 psig	200 psig
619-5	0-500 psig	1000 psig

Ranges in Bar also available.

Series  
DSGT

# Digital Indicating Transmitter

±0.25% Full Scale Accuracy, Optional Switch Outputs



The Series DSGT Digital Indicating Transmitter is a versatile multi-function process gage that features an excellent 0.25% full scale accuracy. This all-in-one digital gage package is designed to reduce installation costs, instrument cost, and save space where an application requires a gage, transmitter, and switches. The Series DSGT gage comes standard with a loop-powered 4-20 mA transmitter output and is offered with one or two optional SPDT switches.

The Series DSGT gage is housed in a durable fiberglass reinforced thermoplastic case that is designed to meet NEMA 4 (IP65) requirements. The gage features a menu-driven display for easy customization. User selectable features include 12 engineering units of measure, password protected calibration and disable functions, as well as an adjustable bar graph and update/dampening rates.

**DSGT-XXX-C0S**, Transmitter with No Switch Outputs

**DSGT-XXX-C1S**, Transmitter with 1 SPDT Switch Output

**DSGT-XXX-C2S**, Transmitter with 2 SPDT Switch Outputs

## MODELS

Model Number*	Range	Model Number*	Range
<b>DSGT-101-C0S</b>	30" Hg-0-15 psig	<b>DSGT-111-C0S</b>	0-800 psig
<b>DSGT-102-C0S</b>	30" Hg-0-30 psig	<b>DSGT-112-C0S</b>	0-1000 psig
<b>DSGT-103-C0S</b>	30" Hg-0-60 psig	<b>DSGT-113-C0S</b>	0-1500 psig
<b>DSGT-104-C0S</b>	0-30 psig	<b>DSGT-114-C0S</b>	0-2000 psig
<b>DSGT-105-C0S</b>	0-60 psig	<b>DSGT-115-C0S</b>	0-3000 psig
<b>DSGT-106-C0S</b>	0-100 psig	<b>DSGT-116-C0S</b>	0-5000 psig
<b>DSGT-107-C0S</b>	0-160 psig	<b>DSGT-117-C0S</b>	0-8000 psig
<b>DSGT-108-C0S</b>	0-200 psig	<b>DSGT-118-C0S</b>	0-10,000 psig
<b>DSGT-109-C0S</b>	0-300 psig	<b>DSGT-119-C0S</b>	0-15,000 psig
<b>DSGT-110-C0S</b>	0-600 psig	<b>DSGT-120-C0S</b>	0-20,000 psig

\*For optional switch outputs change -C0S suffix to -C1S for 1 SPDT switch, or -C2S for 2 SPDT switches.

## SPECIFICATIONS

### Gage Specifications

**Service:** Compatible, non-combustible liquids & gases.

**Wetted Materials:** 17-4 stainless steel sensor, 316 SS socket.

**Housing Materials:** Fiberglass reinforced thermoplastic case.

**Accuracy:** 0.25% full scale (Includes linearity, hysteresis, repeatability).

**Pressure Limit:** 2 x full scale range.

**Process Connection:** 1/2" male NPT.

**Display:** 5 Digit (0.88" high).

### Transmitter Specifications

**Power Supply:** 12-36 VDC (Loop Powered).

**Output Signal:** 4-20 mA.

**Response Time:** 100 ms.

**Temperature Limits:** 14 to 140°F (-10 to 60°C).

**Thermal Effects:** 0.04% full scale/°F.

**Electrical Connections:** 3 ft flying leads.

**Loop Resistance:** DC; 0-1090 ohms maximum.

### Switch Specifications

**Switch Type:** 1 SPDT (-C1S option); 2 SPDT (-C2S option).

**Repeatability:** 0.25% full scale.

**Electrical Rating:** 1A @ 24 VDC or 0.5A @ 125 VAC.

**Electrical Connections:** 3 ft flying leads.

**Power Requirements:** 12-36 VDC (Separate line power).

**Set Point Adjustments:** Adjustable through menu selections.

**Weight:** 1.45 (.66 kg).

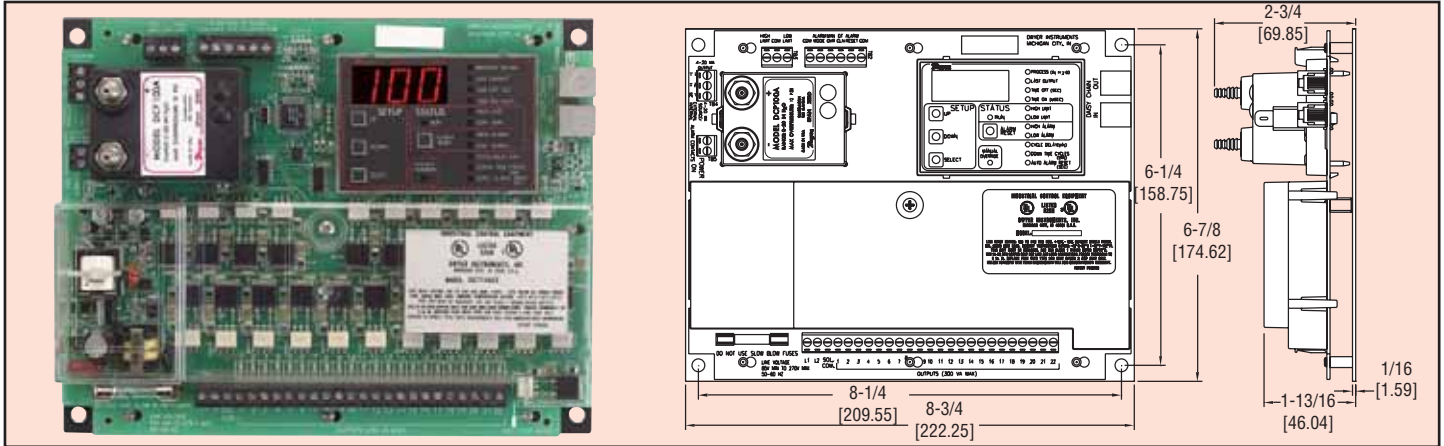
**Agency Approvals:** CE.



Series  
DCT1000

# Dust Collector Timer Controller

Modular Design, User Friendly, Up to 22 Channels



**Simplify your on-demand cleaning requirements with the Series DCT1000 Dust Collector Timer Controller.** Relying on one timer board for on demand and continuous cleaning applications, the DCT1000 eliminates external devices such as pressure switches, relays and timers.

Offering a universal power supply, the DCT1000 accepts 85-270 VAC/VDC at either 50 or 60 Hz for both domestic and overseas requirements. The units modular design allows for use as a continuous cleaning control or on-demand cleaning control using the optional plug-in pressure module. A 4-20 mA process output is integral to the plug-in pressure module, eliminating the need to purchase an expensive process transmitter. Mounting holes are standard to other dust collector controllers used in the industry, allowing you to use the DCT1000 for existing installations.

In addition, the DCT1000 is the same size for 6, 10 and 22 channels. One board size allows the standardization on one enclosure. Latching relays and jumper wires are eliminated for large installations requiring channel expanders. Each channel expander connected is automatically detected.

## SPECIFICATIONS

### DCT1000 Timer Controller:

**Output Channels:** 6, 10, & 22 channels. Expandable to 255 channels using DCT1122 & DCT1110 channel expander boards.

**Power Requirements:** 85 to 270 VAC, 50 or 60 Hz.

**Power Consumption:** 5 W.

**Solenoid Supply:** 3A maximum per channel.

**Fuse:** 3A @ 250 VAC. Low voltage control circuitry is isolated from the line voltage for system safety.

**Temperature Limits:** -40 to 140°F (-40 to 60°C).

**Storage Temperature Limits:** -40 to 176°F (-40 to 80°C).

**On Time:** 10 msec to 600 msec, 10 msec steps.

**On Time Accuracy:** +/- 10 msec.

**Off Time:** 1 second to 255 seconds, 1 second steps.

**Off Time Accuracy:** ±1% of the value or ±50 msec, whichever is greater.

**Weight:** 1 lb 3.0 oz (538.6 g).

**Agency Approvals:** UL, cUL.

### DCP Pressure Module:

**Pressure Ranges:** 10" w.c. or 20" w.c.

**Temperature Limits:** -40 to 140°F (-40 to 60°C).

**Pressure Limit:** 10 psi (68.95 kPa).

**Pressure Limit (differential):** 10 psi (68.95 kPa).

**Accuracy:** +/- 1.5% F.S. @ 73°F (22.8°C).

**Output Signal:** 4-20 mA.

**Alarm Contacts:** 1.5A inductive load, 3A resistive load @ 30 VAC or 40 VDC.

**Process Connections:** Two barbed connections for use with 1/8" (3.18 mm) or 3/16" (4.76 mm) I.D. tubing.

**Weight:** 5.5 oz (155.9 g).

## OPTIONS

**WP** – Weatherproof Housing Only

**WPP** – Weatherproof Housing with Pressure Ports

**WPPS** – Weatherproof Housing with Pressure Ports, Three Position Rotary Switch Installed

**EXPL** – Explosion-proof Housing

**Multiple Boards** stacked in enclosure

## ACCESSORIES

**DCA**, Channel expander cable available in 1 ft., 2 ft., and 4 ft. lengths

**Series 1000**, Process Indicator

**Series 1010**, Process Indicator with Alarm



DCT in optional NEMA 4/4X weatherproof enclosure.



DCT in optional Explosionproof Enclosure.



Model DCAC02 Cable Connection: For connecting multiple boards.



Master Board Stacked with Channel Expander.



## MODELS

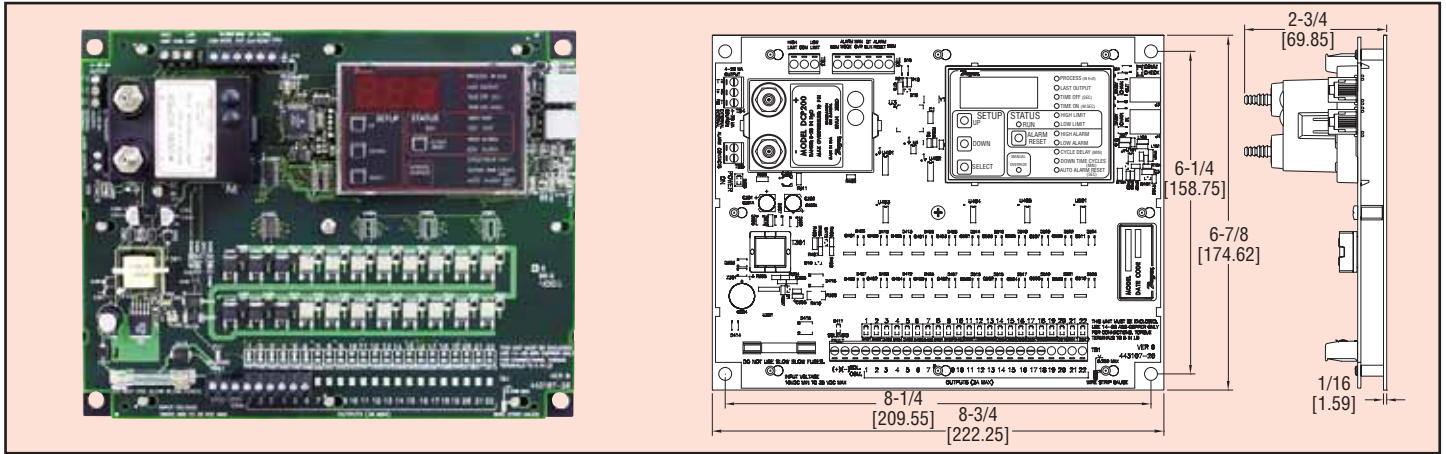
Model Number	Description	No. of Channels	D.P. Range
DCT1022	Master Controller	22	
DCT1010	Master Controller	10	
DCT1006	Master Controller	6	
DCT1122	Channel Expander	22	
DCT1110	Channel Expander	10	
DCP200A	Pressure Module		20" w.c.
DCP100A	Pressure Module		10" w.c.



Series  
DCT1000DC

# Dust Collector Timer Controller

For Low Voltage Applications



**Simplify your on-demand cleaning requirements with the Series DCT1000DC Dust Collector Timer Controller.** Relying on one timer board for on demand and continuous cleaning applications, the DCT1000DC eliminates external devices such as pressure switches, relays and timers.

The DCT1000DC accepts 10-30 VDC power. The units modular design allows for use as a continuous cleaning control or on-demand cleaning control using the optional DCP plug-in pressure module. A 4-20 mA process output is integral to the DCP pressure module, eliminating the need to purchase an expensive process transmitter. A solenoid fault light on the DCT1000DC notifies the operator when a solenoid valve fails to activate properly.

The DCT1000DC is the same size for 6, 10 and 22 channels. One board size allows the standardization on one enclosure. For larger installations the DCT1000DC may be expanded by connecting multiple boards in series with the DCA cable.

**SPECIFICATIONS**  
**DCT1000DC Timer Controller:**  
**Output Channels:** 6, 10, & 22 channels.  
**Power Requirements:** 10 - 30 VDC.  
**Solenoid Supply:** 3A maximum per channel.  
**Fuse:** 3A @ 250 VAC.  
**Temperature Limits:** -40 to 140°F (-40 to 60°C).  
**Storage Temperature Limits:** -40 to 176°F (-40 to 80°C).  
**On Time:** 10 msec to 600 msec, 10 msec steps.  
**On Time Accuracy:** +/-10 msec.  
**Off Time:** 1 second to 255 seconds, 1 second steps.  
**Off Time Accuracy:** ±1% of the value or ±50 msec, whichever is greater.  
**Weight:** 1 lb 3.0 oz (538.6 g).

**DCP Pressure Module:**  
**Pressure Ranges:** 10" w.c. or 20" w.c.  
**Temperature Limits:** -40 to 140°F (-40 to 60°C).  
**Pressure Limit:** 10 psi (68.95 kPa).  
**Pressure Limit (differential):** 10 psi (68.95 kPa).  
**Accuracy:** +/- 1.5% F.S. @ 73°F (22.8°C).  
**Output Signal:** 4-20 mA.  
**Alarm Contacts:** 1.5A inductive load, 3A resistive load @ 30 VAC or 40 VDC.  
**Process Connections:** Two barbed connections for use with 1/8" (3.18 mm) or 3/16" (4.76 mm) I.D. tubing.  
**Weight:** 5.5 oz (155.9 g).  
**Agency Approvals:** CE.

**OPTIONS**

- WP** – Weatherproof Housing Only
- WPP** – Weatherproof Housing with Pressure Ports
- WPPS** – Weatherproof Housing with Pressure Ports, Three Position Rotary Switch Installed
- EXPL** – Explosion-proof Housing
- Multiple Boards** stacked in enclosure

**ACCESSORIES**

- DCA**, Channel expander cable available in 1 ft., 2 ft., and 4 ft. lengths
- Series 1000**, Process Indicator
- Series 1010**, Process Indicator with Alarm

**MODELS**

Model Number	Description	No. of Channels	D.P. Range
<b>DCT1022DC</b>	Master Controller	22	
<b>DCT1010DC</b>	Master Controller	10	
<b>DCT1006DC</b>	Master Controller	6	
<b>DCP200A</b>	Pressure Module		20" w.c.
<b>DCP100A</b>	Pressure Module		10" w.c.



DCT in optional NEMA 4/4X weatherproof enclosure.



DCT in optional Explosion proof Enclosure.



Model DCAC02 Cable Connection: For connecting multiple boards.



DCT expanded with multiple boards.





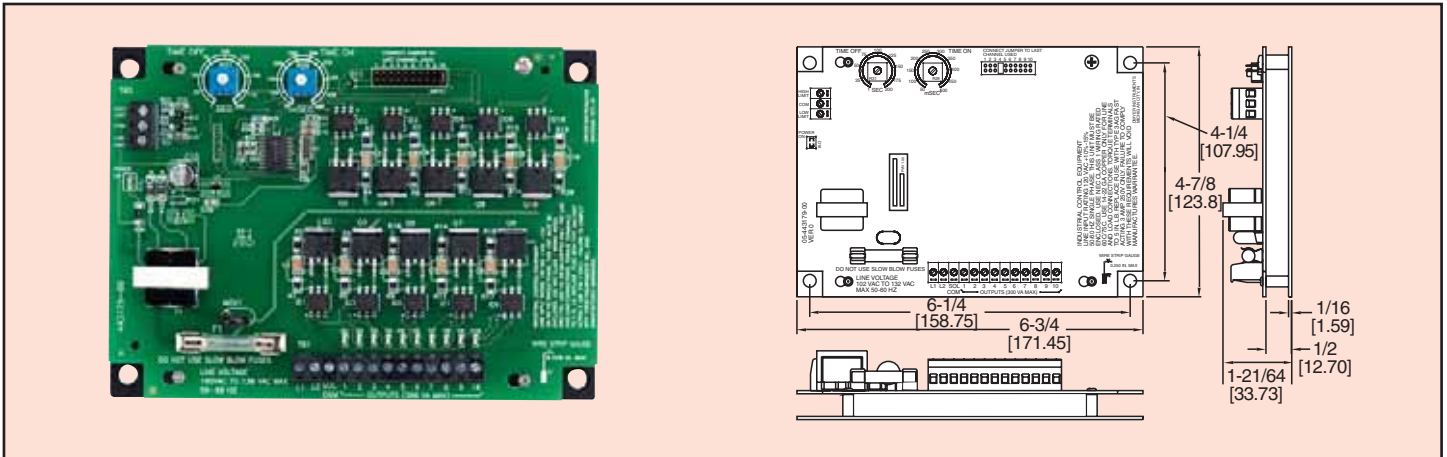
Series  
DCT500

# Low Cost Timer Controller

Compact, Easy to Use; 4, 6 or 10 Channels



Pressure



Ideal for pneumatic conveying systems, the Series DCT500 Low Cost Timer Controller is designed to provide continuous or on-demand cleaning for receivers and pulse jet systems. Available in either 4, 6 or 10 channels, each unit is the same size, minimizing enclosure space and reducing overall system installation cost.

The DCT500 is simple and easy to use. Time-On and Time-Off settings are selected using two potentiometers. High Limit and Low Limit control inputs are provided for use with on demand systems.

For added safety, the control circuitry including the control inputs are isolated from the line voltage.

To meet your system requirements, an optional weatherproof enclosure is available. For on demand systems, a Dwyer Series A3000 Photohelic® or Series 1800 Pressure Switch may be used with the DCT500.

## SPECIFICATIONS

**Output Channels:** 4, 6, & 10 channels.

**Power Requirements:** 102 to 132 VAC 50 or 60 Hz., 1.8W max no load power.

**Solenoid Supply:** 3A max. per channel.

**Fuse:** Type 3 AG, 3A @ 250 VAC.

**Temperature Limits:** -40 to 176°F (-40 to 80°C).

**Storage Temperature Limits:** -40 to 176°F (-40 to 80°C).

**On Time:** 50 msec to 500 msec.

**On Time Accuracy:** ±5% of setting.

**Off Time:** 1 second to 200 seconds.

**Off Time Accuracy:** ±5% of setting.

**Weight:** 9 oz (255 g).

**Agency Approvals:** UL, cUL.

## MODELS

Model Number	Description	No. of Channels
DCT504	Timer Controller	4
DCT506	Timer Controller	6
DCT510	Timer Controller	10

## OPTIONS

**WP** – Weatherproof Housing Only

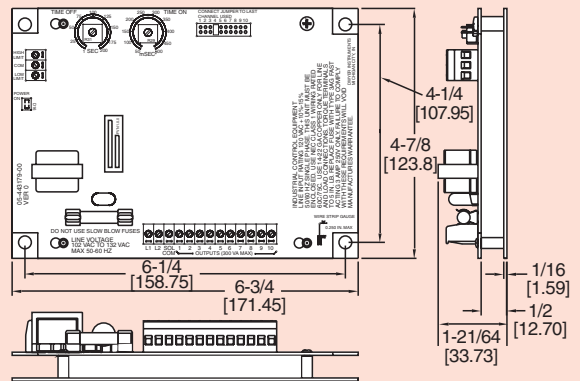
**L** – Mounting Bracket for Field Retrofits:  
8-1/4 (209.55) x 6-1/4 (158.75)



Series  
DCT500DC

# Low Cost Timer Controller

## For Low Voltage Applications



**Ideal for pneumatic conveying systems**, the Series DCT500DC Low Cost Timer Controller is designed to provide continuous or on-demand cleaning for 10-35 volt powered receivers and pulse jet systems. Available in either 4, 6 or 10 channels, each unit is the same size, minimizing enclosure space and reducing overall system installation cost. The DCT500DC is simple and easy to use. Time-On and Time-Off settings are selected using two potentiometers. High Limit and Low Limit control inputs are provided for use with on demand systems. For added safety, the control circuitry including the control inputs are isolated from the line voltage.

To meet your system requirements, an optional weatherproof enclosure is available. For on demand systems, a Dwyer Series A3000 Photohelic® or Series 1800 Pressure Switch may be used with the DCT500DC.

### MODELS

Model Number	Description	No. of Channels
DCT504DC	Timer Controller	4
DCT506DC	Timer Controller	6
DCT510DC	Timer Controller	10

### SPECIFICATIONS

**Output Channels:** 4, 6, & 10 channels.

**Power Requirements:** 10 to 35 VDC, 0.6 watt max. no load power.

**Solenoid Supply:** 3A max. per channel.

**Fuse:** Type 3 AG, 3A @ 250 VAC.

**Temperature Limits:** -40 to 176°F (-40 to 80°C).

**Storage Temperature Limits:** -40 to 176°F (-40 to 80°C).

**On Time:** 50 msec to 500 msec.

**On Time Accuracy:** ±5% of setting.

**Off Time:** 1 second to 200 seconds.

**Off Time Accuracy:** ±5% of setting.

**Weight:** 9 oz (255 g).

### OPTIONS

**WP** – Weatherproof Housing Only

**L** – Mounting Bracket for Field Retrofits:

8-1/4 (209.55) x 6-1/4 (158.75)



# Related Products for Pressure Control



## Series GG Gage Guard

Protecting pressure or vacuum instruments from clogging, corrosion, or damage, the Series GG Gage Guard provides a protective barrier between the process fluid and the instrument. The hermetically-sealed uni-body protects from the possibility of leaking. Glass-filled Polypropylene housing is suitable for most inorganic chemicals and temperatures up to 185°F (85°C).

**GG1** (Buna-N diaphragm)  
**GG2** (Viton® diaphragm)

### SPECIFICATIONS

**Maximum Pressure:** Liquids: 160 psi (11 bar) @ 70 to 185°F (21 to 85°C); Gases: 100psi (6.9 bar) @ 70 to 100°F (21 to 38°C) and 30 psi (2.1 bar) @ 100 to 185°F (38 to 85°C).  
**Accuracy:** ±4%.  
**Maximum Temperature:** 185°F (85°C).  
**Wetted Parts:** Glass-filled Polypropylene housing, Buna-N or Viton® diaphragm.  
**Dimensions:** 1/4" female NPT instrument side; 1/2" male NPT system side; 1-3/8" (35 mm) diameter.



## Series PS Pressure Snubber

Designed to protect pressure instrumentation by dampening surges and pulsations and assuring steady average pressure readings. Snubbers are available in a variety of pore sizes for use with gases, water, and oils.

### MODELS

Model No.	Service	Construction
PS114	Air & Gases	Brass 1/8" NPT
PS214	Air & Gases	SS 1/8" NPT
PS122	Water & Oils	Brass 1/4" NPT
PS124	Air & Gases	Brass 1/4" NPT
PS222	Water & Oils	SS 1/4" NPT
PS224	Air & Gases	SS 1/4" NPT
PS225	Pulsating Gas	SS 1/4" NPT

### SPECIFICATIONS

**Maximum Pressure:** Brass: 10,000 psi (689 bar), SS: 15,000 psi (1034 bar).  
**Filter Disc Material:** AISI 316 SS.  
**Approx. Micron Rating:** Air & gases: 2-5µ; water & oils (30-225 SSU): 10µ.  
**Dimensions:** 1/4" NPT; 3/4" (19 mm) hex size, 1.5" (38 mm) length.



## Model A-700 Power Supply

Economical and reliable power supply is suitable for powering all Dwyer pressure, temperature or air velocity transmitters. Inexpensive, open-frame design allows convenient access to input/output solder terminals. Auxiliary inputs are selectable for operation from power sources found worldwide. Compact size eases enclosure installations.

**A-700** (0.5 Amp) .....  
**A-700-2** (2 Amp) .....  
**A-700-4** (4.8 Amp) .....

### SPECIFICATIONS

**AC Input:** 100/120/220/230-240 VAC ±10%, 47-63 Hz.  
**DC Output:** 24-28 VDC regulated.  
**Maximum Current Output:** 500 mA (derated to 450 mA @ 50 Hz. operation)  
**Operating Temperature:** 32 to 122°F (0 to 50°C).  
**External Fuse Required:** 0.5 Amp for 100-120 VAC, 0.25 Amp for 220-240 VAC.  
**Dimensions:** 4-7/8"H x 4"W x 1-5/8"D  
**Weight:** 2 lb.

## See Also:

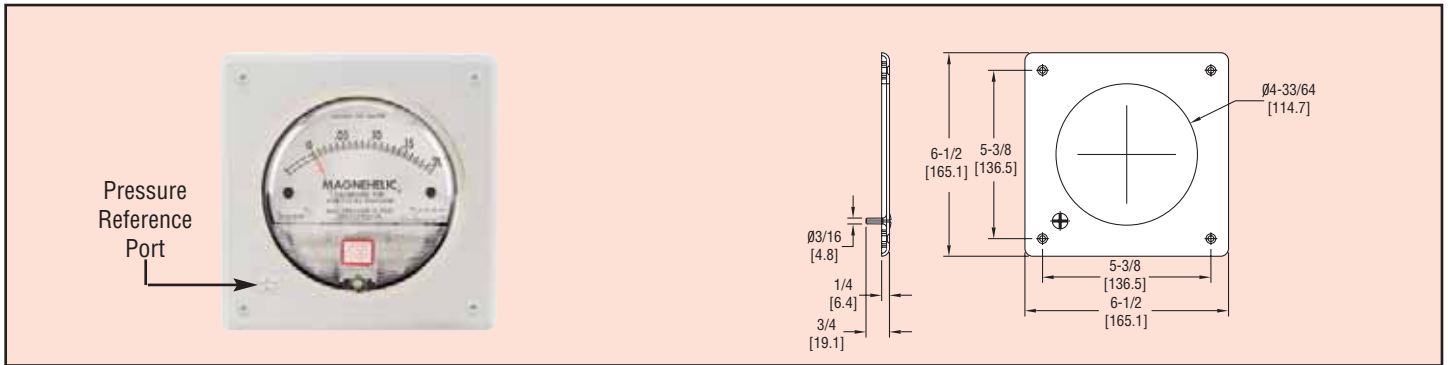
Digital Indicators . . . . . pages 264-276  
 Alarms . . . . . pages 284, 292, 412  
 Annunciators . . . . . page 412  
 I/P Transducers. . . . . pages 362-363



Series  
A-464

## Flush Mount Kit for Magnehelics®

Ideal for Clean Rooms & Control Panels



The **A-464 Mounting Kit** provides a flush mounting solution for Magnehelic® gage installations for applications such as clean rooms and mechanical equipment rooms. The A-464 can also be used as an alternative means to flush mount Magnehelic® gages on control panel enclosures. The space pressure reference port eliminates the need to drill separate holes and run tubing long distances. Utilizing the A-464 for Magnehelic® installations reduces installation time while also producing an aesthetically pleasing result.



A-464 Back View  
Shown with A-465

### Advantages and Specifications of the A-464 Kit

- Provides an innovative solution for flush mounting Magnehelic® gages.
- Space pressure reference integral to mounting plate.
- Mounting applications include: Sheetrock walls, control panel enclosures and air handling equipment.
- Eliminates the need for special hole saws.
- Creates a professional look.
- Saves installation time and money.
- Outside dimensions: 6-1/2 x 6-1/2 x 1/4 inches (16.5 x 16.5 x 0.6 cm).
- Material: White ABS plastic.

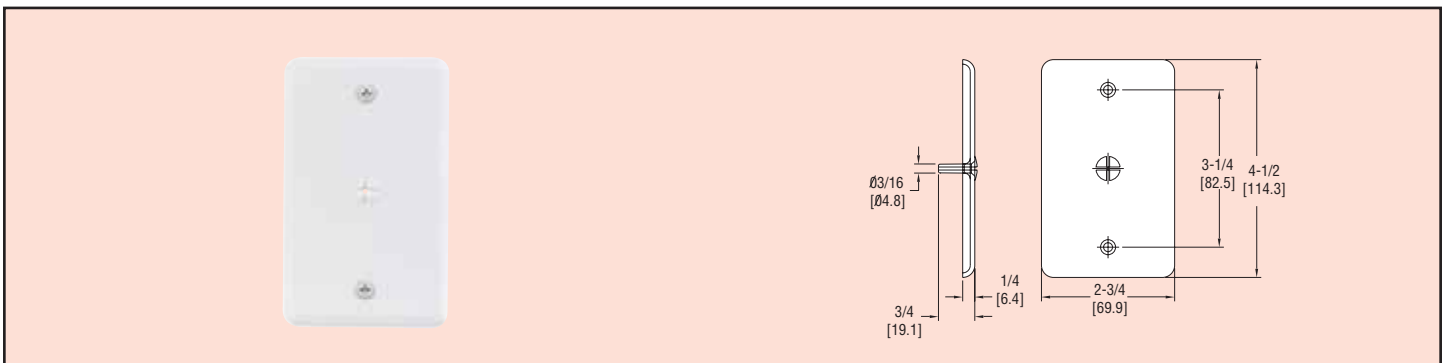
A-464



Series  
A-465

## Flush Mount Space Pressure Sensor

Ideal for Clean Rooms



The **A-465 Space Pressure Sensor Kit** provides a clean solution for sensing space pressure. Typical applications include: sensing the pressure in clean rooms, laboratories and building lobbies. The kink resistant tubing provided in the kit is connected to the tubing running to a pressure transducer, Magnehelic® Gage, VAV unit or any other types of pressure sensing devices. The sensor can be mounted on sheetrock walls, single gang electrical boxes or on ceiling tiles. The block free pressure reference opening along with the kink resistant tubing ensure accurate readings at all times.

### Advantages and Specifications of the A-465 Kit

- The professional way to sense space pressure.
- Mounting options include: Sheetrock walls, ceiling tiles or single gang electrical boxes.
- Non block reference opening prevents plugging.
- Saves time and money.
- Outside dimensions: 2-3/4 x 4-1/2 x 1/4 inches (6.9 x 11.4 x 0.6 cm).
- Attractive design blends in with building decor.
- Materials: White ABS plastic.

A-465





# Technical Reference Books



## HVAC Engineer's Handbook

Eleventh Edition

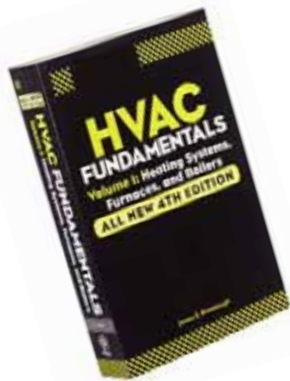
By Fred Porges, 2001

- Full comparative summary of all air conditioning techniques
- Provides must have information for engineers, technicians, and students dealing with HVAC

This handbook is widely known as a highly useful and definitive reference for HVAC engineers and technicians alike, and those who work on domestic hot and cold-water services, gas supply, and steam services. Newly updated on natural ventilation, ventilation rates, free cooling and nighttime cooling.

**Order Number: BK-0001**

ISBN: 0750646063, Pages: 320, Hardback



## HVAC Fundamentals

### Volume 1: Heating Systems, Furnaces, and Boilers

Fourth Edition

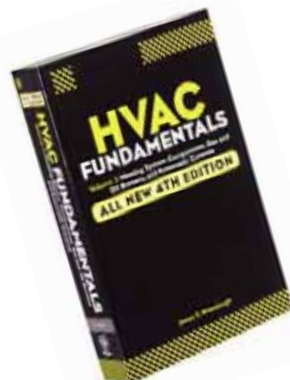
By James E. Brumbaugh, 2004

- Review the basics of installation, wiring, and troubleshooting for different HVAC systems
- Compare the economy and efficiency of various fuel types
- Find formula cross references, data tables with conversions, and listings of trade organizations and equipment manufacturers

Whether you're installing, servicing, repairing, or troubleshooting an old or new heating system, you'll find what you're looking for, from wood and coal furnace maintenance to new calculations and the latest environmental technologies and regulations.

**Order Number: BK-0005**

ISBN: 0764542060, Pages: 698, Paperback



## HVAC Fundamentals

### Volume 2: Heating System Components, Gas and Oil Burners, and Automatic Controls

Fourth Edition

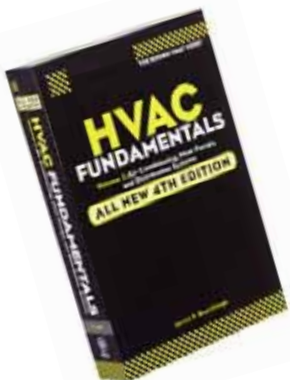
By James E. Brumbaugh, 2004

- Install and repair thermostats, humidistats, automatic controls, and oil or gas burner controls
- Review pipes, pipe fittings, piping details, valve installation, and duct systems
- Learn the best ways to handle hydronics and steam line controls
- Deal with solid fuels and understand coal firing methods

This guidebook covers everything you need to know to install, maintain, and repair the components that run, regulate, and fuel both old and new systems.

**Order Number: BK-0006**

ISBN: 0764542079, Pages: 655, Paperback



## HVAC Fundamentals

### Volume 3: Air Conditioning, Heat Pumps, and Distribution Systems

Fourth Edition

By James E. Brumbaugh, 2004

- Learn to install and service today's popular electronic air cleaners and filters
- Service less common heating systems such as coal-fired furnaces
- Install, maintain, and repair humidifiers and dehumidifiers
- Handle radiators, convectors, and baseboard heating units

This book provides a comprehensive, hands-on guide to installing, servicing, and repairing all basic air-conditioning systems. It also includes complete coverage of specialized heating units such as radiant heating systems, fans, exhaust systems, air filters, and more.

**Order Number: BK-0007**

ISBN: 0764542087, Pages: 676, Paperback