



Measurement Instrumentation

When it comes to gauges, whether mechanical or digital, The Standard is Meriam.SM

Mechanical gauges have been the reliable standard in pressure measurement. They still perform accurately and reliably. Since the introduction of our first electronic products some 20 years ago, Meriam Process Technologies has been a leader in the evolution of process pressure measurement science. During those 20 years, Meriam engineers have focused on the need to integrate electronic technology, advanced sensors and computer technology into the measurement of pressure and flow.

Meriam offers a wide variety of mechanical and digital pressure gauges for process measurement and indication. Terrific accuracy specifications and little-to-no temperature effect set these instruments apart from the competition. Many of our digital gauge products have multiple output options to increase their versatility in today's changing control schemes.

Count on Meriam to provide the pressure products that you need.

PICTURE. PERFECT. PRECISION.

The Meriam Process Technologies name and corporate identity reflect a dramatic evolution. Our latest calibration and communication products are helping Process Industry customers migrate from "Fail and Fix" to "Predict and Prevent" strategies.



2100 Series Smart Gauges

Meriam's 2100 Smart Gauges are microprocessor based pressure sensing devices that can be used to measure pressure, differential pressure (air or gas flow), or hydrostatic level. There are two models in the series: the 2110P is principally for pressure measurements and the 2110L is for level measurement.



Model 1500 Digital Pressure Transmitter

By utilizing RS-485 communications, Meriam's Model 1500 Digital Pressure Transmitter allows easy configuration using a laptop or PC computer. The 1500 Digital Pressure Transmitter is perfect for laminar flow systems, clean room pressure monitoring and many other applications.



MGF16BN Digital Pressure Gauges

The MGF16BN Series Gauge from Meriam comes in a standard accuracy of $\pm 0.25\%$ FS and an optional accuracy of $\pm 0.1\%$ FS.

The wetted parts are 316L stainless steel – ideal for most liquids and gases. The MGF16BN's process connection is a standard $\frac{1}{4}$ " MNPT fitting.

The MGF16BN is powered by only 2 AA alkaline batteries – giving the user approximately 2,000 hours of battery life. Every gauge comes standard with a NEMA 4X ABS polycarbonate enclosure.



Bellows Gauges For Differential Pressure, Flow & Level

The Bellows D/P line of instruments serves as a complement to manometers by offering a choice when pressure rating, size, process compatibility and other specifications are a factor. Meriam offers indicators and indicating switches to meet many process application needs. Pressure ranges are available 30" H₂O to 500 PSID and safe working pressures from 500 PSI to 6000 PSI.



Model 1020 Differential Pressure Unit

The Model 1020 Differential Pressure Unit is lightweight and compact – perfect for applications where size and weight are critical factors. Suited for activating indicators, recorders, transmitters, switches and controllers, this differential pressure unit incorporates a rupture-proof and leak-proof bellows plus other construction features that make it second-to-none. The Bellows D/P assemblies are used by many instrument manufacturers as the basic differential pressure sensing devices for indicators, recorders, transmitters or controllers.

CUSTOMER TESTIMONIAL

I am currently using Meriam's MGF16BN Pressure Gauge - and I couldn't be happier with the product. Our old pressure gauge couldn't stand up to the abuse our environment and workers put it through. Meriam's gauge is housed in a polycarbonate NEMA 4X enclosure - perfect for all the abuse it is subjected to. I also like the fact the engineering units are available through the front keypad so we don't have to remove all the screws to the front cover just to change the units from PSI to Inches of Water. The low price and high accuracy made our purchase an easy decision.

- Supervisor, Electrical Shop



2110P

Smart Pressure Gauge

Meriam Instrument's 2110P Smart Gauge is a microprocessor based, programmable pressure sensing device. The various ranges available allow for measurement of pressure, vacuum and absolute pressure. All units are programmed to allow easy configuration of the gauge through the front keypad. The AC powered and 4-20 mA units can also be configured through the RS-232C serial communications port.

SPDT relays on AC powered units and the 4-20 mA output on the transmitter models make the 2110P an ideal choice for many control and recording functions. Both models also have RS-232C communications for additional control and data logging capabilities. Typical applications include use as a test bench gauge, tank level measurement, gas flow measurement and leak testing.

2110P Smart Pressure Gauge Advantages

- Measures gauge, vacuum and absolute pressure
- Accuracy of 0.05% full scale
- Ranges for 20 PSI to 2000 PSI
- 4½ digit display
- RS-232C, 4-20 mA and relay outputs



2110P

Smart Pressure Gauge

Ordering Information

Model

2110P Smart Pressure Gauge

Sensor Type and Range

GI0020	0-20 PSI	Gauge
GI0200	0-200 PSI	Gauge
GI2000	0-2000 PSI	Gauge
AI2000	0-2000mm Hg	Absolute

Mounting Options

01	Panel Mount
02	2" Pipe Mount
03	Portable Handle/Bench Stand

Power/Output Options

- 1 110/220 VAC, 24 VDC/RS-232C, and SPDT Relays
- 2 Batteries / No Outputs
- 3 24 VDC /4-20 mA, RS-232C

CSA Intrinsically Safe and CE MARK available on select models. Contact factory for details.

Features

- Backlight
- Damping - Selectable from 0.1 to 50 seconds
- Adjustable Deadband - On SPDT relays
- Selectable Timeout - Conserves battery
- Selection of Engineering Units - mm Hg, PSI, in. Hg, mbar, Bar, kPa, in H₂O (@20°C, 4°C, or 60°F), Kg/cm², cm. H₂O and user defined.
- Lockout - Prevents inadvertent resetting of gauge configuration.

Specifications

Sensor Type & Range	GI: Gauge Isolated AI: Absolute Isolated	20, 200, 2000 PSIG 0-2000 mm Hg Abs 0-900 mm Hg Abs
Temperature	Storage: -40°F to 140°F (-40°C to 60°C) Operating: -23°F to 122°F (-5°C to 50°C)	
Pressure Limits	Twice the range on AI and GI units.	
Display	4½ digit LCD, 0.6" high (15.24mm)	
Power/Outputs	Standard unit has selectable 110 VAC 50/60 Hz, 220 VAC 50/60 Hz, or 12 to 28 VDC power. Included are an RS-232C and two set point relays rated 1 amp resistive @ 24 VDC, .5 amp resistive @ 115 VAC.	
Options	Lithium battery unit with field replaceable battery board and user defined auto shut-off. No outputs or 4-20 mA output unit with 12 to 28 VDC power and RS-232C.	
NIST Traceable Accuracy	± 0.05% FS. (this includes the combined effects of linearity, repeatability, hysteresis and temperature). NIST certification supplied.	
Media Compatibility	Isolated AI and GI sensors for fluids compatible with 316SS.	
Enclosure	4 lbs. ¼ DIN (3.8" x 3.8" x 6.5") aluminum enclosure with epoxy finish. Standard unit is NEMA 4X on front panel only. Battery and 4-20 mA units are NEMA 4X throughout.	



2110L Smart Level Gauge

Meriam Instrument's 2110L Smart Gauge is a microprocessor based, programmable, pressure sensing device. It is designed to display tank level in volumetric or mass units based on the hydrostatic head pressure of the fluid in the tank. The 2110L can be used in bubbler systems or for direct head measurement on pressurized or vented tanks. It can be configured for linear tanks such as vertical cylinders or for use on non-linear tanks such as horizontal cylinders and spheres. All units are programmed to allow easy configuration of the gauge through the front keypad. The AC powered and 4-20 mA units can also be configured through the RS-232C serial communications port.

SPDT relays on AC powered units and the 4-20 mA output on the transmitter models make the 2110L an ideal choice for many level control and recording functions. Both models also have RS-232C communications for additional control and data logging capabilities. The SPDT relays have selectable deadbands to prevent wear on pumps due to constant cycling.

2110L Smart Level Gauge Advantages

- Measures in linear and non-linear tanks
- Accuracy of 0.05% full scale
- Ranges for 20 PSI
- 4½ digit display
- RS-232C, 4-20 mA communications
- SPDT relay outputs with selectable deadband



2110L

Smart Level Gauge

Ordering Information

Model

2110L Smart Level Gauge

Sensor Type and Range

GI0020 0-20 PSI Gauge

Mounting Options

- 01 Panel Mount
- 02 2" Pipe Mount
- 03 Portable Handle/Bench Stand

Power/Output Options

- 1 110/220 VAC, 24 VDC with RS-232C, and SPDT Relays
- 2 Batteries / No Outputs
- 3 24 VDC /4-20 mA, RS-232C

Features

- Backlight
- Damping - selectable from 0.1 to 50 seconds.
- Adjustable Deadband - on SPDT relays
- Selectable Timeout - conserves battery
- Selection of Engineering Units - Gallons, Liters, Cubic Meters, Cubic Feet, Kilograms, Pounds, percent full, inches of water and user defined. Minutes and hours time constants can be displayed.
- Lockout - prevents inadvertent resetting of gauge

Specifications

Sensor Type & Range	GI: Gauge Isolated	20 PSIG
Temperature	Storage: -40°F to 140°F (-40°C to 60°C) Operating: -4°F to 122°F (-20°C to 50°C)	
Pressure Limits	Twice range on GI.	
Display	4½ digit LCD, 0.6" high (15.24mm)	
Power/Outputs	Standard has selectable 110 VAC 50/60 Hz, 220 VAC 50/60 Hz, or 12 to 28 VDC power. Included are an RS-232C and two SPDT relays rated 1 amp resistive @ 24 VDC, .5 amp resistive @ 115 VAC.	
Options	Lithium battery unit with field replaceable battery board and user defined auto shut-off. No outputs. -OR- 4-20 mA output unit with 12 to 28 VDC power and RS-232C.	
NIST Traceable Accuracy	± 0.05% FS (this includes the combined effects of linearity, repeatability, hysteresis and temperature). NIST certification supplied.	
Media Compatibility	Isolated GI sensor for fluids compatible with 316SS.	
Process Connection	½" female NPT, 316SS	
Enclosure	4 lbs. ¼ DIN (3.8" x 3.8" x 6.5") aluminum enclosure with epoxy finish. Standard unit is NEMA 4X on front panel only. Battery and 4-20 mA units are NEMA 4X throughout.	



Model 1500

Digital Pressure Transmitter

Meriam's Digital Pressure Transmitters are for high accuracy applications at OEMs, on manufacturing skids, in process control systems and plant instrumentation. RS-485 communications allow for easy configuration using a PC or laptop computer. The RS-485 addressable interface allows up to 32 devices to be networked together. Optional 1-5 Volt, 0-5 Volt or 4-20 mA outputs are also configured from a PC or laptop.

- $\pm 0.025\%$ of URL (Upper Range Limit)
- Absolute and gauge pressure sensors
- 316SS isolated sensors for wet/corrosive process
- No temperature effect on RS-485 output from 23°F to 122°F (-5°C to 50°C)

Model 1500 Advantages

- No temperature effect on digital accuracy over temperature range
- $\pm 0.025\%$ URL accuracy
- RS-485 digital communications with 4-20 mA, 0-5 volt or 1-5 volt options
- Analog and digital outputs can be used simultaneously
- Ranges from 20" H₂O to 2000 PSIG

Model 1500

Digital Pressure Transmitter

RS-485 Programming

- Pressure zero set
- Reset factory zero
- Analog output span and offset factor set
- Damping factor set
- Engineering units selection
- Multi drop address selection

Accessories

- DB-9 connector pigtailed
- RS-485 to RS-232 interface devices
- Process connection adapters
- Electrical connection adapters
- System setup software

Application Examples

- Laminar Flow Systems
- Clean room pressure monitoring
- Tank level measurement

Accuracy

RS-485 $\pm 0.025\%$ of URL ($\pm 0.1\%$ 20" sensor)
 $\pm 0.1\%$ span @ 4:1 turndown of URL
 $\pm 0.25\%$ span @ 10:1 turndown of URL

4-20 mA $\pm 0.05\%$ of URL ($\pm 0.1\%$ on 20" sensor)
 $\pm 0.125\%$ span @ 4:1 turndown of URL

1 to 5 VDC & 0 to 5 VDC
 $\pm 0.05\%$ of URL ($\pm 0.1\%$ on 20" sensor)
 $\pm 0.125\%$ span @ 4:1 turndown of URL

Output Options

RS-485 (standard): Half Duplex, 3 wire- TR-1, TR-0, Signal ground. 9600 baud, 1 start bit, 1 stop bit and no parity. External power of 6 to 30 VDC (100 mA max). Multi-drop addressing with up to 32 devices maximum per RS-485 segment. RS-485 repeaters for additional segments.

4-20 mA (optional): 2 wire current loop. 17 to 30 VDC for loop supplied 4-20 mA.

1-5 V or 0-5 V (optional): 4 wire, 17 to 30 VDC. Digital communications and analog outputs can be used simultaneously.

Ordering Information

GI0020	0-20 PSI	Gauge
GI0200	0-200 PSI	Gauge
GI2000	0-2000 PSI	Gauge
AI2000	0-2000 mm Hg	Absolute
AI0900	0-900 mm Hg	Absolute

Specifications

Models/Ranges	GI: Gauge isolated AI: Absolute isolated	20, 200, 2000 PSIG 900 mm Hg, 2000 mm Hg
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Temperature Effect	No temperature effect from -5°C to 50°C using RS-485 output. Analog output $\pm .005\%$ of span/°C.	
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Long Term Stability	$\pm 0.1\%$ URL per year	
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Temperature Range	Storage: -40°F to 140°F (-40°C to 60°C) Operating: 23°F to 122°F (-5°C to 50°C)	
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Pressure Limits	Twice the range on GI and AI units.	
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Connections	Pressure: $\frac{1}{8}$ " FNPT Digital: DB-9 Analog: 2 pc. Terminal Block	
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Media Compatibility	Isolated AI and GI sensors for use with fluids compatible with 316SS.	
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Weight	GI, AI	2 pounds
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Enclosure	2.2" x 4.2" x 4.5" NEMA 12	
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Mounting	Surface/wall mounting, 2" pipe and DIN rail options available.	
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Engineering Units	cm WC, in WC (at 39.2°F, 60°F and 68°F), mBar, Bar, mm Hg, in Hg at 0°C, PSI, kPa, Kg/cm ² .	
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Damping	0.1 to 25 seconds.	
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MGF16BN

Battery-Powered Digital Pressure Gauges

The Meriam Instrument MGF16BN digital pressure gauge successfully addresses the modern demands of process pressure measurement. Pressure ranges are available to 5,000 PSIG at standard accuracy of $\pm 0.25\%$ of full scale and optional accuracy of $\pm 0.1\%$ of full scale. Compound gauges that can be used for positive pressure measurements and vacuum measurements are also available.

The display is a 4½ digit LCD with 0.5" high numerals and a lower alphanumeric display for engineering units and to aid in set up. Each gauge includes up to 15 field selectable engineering units depending on the sensor range. The selectable units include PSIG, kiloPascals, megaPascals, millibar, bar, atmospheres, kilograms per square centimeter, grams per square centimeter, centimeters of water, ounces per square inch, feet of water, inches of water, millimeters of mercury, Torr, and inches of mercury.

Other standard features include min/max capture, zeroing, pass code program lock-out, adjustable display shutoff time and field recalibration. The housing is ABS/polycarbonate and is NEMA 4X rated. Wetted components are 316L stainless steel for compatibility with many process fluids. Process connection is via a ¼" MNPT 316L stainless steel fitting. The gauge is powered by two AA alkaline batteries.

Typical applications are instrumentation and control in the process industries, hydraulics, pneumatics, industrial gases and OEM's.

MGF16BN Advantages

- $\pm 0.25\%$ Test Gauge Accuracy (optional $\pm 0.1\%$ available)
- 316L Stainless Steel Wetted Parts
- NEMA 4X
- Capture Minimum and Maximum Readings
- Push Button Zero
- 15 Selectable Engineering Units
- Selectable Auto Shutoff Times

MGF16BN

Battery-Powered Digital Pressure Gauges

MGF16BN Standard Features

Overpressure

3000 PSIG Range: 5000 PSIG
5000 PSIG Range: 7500 PSIG
All Others: 2x Pressure Range
112.5% FS
out-of-range display: /--- or/-.--.-
depending on model

Environmental

Storage Temperature: -40°F to 203°F
(-40°C to 95°C)
Operating Temperature: -4°F to 185°F
(-20°C to 85°C)
Compensated Temperature: 32°F to 158°F
(0°C to 70°C)

MVP-600KT Combo Pneumatic Calibration Pump Ordering Information (optional)

P/N	Model	Description
Z1066-7	MVP-600KT	Pump, case, (1) hose with fittings for use with top mounted MGF16BN Gauge
Z1066-6	MVP-600	Pressure/Vacuum Calibration Pump 600 PSI / 40 bar
Z1066-8	HK-600	(1) 2 ft. hose with fittings
Z1066-9	HK-TS	MVP-600 (2) hoses (top & side) with fittings

Specifications

- Pneumatic combination pump: vacuum 28" Hg to pressure 600 PSI
- Push for Vacuum / Push for Pressure valve
- Oversized check valve for smooth, controlled operation
- Vent Valve
- Connections: (2 ports) 1/4" and 1/8" NPT / BSP
- Weight: 2 lbs.



Pictured with optional pump

Ordering Information

±0.25% FS Models	Pressure Ranges
MGF16BN-30V15PSIG	-30.0 inHg to 15.0 PSIG
MGF16BN-30V100PSIG	-30.0 inHg to 100.0 PSIG
MGF16BN-30V200PSIG	-30.0 inHg to 200.0 PSIG
MGF16BN5PSIG	0 to 5.000 PSIG
MGF16BN15PSIG	0 to 15.00 PSIG
MGF16BN60PSIG	0 to 60.00 PSIG
MGF16BN100PSIG	0 to 100.0 PSIG
MGF16BN200PSIG	0 to 200.0 PSIG
MGF16BN300PSIG	0 to 300.0 PSIG
MGF16BN500PSIG	0 to 500.0 PSIG
MGF16BN1000PSIG	0 to 1000 PSIG
MGF16BN2000PSIG	0 to 2000 PSIG
MGF16BN3000PSIG	0 to 3000 PSIG
MGF16BN5000PSIG	0 to 5000 PSIG

Consult factory for other available ranges.

Specifications

Accuracy	Standard: $\pm 0.25\%$ of Full Scale ± 1 least significant digit includes linearity, hysteresis, repeatability Optional: HA $\pm 0.1\%$ FS ± 1 LSD NC NIST traceable test report and calibration data
Display	3 readings per second nominal display update rate 4½ digit LCD, 0.5" H, 5 character 0.25" H alphanumeric lower display
Controls & Functions	Front buttons turn gauge on or off, zero gauge, cycle through min/max functions, select engineering units, select auto shutoff times, and are used for calibration functions
Calibration	Pass code protected calibration Non-interactive zero, span, and linearity, $\pm 10\%$ of range
Automatic Shutoff	5 minute default; User selectable times ranging from 1 minute to 8 hours or front button on/off
Power	2 AA alkaline batteries Approximately 2000 hours battery life Low battery symbol on display when batteries must be replaced
Weight	9 ounces
Material	ABS/polycarbonate NEMA 4X case, rear gasket, polycarbonate label
Connection Size	1/4" NPT male, 316L SS
Burst Pressure	4 times sensor pressure rating, or 10,000 psi, whichever is less



MH-10KT

Hand Pump Series

Hydraulic & Pneumatic Calibration Pumps

Meriam's hand pumps can be used with a variety of products such as our MGF16BN gauges, manometers, Model 35EE Meri-Cal, MFT Series, M2 Series Smart Manometers and the M1 Series Digital Manometers/Calibrators.

MH-10KT Hydraulic Calibration Pump

The Meriam Calibration Pump MH-10KT uses a fully adjustable stroke control to allow for fast priming or filling of test systems. This gives the operator the ability to switch as needed to a smaller stroke for easier pumping at high pressure.

Features

- Contoured cushion handles
- Patented protective cage around vent knob
- Priming feature
- Patented triple filtration (prevents pump failure caused by dirt)
- A non-oil based lubricant is used on all moving parts
- Built in pressure relief valve (prevents over pressurizing)
- Shatter proof reservoir
- Oversized check valves for smooth controlled operation
- 2 year warranty (includes dropping)
- Includes: black padded canvas case, 3ft high pressure hose, fittings, adaptors, test point and (3) spare filters

Specifications

Specifications	0 - 10,000 psi (700 Bar)
	Compatible with most hydraulic fluids, oils and water
	Connections (2 ports) 1/4 inch NPT / BSP
	Weight 3lbs
	Made in the USA

Additional Information

The Meriam Calibration Pump MH10KT uses a fully adjustable stroke control to allow for fast priming or filling of test systems. This gives the operator the ability to switch as needed to a smaller stroke for easier pumping at high pressures.

Options

Model# M-10FW Additional spare filters (3) and (2) spare rubber bonded washers. MGF16, 4 1/2" digit LCD gauge, battery operated, pipe mount via 1/4" MNPT 316 stainless steel stem, NEMA 4 rated housing, ranges 0 to 5000 PSIG. Please visit our website for more information. Note: Kits, hoses and fittings can be customized upon request.

Hand Pump Series

Hydraulic & Pneumatic Calibration Pumps



MP-100KT Calibration Pump

Features

- Delrin plastic handle prevents body heat transfer
- Oversized check valves for smooth controlled operation
- Mash proof vent valve (No Needle Valve)
- A patented non-oil based lubricant is used on all moving parts
- Dual O-Rings on all pistons to ensure zero leakage
- 2 year warranty (includes dropping)
- Includes: A black padded canvas case, 2ft non-stretch hose, fittings and stainless steel analog gauge 2 1/2" w/ protective rubber boot.

Specifications

Specifications

MV-100 0-28"Hg (depends on barometric pressure)
MP-100 0 to 100 psi (including and not limited to an inch of water)
Connections (2 ports) 1/8" NPT
Weight 1.5 lbs
2ft hose and 1/4" fitting
Made in the USA

Options

Meriam MGF16BN Digital Pressure Gauge, battery operated, pipe mount via 1/4" MNPT 316 stainless steel stem, NEMA 4 rated housing, ranges 0 to 5000 PSIG. Please visit our website for more information.



M-600KT Combo Pneumatic Calibration

Features

- Contoured cushion handles
- Oversized check valves for smooth controlled operation
- Mash proof vent valve (No Needle Valve)
- A patented non-oil based lubricant is used on all moving parts
- Dual O-Rings on all pistons to ensure zero leakage
- 2 year warranty (includes dropping)
- Includes: A black padded canvas case, 2ft non-stretch hose, fittings and Meriam stainless steel analog gauge 2 1/2" w/ protective rubber boot.

Specifications

Specifications

Vacuum 28" Hg to pressure 600psi (combination pump)
Compatible with all gauges and calibrators
Connections (2 ports) 1/4" and 1/8" NPT/BSP
Weight 2 lbs
Made in the USA

Options

MGFIG, 4 1/2" digit LCD gauge, battery operated, pipe mount via 1/4" MNPT 316 stainless steel stem, NEMA 4 rated housing, ranges 0 to 5000 PSIG. Please visit our website for more information.



1120 Series Indicators

Indicator models 1123, 1124 and 1126 have 3", 4½" and 6" dials respectively. A variety of scales for differential pressure, flow and level can be supplied. The 1120 Series is widely used in industrial process plants, power plants, pollution control facilities and in the cryogenic gas industry.



1220 Series Indicating Switches

The Series 1220 Differential Pressure Indicating Switches are used for on-off control or alarm. They also indicate flow, liquid level or other process variables. These units are furnished with one or two SPDT type switches with actuation set points easily adjustable over most of the range of the instrument. The calibrated travel of the pointer is 270° which gives good differential pressure indication and switch resolution. Dials can be supplied with linear scales for differential pressure, square root scales for flow, or custom scales for level. The Series 1220 Switches are used extensively in power plants, compressor stations and cryogenic applications.



1226X Explosion-Proof Switch

Meriam's 1226X Explosion-Proof Indicating Switch is CSA and U.L. listed, meeting N.E.C. requirements for Class I, Division I, Group D hazardous environments. Class I, Group D atmospheres include gasoline, hexane, naphtha, benzene, butane, propane, alcohol, acetone, benzol, lacquer, solvent vapors, and natural gas.

The explosion-proof housing is made from a strong, light-weight aluminum alloy that is both non-rusting and non-sparking. A large glass window provides full viewing of the 6" indicator. Front of board, panel or pipe mounting can be supplied.



1126P-2 Portable Indicator

The 1126P-2 is designed for portable applications. Typical examples are periodic measurements of the pressure drop across filters, balancing of flow rates in heating and cooling systems and checking of back flow prevention devices. Meriam's 1126P-2 consists of an 1126 D/P Indicator with 3-valve manifold and piping, 2 hoses and quick disconnects. Each instrument system is assembled as a complete package with all the accessories mounted in a rugged, light weight case. When used as a flow measuring device, the instrument normally comes with a 0-100% square root scale. With all flow elements designed for the same differential, multiplying the scale reading by the primary element's full flow design value gives readings directly in flow units. Scales in flow units, inches of H₂O, PSI and metric units are also available.



Bellows Gauges for Differential Pressure, Flow and Level

The Meriam Model 1120 Differential Pressure Unit is a proven and reliable sensing element used in all Meriam Bellows Gauges. It is available in ranges as low as 0-30" w.c. or as high as 0-500 PSI. The light weight and compact differential pressure unit incorporates a rupture-proof and leak-proof bellows plus other features that ensure ruggedness and reliability. This basic unit is suitable for activating indicators, recorders, transmitters, switches, and controllers and is available as a separate assembly for that purpose.

The 1120 consists of a high and a low pressure bellows connected to each side of a center plate. The bellows are enclosed in end housings which in turn are bolted to the center plate. The interior of the bellows and center plate is completely filled with a clean, low freezing point, non-corrosive fill fluid. As differential pressure is applied, this fill fluid moves between the bellows through a field adjustable dampening valve in the center plate. Other external dampening devices are not required for measurements of pulsating differential pressure. Also, the Meriam 1120 incorporates a special design which completely isolates the process fluid from the center plate.

When differential pressure is applied to the high and low pressure connections, the high pressure bellows contracts, forcing fluid through the center plate into the low pressure bellows which expands. The resulting linear motion of the low pressure bellows is converted to a 6° rotary motion of the output shaft through temperature compensating linkage. Over-range protection up to the pressure rating of the housing is provided by two fluid shut off valves located on this linkage. The output shaft is part of a low friction, "O" ring sealed shaft and bearing assembly which carries the rotary motion to the external area of the bellows unit and into the instrument case.

Bellows Gauges

for Differential Pressure, Flow and Level

Features

1020 & 1120 Accuracy

30" w.c. range	1.50% FS
50" w.c. thru 500 PSID range	0.75% FS
Option: 100" w.c. thru 50 PSID range	0.50% FS

1220 Accuracy

Before switch activation	0.75% FS
At switch activation point	2.00% FS
After switch activation	1.50% FS

Zero Elevation

100% of range (150 PSID maximum)

Suppression

15% of range with 270° pointer travel

Operating Temperature

-60°F to +200°F

Full Scale Displacement

30" w.c. thru 130" w.c. range	.19 Cu. In.
135" w.c. thru 60 PSID range	.12 Cu. In.
75 PSID thru 500 PSID range	.06 Cu. In.

1220 Switch Type

Snap action SPDT

1220 Switch Setting Accuracy

1.00% FS

1220 Dead Band

1 switch (nominal)	7% FS
2 switch (nominal)	10% FS

1220 Switch Setting

Increasing -10 to 100% of differential or 10" of water whichever is greater

Decreasing - 5% or 5" of water whichever is greater
Between set points -15% of FS minimum

1220 Switch Rating

5 amps at 125V or 250V AC
3 amps inductive or 5 amps resistive at 30VDC

Mounting Dimensions

Model 1020	Request File No. 1020:420
Model 1123	Request File No. 1123:420
Model 1124	Request File No. 1124:420
Model 1126	Request File No. 1126:420
Model 1224	Request File No. 1224:420
Model 1226	Request File No. 1226:420
Model 1226X-1	Request File No. 1226X-1:420
Model 1226X-2	Request File No. 1226X-2:420

Ordering Information

To order any one of Meriam's Bellows Gauges, custom-made to your specifications, please contact your Meriam sales representatives with the following information:

- Model Number
- Housing Material
- Safe Working Pressure
- Bellows Material
- Differential Range
- Type of Scale (Linear or Sq. Rt.)
- Type of Mounting

Specifications								
Model	1020	1123	1124	1126	1224	1226	1226X	1126P-2
Dial Size	No Dial	3"	4½"	6"	4½"	6"	6"	6"
Housing	End Housing	Center Plate			Static Working Pressure		Process Connections	
	Brass	Brass			500 or 1000 PSI		¼" NPT	
	316 SS	316 SS or Brass (500 SWP Only)			1500, 3000 or 6000PSI		¼" & ½" NPT	
	Monel	316 SS			1500, 3000 or 6000PSI		¼" & ½" NPT	
Bellows	Beryllium Copper (30" w.c. Minimum—60 PSID Maximum)							
	316 Stainless Steel (50" w.c. Minimum—500 PSID Maximum)							
	Monel (50" w.c. Minimum—60 PSID Maximum)							
Mounting (Except 1126P)	Flush Panel using indicator case for mounting							
	Wall or ¾" NPT using universal mounting bracket							
	Pipe Saddle or Wall using "H" mounting Bracket and 2" U-Bolts							
Features	Special scales and ranges available				Optional bellows fill fluid			
	Simple zero, span and linearity adjustment				Additional relay options available for 1220 Series			
	Temperature compensation for varying ambients				270" pointer travel; red set pointer			
	Break-resistant acrylic viewing window				Valves and Piping			
	NEMA 4, Die-cast aluminum case with gasketed cover				Special cleaning for oxygen service			
	Low friction "O" ring sealed shaft output				Option for meeting NACE MR-01-75 requirements			
	Optional anti-parallax mirror dial				Terminal Strip			
	CE approval for 1120 and 1220 Series (option)				Built-in pulsation dampening (field adjustable)			
CSA approved 1226 Models								



Model 1020

Differential Pressure Unit

The Meriam Model 1020 Differential Pressure Unit is a proven and reliable sensing element. Available in ranges from as low as 0-30" H₂O to 0-500 PSI. It is especially adaptable where size and weight are critical factors. The light weight and compact differential pressure unit incorporates a rupture-proof and leak-proof bellows plus other construction features that make it second to none. This unit is suitable for activating indicators, recorders, transmitters, switches and controllers and is available as a separate assembly for that purpose.

The basic D/P unit consists of a high and a low pressure bellows, both liquid filled and connected to a center plate. The bellows are enclosed in the high and low pressure end housings which in turn are bolted to the center plate. When differential pressures are applied to the high and low pressure connections, the high pressure bellows contracts forcing the fill fluid through the center plate into the low pressure bellows causing it to expand.

The resulting linear motion of the low pressure bellows is converted to a 6° rotary motion of the output shaft through a temperature compensated linkage. Over-range protection is provided by two opposed valves located on this linkage allowing the unit to withstand over-ranging up to the full static pressure rating of the housing without damage. The interior of the bellows and center plate are completely filled with a clean, non-corrosive, low freezing point liquid. This output shaft is part of a low friction, "O" ring sealed shaft and bearing assembly which carries the rotary motion to the external area of the bellows unit and into the instrument case.

In the Meriam bellows unit all of the fill fluid must pass through the Meriam Pulsation Dampening valve in the center plate. This valve is field adjustable so that the desired dampening effect can be obtained. Because of this Meriam design, other types of external dampening devices are not required on services involving measurement of fluctuating differential pressures. The Meriam bellows D/P unit incorporates a special design which completely isolates the process fluid from the center plate.

Model 1020 Features

- Range variations
- Material variations, housing, bellows and center plate
- Rugged construction for long life
- 6° output shaft rotation
- Temperature compensation for varying ambient conditions
- Integral field adjustable pulsation dampening
- Low friction "O" ring sealed output shaft
- Over-range protection - high and low pressure
- Seamless leak-free bellows
- Process isolation rings

Model 1020

Differential Pressure Unit

Standard Ranges (1)

In. of H ₂ O	Cm. of H ₂ O	PSI	Kg. per Sq. Cm.
0-30" (2)			
0-50" 0-200"	0-125 0-500	0-10 0-150	0-0.7 0-10.5
0-60" 0-250"	0-150 0-635	0-15 0-200	0-1.05 0-14.0
0-80" 0-300"	0-200 0-760	0-20 0-250	0-1.4 0-17.0
0-100" 0-350"	0-250 0-890	0-25 0-300	0-1.75 0-21.0
0-150"	0-380	0-50 0-350	0-3.5 0-25.0
		0-100 0-400	0-7.0 0-28.0
		0-500	0-35.0

(1) Split range and center zero available

(2) Available only with Beryllium Copper Bellows

Construction Specifications

Housing Material	Process Connections	Pr. Rating PSIG	Wt.
Brass	1 pr. 1/4" NPT and 1 pr. 1/2" NPT	500	6 1/4 lbs.
Stainless Steel Type 316	1 pr. 1/4" NPT and 1 pr. 1/2" NPT	1500 3000 6000	6 1/4 lbs. 15Lb.
Monel-400	1 pr. 1/4" NPT and 1 pr. 1/2" NPT	1500 3000 6000	6 1/4 lbs. 15Lb.
Bellows Material	Beryllium Copper Stainless Steel Type 316L, Monel-400		

(1) Available with Brass Centerplate @ 500 SWP.

Performance Specifications

Independent

0 to 30" W.C. range $\pm 1.50\%$ FS

Linearity

0 to 50" W.C. thru 0 to 500 PSID range $\pm 0.75\%$ FS

Temperature Limits

-60°F to +200°F

Full Scale Displacement

0 to 30" thru 0 to 130" W.C. range .19 Cu. In.

0 to 130" W.C. thru 0 to 60 PSID range .12 Cu. In.

0 to 75 PSID thru 0 to 500 PSID range .06 Cu. In.

Ordering Information

To order Meriam's Model 1020 Differential Pressure Unit, custom-made to your specifications, please contact your Meriam sales representatives with the following information:

- Model Number
- Housing Material
- Safe Working Pressure
- Bellows Material
- Differential Range

Notes:

- 1) Process connections available
Brass 1/4" NPT
SS & Monel 1/2" NPT
top, 1/4" NPT bottom
- 2) 6000 PSIG SWP housing dimensions not shown

