

DIAPHRAGM STYLE GAUGE



For Installation and Operation Manuals
Please Visit: www.midwestinstrument.com/literature

Mid-West
Instrument

Mid-West[®] Instrument



“Diaphragm Type” Differential Pressure Gauge & Switch Model 107



Features:

- Total separation of high and low pressures by use of a Convoluted Elastomer Diaphragm.
- Over range protection to full rated working pressure.
- Body Materials: Aluminum, Cast Brass, Plated Carbon Steel, 316L Stainless Steel or Engineered Plastic
- Stainless steel torque tube and internal metal parts
- ¼” FNPT Dual Top & Bottom Process Connections Standard
- Elastomers: Buna-N, Viton and Ethylene Propylene
- Weather-resistant construction standard.
- Shatter resistant acrylic lens.
- Dial type and Sizes: Black on White 6” Std, 4-1/2” Optional
- DP Ranges available in: Inches H₂O, PSID, bar, and Kpa
- Available with Square Root dials for flow measurement
- Multiple mounting options available
- Temperature Limits: -15°F (-26°C) to +185°F (+85°C)

The “**NEW**” Mid-West Instrument Model 107 combines the field proven torque tube from our Models 105, 106 & 116, with the elastomer diaphragm technology of our Models 130, 140 & 142.

Model 107 elastomer diaphragm design provides a high over low and low over high over-range protection to the full rated working pressure of the instrument. Rated working pressures are dependant on body materials chosen and will range from 300 PSIG to 1,000 PSIG. The Mid-West torque tube & movement provides a full 270° pointer rotation.

Model 107 is available in a wide variety of body materials and is available with Buna-N, Viton or Ethylene Propylene elastomer options consisting of 316 stainless steel and engineered plastic internal wetted parts, making our new Model 107 ideal for many applications including tank Level measurement, flow measurement as well as everyday differential pressure applications.

Common Applications: Filter/Strainer Monitoring, Compressed Air, Hydraulic, Refrigerant, Pump Performance Testing, Heat Exchanger Pressure Drop Monitoring, Water Treatment Applications, Tank Level Monitoring Horizontal or Vertical, Flow Monitoring & Balancing. Ideally suited for use on dissimilar fluids and wet gas or fluids with a high concentration of solids, etc.

*“A World Leader
in Differential Pressure Gauges,
Switches & Transmitters*



Back Shot
Cast Brass Body

Model	Accuracy	Min. ΔP Range	Max. ΔP Range	Max. Line Pressure PSIG	Optional Switches
107	±2%	0-70" H ₂ O (0-3.0 PSID)	0-800" H ₂ O (0-30 PSID)	ALM., C.S., S.S. = 1000 Brass = 500 Engineered Plastic = 300	1 or 2 Snap Acting Switches

“Diaphragm Type” Differential Pressure Gauge Switch Options Model 107



Model 107
Dual Switch Unit



Model 107
Single Switch
Shown w/optional
Black Dial

SNAP ACTING MICRO-SWITCH for MODEL107 Range: 0-80”H₂O(0-3.0 PSID) to 0-800”H₂O(0-30 PSID)

Model 107 can also be equipped with one or two independently adjustable SPDT snap acting Micro-Switches which can be set on decreasing or on increasing pressure. A switch adjustment screw and a switch lock screw is accessible after removal of the lens and bezel (removal of 4 screws). Interface to the snap acting micro-switch is via color coded 18 AWG flying leads and a ½' FNPT conduit connection. Snap acting Micro switches do not require input power to operate. **Switches available with 6” Diameter dial only.**

NOTE: Snap Acting Micro-Switch Requests for Bi-Directional Range Gauges must contact factory

NOTE: It is strongly recommended that a 3-Valve differential pressure manifold be used in plumbing your model 107 to your system. Properly used it should insure that your instrument is not over-ranged or damaged by pressure shocks during pressurization. It will later zeroing, ranging and calibration checking. It is a good practice to purge or flush the instrument loop prior to connecting the instrument.

Electrical Switch Configurations

One (1) Micro-Switch in Weather Resistant Enclosure

(0-80" to 0-800" H₂O only) Accuracy ±2% Full Scale

Two (2) Micro-Switches in Weather Resistant Enclosure (0-80" to 0-800" H₂O only)

Accuracy ±4% Full Scale 0-80" - 199" H₂O / 0-200" - 800" H₂O Accuracy ±2% Full Scale

One (1) Micro-Switch in Weather Resistant Condulet Enclosure

(0-80" to 0-800" H₂O only) Accuracy ±2% Full Scale Ascending

Two (2) Micro-Switches in Weather Resistant Condulet Enclosure

Accuracy ±4% Full Scale Ascending 0-80" - 199" H₂O / 0-200" - 800" H₂O Accuracy ±2% Full Scale Ascending

"Output Option" (Resistive Load)

Micro Switch Electrical Interface:

18", 18 Awg, 600 V, 105°C

Color coded wire leads from 1/2" FNPT Connection

SPDT Micro-Switch

Contact Ratings: **(MAX)** 4 Amps @ 30 VDC / 3 Amps @ 240VAC / 5 Amps @ 12 VAC

Proof Pressure: Two times rated working pressure at ambient temperature

Temperature Limits: -15°F (-26°C) to +185°F (+85°C)

These limits are based on the entire instrument being saturated to these temperatures. System (process) temperatures may exceed these limitations with proper installation. Contact our customer service representative for details.

Standards: Model 107 gauge either conforms to and/or is designed to the requirements of the following standards:

ASME B1.20.1	NACE MR0175
CSA-C22.2 No. 14.25 and 30	SAE J514
ASME B40.100	NEMA Std. No. 250
EN-61010-1	UL Std. No. 50,508 and 1203

Mid-West[®] Instrument

Standard Dial Ranges: Model 107

Range Type				
IN H ₂ O	PSID	Kpa	bar	Flow Dials
0-70"	0-5	0-35	0-0.35	Please Contact Factory
0-100"	0-10	0-70	0-0.7	
0-135"	0-15	0-100	0-1.0	
0-150"	0-20	0-140	0-1.4	
0-200"	0-25	0-172	0-1.75	
0-300"	0-30	0-200	0-2.0	
0-400"				
0-600"				
0-800"				

Available Multipliers for Flow Dials: X10, X100, X1000, and X10,000

The above mentioned ranges are some of the most popular requested today. Mid-West Instrument can provide special un-cataloged dial range requirements. As well as multiple scale dials, multiple color dials and special decals. Please consult factory for complete information.

Model	Min. ΔP Range	Max. ΔP Range
107	0-70" H ₂ O (0-1.0 PSID)	0-800" H ₂ O (0-30 PSID)

Proof Pressure: Two times rated working pressure at ambient temperature

Temperature Limits: -15°F (-26°C) to +185°F (+85°C)

These limits are based on the entire instrument being saturated to these temperatures. System (process) temperatures may exceed these limitations with proper installation. Contact our customer service representative for details.

Standards: Model 107 gauge either conforms to and/or is designed to the requirements of the following standards:

ASME B1.20.1	NACE MR0175
ASME B40.100	NEMA Std. No. 250
CSA-C22.2 No. 14.25 and 30	SAE J514
EN-61010-1	UL Std. No. 50,508 and 1203

Standard Model Specifications: 107-AJ-00-00

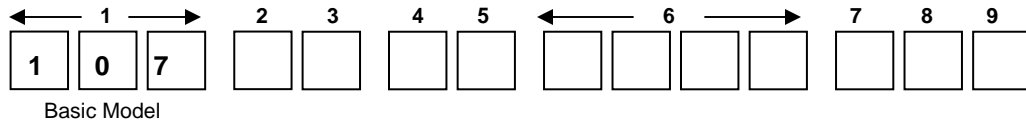
1000 PSIG Working Pressure, Aluminum body, 316L Stainless Steel Internal Metal Parts,
Buna-N Diaphragm and Seals, 1/4" FNPT Dual Top & Bottom Connections,
6" Round dial, Engineered Plastic Case with Shatter Resistant Lens

Mid-West Instrument

Accuracy $\pm 3/2/3\%$ Full Scale (Ascending)

1-800-648-5778

Range 0-70" H2O to 0-800" H2O (0-3.0 PSID to 0-30 PSID)



Range: _____



Cast Brass Body Shown



2	Material (Not All Options Available in Combination with other Options)
A	1000 PSIG, Aluminum Body / Stainless Steel Internals
B	500 PSIG, Cast Brass Body / Stainless Steel Internals
C	1000 PSIG, Plated Carbon Steel Body / Stainless Steel Internals
P	300 PSIG, Engineered Plastic Body / Stainless Steel Internals
S	1000 PSIG, 316 Stainless Steel Body / Stainless Steel Internals
Z	Special (<i>Un-coded Options</i>)
3	Dial Size
C	4-1/2" Round, Black on White Dial w/Engineered Plastic Dial case (not available with switches)
J	6" Round, Black on White Dial w/Engineered Plastic Dial case (Standard)
Z	Special (<i>Un-coded Options</i>)
4	Seal & Diaphragm Materials
0	Buna-N
1	Viton
5	Ethylene Propylene
9	Special (<i>Un-coded Options</i>)
5	Process Connections
0	1/4" FNPT Dual Top & Bottom Connections (Standard)
9	Special (<i>Un-coded Options</i>)
6	Additional Options
O	NONE
F	Carbon Steel 2" Pipe Mounting Kit (not available with "P" body option)
H	1/4" Carbon Steel Compression Tube Fittings
I	1/4" Stainless Steel Compression Tube Fittings
K	1/2" FNPT Stainless Steel Adapters
N	NACE (Available for Aluminum & Stainless Steel Gauge Bodies only)
S	Shatter Proof Glass Lens
T	Oxygen Cleaning
U	Stainless Steel Tag with S.S. Wire
V	Stainless Steel Tag and S.S. Screw (not available with "P" body option)
W	Wall Mount Kit
Z	Special (<i>Un-coded Options</i>)

Standard Model Specifications – continued Model 107



7 Electrical Configurations (Available with 6" Dial Only) (0-80" to 0-800" H2O only)	
O	None
G	One (1) Micro-Switch in a Type 4 Weather Proof Enclosure (0-80" to 0-800" H2O only) Accuracy $\pm 2\%$
H	Two (2) Micro-Switches in a Type 4 Weather Proof Enclosure 0-80" - 199" H2O Accuracy $\pm 4\%$ / 0-200" H2O and above Accuracy $\pm 2\%$ (1)
J	One (1) Micro-Switch in a Type 4 Weather Proof Enclosure with Condulet (0-80" to 0-800" H2O only) Accuracy $\pm 2\%$
K	Two (2) Micro-Switch in a Type 4 Weather Proof Enclosure with Condulet 0-80" - 199" H2O Accuracy $\pm 4\%$ / 0-200" H2O and above Accuracy $\pm 2\%$ (1)
Z	Special (Un-coded Options)
	Switches CSA Listed, Type 4, Industrial Control Equipment (1) Accuracies & repeatability values for two switch units are based upon one switch set low (approximately 25% for FSR) and one switch set high
8 "Input Options" Electrical Specifications (Select (1) input and (1) output option)	
N	No Input Required for Snap Acting Micro-Switch
Z	Special (Un-coded Options)
9 "Output Options" (Resistive Load)	
Micro Switch Electrical Interface:	
18", 18 Awg, 600 V, 105°C / Color coded wire leads from 1/2" FNPT Connection	
M	SPDT Micro-Switch Contact Ratings: (MAX) 4 Amps @ 30 VDC / 3 Amps @ 240 VAC / 5 Amps @ 120 VAC
Z	Special (Un-coded Options)
Factory preset switches at no charge (specify setting)	

Proof Pressure: Two times rated working pressure at ambient temperature

Temperature Limits: -15°F (-26°C) to +185°F (+85°C)

These limits are based on the entire instrument being saturated to these temperatures. System (process) temperatures may exceed these limitations with proper installation. Contact our customer service representative for details.

Standards: Model 107 gauge either conforms to and/or is designed to the requirements of the following standards:

ASME B1.20.1	NACE MR0175
ASME B40.100 GRADE B	NEMA Std. No. 250
CSA-C22.2 No.14	SAE J514
UL Std. No. 50	

MID-WEST INSTRUMENT has been serving a variety of industries (Power, Chemical, Petro-Chemical, HVAC, Water Filtration etc...) for over 50 years. Over 1,000,000 DP Gauges have been produced bearing the Mid-West name or private branded for our OEM customers!

Mid-West understands that in today's demanding environment, flexibility, quick response time and the ability to ship most of our product line in 2 weeks or less is essential to our customers. Standard configurations can be customized and modified to suit our customer's needs for ease of installation or retrofit.

If you are in need of additional information please visit our web site at www.midwestinstrument.com or contact us toll free at **1-800-648-5778** and one of our knowledgeable sales coordinators will be happy to assist you.

Mid-West[®] Instrument



“Diaphragm Type”

Differential Pressure Gauge & Switch

Model 130



Shown here with
Range 0-5" H₂O

Model 130 is a rugged general purpose differential pressure gauge with a 4-1/2" round dial.

Common Applications: Tank Level Monitoring Horizontal or Vertical Flow, Liquid Level, Indication/Balancing, Filter Monitoring for Gases, Water Treatment Applications and Vacuum Application



0-130 GPM
Flow Gauge Scale

The low range capability of the **Model 130** is ideally suited for flow, liquid level and vacuum applications. Magnetic coupling between the sensing element and the indicating pointer provides for complete isolation of the process fluid within the pressure capsule. The few internal metal parts are 316L Stainless Steel.

“A World Leader in Differential Pressure Gauges & Switches”

Model 130:

- Housing materials: Glass-Reinforced Engineered Plastic, Aluminum, Brass and 316L Stainless Steel
- Accuracy: 0-5" thru 0-9.9" H₂O ±5% Full Scale Ascending
0-10" thru 0-400" H₂O ±2% Full Scale Ascending
- Weather-resistant construction standard.
- Use on virtually all reasonably clean liquids or gases.
- Over-range protection to full rated working pressure.
- Diaphragm design allows use of dissimilar fluids on high and low side of gauge.
- Can be used with vacuum or pressure applications
- Shatter resistant lens.
- 4-1/2" Engineered Plastic dial assembly standard.
- 1/4" FNPT & 1/2" FNPT Process Connections
- DP Ranges available in: Inches H₂O, PSID, mbar, and Kpa
- Available with Square Root dials for flow measurement

Shown with
Engineered Plastic Body

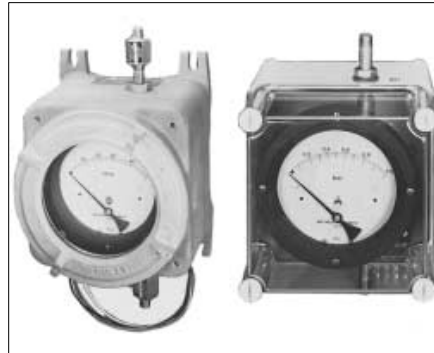


Shown with
S.S. Cast Body

Model	Accuracy	Min. ΔP Range	Max. ΔP Range	MWP PSIG (bar)	Optional Switches
130	±2% or ±5%	0-5" H ₂ O (0-12.4 mbar)	0-400" H ₂ O (0-1 bar)	*300 (20) **500 (34)	1 & 2 Switches Hermetically Sealed

*Glass-Reinforced Engineered Plastic **Aluminum, Brass and Stainless Steel
Switches available on Aluminum, Brass & 316 S.S. bodies only.

“Diaphragm Type” Differential Pressure Gauge Switch Options Model 130



Model 130 in Explosion Proof (left) and NEMA 4X (right) enclosures

Shown w/Aluminum Body & (1) Reed Switch in Condulet enclosure

Model 130 is available in Aluminum, Brass and 316SS bodies only with one or two hermetically sealed reed switches for low and/or high limit alarm. These CSA listed switches are Single Pole Double Throw (SPDT) with adjustable set points. Switches can be set to activate/deactivate on rising or falling pressure. Switches are enclosed in a weather resistant housing. Switch setting is readily made with a screw adjustment.

CSA listed control switching is available in non-corrosive molded plastic enclosures. These are oil tight, dust tight and watertight per NEMA Type 4X standards.

CSA listed control switching is available in an explosion-proof enclosure which complies with NEC Class I, Groups C and D; Class II Groups E, F, and G; NEMA 7 and 9 standards. These are machined cast-aluminum enclosures with 1/2" FNPT conduit connection and 24" wire leads.



Shown w/Aluminum Body & (1) Reed Switch with Condulet enclosure and Plug-In Connector (Din 46350-PG 11)

Model Type	130 SPDT
Power	3 W
Max Current	0.25 Amps
Max Voltage VAC/VDC	125 VAC/VDC
Setting Full Scale	10-90%
Hysteresis (Max / Norm)	10% / 5% (FS)
Repeatability	1% F.S.
Connections	(3) 24" Leads 22 AWG



Shown in NEMA 4X Plastic enclosures

**Factory preset switch at no extra charge (Specify Setting)
Specify increasing or decreasing range to be set.**

Proof Pressure: Two times rated working pressure at ambient temperature

Temperature Limits: -40°F (-40°C) to +200°F (+93°C) - These limits are based on the entire instrument being saturated to these temperatures. System (process) temperatures may exceed these limitations with proper installation. Contact our customer service representative for details.

Standards: Model 130 gauge either conforms to and/or is designed to the requirements of the following standards:

ASME B1.20.1	NACE MR0175
ASME B40.100	NEMA Std. No. 250
CSA-C22.2 No. 14.25 and 30	SAE J514
EN-61010-1	UL Std. No. 50,508 and 1203

Mid-West[®] Instrument

Standard Dial Ranges: Model 130

Range Type				
IN H ₂ O	PSID	Kpa	mbar	Flow Scales
0-5"	0-5	0-1.6	0-16	0-1.0
0-10"	0-10	0-2.5	0-25	0-1.25
0-15"	0-15	0-4.0	0-40	0-1.5
0-20"		0-6.0	0-60	0-1.75
0-25"		0-10	0-100	0-2.0
0-30"		0-16	0-160	0-2.5
0-40"		0-25	0-250	0-3.0
0-50"		0-40	0-400	0-3.5
0-60"		0-60	0-600	0-4.0
0-75"		0-100	0-1000	0-4.5
0-100"				0-5.0
0-135"				0-5.5
0-150"				0-6.0
0-200"				0-6.5
0-300"				0-7.0
0-400"				0-7.5
				0-8.0
				0-8.5
				0-9.0
				0-9.5
				0-10
Available Multipliers for Flow Dials: X10, X100, X1000, and X10,000				
Note: Not all ranges available in all diaphragm materials				

The above mentioned ranges are some of the most popular requested today. Mid-West Instrument can provide special un-cataloged dial range requirements. As well as dual scale dials, multiple color dials and special decals. Please consult factory for complete information.

Model	Min. ΔP Range	Max. ΔP Range
130	0-5" H ₂ O (0-12.4 mbar)	0-400" H ₂ O (0-1 bar)

Proof Pressure: Two times rated working pressure at ambient temperature

Temperature Limits: -40°F (-40°C) to +200°F (+93°C) - These limits are based on the entire instrument being saturated to these temperatures. System (process) temperatures may exceed these limitations with proper installation. Contact our customer service representative for details.

Standards: Model gauge either conforms to and/or is designed to the requirements of the following standards:

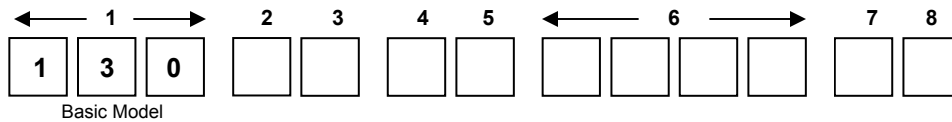
ASME B1.20.1	NACE MR0175
ASME B40.100	NEMA Std. No. 250
CSA-C22.2 No. 14.25 and 30	SAE J514
EN-61010-1	UL Std. No. 50,508 and 1203

Standard Model Specifications: 130-PC-00-00

Glass-Reinforced Engineered Plastic Body, 316 Stainless Steel Internal Metal Parts
 Ceramic Magnet, Buna-N Diaphragm and Seals, 1/4" Steel Compression Tube Fittings,
 4-1/2" round dial, Engineered Plastic Case with Shatter Resistant Acrylic Lens,
 (Aluminum, Brass & Stainless Steel Bodies-Dual 1/4" FNPT Top & Bottom)
 Accuracy ±5% Full Scale (Ascending) 0-5" H₂O to 0-9.9" H₂O or equivalent
 Accuracy ±3/2/3% Full Scale (Ascending) 0-10" H₂O to 0-400" H₂O or equivalent

Mid-West Instrument
 1-800-648-5778

Range 0-5 IN H₂O to 0-400 IN H₂O (0-12.4 mbar to 0-1 bar)



Range: _____



2	Material
P	Glass-Reinforced Egrd. Plastic Body / 316 Stainless Steel Internal Metal Parts (not available with switches)
A	Aluminum Body / 316 Stainless Steel Internal Metal Parts
B	Brass Body / 316 Stainless Steel Internal Metal Parts
S	316 Stainless Steel Body / 316 Stainless Steel Internal Metal Parts
Z	Special (Un-coded Options)
3	Dial Size & Type
C	4-1/2" Round Uni-Directional Dial w/Engineered Plastic Housing Assembly
E	3-1/2" Round Uni-Directional Dial w/Anodized Aluminum Housing Dial Case
G	4-1/2" Round Uni-Directional Dial w/Anodized Aluminum Housing Dial Case
T	Non-Indicating DP Switch Only
Z	Special (Un-coded Options)
4	Seal Materials
0	Buna-N
1	Viton ®-A Registered Trademark of Dupont (0-20" H ₂ O to 0-400" H ₂ O)
2	Silicone (0-5" H ₂ O to 0-100" H ₂ O)
4	Neoprene (0-5" H ₂ O to 0-100" H ₂ O)
5	Ethylene Propylene (0-20" H ₂ O to 0-400" H ₂ O)
9	Special (Un-coded Options)
5	Process Connections
0	1/4" (2) (Carbon Steel Compression Tube Fittings Standard on "P" Gauge Body) 1/4" FNPT (4) (Standard on A, B, & S. Gauge Bodies)
1	1/4" (2) 316 Stainless Steel compression tube fittings
2	1/4" FNPT Brass Adapters (Model P only)
3	1/4" FNPT (2) Stainless Steel Adapters (Model P only)
9	Special (Un-coded Options)

Factory preset switches at no charge (Specify Setting)

Standard Model Specifications – continued Model 130

6	Additional Options
O	NONE
B	Drain & Bleed Plugs, 316 S.S. (2) (Model 130 P only)
D	Drain & Bleed in NEMA 4X enclosure
F	Carbon Steel 2" Pipe Mounting Kit
G	Stainless Steel 2" Pipe Mounting Kit
H	Hastelloy C Internal wetted Metal parts & fittings. (Poly body only)
K	1/2" FNPT S.S. Adapter (2) (Available on "A", "B", & "S" Gauge Body)
M	Maximum Indicator Follower Pointer
N	NACE (Contact Factory)
Q	CRN (Candian Registration Number) (available on Poly and S.S. gauge bodies only)
S	Shatter Proof Glass Lens (Available with 4-1/2" Aluminum Dial Case only)
T	Oxygen Cleaning
U	Stainless Steel Tag with S.S. Wire
V	Stainless Steel Tag and S.S. Screw
W	Wall Mount Kit
Z	Special (Un-coded Options)
NOTE: Not All Options Available in Combination with other Options	
7	Electrical Configurations (CE marked, except N & P) Switch option not available for 130-PC Models
H	One (1) Reed Switch with Condulet Enclosure
I	Two (1) Reed Switches with Condulet Enclosure
J	One (1) Reed Switch with Condulet Enclosure with Plug-in connector (DIN 43650/IP65-PG11)
K	Two (1) Reed Switches with Condulet Enclosure with Plug-in connector (DIN 43650/IP65-PG11)
L	One (1) Switch in NEMA 4X Plastic Enclosure
M	Two (2) Switches in NEMA 4X Plastic Enclosure
N	One (1) Switch in explosion proof enclosure with glass window cover. CSA & UL Listed (1)
P	Two (2) Switches in explosion proof enclosure with glass window cover. CSA & UL Listed (1)
Z	Special (Un-coded Options)
(1) Complete assembly 3rd Party Certified Class I, Div.1, Groups C & D; Class II, Div. 1, Groups E, F, & G.	
8	Electrical Specifications (For Resistive Loads)
A	SPDT 3W, 0.25 Amp, 125 VAC/VDC (Standard) (Switch adjustable range of 10-90%)
Z	Special (Un-coded Options)
NOTE: The use of diaphragm seals is not recommended for Model 130 gauges	
WARNING: Attempts to install such seals on Model 130 gauges will void warranty	

MID-WEST INSTRUMENT has been serving a variety of industries (Power, Chemical, Petro-Chemical, HVAC, Water Filtration etc...) for over 50 years. Over 1,000,000 DP Gauges have been produced bearing the Mid-West name or private branded for our OEM customers!

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Mid-West[®] Instrument

“Diaphragm Type”

Differential Pressure Gauges for Ammonia Service Application

When it comes to tough application solutions Mid-West Instrument provides the answer!!



Model 130
Range 0-5" H2O

The Use of Differential Pressure gauges for Ammonia service in PowerGen emission control is a critical application. The use of special materials along with over 7 years of ammonia service experience has enabled our customers to have confidence that we provide a quality gauge that works not only at start up but for years to come in this harsh environment. Mid-West Instrument has optimized the internal wetted parts as well as the external parts to hold up to the rigors of this environment. We have optimized the design to improve removal of condensate from the system. Neoprene and Ethylene Propylene elastomers are highly recommended in Ammonia service especially at elevated temperatures.

Model 130 Polysulfone or Stainless Steel is ideally suited for Ammonia service applications. Magnetic coupling between the sensing element and the indicating pointer provides for complete isolation of the process fluid within the pressure capsule. The Model 130 also has Over-range protection to full rated working pressure.

Model	Accuracy	Min. ΔP Range	Max. ΔP Range	Safe Working Pressure PSIG (Bar)	Optional Switches
130	±3/2/3% or *5%	0-5" H2O (0-12.4 mbar)	0-400" H2O (0-1 bar)	*300 (20) **500 (34)	1 or 2
* ±5% Range 0-5" to 0-9.9" H2O			* PolySulfone Engineered Plastic **Stainless Steel		
(Optional Switches available on Stainless Steel body only.)					
Body Materials		Glass Reinforced Polysulfone Engineered Plastic or 316 Stainless steel			
Seal & Diaphragm (under 20" H2O)		Neoprene Diaphragm & Seals			
Seal & Diaphragm (over 20" H2O)		Ethylene Propylene Diaphragm & Seals			
Wetted Parts		Body material & 316L Stainless Steel internal metal parts			
Process Connections		1/4" FNPT S.S. Adapters (Polysulfone Body)			
Process Connections		1/2" FNPT S.S. Adapters (316 Stainless Steel Body)			
Mounting		Panel Mount (Std.) Pipe Mount Optional			
Lens		Shatter Resistant Acrylic			
Gauge Front		4-1/2" Engineered Plastic (Ammonia Service Tested)			
Temperature Limits		-40°F to +200°F			

Contact Mid-West at 1-800-648-5778 for assistance with your Ammonia Service application.

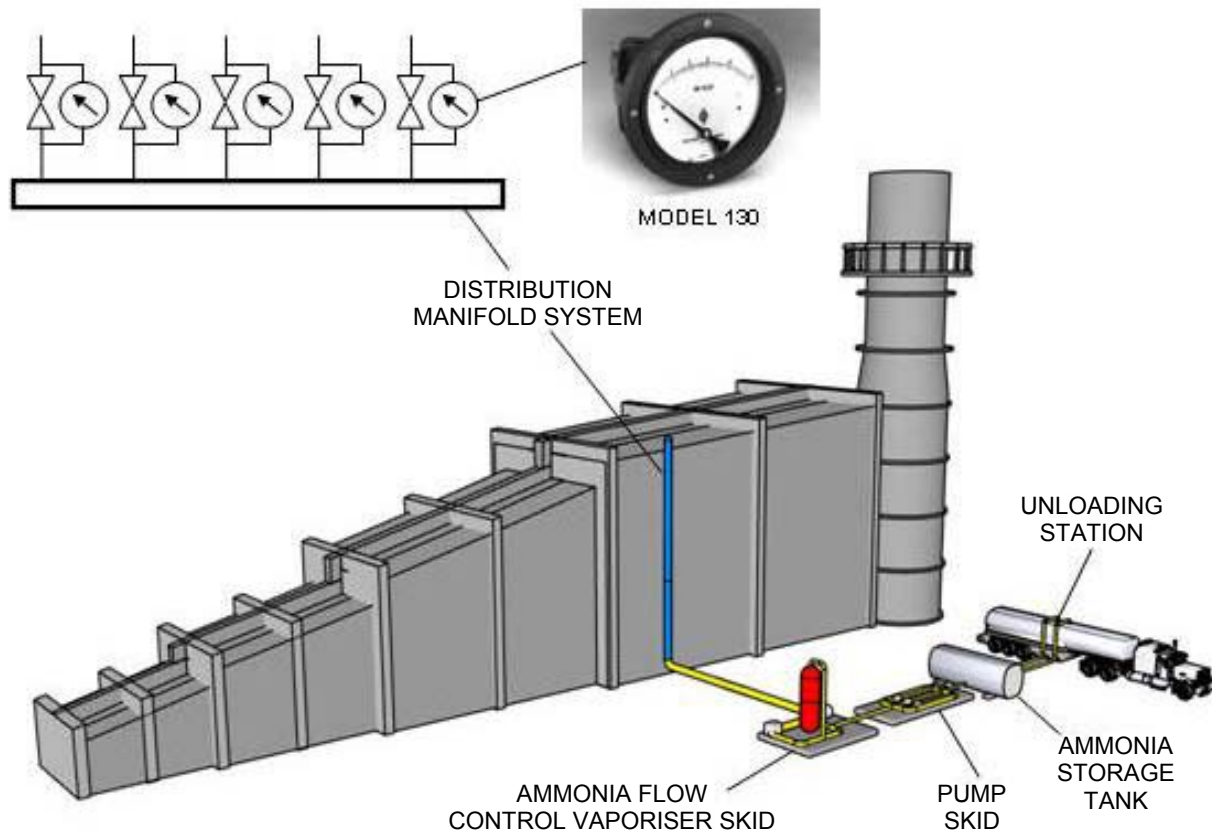
SCR Post-Combustion NOx Control Model 130-PC or 130-SC

Nitrogen oxides (NOx) are a combustion by-product of fossil fuels burned to produce energy. NOx emissions are regulated under the Clean Air Act.

A Selective Catalytic Reduction System (SCR) is a post combustion technology used to reduce NOx emissions. Ammonia (NH3) is injected into the flue gas. This mixture flows through a catalyst bed where the NH3 and the NOx react to form nitrogen and water vapor.

Aqueous or anhydrous ammonia is pumped from a tank and sprayed into a vaporizer where it is heated and mixed with air. The ammonia-air mixture flows through a distribution manifold system into an injection grid. The injection grid distributes the mixture into the flue gas stream.

The amount of ammonia is adjusted to produce the desired degree of reaction with the NOx. Mid-West Instrument model 130-PC or 130-SC are used to balance the flow of the ammonia-air mixture throughout distribution manifold system. The model 130-PC or 130-SC are also used to monitor an ammonia filter prior to injection into the vaporizer.

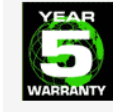


The list below represents just a few Model 130 Ammonia Service Gauge Customers

Deltak, Big River Electric Corp, Express Integrated Technologies, Peerless Mfg
Georgia Power, Ozonia North America, Marathon Petroleum, Hopkins Power Plant
Black Hills Generation, Conoco Philips, Alstom Power, TVA, Mid-American Power
Excel Energy, Babcock & Wilcox, Southern Company, Notre, Wahlco, Black & Vetch

Mid-West[®] Instrument

“Diaphragm Type” Differential Pressure Gauges Switches & Transmitters Model 140



Model 140 Diaphragm type DP Gauge provides outstanding capabilities not previously available in a modestly priced differential pressure gauge/switch.

Common Applications: Filter/Strainer Monitoring, Compressed Air, Hydraulic, Refrigerant, Pump Performance Testing, Heat Exchanger Pressure Drop Monitoring, Water Treatment Applications, Tank Level Monitoring Horizontal or Vertical, Flow Monitoring & Balancing

Ideally suited for use on dissimilar fluids and wet gas or fluids with a high concentration of solids, etc.

Model 140 0-30 PSID
with 2-1/2" Dial



*“A World Leader
in Differential Pressure Gauges,
Switches & Transmitters*

Features:

- Total separation of high and low pressures by a Convuluted Elastomer Diaphragm.
- Over range protection to full rated working pressure.
- Body Materials: Aluminum, Brass or 316L stainless steel Hasteloy available upon request.
- Internal metal parts 316 stainless steel.
- 1/4" FNPT & 1/2" FNPT Process Connections
- Sensor magnetically coupled to the indicating pointer and optional switches.
- Weather-resistant construction standard.
- Shatter resistant acrylic lens.
- Variety of Dial type and Sizes: 2-1/2", 3-1/2" & 4-1/2"
- DP Ranges available in: Inches H2O, PSID, bar, and Kpa
- Available with Square Root dials for flow measurement
- Multiple mounting options available
- Temperature Limits: -40°F(-40°C) to +200°F(+93°C)



Model 140 0-40 PSID & 0-2.8 Bar
with 4-1/2" Dial & maximum follower pointer



Model 140 0-30 PSID & 0-200 kPa
with 2-1/2" Dial & Special Color Dial

Model	Accuracy	Min. ΔP Range	Max. ΔP Range	Max. Line Pressure PSIG (bar)	Optional Switches
140	±5% 0-50" H2O to 0-399" H2O ±3/2/3% 0-15 PSID to 0-100 PSID	0-50" H2O (0-125 mbar bar)	0-100 PSID (0-7 bar)	3000 (200)**	1 or 2 Switches or 4-20 mA Transmitter

** Brass Body Working Pressure rated @ 1500 PSIG (103 bar)

“Diaphragm Type” Differential Pressure Gauge Switch & Transmitter Options Models: 140 & 142



Model 140 shown with “AA” switch option

(1) Reed switch located inside NEMA 4x enclosure with 7 position terminal strip. An opening at rear of enclosure accepts ½” flexible weather-proof or conduit connector (supplied by customer).

Model 140 shown with “EA” switch option.

(1) Reed switch in general purpose enclosure Division 2 Hazardous locations with 7 position terminal strip. An opening at rear of enclosure accepts ½” flexible weather-proof or conduit connector (supplied by customer).

Model 140 & 142 “Delta Meters” are available with either one or two hermetically sealed reed switches for either high alarm, low alarm, or both and a 4-20mA transmitter depending on model. The switches are Single Pole Double Throw (SPDT) or Single Pole Single Throw (SPST) with adjustable set points. Switches can be set to activate/deactivate on rising or falling pressure.

Model 140& 142 standard switch enclosure is non-corrosive molded plastic that is oil tight, dust tight, and water tight per NEMA 4X. External access to the switch adjustment is provided. 3rd party certified Explosion Proof enclosures with SPDT or SPST switches rated Class I, Groups C & D, Class II, Groups E, F, & G are available. Switch leads are 24”, 18 Awg, and are color coded where applicable.



Model 142 shown with “BA” switch option

(2) Reed switches located inside NEMA 4x enclosure with 7 position terminal strip. An opening at rear of enclosure accepts ½” flexible weather-proof or conduit connector (supplied by customer).

Model Type	140, 142 SPDT	140 SPST NO	142 SPST NO	140, 142 Transmitter 4-20mA
Power	3 W	25 W	25 W	4-20 mA Loop Power
Max Current	0.25 Amps	0.5 Amps	0.5 Amps	8-28 VDC Loop Powered 2-Wire interface
Max Voltage VAC/VDC	125 VAC/VDC	230 VAC/VDC	230 VAC/VDC	1000 Ohm max Loop resistance at 28 vdc
Setting Full Scale	“140” 15-90% “142” 15-95%	15-90%	15-95%	20-100%
Hysteresis (Max / Norm)	10% / 5% (FS)	15% / 8% (FS)	15% / 8% (FS)	N/A
Repeatability	1% F.S.	1% F.S.	1% F.S.	1% F.S.
Connections	(3) 24" Leads 22 AWG	(2) 24" Leads 22 AWG	(2) 24" Leads 22 AWG	Terminal Strip

Standard Model Specifications: 140-AA-00-00

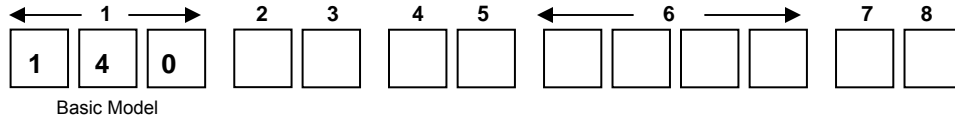
3000 PSIG Working Pressure, Aluminum body, 316L Stainless Steel Internal Metal Parts,
Ceramic Magnets, Buna-N Diaphragm and Seals, Teflon Guide Bushings, 1/4" FNPT Back Connections,
2-1/2" round dial, Engineered Plastic Case with Shatter Resistant Acrylic Lens

0-50" H2O to 0-399" H2O Accuracy ±5% F.S. (Ascending)

Mid-West Instrument 0-15 PSID to 0-100 PSID Accuracy ±3/2/3% F.S (Ascending)

1-800-648-5778

Range 0-50" H2O to 0-100 PSID (0-125 mbar to 0-7.0 bar)



Range: _____



2	Material
A	Aluminum Body / 316 Stainless Steel Internal Metal Parts & Teflon Guide Bushings
B	Brass Body / 316 Stainless Steel Internal Metal Parts & Teflon Guide Bushings
S	316 Stainless Steel Body / 316 Stainless Steel Internal Metal Parts & Teflon Guide Bushings
Z	Special (Un-coded Options)
3	Dial Size & Type
A	2-1/2" Round Uni-Directional Dial w/Engineered Plastic Housing Assembly
C	4-1/2" Round Uni-Directional Dial w/Engineered Plastic Housing Assembly
E	3-1/2" Round Uni-Directional Dial w/Anodized Aluminum Housing Dial Case
G	4-1/2" Round Uni-Directional Dial w/Anodized Aluminum Housing Dial Case
T	Non-Indicating DP Switch Only
Z	Special (Un-coded Options)
4	Seal Materials
0	Buna-N (Standard)
1	Viton®-A Registered Trademark of Dupont
2	Silicone
5	Ethylene Propylene
9	Special (Un-coded Options)
5	Process Connections
0	1/4" FNPT Back Connections (Standard)
2	Dual 1/4" FNPT Top & Bottom Connections (Non-Electrical Option Units Only)
3	1/4" FNPT Bottom Connections
4	7/16"-20 straight thread O-Ring (Back Connections only)
7	1/2" FNPT End Connections (2000 PSIG SWP for S.S. & Alm. Gauge Body) (not available with C & D switch options)
8	1/4" FNPT End Connections (2000 PSIG SWP for S.S. & Alm. Gauge Body) (not available with C & D switch options)
9	Special (Un-coded Options)

Standard Model Specifications – continued Model 140

6	Additional Options
O	None
A	Reversed High / Low Process Connections. (Not available with electrical options C, D, T & W)
E	Two (2) 1/4-20 Mounting Holes
F	Carbon Steel 2" Pipe Mounting Kit (Not available with reversed port switch option)
G	Stainless Steel 2" Pipe Mounting Kit (Not available with reversed port switch option)
K	1/2" FNPT Stainless Steel Adapters (Not available with end connections)
L	Liquid Fill (4-1/2" available with "G" option Aluminum Dial Case only) (not available with shatterproof lens)
M	Maximum Indicator Follower Pointer (not available with Liquid fill option) (not available with shatterproof lens)
N	NACE (Available for Aluminum & Stainless Steel Gauge Bodies only)
Q	CRN (Canadian Registration Number) Aluminum or S.S. Body only (2,000 PSIG SWP for Aluminum Body)
S	Shatter Proof Glass Lens (Available only with option "G" 4-1/2" Aluminum Dial Case) (not available with liquid fill)
T	Oxygen Cleaning
U	Stainless Steel Tag with S.S. Wire
V	Stainless Steel Tag and S.S. Screw (Contact factory on switch options)
W	Wall Mount Kit
X	Chemical Seals (Contact Factory for Accuracy)
Z	Special (<i>Un-coded Options</i>)
NOTE: Not All Options Available in Combination with other Options	
7	Electrical Configurations (CE marked, except C, D, T & W)
O	None
A	One (1) Reed Switch in NEMA 4X/IP66 Enclosure
B	Two (2) Reed Switches in NEMA 4X/IP66 Enclosure
C	One (1) Switch in Explosion Proof Enclosure. Division 1 Hazardous Locations (1)
D	One (2) Switches in Explosion Proof Enclosure. Division 1 Hazardous Locations (1)
E	One (1) Reed Switch in NEMA 4X/IP66 Aluminum Enclosure, Division 2 Hazardous Locations (2)(3)
F	Two (2) Reed Switches in NEMA 4X/IP66 Aluminum Enclosure, Division 2 Hazardous Locations (2)(3)
T	4-20 mA Transmitter in NEMA-4X/IP66 aluminum enclosure
W	4-20 mA Transmitter in general purpose enclosure, Division 2 Hazardous Locations (2)(3)(4)
Z	Special (<i>Un-coded Options</i>)
(1) Complete assembly 3rd Party Certified Class I, Div.1, Groups C & D; Class II, Div. 1, Groups E, F, & G.	
(2) Complete assembly 3rd Party Certified Class I, Div.2, Groups A, B, C, & D; Class II, Div.2, Groups F and G.	
(3) 1625 PSI SWP for NACE in combination with E, F and W electrical configuration	
(4) Contact factory for tank level or flow applications with transmitter configuration	
8	Electrical Specifications (For Resistive Loads)
O	None
A	SPDT 3W, 0.25 Amp, 125 VAC/VDC (standard) (Switch adjustable range of 15-90%)
B	SPST, 25W, 0.5 Amp., 230 VAC/VDC (Normally Open) (Switch adjustable range of 15-90%)
T	4-20 mA Transmitter (8-28 VDC Loop Power) (± 2% Accuracy from 20-100% of scale, Ascending)
Z	Special (<i>Un-coded Options</i>)

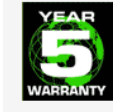
Factory preset switches at no charge (Specify Setting)

MID-WEST INSTRUMENT has been serving a variety of industries (Power, Chemical, Petro-Chemical, HVAC, Water Filtration etc...) for over 50 years. Over 1,000,000 DP Gauges have been produced bearing the Mid-West name or private branded for our OEM customers!

Mid-West understands that in today's demanding environment, flexibility, quick response time and the ability to ship most of our product line in 2 weeks or less is essential to our customers. Standard configurations can be customized and modified to suit our customer's needs for ease of installation or retrofit.

If you are in need of additional information please visit our web site at www.midwestinstrument.com or contact us toll free at **1-800-648-5778** and one of our knowledgeable sales coordinators will be happy to assist you.

Mid-West[®] Instrument



“Diaphragm Type” Differential Pressure Gauges Switches & Transmitters Model 142

Model 142 Diaphragm type DP Gauge provides outstanding capabilities not previously available in a modestly priced differential pressure gauge/switch.

Common Applications: Filter/Strainer Monitoring, Compressed Air, Hydraulic, Refrigerant, Pump Performance Testing, Heat Exchanger Pressure Drop Monitoring, Water Treatment Applications, Tank Level Monitoring Horizontal or Vertical, Flow Monitoring & Balancing

Ideally suited for use on dissimilar fluids and wet gas or fluids with a high concentration of solids, etc.

Model 142 0-20" H₂O
with 2-1/2" Dial



Features:

- Total separation of high and low pressures by a Convuluted Elastomer Diaphragm.
- Over range protection to full rated working pressure.
- Body Materials: Aluminum, Brass or 316L stainless steel Hasteloy available upon request.
- Internal metal parts 316 stainless steel.
- 1/4" FNPT & 1/2" FNPT Process Connections
- Sensor magnetically coupled to the indicating pointer and optional switches.
- Weather-resistant construction standard.
- Shatter resistant acrylic lens.
- Variety of Dial type and Sizes: 2-1/2", 3-1/2" & 4-1/2"
- DP Ranges available in: Inches H₂O, PSID, bar, and Kpa
- Available with Square Root dials for flow measurement
- Multiple mounting options available
- Temperature Limits: -40°F(-40°C) to +200°F(+93°C)

*“A World Leader
in Differential Pressure Gauges,
Switches & Transmitters*



Model 142
with 2-1/2" Dial
& 4-20mA Transmitter



Model 142 0-100" H₂O
with 4-1/2" Dial

Model	Accuracy	Min. ΔP Range	Max. ΔP Range	Max. Line Pressure PSIG (bar)	Optional Switches
142	±3/2/3%	0-20" H ₂ O (0-50 mbar)	0-25 PSID (0-1.7 bar)	3000 (200)**	1 or 2 Switches or 4-20 mA Transmitter

** Brass Body Working Pressure rated @ 1500 PSIG (103 bar)

“Diaphragm Type” Differential Pressure Gauge Switch & Transmitter Options Models: 140 & 142



Model 142 shown with “BA” switch option

(2) Reed switches located inside NEMA 4x enclosure with 7 position terminal strip. An opening at rear of enclosure accepts ½” flexible weather-proof or conduit connector (supplied by customer).

Model 140 shown with “AA” switch option

(1) Reed switch located inside NEMA 4x enclosure with 7 position terminal strip. An opening at rear of enclosure accepts ½” flexible weather-proof or conduit connector (supplied by customer).

Model 140 & 142 “Delta Meters” are available with either one or two hermetically sealed reed switches for either high alarm, low alarm, or both and a 4-20mA transmitter depending on model. The switches are Single Pole Double Throw (SPDT) or Single Pole Single Throw (SPST) with adjustable set points. Switches can be set to activate/deactivate on rising or falling pressure.

Model 140& 142 standard switch enclosure is non-corrosive molded plastic that is oil tight, dust tight, and water tight per NEMA 4X. External access to the switch adjustment is provided. 3rd party certified Explosion Proof enclosures with SPDT or SPST switches rated Class I, Groups C & D, Class II, Groups E, F, & G are available. Switch leads are 24”, 18 Awg, and are color coded where applicable.



Model 140 shown with “EA” switch option.

(1) Reed switch in general purpose enclosure Division 2 Hazardous locations with 7 position terminal strip. An opening at rear of enclosure accepts ½” flexible weather-proof or conduit connector (supplied by customer).

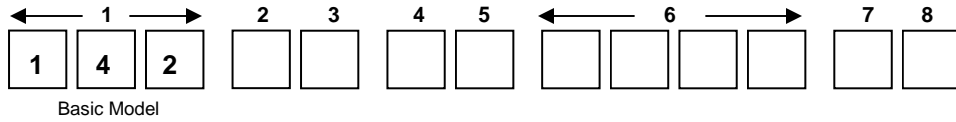
Model Type	140, 142 SPDT	140 SPST NO	142 SPST NO	140, 142 Transmitter 4-20mA
Power	3 W	25 W	25 W	4-20 mA Loop Power
Max Current	0.25 Amps	0.5 Amps	0.5 Amps	8-28 VDC Loop Powered 2-Wire interface
Max Voltage VAC/VDC	125 VAC/VDC	230 VAC/VDC	230 VAC/VDC	1000 Ohm max Loop resistance at 28 vdc
Setting Full Scale	“140” 15-90% “142” 15-95%	15-90%	15-95%	20-100%
Hysteresis (Max / Norm)	10% / 5% (FS)	15% / 8% (FS)	15% / 8% (FS)	N/A
Repeatability	1% F.S.	1% F.S.	1% F.S.	1% F.S.
Connections	(3) 24” Leads 22 AWG	(2) 24” Leads 22 AWG	(2) 24” Leads 22 AWG	Terminal Strip

Standard Model Specifications: 142-AA-00-00

3000 PSIG Working Pressure, Aluminum body, 316L Stainless Steel Internal Metal Parts, Ceramic Magnets, Buna-N Diaphragm and Seals, Teflon Guide Bushings, 1/4" FNPT Back Connections, 2-1/2" round dial, Engineered Plastic Case with Shatter Resistant Acrylic Lens
Accuracy $\pm 3/2/3\%$ Full Scale (Ascending)

Mid-West Instrument

1-800-648-5778 Range 0-20" H₂O to 0-25 PSID (0-50 mbar to 0-1.7 bar)



2	Material
A	Aluminum Body / 316 Stainless Steel Internal Metal Parts & Teflon Guide Bushings
B	Brass Body / 316 Stainless Steel Internal Metal Parts & Teflon Guide Bushings
S	316 Stainless Steel Body / 316 Stainless Steel Internal Metal Parts & Teflon Guide Bushings
Z	Special (Un-coded Options)
3	Dial Size & Type
A	2-1/2" Round Uni-Directional Dial w/Engineered Plastic Housing Assembly
C	4-1/2" Round Uni-Directional Dial w/Engineered Plastic Housing Assembly
E	3-1/2" Round Uni-Directional Dial w/Anodized Aluminum Housing Dial Case
G	4-1/2" Round Uni-Directional Dial w/Anodized Aluminum Housing Dial Case
T	Non-Indicating DP Switch Only
Z	Special (Un-coded Options)
4	Seal Materials
0	Buna-N (Standard)
1	Viton®-A Registered Trademark of Dupont
5	Ethylene Propylene
9	Special (Un-coded Options)
5	Process Connections
0	1/4" FNPT Back Connections (Standard)
2	Dual 1/4" FNPT Top & Bottom Connections (Non-Electrical Option Units Only)
3	1/4" FNPT Bottom Connections
4	7/16"-20 straight thread O-Ring (Back Connections only)
7	1/2" FNPT End Connections (2000 PSIG SWP for S.S. & Alm. Gauge Body)
8	1/4" FNPT End Connections (2000 PSIG SWP for S.S. & Alm. Gauge Body)
9	Special (Un-coded Options)

Standard Model Specifications – continued Model 142

6	Additional Options
O	NONE
A	Reversed High / Low Process Connections. (Not available with transmitter options T & W)
E	Two (2) 1/4-20 Mounting Holes
F	Carbon Steel 2" Pipe Mounting Kit (Not available with reverse port switch option)
G	Stainless Steel 2" Pipe Mounting Kit (Not available with reverse port switch option)
K	1/2" FNPT Stainless Steel Adapters (Not available with end connections)
L	Liquid Fill (4-1/2" available with "G" option Aluminum Dial Case only) (not available with shatterproof lens)
M	Maximum Indicator Follower Pointer (not available with Liquid fill option) (not available with shatterproof lens)
N	NACE (Available for Aluminum & Stainless Steel Gauge Bodies only) (1500 PSIG SWP)
Q	CRN (Canadian Registration Number) (2)
S	Shatter Proof Glass Lens (Available only with option "G" 4-1/2" Aluminum Dial Case) (not available with liquid fill)
T	Oxygen Cleaning
U	Stainless Steel Tag with S.S. Wire
V	Stainless Steel Tag and S.S. Screw (Contact factory on switch options)
W	Wall Mount Kit (Not available with back connections)
X	Chemical Seals (Contact Factory for Accuracy)
Z	Special (Un-coded Options)
NOTE: Not All Options Available in Combination with other Options	
7	Electrical Configurations (CE marked, except T & W)
A	One (1) Reed Switch in NEMA 4X/IP66 Enclosure
B	Two (2) Reed Switches in NEMA 4X/IP66 Enclosure
E	One (1) Reed Switch in NEMA 4X/IP66 Aluminum Enclosure, Division 2 Hazardous Locations (1)(2)
F	Two (2) Reed Switches in NEMA 4X/IP66 Aluminum Enclosure, Division 2 Hazardous Locations (1)(2)
T	4-20 mA Transmitter in NEMA-4X/IP66 aluminum enclosure (3)
W	4-20 mA Transmitter in general purpose enclosure, Division 2 Hazardous Locations (1)(2)(3)
Z	Special (Un-coded Options)
(1) Complete assembly 3rd Party Certified Class I, Div.2, Groups A, B, C, & D; Class II, Div.2, Groups F and G.	
(2) 1375 PSIG SWP for CRN rating, and E, F & W Hazardous locations electrical configurations	
(3) Contact factory for tank level or flow applications with transmitter configuration	
8	Electrical Specifications (For Resistive Loads)
A	SPDT 3W, 0.25 Amp, 125 VAC/VDC (standard) (Switch adjustable range of 15-95%)
B	SPST, 25W, 0.5 Amp., 230 VAC/VDC (Normally Open) (Switch adjustable range of 15-95%)
T	4-20 mA Transmitter (8-28 VDC Loop Power) (\pm 2% Accuracy from 20-100% of scale, Ascending)
Z	Special (Unc-oded Options)

Factory preset switches at no charge (Specify Setting)

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Mid-West understands that in today's demanding environment, flexibility, quick response time and the ability to ship most of our product line in 2 weeks or less is essential to our customers. Standard configurations can be customized and modified to suit our customer's needs for ease of installation or retrofit.

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Mid-West[®] Instrument

“Diaphragm Type”

Differential Pressure Gauge, Switch, or Transmitter Model’s 140 & 142

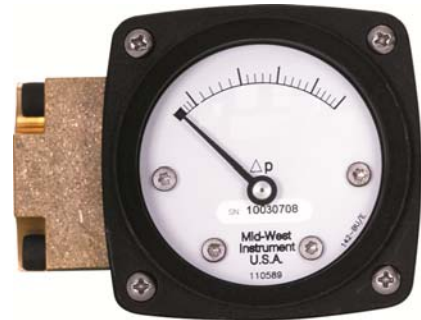


FOR SEA WATER APPLICATIONS

Ideally suited for use on Sea Water or salt Water applications.



Model 142
with 2-1/2" Dial



Features:

- Total separation of high and low pressures by a Convuluted Elastomer Diaphragm.
- Over range protection to full rated working pressure.
- Body Materials: Aluminum/Bronze, or Monel
- Monel Spring & Internal metal parts
- 1/4" FNPT FNPT Process Connection (std)
- Sensor magnetically coupled to the indicating pointer and optional switches.
- Weather-resistant construction standard.
- Shatter resistant acrylic lens.
- Variety of Dial type and Sizes: 2-1/2", 3-1/2" & 4-1/2"
- DP Ranges available in: Inches H₂O, PSID, bar, and Kpa
- Temperature Limits: -40°F(-40°C) to +200°F(+93°C)

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Switches & Transmitters*



Model 142
with 2-1/2" Dial
& 4-20mA Transmitter



Model 142 0-100" H₂O
with 4-1/2" Dial

Model	Accuracy	Available ΔP Ranges	Max. Line Pressure PSIG	Optional Switches
142	±3/2/3%	0-100" H ₂ O, 0-5 PSID, 0-10 PSID 0-15 PSID, 0-20 PSID	1000	1 or 2 Switches or 4-20 mA Transmitter
140	±3/2/3%	0-25 PSID, 0-30 PSID, 0-40 PSID 0-75 PSID, 0-100 PSID	1000	1 or 2 Switches or 4-20 mA Transmitter

“Diaphragm Type” Differential Pressure Gauge Switch & Transmitter Options Model’s 140 & 142



Model 142 available with “AA” switch option

(1) Reed switch located inside NEMA 4x enclosure with 7 position terminal strip. An opening at rear of enclosure accepts ½” flexible weather-proof or conduit connector (supplied by customer).

Model 142 available with “BA” switch option

(2) Reed switches located inside NEMA 4x enclosure with 7 position terminal strip. An opening at rear of enclosure accepts ½” flexible weather-proof or conduit connector (supplied by customer).

Model 142 “Delta Meters” are available with either one or two hermetically sealed reed switches for either high alarm, low alarm, or both and a 4-20mA transmitter depending on model. The switches are Single Pole Double Throw (SPDT) or Single Pole Single Throw (SPST) with adjustable set points. Switches can be set to activate/deactivate on rising or falling pressure.

Mode 142 standard switch enclosure is non-corrosive molded plastic that is oil tight, dust tight, and water tight per NEMA 4X/IP66. External access to the switch adjustment is provided. 4-20 mA Transmitter enclosures is Aluminum that is oil tight, dust tight, and water tight per NEMA 4X/IP66 as well. An external zero pin is available for simple remote zeroing. Switch leads are 24”, 18 Awg, and are color coded where applicable.



Model 142 shown with “TT” transmitter option.
4-20 mA Transmitter in NEMA 4X/IP66 Aluminum Enclosure. 7 position terminal strip and opening at rear of enclosure accepts ½” flexible weather-proof or conduit connector (supplied by customer).

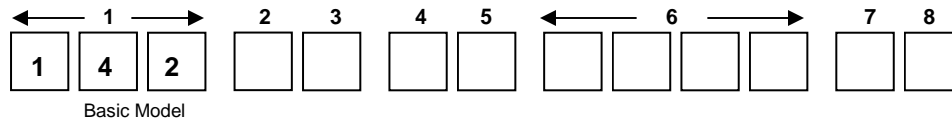
Model Type	142 SPDT	142 SPST NO	142 Transmitter 4-20mA
Power	3 W	25 W	4-20 mA Loop Power
Max Current	0.25 Amps	0.5 Amps	8-28 VDC Loop Powered 2-Wire interface
Max Voltage VAC/VDC	125 VAC/VDC	230 VAC/VDC	1000 Ohm max Loop resistance at 28 vdc
Setting Full Scale	15-95%	15-95%	20-100%
Hysteresis (Max / Norm)	10% / 5% (FS)	15% / 8% (FS)	N/A
Repeatability	1% F.S.	1% F.S.	1% F.S.
Connections	(3) 24" Leads 22 AWG	(2) 24" Leads 22 AWG	Terminal Strip

Standard Model Specifications: 142-NA-00-00

1000 PSIG Working Pressure, Aluminum/Bronze body, Monel Internal Metal Parts,
Ceramic Magnets, Buna-N Diaphragm and Seals, Teflon Guide Bushings, 1/4" FNPT Back Connections,
2-1/2" round dial, Engineered Plastic Case with Shatter Resistant Acrylic Lens
Accuracy $\pm 3/2/3\%$ Full Scale (Ascending)

Ranges Model 142: 0-100" H₂O, 0-5, 0-10, 0-15, and 0-20 PSID

Ranges Model 140: 0-25, 0-30, 0-40, 0-75 and 0-100 PSID



Basic Model

Range: _____

Mid-West Instrument
1-800-648-5778



2	Material
M	Monel Body / Monel Internal Metal Parts & Teflon Guide Bushings
N	Aluminum/Bronze Body / Monel Internal Metal Parts & Teflon Guide Bushings
Z	Special (<i>Un-coded Options</i>)
3	Dial Size & Type
A	2-1/2" Round Uni-Directional Dial w/Engineered Plastic Housing Assembly
C	4-1/2" Round Uni-Directional Dial w/Engineered Plastic Housing Assembly
E	3-1/2" Round Uni-Directional Dial w/Anodized Aluminum Housing Dial Case
G	4-1/2" Round Uni-Directional Dial w/Anodized Aluminum Housing Dial Case
T	Non-Indicating DP Switch Only
Z	Special (<i>Un-coded Options</i>)
4	Seal Materials
0	Buna-N (<i>Standard</i>)
1	Viton®-A Registered Trademark of Dupont
5	Ethylene Propylene
9	Special (<i>Un-coded Options</i>)
5	Process Connections
0	1/4" FNPT Back Connections (<i>Standard</i>)
2	Dual 1/4" FNPT Top & Bottom Connections (<i>Non-Electrical Option Units Only</i>)
3	1/4" FNPT Bottom Connections
4	7/16"-20 straight thread O-Ring (<i>Back Connections only</i>)
9	Special (<i>Un-coded Options</i>)

Standard Model Specifications – continued Model 142

6	Additional Options
O	NONE
A	Reversed High / Low Process Connections. (Not available with transmitter options T)
E	Two (2) 1/4-20 Mounting Holes
F	Carbon Steel 2" Pipe Mounting Kit (Not available with reverse port switch option)
G	Stainless Steel 2" Pipe Mounting Kit (Not available with reverse port switch option)
L	Liquid Fill (4-1/2" available with "G" option Aluminum Dial Case only) (not available with shatterproof lens)
M	Maximum Indicator Follower Pointer (not available with Liquid fill option) (not available with shatterproof lens)
S	Shatter Proof Glass Lens (Available only with option "G" 4-1/2" Aluminum Dial Case) (not available with liquid fill)
T	Oxygen Cleaning
U	Stainless Steel Tag with S.S. Wire
V	Stainless Steel Tag and S.S. Screw (Contact factory on switch options)
W	Wall Mount Kit (Not available with back connections)
Z	Special (Un-coded Options)
NOTE: Not All Options Available in Combination with other Options	
7	Electrical Configurations
O	None
A	One (1) Reed Switch in NEMA 4X/IP66 Enclosure
B	Two (2) Reed Switches in NEMA 4X/IP66 Enclosure
T	4-20 mA Transmitter in NEMA-4X/IP66 aluminum enclosure (3)
Z	Special (Un-coded Options)
(3) Contact factory for tank level or flow applications with transmitter configuration	
8	Electrical Specifications (For Resistive Loads)
A	SPDT 3W, 0.25 Amp, 125 VAC/VDC (standard) (Switch adjustable range of 15-95%)
B	SPST, 25W, 0.5 Amp., 230 VAC/VDC (Normally Open) (Switch adjustable range of 15-95%)
T	4-20 mA Transmitter (8-28 VDC Loop Power) (\pm 2% Accuracy from 20-100% of scale, Ascending)
Z	Special (Unc-oded Options)

Factory preset switches at no charge **(Specify Setting)**

MID-WEST INSTRUMENT has been serving a variety of industries (Power, Chemical, Petro-Chemical, HVAC, Water Filtration etc...) for over 50 years. Over 2,000,000 DP Gauges have been produced bearing the Mid-West name or private branded for our OEM customers!

Mid-West understands that in today's demanding environment, flexibility, quick response time and the ability to ship most of our product line in 2 weeks or less is essential to our customers. Standard configurations can be customized and modified to suit our customer's needs for ease of installation or retrofit.

If you are in need of additional information please visit our web site at www.midwestinstrument.com or contact us toll free at **1-800-648-5778** and one of our knowledgeable sales coordinators will be happy to assist you.

Mid-West[®] Instrument

“Diaphragm Type” Model 240

“Hazardous Locations”

Indicating / Non-Indicating Differential Pressure Switch or Transmitter



- A low cost Diaphragm type differential pressure switch for use in measuring or controlling the pressure drop cross filters, strainers, separators, valves and pumps.
- Working Pressure 1,500 PSIG (275 bar)
- Over-range protection to maximum pressure.
- Aluminum or 316 Stainless Steel wetted pressure containing body assembly.
- Wetted Internals – 316 Stainless Steel and Ceramic moving components.
- Weather resistant gauge construction standard.
- Dial Size: 4-1/2” with Shatter resistant acrylic lens.
- Five Year Limited Warranty

- Field wireable terminal strip interface.
- Up to 10A 120/240 VAC switching with DPDT Relay outputs.
- Hermetically Sealed Switch Outputs up to 3 Amps in SPST configuration and up to 1 Amp in SPDT configuration
- SPST outputs available in Normally Open or Normally Closed configurations
- Up to (2) independent adjustable switch points.
- 4-20 mA Transmitter with 8-28 Vdc loop power
- 1/2” Conduit interface
- CSA & UL Certified to US and Canadian standards.
- CSA & UL Certified:
 - Class I, Division 1 / Groups B, C & D
 - Class II, Division 1 / Groups E, F & G
 - Class I, Division 2 / Groups A, B, C & D
 - Class II, Division 2 / Groups F & G
- Certified for ATEX / IECEx
 - Ex d IIB + H2 Ex tb IIIC, IP65
 - Division 2 Units are NEMA 4X

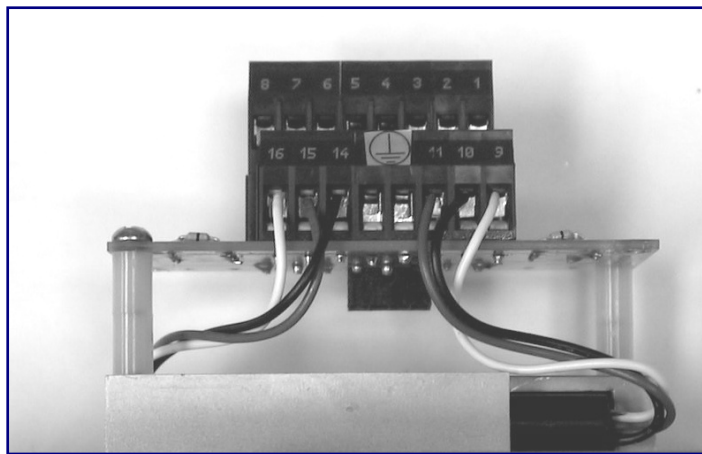


Model	Body Material	Accuracy	Min. ΔP Range	Max. ΔP Range	MWP PSIG (Bar)	Switch Options
240	Aluminum & 316L S.S.	±3/2/3%	0-20” H2O (0-50 mbar bar)	0-100 PSID (0-7 bar)	1,500 (100)	1 or 2 switches or 4-20mA Transmitter

“Diaphragm Type” Differential Pressure Gauge Switch Options Model 240

The switching components are housed under a copper free Aluminum cover the combination of the gauge body and the cover make up the flame-proof seal. Electrical interface to the internal field wire terminal strip is via ½” NPT industry standard conduit connection located through the gauge body.

The hazardous environment indicating differential pressure switch is available with one or two hermetically sealed reed switches with optional one or two DPDT relay outputs. Each switch is independently adjustable within a defined percentage of the full scale range of the gauge and is available in SPDT and SPST (normally open or normally closed) for various load power ratings. The switches can be set to activate or deactivate on rising or falling differential pressure. If the optional relay output is specified, an input operating voltage must also be specified.



OUTPUT RATINGS (Resistive Load)

Type	SPST	SPDT	SPDT	DPDT Relay
Electrical Specification Input Option	A	A	A	B,C,D,E,F,G,H
Electrical Specification Output Option	E	H	A	R
*Power	60 W	60 W	3W	N/A
Maximum Current	3 Amps	1.0 Amps	0.25 Amps	10 Amps
Max. Volts VAC/VDC	240	240	125	277 / 30
Setting (Full Scale) **	15% to 100%	25% to 100%	15%-100%	15% to 100%
Hysteresis Full Scale	20% / 9% (Max / Nom)	25% / 18% (Max / Nom)	15% / 6% (Max / Nom)	20% / 10% (Max / Nom)
Repeatability	1% Full Scale	1% Full Scale	1% Full Scale	1% Full Scale

* Product of the switching voltage and current shall not exceed the power rating of device

**For ranges ≥60 PSID, minimum adjustability = 25%

Warning: The suitability of the application and installation of this differential pressure switch is the responsibility of the end user. The applicable certifications, listings apply to the differential pressure switch only.

“Diaphragm Type” Differential Pressure Gauge Transmitter Option Model 240

Model 240 Transmitter provides a simple low cost loop powered 8-28 Vdc two wire 4-20 mA transmitter with highly visible local display allowing for monitoring at the unit and in the control room.

The transmitter utilizes the same CSA, UL and ATEX rated sensor and explosion proof housing as on the Model 240 explosion proof switch. Although the transmitter option is not yet listed, the sensors and explosion proof housing are rated Class I, Division 1 Groups B, C & D. Class II, Division 1 Groups E, F & G and Ex d IIB + H2, Ex tb IIIC, IP65. Each transmitter is individually calibrated to the gauge using an 11 point calibration linearization technique.

TRANSMITTER SPECIFICATIONS				
Transmitter Specifications: Comments:				
Differential Pressure Range	0-20" H2O to 0-100 PSID			
Leakage	None, Diaphragm Isolated Hi to Lo			
Pressure (Ratings)				
Max Working	1500 PSIG			
Gauge Accuracy	2%	ASME B40.100 GRADE B		
Operating Temperature (Max.)	-20°F -150°F			
ELECTRICAL:				
	Min	Typ	Max	
Transmitter Accuracy (FSR)			2%	Upper 80% of Full Scale Range
Supply Voltage (3) (Vdc)	8		28	Pin 3 Reverse Polarity Protected
Output Current (ma)				
Zero Floating (2)	4.0 – 20.1 ma	4.0 – 21.0	4.0 – 22.0	Pin 2
Zeroed (1 connected to 2)		8		
Voltage (Pin 2 to 1)	4.8		6.3	
Zero Time (seconds)	2			
Max Loop Resistance (ohms)			1000	
Max Loop Resistance Formula	$((V_s - 8) / 20) * 1000$			
INTERFACE:				
Electrical:				
Connections:	4 Position Terminal Strip; ½" NPT Conduit 1= Rtn, 2= Zero, 3 = 8-28 Vdc In 4= Chassis			22 Awg – 12Awg Wire
Environmental Rating:	Explosion-proof Enclosure rated Class I, Div I, Groups B, C, D; Class II, Div I, Groups E, F, & G **			
Certifications:	Ex d IIB + H2 T6 (-30°C ≤ Ta ≤ 65°C)Gb Ex tb IIIC IP65 T85°C (-30°C ≤ Ta ≤ 65°C)Gd ATEX and IECEx			

PROOF PRESSURE: 3,000 PSI.

TEMPERATURE LIMITS: -40°F (-40°C) to +185°F (+85°C)– For electrical Input Options A in combination with electrical output options A, E, & H. These limits are based on the entire instrument being saturated to these temperatures. System (process) temperatures may exceed these limitations with proper installation. Contact our customer service representative for details.

-40°F (-40°C) to +160°F (+70°C) – For output option R (Relay Output)
-20°F (-30°C) to +150°F (+65°C) – For output option 4-20 mA Transmitter

STANDARDS: The Model 240 Series differential pressure gauge either conforms to and/or is designed to the requirements of the following standards:

ASME B1.20.1	NEMA Std. No. 250
ASME B40.100 GRADE B	SAE J514
CSA-C22.2 No. 14, 25 and 30	EN60079-0, EN60079-1 & EN13463-1
UL Std. No. 50, 508, 698, and 1203	IEC60079-31

Mid-West[®] Instrument

Standard Dial Ranges: **Model 240**

Range Type					
IN H ₂ O	PSID	Kpa	bar	Flow Dials	
0-20"	0-5	0-16	0-1.0	0-1.0	
0-25"	0-10	0-25	0-1.6	0-1.5	
0-30"	0-15	0-40	0-2.5	0-2.0	
0-40"	0-20	0-60	0-4.0	0-2.5	
0-50"	0-25	0-100	0-6.0	0-5.0	
0-60"	0-30	0-160	0-7.0	0-7.5	
0-75"	0-50	0-200		0-10	
0-100"	0-60	0-250			
0-135"	0-75	0-400			
0-150"	0-100	0-600			
0-200"		0-700			
0-300"					
0-400"					
Available Multipliers for Flow Dials: X10, X100, X1000, and X10,000					
Note: Not all ranges available in all diaphragm materials					

The above mentioned ranges are some of the most popular requested today. Mid-West Instrument can provide special un-cataloged dial range requirements. As well as multiple scale dials, multiple color dials and special decals. Please consult factory for complete information.

Model	Min. ΔP Range	Max. ΔP Range
240	0-20" H ₂ O (0-50 mbar)	0-100 PSID (0-7 bar)

PROOF PRESSURE: 6,000 PSI.

TEMPERATURE LIMITS: -40°F (-40°C) to +185°F (+85°C)– For electrical Input Options A in combination with electrical output options A, E, & H. These limits are based on the entire instrument being saturated to these temperatures. System (process) temperatures may exceed these limitations with proper installation. Contact our customer service representative for details.

-40°F (-40°C) to +160°F (+70°C) – For output option R (Relay Output)
 -20°F (-30°C) to +150°F (+65°C) – For output option 4-20 mA Transmitter

STANDARDS: The Model 240 Series differential pressure gauge either conforms to and/or is designed to the requirements of the following standards:

ASME B1.20.1	NEMA Std. No. 250
ASME B40.100	SAE J514
CSA-C22.2 No. 14, 25 and 30	EN60079-0, EN60079-1 & EN61241-0
UL Std. No. 50, 508, 698, and 1203	EN61241-1, EN13463-1

Standard Model Specifications: 240-AC-02-O (JAA)

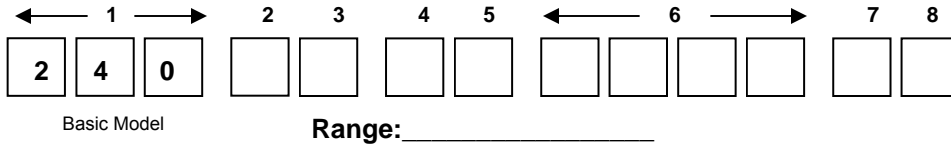
1500 PSIG Working Pressure, Aluminum wetted pressure containing body assembly, Stainless Steel/Ceramic Magnet Internals, Buna-N Seals, 1/4" FNPT End Connections, 4-1/2" round dial, engineered plastic dial case with Shatter Resistant Acrylic Lens, (1) 3W 125 VAC/VDC SPDT reed switch with terminal strip, aluminum explosion proof switch enclosure and 1/2" FNPT electrical access.

Mid-West Instrument

Complete assembly 3rd Party Certified

1-800-648-5778

Range 0-20 IN. H₂O to 0-100PSID (0-50 mbar to 0-7.0 bar)



2	Material
A	Aluminum Wetted Pressure Containing Body, Stainless Steel / Ceramic Magnet Internals
	316/316L S.S Wetted Pressure Containing Body Assembly
S	Stainless Steel / Ceramic Magnet Internals
Z	Special (Un-coded Options)
3	Dial Size & Type
C	4-1/2" Round Uni-Directional Dial w/Engineered Plastic Dial Case
F	4-1/2" Round Uni-Directional Dial w/Anodized Aluminum Housing Dial Case
T	Non-Indicating DP Switch Only (with select electrical options)
Z	Special (Un-coded Options)
4	Seal Materials
0	Buna-N (Standard)
1	Viton®-A Registered Trademark of Dupont
5	Ethylene Propylene
9	Special (Un-coded Options)
5	Process Connections
2	1/4" FNPT End Connections (Standard)
7	1/2" FNPT End Connections
9	Special (Un-coded Options)
6	Additional Options
O	None
F	Carbon Steel 2" Pipe Mounting Kit
G	Stainless Steel 2" Pipe Mounting Kit
M	Maximum Indicator Follower Pointer (Not available with Electrical Configurations R & S)
Q	CRN (Canadian Registration Number)
S	Shatter Proof Glass Lens (Available with 4-1/2" Aluminum Dial Case only)
T	Oxygen Cleaning
U	Stainless Steel Tag with S.S. Wire
V	Stainless Steel Tag with S.S. Screw
Z	Special (Un-Coded Options)

NOTE: Not All Options Available in Combination with other Options

Standard Model Specifications – continued Model 240

"MODEL 240" ELECTRICAL CONFIGURATIONS	
7	DP Ranges greater than or equal to 60 PSID the Switch adjustability is 25%-100% of Full Scale for all Switch options. (T6 Temperature Class unless specified)
A	One (1) Control switch in NEMA-4X enclosure (1) (6) (8)
B	Two (2) Control switches in NEMA-4X enclosure (1) (6) (7) (8)
J	One (1) Control switch in NEMA 7 (Explosion Proof Enclosure) (2)
K	Two (2) Control switches in NEMA 7 (Explosion Proof Enclosure) (2) (7)
R	One (1) Control switch in Ex d Enclosure (CE marked) ATEX / IECEx (2) (9)
S	Two (2) Control switches in Ex d Enclosure (CE marked) ATEX / IECEx (2) (7) (9)
T	4-20 mA Transmitter in NEMA7/Exd (Explosion Proof Enclosure) (9) (Temperature Limits -20°F to +150°F) Transmitter not yet CSA or UL certified
Z	Special (Un-coded Options)
8 "INPUT OPTIONS" ELECTRICAL SPECIFICATIONS (Select (1) input and (1) output option)	
A	No Input power for reed outputs A, E, F, G & H
B	5/6 VDC
C	12 VDC
D	24 VDC
E	48 VDC
F	24 VAC
G	120 VAC
H	240 VAC (T4-ATEX; T4A-NORTH AMER.) TEMP CLASS
T	8-28 Vdc Loop Power (Option T only)
"OUTPUT OPTIONS" ELECTRICAL SPECIFICATIONS (Resistive Load) (3)	
A	SPDT, 3W, 0.25 Amp., 125 VAC/VDC (Switch Adjustable 15-100% of full scale ascending) 60 PSID & Above 25-100% of full scale ascending
E	SPST, 60W, 3.0 Amp., 240 VAC/VDC (Normally Open) (Switch Adjustable 15-100% of full scale ascending)
H	SPDT, 60W, 1.0 Amp., 240 VAC/VDC (Switch Adjustable 25-100% of full scale ascending)
R	DPDT, Relay, 10A @ 30 VDC, 120/240 VAC (7) (8) (Switch Adjustable 15-100% of full scale ascending) 60 PSID & Above 25-100% of full scale ascending
T	4-20 mA Transmitter in general purpose enclosure, 3rd Party Certified Division 2 Hazardous Locations with Terminal Strip / 1/2" FNPT Conduit Connection ($\pm 2\%$ accuracy from 20-100% of full scale ascending)
Z	Special (Contact Factory)
(1) Complete Assy. 3 rd Party Certified. Rated Class I, Div II, Groups A, B, C & D; Class II Div II Groups F&G (R output excluded)	
(2) Complete Assy. 3 rd Party Certified. Rated Class I, Div I, Groups B, C & D; Class II Div I Groups E, F&G	
(3) For output options A through H, the product switching voltage and current shall not exceed power rating.	
(6) Enclosure Type 4/4X	
(7) For electrical configuration B, K & S, SPDT relay output only	
(8) Electrical configuration A & B in combination with Output Option R is not rated for Hazardous Locations	
(9) Atex / IECEx Rated CE marked Ex d IIB + H ₂ , Ex tb IIIC, IP65 (3000 PSIG SWP)	
(10) Not Available with Electrical Configurations R & S	

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Mid-West understands that in today's demanding environment, flexibility, quick response time and the ability to ship most of our product line in 2 weeks or less is essential to our customers. Standard configurations can be customized and modified to suit our customer's needs for ease of installation or retrofit.

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Mid-West[®] Instrument



“Diaphragm Type” Model 522 Differential Pressure Gauge & Switch



Range: 0-5 PSID to 0-50 PSID

Available Dial Scales: PSID and Dual Scale PSID/kPa or PSID/bar



Model 522 Diaphragm Type DP Gauge provides outstanding capabilities in a modestly priced differential pressure gauge/switch.

Suited for use on dissimilar fluids, wet gas and process fluids with particulates present.

Common Applications: Filter/Strainer Monitoring, Compressed Air, Hydraulic, Refrigerant, Pump Performance Testing, Heat Exchanger Pressure Drop Monitoring, Water Treatment Applications.

Gauge Features:

- Aluminum, 316 / 316L S.S. or Acetal Gauge Body.
- Wetted Parts: 316 SS, Ceramic, & Acetal components
- Seal & Diaphragm Material: Buna-N or Viton
- ALUM. & S.S. Bodies / Safe Working Pressure: 1000 PSIG
- Acetal Body / Safe Working Pressure: 500 PSIG
- 1/4" FNPT Process Connections (End Connected)
- Weather-resistant construction standard.
- 2-1/2" Diam. Black on White Dial (Std)
(Dial Color Breaks Optional)
- Shatter Resistant Acrylic Lens
- **Optional:** (2)10-32 mounting holes on back of gauge body 1.75" apart x .330" Depth
- Accuracy $\pm 5\%$ Full Scale (ascending)



Shown with special option color dial

NOTE: Reverse pressure should be avoided.

Switch Option:

- Hermetically Sealed Switch
 - One (1) DIN 43650/IP65/NEMA 4X Plug-in Connector Switch**
 - Output: 3 amps SPST, 60W, 240 VAC/VDC, Normally Open
 - Switch Adjustable from 40%-95% of Full Scale Range
 - CE Marked for Compliance with the Low Voltage Directive.
- **Product of the switching voltage & current shall not exceed 60W



DIN
Connector Shown

Operation: Differential pressure is sensed by flexible elastomer diaphragm and a calibrated spring. A magnetic coupling transmits the sensing element motion to an indicating pointer. This prohibits the possibility of fluid leaking into the gauge case, while assuring total isolation of the process fluid within the pressure capsule. The diaphragm assures total separation between high and low pressure signals.

Temperature Limits: -40 °F (-40° C) to 200°F (93°C). These limits are based on the entire instrument being saturated to these temperatures. System (process) temperatures may exceed these limitations with proper installation. Contact our customer service representative for details.

Standards: All Model 522 Series differential pressure gauges either conform to and/or are designed to the requirements of the following standards: ASME B1.20.1, ASME B40.100 NEMA Std. 250, EN-61010-1 UL Std. No. 50 & 508, CSA-C22.2 No. 14

Factory Preset of switch available at no charge (Specify switch setting on the order)

The use of diaphragm seals is not recommended.

Attempts to install such seals on this gauge will void the warranty

Mid-West[®] Instrument

Standard Dial Ranges: Model 522

Switch Set Point		Range	
Min Set Pt.	Max Set Pt.	PSID	DUAL SCALE
2 PSID	4.75 PSID	0-5 PSID	0-5 PSID & 0-0.35 bar
4 PSID	9.50 PSID	0-10 PSID	0-5 PSID & 0-35 kPa
6 PSID	14.25 PSID	0-15 PSID	0-10 PSID & 0-0.7 bar
8 PSID	19.00 PSID	0-20 PSID	0-10 PSID & 0-70 kPa
10 PSID	23.75 PSID	0-25 PSID	0-15 PSID & 0-1 bar
12 PSID	28.50 PSID	0-30 PSID	0-15 PSID & 0-100 kPa
16 PSID	38.00 PSID	0-40 PSID	0-20 PSID & 0-1.4 bar
20 PSID	47.50 PSID	0-50 PSID	0-20 PSID & 0-140 kPa
			0-25 PSID & 0-1.75 bar
			0-25 PSID & 0-175 kPa
			0-30 PSID & 0-2 bar
			0-30 PSID & 0-200 kPa
			0-40 PSID & 0-2.75 bar
			0-40 PSID & 0-275 kPa
			0-50 PSID & 0-3.5 bar
			0-50 PSID & 0-350 kPa

The above mentioned ranges are some of the most popular requested today. Mid-West Instrument can provide special un-cataloged dial range requirements. Multiple scale dials, multiple color dials and special decals are available upon request. Please consult factory for complete information.

Model	Min. Δ P Range	Max. Δ P Range
522	0-5 PSID (0-0.35 bar)	0-50 PSID (0-3.5 bar)

Working Pressure: 1000 PSI (69 bar) for Aluminum & Stainless Steel
500 PSI (34.5 bar) for Acetal

Proof Pressure: 2000 PSI (138 bar) for Aluminum & Stainless Steel
1000 PSI (69 bar) for Acetal

Max Differential Pressure (Hi to Low) 200 PSID (13.8 bar)

Temperature Limits: -40°F (-40°C) to +200°F (+93°C) - These limits are based on the entire instrument being saturated to these temperatures. System (process) temperatures may exceed these limitations with proper installation. Contact our customer service representative for details.

Standards: Model 522 Series gauge either conforms to and/or is designed to the requirements of the following standards:

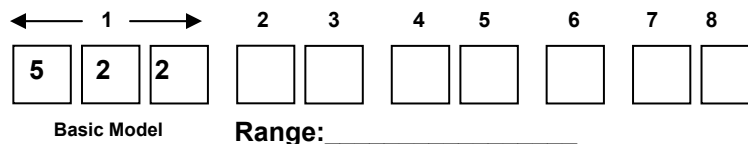
ASME B1.20.1	ASME B40.1
NEMA Std. No. 250	CSA-C22.2 No. 14
EN-61010-1	UL Std. No. 50, 508

Standard Model Specifications: 522-AA-02-00

1000 PSIG Working Pressure, Aluminum body, 316L Stainless Steel, Ceramic & Acetal Internal Parts
 Buna-N Diaphragm and Seals, 1/4" FNPT End Connections
 2-1/2" Round Black on White Dial w/ Engineered Plastic Case & Shatter Resistant Acrylic Lens
 Accuracy ±5% Full Scale(Ascending)

Mid-West Instrument
 1-800-648-5778

Range 0-5 PSID to 0-50 PSID (0.35 to 3.5 bar)



2	Material
A	Aluminum Body / 316 Stainless Steel, Ceramic & Acetal moving components
S	316 S.S. Body / 316 Stainless Steel, Ceramic & Acetal moving components
P	Acetal (Plastic) Body / 316 Stainless Steel, Ceramic & Acetal moving components
3	Dial Size & Type
A	2-1/2" Round, Black on White Dial w/Engrd. Plastic Dial Case. (Standard)
T	Non-Indicating DP Switch Only
4	Seal Materials
0	Buna-N
1	Viton®-A Registered Trademark of Dupont
5	Process Connections
2	1/4" FNPT End Connections
6	Options
O	None
A	(2)10-32 Mounting Holes, Spaced 1.75" apart. x .330" Deep
7	Electrical Configuration
O	None
L	(1) Switch in Std. enclosure with plug-in connector (DIN43650/IP65) NEMA 4X Available with SPST 60W N.O. Electricals Only! Switch adj. 40 to 95% (F.S. Ascending)
8	Electrical Specifications
E	SPST 60W 3.0 Amp 240 VAC/VDC (Normally Open)

Factory Preset of switch available at no charge

Mid-West understands that in today's demanding environment, flexibility, quick response time and the ability to ship most of our product line in 2 weeks or less is essential to our customers. Standard configurations can be customized and modified to suit our customer's needs for ease of installation or retrofit.

If you are in need of additional information please visit our web site at www.midwestinstrument.com or contact us toll free at **1-800-648-5778** and one of our knowledgeable sales coordinators will be happy to assist you...

Mid-West[®] Instrument

“Diaphragm Type” Model 522



Differential Pressure Gauge & Switch

Range: 0-5 PSID to 0-50 PSID



0-25 PSID

Colored bands allow you to quickly identify pressure drop across element.

Divided into three sections, each clearly marked for ease of understanding. Used to indicate critical pressure drops or when to change or clean a filter.

Suited for use in Air, Gas, Dissimilar fluids, Wet Gas and process fluids with particulates present.

Gauge Features:

- Aluminum, 316 / 316L Stainless Steel and Acetal/Plastic Gauge Bodies
- Wetted Parts: 316 SS, Ceramic, & Acetal components
- Seal & Diaphragm Material: Buna-N (Viton available upon request)
- Safe Working Pressure: 1000 PSIG
- ¼" FNPT Process Connections (End Connected)
- Weather-resistant construction standard.
- 2-1/2" Engineered Plastic Dial w/ Shatter Resistant Acrylic Lens
- 3 Color Dial Scale.
Green Clean / Yellow Change / Red Dirty
- (2)10-32 mounting holes on back of gauge body
1.75" apart x .330" Depth
- Accuracy $\pm 5\%$ Full Scale (ascending)

NOTE: Reverse pressure should be avoided.

Switch Option:

- Hermetically Sealed Switch
 - One (1) DIN 43650/IP65-PG9 NEMA 4X Plug-in Connector Switch**
Compression plug accepts 4.5 to 7mm cable
 - Output: 3 amps SPST, 60W, 240 VAC/VDC, Normally Open
 - Switch Adjustable from 40%-95% of Full Scale Range
 - CE Marked for conformance with the Low Voltage Directive(73/23/EEC)
- **Product of the switching voltage & current shall not exceed 60W



0-10 PSID with Switch



Model 522 Series differential pressure gauge either conforms to/or are designed to the requirements of the following standards:

ASME B1.20.1, ASME B40.100
NEMA Std. 250, EN-61010-1
UL Std. No. 50 & 508, CSA-C22.2 No. 14



Mid-West[®] Instrument



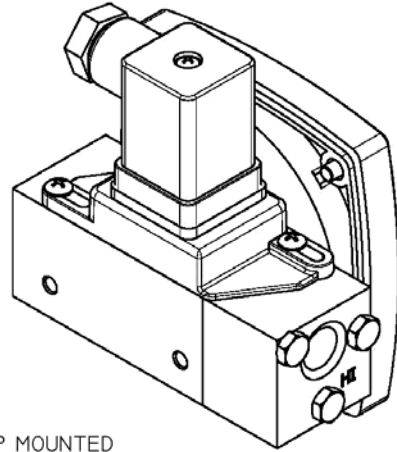
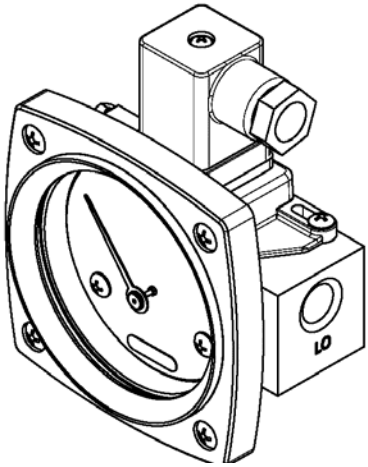
ALM. Model No.	Acetal Plastic Model No.	S.S. Model No.	Range	Transition Points		
				Green Clean	Yellow Change	Red Dirty
BUNA-N Seal & Diaphragm						
522A-005	522P-005	522S-005	0-5 PSID	0-3.0	3.0-4.0	4.0-5.0
522A-010	522P-010	522S-010	0-10 PSID	0-5.0	5.0-7.0	7.0-10.0
522A-015	522P-015	522S-015	0-15 PSID	0-7.5	7.5-11.0	11.0-15.0
522A-020	522P-020	522S-020	0-20 PSID	0-10	10.0-15.0	15.0-20.0
522A-025	522P-025	522S-025	0-25 PSID	0-11.0	11.0-18.5	18.5-25.0
522A-030	522P-030	522S-030	0-30 PSID	0-13.0	13.0-20.0	20.0-30.0
522A-050	522P-050	522S-050	0-50 PSID	0-20	20.0-30.0	30.0-50.0
VITON Seal & Diaphragm						
522A-005V	522P-005V	522S-005V	0-5 PSID	0-3.0	3.0-4.0	4.0-5.0
522A-010V	522P-010V	522S-010V	0-10 PSID	0-5.0	5.0-7.0	7.0-10.0
522A-015V	522P-015V	522S-015V	0-15 PSID	0-7.5	7.5-11.0	11.0-15.0
522A-020V	522P-020V	522S-020V	0-20 PSID	0-10	10.0-15.0	15.0-20.0
522A-025V	522P-025V	522S-025V	0-25 PSID	0-11.0	11.0-18.5	18.5-25.0
522A-030V	522P-030V	522S-030V	0-30 PSID	0-13.0	13.0-20.0	20.0-30.0
522A-050V	522P-050V	522S-050V	0-50 PSID	0-20	20.0-30.0	30.0-50.0
522 Switch Units						
ALM. Model No.	Acetal Plastic Model No.	S.S. Model No.	Range	Transition Points		
				Green Clean	Yellow Change	Red Dirty
BUNA-N Seal & Diaphragm						
522A-005-SW	522P-005-SW	522S-005-SW	0-5 PSID	0-3.0	3.0-4.0	4.0-5.0
522A-010-SW	522P-010-SW	522S-010-SW	0-10 PSID	0-5.0	5.0-7.0	7.0-10.0
522A-015-SW	522P-015-SW	522S-015-SW	0-15 PSID	0-7.5	7.5-11.0	11.0-15.0
522A-020-SW	522P-020-SW	522S-020-SW	0-20 PSID	0-10	10.0-15.0	15.0-20.0
522A-025-SW	522P-025-SW	522S-025-SW	0-25 PSID	0-11.0	11.0-18.5	18.5-25.0
522A-030-SW	522P-030-SW	522S-030-SW	0-30 PSID	0-13.0	13.0-20.0	20.0-30.0
522A-050-SW	522P-050-SW	522S-050-SW	0-50 PSID	0-20	20.0-30.0	30.0-50.0
VITON Seal & Diaphragm						
522A-005V-SW	522P-005V-SW	522S-005V-SW	0-5 PSID	0-3.0	3.0-4.0	4.0-5.0
522A-010V-SW	522P-010V-SW	522S-010V-SW	0-10 PSID	0-5.0	5.0-7.0	7.0-10.0
522A-015V-SW	522P-015V-SW	522S-015V-SW	0-15 PSID	0-7.5	7.5-11.0	11.0-15.0
522A-020V-SW	522P-020V-SW	522S-020V-SW	0-20 PSID	0-10	10.0-15.0	15.0-20.0
522A-025V-SW	522P-025V-SW	522S-025V-SW	0-25 PSID	0-11.0	11.0-18.5	18.5-25.0
522A-030V-SW	522P-030V-SW	522S-030V-SW	0-30 PSID	0-13.0	13.0-20.0	20.0-30.0
522A-050V-SW	522P-050V-SW	522S-050V-SW	0-50 PSID	0-20	20.0-30.0	30.0-50.0

Switch set points are adjustable 40-95% of Full Scale Ascending

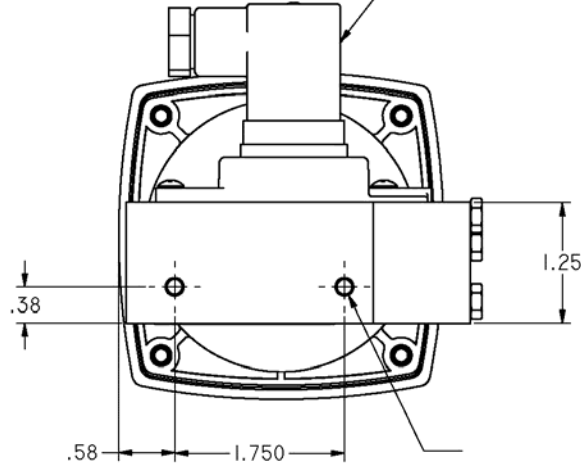
Operation: Differential pressure is sensed by flexible elastomer diaphragm and a calibrated spring. A magnetic coupling transmits the sensing element motion to an indicating pointer. This prohibits the possibility of fluid leaking into the gauge case, while assuring total isolation of the process fluid within the pressure capsule. The diaphragm assures total separation between high and low pressure signals.

Temperature Limits: -40 °F (-40° C) to 200°F (93°C). These limits are based on the entire instrument being saturated to these temperatures. System (process) temperatures may exceed these limitations with proper installation. Contact our customer service representative for details.

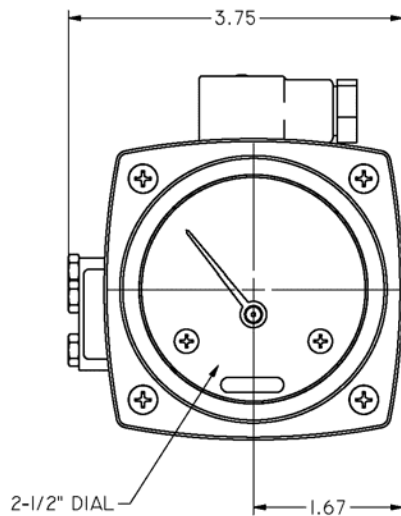
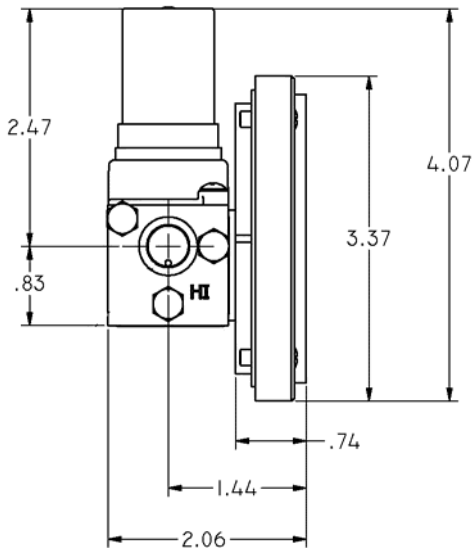
Dimensional Drawings



TOP MOUNTED
ADJUSTABLE SWITCH
WITH HIRSHMANN
CONNECTOR



10-32 UNF-2B
(7) MIN. THREADS
(2) MOUNTING HOLES



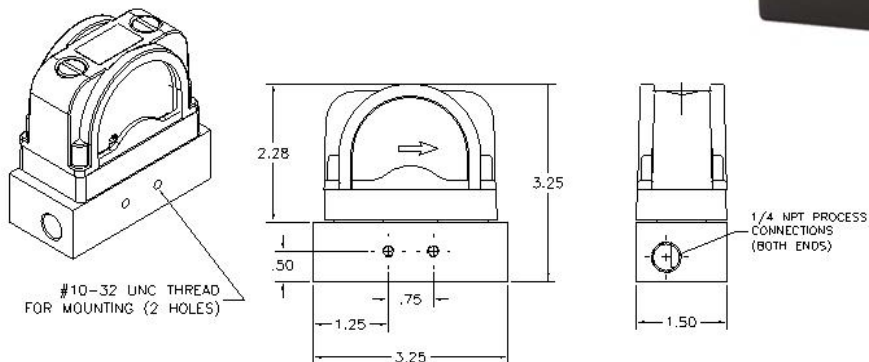
Mid-West[®] Instrument

Differential Pressure Indicator Model 555A

Colored bands allow you to quickly identify pressure drop across element. Divided into three sections, each clearly marked for ease of understanding. Commonly used to indicate when to change or clean a filter.

Example: 555A-10.0 changes from green to yellow at 5 PSID and from yellow to red at 7.5 PSID.

Mounting block has 1/4" FNPT in-line process connections for ease of installation. Accuracy is ±5% Full Scale



Model No. Buna-N	Model No. Viton	DP Range	Transition Points		
			Green	Yellow	Red
555A-3.5	555A-3.5V	0-3 PSID	0-2.0	2.0-2.5	2.5-3.5
555A-5.0	555A-5.0V	0-5 PSID	0-3.0	3.0-4.5	4.5-5.0
555A-10.0	555A-10.0V	0-10 PSID	0-5.0	5.0-7.5	7.5-10.0
555A-12.0	555A-12.0V	0-12 PSID	0-6.0	6.0-9.0	9.0-12.0
555A-15.0	555A-15.0V	0-15 PSID	0-7.5	7.5-12.0	12.0-15.0
555A-25.0	555A-25.0V	0-25 PSID	0-11.0	11.0-18.5	18.5-25.0
555A-30.0	555A-30.0V	0-30 PSID	0-13.0	13.0-20.0	20.0-30.0
555A-43.0	555A-43.0V	0-43 PSID	0-19.5	19.5-29.5	29.5-43.0

SPECIFICATIONS:		Comments:
Pressure (Ratings)		
Maximum Working	300 PSIG	
Maximum Differential	150 PSID	
Accuracy	± 5% of Rated Differential Pressure Range	Calibrated at Color Transitions
Operating Temperature (Max.)	93°C (200°F)	
Materials of Construction		
Body Material	Glass Filled Nylon (GFN)	
Wetted Internals	Stainless Steel, Ceramic, & GFN	
Elastomers	Buna-N or Viton	
Movement	Magnetic Piston and Follower Pointer	
Dial	Plastic Lens with 3 Color Dial	
INTERFACE:		
Process Connections:	1/4" FNPT End Connections. To switch HIGH and LOW pressure connections: (Remove Indicator from base and rotate 180° - Retighten plastic bolts to 20-25 inch pounds.)	Flow Direction Identified on Dial. (Arrow Points to Low Pressure Port)

Mid-West[®] Instrument

Differential Pressure Transmitter

Range 0-5 PSID (0- 0.35 Bar) thru 0-300 PSID (0-20 Bar)

Mid-West Instrument wet/wet differential pressure transmitter utilizes a piezoresistive differential pressure sensor sensing element with stainless steel isolated diaphragm. Silicon oil is filled in between die and two diaphragms. The measured differential pressure is transmitted onto the die through the diaphragm and silicon oil. The signal output generated by the piezoresistive bridge sensor is amplified into a useable voltage or 4-20 mA output as specified by customer. Series 700 is manufactured in China. 1 Year Limited Warranty. (Standard Delivery 4 Weeks ARO.)

Product Features

- Use with Liquid or Gas media compatible with material of construction
- Full stainless steel construction, compact size, easy installation
- Laser welded, fully-sealed construction: NEMA 4X (IP65)
- Utilizes Piezoresistive Differential Pressure Sensor Isolated Diaphragm
- Zero and Span Adjustable
- CE Certified to EMI / EMC Directive
- LCD or LED display available upon request
- (Available with DIN Connector & 4-20mA Output Only)
- Maximum Overpressure (+) Hi-Side equals 2 times specified DP range
- Maximum Overpressure (-) Low-Side is equal to specified DP range
- Maximum Static Pressure 2,900 PSI

It is recommended to install a 3 valve manifold between point of measurement and the transmitter.

Materials of Construction

- **Pressure Port & Housing:** 321 Stainless Steel
- **Diaphragm:** 316L Stainless Steel
- **O-ring:** Viton
- **Process Connections:** 1/4" Female BSPP (STD)
- **Fill liquid:** Silicon Oil

Available Electrical Specifications:

- **Power Supply:** 2-Wire 15~28 VDC
2-Wire 18~28 VDC, 2-Wire 20-28 VDC,
3-Wire 15~28 VDC
- **Output Signals:** 2-Wire 4~20mADC,
3-Wire, 0~5VDC, 1~5VDC, 0~5VDC
0~10VDC, 0-10mADC and 0-20m ADC
- **Electrical Connections:**
Din Plug 43650 or 1.5m 4-pin cable
- Response Time: (10%~90%) ≤1ms
- Insulation Resistance 100MΩ, 50VDC



LCD or LED
3-1/2 Digit Display



1/4" BSPP x 1/4" FNPT
1/4" BSPP x 1/2" FNPT
S.S. Adapters Available

Description	Range	% / Unit	
Accuracy (LIN, HYS, & REP.)	5~300 PSID	0.50% Full Scale	
Zero Thermal Drift	0~15 PSID	±.03% Full Scale / °C Typ.	
	30~300 PSID	±.02% Full Scale / °C Typ.	
FS Thermal Drift	0~15 PSID	±.03% Full Scale / °C Typ.	
	30~300 PSID	±.02% Full Scale / °C Typ.	
Stability	< 30 PSI	0.50%	%FS / Year
	≤ 30 PSI	0.20%	
Static Pressure Effect	±0.05%	FS, ea. 15 PSI	
Compensation Temperature	0~50		
Operating Temperature	-10~80		
Storage Temperature	-40~120		
		°C	

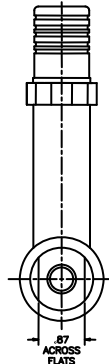
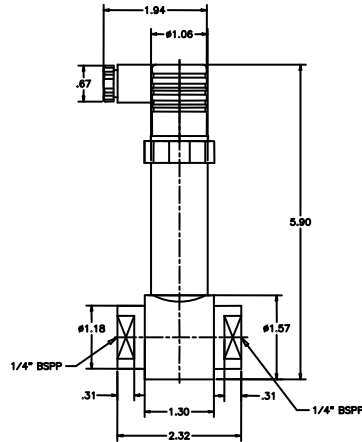
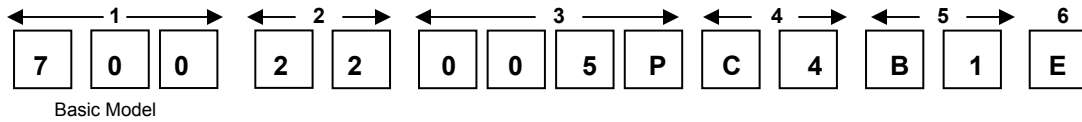
Standard Model Specification: 700-22-005P-C4-B1-E

321 Stainless Steel Pressure Port & Housing, 316 Stainless Steel Diaphragm
 Viton O'Rings, 1/4" Female BSPP Connections, DIN 43650/IP65 Plug-In Type Connector
 Electrical Input & Output: 2-wire 15~28VDC / 4~20mADC
 Accuracy ±0.5% Full Scale



Mid-West Instrument
 1-800-648-5778

Range: 0-5 PSID (0-0.35 Bar) to 0-300 PSID (0-20 Bar)



1	Description
700	Differential Pressure Transmitter
710	Differential Pressure Transmitter W/LCD Readout (Available with DIN Connector & 4-20mA Output only)
715	Differential Pressure Transmitter W/LED Readout (Available with DIN Connector & 4-20mA Output only)
2	Materials of Construction
22	Pressure Port & Housing = 321 S.S. / Diaphragm = 316L S.S.
3	Differential Pressure Range
PSID=P	5, 10, 15, 30, 50, 100, 150, & 300 PSID
Bar=B	.35, .70, 1, 2, 3.5, 7, 10, 20
kPa=K	35, 70, 100, 200, 350, 700
4	Process Connection
C4	1/4" Female BSPP (STD)
5	Electrical Connection
B1	DIN 43650/IP65 Plug-In Type
B2	Cable Connection / Standard Length 1.5m
6	Power Supply Input / Output Signal
E	2-wire 15~28VDC / 4~20mADC / LCD Display 18-28 VDC / LED Display 20-28VDC
F	3-wire 15~28VDC / 1~5VDC
J	3-wire 15~28VDC / 0~5VDC
Q	3-wire 15~28VDC / 0~10mADC
U	3-wire 15~28VDC / 0~20mADC
V	3-wire 15~28VDC / 0~10VDC
316 S.S. Adapters (includes Viton O'ring)	
113319	1/4" MALE BSPP to 1/4" FNPT 316 S.S. Adapter
113320	1/4" MALE BSPP to 1/2" FNPT 316 S.S. Adapter