

PISTON STYLE GAUGE



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Mid-West
Instrument

Mid-West[®] Instrument

“Piston Type”

Differential Pressure Gauges Switches & Transmitters

Model 120



A low cost differential pressure gauge for use in measuring the pressure drop across filters, strainers, separators, valves, pumps, chillers, etc., and for local flow indication and control.



Model 120
0-50 PSID
2-1/2" Dial

Due to precision sizing of piston and body bore, leakage across piston will not exceed 15 SCFH air at 100 PSID at ambient temperature.

- Simple, rugged, compact design.
- Working pressures up to 6,000 PSIG (400 bar)
- Over-range protection to maximum pressure.
- Body Materials: Aluminum or 316L Stainless Steel with 316 stainless steel internals. Aluminum Bronze & Monel available upon request.
- Weather-resistant construction standard.
- Shatter resistant acrylic lens.
- Variety of Dial type and Sizes: 2-1/2", 3-1/2" & 4-1/2" (Uni-directional or Bi-directional)
- Available DP Ranges: Inches H₂O, PSID, bar, and Kpa
- 1/4" FNPT & 1/2" FNPT Process Connections
- Multiple mounting options available
- Temperature Limits: -40°F(-40°C) to +200°F(+93°C)



Model 120 0-30 PSID
With Maximum Follower Pointer



Model 120
0-50 PSID
4-1/2" Dial



Model 120
0-50 PSID
With Special 3 Color Dial

An optional maximum indication follower pointer provides automatic indication of maximum differential occurring during a time period or system cycle. Reversed pressure ports are optionally available to facilitate installation and readability depending on which side of a filter, etc., the instrument must be installed.

Model	Body Material	Accuracy	Min. ΔP Range	Max. ΔP Range	MWP PSIG (Bar)	Switch Options
120	Aluminum & 316L S.S.	±3/2/3%	0-5 PSID (0-0.35 bar)	0-110 PSID (0-7 bar)	ALM.= 3,000 (200) S.S. = 6,000 (400)	1 & 2 switch Hermetically Sealed

Proof Pressure: Two times rated working pressure at ambient temperature

Standards: Model 120 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

“Piston Type” Differential Pressure Gauge Switch & Transmitter Options Models 120, 122, 123 & 124



The Model 120-124 Series DP gauges are available with one or two hermetically sealed reed switches or 4-20mA transmitter depending on model. (See chart below)

The switches are adjustable (see table for adjustment range) within a defined percentage of the full scale range of the gauge and are available in SPDT and SPST, normally open or normally closed configurations for various load power ratings. The switches can be set to activate or deactivate on rising or falling pressure.

The standard reed switch is enclosed in a weather-resistant plastic housing. Adjustment of the switch setting is made with an external screw adjustment.

The switch functionality will be different for gauges with bi-directional operation for positive and negative delta pressure. For example a SPDT switch with positive .P applied to the gauge, the red wire will be N.O. and the black will be N.C.. For negative .P the functionality will be reversed.

Location for a single SPDT (grommet or conduit) switch will be on the bottom of the gauge body for a normal port and on the top for a reverse port. Locations for a single SPST (grommet or conduit) N.O. or SPST N.C. switch will be on the bottom and top respectively for a normal port gauge. The locations will be reversed for a reverse port gauge.

A non-indicating (no dial) differential pressure switch is also available.

Hazardous Location switches are 3rd Party Certified Class I Div 2 or Class I Div 1 dependant on type of switch. Listings are for the entire design and not just the enclosure. Standard and weatherproof units are CE marked for conformance with the Low Voltage Directive to harmonized standard EN 61010-1.

Transmitters feature Microprocessor based, external zero interface, 8-28 Vdc loop powered, 2 wire interface. Standard output of 4-20mA with a max loop resistance of 1000 Ohms.

Model Type	•120, ^122,+123, +124 SPDT	•120,^122, •123, SPDT	•120, ^122,+123, +124 SPST NO	•120, •123,•124 SPST NC	•120, •123,•124 SPST NO/NC	121, 124 4-20mA
Power	3 W	60 W	60 W	60 W	60 W	4-20 mA Loop Power
Max Current	0.25 Amps	1.0 Amps	3.0 Amps	3.0 Amps	3.0 Amps	8-28 VDC Loop Powered 2-Wire interface
Max Voltage VAC/VDC	125	240	240	240	240	1000 Ohm max Loop resistance at 28 vdc
Setting Full Scale	•10-90%	•25-100%	•25-95%	•25-95%	•25-95%	20-100%
	^10-100%	^25-100%	^25-100%			
	+15-90%		+25-95%			
Hysteresis (Max / Norm)	10% / 5% (FS)	20% / 13% (FS)	15% / 8% (FS)	15% / 8% (FS)	15% / 8% (FS)	N/A
Repeatability	1% F.S.	1% F.S.	1% F.S.	1% F.S.	1% F.S.	1% F.S.
Leads 22 Awg	(3) 24"	(3) 24"	(2) 24"	(2) 24"	(2) 24"	N/A



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Standard Dial Ranges: Model 120, 122, 123, 124

Range Type			
PSID	Kpa	Bar	Dual Scale
0-5 PSID	0-35 Kpa	0-1.0 Bar	0-5 PSID & 0-0.35 Kg/Cm2
0-10 PSID	0-70 Kpa	0-1.6 Bar	0-5 PSID & 0-35 KPA
0-15 PSID	0-100 Kpa	0-2.0 Bar	0-10 PSID & 0-0.7 BAR
0-20 PSID	0-160 Kpa	0-2.5 Bar	0-10 PSID & 0-0.7 KG/CM2
0-25 PSID	0-250 kpa	0-4.0 Bar	0-10 PSID & 0-70 KPA
0-30 PSID	0-400 Kpa	0-6.0 Bar	0-100 PSID & 0-7 BAR
0-50 PSID	0-600 Kpa	0-7.0 Bar	0-100 PSID & 0-7 KG/CM2
0-60 PSID	0-700 Kpa		0-100 PSID & 0-700 KPA
0-75 PSID			0-15 PSID & 0-1 BAR
0-100 PSID			0-15 PSID & 0-1 KG/CM2
0-110 PSID			0-15 PSID & 0-100 KPA
**0-150 PSID			0-20 PSID & 0-1.4 BAR
**0-200 PSID			0-20 PSID & 0-140 KPA
**0-250 PSID			0-25 PSID & 0-1.75 BAR
**0-300 PSID			0-25 PSID & 0-1.75 KG/CM2
**0-400PSID			0-25 PSID & 0-175 KPA
			0-30 PSID & 0-2 BAR
Bi-Directional	Bi-Directional	Bi-Directional	0-30 PSID & 0-2 KG/CM2
5-0-5 PSID	40-0-40 Kpa	0.4-0-0.4 Bar	0-30 PSID & 0-200 KPA
10-0-10 PSID	60-0-60 Kpa	0.6-0-0.6 Bar	0-50 PSID & 0-3.5 BAR
15-0-15 PSID	100-0-100 Kpa	1-0-1 Bar	0-50 PSID & 0-3.5 KG/CM2
20-0-20 PSID	160-0-160 Kpa	1.6-0-1.6 Bar	0-50 PSID & 0-350 KPA
25-0-25 PSID	250-0-250 Kpa	2.5-0-2.5 Bar	0-75 PSID & 0-500 KPA
30-0-30 PSID	400-0-400 Kpa	4-0-4 Bar	
50-0-50 PSID	600-600 Kpa	6-0-6 Bar	
60-0-60 PSID			
100-0-100 PSID			

Bi-Directional ranges available for Model 120 4-1/2" Dials only.

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
120	0-5 PSID (0-0.35 bar)	0-110 PSID (0-7 bar)
122	0-5 PSID (0-0.35 bar)	0-100 PSID (0-7 bar)
**123	0-150 PSID (0-10 bar)	0-400 PSID (0-27.0 bar)
**124	0-5 PSID (0-0.35 bar) 0-150 PSID (0-10 bar)	0-110 PSID (0-7 bar) 0-400 PSID (0-27.0 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 120 -124 Series gauges either conform to and/or are designed to the requirements of the following standards:

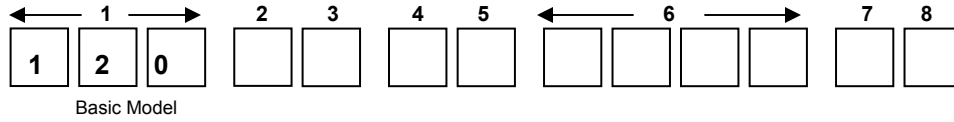
ASME B1.20.1	NACE MR0175
ASME B40.100	NEMA Std. No. 250
CSA-C22.2 No. 14.25 and 30	SAE J514
EN-61010-1	UL Std. No. 50,508 and 1203

Standard Model Specifications: 120-AA-00-00

3000 PSIG Working Pressure, Aluminum Body & End Plugs, Stainless Steel Piston,
Ceramic Magnet, Buna-N Seals, 1/4" FNPT Back Connections,
2-1/2" round dial, Engineered Plastic Case with Shatter Resistant Acrylic Lens,
Accuracy ±3/2/3% Full Scale (Ascending)

Mid-West Instrument
1-800-648-5778

Range 0-5 PSID to 0-110PSID (0.35 to 7.0 bar)



Range: _____



2	Material
A	Aluminum Body / Stainless Steel Piston
S	316 S.S Body / Stainless Steel Piston
M	Monel Body / Monel Piston
N	Aluminum Bronze Body / Aluminum Bronze Piston
Z	Special (<i>Un-coded Options</i>)
3	Dial Size & Type
A	2-1/2" Round Uni-Directional Dial w/Engineered Plastic Dial Case
C	4-1/2" Round Uni-Directional Dial w/Engineered Plastic Dial Case
D	4-1/2" Round Bi-Directional Dial w/Engineered Plastic Dial Case
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
H	4-1/2" Round Bi-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
2	Neoprene
4	Teflon®-A Registered Trademark of Dupont
5	Ethylene Propylene
6	Perfluorelastomers
9	Special (<i>Un-coded Options</i>)
5	Process Connections
0	1/4" FNPT Back Connections (<i>Standard</i>) (Not available on M & N body materials)
2	1/4" FNPT End Connections
3	1/4" FNPT Bottom Connections
4	1/2" FNPT End Connections
6	7/16"-20 Straight Thread "O" Ring Port (Back Connection)
9	Special (<i>Un-coded Options</i>)

Factory preset switches at no charge (Specify Setting)

Standard Model Specifications – continued Model 120

6	Additional Options
O	None
A	Reversed High / Low Process Connections. (Not available with Electrical options J & K)
C	Mounting Holes in Gauge Body for Field Mounting Electrical Configurations Options A & B
D	Mounting Holes in Gauge Body for Field Mounting Electrical Configurations Options L & M
E	Two (2) 1/4-20 Mounting Holes (not available with C, D, E or F electrical switch options)
F	Carbon Steel 2" Pipe Mounting Kit (not available with C, D, E or F electrical switch options)
G	Stainless Steel 2" Pipe Mounting Kit (not available with C, D, E or F electrical switch options)
K	1/2" FNPT S.S. Adapter (not available with E or F switch option combined w/back 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 and Monel Gauge Bodies Only)
Q	CRN (Canadian Registration Number) Available on Aluminum or S.S. Body only
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) Not on Gauge Body for Hazardous Locations
W	Wall Mount Kit (not available with back connections or with C, D, E or F switch options)
Z	Special (Un-coded Options)
NOTE: Not All Options Available in Combination with other Options	
7	Electrical Configurations (CE marked, except E, F, J & K) (6)
A	One (1) Switch in standard enclosure with grommet Wire Seal
B	Two (2) Switch in standard enclosures with grommet Wire Seal
C	One (1) Switch in standard enclosure with 1/4" FNPT electrical connection NEMA 4X
D	Two (2) Switch in standard enclosures with 1/4" FNPT electrical connection NEMA 4X
E	One (1) Switch in general purpose enclosure, Division 2 Hazardous Locations (1) (3) (4) (5)
F	Two (2) Switches in general purpose enclosure, Division 2 Hazardous Locations (1) (3) (4) (5)
G	One (1) Switch & gauge in NEMA 4X plastic enclosure (Not available with end connections)
H	Two (2) Switches & gauge in NEMA 4X plastic enclosure (Not available with end connections)
J	One (1) Switch in explosion proof enclosure w/glass window cover, Div. 1 Hazardous Locations (2) (3) (4) (5)
K	Two (2) Switches in explosion proof enclosure w/glass window cover, Div.1 Hazardous Locations (2) (3) (4) (5)
L	One (1) Switch in standard enclosure with plug-in connector (DIN 43650/IP65-PG11)
M	Two (2) Switch in standard enclosures with plug-in connector (DIN 43650/IP65-PG11)
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) Complete assembly 3rd Party Certified Class I, Div.1, Groups C & D; Class II, Div. 1, Groups E, F, & G.	
(3) 5000 PSIG SWP for Stainless Steel: 3000 PSIG SWP for Aluminum	
(4) Not available in M and N material options	
(5) 1/2" FNPT conduit connection	
(6) Contact factory for Bi-directional scales with switches	
8	Electrical Specifications (For Resistive Loads)
A	SPDT 3W, 0.25 Amp, 125 VAC/VDC (standard) (Switch adjustable range of 10-90%)
E	SPST 60W, 3.0 Amp, 240 VAC/VDC (Normally Open) (Switch adjustable range of 25-95%)
F	SPST 60W, 3.0 Amp, 240 VAC/VDC (Normally Closed) (Switch adjustable range of 25-95%)
G	SPST 60W, 3.0 Amp, 240 VAC/VDC (1) Normally Open, (1) Normally Closed (Switch adjustable range of 25-95%)
H	SPDT 60W, 1.0 Amp, 240 VAC/VDC (Switch adjustable range of 25-100%)
Z	Special (Un-coded Options)

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

“Piston Type”

Differential Pressure Gauge or Switch

Model 120



FOR SEA WATER APPLICATIONS

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

Model 120 Shown
With 2-1/2” Dial & Switch



Features:

- Simple, rugged, compact design.
- Working pressure 5,000 PSIG (340 bar)
- Over-range protection to maximum pressure.
- Over range protection to full rated working pressure.
- Body Materials: Aluminum/Bronze, or Monel
- 1/4” FNPT FNPT End Connection (std)
- 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 PSID, Bar, and Kpa
- Temperature Limits: -40°F(-40°C) to +200°F(+93°C)

Due to precision sizing of piston and body bore, leakage across piston will not exceed 15 SCFH air at 100 PSID at ambient temperature.



Model 120 shown
with Customer colored Dial



Model 120 Shown
With 4-1/2” Dial

An optional maximum indication follower pointer provides automatic indication of maximum differential occurring during a time period or system cycle. Reversed pressure ports are optionally available to facilitate installation and readability depending on which side of a filter, etc., the instrument must be installed.

Model	Accuracy	Available ΔP Range	Max. Line Pressure PSIG	Optional Switches
120	±5%	0-5 PSID, 0-10 PSID 0-15 PSID, 0-20 PSID 0-25 PSID, 0-30 PSID 0-50 PSID, 0-100 PSID	5,000	1 & 2 switch Hermetically Sealed

“Piston Type” Differential Pressure Gauge Switch Options Model 120



1 & 2 Switch
Examples shown



The Model 120 Series DP gauge is available with one or two hermetically sealed reed switches. (See chart below)

The switches are adjustable (see table for adjustment range) within a defined percentage of the full scale range of the gauge and are available in SPDT and SPST, normally open or normally closed configurations for various load power ratings. The switches can be set to activate or deactivate on rising or falling pressure.

The standard reed switch is enclosed in a weather-resistant plastic housing. Adjustment of the switch setting is made with an external screw adjustment.

The switch functionality will be different for gauges with bi-directional operation for positive and negative delta pressure. For example a SPDT switch with positive .P applied to the gauge, the red wire will be N.O. and the black will be N.C.. For negative .P the functionality will be reversed.

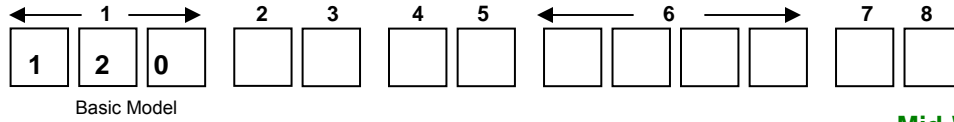
Location for a single SPDT (grommet or conduit) switch will be on the bottom of the gauge body for a normal port and on the top for a reverse port. Locations for a single SPST (grommet or conduit) N.O. or SPST N.C. switch will be on the bottom and top respectively for a normal port gauge. The locations will be reversed for a reverse port gauge. A non-indicating (no dial) differential pressure switch is also available.

Model Type	120 SPDT	120 SPDT	120 SPST NO	120 SPST NC	120 SPST NO/NC
Power	3 W	60 W	60 W	60 W	60 W
Max Current	0.25 Amps	1.0 Amps	3.0 Amps	3.0 Amps	3.0 Amps
Max Voltage VAC/VDC	125	240	240	240	240
Setting Full Scale	10-90%	25-100%	25-95%	25-95%	25-95%
Hysteresis (Max / Norm)	10% / 5% (FS)	20% / 13% (FS)	15% / 8% (FS)	15% / 8% (FS)	15% / 8% (FS)
Repeatability	1% F.S.	1% F.S.	1% F.S.	1% F.S.	1% F.S.
Leads 22 Awg	(3) 24"	(3) 24"	(2) 24"	(2) 24"	(2) 24"

Standard Model Specifications: 120-NA-02-00

5000 PSIG Working Pressure, Aluminum Bronze Body & Piston, Monel Spring, Ceramic Magnet, Buna-N Seals, 1/4" FNPT End Connections, 2-1/2" round dial, Engineered Plastic Case with Shatter Resistant Acrylic Lens, Accuracy ±5% Full Scale (Ascending)

Ranges: 0-10 PSID, 0-15 PSID, 0-10 PSID, 0-25 PSID and 0-30 PSID



Range: _____

Mid-West Instrument
1-800-648-5778



2	Material
M	Monel Body / Monel Piston
N	Aluminum Bronze Body / Aluminum Bronze Piston
Z	Special (<i>Un-coded Options</i>)
3	Dial Size & Type
A	2-1/2" Round Uni-Directional Dial w/Engineered Plastic Dial Case
C	4-1/2" Round Uni-Directional Dial w/Engineered Plastic Dial Case
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 (Standard)
1	Viton®-A Registered Trademark of Dupont
2	Neoprene
4	Teflon®-A Registered Trademark of Dupont
5	Ethylene Propylene
9	Special (<i>Un-coded Options</i>)
5	Process Connections
2	1/4" FNPT End Connections
9	Special (<i>Un-coded Options</i>)

Standard Model Specifications – continued Model 120

6	Additional Options
O	None
A	Reversed High / Low Process Connections.
E	Two (2) 1/4-20 Mounting Holes (not available with C or D electrical switch options)
F	Carbon Steel 2" Pipe Mounting Kit (not available with C or D electrical switch options)
G	Stainless Steel 2" Pipe Mounting Kit (not available with C or D electrical switch options)
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) Not on Gauge Body for Hazardous Locations
W	Wall Mount Kit (not available with C or D switch options)
Z	Special (Un-coded Options)
NOTE: Not All Options Available in Combination with other Options	
7	Electrical Configurations (CE marked) (6)
A	One (1) Switch in standard enclosure with grommet Wire Seal
B	Two (2) Switch in standard enclosures with grommet Wire Seal
C	One (1) Switch in standard enclosure with 1/4" FNPT electrical connection NEMA 4X
D	Two (2) Switch in standard enclosures with 1/4" FNPT electrical connection NEMA 4X
L	One (1) Switch in standard enclosure with plug-in connector (DIN 43650/IP65-PG11)
M	Two (2) Switch in standard enclosures with plug-in connector (DIN 43650/IP65-PG11)
Z	Special (Un-coded Options)
(6) Contact factory for Bi-directional scales with switches	
8	Electrical Specifications (For Resistive Loads)
A	SPDT 3W, 0.25 Amp, 125 VAC/VDC (standard) (Switch adjustable range of 10-90%)
E	SPST 60W, 3.0 Amp, 240 VAC/VDC (Normally Open) (Switch adjustable range of 25-95%)
F	SPST 60W, 3.0 Amp, 240 VAC/VDC (Normally Closed) (Switch adjustable range of 25-95%)
G	SPST 60W, 3.0 Amp, 240 VAC/VDC (1) Normally Open, (1) Normally Closed (Switch adjustable range of 25-95%)
H	SPDT 60W, 1.0 Amp, 240 VAC/VDC (Switch adjustable range of 25-100%)
Z	Special (Un-coded 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 700,000 piston type units 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 product 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

“Piston Type” Model 121 Differential Pressure Switch & Transmitter

A low cost differential pressure indicating switch or transmitter for use in measuring the pressure drop across filters, strainers, separators, valves, pumps, chillers etc., and for local flow indication and control.

- ½ NPT conduit connection with heavy duty Switch or Transmitter cover and terminal strip
- Choice of 1 or 2 magnetically actuated hermetically sealed reed switches to provide high and low limit alarm or control or 4-20mA transmitter.
- Transmitter accuracy ± 2% full scale (from 20% to 100% of scale, ascending)
- Body materials: Aluminum or 316L Stainless Steel with 316 stainless steel internals.
- Weather-resistant construction standard.
- Working pressure up to 6,000 PSIG (400 bar)
- Over-range protection to maximum pressure.
- Shatter resistant acrylic lens.
- Variety of Dial type and Sizes: 2-1/2”, 3-1/2” & 4-1/2”
- Available DP Ranges: Inches H2O, PSID, bar, and Kpa
- Temperature Limits:
-40°F (-40°C) to +200°F (+93°C) (Switch Options)
-20° F to + 150° F (Transmitter Option)

**Transmitter now
CSA Listed for
Division 2 Hazardous
Location Service**



Model 121 0-75 PSID
2-1/2” Dial. Shown with
End Connections & Transmitter



Model 121 Switch
¼” FNPT back
connections



Model 121
0-50 PSID 4-1/2” Dial
& Transmitter



Model	Body Material	Gauge Accuracy	Min. ΔP Range	Max. ΔP Range	MWP PSIG (Bar)	Switch Options
121	Aluminum & 316L S.S.	±3/2/3%	0-5 PSID (0-0.35 bar)	0-100 PSID (0-7 bar)	ALM. = 3,000 (200) S.S. = 6,000 (400)	1 or 2 switches or 4-20mA Transmitter

Model 121 Indicating Switch(es) or 4-20mA Transmitter SPECIFICATIONS

TRANSMITTER

Features:

Microprocessor based, external zero interface:
8-28 Vdc loop powered, 2 wire interface

Electrical:

Accuracy ±2% (from 20% to 100% of scale, ascending)
Supply Voltage 8-28 Vdc
Output 4-20mA
Max Loop Resistance 1000 Ohms

Interface:

4 position terminal strip for 16-22 Awg wire
Pin 1 – return, Pin 2 = zero, Pin 3 = 8-28 Vdc, Pin 4-chassis
1/2” NPT conduit connection

Environmental: Weatherproof

Rating: (NEMA 4X, IP65)

SWITCHES

Features:

1 or 2 hermetically sealed reed switches

Electrical:

0-3W, 25 Amp
125 VAC (Adjustable 15-95% F.S.)
60W, 3.0 Amp
240 VAC (Adjustable 20-95% F.S.)

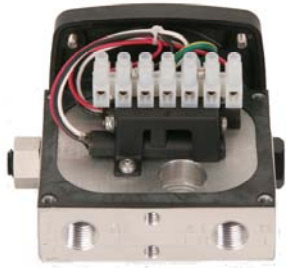
Interface:

7 position terminal strip for 16-22 Awg wire
1/2” NPT conduit connection

Environmental: Weatherproof

Rating: (NEMA 4X, IP65)

“Piston Type” Differential Pressure Switch & Transmitter Options Model 121



Open back view
Model 121 reed switch
with terminal strip



Model 121 Transmitter show
with NEMA 4X plastic cover



Open view Model 121 Transmitter
4-20 mA terminal strip
w/ 1/4" FNPT end connections

Piston-Type Differential Pressure Gauges are available with one or two hermetically sealed reed switches. The switches are adjustable within a defined percentage of the full scale range of the gauge and are available in SPDT and SPST, normally open or normally closed configurations for various load/power ratings. The switches can be set to activate or deactivate on rising or falling pressure. Switches are "CE" marked per the EU low voltage directive. Models 121 can be configured for use in Hazardous Locations.

Piston Type DP Gauge: $\pm 2\%$ Full Scale Accuracy. They are primarily designed for liquid applications. They exhibit a slight amount of bypass as the fluid crosses from the high to the low pressure port. Because gas molecules are smaller, the crossover is often deemed too great for the application. Due to precision sizing of piston and body bore, leakage across the piston will not exceed 15 SCFH air at 100 PSID at ambient conditions.

Available Electrical Configurations
One (1) Reed switch in NEMA 4X/IP65 Plastic enclosure with terminal strip (1/2" FNPT Conduit Connection)
Two (2) Reed switches in NEMA 4X/IP65 Plastic enclosure with terminal strip (1/2" FNPT Conduit Connection)
One (1) Switch in general purpose enclosure, Division 2 Hazardous Locations (1) (2)
Two (2) Switches in general purpose enclosure, Division 2 Hazardous Locations (1) (2)
4-20 mA Transmitter in NEMA 4X/IP65 Plastic enclosure with terminal strip (1/2" FNPT Conduit Connection) (3)
4-20 mA Transmitter in NEMA 4X/IP65 Plastic enclosure. Division 2 Hazardous Locations with terminal strip (1/2" FNPT Conduit Connection) (1) (2) (3)
(1) Complete assembly 3rd Party Certified Class I, Div.2, Groups A, B, C, & D; Class II, Div.2, Groups F and G.
(2) 5000 PSIG SWP for Stainless Steel: 3000 PSIG SWP for Aluminum
(3) Contact factory for flow applications with transmitter configuration
Available Electrical Specifications (For Resistive Loads)
SPDT 3W, 0.25 Amp, 125 VAC/VDC (standard) (Switch adjustable range of 15-95%)
SPST 60W, 3.0 Amp, 240 VAC/VDC (Normally Open) (Switch adjustable range of 20-95%)
SPST 60W, 3.0 Amp, 240 VAC/VDC (Normally Closed) (Switch adjustable range of 20-95%)
SPST 60W, 3.0 Amp, 240 VAC/VDC (1) Normally Open, (1) Normally Closed (Switch adjustable range of 20-95%)
4-20 mA Transmitter (8-28 VDC Loop Power) ($\pm 2\%$ accuracy from 20% to 100% of scale. Ascending)

Proof Pressure: Two times rated working pressure at ambient temperature.

Temperature Limits:

Switch Options: -40°F to + 200°F

Transmitter Options: -20° F TO + 150° F

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 121 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 121

Range Type		
PSID	Kpa	Bar
0-5 PSID	0-100 Kpa	0-1.0 Bar
0-10 PSID	0-160 Kpa	0-1.6 Bar
0-15 PSID	0-250 kpa	0-2.0 Bar
0-20 PSID	0-400 Kpa	0-2.5 Bar
0-25 PSID	0-600 Kpa	0-4.0 Bar
0-30 PSID	0-700 Kpa	0-6.0 Bar
0-50 PSID		0-7.0 Bar
0-60 PSID		
0-75 PSID		
0-100 PSID		

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
121	0-5 PSID (0-0.35 bar)	0-100 PSID (0-7 bar)

Proof Pressure: Two times rated working pressure at ambient temperature.

Temperature Limits:

Switch Options: -40°F to + 200°F

Transmitter Options: -20° F TO + 150° F

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 121 Gauge either conforms to and/or is designed to the requirements of the following standards:

ASME B1.20.1

ASME B40.100

CSA-C22.2 No. 14.25 and 30

EN-61010-1

NACE MR0175

NEMA Std. No. 250

SAE J514

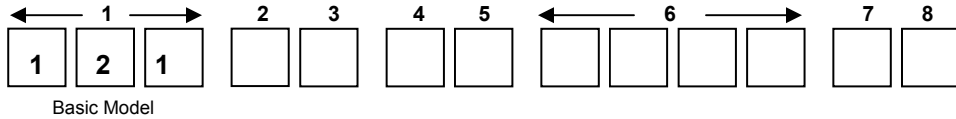
UL Std. No. 50,508 and 1203

Standard Model Specifications: 121-AA-00-O(TT)

3000 PSIG Working Pressure, Aluminum Body, Adjusting Screws & End Plugs, Stainless Steel Piston, Ceramic Magnet, Buna-N Seals, 1/4" FNPT Back Connections, 2-1/2" round dial, Engineered Plastic Case with Shatter Resistant Acrylic Lens, 4-20mA, 8-28 VDC Loop powered Transmitter in NEMA 4X/IP65 Plastic enclosure with terminal strip, & 1/2" FNPT Conduit Connection, Accuracy ±3/2/3% Full Scale (Ascending)

Mid-West Instrument
1-800-648-5778

Range 0-5 PSID to 0-100PSID (0-.35 bar to 0-7.0 bar)



Range: _____



2	Material
A	Aluminum Body / Stainless Steel Piston
S	316 S.S Body / Stainless Steel Piston
Z	Special (Un-coded Options)
3	Dial Size & Type
A	2-1/2" Round Uni-Directional Dial w/Engineered Plastic Dial Case
C	4-1/2" Round Uni-Directional Dial w/Engineered Plastic Dial Case
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	Neoprene
4	Teflon®-A Registered Trademark of Dupont
5	Ethylene Propylene
6	Perfluorelastomers
9	Special (Un-coded Options)
5	Process Connections
0	1/4" FNPT Back Connections (Standard)
2	1/4" FNPT End Connections
3	1/4" FNPT Bottom Connections
4	1/2" FNPT End Connections
6	7/16"-20 Straight Thread "O" Ring Port (Back Connection)
9	Special (Un-coded Options)

Factory preset switches at no charge (Specify Setting)

Standard Model Specifications – continued Model 121



6	Additional Options
O	None
F	Carbon Steel 2" Pipe Mounting Kit
G	Stainless Steel 2" Pipe Mounting Kit
K	1/2" FNPT Stainless Steel Adapter
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
Q	CRN (Canadian Registration Number) (2)
S	Shatter Proof Glass Lens (Available only with 4-1/2" Aluminum Dial Case) (not available with liquid fill)
T	Oxygen Cleaning
U	Stainless Steel Tag with S.S. Wire
W	Wall Mount Kit (Not available with back connections)
Z	Special (Un-coded Options)
7	Electrical Configurations
A	One (1) Reed switch in NEMA 4X/IP65 Plastic enclosure with terminal strip (1/2" FNPT Conduit Connection)
B	Two (2) Reed switches in NEMA 4X/IP65 Plastic enclosure with terminal strip (1/2" FNPT Conduit Connection)
E	One (1) Switch in general purpose enclosure, Division 2 Hazardous Locations (1) (2)
F	Two (2) Switches in general purpose enclosure, Division 2 Hazardous Locations (1) (2)
T	4-20 mA Transmitter in NEMA 4X/IP65 Plastic enclosure with terminal strip (1/2" FNPT Conduit Connection) (3)
W	4-20 mA Transmitter in NEMA 4X/IP65 Plastic enclosure. Division 2 Hazardous Locations with terminal strip (1/2" FNPT Conduit Connection) (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) 5000 PSIG SWP for Stainless Steel: 3000 PSIG SWP for Aluminum
	(3) Contact factory for 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%)
E	SPST 60W, 3.0 Amp, 240 VAC/VDC (Normally Open) (Switch adjustable range of 20-95%)
F	SPST 60W, 3.0 Amp, 240 VAC/VDC (Normally Closed) (Switch adjustable range of 20-95%)
G	SPDT 60W, 3.0 Amp, 240 VAC/VDC (1) Normally Open, (1) Normally Closed (Switch adjustable range of 20-95%)
T	4-20 mA Transmitter (8-28 VDC Loop Power) (±2% accuracy from 20% to 100% of scale. Ascending)
Z	Special (Un-coded Options)

MID-WEST INSTRUMENT has been serving a variety of industries (Power, Chemical, Petro-Chemical, HVAC, Water Filtration etc...) for over 50 years. Over 700,000 piston type units 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 product 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

“Piston Type”

Differential Pressure Gauges Switches & Transmitters

Model 122



A low cost differential pressure gauge for use in measuring the pressure drop across filters, strainers, separators, valves, pumps, chillers, etc., and for local flow indication and control.



Model 122
With Special
3 color dial

- Simple, rugged, compact design.
- Working pressure up to 3,000 PSIG (200 bar)
- Over-range protection to maximum pressure.
- Body material: Aluminum with 316 stainless steel internals.
- Weather-resistant construction standard.
- Shatter resistant acrylic lens.
- Variety of Dial type and Sizes: 2-1/2", 3-1/2" & 4-1/2"
- Available DP Ranges: Inches H₂O, PSID, bar, and Kpa
- 1/4" FNPT End Process Connections
- Panel Mountable, Wall mount available as option
- Temperature Limits: -40°F(-40°C) to +200°F(+93°C)

Due to precision sizing of piston and body bore, leakage across piston will not exceed 15 SCFH air at 100 PSID at ambient temperature.



Model 122 0-30 PSID
2-1/2" Dial w/Maximum
Follower Pointer



Model 122
0-50 PSID
4-1/2" Dial



Model 122
0-15 PSID

An optional maximum indication follower pointer provides automatic indication of maximum differential occurring during a time period or system cycle. Reversed pressure ports are optionally available to facilitate installation and readability depending on which side of a filter, etc., the instrument must be installed.

Model	Body Material	Accuracy	Min. ΔP Range	Max. ΔP Range	MWP PSIG (Bar)	Switch Options
122	Aluminum	±5%	0-5 PSID (0-0.35 bar)	0-110 PSID (0-7 bar)	3,000 (200)	1 & 2 switch Hermetically Sealed

Proof Pressure: Two times rated working pressure at ambient temperature

Standards: Model 122 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

“Piston Type” Differential Pressure Gauge Switch Option Model 122



Model 122 Gauge with switches have one or two Single Pole Single Throw (SPST) or Single Pole Double Throw (SPDT) reed switches with the resistive ratings specified in the table below.

A provision to connect a protective conductor terminal is provided on the Low port end of the gauge body. A 6-32 screw, 18 Awg, green/yellow wire, and a #6 terminal is provided.

Note: Switches can be set below the defined minimum set point how ever the switch may not remain activated at maximum PSID. If the unit is set below the defined minimum set point, the customer should verify that the switch remains activated from the set point to over range of the gauge.

Provide standard protection techniques for the switch contacts for capacitive and inductive loads. Use current limiting techniques near the switch to protect the contacts due to high inrush (i.e.; in line resistor or inductor) for long cable interfaces. Provide clamping devices at or near inductive loads (i.e.; relay).

Maximum wire length between the 3W switch and its load should not exceed 70 – 100 feet or 120 VAC applications. Contact the factory for assistance regarding this condition.

WARNING:

Electrical connections should be performed by qualified personnel and meet representative national electrical code.

WARNING:

Failure to connect to the protective conductor terminal may result in a shock hazard.



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

REED SWITCH RATINGS (Resistive Load)



Type	SPDT	SPST NO	SPDT
Option	A	E	H
Power	3 W	60 W	60 W
Max Current	0.25 Amps	3.0 Amps	1.0 Amps
Max Voltage VAC/VDC	125	240	240
Setting Full Scale	10-100%	25-100%	25-100%
Hysteresis (Max / Norm)	10% / 5% (FS)	15% / 8% (FS)	25% / 13% (FS)
Repeatability	1% F.S.	1% F.S.	1% F.S.
Leads 22 Awg	(3) 24"	(2) 24"	(3) 24"

Mid-West[®] Instrument

Standard Dial Ranges: Model 120, 122, 123, 124

Range Type			
PSID	Kpa	Bar	Dual Scale
0-5 PSID	0-35 Kpa	0-1.0 Bar	0-5 PSID & 0-0.35 Kg/Cm2
0-10 PSID	0-70 Kpa	0-1.6 Bar	0-5 PSID & 0-35 KPA
0-15 PSID	0-100 Kpa	0-2.0 Bar	0-10 PSID & 0-0.7 BAR
0-20 PSID	0-160 Kpa	0-2.5 Bar	0-10 PSID & 0-0.7 KG/CM2
0-25 PSID	0-250 kpa	0-4.0 Bar	0-10 PSID & 0-70 KPA
0-30 PSID	0-400 Kpa	0-6.0 Bar	0-100 PSID & 0-7 BAR
0-50 PSID	0-600 Kpa	0-7.0 Bar	0-100 PSID & 0-7 KG/CM2
0-60 PSID	0-700 Kpa		0-100 PSID & 0-700 KPA
0-75 PSID			0-15 PSID & 0-1 BAR
0-100 PSID			0-15 PSID & 0-1 KG/CM2
0-110 PSID			0-15 PSID & 0-100 KPA
**0-150 PSID			0-20 PSID & 0-1.4 BAR
**0-200 PSID			0-20 PSID & 0-140 KPA
**0-250 PSID			0-25 PSID & 0-1.75 BAR
**0-300 PSID			0-25 PSID & 0-1.75 KG/CM2
**0-400PSID			0-25 PSID & 0-175 KPA
			0-30 PSID & 0-2 BAR
Bi-Directional	Bi-Directional	Bi-Directional	0-30 PSID & 0-2 KG/CM2
5-0-5 PSID	40-0-40 Kpa	0.4-0-0.4 Bar	0-30 PSID & 0-200 KPA
10-0-10 PSID	60-0-60 Kpa	0.6-0-0.6 Bar	0-50 PSID & 0-3.5 BAR
15-0-15 PSID	100-0-100 Kpa	1-0-1 Bar	0-50 PSID & 0-3.5 KG/CM2
20-0-20 PSID	160-0-160 Kpa	1.6-0-1.6 Bar	0-50 PSID & 0-350 KPA
25-0-25 PSID	250-0-250 Kpa	2.5-0-2.5 Bar	0-75 PSID & 0-500 KPA
30-0-30 PSID	400-0-400 Kpa	4-0-4 Bar	
50-0-50 PSID	600-600 Kpa	6-0-6 Bar	
60-0-60 PSID			
100-0-100 PSID			

Bi-Directional ranges available for Model 120 4-1/2" Dials only.

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
120	0-5 PSID (0-0.35 bar)	0-110 PSID (0-7 bar)
122	0-5 PSID (0-0.35 bar)	0-100 PSID (0-7 bar)
**123	0-150 PSID (0-10 bar)	0-400 PSID (0-27.0 bar)
**124	0-5 PSID (0-0.35 bar) 0-150 PSID (0-10 bar)	0-110 PSID (0-7 bar) 0-400 PSID (0-27.0 bar)

Proof Pressure: Two times rated working pressure at ambient temperature

Temperature Limits: -40°F(-40°C) to +200°F(+93°C)

Transmitter Option: -20°F(-28°C) to +150°F(+65°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 120 -124 Series gauges either conform to and/or are designed to the requirements of the following standards:

ASME B1.20.1

ASME B40.100

CSA-C22.2 No. 14.25 and 30

EN-61010-1

NACE MR0175

NEMA Std. No. 250

SAE J514

UL Std. No. 50,508 and 1203

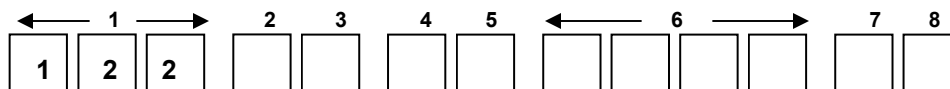
Standard Model Specification: 122-AA-02-00

3000 PSIG Working Pressure, Aluminum Body, Stainless Steel Piston, Ceramic Magnet,
Buna-N Seals, 1/4" FNPT End Connections, 2-1/2" round dial,
Engineered Plastic Case with Shatter Resistant Acrylic Lens,
Accuracy ±5% Full Scale (Ascending)

Mid-West Instrument

1-800-648-5778

Range: 0-5 PSID to 0-100 PSID (0-.35 bar to 0-7.0 bar)



Basic Model

Range: _____



2	Material
A	Aluminum Body / Stainless Steel Piston
Z	Special (<i>Un-coded Options</i>)
3	Dial Size & Type
A	2-1/2" Round Uni-Directional Dial w/Engineered Plastic Dial Case
C	4-1/2" Round Uni-Directional Dial w/Engineered Plastic Dial Case
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 (Standard)
1	Viton®-A Registered Trademark of Dupont
2	Neoprene
4	Teflon®-A Registered Trademark of Dupont
5	Ethylene Propylene
9	Special (<i>Un-coded Options</i>)
5	Process Connections
2	1/4" FNPT End Connections (Standard)
9	Special (<i>Un-coded Options</i>)

Factory preset switches at no charge (Specify Setting)

Standard Model Specifications – continued Model 122



6	Additional Options
O	None
A	Reversed High / Low Process Connections.
E	Two (2) 1/4-20 Mounting Holes
L	Liquid Fill (4-1/2" available with "G" option Aluminum Dial Case only) (not available with shatter proof lens)
M	Maximum Indicator Follower Pointer (Not available with Liquid fill) (not available with shatter proof lens)
S	Shatter Proof Glass Lens (only available with 4-1/2" option "G" Aluminum Dial Case) (not available w/shatter proof lens)
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
Z	Special (<i>Un-coded Options</i>)
Note: Not All Options Available in Combination with other Options	
7	Electrical Configurations (All options CE marked)
M	One (1) Reed Switch (Clamp-On)
N	Two (2) Reed Switches (Clamp-On)
Z	Special (<i>Un-Coded Options</i>)
Note: M & N OPTIONS HAVE 22 AWG LEADS – 24" LENGTHS	
8	Electrical Specifications (For Resistive Loads)
A	SPDT 3W, 0.25 Amp, 125 VAC/VDC (standard) (Switch adjustable range of 10-100%)
E	SPST 60W, 3.0 Amp, 240 VAC/VDC (Normally Open) (Switch adjustable range of 25-100%)
H	SPDT 60W, 1.0 Amp, 240 VAC/VDC (Switch adjustable range of 25-100%)
Z	Special (<i>Un-Coded Options</i>)

MID-WEST INSTRUMENT has been serving a variety of industries (Power, Chemical, Petro-Chemical, HVAC, Water Filtration etc...) for over 50 years. Over 700,000 piston type units 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



“Piston Type” Differential Pressure Gauges Switches & Transmitters Model 123

A low cost differential pressure gauge for use in measuring the pressure drop across filters, strainers, separators, valves, pumps, chillers, etc., and for local flow indication and control.



Model 123
0-400 PSID
2-1/2" Dial

- Simple, rugged, compact design.
- Working pressure up to 5,000 PSIG (340 bar)
- Over-range protection to maximum pressure.
- Body materials: Aluminum or 316L Stainless Steel with 316 stainless steel internals.
- Weather-resistant construction standard.
- Shatter resistant acrylic lens.
- Variety of Dial type and Sizes: 2-1/2", 3-1/2", & 4-1/2"
- Available DP Ranges: Inches H₂O, PSID, bar, and Kpa
- 1/4" FNPT & 1/2" FNPT Process Connections
- Multiple mounting options available
- Temperature Limits: -40°F(-40°C) to +200°F(+93°C)

Due to precision sizing of piston and body bore, leakage across piston will not exceed 15 SCFH air at 100 PSID at ambient temperature.



Model 123 0-400 PSID
Shown with 2 Std. Switches



Model 123
0-300 PSID 4-1/2" Dial

An optional maximum indication follower pointer provides automatic indication of maximum differential occurring during a time period or system cycle. Reversed pressure ports are optionally available to facilitate installation and readability depending on which side of a filter, etc., the instrument must be installed.

Model	Body Material	Accuracy	Min. ΔP Range	Max. ΔP Range	MWP PSIG (Bar)	Switch Options
123	Aluminum & 316L S.S.	±3/2/3%	0-150 PSID (0-10 bar)	0-400 PSID (0-27 bar)	ALM. = 3,000 (200) S.S. = 5,000 (340)	1 & 2 switch Hermetically Sealed

Proof Pressure: Two times rated working pressure at ambient temperature

Standards: Model 123 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

“Piston Type” Differential Pressure Gauge Switch & Transmitter Options Models 120, 122, 123 & 124



The Model 120-124 Series DP gauges are available with one or two hermetically sealed reed switches or 4-20mA transmitter depending on model. (See chart below)

The switches are adjustable (see table for adjustment range) within a defined percentage of the full scale range of the gauge and are available in SPDT and SPST, normally open or normally closed configurations for various load power ratings. The switches can be set to activate or deactivate on rising or falling pressure.

The standard reed switch is enclosed in a weather-resistant plastic housing. Adjustment of the switch setting is made with an external screw adjustment.

The switch functionality will be different for gauges with bi-directional operation for positive and negative delta pressure. For example a SPDT switch with positive .P applied to the gauge, the red wire will be N.O. and the black will be N.C.. For negative .P the functionality will be reversed.

Location for a single SPDT (grommet or conduit) switch will be on the bottom of the gauge body for a normal port and on the top for a reverse port. Locations for a single SPST (grommet or conduit) N.O. or SPST N.C. switch will be on the bottom and top respectively for a normal port gauge. The locations will be reversed for a reverse port gauge.

A non-indicating (no dial) differential pressure switch is also available.

Hazardous Location switches are 3rd Party Certified Class I Div 2 or Class I Div 1 dependant on type of switch. Listings are for the entire design and not just the enclosure. Standard and weatherproof units are CE marked for conformance with the Low Voltage Directive to harmonized standard EN 61010-1.

Transmitters feature Microprocessor based, external zero interface, 8-28 Vdc loop powered, 2 wire interface. Standard output of 4-20mA with a max loop resistance of 1000 Ohms.

Model Type	•120, ^122,+123, +124 SPDT	•120,^122, •123, SPDT	•120, ^122,+123, +124 SPST NO	•120, •123,•124 SPST NC	•120, •123,•124 SPST NO/NC	121, 124 4-20mA
Power	3 W	60 W	60 W	60 W	60 W	4-20 mA Loop Power
Max Current	0.25 Amps	1.0 Amps	3.0 Amps	3.0 Amps	3.0 Amps	8-28 VDC Loop Powered 2-Wire interface
Max Voltage VAC/VDC	125	240	240	240	240	1000 Ohm max Loop resistance at 28 vdc
Setting Full Scale	•10-90%	•25-100%	•25-95%	•25-95%	•25-95%	20-100%
	^10-100%	^25-100%	^25-100%			
	+15-90%		+25-95%			
Hysteresis (Max / Norm)	10% / 5% (FS)	20% / 13% (FS)	15% / 8% (FS)	15% / 8% (FS)	15% / 8% (FS)	N/A
Repeatability	1% F.S.	1% F.S.	1% F.S.	1% F.S.	1% F.S.	1% F.S
Leads 22 Awg	(3) 24"	(3) 24"	(2) 24"	(2) 24"	(2) 24"	N/A



Mid-West[®] Instrument

Standard Dial Ranges: Model 120, 122, 123, 124

Range Type			
PSID	Kpa	Bar	Dual Scale
0-5 PSID	0-35 Kpa	0-1.0 Bar	0-5 PSID & 0-0.35 Kg/Cm2
0-10 PSID	0-70 Kpa	0-1.6 Bar	0-5 PSID & 0-35 KPA
0-15 PSID	0-100 Kpa	0-2.0 Bar	0-10 PSID & 0-0.7 BAR
0-20 PSID	0-160 Kpa	0-2.5 Bar	0-10 PSID & 0-0.7 KG/CM2
0-25 PSID	0-250 kpa	0-4.0 Bar	0-10 PSID & 0-70 KPA
0-30 PSID	0-400 Kpa	0-6.0 Bar	0-100 PSID & 0-7 BAR
0-50 PSID	0-600 Kpa	0-7.0 Bar	0-100 PSID & 0-7 KG/CM2
0-60 PSID	0-700 Kpa		0-100 PSID & 0-700 KPA
0-75 PSID			0-15 PSID & 0-1 BAR
0-100 PSID			0-15 PSID & 0-1 KG/CM2
0-110 PSID			0-15 PSID & 0-100 KPA
**0-150 PSID			0-20 PSID & 0-1.4 BAR
**0-200 PSID			0-20 PSID & 0-140 KPA
**0-250 PSID			0-25 PSID & 0-1.75 BAR
**0-300 PSID			0-25 PSID & 0-1.75 KG/CM2
**0-400PSID			0-25 PSID & 0-175 KPA
			0-30 PSID & 0-2 BAR
Bi-Directional	Bi-Directional	Bi-Directional	0-30 PSID & 0-2 KG/CM2
5-0-5 PSID	40-0-40 Kpa	0.4-0-0.4 Bar	0-30 PSID & 0-200 KPA
10-0-10 PSID	60-0-60 Kpa	0.6-0-0.6 Bar	0-50 PSID & 0-3.5 BAR
15-0-15 PSID	100-0-100 Kpa	1-0-1 Bar	0-50 PSID & 0-3.5 KG/CM2
20-0-20 PSID	160-0-160 Kpa	1.6-0-1.6 Bar	0-50 PSID & 0-350 KPA
25-0-25 PSID	250-0-250 Kpa	2.5-0-2.5 Bar	0-75 PSID & 0-500 KPA
30-0-30 PSID	400-0-400 Kpa	4-0-4 Bar	
50-0-50 PSID	600-600 Kpa	6-0-6 Bar	
60-0-60 PSID			
100-0-100 PSID			

Bi-Directional ranges available for Model 120 4-1/2" Dials only.

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
120	0-5 PSID (0-0.35 bar)	0-110 PSID (0-7 bar)
122	0-5 PSID (0-0.35 bar)	0-100 PSID (0-7 bar)
**123	0-150 PSID (0-10 bar)	0-400 PSID (0-27.0 bar)
**124	0-5 PSID (0-0.35 bar) 0-150 PSID (0-10 bar)	0-110 PSID (0-7 bar) 0-400 PSID (0-27.0 bar)

Proof Pressure: Two times rated working pressure at ambient temperature

Temperature Limits: -40°F(-40°C) to +200°F(+93°C)

Transmitter Option: -20°F(-28°C) to +150°F(+65°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 120 -124 Series gauges either conform to and/or are designed to the requirements of the following standards:

ASME B1.20.1

ASME B40.100

CSA-C22.2 No. 14.25 and 30

EN-61010-1

NACE MR0175

NEMA Std. No. 250

SAE J514

UL Std. No. 50,508 and 1203

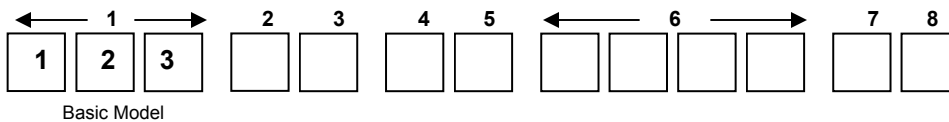
Standard Model Specification: 123-AA-02-00

3000 PSIG Working Pressure, Aluminum Body & End Plugs, Stainless Steel Piston,
Ceramic Magnet, Buna-N Seals, 1/4" FNPT End Connections, 2-1/2" round dial,
Engineered Plastic Case with Shatter Resistant Acrylic Lens,
Accuracy ±3/2/3% Full Scale (Ascending)

Mid-West Instrument

1-800-648-5778

Range: 0-150 PSID to 0-400 PSID (0-10.3 bar to 0-27.5 bar)



Range: _____



2	Material
A	Aluminum Body / Stainless Steel Piston
S	316 S.S Body / Stainless Steel Piston
Z	Special (<i>Un-coded Options</i>)
3	Dial Size & Type
A	2-1/2" Round Uni-Directional Dial w/Engineered Plastic Dial Case
C	4-1/2" Round Uni-Directional Dial w/Engineered Plastic 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 (Standard)
1	Viton®-A Registered Trademark of Dupont
2	Neoprene
5	Ethylene Propylene
9	Special (<i>Un-coded Options</i>)
5	Process Connections
2	1/4" FNPT End Connections (Standard)
4	1/2" FNPT End Connections
9	Special (<i>Un-coded Options</i>)

Factory preset switches at no charge (Specify Setting)

Standard Model Specifications – continued Model 123

6	Additional Options
O	None
A	Reversed High / Low Process Connections.
C	Mounting Holes in Gauge Body for Field Mounting Electrical Configurations Options A & B
D	Mounting Holes in Gauge Body for Field Mounting Electrical Configurations Options L & M
E	Two (2) 1/4-20 Mounting Holes (not available with C, D, E or F electrical switch options)
F	Carbon Steel 2" Pipe Mounting Kit (not available with C, D, E or F electrical switch options)
G	Stainless Steel 2" Pipe Mounting Kit (not available with C, D, E or F electrical switch options)
L	Liquid Fill (4-1/2" available with "G" option Aluminum Dial Case only) (not available with shatter proof lens)
M	Maximum Indicator Follower Pointer (Not available with Liquid fill) (not available with shatter proof lens)
N	NACE
S	Shatter Proof Glass Lens (only available with 4-1/2" option "G" Aluminum Dial Case) (not available w/shatter proof lens)
T	Oxygen Cleaning
U	Stainless Steel Tag with S.S. Wire
V	Stainless Steel Tag and S.S. Screw
W	Wall Mount Kit (Not available with E&F switch option)
Z	Special (<i>Un-coded Options</i>)
NOTE: Not All Options Available in Combination with other Options	
7	Electrical Configurations (CE marked, except E, F, J & K)
A	One (1) Switch in standard enclosure with grommet Wire Seal
B	Two (2) Switch in standard enclosures with grommet Wire Seal
C	One (1) Switch in standard enclosure with 1/4" FNPT electrical connection NEMA 4X
D	Two (2) Switch in standard enclosures with 1/4" FNPT electrical connection NEMA 4X
E	One (1) Switch in general purpose enclosure, Division 2 Hazardous Locations (1)
F	Two (2) Switches in general purpose enclosure, Division 2 Hazardous Locations (1)
L	One (1) Switch in standard enclosure with plug-in connector (DIN 43650/IP65-PG11)
M	Two (2) Switch in standard enclosures with plug-in connector (DIN 43650/IP65-PG11)
Z	Special (<i>Un-coded Options</i>)
(1) 3000 PSIG SWP for Aluminum	
8	Electrical Specifications (For Resistive Loads)
A	SPDT 3W, 0.25 Amp, 125 VAC/VDC (standard) (Switch adjustable range of 15-90%)
E	SPST 60W, 3.0 Amp, 240 VAC/VDC (Normally Open) (Switch adjustable range of 25-95%)
F	SPST 60W, 3.0 Amp, 240 VAC/VDC (Normally Closed) (Switch adjustable range of 25-95%)
G	SPST 60W, 3.0 Amp, 240 VAC/VDC (1) Normally Open, (1) Normally Closed (Switch adjustable range of 25-95%)
H	SPDT 60W, 1.0 Amp, 240 VAC/VDC (Switch adjustable range of 25-95%)
Z	Special (<i>Un-coded Options</i>)

MID-WEST INSTRUMENT has been serving a variety of industries (Power, Chemical, Petro-Chemical, HVAC, Water Filtration etc...) for over 50 years. Over 700,000 piston type units 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

“Piston Type”

Differential Pressure Gauges Switches & Transmitters

Model 124



A low cost differential pressure gauge for use in measuring the pressure drop across filters, strainers, separators, valves, pumps, chillers, etc., and for local flow indication and control.



Model 124
0-150 PSID
2-1/2" Dial

- Simple, rugged, compact design.
- Working pressure up to 10,000 PSIG (690 bar)
- Over-range protection to maximum pressure.
- Body materials: 316L Stainless Steel with 316 stainless steel internals.
- Weather-resistant construction standard.
- Shatter resistant acrylic lens.
- Variety of Dial type and Sizes: 2-1/2", 3-1/2" & 4-1/2"
- Available DP Ranges: Inches H₂O, PSID, bar, and Kpa
- 1/4" FNPT & 1/2" FNPT Process Connections
- Multiple mounting options available
- Temperature Limits: -40°F(-40°C) to +200°F(+93°C)
- Transmitter Option: -20°F(-28°C) to +150°F(+65°C)

Due to precision sizing of piston and body bore, leakage across piston will not exceed 15 SCFH air at 100 PSID at ambient temperature.



Model 124
0-75 PSID Shown with
End Connections & Transmitter



Model 124
0-300 PSID 4-1/2" Dial

An optional maximum indication follower pointer provides automatic indication of maximum differential occurring during a time period or system cycle. Reversed pressure ports are optionally available to facilitate installation and readability depending on which side of a filter, etc., the instrument must be installed.

Model	Body Material	Accuracy	Min. ΔP Range	Max. ΔP Range	MWP PSIG (Bar)	Switch Options
124	316L Stainless Steel	±3/2/3%	0-5 PSID (0-0.35 bar) 0-150 PSID (0-10.0 bar)	0-110 (0-7.0 bar) 0-400 (0-27.0 bar)	10,000 (690)	1 & 2 switch Hermetically Sealed or 4-20 mA Transmitter

Proof Pressure: Two times rated working pressure at ambient temperature

Standards: Model 124 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 |

“Piston Type” Differential Pressure Gauge Switch & Transmitter Options Models 120, 122, 123 & 124



The Model 120-124 Series DP gauges are available with one or two hermetically sealed reed switches or 4-20mA transmitter depending on model. (See chart below)

The switches are adjustable (see table for adjustment range) within a defined percentage of the full scale range of the gauge and are available in SPDT and SPST, normally open or normally closed configurations for various load power ratings. The switches can be set to activate or deactivate on rising or falling pressure.

The standard reed switch is enclosed in a weather-resistant plastic housing. Adjustment of the switch setting is made with an external screw adjustment.

The switch functionality will be different for gauges with bi-directional operation for positive and negative delta pressure. For example a SPDT switch with positive .P applied to the gauge, the red wire will be N.O. and the black will be N.C.. For negative .P the functionality will be reversed.

Location for a single SPDT (grommet or conduit) switch will be on the bottom of the gauge body for a normal port and on the top for a reverse port. Locations for a single SPST (grommet or conduit) N.O. or SPST N.C. switch will be on the bottom and top respectively for a normal port gauge. The locations will be reversed for a reverse port gauge.

A non-indicating (no dial) differential pressure switch is also available.

Hazardous Location switches are 3rd Party Certified Class I Div 2 or Class I Div 1 dependant on type of switch. Listings are for the entire design and not just the enclosure. Standard and weatherproof units are CE marked for conformance with the Low Voltage Directive to harmonized standard EN 61010-1.

Transmitters feature Microprocessor based, external zero interface, 8-28 Vdc loop powered, 2 wire interface. Standard output of 4-20mA with a max loop resistance of 1000 Ohms.

Model Type	•120, ^122,+123, +124 SPDT	•120,^122, •123, SPDT	•120, ^122,+123, +124 SPST NO	•120, •123,•124 SPST NC	•120, •123,•124 SPST NO/NC	121, 124 4-20mA
Power	3 W	60 W	60 W	60 W	60 W	4-20 mA Loop Power
Max Current	0.25 Amps	1.0 Amps	3.0 Amps	3.0 Amps	3.0 Amps	8-28 VDC Loop Powered 2-Wire interface
Max Voltage VAC/VDC	125	240	240	240	240	1000 Ohm max Loop resistance at 28 vdc
Setting Full Scale	•10-90%	•25-100%	•25-95%	•25-95%	•25-95%	20-100%
	^10-100%	^25-100%	^25-100%			
	+15-90%		+25-95%			
Hysteresis (Max / Norm)	10% / 5% (FS)	20% / 13% (FS)	15% / 8% (FS)	15% / 8% (FS)	15% / 8% (FS)	N/A
Repeatability	1% F.S.	1% F.S.	1% F.S.	1% F.S.	1% F.S.	1% F.S.
Leads 22 Awg	(3) 24"	(3) 24"	(2) 24"	(2) 24"	(2) 24"	N/A



Mid-West[®] Instrument

Standard Dial Ranges: Model 120, 122, 123, 124

Range Type			
PSID	Kpa	Bar	Dual Scale
0-5 PSID	0-35 Kpa	0-1.0 Bar	0-5 PSID & 0-0.35 Kg/Cm2
0-10 PSID	0-70 Kpa	0-1.6 Bar	0-5 PSID & 0-35 KPA
0-15 PSID	0-100 Kpa	0-2.0 Bar	0-10 PSID & 0-0.7 BAR
0-20 PSID	0-160 Kpa	0-2.5 Bar	0-10 PSID & 0-0.7 KG/CM2
0-25 PSID	0-250 kpa	0-4.0 Bar	0-10 PSID & 0-70 KPA
0-30 PSID	0-400 Kpa	0-6.0 Bar	0-100 PSID & 0-7 BAR
0-50 PSID	0-600 Kpa	0-7.0 Bar	0-100 PSID & 0-7 KG/CM2
0-60 PSID	0-700 Kpa		0-100 PSID & 0-700 KPA
0-75 PSID			0-15 PSID & 0-1 BAR
0-100 PSID			0-15 PSID & 0-1 KG/CM2
0-110 PSID			0-15 PSID & 0-100 KPA
**0-150 PSID			0-20 PSID & 0-1.4 BAR
**0-200 PSID			0-20 PSID & 0-140 KPA
**0-250 PSID			0-25 PSID & 0-1.75 BAR
**0-300 PSID			0-25 PSID & 0-1.75 KG/CM2
**0-400PSID			0-25 PSID & 0-175 KPA
			0-30 PSID & 0-2 BAR
Bi-Directional	Bi-Directional	Bi-Directional	0-30 PSID & 0-2 KG/CM2
5-0-5 PSID	40-0-40 Kpa	0.4-0-0.4 Bar	0-30 PSID & 0-200 KPA
10-0-10 PSID	60-0-60 Kpa	0.6-0-0.6 Bar	0-50 PSID & 0-3.5 BAR
15-0-15 PSID	100-0-100 Kpa	1-0-1 Bar	0-50 PSID & 0-3.5 KG/CM2
20-0-20 PSID	160-0-160 Kpa	1.6-0-1.6 Bar	0-50 PSID & 0-350 KPA
25-0-25 PSID	250-0-250 Kpa	2.5-0-2.5 Bar	0-75 PSID & 0-500 KPA
30-0-30 PSID	400-0-400 Kpa	4-0-4 Bar	
50-0-50 PSID	600-600 Kpa	6-0-6 Bar	
60-0-60 PSID			
100-0-100 PSID			

Bi-Directional ranges available for Model 120 4-1/2" Dials only.

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
120	0-5 PSID (0-0.35 bar)	0-110 PSID (0-7 bar)
122	0-5 PSID (0-0.35 bar)	0-100 PSID (0-7 bar)
**123	0-150 PSID (0-10 bar)	0-400 PSID (0-27.0 bar)
**124	0-5 PSID (0-0.35 bar) 0-150 PSID (0-10 bar)	0-110 PSID (0-7 bar) 0-400 PSID (0-27.0 bar)

Proof Pressure: Two times rated working pressure at ambient temperature

Temperature Limits: -40°F(-40°C) to +200°F(+93°C)

Transmitter Option: -20°F(-28°C) to +150°F(+65°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 120 -124 Series gauges either conform to and/or are designed to the requirements of the following standards:

ASME B1.20.1

ASME B40.100

CSA-C22.2 No. 14.25 and 30

EN-61010-1

NACE MR0175

NEMA Std. No. 250

SAE J514

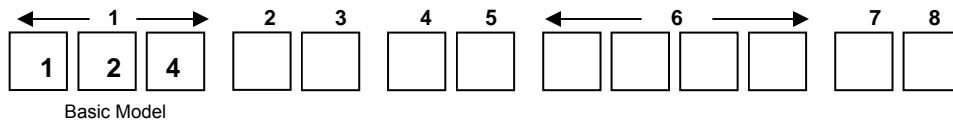
UL Std. No. 50,508 and 1203

Standard Model Specification: 124-SA-00-00

10,000 PSIG Working Pressure, 316L Stainless Steel Body, Stainless Steel Piston,
Ceramic Magnet, Buna-N Seals, 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 Range: 0-5 PSID to 0-110 PSID (0-.35 bar to 0-7.0 bar)

1-800-648-5778 Range: 0-150 PSID to 0-400 PSID (0-10.3 bar to 0-27.5 bar) (End connections only)



Range: _____



2	Material
S	316 S.S Body / Stainless Steel Piston
Z	Special (<i>Un-coded Options</i>)
3	Dial Size & Type
A	2-1/2" Round Uni-Directional Dial w/Engineered Plastic Dial Case
C	4-1/2" Round Uni-Directional Dial w/Engineered Plastic Dial Case
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 (Standard)
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 (Standard)
2	1/4" FNPT End Connections
4	1/2" FNPT End Connections
9	Special (<i>Un-coded Options</i>)

Factory preset switches at no charge (Specify Setting)

Standard Model Specifications – continued Model 124

6	Additional Options
O	NONE
A	Reversed High / Low Process Connections (Not available with switch or transmitter)
E	Two (2) 1/4-20 Mounting Holes
F	Carbon Steel 2" Pipe Mounting Kit
G	Stainless Steel 2" Pipe Mounting Kit
K	1/2" FNPT S.S. Adapter (Back Connections Only)
L	Liquid Fill (4-1/2" available with "G" option Aluminum Dial Case only) (not available with shatter proof lens)
M	Maximum Indicator Follower Pointer (Not available with Liquid fill) (not available with shatter proof lens)
N	NACE
S	Shatter Proof Glass Lens (only available with 4-1/2" option "G" Aluminum Dial Case) (not available w/shatter proof lens)
T	Oxygen Cleaning
U	Stainless Steel Tag with S.S. Wire
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 (CE marked, except E, F)
O	NONE
C	One (1) Reed switch in NEMA 4X/IP65 Plastic enclosure with terminal strip (1/2" FNPT Conduit Connection)
D	Two (2) Reed switches in NEMA 4X/IP65 Plastic enclosure with terminal strip (1/2" FNPT Conduit Connection)
T	4-20 mA Transmitter in NEMA 4X/IP65 Plastic enclosure with terminal strip (1/2" FNPT Conduit Connection) Temperature Limit: -20°F(-28°C) to +150°F(+65°C)
Z	Special (Un-coded Options)
8	Electrical Specifications (For Resistive Loads)
A	SPDT 3W, 0.25 Amp, 125 VAC/VDC (standard) (Switch adjustable range of 15-90%)
E	SPST 60W, 3.0 Amp, 240 VAC/VDC (Normally Open) (Switch adjustable range of 25-95%)
F	SPST 60W, 3.0 Amp, 240 VAC/VDC (Normally Closed) (Switch adjustable range of 25-95%)
G	SPST 60W, 3.0 Amp, 240 VAC/VDC (1) Normally Open, (1) Normally Closed (Switch adjustable range of 25-95%)
T	4-20 mA Transmitter (8-28 VDC Loop Power) (±2% accuracy from 20% to 100% of scale. Ascending)
Z	Special (Un-coded Options)

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Mid-West[®] Instrument

“Piston Type” Model 220

“Hazardous Locations”

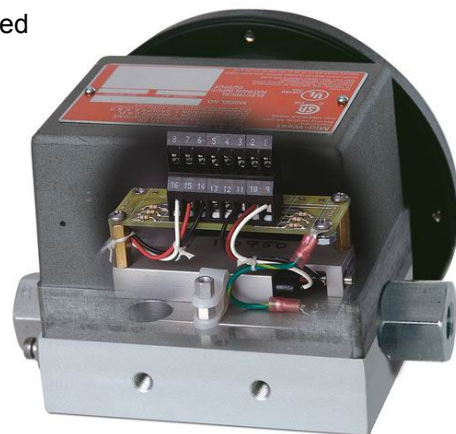


Indicating / Non-Indicating Differential Pressure Switch or Transmitter



- Low cost piston type differential pressure switch for use in measuring or controlling the pressure drop cross filters, strainers, separators, valves and pumps.
- Simple rugged compact design
- Working Pressure 4,000 PSIG (275 bar)
- Over-range protection to maximum pressure.
- 316 S.S. 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
- ½” FNPT conduit cable interface with internal terminal strip
- 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 (3000 PSIG SWP)
 - Division 2 Units are NEMA 4X



Model	Body Material	Accuracy	Min. ΔP Range	Max. ΔP Range	MWP PSIG (Bar)	Switch Options
220	316L S.S.	±2%	0-5 PSID (0-0.35 bar)	0-100 PSID (0-7 bar)	**4,000 (275)	1 or 2 switches or 4-20mA Transmitter

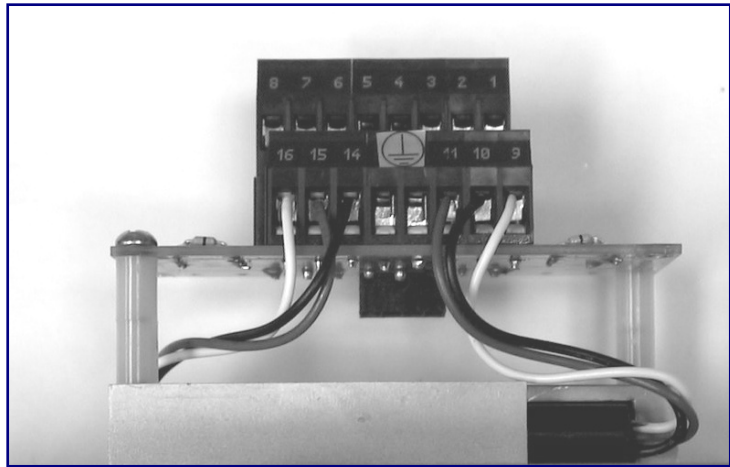
**3,000 PSIG SWP for ATEX RATED UNITS

NOTE: Due to precision sizing of the piston and the body, bore leakage across the piston will not exceed 15 SCFH air at 100 PSID at ambient conditions. **This gauge should not be used in Hazardous Environments with low process port open to atmosphere.**

“Piston Type” Differential Pressure Gauge Switch Options Model 220

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, F or G	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 90%	25% to 90%	10% to 90%	15% to 90%
Hysteresis Full Scale	20% / 9% (Max / Nom)	20% / 18% (Max / Nom)	10% / 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.

“Piston Type” Differential Pressure Gauge Transmitter Option Model 220

Model 220 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 (3000 PSIG SWP). Each transmitter is individually calibrated to the gauge using an 11 point calibration linearization technique.

TRANSMITTER SPECIFICATIONS				
Transmitter Specifications: Comments:				
Differential Pressure Range	0-5 PSID to 0-100 PSID			
Leakage	15SCFH @ 100 PSID Max Hi to Lo		Not recommended for use with Lo port left open to atmosphere	
Pressure (Ratings)				
Max Working	3000 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: 8,000 PSI. (6,000 PSI for Transmitter)

TEMPERATURE LIMITS: -40°F (-40°C) to +185°F (+85°C)– For electrical Input Options A in combination with electrical output options A, E, F, G & 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 & EN13463-1
UL Std. No. 50, 508, 698, and 1203	IEC 60079-31

Mid-West[®] Instrument

Standard Dial Ranges: Model 220

Range Type			
PSID	Kpa	Bar	Dual Scale
0-5 PSID	0-35 Kpa	0-1.0 Bar	0-5 PSID & 0-0.35 Kg/Cm2
0-10 PSID	0-70 Kpa	0-1.6 Bar	0-5 PSID & 0-35 KPA
0-15 PSID	0-100 Kpa	0-2.0 Bar	0-10 PSID & 0-0.7 BAR
0-20 PSID	0-160 Kpa	0-2.5 Bar	0-10 PSID & 0-0.7 KG/CM2
0-25 PSID	0-250 kpa	0-4.0 Bar	0-10 PSID & 0-70 KPA
0-30 PSID	0-400 Kpa	0-6.0 Bar	0-100 PSID & 0-7 BAR
0-50 PSID	0-600 Kpa	0-7.0 Bar	0-100 PSID & 0-7 KG/CM2
0-60 PSID	0-700 Kpa		0-100 PSID & 0-700 KPA
0-75 PSID			0-15 PSID & 0-1 BAR
0-100 PSID			0-15 PSID & 0-1 KG/CM2
			0-15 PSID & 0-100 KPA
			0-20 PSID & 0-1.4 BAR
			0-20 PSID & 0-140 KPA
			0-25 PSID & 0-1.75 BAR
			0-25 PSID & 0-1.75 KG/CM2
			0-25 PSID & 0-175 KPA
			0-30 PSID & 0-2 BAR
			0-30 PSID & 0-2 KG/CM2
			0-30 PSID & 0-200 KPA
			0-50 PSID & 0-3.5 BAR
			0-50 PSID & 0-3.5 KG/CM2
			0-50 PSID & 0-350 KPA
			0-75 PSID & 0-500 KPA

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
220	0-5 PSID (0-0.35 bar)	0-100 PSID (0-7 bar)

PROOF PRESSURE: 16,000 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, F, G & 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:

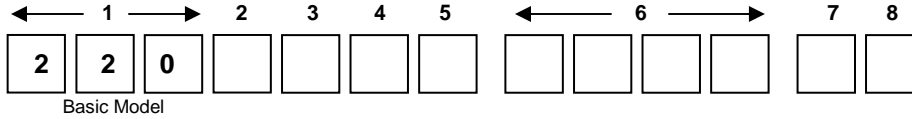
ASME B1.20.1	NEMA Std. No. 250
ASME B40.100	SAE J514
CSA-C22.2 No. 14, 25 and 30	EN60079-0, EN60079-1 & EN61241-0
UL Std. No. 50, 508, 698, and 1203	EN61241-1, EN13463-1

Standard Model Specifications: 220SC02-O-JAA

4000 PSIG Working Pressure, 316 S.S. 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
1-800-648-5778

Complete assembly 3rd Party Certified
Range 0-5 PSID to 0-100PSID (0-.35 bar to 0-7.0 bar)



Range: _____



2	Material
S	316/316L S.S Wetted Pressure Containing Body Assembly Wetted Internals: Stainless Steel Piston & Ceramic moving components
Z	Special (<i>Un-coded Options</i>)
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
Z	Special (<i>Un-coded Options</i>)
4	Seal Materials
0	Buna-N (Standard)
1	Viton®-A Registered Trademark of Dupont
2	Neoprene
5	Ethylene Propylene
6	Perfluorelastomers
9	Special (<i>Un-coded Options</i>)
5	Process Connections
2	1/4" FNPT End Connections (Standard)
7	1/2" FNPT End Connections
9	Special (<i>Un-coded Options</i>)
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. Screws
Z	Special (<i>Un-Coded Options</i>)

NOTE: Not All Options Available in Combination with other Options

Standard Model Specifications – continued Model 220

7	"MODEL 220" ELECTRICAL CONFIGURATIONS (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/EEExd (Explosion Proof Enclosure) (9) (Temperature Limits -20°F to +150°F)
Z	Special (10)
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 15-90% of full scale ascending)
E	SPST, 60W, 3.0 Amp., 240 VAC/VDC (Normally Open) (Switch Adjustable 15-90% of full scale ascending)
F	SPST, 60W, 3.0 Amp., 240 VAC/VDC (Normally Closed) (Switch Adjustable 15-90% of full scale ascending)
G	SPST, 60W, 3.0 Amp., 240 VAC/VDC One (1) Normally Open, One (1) Normally Closed (B, K, & S Electrical Configurations only) (Switch Adjustable 15-90% of full scale ascending)
H	SPDT, 60W, 1.0 Amp., 240 VAC/VDC (Switch Adjustable 25-90% of full scale ascending)
R	DPDT, Relay, 10A @ 30 VDC, 120/240 VAC (Switch Adjustable 15-90% of full scale ascending) (8)
T	4-20 mA Transmitter in general purpose enclosure, 3rd Party Certified Division 2 Hazardous Locations with Terminal Strip / 1/2" FNPT Conduit Connection (±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	

MID-WEST INSTRUMENT has been serving a variety of industries (Power, Chemical, Petro-Chemical, HVAC, Water Filtration etc...) for over 50 years. Over 700,000 piston type units 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...