

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.
- -40°F to + 200°F (Switch Options); -20° F TO + 150° F (Transmitter Option)
- Housing 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 lens.
- 2 ½”, 3 ½” and 4 ½” dial assemblies.
- Available DP Ranges: Inches H2O, PSI, bar, and kPa
- Gauge accuracy ± 2% full scale (ascending)*.
- Transmitter accuracy ± 2% full scale (from 20% to 100% of scale, ascending)

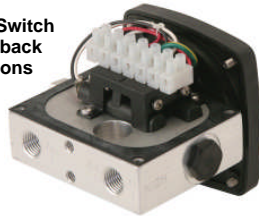


2 ½” Dial – Front View
¼” FNPT end connections

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



Model 121 Switch
¼” FNPT back
connections



4-1/2” Dia.
Transmitter
¼” FNPT back
connections



Model	Body Material	Gauge Accuracy	Min. ΔP Range	Max. ΔP Range	MWP PSIG (Bar)	Switch Options
121	Aluminum & 316L S.S.	±2%	0-5 PSID (0-0.35 bar)	0-100 PSID (0-7 bar)	3000 (200) 6000 (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, IP 65)

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.)

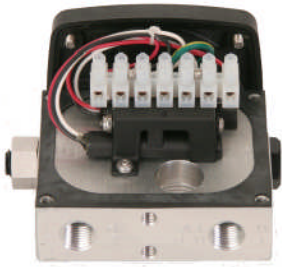
Interface:

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

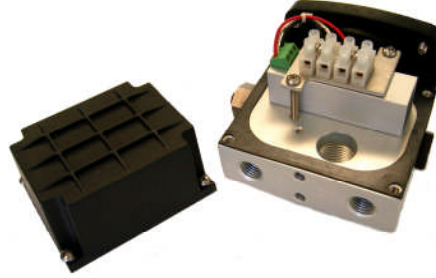
Environmental: Weatherproof

Rating: (NEMA 4X, IP 65)

“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.

Electrical Configurations (CE marked, except E, F, J & K)	
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 & IP 65 Plastic enclosure with terminal strip (1/2" FNPT Conduit Connection)
W	4-20 mA Transmitter in NEMA 4X / IP 65 Plastic enclosure. Division 2 Hazardous Locations with terminal strip (1/2" FNPT Conduit Connection) (1) (2)
Z	Special (<i>Un-coded Options</i>)
(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 PSI (345 bar) SWP for Stainless Steel and 3000 PSI (200 bar) SWP for Aluminum	
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	SPST 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) ($\pm 2\%$ accuracy from 20% to 100% of scale. Ascending)
Z	Special (<i>Un-coded Options</i>)

Factory preset switches at no charge (Specify Setting)

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	0-2.5 Bar
0-20 PSID	0-400 Kpa	0-4.0 Bar
0-25 PSID	0-600 Kpa	0-6.0 Bar
0-30 PSID	0-700 Kpa	0-7.0 Bar
0-50 PSID		
0-60 PSID		
0-75 PSID		
0-100 PSID		
0-110 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: -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

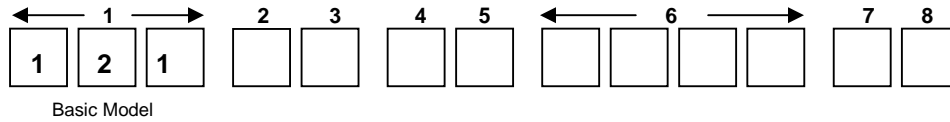
Standards: Model 121 gauge either conform to and/or are designed to the requirements of the following standards:

- | | |
|----------------------------|-----------------------------|
| 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 |

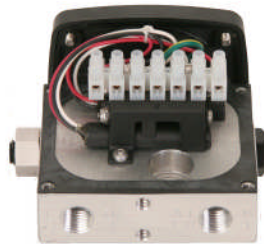
Standard Model Specifications: 121-AA-00-O(TT)

3000 PSI (200 bar) 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 ±2% Full Scale (Ascending)

Range 0-5 PSI to 0-100 PSI (0 - 350 mbar to 0 - 7.0 bar)



Range: _____



2	Material
A	Aluminum Body / Stainless Steel Piston (MWP 3000 PSI (200 bar)
S	Stainless Steel (316 SS) Body / Stainless Steel Piston (MWP 6000 PSI (400 bar)
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 (<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>)
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)
7	1/2" FNPT Stainless Steel Adapters / Back Connection
8	1/2" FNPT Stainless Steel Adapters / Bottom Connection
9	Special (<i>Un-coded Options</i>)

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
L	Liquid Fill (2-1/2" & 4-1/2" Dials Only) Not Available with Maximum Follower Pointer
M	Maximum Indicator Follower Pointer
N	NACE Certificate)
Q	CRN (Canadian Registration Number)
S	Shatter Proof Glass Lens (Available only with 4-1/2" metal front)
T	Oxygen Cleaning
U	Stainless Steel Tag mounted with S.S. Wire
W	Wall Mount Kit (Not Available with Back Connections)
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) 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)
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)
Z	Special (<i>Un-coded Options</i>)
(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	
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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	SPST 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 (<i>Un-coded Options</i>)

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