

Model 120 – Differential Pressure Gauge *Piston Type*

*Versatile Industrial DP Monitoring
± 3/ 2/ 3% Full Scale Accuracy*



Model 120 – Differential Pressure Gauge Piston Type

The Mid-West[®] Instrument Model 120 is a rugged, compact differential pressure instrument designed for reliable monitoring of medium differential pressures. Its piston-type sensing element provides dependable local indication for a wide range of industrial applications, with optional electrical switches available for alarm, control, and remote indication.

With differential pressure ranges from **0–5 PSID through 0–110 PSID**, working pressures up to **6,000 PSIG**, multiple dial sizes, material options, mounting configurations, and electrical options, Model 120 can be configured for a broad range of industrial requirements.

Why Choose Model 120?

- **Versatile Piston-Type Design** — Suitable for filters, strainers, pumps, chillers, separators, valves, and other industrial DP monitoring applications.
- **High Working Pressure Capability** — Available for working pressures up to 6,000 PSIG, depending on body material and configuration.
- **Electrical Switch Options** — Available with one or two independently adjustable switches for alarms and process control.
- **Bi-Directional Over-Range Protection** — Provides protection from excessive differential pressure in either direction.
- **Multiple Configuration Options** — Available in several dial sizes, materials, pressure ranges, process connections, mounting configurations, and electrical interfaces.

Applications

- Filter Monitoring
- Strainer Monitoring
- Pump Performance Monitoring
- Heat Exchanger Pressure Drop Monitoring
- Local Flow Indication and Control
- Compressed Air Systems
- Refrigeration Systems
- Hydraulic Systems
- Chillers
- Separators
- Valves



Key Features & Benefits

Simple, Rugged Piston-Type Design

- The Model 120 senses differential pressure through the movement of a floating piston magnet assembly against a calibrated spring. A magnetically coupled pointer follows the piston movement and provides local indication on the dial.

Wide Range of Industrial Configurations

- Available with:
 - 2½", 3½", 4½", and 6" dial sizes
 - Uni-directional and bi-directional dial ranges.
 - Multiple body and wetted material options.
 - Multiple process connection sizes and locations.
 - Panel, wall, and pipe mounting options.
 - Optional electrical switches, maximum follower pointer, liquid fill, oxygen cleaning.
 - NACE and CRN option.

Bi-Directional Over-Range Protection

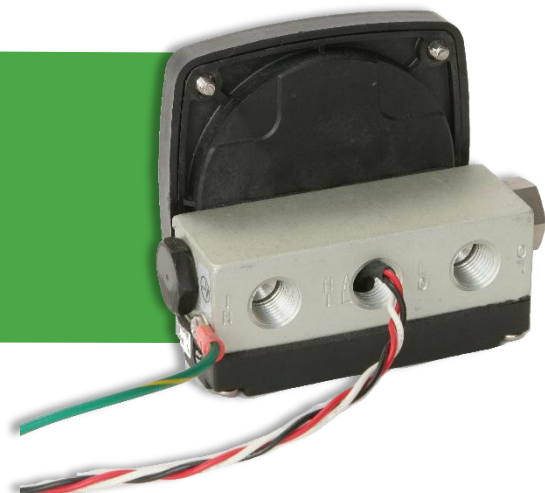
- The Model 120 provides over-range protection to the rated working pressure of the housing in either direction, helping protect the instrument from excessive differential pressure conditions.

Weather and Corrosion Resistant Construction

- Standard features include weather-resistant construction and a shatter-resistant lens. The product is designed for NEMA Type 4X weather protection.

Technical Specifications**Specification****Details**

Accuracy	±3/2/3% Full Scale Ascending (ASME B40.1 Grade B)
Differential Pressure Ranges	0–5 PSID through 0–110 PSID
Working Pressure	Up to 6,000 PSIG, depending on body material and configuration
Body Materials	Aluminum or 316/316L Stainless Steel standard; Aluminum Bronze and Monel available
Wetted Internals	Configuration dependent; available materials include 316 Stainless Steel, Ceramic Magnet, Aluminum Bronze, and Monel
Dial Case Material	Engineered Thermoplastic (2 ½", 4 ½", 6") or Aluminum (3 ½", 4 ½")
Dial Sizes	2½", 3½", 4½", and 6"
Dial Enclosure Rating	Designed and tested to NEMA Type 4X
Dial Types	Uni-directional and bi-directional
O-Ring Materials	Buna-N, Viton®, Neoprene, Teflon®, Ethylene Propylene; Perfluoroelastomer optional
Lens	Shatter-resistant acrylic standard. Shatterproof glass optional.
Operating Temperature	–40°F to +200°F (–40°C to +93°C)
Process Connections	Multiple sizes and locations available; ¼" FNPT standard High port on right when facing dial.
Proof Pressure	2× rated working pressure at ambient temperature
Process bypass	A maximum leakage of 32 SCFH of air at 100 PSID can occur.



The Model 120 can be configured with **one or two hermetically sealed reed switches** for alarm, control, or remote indication. Switches are mechanically adjustable within defined portions of the instrument's full-scale range.

Switches can be configured to activate or deactivate on rising or falling differential pressure, depending on the switch type and application.

Simple External Switch Adjustment: Switch setpoint is easily adjusted from outside the enclosure with a single adjustment screw—no cover removal or switch repositioning required. Switch setpoints may also be factory preset when specified by the customer.

Feature

Description

Switch Quantity	One or two switches
Adjustment	Field adjustable within defined adjustment ranges
Independent Adjustment	Available on two-switch configurations
Power Requirement	No external power required for switch operation
Switch Types	SPDT and SPST configurations available
Repeatability	1% Full Scale
Switch Direction	Can be configured for rising or falling differential pressure
Factory Preset	Available when switch setpoints are specified
Electrical Interfaces	Flying leads, conduit configurations, DIN connector, and hazardous-location options

Enclosure with grommet



NEMA 4X enclosure w/ 1/4" npt



Div 2 hazardous location



Electrical Specifications

Available Switch Configurations

The Model 120 is available with several hermetically sealed reed switch configurations:

Contact Type	SPDT	SPDT	SPST N.O.	SPST N.C.
Model Spec. Option	A	H	E,G	F,G
Max Power (W/VA)	3 W	60 W	60 W	60 W
Max Current (Amps)	0.25 A	1.0 A	3.0 A	3.0 A
Max Voltage (Vac/Vdc)	120	240	240	240
Adjustable Range (% full scale)	10-90%	25-90%	25-90%	25-90%
Hysteresis (Max/Nom) (% full scale)	10% / 5%	20% / 13%	15% / 8%	15% / 8%
Switch Repeatability (% full scale)	1%	1%	1%	1%

Typical Lead Configuration – 24 inch leads. 22–24 AWG depending switch configuration.

External Switch Setpoint Adjustment– The switch setpoint can be adjusted externally using a single adjustment screw, allowing quick setpoint changes without opening the switch enclosure or repositioning the switch.

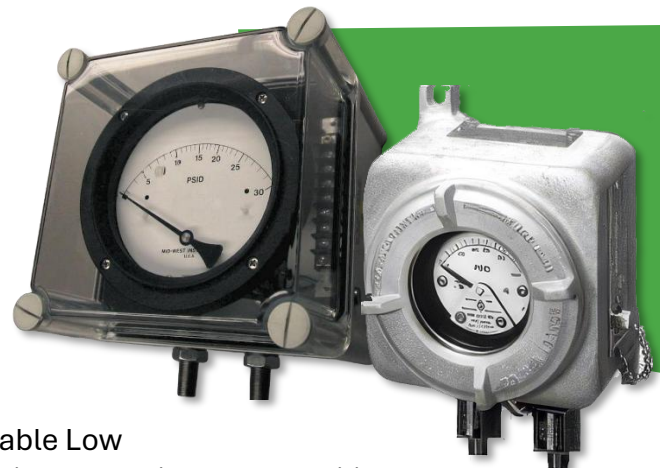
Switch Adjust



Electrical Enclosure Options

Depending on configuration, the Model 120 is available with:

- Flying lead interfaces
- Conduit interfaces
- Weatherproof NEMA 4X enclosures
- DIN plug-in connectors
- Class I, Division 2 hazardous-location configurations
- Explosion-proof hazardous-location configurations



Non-hazardous switch configurations are CE marked for applicable Low Voltage and RoHS requirements. Hazardous-location configurations are third-party certified as complete assemblies.

Dial Range Options

- Available in PSID, kPa, bar, and dual scale.
- Custom dual-scale and multi-color dials are available. Charges may apply.
- Additional scale configurations may be available depending on the required application.
- **Dial Options**
 - Standard pressure scales.
 - Dual scales.
 - Multiple scales.
 - Multi-color dials.
 - Special decals.
 - Custom dial configurations.
 - Maximum follower pointer option.
- The optional maximum follower pointer automatically indicates the highest differential pressure occurring during a time period or system cycle.
- The ranges listed on the next page are our mostly commonly requested and are available on 2.5” and 4.5” dials. Availability for 3.5” and 6” dial ranges/scales may be limited and require additional lead time for engineering.



Model	Accuracy	Min. ΔP Range	Max. ΔP Range
120	±3/2/3%	0-5 PSID	0-110 PSID

Standard Dial Ranges – Model 120



Dial Range – Single Scale

PSID	kPa	bar
0 - 5 PSID	0 – 35 kPa	0 - 0.6 bar
0 - 10 PSID	0 – 70 kPa	0 - 0.7 bar
0 - 15 PSID	0 – 100 kPa	0 – 1.0 bar
0 - 20 PSID	0 – 160 kPa	0 - 1.6 bar
0 - 25 PSID	0 – 250 kPa	0 - 1.75 bar
0 - 30 PSID	0 – 400 kPa	0 – 2.0 bar
0 - 50 PSID	0 – 600 kPa	0 – 2.5 bar
0 - 60 PSID	0 – 700 kPa	0 – 4.0 bar
0 - 75 PSID		0 – 6.0 bar
0 - 100 PSID		0 – 7.0 bar
0 - 110 PSID		



Bi-Directional Dial Ranges – 4.5" Only

PSID	kPa	bar
5-0-5 PSID	40-0-40 kPa	0.4-0-0.4 bar
10-0-10 PSID	60-0-60 kPa	0.6-0-0.6 bar
15-0-15 PSID	100-0-100 kPa	1-0-1 bar
20-0-20 PSID	160-0-160 kPa	1.6-0-1.6 bar
25-0-25 PSID	250-0-250 kPa	2.5-0-2.5 bar
30-0-30 PSID	400-0-400 kPa	4-0-4 bar
50-0-50 PSID	600-0-600 kPa	6-0-6 bar
60-0-60 PSID		
100-0-100 PSID		

Range - Dual Scale

0-5 PSID & 0-0.35 kg/cm2

0-5 PSID & 0-0.35 bar

0-5 PSID & 0-35kPa

0-10 PSID & 0-0.7 kg/cm2

0-10 PSID & 0-0.7 bar

0-10 PSID & 0-70 kPa

0-15 PSID & 0-1 kg/cm2

0-15 PSID & 0-1 bar

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 kg/cm2

0-25 PSID & 0-1.75 bar

0-25 PSID & 0-175 kPa

0-30 PSID & 0-2 kg/cm2

0-30 PSID & 0-2 bar

0-30 PSID & 0-200 kPa

0-50 PSID & 0-3.5 kg/cm2

0-50 PSID & 0-3.5 bar

0-50 PSID & 0-350 kPa

0-75 PSID & 0-500 kPa

0-100 PSID & 0-7 kg/cm2

0-100 PSID & 0-7 bar

0-100 PSID & 0-700 kPa

Monel & Aluminum Bronze

0-10 PSID

0-15 PSID

0-20 PSID

0-30 PSID

Standards

Model 120 gauge either conforms to and/or is designed to the following required standards:

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

Available electrical and hazardous-location configurations may have additional applicable third-party certifications depending on the selected model and electrical option.

Design and Application Options

Available options include:

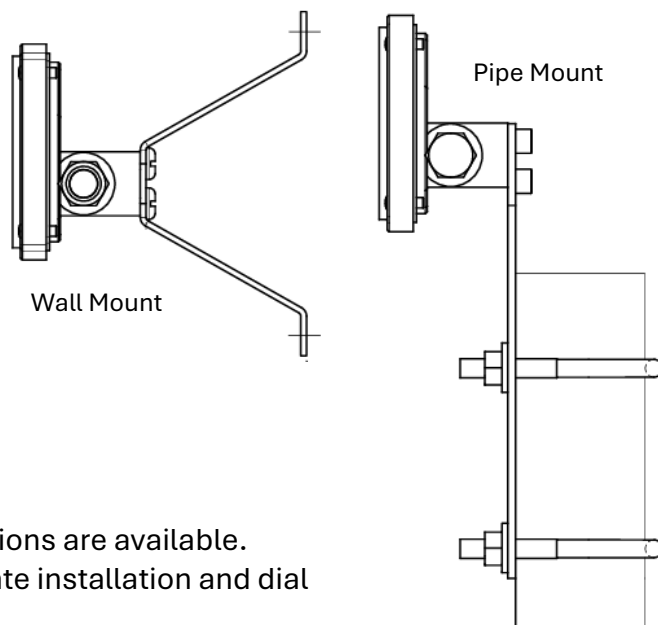
- Oxygen cleaning
- NACE compliance
- CRN – Canadian Registration Number
- Hazardous-location electrical configurations
- Maximum Follower Pointer
- Liquid Fill

Availability depends on the selected instrument configuration.

Mounting Options

Available configurations include:

- Panel mounting
- Wall mounting
- 2-inch pipe mounting



Process Connection Options

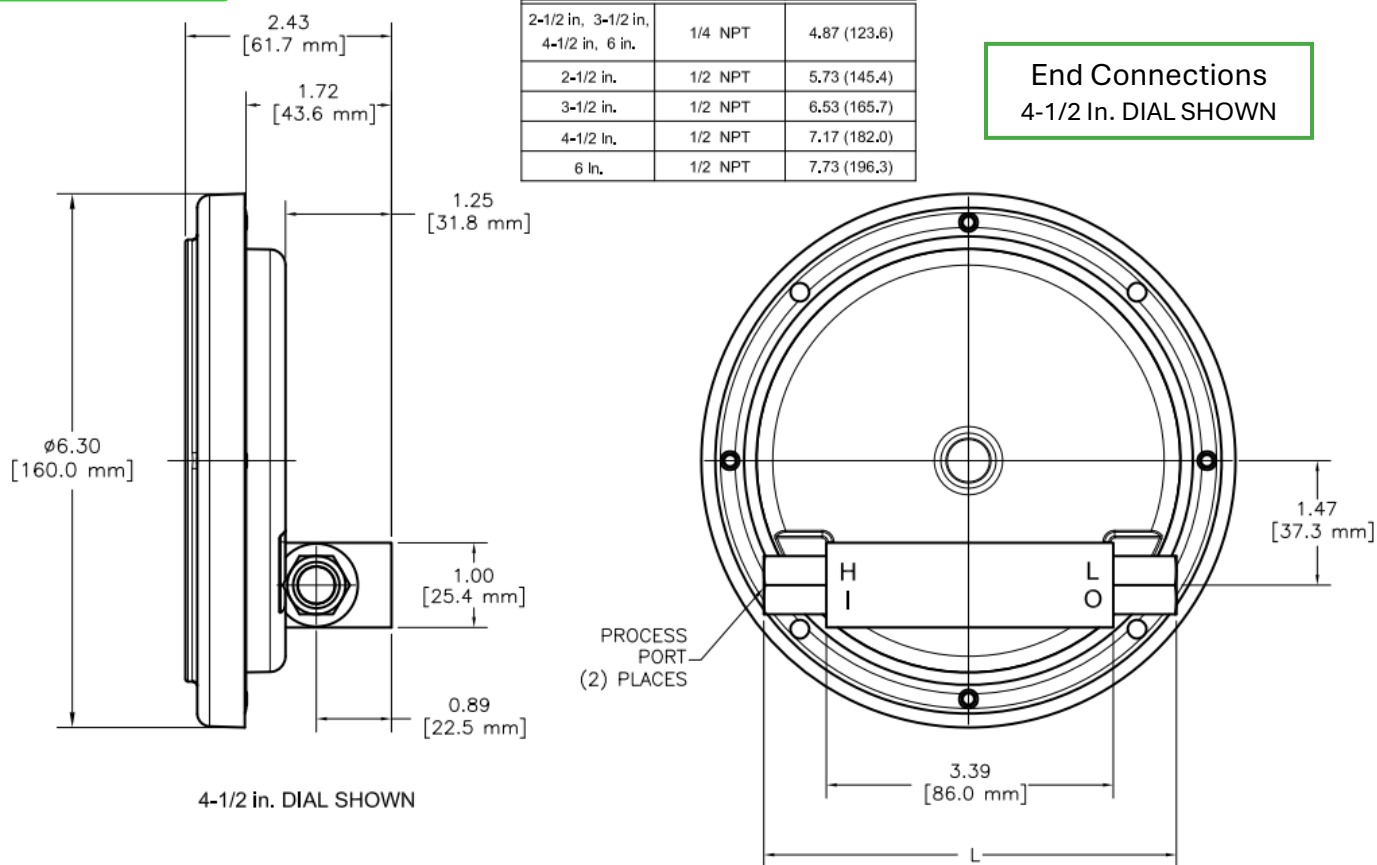
Process Connection Options

Multiple instrument process connection sizes and locations are available. Reversed pressure ports can also be specified to facilitate installation and dial readability depending on the application.

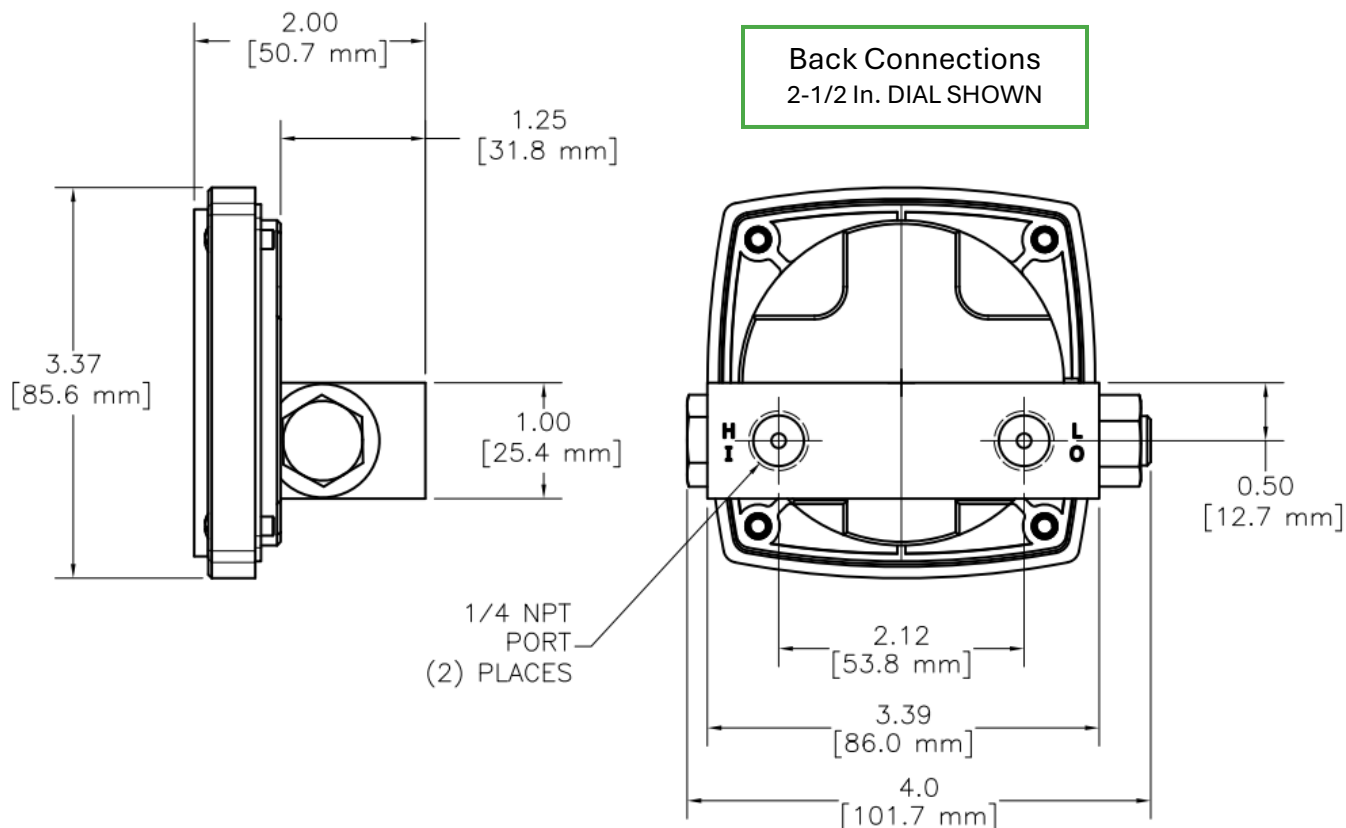
Dimensions

DIAL SIZE	END PORT PIPE THREAD	DIMENSION L Inch (mm)
2-1/2 in., 3-1/2 in., 4-1/2 in., 6 in.	1/4 NPT	4.87 (123.6)
2-1/2 in.	1/2 NPT	5.73 (145.4)
3-1/2 in.	1/2 NPT	6.53 (165.7)
4-1/2 in.	1/2 NPT	7.17 (182.0)
6 in.	1/2 NPT	7.73 (196.3)

End Connections
4-1/2 In. DIAL SHOWN



Back Connections
2-1/2 In. DIAL SHOWN



Standard Model Number Sequence: 120AA-00-O-O

3000 P.S.I.G. Working Pressure, Aluminum Body, adjusting screws & end plugs, stainless steel piston, ceramic magnet, Buna-N Seals, 2 ½" round dial, ¼" FNPT back connections, "engineered plastic" gauge case with shatter-resistant acrylic lens. Panel mount is standard. ASME B40.100 Grade B
Accuracy ±3-2-3% full scale (Ascending)

Range 0-5 PSID to 0-110PSID

Gauge body and internal components are considered wetted parts.

Model Number Configuration

1	2	0			-			-					-		
[Model]	2	3	-	4	5	-	6	6	6	6	-	7	8		

* Each character position relates to the numbered section in table below.

Range: _____

Scale: _____

2

Material

A	Aluminum Body
S	316 S.S Body
M	Monel Body
N	Aluminum bronze body
Z	Special (Un-coded Options)

3

Dial Size

A	2 ½" Round Uni-Directional dial with engineered plastic dial case
C	4 ½" Round Uni-Directional dial with engineered plastic dial case.
D	4 ½" Round Bi-Directional dial with engineered plastic dial case.
E	3 ½" Round Uni-Directional dial. Non-panel mount, anodized aluminum housing assembly
G	4 ½" Round Uni-Directional dial with anodized aluminum housing assembly
H	4 ½" Round Bi-Directional dial with anodized aluminum housing assembly
J	6" Round Uni-Directional dial
K	6" Round Bi-Directional Dial
T	Non-indicating differential pressure switch only (Must provide switch set point)
Z	Special (Un-coded Options)

4

Seal Materials

0	Buna-N (aka NBR or Nitrile)
1	Viton® (aka FKM)- Viton® is a Registered Trademark of Dupont
2	Neoprene
4	Teflon® (AKA PTFE) Teflon® is a Registered Trademark of Dupont
5	Ethylene Propylene (aka EPDM)
6	Perfluoroelastomer (FFKM)
9	Special (Un-coded Options)

5

Connections

0	1/4" FNPT Back Connections (not available on Monel or Alum. Bronze Bodies)
2	1/4" FNPT End Connections
3	1/4" FNPT bottom connections (not available on Monel or Alum. Bronze Bodies)
4	1/2" FNPT End Connections
5	1/4" FNPT Top Connections
6	7/16" -20 Straight thread "O" ring port (back connection only) (not available on Monel or Alum. Bronze Bodies)
9	Special (Un-coded Options)

6

Options

O	NONE
A	Reversed high/low process connections (not available with electrical configuration J & K)
C	Mounting holes in gauge body for field mounting of electrical configurations A & B
D	Mounting holes in gauge body for field mounting of electrical configurations L & M
E	Two (2) ¼ - 20 mounting holes in back of body (not available with electrical configuration C, D, E, or F)
F	Carbon Steel 2" Pipe Mounting Kit (not available with electrical configuration C, D, E, or F)
G	Stainless Steel 2" Pipe Mounting Kit (not available with electrical configuration C, D, E, or F)
K	1/2" FNPT Stainless Steel Adapter (pair) (not available with E or F switch option combined with back connections)
L	Liquid fill-Glycerin For 2.5", 4.5" & 6" dials ⁽¹⁾ (not available with shatterproof lens)
M	Maximum indicator follower pointer for 2.5" & 4.5" dials. (not compatible with liquid fill)
N	NACE (Only available with Aluminum or 316 Stainless Steel bodies)
Q	CRN- Canadian Registration Number (Only available with Aluminum or 316 Stainless Steel bodies)
S	Shatterproof glass lens (Available only with 4.5 " option "G" aluminum housing) (not available with liquid fill)
T	Cleaned for Oxygen Service
U	Stainless Steel tag and wire
V	Stainless steel tag and screw (not compatible with all options – consult factory for details)
W	Wall mounting kit (not available with back connections or with electrical configurations C, D, E, or F)
Z	Special (Un-coded Options)

NOTE: Not all options available in combination with other options

⁽¹⁾Silicon fill available. Please contact factory

7 Electrical Configurations NOTE: CE⁽⁷⁾ marked except with E, F, J, & K Switch Options ⁽⁶⁾

O	NONE
A	One (1) switch in STD. enclosure with grommet wire seal
B	Two (2) switches in STD. enclosure with grommet wire seal
C	One (1) switch in STD. enclosure with ¼" FNPT electrical connection NEMA 4x (not with "options" E, F, G, or W above)
D	Two (2) switches in STD. enclosure with ¼" FNPT electrical connection NEMA 4x (not with "options" E, F, G, or W above)
E	One (1) switch in general purpose enclosure, Division 2 Hazardous Location (not with "options" E, F, G, or W) ⁽¹⁾⁽³⁾⁽⁴⁾⁽⁵⁾
F	Two (2) switches in general purpose enclosure, Division 2 Hazardous Location (not with "options" E, F, G, or W) ⁽¹⁾⁽³⁾⁽⁴⁾⁽⁵⁾
G	One (1) switch & gauge in NEMA 4X plastic enclosure (not available with end connections) ⁽⁸⁾
H	Two (2) switches & gauge in NEMA 4X plastic enclosure (not available with end connections) ⁽⁸⁾
J	One (1) switch in explosion proof enclosure with glass window cover, Div 1, Hazardous Locations ⁽²⁾⁽³⁾⁽⁴⁾⁽⁵⁾⁽⁸⁾
K	Two (2) switches in explosion proof enclosure with glass window cover, Div 1, Hazardous Locations ⁽²⁾⁽³⁾⁽⁴⁾⁽⁵⁾⁽⁸⁾
L	One (1) switch in STD. enclosure with plug-in connector (DIN43650/IP65-PG11)
M	Two (2) switches in STD. enclosure with plug-in connector (DIN43650/IP65-PG11)
Z	Special (Un-coded Options)

⁽¹⁾ Complete assembly 3rd party Certified Class I, Division 2, Groups A, B, C & D; Class II, Division 2, Groups F & G

⁽²⁾ Complete assembly 3rd party Certified Class I, Division 1, Groups C & D; Class II, Division 1, Groups E, F, & G

⁽³⁾ 5000 PSIG Working Pressure for Stainless Steel

⁽⁴⁾ Not available in M and N material options

⁽⁵⁾ ½" FNPT conduit connection

⁽⁶⁾ Contact factory for bi-directional scales with switches

⁽⁷⁾ Compliant with RoHS and Low Voltage Directives

⁽⁸⁾ Gauge port configuration must be back connection option "0" for electrical options G, H, J, K

8 Electrical Specification (For Resistive Loads)

A	S.P.D.T., 3W, .25 Amp., 125 VAC/VDC (standard) (switch adjustable range of 10-90%)
E	S.P.D.T., 60W, 3.0 Amp., 240 VAC/VDC (normally open) (switch adjustable range of 25-90%)
F	S.P.D.T., 60W, 3.0 Amp., 240 VAC/VDC (normally closed) (switch adjustable range of 25-90%)
G	(2) S.P.D.T., 60W, 3.0 Amp., 240 VAC/VDC one (1) normally open, one (1) normally closed (switch adjustable range of 25-90%)
H	S.P.D.T., 60W, 1.0 Amp., 240 VAC/VDC (switch adjustable range of 25-90%)
Z	Special (Un-coded Options)

NOTE: Switch set point will be factory set when specified, otherwise preset at 50% of full scale. Ascending.

NOTE: The use of diaphragm seals is not recommended for model 120 series gauge. Attempts to install such seals on this gauge will void the warranty.