

Mid-West[®] Instrument

Certified Indicating DP Switches for Explosion Proof and Hazardous Locations



Differential Pressure Gauges and Switches for All Your Hazardous Location Requirements



Mid-West Instrument has been designing and manufacturing indicating differential pressure switches for use in hazardous locations for over 30 years. We are proud to add ATEX certification to our broad line of CSA and UL certified products. ATEX, CSA and/or UL certifications apply to the entire assembly as mandated by the Hazardous Location Standards.

Differential pressure is sensed either by the movement of an elastomer diaphragm or a precision ground piston in a precision controlled bore. The change in position of these sensing elements in response to a change in differential pressure moves an internal magnet. The movement of this magnet causes the closure (or opening) of the contacts of a hermetically sealed reed switch.

Instruments for use in hazardous locations are available with one or two hermetically sealed reed switches. The switches are adjustable (see table for the adjustment range) within a defined percentage of the full scale range of the gauge and are available in SPDT and SPST, configurations for various load/power ratings. The switches can be set to activate or deactivate on rising or falling pressure. Switches, including Division II classified switches, are "CE" marked per the EU low voltage directive.

All hazardous location switches are both CSA and UL listed. Some units are ATEX certified. All of these listings are for the entire assembly, not just the enclosure. See our website at www.midwestinstrument.com or contact Mid-West Instrument at 1-800-648-5778 for specific information and ratings on all available models.



**Mid-West[®]
Instrument**

Toll Free: 1-800-648-5778

6500 Dobry Dr., Sterling Heights, MI 48314
Fax: 586-254-6509

Email: sales@midwestinstrument.com
www.midwestinstrument.com

A World Leader in Indicating DP Switches for Explosion-Proof and Hazardous Locations

Division II Classified Designs

MODEL 120



Piston Type Gauge

- CSA and UL Listed with SPST or SPDT Switches for use in Class I, Division II, Groups A, B, C & D; Class II Division II Groups F & G
- Switches available with load ratings up to 60 watts
- CE marked in accordance with the EU Low Voltage Directive
- Pressure containing elements in Aluminum, 316/316L SS, Brass, Monel & Aluminum-Bronze
- Rugged Piston Type Gauge
- SWP 5000 PSI
- Differential pressure ranges from 0-5 PSID (0-0.35 bar) to 0-110 PSID (0-7.0 bar)
- 2 1/2", 3 1/2" and 4 1/2" dials available
- Accuracy $\pm 2\%$ (ASME B40.100 Grade B) Full Scale Ascending
- 1/2" FNPT conduit entry



MODELS 140, 141, 142

Diaphragm Type Gauges



- CSA and UL Listed with SPST or SPDT Switches for use in Class I, Division II, Groups A, B, C & D; Class II Division II Groups F & G
- Diaphragm design provides positive high to low isolation
- Switches available with load ratings up to 25 watts
- CE marked in accordance with the EU Low Voltage Directive
- Pressure containing elements in Aluminum, 316/316L SS, Brass
- SWP 3000 PSI (Aluminum, 316/316L SS) 1500 PSI (Brass) For Models 140, 141
- SWP 1500 PSI (Aluminum, 316/316L SS), 750 PSI (Brass) For Model 142
- Differential pressure ranges from 0-20" H₂O (0-50 mbar) to 0-100 PSID (0-7.0 bar)
- 2 1/2", 3 1/2" and 4 1/2" dials available
- Accuracy $\pm 2\%$ (ASME B40.100 Grade B) Full Scale Ascending
- 1/2" FNPT conduit entry



COMMON TO ALL UNITS FOR USE IN EXPLOSI

ATEX, CSA and UL Listed • Simple Rugged Compact Design •

• Private Label Products - Custom Dials

• Fully Gasketed Gauge Face Weather/Rust Resistant

Explosion-Proof/Flame-Proof Designs

MODEL 220



Piston Type For Group B (Hydrogen Service)

- ATEX Ex d IIB + H₂; II 2GD IP65
- CSA and UL listed for Class I, Division I, Groups B, C & D and Class II, Division I Groups E, F & G; Class I, Division II, Groups A, B, C & D, Class II, Division II, Groups F & G.
- Division II unit is NEMA 4X rated
- SWP up to 4000 PSI
- Compact rugged piston design
- Up to 10 AMP 120/240 VAC switching with DPDT relay output
- Hermetically sealed switch outputs up to 3 AMPS in SPST configuration and 1 AMP in SPDT configuration
- 1/2" FNPT conduit cable interface with internal terminal strip
- Differential pressure ranges from 0-5 PSID (0-0.35 bar) to 0-100 PSID (0-7.0 bar)
- Accuracy ± 2% (ASME B40.100 Grade B) Full Scale Ascending



MODEL 240



Diaphragm Design For Group B (Hydrogen Service)

- ATEX Ex d IIB + H₂; II 2GD IP65
- CSA and UL Listed for Class I, Division I, Groups B, C & D and Class II, Division I Groups E, F & G; Class I, Division II, Groups A, B, C & D, Class II, Division II, Groups F & G.
- Division II unit is NEMA 4X rated
- SWP to 1500 PSI
- Compact rugged diaphragm design
- Up to 10 AMP 120/240 VAC switching with DPDT relay output
- Hermetically sealed switch outputs up to 3 AMPS in SPST configuration and 1 AMP in SPDT configuration
- 1/2" FNPT conduit cable interface with internal terminal strip
- Diaphragm design provides positive high to low isolation
- Differential pressure ranges from 0-20" H₂O (0-50 mbar) to 0-100 PSID (0-7.0 bar)
- Accuracy ± 2% (ASME B40.100 Grade B) Full Scale Ascending



ON-PROOF AND HAZARDOUS LOCATIONS

Full Overrange Protection to Maximum Working Pressure

- Shatter Resistant Lens

Construction Standard (Conforms to NEMA-4X/IP65)

Specification for Gauges/Switches for Hazardous Locations

	120	140	141	142	220	240
Differential Pressure Range	0-5 PSID (0-0.35 bar) to 0-100 PSID (0-7.0 bar)	0-25 PSID (0-1.7 bar) thru 0-100 PSID (0-7.0 bar)	0-50" H ₂ O (0-125 mbar) thru 0-25 PSID (0-1.7 bar)	0-20" H ₂ O (0-50 mbar) thru 0-25 PSID (0-1.7 bar)	0-5 PSID to (0-0.35 bar) to 0-100 PSID (0-7.0 bar)	0-20" H ₂ O to (0-50 mbar) to 0-100 PSID (0-7.0 bar)
Accuracy	Accuracy ± 2% (ASME B40.100 Grade B) Full Scale Ascending					
Dial Size	2 1/2", 3 1/2", 4 1/2"				4 1/2"	
Safe Working Pressure PSI	Up To 5000 PSI (340 bar)	Up To 3000 PSI (200 bar)		Up To 1500 PSI (100 bar)	Up To 3000 PSI (200 bar)	Up To 1500 PSI (100 bar)
Proof Pressure	2 times SWP					
Materials of Construction (Pressure Containing Elements)	Aluminum, 316/316LSS					
Internals	316/316LSS, Teflon, Acetal, Ceramic					
Switch Option	A,E,F,G,H	A, B	A, B	A, B	A,E,F,G,H,R	A, E, H, R
Electrical Enclosure	Engineered Plastic	Aluminum with 1/2" NPT Access				

Switching Information

TYPE	SPDT	SPST	N.O. SPST	N.C. SPST	SPST ⁽¹⁾	SPDT	
OPTION	A	B	E	F	G	H	R
Power* (Watts)	3	25	60	60	60	60	—
Max Current (AMPS)	.25	.5	3	3	3	1.0	10A.
Max. Voltage AC/DC	125	240	240	240	240	240	240/30
Setting % F.S. min/max	15/90	10/90	25/95	25/95	25/95	25/100	15/90
Repeatability % F.S.	1	1	1	1	1	1	1
Available on	All	140 141 142	120 220 240	120 220	120 220	120 220 240	220 240

* The product of voltage and current shall not exceed the power rating of the device.

⁽¹⁾ Two switch option – one switch normally open, one switch normally closed

STANDARDS: All explosion-proof differential pressure gauges/switches 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, 30 and 213

EN60079-0, EN60079-1, EN50281-1-1, EN13463-1,
EN61010-1 and EN60529

NACE MR0175

NEMA Std. No. 250

SAE J514

UL Std. No. 50, 508, 698, 1203 and 1604

TOTALLY INTEGRATED DESIGN, MANUFACTURING AND TESTING FACILITY

Mid-West Instrument in Sterling Heights, Michigan has an experienced staff of engineers and technicians in many disciplines. The latest technology is used for integrating the design, engineering, testing, manufacturing and assembly of Mid-West's line of precision instruments.

CUSTOMER ORIENTED STAFF: Mid-West's staff of experienced engineers and technical personnel work with our customers to solve their most challenging custom gauge requirements.

ENGINEERING & CUSTOM DESIGN: The latest CAD system software is used to develop original as well as custom gauges for Mid-West's customers.

QUALITY SYSTEM CERTIFICATION: Mid-West's quality system is 3rd party certified by QMI in accordance with CSA B51-03 Category F. The result of this quality assurance program is a five (5) Year Product Warranty ... the best in the industry!

ASSEMBLY & TESTING: Mid-West utilizes a wide range of custom fixtures to meet its diverse range of standard and custom gauge assembly requirements.

MANUFACTURING: State-of-the-art manufacturing systems are used to reach the precision tolerances of Mid-West's full line of gauge products.

"A World Leader in Certified Indicating DP Switches
for Explosion-Proof and Hazardous Locations"

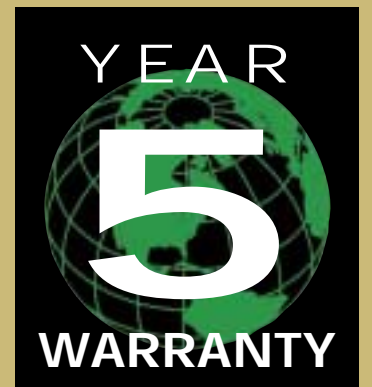


Mid-West[®] Instrument

6500 Dobry Dr., Sterling Heights, MI 48314
Toll Free: 1-800-648-5778 • Fax: 586-254-6509
www.midwestinstrument.com



Mid-West
Instrument's
5 Year
Product Warranty
is the best
in the industry



PROUDLY DISTRIBUTED BY: