

Mid-West[®] Instrument

“Diaphragm Type”

Differential Pressure Gauges for Ammonia Service Application

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



Model 130
Range 0-5" H2O

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

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

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

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

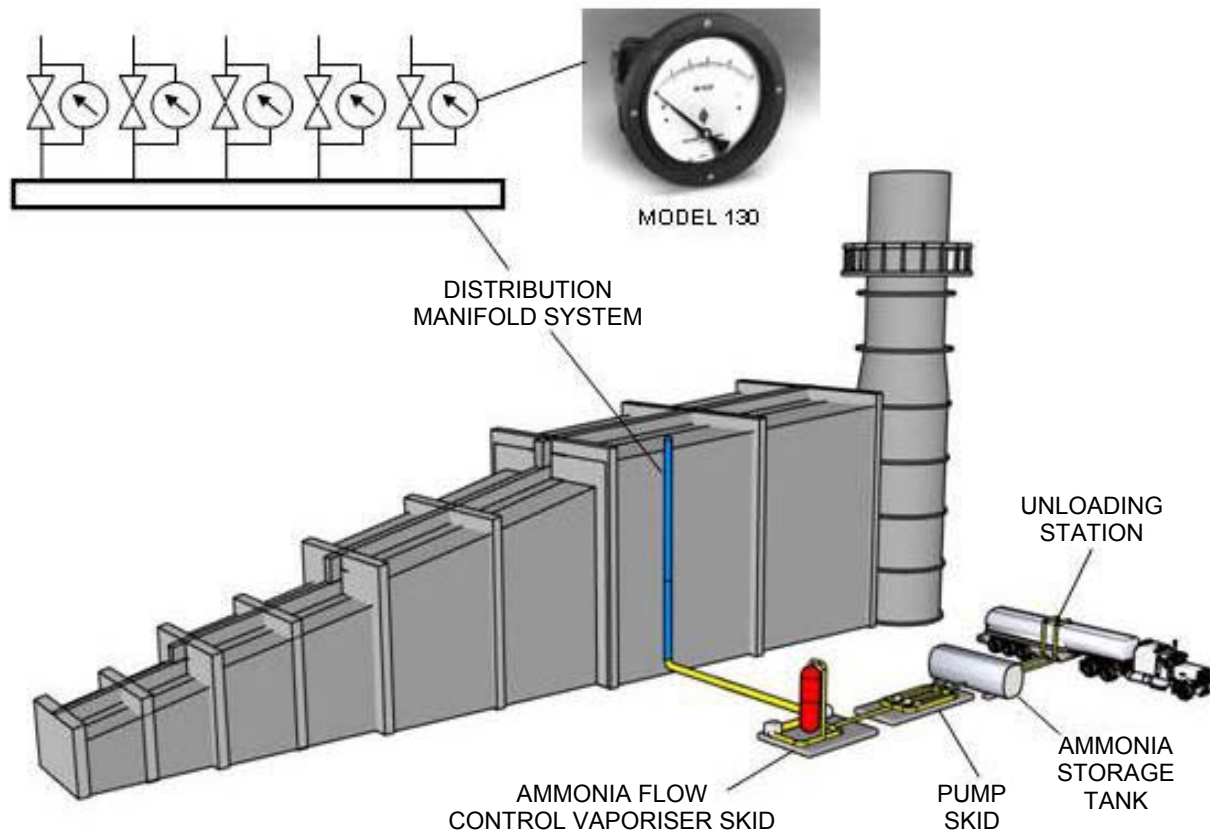
SCR Post-Combustion NOx Control Model 130-PC or 130-SC

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

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

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

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



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

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

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

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

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

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

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



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

Features:

- Total separation of high and low pressures by a Convuluted Elastomer Diaphragm.
- Over range protection to full rated working pressure.
- Body Materials: Aluminum, Brass or 316L stainless steel Hasteloy available upon request.
- Internal metal parts 316 stainless steel.
- ¼" FNPT & ½" FNPT Process Connections
- Sensor magnetically coupled to the indicating pointer and optional switches.
- Weather-resistant construction standard.
- Shatter resistant acrylic lens.
- Variety of Dial type and Sizes: 2-1/2", 3-1/2" & 4-1/2"
- DP Ranges available in: Inches H2O, PSID, bar, and Kpa
- Available with Square Root dials for flow measurement
- Multiple mounting options available
- Temperature Limits: -40°F(-40°C) to +200°F(+93°C)



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



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

Model	Accuracy	Min. ΔP Range	Max. ΔP Range	Max. Line Pressure PSIG (bar)	Optional Switches
140	±2%	0-25 PSID (0-1.7 bar)	0-100 PSID (0-7 bar)	3000 (200)**	1 or 2 Switches or 4-20 mA Transmitter

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

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



Model 140 shown with “AA” switch option

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



Model 140 shown with “EA” switch option.

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



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

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



Model 142 shown with “BA” switch option

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

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

