



Mid-West[®] Instrument

Elastomer Diaphragm Type Tank Level Gauges Level Gauge, Switch and Transmitter Model 114



6" Dial
0-80 IN H2O

Model 114 Diaphragm type Tank Level Gauges provide outstanding capabilities not previously available in a modestly priced Tank Level Gauge, Gauge/Switch & Gauge/Transmitter



2-1/2" Dial
0-50" H2O



4-1/2" Dial
0-40" & 0-100"
(3) Color special

Dial Scale Range: 0-20" H₂O to 0-600" H₂O

Model 114 diaphragm design provides a simple, accurate, differential pressure gauge for tank level measurement. Full Scale Accuracy of $\pm 2\%$ descending in accordance with ASME B40.100

Typical applications include; Level measurement in closed tanks for the Industrial Liquid Gas Industry. Use with gaseous and liquid media, provide they are not highly viscous. Various Dial scales available to match a wide variety of gases such as He, Ar, O₂, N₂, CO₂, and Helium

For Tank Level LNG applications see Bulletin No. 240/18 for our Model 240 rated Class I, Div I & Class I, Div II. Certified CSA, ATEX & KOSHA

BENEFITS:

"Engineered Plastic Gauge Front" to provide corrosion resistance in "over the road Trailers" outdoor and salt air environments.

Gauge weight savings over competitive Liquid Helium range gauges

- Allows more product to be transported in mobile trailers
- Easier and less labor to panel mount

Low & High range capabilities

- Ideal for He, Ar, O₂, N₂, CO₂, and Helium tank level applications
- For use on Stationary, Over the Road, ISO/IMO containers and LNG bulk tanks

Industry best lead time reduces inventory requirements

Adaptable to wide variety of mounting configurations:

Three Different Dial Sizes: 2-1/2", 4-1/2" and 6"

Private Brand and Custom Dials available: *Single Scale, Dual Scale, and Tri-Scale*

Elastomer Diaphragm Type Tank Level Gauge Switch & Transmitter Options



Shown on Brass Body



Shown on Aluminum Body



Model 114 "AA" switch option

(2) Reed switches located inside NEMA 4x enclosure with 7 position terminal strip. An opening at rear of enclosure accepts 1/2" flexible weather-proof or conduit connector (supplied by customer).

Model 114 "TT" transmitter option.

4-20mA, 4 position terminal strip. 8-28 VDC Loop Power. ±2% Accuracy 20% to 100% of scale. An opening at rear of enclosure accepts 1/2" flexible weather-proof or conduit connector (supplied by customer).

Switch & Transmitter options are available with In-line, back or bottom process connections only.

Model 114 Tank Level Gauges 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. Switch housing is made of non-corrosive molded plastic, Transmitter housing is made of Aluminum. Both are oil tight, dust tight, and water tight per NEMA 4X/IP65. The switches are available as Single Pole Double Throw (SPDT) or Single Pole Single Throw (SPST) with adjustable set points. Switches can be set to activate/deactivate on falling pressure. 4-20mA transmitter is available with 4-2mA output (8-28 Loop Power)

Electrical Specification	SPDT	SPST NO	Transmitter 4-20mA
Power	3 Watt	25 Watt	4-20 mA Loop Power
Max Current	0.25 Amps	0.5 Amps	8-28 VDC Loop Powered 2-Wire interface
Max Voltage VAC/VDC	125 VAC/VDC	240 VAC/VDC	1000 Ohm max Loop resistance at 28 vdc
Setting Full Scale	10-90%	10-90%	20-100%
Hysteresis (Max/Nom)	10% / 5% (FS)	15% / 8% (FS)	N/A
Repeatability	1% F.S.	1% F.S.	1% F.S.
Connections	Terminal Strip	Terminal Strip	Terminal Strip

Proof Pressure: 5,500 PSI at ambient temperature

Maximum Temperature Limits: +200°F (Gauge only and Gauge switch combination)
+150°F (Transmitter)

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: 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 SAE J514
EN-61010-1 UL Std. No. 50,508 and 1203 CSA-C22.2 No. 14.25 and 30

OVER 60 YEARS experience in the field of supplying quality Differential Pressure Gauges. Tank Level applications are for stationary, over the road, ISO/IMO containers and LNG bulk tanks

Product Description:

Model 114 design is a metal / elastomer diaphragm type differential pressure gauge capable of operating at low differential pressures. Safe working pressure is 1375 PSIG (STD).

You have an Elastomer Seal and Diaphragm choice of Buna-N, Viton or Ethylene Propylene. Dial sizes available are 2-1/2", 4-1/2" or 6" diameter with black lettering on a white dial.



Model#114 6" Dial mounted to Model 107470 3-Valve Manifold 1/2" FNPT Process connections

**MODEL 114
MANIFOLD
OPTIONS**



Model 107473 3-Valve Direct Mount Manifold with optional straight pressure gauge port 1/4" FNPT Process connections



Model 114 w/4-1/2" Dial mounted to Model 113343 3-Valve Mini-Manifold 1/4" FNPT Process connections

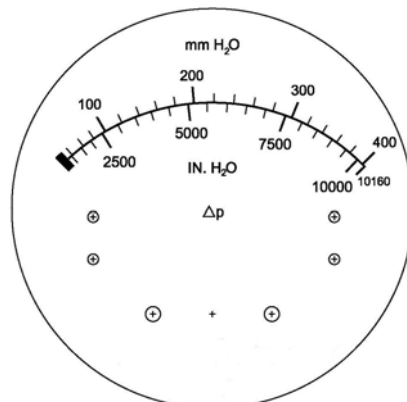
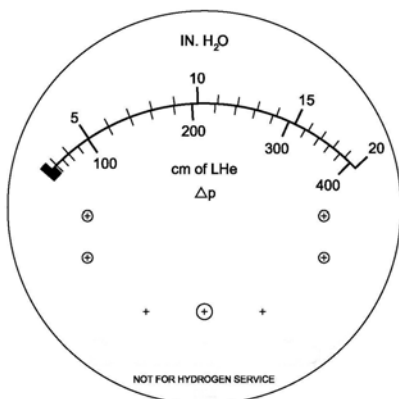
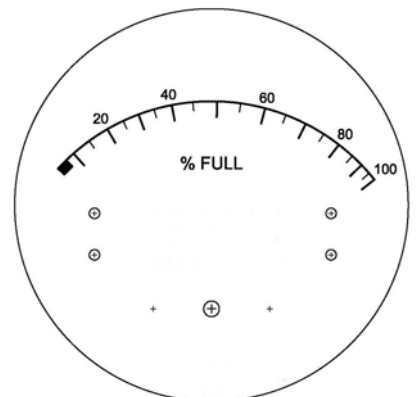
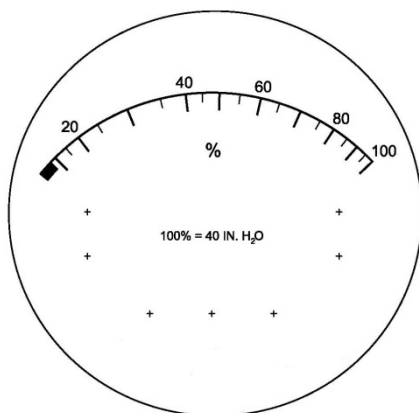
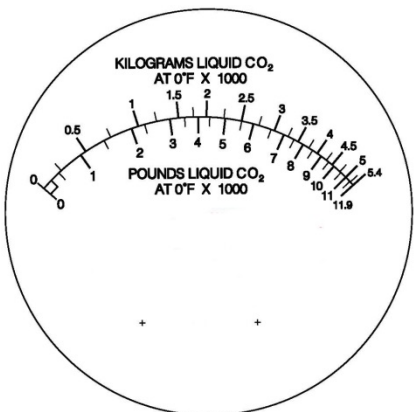
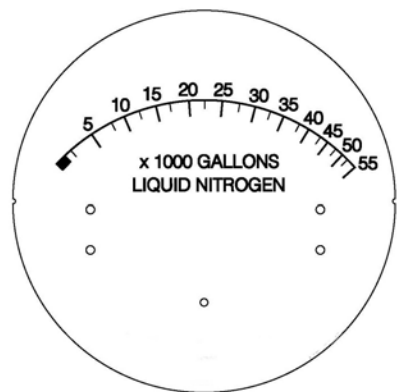
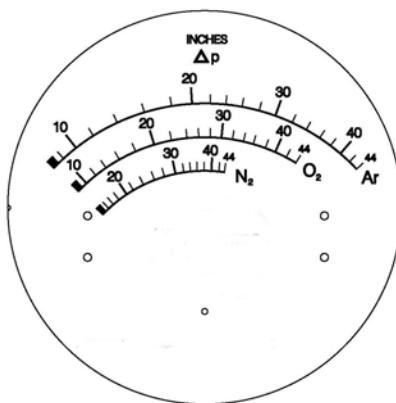
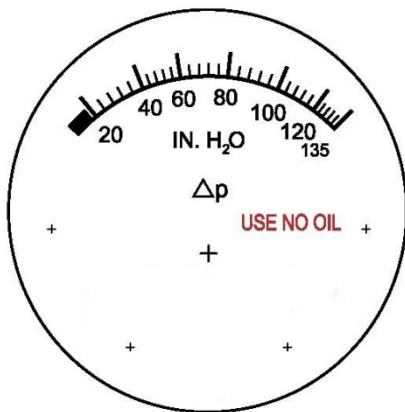
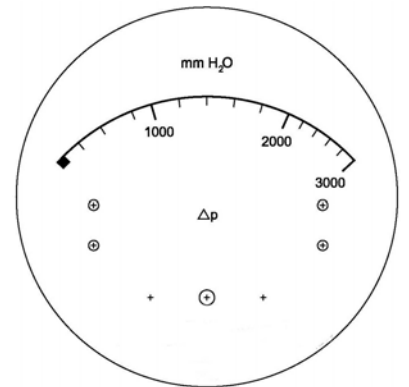
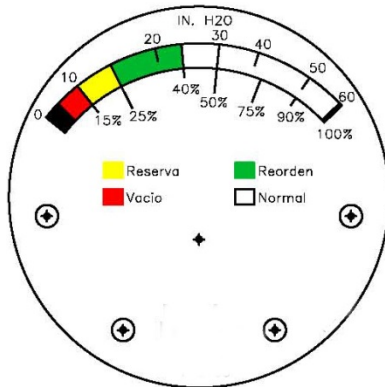
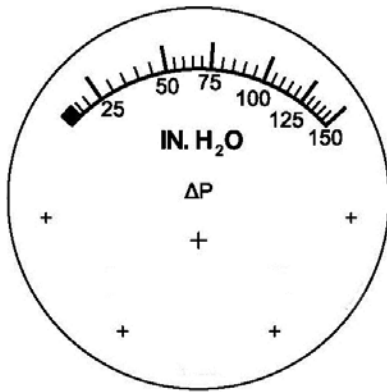


Model 114 with direct mount manifold, 3/4" NPT stub mount with optional (customer provided) pressure gauge

Model 114 can be direct mounted to anyone of 4 different manifolds.

**See Bulletin MFLD/18
For more Information**

Samples of various Special Tank Level gauge scales quoted upon request.



Mid-West[®] Instrument

Standard Tank Level Ranges: **Model 114**

IN H ₂ O	Dual Scale (IN/CM)	CM H ₂ O
0-20"	0-80 IN H ₂ O/0-200 CM H ₂ O	0-200
0-25"	0-100 IN H ₂ O/0-250 CM H ₂ O	0-250
0-30"	0-150 IN H ₂ O/0-380 CM H ₂ O	0-380
0-40"	0-200 IN H ₂ O/0-500 CM H ₂ O	0-500
0-50"	0-300 IN H ₂ O/0-750 CM H ₂ O	0-750
0-60"	0-400 IN H ₂ O/0-1000 CM H ₂ O	0-1000
0-80"	0-500 IN H ₂ O/0-1270 CM H ₂ O	0-1270
0-100"	0-600 IN H ₂ O/0-1500 CM H ₂ O	0-1500
0-150"	Dual Scale (IN/MM)	MM H ₂ O
0-200"	0-80 IN H ₂ O/0-2000 MM H ₂ O	0-2000
0-300"	0-100 IN H ₂ O/0-2500 MM H ₂ O	0-2500
0-400"	0-150 IN H ₂ O/0-3800 MM H ₂ O	0-3800
0-500"	0-200 IN H ₂ O/0-5000 MM H ₂ O	0-5000
0-600"	0-300 IN H ₂ O/0-7500 MM H ₂ O	0-7500
	0-400 IN H ₂ O/0-10000 MM H ₂ O	0-10000
	0-500 IN H ₂ O/0-12700 MM H ₂ O	0-12700
	0-600 IN H ₂ O/0-15000 MM H ₂ O	0-15000
	<i>Special Un-Cataloged Dial Requirements available upon request. Additional Costs may apply</i>	

Note: Other Scales available in PSID, kPa, Bar etc. Please check with your Sales coordinator

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
114	0-20" H ₂ O (0-50 CM H ₂ O)	0-600" H ₂ O (0-1500 CM H ₂ O)

Proof Pressure: Four times rated working pressure at ambient temperature

Maximum Temperature Limits:

Gauge with or without switch: +200°F (+93°C)
 Gauge with transmitter: +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 114 gauge either conforms to and/or is designed to the requirements of the following standards:

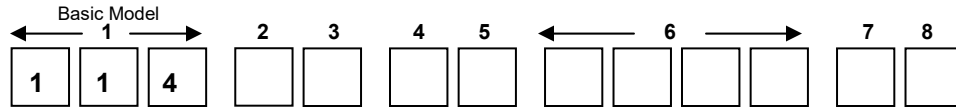
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|----------------------------|-----------------------------|
| ASME B1.20.1 | NACE MR0175 |
| ASME B40.100 | NEMA Std. No. 250 |
| CSA-C22.2 No. 14.25 and 30 | SAE J514 |
| EN-61010-1 | UL Std. No. 50,508 and 1203 |

Example Model Number Sequence: 114-BJ-12-DT-O

1375 PSIG Working Pressure, Brass body, 316L Stainless Steel Internal Metal Parts, Ceramic Magnets, Viton Diaphragm and Seals, Teflon Guide Bushings
 1/4" FNPT Dual Top & Bottom Connections, 3/4 NPT Stub Mount, Oxygen Cleaned
 6" round dial, Engineered Plastic Case with Shatter Resistant Acrylic Lens
 Accuracy ±2% F.S (Descending)

Model 114: Range 0-20" H2O to 0-600" H2O

Gauge Body and Internal components are considered wetted parts.



Range: _____



2	Material	
A	Aluminum Body / 316 Stainless Steel Internal Metal Parts & Teflon Guide Bushings	
B	Brass Body / 316 Stainless Steel Internal Metal Parts & Teflon Guide Bushings	
S	316/316L Stainless Steel Body / 316 Stainless Steel Internal Metal Parts & Teflon Guide Bushings	
Z	Special (<i>Un-coded Options</i>)	
3	Dial Size & Type	
A	2-1/2" Round, Black on White Dial w/Engineered Plastic Dial Case	
C	4-1/2" Round, Black on White Dial w/Engineered Plastic Dial Case	
G	4-1/2" Round, Black on White Dial in Anodized Aluminum Dial Case	
J	6" Round, Black on White Dial w/Engineered Plastic Dial Case	
T	Non-Indicating DP Switch Only	
Z	Special (<i>Un-coded Options</i>)	
4	Seal Materials	
0	Buna-N	<i>Minimum Temperature Limits -40°F (-40°C)</i>
1	Viton®-A Registered Trademark of Dupont	<i>Minimum Temperature Limits -4°F (-20°C)</i>
5	Ethylene Propylene	<i>Minimum Temperature Limits -40° F (-40°C)</i>
9	Special (<i>Un-coded Options</i>)	
5	Process Connections	
0	1/4" FNPT Back Connections	
2	1/4" FNPT Dual Top & Bottom Connections	<i>(Non-Electrical Option Units Only)</i>
3	1/4" FNPT Bottom Connections	
8	1/4" FNPT End (In-Line) Connections	
9	Special (<i>Un-coded Options</i>)	

Standard process connections = Hi on left side and Lo on right side when facing gauge

Model 114 - continued

6	Additional Options
O	None
D	3/4" NPT Stainless Steel Stub Mount <i>(Not available in conjunction with Switch, Transmitter or Back Process connections)</i>
F	Carbon Steel 2" Pipe Mounting Kit
G	Stainless Steel 2" Pipe Mount Kit
Q	CRN (Canadian Registration Number)
S	Shatter Proof Glass Lens <i>(Available only with option "G" 4-1/2" Aluminum Dial Case)</i>
T	Oxygen Cleaning
U	Stainless Steel Tag with S.S. Wire
V	Stainless Steel Tag and Screws
Z	Special <i>(Un-coded Options)</i>
<i>NOTE: NOT ALL OPTIONS AVAILABLE IN COMBINATION WITH OTHER OPTIONS</i>	
7	Electrical Configurations (CE Marked & ROHS Compliant except option "T")
O	None
A	One (1) Reed Switch in NEMA 4X/IP66 Enclosure
B	Two (2) Reed Switches in NEMA 4X/IP66 Enclosure
T	4-20 mA Transmitter in NEMA-4X/IP66 aluminum enclosure (1)
Z	Special <i>(Un-coded Options)</i>
(1) Contact factory for tank level applications with transmitter configuration	
8	Electrical Specifications (For Resistive Loads) Switch adjustable range 10-90% of Scale Descending
O	None
A	SPDT 3W, 0.25 Amp, 125 VAC/VDC <i>(MAXIMUM TEMPERATURE LIMIT +200° F / +93°C)</i>
B	SPST, 25W, 0.5 Amp., 230 VAC/VDC <i>(Normally Open) (MAXIMUM TEMPERATURE LIMIT +200° F / +93°C)</i>
T	4-20 mA Transmitter (8-28 VDC Loop Power) <i>(± 2% Accuracy from 20-100% of scale)</i> <i>(MAXIMUM TEMPERATURE LIMIT +150° F / +65°C)</i>
Z	Special <i>(Un-coded Options)</i>

Factory preset switches at no charge (Specify Setting) If not specified switch will be set at 50% of full scale range

Non-Adjustable Snubber fittings available upon request. **See Bulletin NO. 150/18**



MID-WEST INSTRUMENT has been serving a variety of industries (Cryogenic Level, Power, Chemical, Petro-Chemical, HVAC, Water Filtration etc...) for over 60 years. Over 1,000,000 DP Gauges 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.