



Series  
3100

# Explosion-Proof Differential Pressure Transmitter

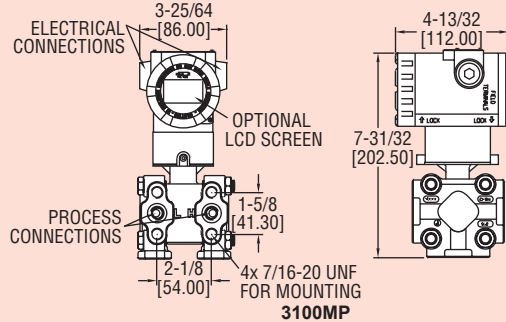
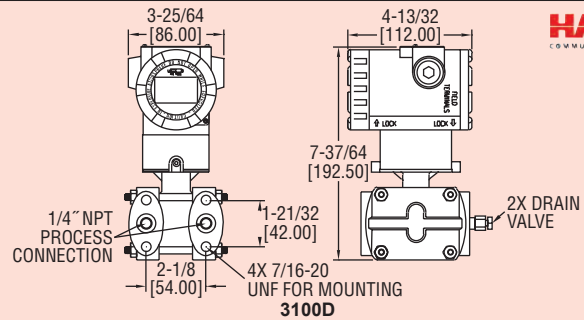
HART®, Push Button Configuration, Rangeability (100:1)



3100D



3100MP



The Mercoid® Series 3100 Smart Pressure Transmitter is a microprocessor-based high performance transmitter, which has flexible pressure calibration, push button configuration, and programmable using HART® Communication. The Series 3100 is capable of being configured for differential pressure or level applications with the zero and span buttons. A field calibrator is not required for configuration. The transmitter software compensates for thermal effects, improving performance. EEPROM stores configuration settings and stores sensor correction coefficients in the event of shutdowns or power loss. The Series 3100 is FM and ATEX approved for use in hazardous (classified) locations. The 100:1 rangeability allows the smart transmitter to be configured to fit any application.

**FEATURES**

- Configurable using zero/span buttons (no calibrator required)
- Rangeability (100:1)
- High accuracy (±0.075%)
- Automatic sensor temperature compensation
- Fail-mode process function
- Selectable engineering units

**APPLICATIONS**

- Flow measurement
- Level monitoring
- Filter or pump differential pressure
- Critical process monitoring

Model	Calibrated Span (Min. to Max.)		Lower Range Limit		Upper Range Limit		LCD Display
3100D-2-FM-1-1	0.6 to 30 in w.c.	0.15 to 7.5 kPa	-30 in w.c.	-7.5 kPa	30 in w.c.	7.5 kPa	No
3100D-3-FM-1-1	1.5 to 150 in w.c.	0.373 to 37.3 kPa	-150 in w.c.	-37.3 kPa	150 in w.c.	37.3 kPa	No
3100D-4-FM-1-1	7.5 to 750 in w.c.	1.865 to 186.5 kPa	-750 in w.c.	-186.5 kPa	750 in w.c.	186.5 kPa	No
3100D-5-FM-1-1	1 to 100 psi	6.9 to 690 kPa	-100 psi	-690 kPa	100 psi	690 kPa	No
3100D-6-FM-1-1	3 to 300 psi	20.68 to 2068 kPa	-300 psi	-2068 kPa	300 psi	2068 kPa	No
3100D-2-FM-1-1-LCD	0.6 to 30 in w.c.	0.15 to 7.5 kPa	-30 in w.c.	-7.5 kPa	30 in w.c.	7.5 kPa	Yes
3100D-3-FM-1-1-LCD	1.5 to 150 in w.c.	0.373 to 37.3 kPa	-150 in w.c.	-37.3 kPa	150 in w.c.	37.3 kPa	Yes
3100D-4-FM-1-1-LCD	7.5 to 750 in w.c.	1.865 to 186.5 kPa	-750 in w.c.	-186.5 kPa	750 in w.c.	186.5 kPa	Yes
3100D-5-FM-1-1-LCD	1 to 100 psi	6.9 to 690 kPa	-100 psi	-690 kPa	100 psi	690 kPa	Yes
3100D-6-FM-1-1-LCD	3 to 300 psi	20.68 to 2068 kPa	-300 psi	-2068 kPa	300 psi	2068 kPa	Yes

Consult factory for custom calibration.

Model	Calibrated Span (Min. to Max.)		Lower Range Limit		Upper Range Limit		LCD Display
3100MP-2-FM-1-1	0.6 to 30 in w.c.	0.15 to 7.5 kPa	-30 in w.c.	-7.5 kPa	30 in w.c.	7.5 kPa	No
3100MP-3-FM-1-1	1.5 to 150 in w.c.	0.373 to 37.3 kPa	-150 in w.c.	-37.3 kPa	150 in w.c.	37.3 kPa	No
3100MP-4-FM-1-1	7.5 to 750 in w.c.	1.865 to 186.5 kPa	-750 in w.c.	-186.5 kPa	750 in w.c.	186.5 kPa	No
3100MP-5-FM-1-1	1 to 100 psi	6.9 to 690 kPa	-100 psi	-690 kPa	100 psi	690 kPa	No
3100MP-6-FM-1-1	3 to 300 psi	20.68 to 2068 kPa	-300 psi	-2068 kPa	300 psi	2068 kPa	No
3100MP-2-FM-1-1-LCD	0.6 to 30 in w.c.	0.15 to 7.5 kPa	-30 in w.c.	-7.5 kPa	30 in w.c.	7.5 kPa	Yes
3100MP-3-FM-1-1-LCD	1.5 to 150 in w.c.	0.373 to 37.3 kPa	-150 in w.c.	-37.3 kPa	150 in w.c.	37.3 kPa	Yes
3100MP-4-FM-1-1-LCD	7.5 to 750 in w.c.	1.865 to 186.5 kPa	-750 in w.c.	-186.5 kPa	750 in w.c.	186.5 kPa	Yes
3100MP-5-FM-1-1-LCD	1 to 100 psi	6.9 to 690 kPa	-100 psi	-690 kPa	100 psi	690 kPa	Yes
3100MP-6-FM-1-1-LCD	3 to 300 psi	20.68 to 2068 kPa	-300 psi	-2068 kPa	300 psi	2068 kPa	Yes

Consult factory for custom calibration.

**SPECIFICATIONS**

**Service:** Compatible gases, steam, liquids or vapors.  
**Wetted Materials:** 316L SS.  
**Accuracy:** ±0.075% FS (@ 20°C).  
**Rangeability:** 100:1 turn down.  
**Stability:** ±0.125% FSO/yr.  
**Temperature Limits:**  
 Process: -40 to 248°F (-40 to 120°C);  
 Ambient: Without LCD: -40 to 185°F (-40 to 85°C);  
 With LCD: -22 to 176°F (-30 to 80°C).  
**Pressure Limits:** Max. pressure: Range: -14.5 to 2000 psi; Burst pressure: 10000 psi.  
**Thermal Effect:** ±0.125% span/32°C.  
**Power Requirements:** 11.9 to 45 VDC.

**Output Signal:** 4 to 20 mA / HART® Communication.

**Response Time:** 0.12 seconds.

**Damping Time:** 0.25 to 60 seconds.

**Loop Resistance:**  
 Operation: 0 to 1500 Ω;  
 HART® Communication: 250 to 500 Ω.

**Electrical Connection:** Two 1/2" female NPT conduit, screw terminal.

**Process Connection:** 1/4" female NPT.

**Display:** Optional 5 digit LCD.

**Enclosure Rating:** NEMA 4X (IP66) and explosion-proof for Class I, Div I, Groups A, B, C and D.

**Weight:** 8.6 lb (3.9 kg).

**Agency Approvals:** ATEX, CE, FM.

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## Ordering Chart

<b>Example</b>	3100D	2	FM	3	1	LEC	S2	A1	05	S	2	05	10	LCD	3100D-2-FM-3-1-LECS2A105S2-05-10-LCD
<b>Series</b>	3100D 3100MP														3100D Explosion-Proof Differential Pressure Transmitter 3100MP Multiplanar Explosion-Proof Differential Pressure Transmitter
<b>Range</b>		1 2 3 4 5 6 7													0 to 6 in w.c. 0 to 30 in w.c. 0 to 150 in w.c. 0 to 750 in w.c. 0 to 100 psi 0 to 300 psi 0 to 1000 psi
<b>Approval</b>			FM ATEX WP												FM approved ATEX approved NEMA 4X (IP66) [Only available with 316 SS housing]
<b>Process Connection</b>				1 3											1/4" female NPT Diaphragm seal
<b>Electrical Connection</b>				1											1/2" female NPT
<b>Diaphragm Seal Type</b>					LEC LED LEH LEL LFC LFD LFH LFL										2 extended diaphragm seals capillary type 1 extended diaphragm seal direct mount high side 1 extended diaphragm seal capillary type high side 1 extended diaphragm seal capillary type low side 2 flush diaphragm seals capillary type 1 flush diaphragm seal direct mount high side 1 flush diaphragm seal capillary type high side 1 flush diaphragm seal capillary type low side
<b>Mounting Flange</b>						S2 S3									2" (50 mm) 316L SS 3" (80 mm) 316L SS
<b>Mounting Flange Rating</b>						A1 A2 D1 D2 J1 J2									ANSI class 150# ANSI class 300# DIN PN 10/16 DIN PN 25/40 JIS 10 K JIS 20 K
<b>Extension Length</b>									00 05 10 15						No extension [standard for flush mount] 2" extension 4" extension 6" extension
<b>Diaphragm Material</b>									S P H T						316L SS diaphragm PTFE and 316L SS diaphragm Hastelloy C-276 diaphragm Tantalum diaphragm
<b>Fill Fluid</b>										2					Silicon oil (-40 to 400°F)
<b>Capillary Length High Side</b>											XX				0 to 20 feet
<b>Capillary Length Low Side</b>												XX			0 to 20 feet
<b>Options</b>													LCD SSH NIST CC		5 digit LCD 316 SS housing (Only available with WP approval) NIST calibration Custom calibration

## Custom Calibration Values

<b>Primary Units</b>	in H <sub>2</sub> O, ft H <sub>2</sub> O, mm H <sub>2</sub> O, in Hg, psig, g/cm <sup>2</sup> , kg/cm <sup>2</sup> , MPa, Pa, kPa, bar, mbar, Torr, Atm, mm Hg
<b>Upper Range Limit</b>	20 mA value
<b>Lower Range Limit</b>	4 mA value
<b>Output</b>	Linear or square root
<b>Damping Time</b>	0 to 60 seconds
<b>Display Mode</b>	Unit, %, mA, rotate
<b>Display Units</b>	Primary unit or Engineering unit
<b>Engineering Units*</b>	<b>Volumetric Flow Units</b> US gal/s, US gpm, US gal/hr, US gpd, imp gal/s, imp gpm, imp gal/hr, imp gpd, l/s, l/min, l/hour, ft/s, m/s, metric gal/day, metric l/day, ft <sup>3</sup> /s, ft <sup>3</sup> /min, ft <sup>3</sup> /h, ft <sup>3</sup> /day, m <sup>3</sup> /s, m <sup>3</sup> /min, m <sup>3</sup> /hr, m <sup>3</sup> /day, normal l/hr, normal m <sup>3</sup> /hr, standard ft <sup>3</sup> /min, barrels/s, barrels/min, barrels/hr, barrels/day <b>Mass Flow Units</b> g/s, g/min, g/hr, kg/s, kg/min, kg/hr, kg/day, metric ton/min, metric ton/hour, metric ton/day, lb/s, lb/min, lb/hr, lb/day, short ton/min, short ton/hr, short ton/day, long ton/hr, long ton/day <b>Volume Units</b> gallons, liters, imp gallons, m <sup>3</sup> , barrels, bushels, yd <sup>3</sup> , ft <sup>3</sup> , in <sup>3</sup> , bbl liq, normal cubic meter, normal liter, standard cubic feet, hectoliters
<b>Engr. Upper Range Limit*</b>	Engr. upper value
<b>Engr. Lower Range Limit*</b>	Engr. lower value
<b>Engr Function*</b>	Linear or square root

\*Engineering Units, Engr. Upper Range Limit, Engr. Lower Range Limit and Engr. Function values are only required if engineering unit is selected.

## ACCESSORIES

- A-630, Stainless steel angle type bracket with SS bolts
- A-631, Stainless steel flat type bracket with SS bolts
- BBV-1F, Flanged 3-valve block manifold
- BBV-22F, Flanged 5-valve block manifold
- DevCom2000, HART® Communication Protocol Software