

# LD290

**SMART PRESSURE TRANSMITTERS**  
4 to 20 mA Microprocessor Based



**smar**

The series **LD29X** is the economical alternative in routine gage pressure measurement. This lightweight design eliminates the need for mounting brackets and transmitter supports in many applications.

The model LD290 is a pure 4-20 mA transmitter. Even though it has only analog output, its microprocessor-based electronics allow for total interchangeability with SMAR capacitive sensors. It automatically corrects sensor characteristic changes caused by temperature fluctuations.

All members of the LD29X use SMAR's field proven capacitive sensors. Also, an optional LCD indicator can be added to provide additional operations and local indication.



- ✓ 0 ~ 1.25 kPa to 0 ~ 25 MPa (0 ~ 5 inH<sub>2</sub>O to 0 ~ 3600 psi)
- ✓ **NEW** ±0.1% accuracy of the calibrated span
- ✓ Accepts calibration from URL to URL/40
- ✓ Wetted parts in 316 SST or Hastelloy
- ✓ Digital display (optional)
- ✓ Zero, span and damping adjustment through local switches (only if fitted with display)
- ✓ Digital electronics and sensor
- ✓ Self diagnostics
- ✓ Weather proof, explosion proof and intrinsically safe

## Functional Specifications

### Service

Liquid, gas or vapor application

### Output

Two-wire 4-20 mA

### Power Supply

12 - 45 Vdc

### Load Limitation

Max. Impedance  $\approx (V_{\text{POWER SUPPLY}} - 12 \text{ Vdc}) / 0.02\Omega$

### Indicator

Optional 4½-digit numerical and 5-character alphanumerical LCD indicator.

### Hazardous Area Certifications

Explosion proof, weather proof and intrinsically safe (CENELEC, CSA and FM standards).

### Zero and Span Adjustment

By Local Adjustment from 0 to 0.975 URL, URL = Upper Range Limit.

### Temperature Limits

Ambient: -40 to 85 °C (-40 to 185 °F).  
 Process: -40 to 100 °C (-40 to 212 °F) (Silicone Oil).  
 0 to 85 °C (-32 to 185 °F) (Fluorolube Oil).  
 Storage: -40 to 100 °C (-40 to 212 °F).  
 Display: -10 to 60 °C (14 to 140 °F) operation.  
 -40 to 85 °C (-40 to 185 °F) without damage.

### Failure Alarm

In case of sensor or circuit failure, the self diagnostics drives the output to 3.9 or 21.0 mA

### Turn-on Time

Performs within specifications in less than 10 seconds after power is applied to the transmitter.

### Overpressure Limits

14 MPa (2000 psi) for ranges 2, 3, 4  
 31 MPa (4500 psi) for range 5

These overpressures will not damage the transmitter, but a new calibration may be necessary.

### Humidity Limits

0 to 100% RH.

## Performance Specifications

NEW

### Accuracy

$\pm 0.1\%$  of span (for span  $\geq 0.1$  URL).  
 $\pm 0.05 (1 + (0.1 \text{ URL}/\text{span}))\%$  of span (for span  $< 0.1$  URL).

For Ranges 5:

$\pm 0.2\%$  of span (for span  $\geq 0.1$  URL).  
 $\pm 0.1 (1 + (0.1 \text{ URL}/\text{span}))\%$  of span (for span  $< 0.1$  URL).

### Stability

$\pm 0.2\%$  of URL for 1 year.

### Temperature Effect

$\pm(0.18\% \text{ URL} + 0.18\% \text{ span})$  per 20 °C (36 °F).

### Power Supply Effect

0.005% of calibrated span per volt.

### Mounting Position Effect

Zero shift of up to 250 Pa (1 inH<sub>2</sub>O) which can be calibrated out. No span effect.

### Electro-Magnetic Effect

Designed to comply with IEC 801 and European standards EN50081 and EN50082.

## Physical Specifications

### Electrical Connection

½ - 14 NPT, Pg 13,5 or M20 x 1,5

### Process Connection

½ - 14 NPT (Female or Male), G ½ A DIN 16288 (Male).

### Wetted Parts

- Isolating Diaphragms and Process Connection  
316L SST, Hastelloy C276.

### Nonwetted Parts

- Electronic Housing  
Injected aluminum with polyester painting or 316 SST (NEMA 4X, IP67).
- Fill Fluid  
Silicone or Fluorolube Oil.
- Cover O-Rings  
Buna N.
- Mounting Bracket  
Optional universal mounting bracket for surface or vertical/horizontal 2"-pipe (DN 50) carbon steel with polyester painting or 316 SST. Accessories (bolts, nuts, washers and U-clamp) in carbon steel or 316 SST.
- Identification Plate  
316 SST.

### Approximate Weights

< 2.0 kg (4lb): aluminum housing without mounting bracket.



MODEL LD290	SMART PRESSURE TRANSMITTERS - 4 to 20 mA Microprocessor Based									
CODE		Range								
M2	Gage	1.25	to	50 kPa	5	to	200 inH <sub>2</sub> O			
M3	Gage	6.25	to	250 kPa	25	to	1000 inH <sub>2</sub> O			
M4	Gage	62.50	to	2500 kPa	9	to	360 psi			
M5	Gage	0.625	to	25 MPa	90	to	3600 psi			
CODE		Diaphragm Material		Fill Fluid (Low Side)			Process Connection Material			
1I	316L SST	Silicone Oil			316L SST					
2I	316L SST	Fluorolube Oil			316L SST					
3H	Hastelloy C276	Silicone Oil*			Hastelloy C276*					
4H	Hastelloy C276	Fluorolube Oil*			Hastelloy C276*					
Z	Others - Specify									
CODE		Local Indicator								
0	Without Indicator									
1	With Digital Indicator									
CODE		Process Connections								
1	½ - 14 NPT- Female									
G	G ½ A DIN 16288 Form B - Male									
H	G ½ A DIN 16288 Form D - Male									
M	½ - 14 NPT - Male									
Z	Others - Specify									
CODE		Electrical Connections								
0	½ - 14 NPT									
A	M20 x 1,5									
B	Pg 13,5 DIN									
CODE		Mounting Bracket								
0	Without Mounting Bracket									
1	Carbon Steel Mounting Bracket with Carbon Steel accessories									
2	316 SST Mounting Bracket with 316 SST accessories									
7	Carbon Steel Mounting Bracket with 316 SST accessories									
Z	Others - Specify									
CODE		Optional Items **								
H1	316 SST Housing									
ZZ	Special Options - Specify									

LD290 - M2 | 1I | 0 - 1 | A - 0 / \*\* ← TYPICAL MODEL NUMBER

\* Meets NACE material recommendations per MR-01-75.

\*\* Leave it blank for no optional items.

Hastelloy is a trademark of the Cabot Corp.

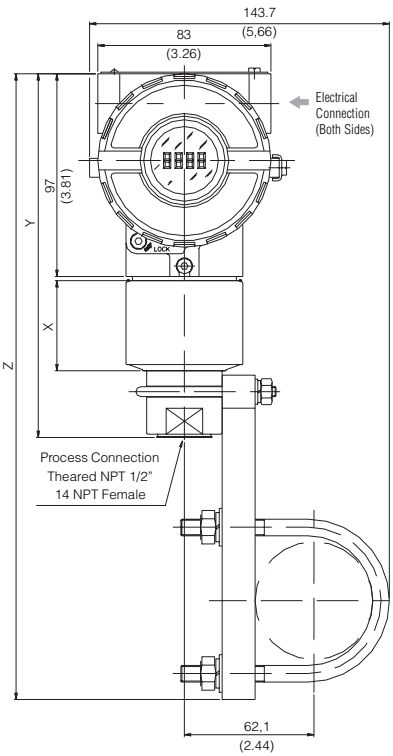
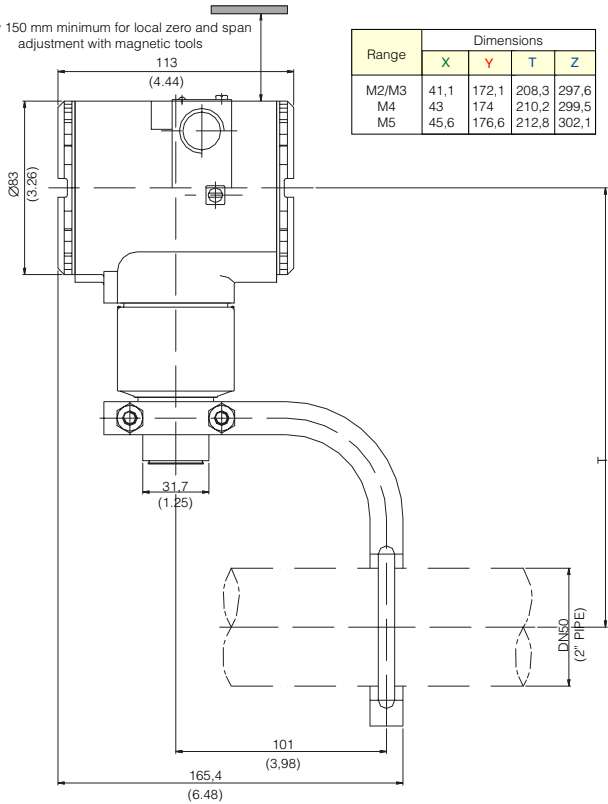
Fluorolube is a trademark of Hooker Chemical Corp.

HART is a trademark of Hart Communication Foundation.

Dimensions are mm (in)

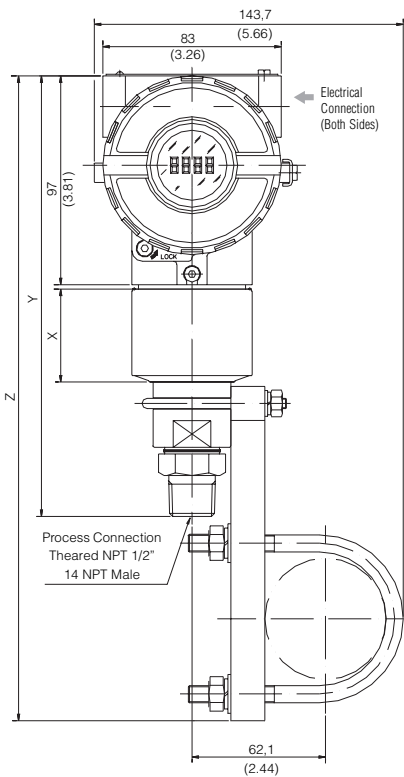
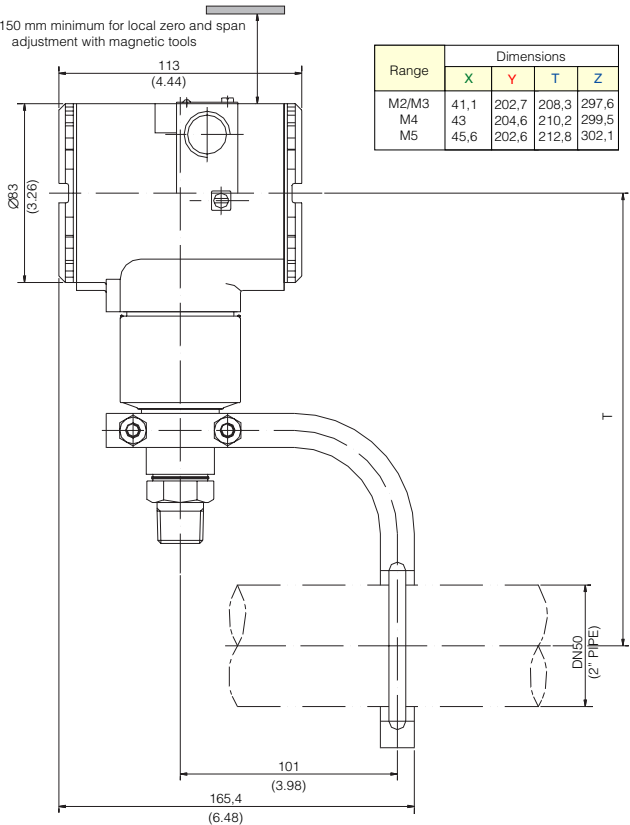
FEMALE

Allow 150 mm minimum for local zero and span adjustment with magnetic tools



MALE

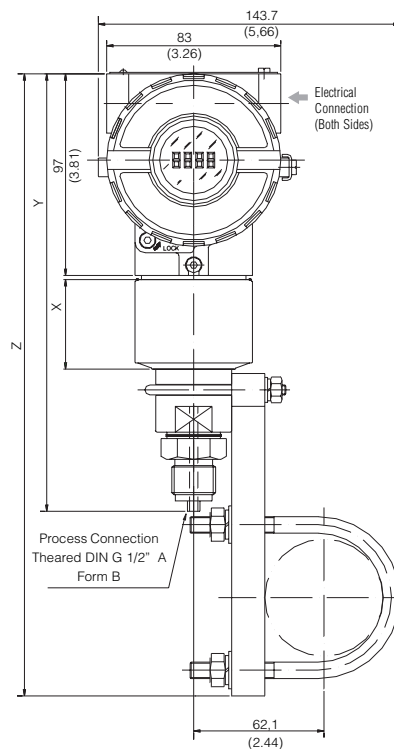
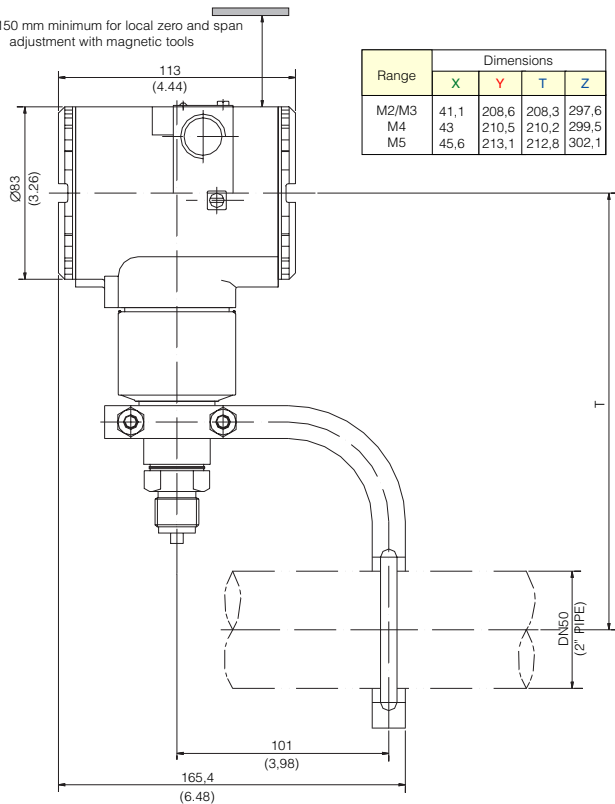
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Dimensions are mm (in)

## MALE

Allow 150 mm minimum for local zero and span adjustment with magnetic tools



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