

Model IDP10 Differential Pressure Transmitter

- Application Versatility
- Rugged Dependability
- Superior Performance
- Choice of Electronics Modules
- LCD Indicator / Pushbutton Configurator
- NEMA 4X / IP66 Protection
- CENELEC, CSA, FM and SAA Approval
- Choice of Electronics Modules

General Description

The Foxboro I/A Series transmitters are a complete family of differential pressure, gauge pressure, and absolute pressure transmitters. Remote seals and flanged versions are available.

IDP10 series intelligent two-wire DP cell transmitters measure the difference between two pressures and transmit a proportional or square root (flow) electrical signal, in either analogue or digital mode.

Functional Specifications

Output Signal and Configuration

Version	Output Options	Configure From
-A	Analogue 4-20 mA	Standard push buttons
-I	Analogue 4-20 mA	Standard push buttons
-T	HART/4-20 mA	HART 275 Communicator (Foxboro HT991) Windows Software (Foxboro PC20) Optional push buttons
-D	Digital FOXCOM or Analogue 4-20 mA	I/A Series Workstation Hand-Held Terminal (Foxboro HHT) Windows Software (Foxboro PC20) Optional push buttons

Span and Range Limits

Span Limit Code	Span Limits			Range Limits		
	kPa	inH ₂ O	mbar	kPa	inH ₂ O	mbar
A	0.12 and 7.5	0.5 and 30	1.2 and 75	-7.5 and +7.5	-30 and +30	-75 and +75
B	0.87 and 50	3.5 and 200	8.7 and 500	-50 and +50	-200 and +200	-500 and +500
C	7.0 and 210	28 and 840	70 and 2100	-210 and +210	-840 and +840	-2100 and +2100
	MPa	psi	bar or kg/cm ²	MPa	psi	bar or kg/cm ²
D	0.07 and 2.1	10 and 300	0.7 and 21	-0.21 and 2.1	-30 and +300	-2.1 and +21
E	0.7 and 21	100 and 3000	7 and 210	-0.21 and 21	-30 and +3000	-2.1 and +210

FOXBORO**IDP10 Differential Pressure Transmitter**

Maximum Static and Overrange Ratings

25 MPa, 3625 psi, 250 bar or kg/cm². (Either side may be higher pressure during overrange). Note that this value may be reduced when IDP10 is ordered with certain options.

Suppressed and Elevated Zero

Suppressed or elevated zero ranges are acceptable as long as the span and range limits are not exceeded.

Electrical Classification

Various certifications are available, including EExia IIC Intrinsically Safe Zone 0, EExd IIC Flameproof Zone 1 and ExN Non Sparking Zone 2.

Supply Voltage - mA Output

11.5 to 42 V DC

Relative Humidity

0 to 100%

Sensor Body Temperature

Silicone Fill Fluid : -46 to +121°C

Fluorinert Fill Fluid : -29 to +121°C

Electronics Temperature

Without Indicator : -40 to +85°C

With Indicator : -29 to +85°C

LCD Indicator and Push Buttons

Standard for IDP10-A and IDP10-I, optional for IDP10-D and IDP10-T.

The indicator provides two lines; 5 numeric characters on the top line and 7 alphanumeric characters on the bottom line.

The pushbuttons allow for configuration of:

- linear or square root output
- adjustable damping
- forward or reverse output
- failsafe output (upscale or downscale)
- re-ranging without applying pressure (not -I)

Optional External Zero Adjustment

External zero adjustment makes it easier to zero the transmitter in the field, especially in hazardous locations.

Physical Specifications**Process Cover and Sensor Materials**

A wide range of process cover/sensor material combinations is available.

Process cover materials include Carbon Steel, 316 S/S, Monel® and Hastelloy® C.

Sensor materials include Cobalt-Nickel-Chromium, 316L S/S, Gold Plated 316L S/S, Monel®, Hastelloy® C and Tantalum.

Process Cover Bolts and Nuts

ASTM A193 B7 and ASTM A194 2H bolts and nuts are standard. Options include NACE Class B7M, 17-4 PH S/S and 316 S/S.

Process Connections

A range of different process connections is available, including 1/4" NPT and 1/2" NPT

Sensor Fill Fluids

Silicone Oil or Fluorinert.

Environmental Protection

The transmitter is dust-tight and weatherproof per IEC IP66 and provides the environmental

and corrosion resistant protection of NEMA Type 4X.

Mounting Position

The transmitter may be mounted in any orientation. Any zero effect caused by the mounting position can be eliminated by re-zeroing.

Approximate Mass

Without process connectors - 3.5 kg

With process connectors - 4.2 kg

With LCD indicator - Add 0.2 kg

Performance Specifications**Accuracy**

Version	Configured Output Signal	Accuracy in % of Calib. Span
IDP10-D & IDP10-T	Digital Linear Digital Square Root 4-20 mA Linear 4-20 mA Square Root	±0.07 ±0.10 ±0.10 ±0.13
IDP10-I & IDP10-A	4-20 mA Linear 4-20 mA Square Root	±0.20 ±0.20

Includes Linearity, Hysteresis and Repeatability.

Not valid for small spans.

Stability

Long term drift is less than ±0.1% of upper range limit over a 12-month period.

Ambient Temperature Effect

Less than ±0.2% of upper range limit for a 55°C change.

Further Information

For more comprehensive specifications, please refer to the following Foxboro Product Specification Sheets:-

IDP10-A : PSS 2A-1C14C

IDP10-I : PSS 2A-1C14C

IDP10-T : PSS 2A-1C14B

IDP10-D : PSS 2A-1C14A

These are available from Thermocouple Instruments Ltd, on request.

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