

EB100 High Accuracy Miniature Pressure Transducer



- Miniature design (body \varnothing 11 mm)
- High Accuracy
- EMI Protected per CE Compliance
- Wide Temperature Range
- Absolute

DESCRIPTION

The EB100 pressure transducer is the smallest design proposed by MEAS from the UltraStable line. The EB100 sets a new price/performance standard for demanding commercial and heavy industrial applications where high accuracy, small size and low weight are desirable. This series is suitable for measurement of liquid or gas pressure, including difficult media such as contaminated water, steam, and mildly corrosive fluids.

The EB100 uses MEAS' UltraStable technology that provides stability over a wide temperature range and performance previously available only in much higher priced sensors. The UltraStable technology employs a silicon-based strain gage, isolated from the media by an oil-filled capsule and a stainless steel diaphragm. The high stability is provided through MEMS-based technology, which also offers excellent repeatability and minimal hysteresis. The 100% stainless steel media isolation covers all but the most corrosive environments, offering excellent durability. Custom OEM designs are available including various ports and output options.

The standard version is suitable for many applications, but the dedicated design team at our Transducer Engineering Centre stands ready to provide a semi-custom design where the volume and application warrants.

FEATURES

- Miniature Design and Light Weight
- Pressure Range: 20 to 350Bar (300 to 5000psi)
- \pm 1% Total Error Band
- -40°C to +125°C Operating Temperature Range

APPLICATIONS

- Motor Sport: Oil, Coolant, Fuel, Brake Systems
- Hydraulic/Pneumatic Systems
- Automotive Test Stands
- Military/Aerospace Test Stands

STANDARD RANGES

Pressure Ranges		Type	Pressure Overload	Burst Pressure
(Bar)	(Psi)	Absolute	(rated pressure)	(rated pressure)
0 to 020	0 to 300	•	2X	3X
0 to 035	0 to 500	•	2X	3X
0 to 070	0 to 01K	•	2X	3X
0 to 100	0 to 1K5	•	2X	3X
0 to 200	0 to 03K	•	2X	3X
0 to 350	0 to 05K	•	2X	3X

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PERFORMANCE SPECIFICATIONS

Ambient Temperature: 25°C (unless otherwise specified)

PARAMETERS	MIN	TYP	MAX	UNITS	NOTES
Accuracy (RSS of linearity, hysteresis, and repeatability)	-0.25		0.25	%Span	1
Long Term Stability (1 year)	-0.1		0.1	%Span	
Total Error Band (over compensated range)	-1		+1	%Span	2
Bandwidth (-3 dB)			120	Hz	
Isolation resistance	50			MΩ (50 Vdc)	
Compensated Temperature	-20 (-4)		+125 (+257)	°C (°F)	
Operating Temperature	-40 (-40)		+125 (+257)	°C (°F)	
Storage Temperature	-40 (-40)		+125 (+257)	°C (°F)	
Vibration (20 to 200Hz)	20			g	3
Shock (11ms)	50			g	4
Pressure Cycles (Zero to Full Scale)	1			Million	
Weight (without cable)			15	grams	5
Ingress Protection	IP66				
Media Compatibility	Media compatible with 17-4PH, 316 S.S. and FKM Fluoroelastomer				

For custom configurations, consult factory.

Notes

- Best fit straight line for all pressure ranges except for 200 bar (3 kpsi) = +/-0.35% and 350 bar (5 kpsi) = +/-0.5%.
- TEB includes all accuracy errors, thermal errors, span and zero tolerances.
- Per MIL-STD-810C, Procedure 514.2, Figure 514.2-2, Curve L.
- 1/2 sine per MIL-STD 202F Method 213B condition A.
- 21 grams per meter of cable to be added

CE Compliance

IEC 55022 Emissions Class A & B

IEC 61000-4-2 Electrostatic Discharge Immunity (2kV contact/2kV air)

IEC 61000-4-3 EM Field Immunity (3V/m)

IEC 61000-4-4 Electrical Fast Transient Immunity (0.5kV)

IEC 61000-4-6 Conducted Immunity (3V)

SUPPLY VOLTAGE / OUTPUT SIGNAL AND ELECTRICAL CONNECTION OPTIONS

SUPPLY VOLTAGE

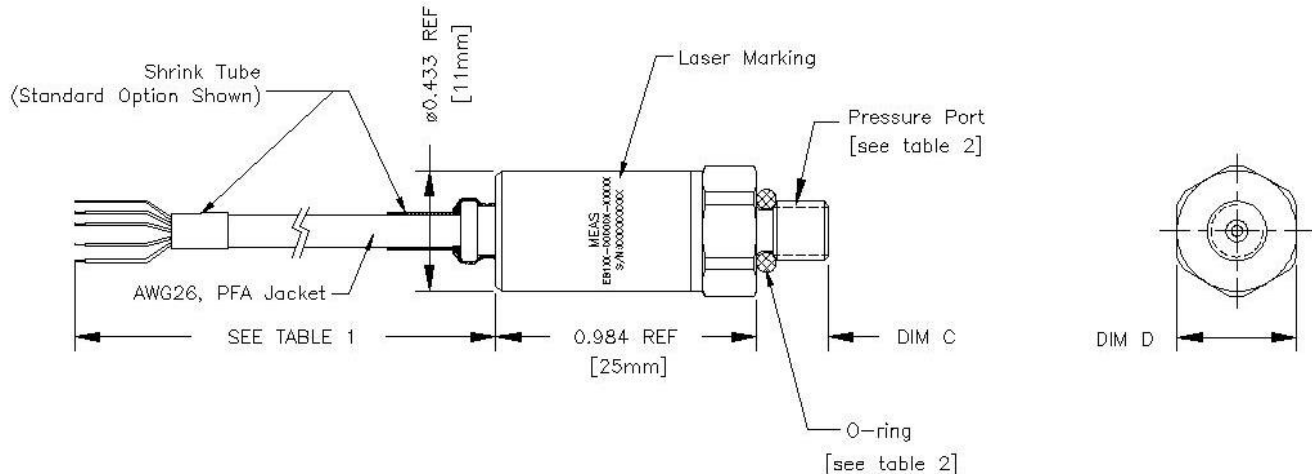
Code	Supply voltage	Output signal
U	8 to 30 V (current < 5 mA)	0.5 – 4.5 V

ELECTRICAL CONNECTION OPTIONS (table 1)

Code	Connection
M	1 metre of shielded cable (PFA)
P	5 metres of shielded cable (PFA)
R	10 metres of shielded cable (PFA)
S	1 metre of shielded cable (PFA) fully covered by shrink tube model Raychem DR25 or equivalent

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DIMENSIONS



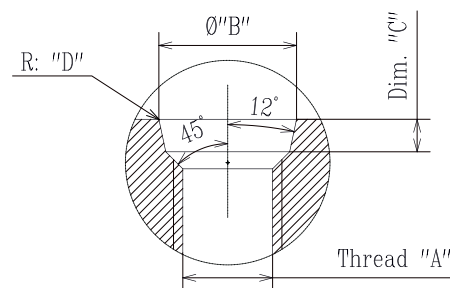
PHYSICAL (table 2)

MODEL	PRESSURE PORT	LENGTH "C"	HEX. "D"	O-RING SUPPLIED	INSTALLATION TORQUE (MAX.)
N	M5x0.8	6.6 (.26")	11 (.433")	Ø3.5x1.5 FKM Fluoroelastomer	1 Nm (9 In-Pounds)
V	10-32 UNF-2A	6.6 (.26")	11 (.433")	Ø3.5x1.5 FKM Fluoroelastomer	1 Nm (9 In-Pounds)
S	M8x1	7.6 (.30")	11 (.433")	Ø6.07x1.63 FKM Fluoroelastomer	3 Nm (27 In-Pounds)
Q	5/16-24 UNF-2A	7.6 (.30")	11 (.433")	Ø6.07x1.63 FKM Fluoroelastomer	3 Nm (27 In-Pounds)
P	M10x1	8.2 (.32")	13 (.512")	Ø7.65x1.63 FKM Fluoroelastomer	5 Nm (27 In-Pounds)
X	3/8-24 UNF-2A	8.2 (.32")	13 (.512")	Ø7.65x1.63 FKM Fluoroelastomer	5 Nm (27 In-Pounds)

INSTALLATION AND CONNECTION

RECOMMENDED PRESSURE FITTING DESIGN⁽¹⁾

Thread "A"	Dim. "B"	Dim. "C"	Dim. "D"
M5x0.8 ⁽²⁾	6.35 mm	1.5 mm	0.2 mm
10-32 UNF ⁽²⁾	0.25"	0.059"	0.008"
M8x1	9.1 mm	1.9 mm	0.3 mm
5/16-24 UNF-2A	0.358"	0.074"	0.012"
M10x1	10.7 mm	1.9 mm	0.3 mm
3/8-24 UNF-2A	0.421"	0.074"	0.012"



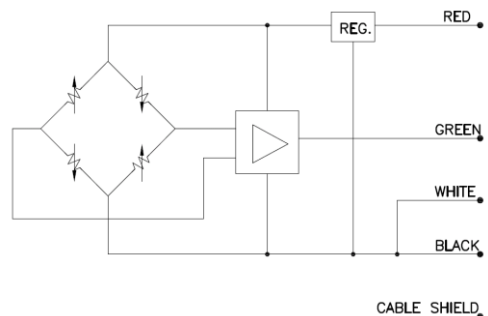
(1) This pressure fitting design is only a recommendation but it stays under customer's responsibility.

(2) For model M5x0.8 or 10-32 UNF used with pressure higher than 200 bar (3 kpsi) it is recommended to replace o-ring by bonded ring (ref: MSE05417) and to design the pressure fitting without o-ring chamber.

WIRING: SHIELDED CABLE 4 LEADS AWG26

RED	+SUPPLY
GREEN	+OUTPUT
WHITE	-OUTPUT
BLACK	-SUPPLY

Cable shield not connected to body



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ORDERING INFORMATION

EB1	U	M	-	0000	1	5	-	100B	G	
Model	Supply Voltage	Connection Type	-	0000	Calibration Certificate	Pressure Port	-	Pressure Range	Pressure Type	
EB1	U = 8 to 30V	M = 1 Meter Cable P = 5 Meter Cable R = 10 Meter Cable S = 1 Meter Cable fully covered by shrink tube Raychem DR25 or equivalent	-		0 = No calibration certificate 1 = With calibration certificate	S = M8x1 Q = 5/16-24 UNF N = M5x0.8 V = 10-32 UNF Male P = M10x1 Male X = 3/8-24 UNF Male	-	300P 500P 01KP 1K5P 03KP 05KP	020B 035B 070B 100B 200B 350B	A = Absolute

Note: For pressure ports M5x0.8 or 10-32UNF used with pressure higher than 200Bar (3000psi), it is recommended to replace the o-ring with a bonded ring, and to design the pressure fitting without the o-ring chamber. Please contact factory for details.

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