

## EB100

### High Accuracy Miniature Pressure Transducer

#### SPECIFICATIONS

- ♦ Ranges from 20 to 350 bar (300 to 5,000 psi)
- ♦ Unique pressure reference version Absolute
- ♦ Operating temperature up to 125 °C (257 °F)
- ♦ Combined errors of linearity, hysteresis & repeatability  $\pm 0.25\%$
- ♦ 0.5 to 4.5V amplified output

The **EB100** pressure transducer is the smallest design proposed by TE Connectivity from the UltraStable line. It 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 TE's 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 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.

On request, Instruction documents can be provided to ease the selection and use of our sensors and provide helpful tips.

#### FEATURES

- ♦ Miniature Design and Light Weight
- ♦  $\pm 1\%$  Total Error Band
- ♦ Available male threads such as :  
M5x0.8  
10-32 UNF  
M8x1  
5/16-24 UNF

#### APPLICATIONS

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

## STANDARD RANGES

| Ranges (FS) |      | Pressure Reference | Pressure Overload | Burst Pressure   |
|-------------|------|--------------------|-------------------|------------------|
| bar         | psi  | abs. (type3)       | (rated pressure)  | (rated pressure) |
| 20          | 300  | ♦                  | 2 x FS            | 3 x FS           |
| 35          | 500  | ♦                  | 2 x FS            | 3 x FS           |
| 70          | 1K   | ♦                  | 2 x FS            | 3 x FS           |
| 100         | 1.5K | ♦                  | 2 x FS            | 3 x FS           |
| 200         | 3K   | ♦                  | 2 x FS            | 3 x FS           |
| 350         | 5K   | ♦                  | 2 x FS            | 3 x FS           |

## PERFORMANCE SPECIFICATIONS (typical values at temperature 23±3°C)

| PARAMETERS                                            | VALUES                                                          | NOTES |
|-------------------------------------------------------|-----------------------------------------------------------------|-------|
| Combined Non-Linearity, Hysteresis, and Repeatability | ±0.25 %FS                                                       | 1     |
| Long Term Stability (1 year)                          | ±0.1 %FS                                                        |       |
| Total Error Band (TEB over CTR)                       | ±1 %FS                                                          | 2     |
| Bandwidth (-3 dB)                                     | 120 Hz                                                          |       |
| Isolation resistance @50V <sub>DC</sub>               | 50 MΩ                                                           |       |
| Compensated Temperature Range (CTR)                   | -20 to +125 °C (-4 to +257 F)                                   |       |
| Operating Temperature Range (OTR)                     | -40 to +125 °C (-40 to +257 F)                                  |       |
| Storage Temperature                                   | -40 to +125 °C (-40 to +257 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 +21 grams per meter of cable                           |       |
| Ingress Protection                                    | IP66                                                            |       |
| Media Compatibility                                   | Fluids compatible with 17-4PH, 316 S.S. and FKM Fluoroelastomer |       |

## Notes

1. Best fit straight line for all pressure ranges except for 200 bar (3 kpsi) = +/-0.35% and 350 bar (5 kpsi) = +/-0.5%.
2. TEB includes all accuracy errors, thermal errors, span and zero tolerances.
3. Per MIL-STD-810C, Procedure 514.2, Figure 514.2-2, Curve L.
4. 1/2 sine per MIL-STD 202F Method 213B condition A.

## CE compliance

IEC 55022 Emissions Class A &amp; 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)

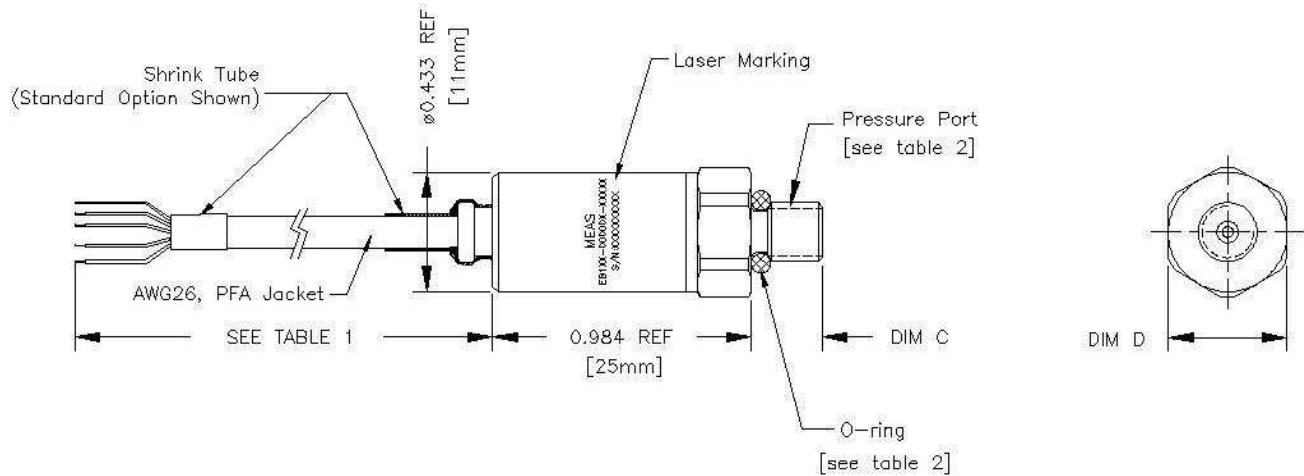
IEC 61000-4-6 Conducted Immunity (3V)

| SUPPLY VOLTAGE |                            |             | ELECTRICAL CONNECTION OPTIONS (table 1) |                                                                                               |
|----------------|----------------------------|-------------|-----------------------------------------|-----------------------------------------------------------------------------------------------|
| Code           | Supply voltage             | Signal      | Code                                    | Connection                                                                                    |
| U              | 8 to 30 V (current < 5 mA) | 0.5 – 4.5 V | 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 |

## DIMENSIONS

## EB100

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**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 & CONNECTION

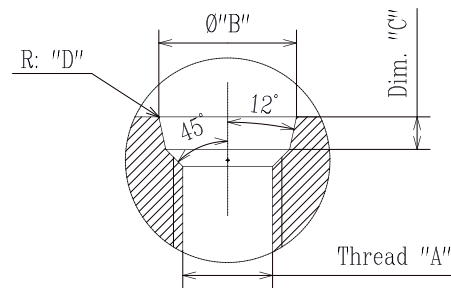
### RECOMMENDED PRESSURE FITTING DESIGN<sup>(1)</sup>

| Thread "A"               | Dim. "B" | Dim. "C" | Dim. "D" |
|--------------------------|----------|----------|----------|
| M5x0.8 <sup>(2)</sup>    | 6.35 mm  | 1.5 mm   | 0.2 mm   |
| 10-32 UNF <sup>(2)</sup> | 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. Tolerances on dimensions =  $\pm 0.05$  mm (0.002")

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

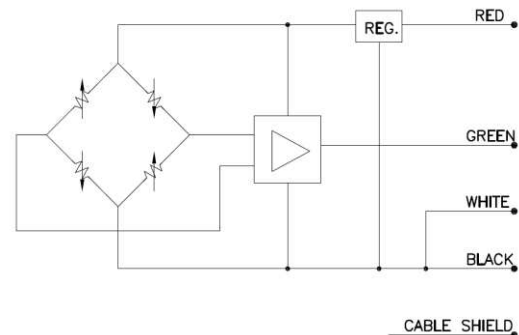
2. For model M5x0.8 or 10-32 UNF used with pressure higher than 200 bar (3k psi) it is recommended to replace O-ring by bonded ring (ref: MSE05417) and to design the pressure fitting without O-ring chamber.



### WIRING: SHIELDED CABLE 4 LEADS AWG26

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

The shield is not connected to sensor's body.



## ORDERING INFORMATION

EB1 U M – 0000 1 P – 300P A

| Output   |                |            |
|----------|----------------|------------|
| Code     | Supply Voltage | Output     |
| <b>U</b> | 8 – 30V        | 0.5 – 4.5V |

| Connection           |                |
|----------------------|----------------|
| Code                 | Connection     |
| <b>M</b>             | 1 meter Cable  |
| <b>P</b>             | 5 meter cable  |
| <b>R</b>             | 10 meter cable |
| <b>S<sup>1</sup></b> | 1 meter Cable  |

<sup>1</sup> Fully covered by Shrink tube  
Raychem DR25 or equivalent

| Calibration Certification |                              |
|---------------------------|------------------------------|
| Code                      | Calibration Certification    |
| <b>0</b>                  | No Calibration Certificate   |
| <b>1</b>                  | With Calibration Certificate |

| Pressure Range |            |
|----------------|------------|
| psi<br>std     | Bar<br>std |
| 300P           | 020B       |
| 500P           | 035B       |
| 01KP           | 070B       |
| 1K5P           | 100B       |
| 03KP           | 200B       |
| 05KP           | 350B       |

| Pressure Port |                                           |
|---------------|-------------------------------------------|
| Code          | Port                                      |
| <b>S</b>      | M8x1<br>Ø6.07x1.63 Viton O-ring           |
| <b>Q</b>      | 5/16-24 UNF<br>Ø6.07x1.63 Viton O-ring    |
| <b>N</b>      | M5x0.8<br>Ø3.5x1.5 Viton O-ring           |
| <b>V</b>      | 10-32 UNF Male<br>Ø7.06x1.63 Viton O-ring |
| <b>P</b>      | M10x1 Male<br>Ø7.65x1.63 Viton O-ring     |
| <b>X</b>      | 3/8-24UNF Male<br>Ø7.65x1.63 Viton O-ring |

The **psi** range models are only supplied with imperial thread design.  
The **bar** range models are only supplied with metric thread design

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