

## Senturion XPD25 Proximity Probe



### Applications

- Turbine Differential Expansion
- Large Rotor Expansion
- Low profile mounting
- Harsh Environments

### Features

- Switch selectable system cable lengths 5m, 7m and 9m.
- LED indication of selected length.
- 3.5mm socket for gap voltage monitoring.
- Double screened cable for high noise immunity.
- Snap lock and shake proof cable connection.
- Low profile driver for easy local integration to machine (Din rail mount opt).
- Excellent repeatability on replacement of probe, extension or driver.

The XPD25 proximity probe system consists of a calibrated probe, extension cable and driver. Utilising the eddy current principle, this combination forms a tuned circuit with the target material and variations in probe face to target distance are detected in this circuit by the driver. This provides a linearised voltage output proportional to target gap with a nominal sensitivity of 0.63 mV/um and a range over 25.0 mm. This type of measurement system provides highly accurate (resolution typically to a few micro-meters) relative positional measurements, for harsh environments up to 180 °C.

The driver unit offers selectable system lengths of 5 m, 7 m or 9 m, with a front panel green LED indicating the selected option. The gap voltage monitoring socket assists with commissioning the probe system; a volt meter can be connected directly to the driver through the 3.5 mm standard audio socket to display the gap voltage at the point of installation and the probe mechanical gap can then be adjusted to suite the application.

The cable system incorporates snap lock connectors which require no torqueing and provide a shake proof solution important for heavy industrial applications. The double screened cable offers robustness in combination with high immunity to interference and optional stainless steel convoluted armour is available for applications or environments where cable protection is paramount.

For pricing or any further information, please contact Omni Instruments Ltd.



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**System Performance**

Measurement Range: 25.0 mm

Linear Range: 1.26 mm (50 mil) to 26.7 mm (1050 mil) from electrical null position.

Electrical null position: Approximately 0.50 mm from target (Driver at 0 V).

Linearity:  $\pm 1\%$ , -2.0 V to -18.0 V  
 (% of FS)  $\pm 2\%$ , -1.0V to -18.0 V  
 $\pm 2\%$ , 0 °C to +150 °C @ -10.0V

Std Sensitivity: 0.63 V/mm (16 mV/mil)  $\pm 1\%$

Resolution: <0.003 mm

Interchangability: Maximum interchangability error replacing either probe, extension cable or driver in calibrated system is  $\pm 5\%$ .

Available system lengths: 5 m, 7 m and 9 m

Cable length tolerance

Probe (1 metre): 1.0 m to 1.5 m

Cable Extension (4 metre): 4.0 m to 4.4 m

Cable Extension (6 metre): 6.0 m to 6.6 m

Cable Extension (8 metre): 8.0 m to 8.8 m

Frequency Response: DC to 5 kHz

Maximum Cable Length: 330 m based on 120 pF/m at <10 kHz and 500 um pk-pk.  
 3000 m based on 120 pF/m at <1 kHz and 500 um pk-pk.

Reference Target Material: ANSI 4140

**Probe**

Probe tip diameter: 55.0 mm

Probe tip material: PPS 40 % Glass Filled

Probe body material: 303 stainless steel

Probe body format: Disk Type

Cable type: Triaxial 75 Ohm Coaxial  
 FEP outer jacket  
 3.2 mm outer diameter

Armoured option: Convuluted Stainless Steel  
 6.4 mm outer diameter

Probe Resistance: 1.1 Ohms  $\pm$  0.2 Ohm  
 With 1.0 m cable

Operating Temp Range: -30 °C to +180 °C

Storage Temp Range: -40 °C to +180 °C

Minimum target size: 2 x probe tip diameter

Magnetic field effect: <1 % at 110 mT

Connector: Female Miniature Coaxial

**Driver**

Linear voltage range: -1.0 V to -18.0 V for 1.26 mm Standard Option (50 mil) to 26.7 mm 1050 mil)

System length selection: Internal switch 5 m, 7 m or 9 m

System length indication: Green LED lamp

Power supply range: -16.0 Vdc to -28.0 Vdc  
 Note: Output voltage is limited to 1.2 V below supply voltage when supply is < -21.5 V.

Power supply: < 0.3 mVout / Vsupply sensitivity

Power consumption: 3 mA typ, 7 mA max

Output impedance: 75 Ohms

Monitor Output Impedance: 10 KOhm

Sensor Connector type: Self Locking Miniature Male Coaxial

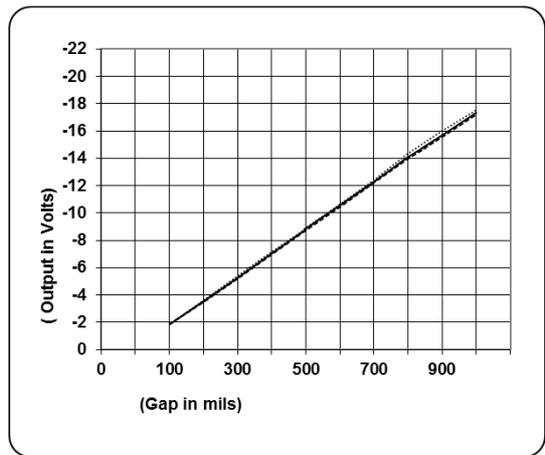
Monitor Connector type: 3.5 mm audio jack

Mounting: Din Rail or Plate

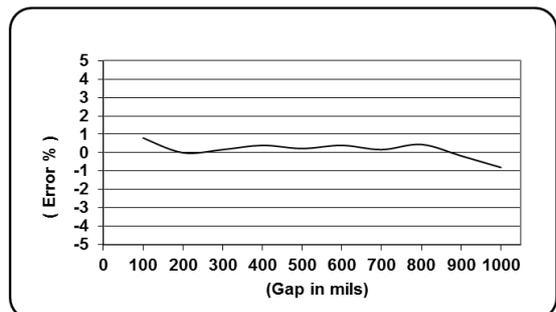
Mass: 250 grams

Operating Temp Range: -30 °C to +90 °C

Storage Temp Range: -40 °C to +90 °C



Typical 5m system performance  
 — 25 °C  
 ..... 150 °C  
 - - - 0 °C



Typical 9m system performance

**Probe Ordering Information**

XPD25 -

1.0 U 0 1

**Cable length**

- 1.0 – 1 m
- 5.0 – 5 m
- 7.0 – 7 m
- 9.0 – 9 m

**Cable protection**

- U – Unarmoured double screened (standard)
- C – Conduit (convoluted stainless steel)
- S – Heatshrink isolation over conduit
- G – M20 cable gland fitted to standard cable

**Range (sensitivity)**

0 = 1.27 - 26.7mm (0.63 mV/mm)

**Intrinsic Safety**

0 – None

**Driver Ordering Information**

XED25 -

U 0 0

**System length**

- U – Universal Driver for 5m, 7m and 9m systems (standard)
- S – Special requirements (2m, 14m, etc)

**Range (sensitivity)**

0 = 1.27 - 26.7mm (0.63 mV/mm)

**Intrinsic Safety**

0 – None

**Extension Cable Ordering Information**

XEC -

4.0 U 0

**Cable length**

- 4.0 – 4m
- 6.0 – 6m
- 8.0 – 8m

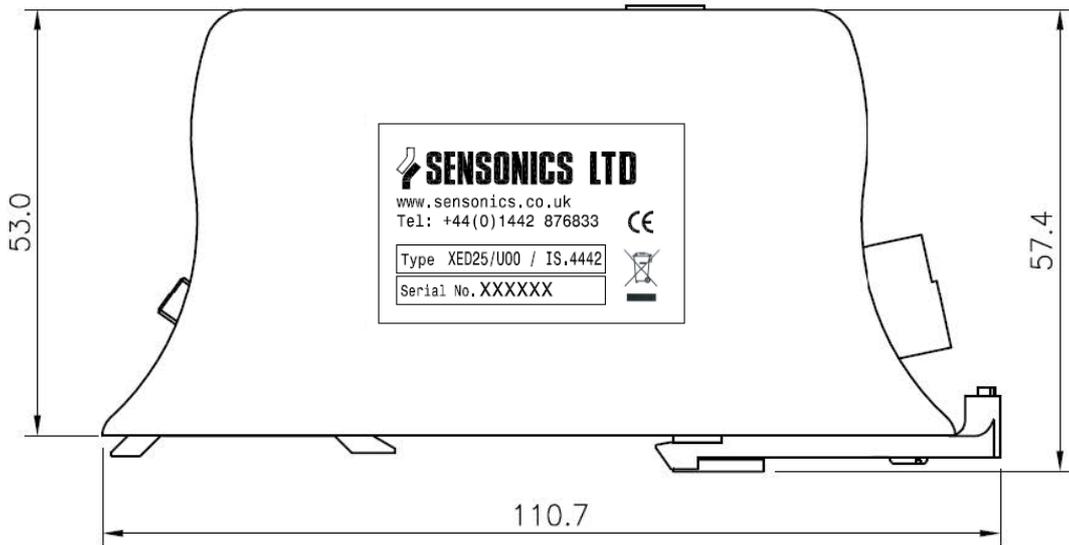
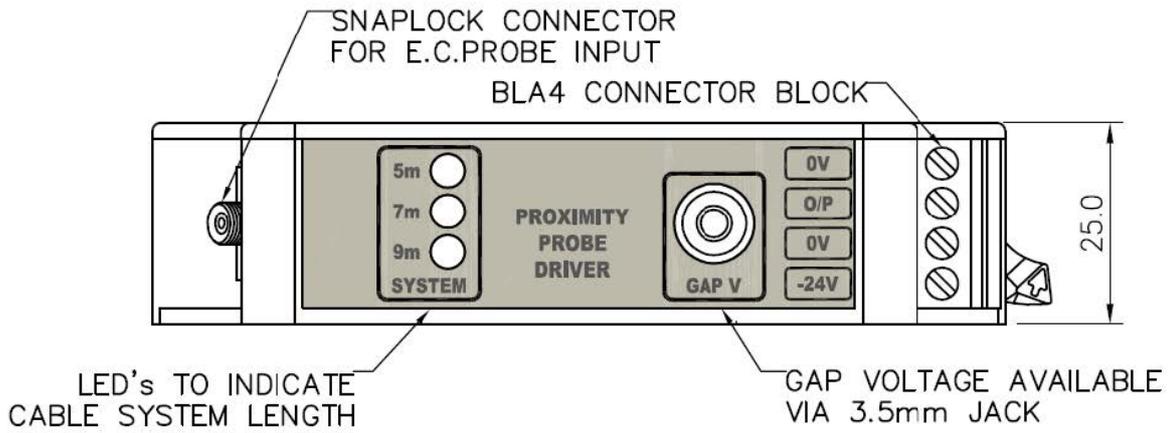
**Cable protection**

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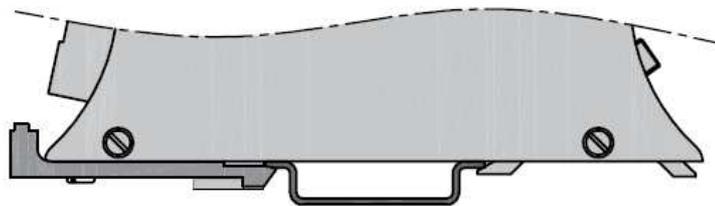
**Intrinsic Safety**

0 – None

**Driver Mechanical Configuration**



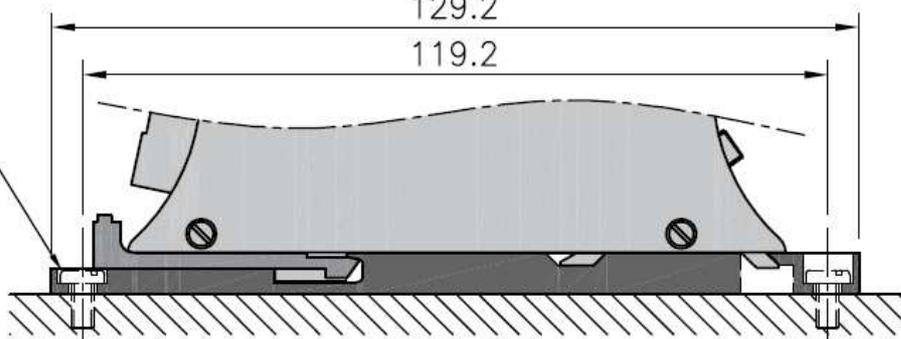
**MOUNTING OPTIONS**



TS35 RAIL

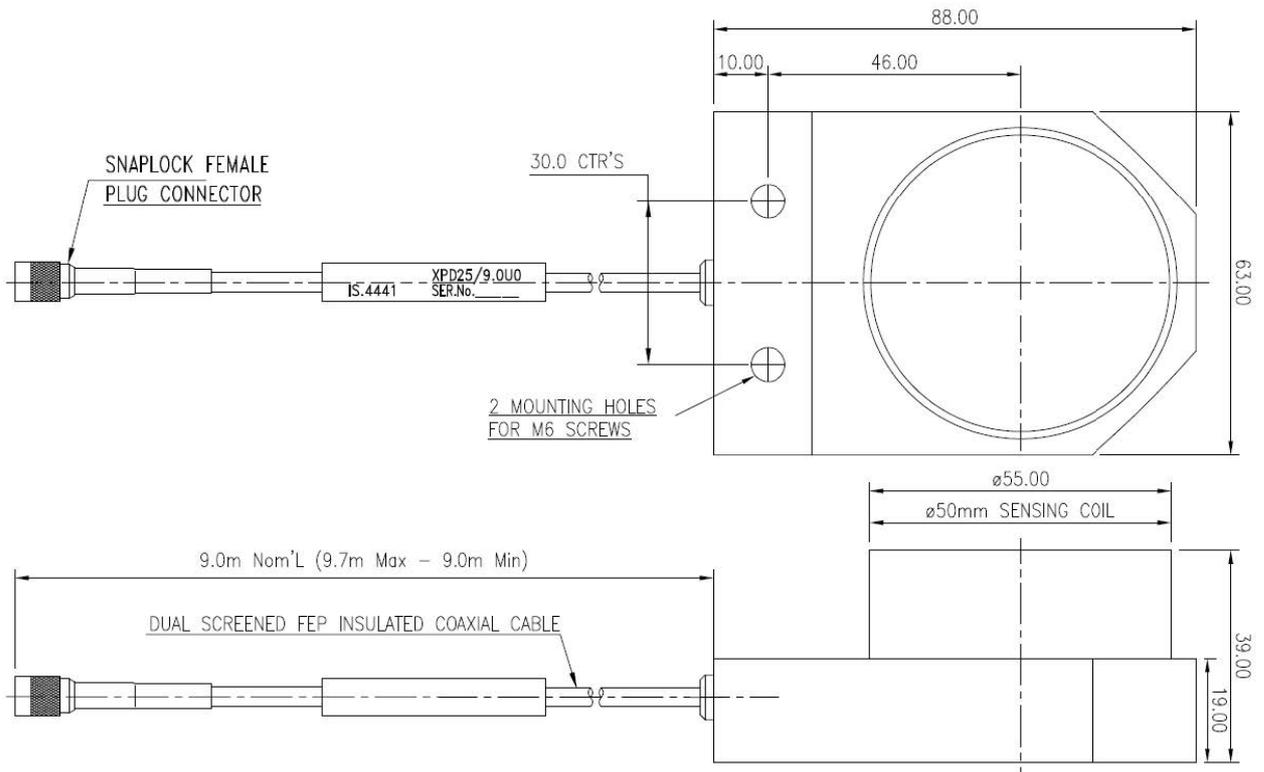
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119.2

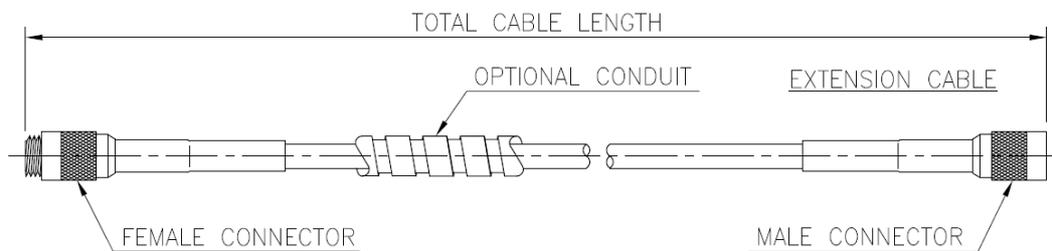


PANEL MOUNT (USING SUPPLIED CLIP)

**Probe Mechanical Configuration**



**Extension Cable Mechanical Drawing**



Whilst every effort has been made to ensure the accuracy of this specification, we cannot accept responsibility for damage, injury, loss or expense from errors or omissions. In the interest of technical improvement, this specification may be altered without notice.

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