Senturion XPR02 Proximity Probe

- Switch selectable system cable lengths 5m, 7m and 9m.
- 5mm tip diameter for tight installation applications.
- 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.
- Excellent repeatability on replacement of probe, extension or driver.
- Compliant with standard API 670.

The XPR02 proximity probe system is made up of a calibrated probe, extension cable and driver, providing a 5mm tip diameter for tight installation applications. 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 7.87 mV/um and a range of up to 2.5 mm. This type of measurement system provides highly accurate (resolution typically less than one micro-meter) vibration and 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 suit the application.

The cable system incorporates snap lock connectors which require no torquing 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...
System Performance

Measurement Range: 0.0 mm to 2.5 mm

Linearity: ±1%, -1.0 V to -19.0 V (% of FS)

Std Sensitivity: 7.87 V/mm (200 mV/mil) ± 1%

Resolution: <0.001 mm

Interchangability: Maximum interchangability error replacing either probe, extension cable or driver in calibrated system is ± 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 10 kHz

Maximum Cable Length: 330 m based on 120 pF/m at <10 kHz and 50 um pk-pk. 3000 m based on 120 pF/m at <1 kHz and 500 um pk-pk.

Reference Target Material: ANSI 4140

Driver

Linear voltage range: -1.0 V to -19.0 V for 0.254 mm (10 mil) to 2.54 mm (100 mil)

Linear voltage range: -1.0 V to -16.0 V for 0.254 mm (10 mil) to 4.064 mm (160 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

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

Effect of target curvature: +2% for shaft diameter 150 mm
+5% for shaft diameter 25 mm

Magnetic field effect: <1% at 110 mT

Connector: Female Miniature Coaxial

Features: Suitable for tight installation applications where standard 8mm tip probe is too large.
**Probe Mechanical Configuration**

*Straight Mount M6 Case*

**Straight Mount >M6 Case**

**Extension Cable Mechanical Drawing**
**Driver Mechanical Configuration**

- **Female Probe Input Connector**
- **Removable Signal Connector**
- **Cable Length Indicators**
- **Driver Unit**
- **Gap Voltage Connector**

Dimensions:
- **Height**: 53.0 mm
- **Width**: 57.4 mm

Mounting Options:
- **Mounting Option 1**
  - TS35 DIN Rail
  - **Length**: 110.7 mm
- **Mounting Option 2**
  - **Mounting Clip**
  - **Mounting Screw Pitch**: 119.2 mm
  - **Clip Width**: 129.4 mm

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**Probe Ordering Information**

**Cable length**
- 0.5 – 0.5 m
- 1.0 – 1 m
- 5.0 – 5 m
- 7.0 – 7 m
- 9.0 – 9 m

**Cable protection**
- U – Unarmoured double screened (standard)
- G – M20 cable gland fitted to standard cable

**Body Format**
- S – Straight Mount (for bracket mounting)
- A - Right angled cable exit

**Thread type**
- 0 – 1/4"UNF (standard imperial)
- 1 – M6 x 0.75 (standard metric)
- 2 – M6 x 1.25
- 3 – 3/8"UNF
- 4 – M10 x 1.0
- 5 – M12 x 1.25
- 6 – 5/6-24UNF
- 7 – M8 x 1.0
- 8 – M14 x 1.5
- 9 – M20 x 1.5

**Range (sensitivity)**
- 0 – 2.5 mm (7.87 mV/μm) (API670)

**Intrinsic Safety**
- 0 – None
- 1 – ATEX Ex II 1 G Exia IIC T4 (Tamb = -40 °C to +180 °C)

**Unthreaded Length**
Can be ordered in metric or inches.
Not required for reverse mount (fixed nut) option (00)
See Note 1.

**Overall Case length**
Can be ordered in metric or inches.
See Note 2.

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**Note 1 - Unthreaded Length Option**

**Imperial Case**
Unthreaded length must be at least 0.8 inches less than the case length. Order in increments of 0.1 in.
Maximum unthreaded length: 8.8 in.
Minimum unthreaded length: 0.0 in.
Example: 04 = 0.4 in.

**Metric Case**
Unthreaded length must be at least 20 mm less than the case length. Order in increments of 10 mm.
Maximum unthreaded length: 230 mm.
Minimum unthreaded length: 0 mm.
Example: 06 = 60 mm.

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**Note 2 - Overall Case Length Option**

**Imperial Case**
Order in increments of 0.1 in.
Maximum case length: 9.6 in
Minimum case length: 0.8 in
Example: 24 = 2.4 in

**Metric Case**
Order in increments of 10 mm.
Maximum length: 250 mm.
Minimum length: 20 mm.
Example: 06 = 60 mm.
**Driver Ordering Information**

**XED02 -**

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

**Range (sensitivity)**
0 – 2.5mm (7.87mV/μm) (API670)

**Intrinsic Safety**
0 – None
1 – ATEX Ex II 1 G EEx ia IIC T4 (Tamb = -40°C to +80°C)

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**Extension Cable Ordering Information**

**XEC -**

**Cable length**
4.0 – 4m
4.5 – 4.5m
6.0 – 6m
6.5 – 6.5m
8.0 – 8m
8.5 – 8.5m

**Cable protection**
U – Unarmoured double screened (standard)
C – Conduit (Convoluted SS)

**Intrinsic Safety**
0 – None
1 – ATEX Ex II 1 G EEx ia IIC T4 (Tamb = -40°C to +180°C)