TECHNICAL INFORMATION

CONDITION MONITORING SOLUTIONS

Senturion XPR04 Proximity Probe

- 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.
- Compliant with standard API 670.

The XPR04 proximity probe system is made up 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 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 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: Standard Option	0.0 mm to 2.5 mm
Measurement Range: Half Sensitivity Option	0.0 mm to 4.0 mm
Linearity: (% of FS)	± 1%, -1.0 V to -19.0 V ± 2%, 0 °C to +150 °C @ -10.0V
Std Sensitivity:	7.87 V/mm (200 mV/mil) ± 1 %
Half Sensitivity:	3.94 V/mm (100 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

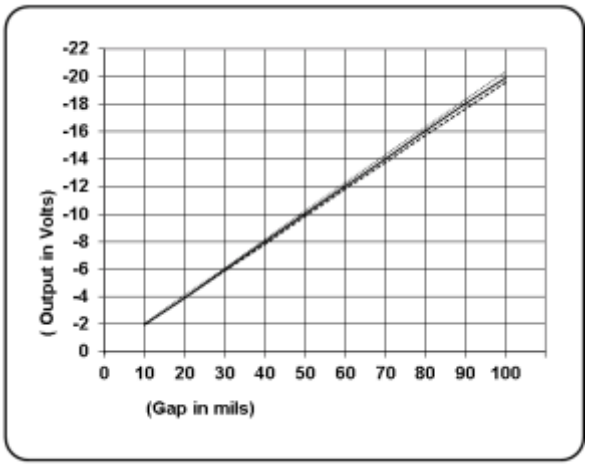
Frequency Response:	DC to 10 kHz
Maximum Cable Length:	330 m based on 120 pF/m at <10 kHz and 500 um pk-pk. 3000 m based on 120 pF/m at <1 kHz and 500 um pk-pk.
Reference Target Material:	ANSI 4140

Probe

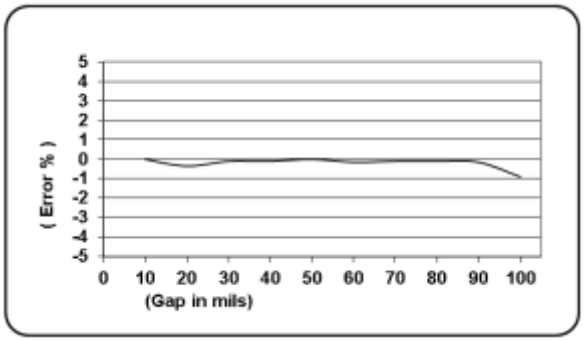
Probe tip diameter:	8.0 mm
Probe tip material:	PPS 40 % Glass Filled
Probe body material:	Stainless steel
Available probe body lengths:	20 mm to 250 mm 0.8 in to 9.6 in
Cable type:	Triaxial 75Ohm Coaxial FEP outer jacket 3.2 mm outer diameter
Armoured option:	Convoluted Stainless Steel 6.4 mm outer diameter
Probe Resistance:	3.1 Ohms ± 0.2 Ohm
Operating Temp Range:	-30 °C to +180 °C
Storage Temp Range:	-40 °C to +180 °C
Minimum target diameter:	16 mm
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

Driver

Linear voltage range: Standard Option	-1.0 V to -19.0 V for 0.254 mm (10 mil) to 2.54 mm (100 mil)
Linear voltage range: Half Sensitivity Option	-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: sensitivity	< 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



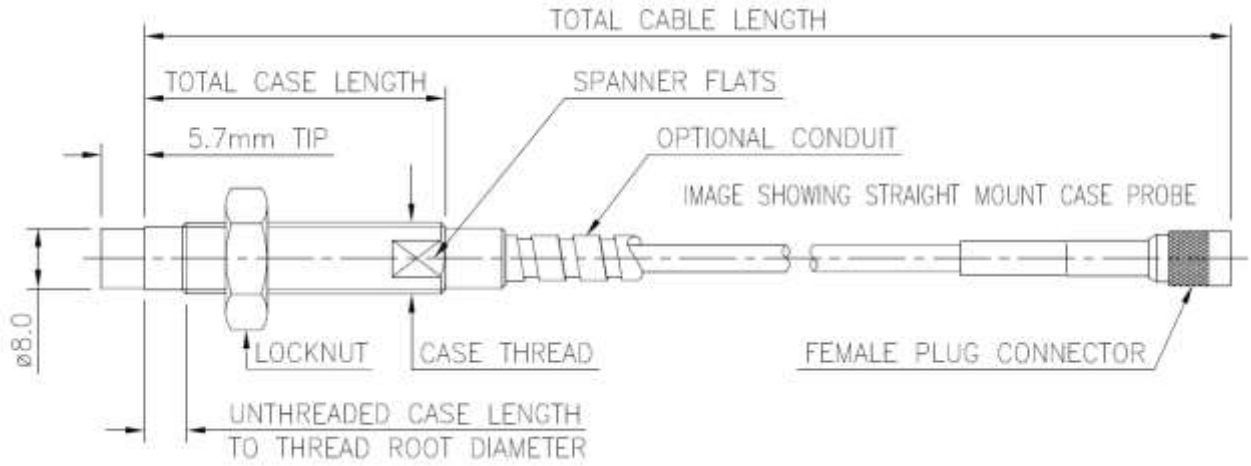
Typical 5m system performance
25 °C
50 °C
150 °C or 0 °C



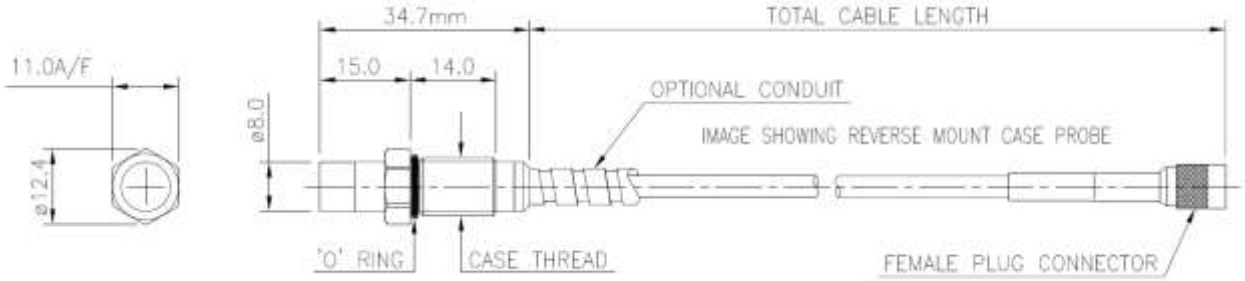
Typical 5m system performance

Probe Mechanical Configuration

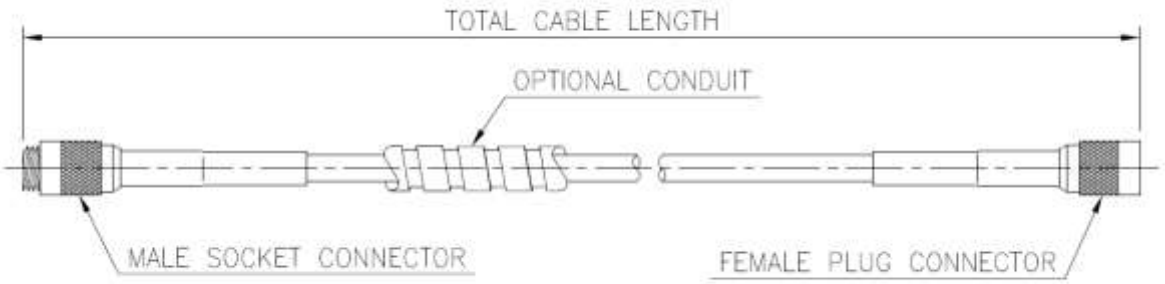
Straight Mount



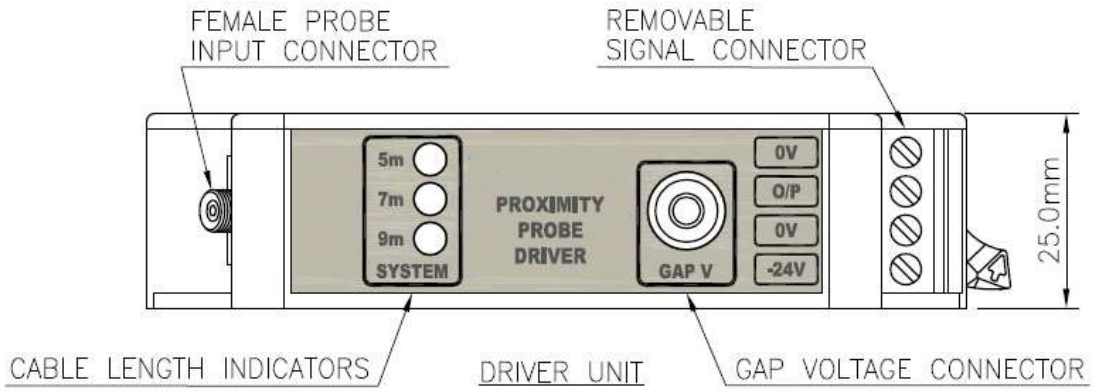
Reverse Mount

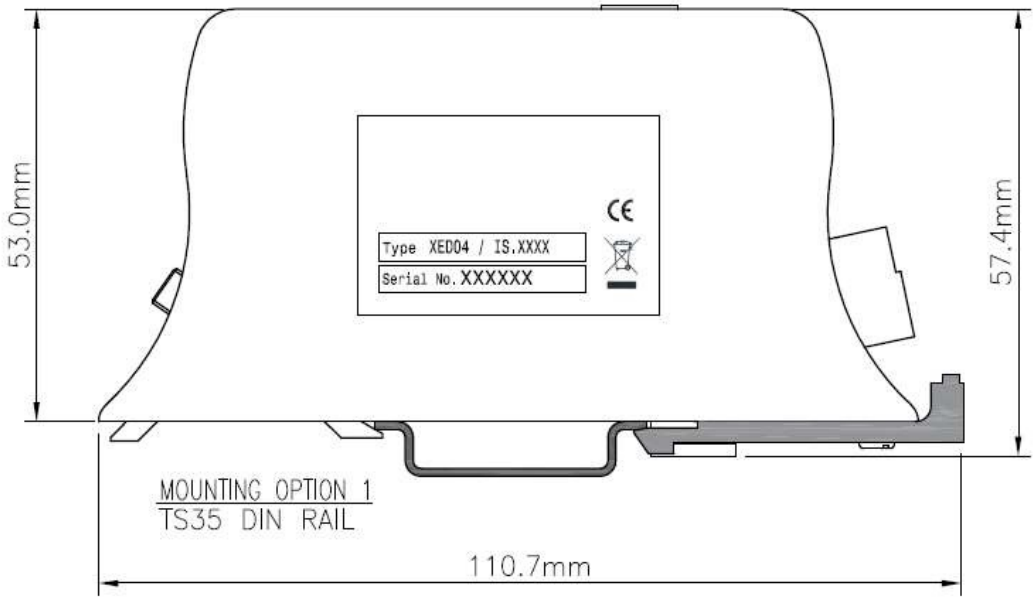


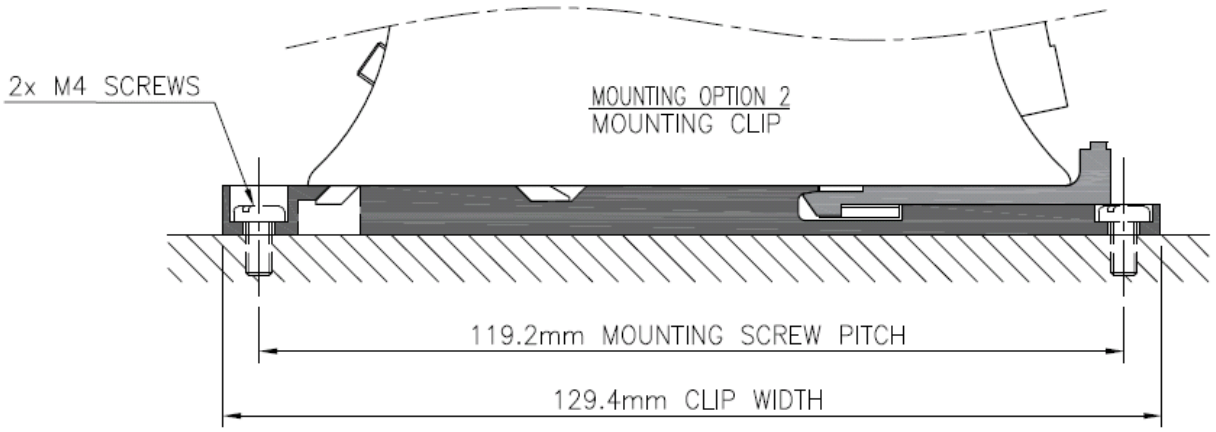
Extension Cable Mechanical Drawing



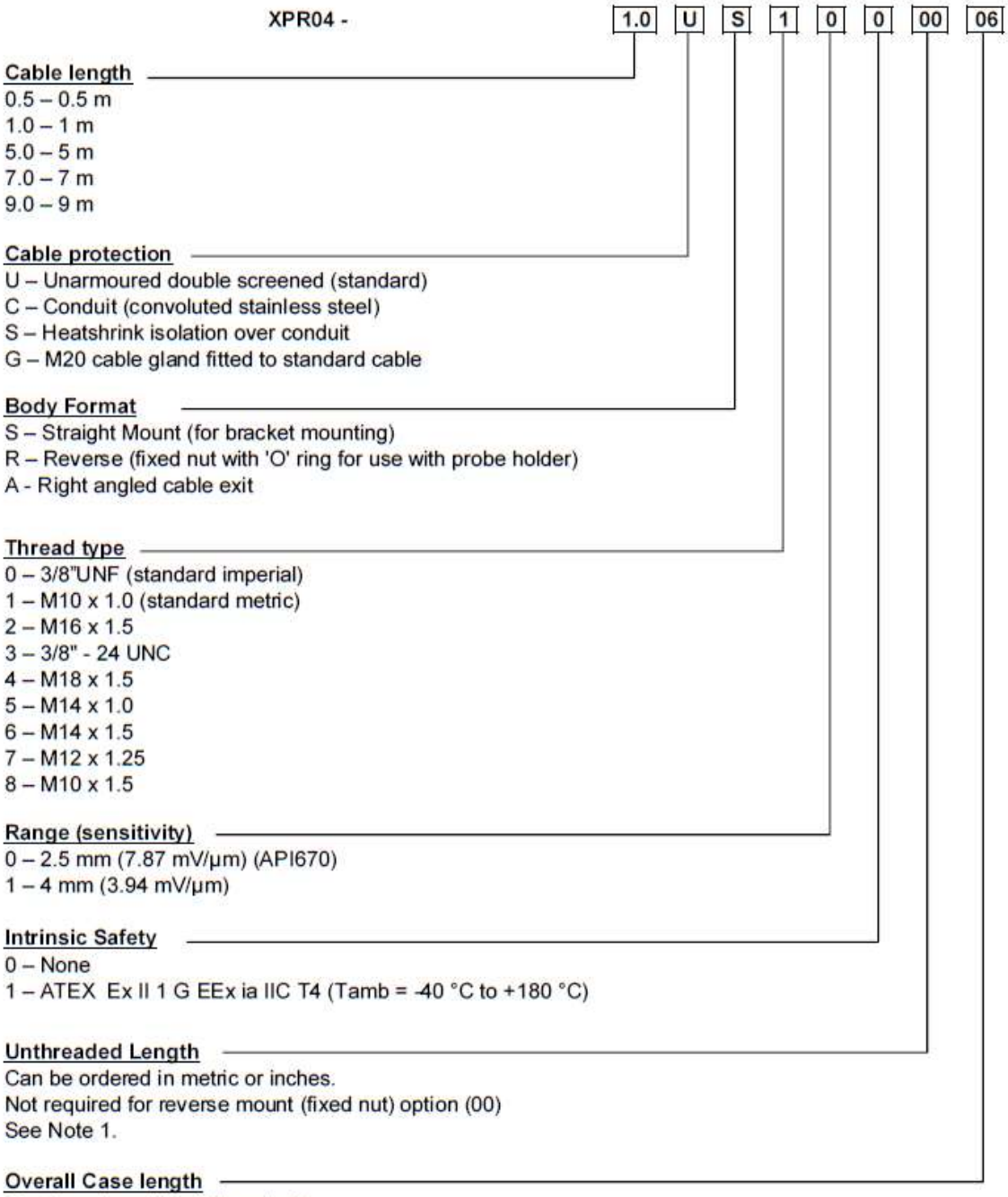
Driver Mechanical Configuration







Probe Ordering Information



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.

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

XED04 - U 0 0

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)
1 – 4mm (3.94mV/µm)

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

Extension Cable Ordering Information

XEC - 4.0 U 0

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)

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