TECHNICAL INFORMATION

CONDITION MONITORING SOLUTIONS

SENSONICS LTD

Senturion DNX8033 Shaft Position Transmitter

- Up to ±1mm of Shaft Axial Position / Thrust Wear Measurement.
- Direct 4-20mA loop powered output.
- Transducer signal output (gap voltage)
- Switch selectable system cable lengths 5m, 7m and 9m.
- Double screened cable for high noise immunity.
- Snap lock and shake proof cable connection.
- Compliant with standard API 670.

The DNX8033 Transmitter is designed to measure shaft axial position or thrust wear on critical rotating plant. The unit operates in conjunction with Sensonics XPR range of 8mm tip diameter proximity probes, offering a wide measurement range of ±1.0 mm.

Integrating the proximity probe driver functionality and signal processing to provide a the measurement offers a cost effective approach to shaft position monitoring. The 4-20mA loop powered transmitter affords easy integration with either the machine PLC or a plant wide DCS.

The DNX8033 proximity probe system is made up of a calibrated probe, extension cable and transmitter. 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 transmitter providing output current proportional to displacement.

The tranmsitter unit offers selectable system lengths of 5 m, 7 m or 9 m and a voltage proportional to the gap between the probe face and target can be monitored at the terminals to assists with commissioning the probe system.

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 with optional stainless steel convoluted armour.

System Performance

Measurement Range:	-1.00 mm to +1.00 mm
Options	(-40 mils to +40 mils)
	-0.60 mm to +0.60 mm
	(-25 mils to +25 mils)
Hi / Lo Output:	4.0 mA to 20.0 mA Loop Powered
Linearity:	± 1% (% of FS) ± 2%, 0 °C to +150 °C @ -10.0V
Current Loop Sensitivity:	125 um / mA ± 1 %
Options	(-1.00 mm to +1.00 mm)
	75 um / mA ± 1 % (-0.60 mm to +0.60 mm)
Resolution:	<0.001 mm
Interchangability:	Maximum interchangability error replacing either probe, extension cable or transmitter 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:	0 Hz to 1 kHz
Probe Gap Linear Range:	0.25 mm – 2.25 mm (10 mils – 90 mils)
Reference Target Material:	ANSI 4140

Probe

Probe tip diameter:	8.0 mm
Probe tip material:	PPS 40 % Glass Filled
Probe body material:	303 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

Transmitter

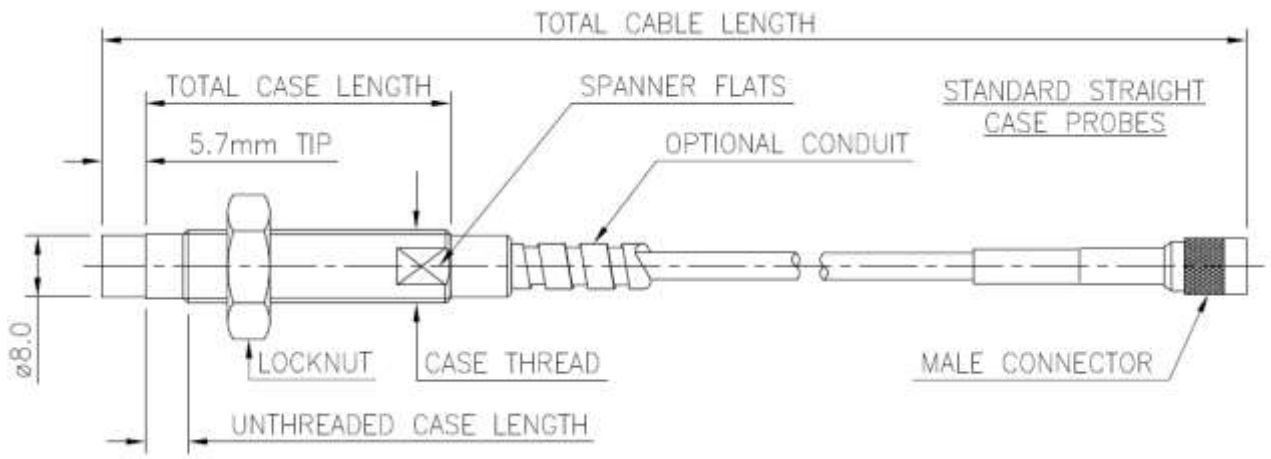
Maximum loop resistance:	1000 Ohms at +35.0V 0.0 Ohms at +15.0V 50 x (V – 15) Ohms
Input Voltage Range:	+15.0 to +35.0 Vdc
Recommended Drive:	250 Ohms, +24.0 Vdc
Signal Output Range:	2.0 V to 12.0 V 0.25mm (10 mils) to 2.25 mm (90 mils)
Signal Output Sensitivity:	4.0 V / mm ± 2% with 10 M Ohm Load
Signal Output Impedance:	10 K Ohm
Signal Output Temperature: Sensitivity	± 10% over range 0 °C to +50 °C
System Length Selection:	Internal switch 5 m, 7 m or 9 m
Calibration:	CAL - adjustment potentiometer for zero setting
Sensitivity to: Power Supply	Negligible
Sensitivity to: Gap Voltage	< 1.0uA / um
Transducer Failure:	S/C or O/C, Loop Current <3.8mA (out of range)
Sensor Connector type:	Self Locking Miniature Male Coaxial
Mounting:	Din Rail or Plate
Mass:	250 grams
Operating Temp Range:	-40 °C to +80 °C
Storage Temp Range:	-40 °C to +90 °C

Hazardous Area Approvals – ATEX / IECEx

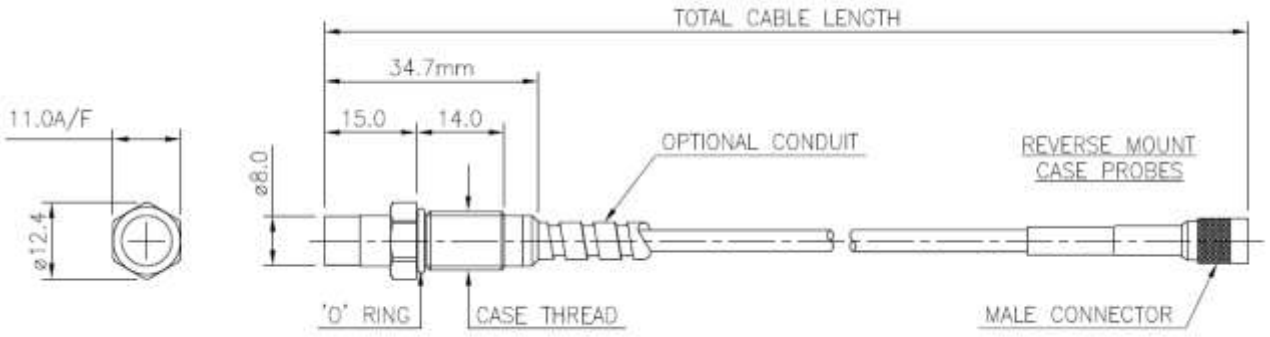
Probe	**Transmitter**
Ex II 1 GD	Ex II 1 GD
Ex ia IIC T4/T2 Ga	Ex ia IIC T4 Ga
Ex ia IIIC T135°C Da	Ex ia IIIC T135°C/ T300°C Da
-40°C ≤ Ta ≤ +80°C	-40°C ≤ Ta ≤ +80°C /+180°C

Probe Mechanical Configuration

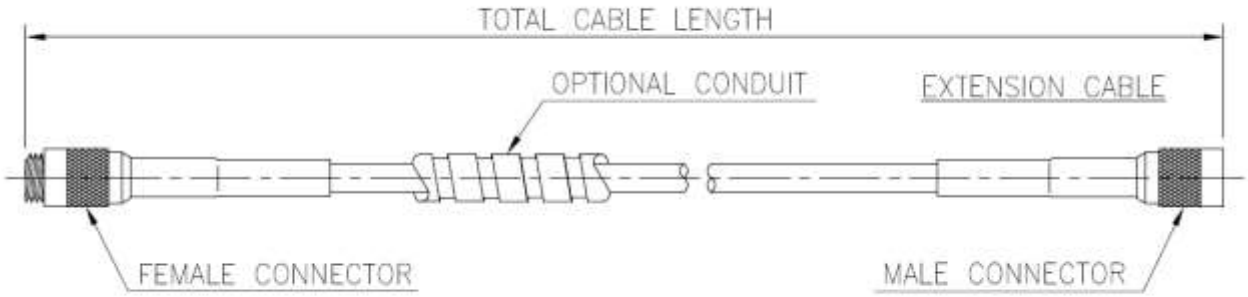
Straight Mount



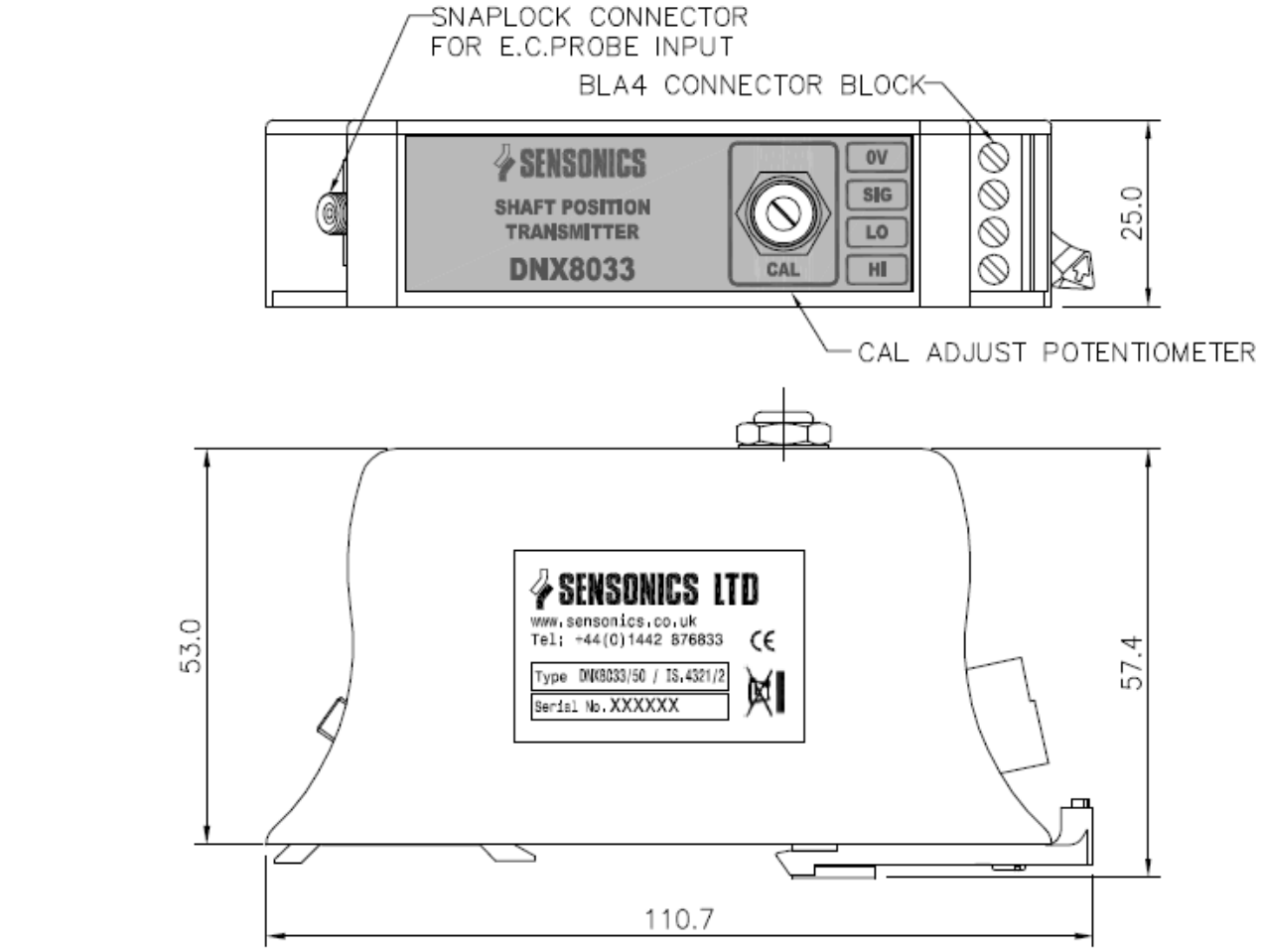
Reverse Mount

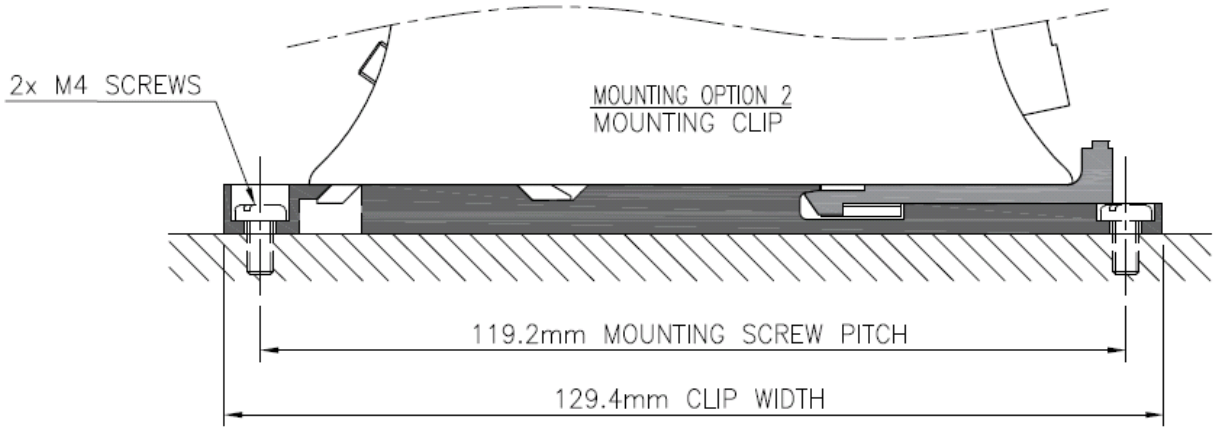


Extension Cable Mechanical Drawing

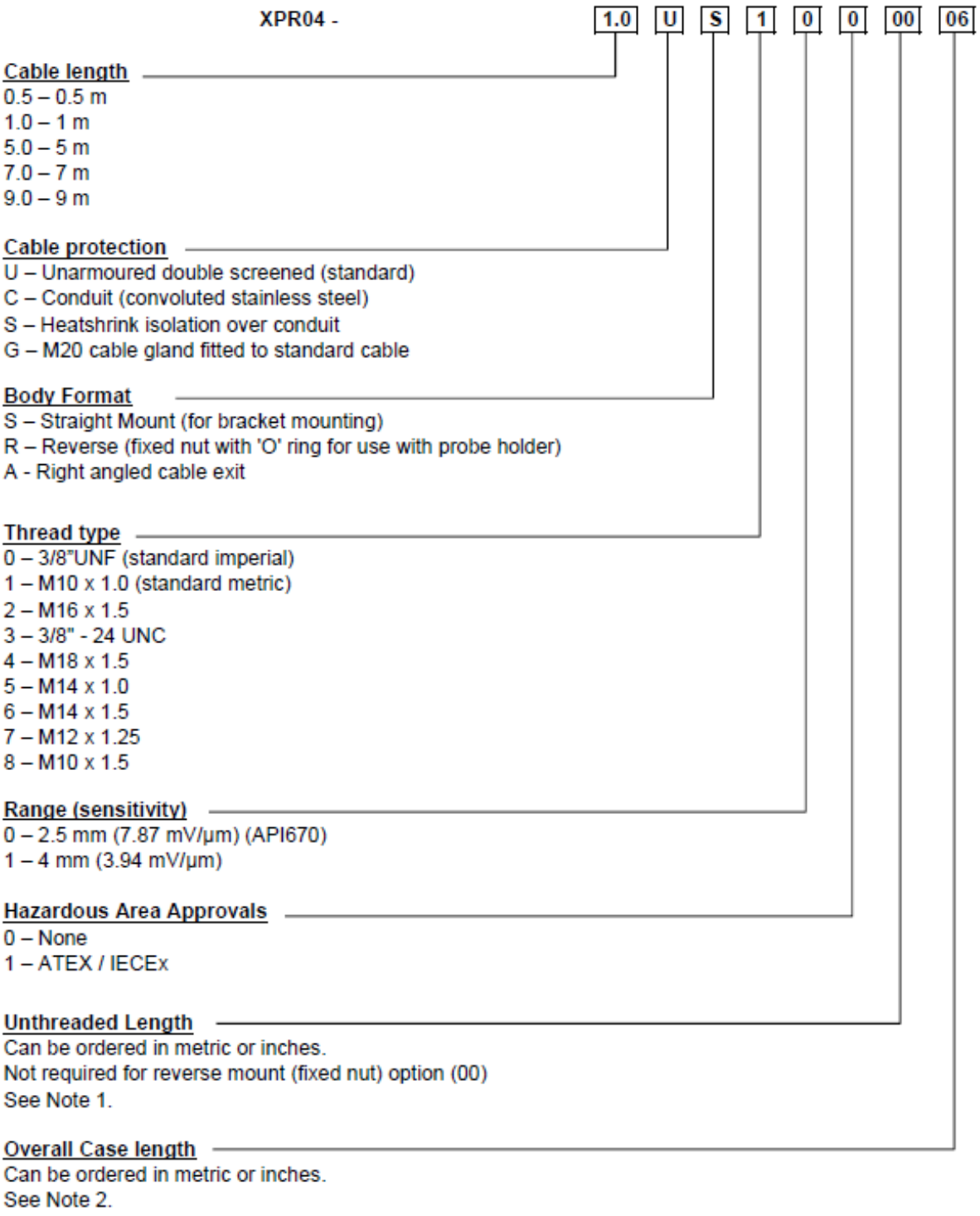


Transmitter Mechanical Configuration





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

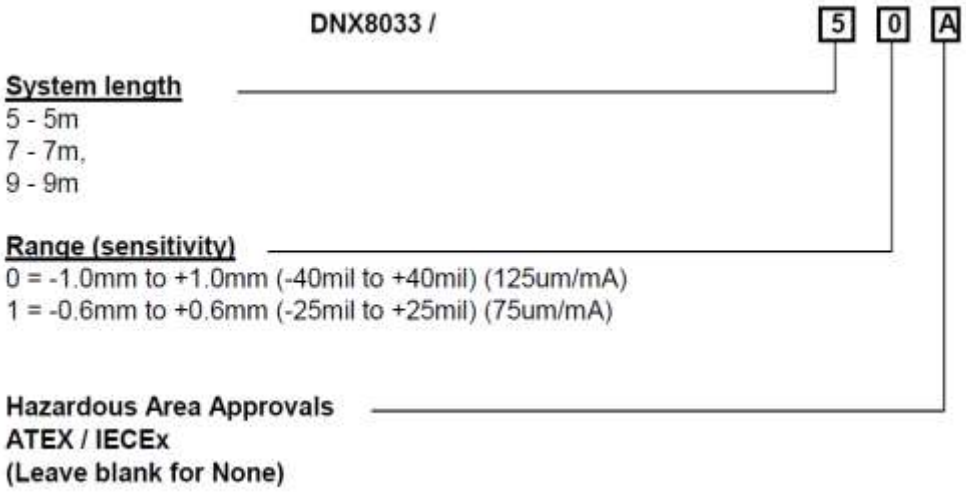
Imperial Case

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

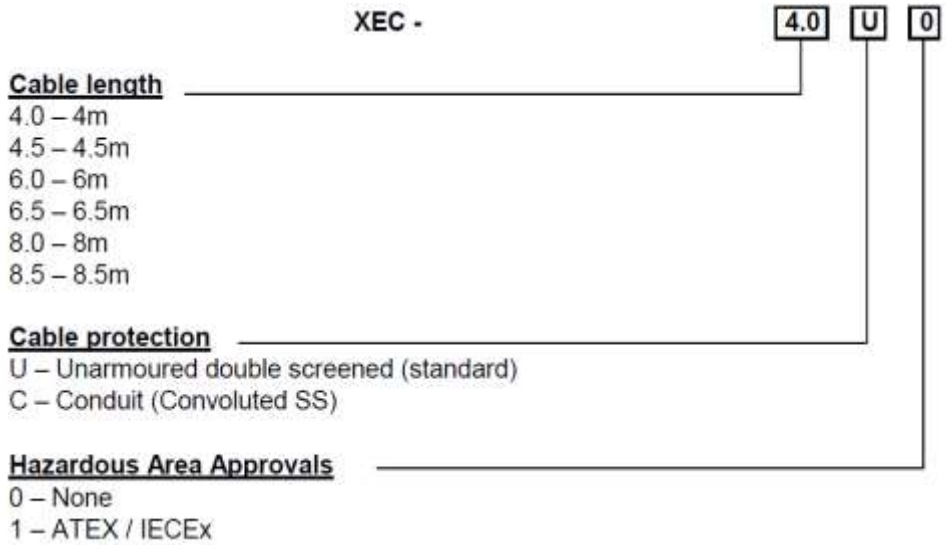
Metric Case

Order in increments of 10 mm.
Maximum length: 250 mm.
Minimum length: 20 mm.
Example: 06 = 60 mm.

Transmitter Ordering Information



Extension Cable Ordering Information



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