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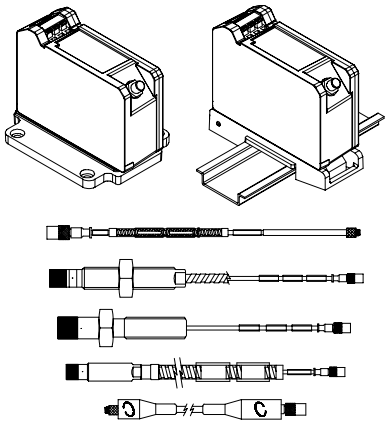
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3300 XL 8 mm Proximity Transducer System



Description

Transducer System

The 3300 XL 8 mm Proximity Transducer System consists of:

- a 3300 XL 8 mm probe
- a 3300 XL extension cable
- a 3300 XL Proximitor® Sensor[1]

The system provides an output voltage directly proportional to the distance between the probe tip and the observed conductive surface. It is capable of both static (position) and dynamic (vibration) measurements, and is primarily used for vibration and position measurement applications on fluid-film bearing machines, as well as Keyphasor® and speed measurement applications[2].

The 3300 XL 8 mm system represents our most advanced performance in an eddy current proximity transducer system. The standard 3300 XL 8 mm 5 metre system is also 100% compliant with the American Petroleum Institute's (API) 670 Standard (4th Edition) for mechanical configuration, linear range, accuracy, and temperature stability. All 3300 XL 8 mm Proximity Transducer Systems achieve this level of performance while allowing complete interchangeability of probe, extension cable, and Proximitor® Sensor without the need for individual component matching or bench calibration.

Each component of the 3300 XL 8 mm Transducer System is backward compatible and interchangeable[3] with other non-XL 3300 series 5 and 8 mm transducer system components[4]. This includes the 3300 5 mm probe, which is used when an 8 mm probe is too large for the available mounting space[5,6].

Proximitor® Sensor

The 3300 XL Proximitor® Sensor incorporates numerous improvements over previous designs. Its physical packaging permits high-density DIN-rail installation. It can also be mounted in a traditional panel mount configuration, where it shares an identical "footprint" to older 4-hole mounted Proximitor® Sensor designs. The mounting base for either option provides electrical isolation, eliminating the need for separate isolator plates. The 3300 XL Proximitor® Sensor is highly immune to radio frequency interference, allowing installation in fiberglass housings without adverse effects from nearby radio frequency signals. Improved RFI/EMI immunity allows the 3300 XL Proximitor® Sensor to achieve European CE mark approvals without requiring special shielded conduit or metallic housings, resulting in lower installation costs and complexity.

The 3300 XL's SpringLoc terminal strips require no special installation tools and facilitate faster, more robust field wiring connections by eliminating screw-type clamping mechanisms that can loosen.

Proximity Probe and Extension Cable

The 3300 XL probe and extension cable also reflect improvements over previous designs. A patented TipLoc™ molding method provides a more robust bond between the probe tip and the probe body. The probe's cable is more securely attached as well, incorporating a patented CableLoc™ design that provides 330 N (75 lbf) pull strength where the probe cable attaches to the probe tip.

3300 XL 8 mm Probes and Extension Cables can also be ordered with an optional FluidLoc® cable option. This option prevents oil and other liquids from leaking out of the machine through the cable's interior.

Connectors

The 3300 XL probe, extension cable, and Proximitor® Sensor have corrosion-resistant, gold-plated ClickLoc™ connectors. These connectors require only finger-tight torque (connectors will "click"), and the specially engineered locking mechanism prevents the connectors from loosening. They do not require any special tools for installation or removal.

3300 XL 8 mm Probes and Extension Cables can also be ordered with connector protectors already installed. Connector protectors can also be supplied separately for installation in the field (such as when the cable must be run through restrictive conduit). Connector protectors are recommended for all installations and provide increased environmental protection[7].

Extended Temperature Range Applications

An Extended Temperature Range (ETR) Probe and Extension Cable are available for applications where either the probe lead or extension cable may exceed the 177 °C (350 °F) temperature specification. The Extended Temperature Range Probe has an extended temperature rating for up to 260 °C (500 °F) for the probe lead and connector. The probe tip must remain below 177 °C (350 °F). The Extended Temperature Range Extension Cable is also rated for up to 260 °C (500 °F). Both the ETR probe and cable are compatible with standard temperature probes and cables. For example, you can utilize an ETR probe with the 330130 extension cable. The ETR system uses the standard 3300 XL Proximitor® Sensor. When using any ETR component as part of your system, the accuracy is limited to the accuracy of the ETR system.

Notes:

1. Proximitor® Sensors are supplied by default from the factory calibrated to AISI 4140 steel. Calibration to other target materials is available upon request.
2. Consult Bently Nevada Applications Note, Considerations when using Eddy Current Proximity Probes for Overspeed Protection Applications, when considering this transducer system for tachometer or overspeed measurements.
3. 3300 XL 8 mm components are both electrically and physically interchangeable with non-XL 3300 5 and 8 mm components. Although the packaging of the 3300 XL Proximitor® Sensor differs from its predecessor, it is designed to fit in the same 4-hole mounting pattern when used with the 4-hole mounting base, and will fit within the same mounting space specifications (when minimum permissible cable bend radius is observed).
4. When XL and non-XL 3300-series 5 and 8 mm system components are mixed, system performance is limited to the specifications for the non-XL 3300 5 and 8 mm Transducer System.
5. The 3300-series 5 mm probe (refer to Specifications and Ordering Information p/n 141605-01) uses smaller physical packaging, but does not permit reduced sideview clearances or tip-to-tip spacing requirements compared to an 8 mm probe. It is used when physical (not electrical) constraints preclude the use of an 8 mm probe. When narrow sideview probes are required, use the 3300 NSv™ Proximity Transducer System (refer to Specifications and Ordering Information p/n 147385-01).
6. 8 mm probes provide a thicker encapsulation of the probe coil in the molded PPS plastic probe tip. This results in a more rugged probe. The larger diameter of the probe body also provides a stronger, more robust case. Bently Nevada recommends the use of 8 mm probes when possible to provide optimal robustness against physical abuse.
7. Silicone tape is also provided with each 3300 XL extension cable and can be used instead of connector protectors. Silicone tape is not recommended in applications where the probe-to-extension cable connection will be exposed to turbine oil.

Specifications

Unless otherwise noted, the following specifications are for a 3300 XL 8 mm Proximitor® Sensor, extension cable and 8 mm probe between +18 °C and +27 °C (+64 °F to +80 °F), with a -24 Vdc power supply, a 10 kilo Ω load, an AISI 4140 steel target, and a probe gapped at 1.27 mm (50 mils). Performance characteristics are applicable for systems that consist solely of 3300 XL 8 mm components. The system accuracy and interchangeability specifications do not apply when using a transducer system calibrated to any target other than a Bently Nevada AISI 4140 steel target.

Electrical

Proximitor® Sensor Input:

Accepts one noncontacting 3300-series 5 mm, 3300 8 mm **or** 3300 XL 8 mm Proximity Probe and Extension Cable.

Power:

Requires -17.5 Vdc to -26 Vdc without barriers at 12 mA maximum consumption, -23 Vdc to -26 Vdc with barriers. Operation at a more positive voltage than -23.5 Vdc can result in reduced linear range.

Supply Sensitivity:

Less than 2 mV change in output voltage per volt change in input voltage.

Output resistance:

50 Ω

Probe dc resistance (nominal) (R_{PROBE}) table:

Probe Length	Resistance from the Center Conductor to the Outer Conductor (R_{PROBE}) (ohms)
0.5	7.45 ± 0.50
1.0	7.59 ± 0.50
1.5	7.73 ± 0.50
2.0	7.88 ± 0.50
5.0	8.73 ± 0.70
9.0	9.87 ± 0.90

Extension cable dc resistance (nominal):

Length of Extension Cable	Resistance from Center Conductor to Center Conductor (R_{CORE}) (ohms)	Resistance from Outer Conductor to Outer Conductor (R_{JACKET}) (ohms)
3.0	0.66 ± 0.10	0.20 ± 0.04
3.5	0.77 ± 0.12	0.23 ± 0.05
4.0	0.88 ± 0.13	0.26 ± 0.05
4.5	0.99 ± 0.15	0.30 ± 0.06
7.0	1.54 ± 0.23	0.46 ± 0.09
7.5	1.65 ± 0.25	0.49 ± 0.10
8.0	1.76 ± 0.26	0.53 ± 0.11
8.5	1.87 ± 0.28	0.56 ± 0.11

Extension cable capacitance:

69.9 pF/m (21.3 pF/ft) typical

Field wiring:

0.2 to 1.5 mm^2 (16 to 24 AWG) . Recommend using three-conductor shielded triax cable and tinned field wiring. Maximum length of 305 metres (1,000 feet) between the 3300 XL Proximitor® Sensor and the monitor. See the frequency response graphs, figures 10 through 13 (pages 22 and 23) for signal rolloff at high frequencies when using longer field wiring lengths.

Linear Range:

2 mm (80 mils). Linear range begins at approximately 0.25 mm (10 mils) from target and is from 0.25 to 2.3 mm (10 to 90 mils) (approximately –1 to –17 Vdc).

Recommended Gap Setting:

1.27 mm (50 mils)

Incremental Scale Factor (ISF)

Standard 5 metre system:

7.87 V/mm (200 mV/mil) ±5% including interchangeability error when measured in increments of 0.25 mm (10 mils) over the 80 mil linear range from 0 to +45 °C (+32 °F to +113 °F).

Standard 9 metre system:

7.87 V/mm (200 mV/mil) ±6.5% including interchangeability error when measured in increments of 0.25 mm (10 mils) over the 80 mil linear range from 0 to +45 °C (+32 °F to +113 °F).

Extended Temperature Range (ETR) 5 and 9 metre systems:

7.87 V/mm (200 mV/mil) ±6.5% including interchangeability error when measured in increments of 0.25 mm (10 mils) over the 80 mil linear range from 0 to +45 °C (+32 °F to +113 °F).

Deviation from best fit straight line (DSL)

Standard 5 metre system:

Less than ±0.025mm (±1 mil) with components at 0 °C to +45 °C (+32 °F to +113 °F).

Standard 9 metre system:

Less than ±0.038mm (±1.5 mil) with components at 0 °C to +45 °C (+32 °F to +113 °F).

Extended Temperature Range 5 and 9 metre systems:

Less than ±0.038mm (±1.5 mil) with components at 0 °C to +45 °C (+32 °F to +113 °F).

Standard 5 metre system performance over extended temperatures:

Over a probe temperature range of –35 °C to +120 °C (-31 °F to +248 °F) with the Proximitor® Sensor and extension cable between 0 °C to +45°C (+32 °F to +113 °F), the ISF remains within ±10% of 7.87 V/mm (200 mV/mil) and the DSL remains within ±0.076 mm (±3 mils).

Over a Proximitor® Sensor and extension cable temperature range of –35 °C to +65 °C (-31 °F to +149 °F) with the probe between 0 °C to +45 °C (+32 °F to +113 °F), the ISF remains within ±10% of 7.87 V/mm (200 mV/mil) and the DSL remains within ±0.076 mm (±3 mils).

Standard 9 metre system performance over extended temperatures:

Over a probe temperature range of –35 °C to +120 °C (-31 °F to +248 °F) with the Proximitor® Sensor and extension cable between 0 °C to +45°C (+32 °F to +113 °F), the ISF remains within ±18% of 7.87 V/mm (200 mV/mil) and the DSL remains within ±0.152 mm (±6 mils).

Over a Proximitor® Sensor and extension cable temperature range of –35 °C to +65 °C (-31 °F to +149 °F) with the probe between 0 °C to +45 °C (+32 °F to +113 °F), the ISF remains within ±18% of 7.87 V/mm (200 mV/mil) and the DSL remains within ±0.152 mm (±6 mils).

Extended Temperature Range system performance over extended temperatures:

Over a probe and extension cable temperature range of –35 °C to + 260 °C (-31 °F to +500 °F) with the Proximitor® Sensor between 0 °C to +45°C (+32 °F to +113 °F), the ISF remains within ±18% of 7.87 V/mm (200 mV/mil) and the DSL remains within ±0.152 mm (±6 mils).

Frequency Response:

0 to 10 kHz: +0, -3 dB, with up to 305 metres (1000 feet) of field wiring.

Minimum Target Size:

15.2 mm (0.6 in) diameter (flat target)

Shaft Diameter

Minimum:

50.8 mm (2 in)

Recommended minimum:

76.2 mm (3 in)

When gapped at the center of the linear range, the interaction between two separate transducer systems (cross-talk) will be less than 50 mV on shaft diameters of at least 50 mm (2 in) or greater. Care should be taken to maintain minimum separation of transducer tips, generally at least 40 mm (1.6 in) for axial position measurements or 38 mm (1.5 in) for radial vibration measurements to limit cross-talk to 50 mV or less. Radial vibration or position measurements on shaft diameters smaller than 76.2 mm (3 in) will generally result in a change in scale factor. Consult Performance Specification 159484 for additional information.

Effects of 60 Hz Magnetic Fields Up to 300 Gauss:				
Output voltage in mil pp/gauss:				
Gap	**5 metre Proximitor® Sensor**	**9 metre Proximitor® Sensor**	**Probe**	**Ext. Cable**
10 mil	0.0119	0.0247	0.0004	0.0004
50 mil	0.0131	0.0323	0.0014	0.0014
90 mil	0.0133	0.0348	0.0045	0.0045

Electrical Classification:

Complies with the European CE mark.

Hazardous Area Approvals

Note: Multiple approvals for hazardous areas certified by Canadian Standards Association (CSA/NRTL/C) in North America and by Baseefa (2001) in Europe.

North America:

Ex ia IIC T4/T5; Class I Zone 0 or Class 1 Division 1; Groups A, B, C, and D, when installed with intrinsically safe zener barriers per drawing 141092 or when installed with galvanic isolators.

Ex nA IIC T4/T5 Class I Zone 2 or Class I, Division 2, Groups A, B, C, and D when installed without barriers per drawing 140979.

T_5 @ T_a = -35 °C to +85 °C.

T4 @ Ta= -51 °C to +100 °C.

Europe:

⟨Ex⟩ II 1 G EEx ia IIC T4/T5. EC certificate number BAS99ATEX1101, when installed per drawing 141092.

⟨Ex⟩ II 3 G EEx nAII T4/T5. EC certificate number BAS99ATEX3100U,when installed per drawing 140979

T5 @ Ta= -35 °C to +85 °C

T4 @ Ta= -51 °C to +100 °C.

IEC Ex

3300 XL Proximitor® Sensor, ia

IECEx BAS04.0055X

Ex ia IIC T4 / T5 (-51ºC ≤ Ta ≤ +100ºC / -35ºC ≤ Ta ≤ +85ºC)

Terminal Block Connections

Ui= -28V Ci = 0

Ii= 140mA Li =10µH

Pi= 0.84W

Coaxial Connection

Ui = -28V Ci= 5.7nF

Ii = 140mA Li = 0.85mH

Pi = 0.84W

Load Parameters

The capacitance and either the inductance or the inductance to resistance (L/R) ratio of the load connected to the probe coaxial terminal, must not exceed the following values:

Group	Capacitance µF	Inductance mH	L/R Ratio µH/Ω
IIC	0.077	0.99	35
IIB	0.644	7.41	142
IIA	2.144	15.6	295

The Proximitor® must be installed so as to minimize the risk of impact or friction with other metallic surfaces.

3300 XL Proximitor® Sensor, nA

IECEx BAS04.0057X

AEx nA II T4 / T5 (-51ºC ≤ Ta ≤ +100ºC / -35ºC ≤ Ta ≤ +85ºC)

The terminals must be provided with a level of protection of at least IP54.

Ui = -28V

3300 XL 8mm Eddy Current Probe, ia

IECEx BAS04.0056

AEx ia IIC Temperature Classification per the table below.

Temperature Classification	Ambient Temperature (Probe Only)
T1	-51ºC to +232ºC
T2	-51ºC to +177ºC
T3	-51ºC to +120ºC
T4	-51ºC to +80ºC
T5	-51ºC to +40ºC

Ui = -28V Ci = 1.5nF

Ii = 140mA Li = 200µH

Pi =0.84W

3300 XL 8mm Eddy Current Probe, nA

IECEx BAS04.0058X

Ex nA II Temperature Classification per the table above.

Must be supplied from a voltage limited source.

EEx nA for Zone 2, Group IIC, EC certificate number BAS99ATEX3100U.

Mechanical

Probe Tip Material:

Polyphenylene sulfide (PPS).

Probe Case Material:

AISI 303 or 304 stainless steel (SST).

Probe Cable Specifications:

Standard cable:

75 Ω triaxial, fluoroethylene propylene (FEP) insulated probe cable in the following total probe lengths: 0.5, 1, 1.5, 2, 5, or 9 metres.

Extended Temperature Range cable:

75 Ω triaxial, perfluoroalkoxy (PFA) insulated probe cable in the following total probe lengths: 0.5, 1, 1.5, 2, 5, or 9 metres.

Extension Cable Material:

75 Ω triaxial, fluoroethylene propylene (FEP) insulated.

Extended Temperature Range (ETR) Extension Cable Material:

75 Ω triaxial, perfluoroalkoxy (PFA) insulated.

Proximitor® Sensor Material:

A308 aluminum

System Length:

5 or 9 metres including extension cable

Standard Probe and Extension Cable Armor (optional):

Flexible AISI 302 or 304 SST with FEP outer jacket.

Extended Temperature Range Probe and Extension Cable Armor (optional):

Flexible AISI 302 or 304 SST with PFA outer jacket.

Tensile Strength (maximum rated):

330 N (75 lbf) probe case to probe lead. 270 N (60 lbf) at probe lead to extension cable connectors.

Connector material:

Gold-plated brass or gold-plated beryllium copper.

Probe case torque:	**Maximum Rated**	**Recommended**
Standard forward-mounted probes	33.9 N•m (300 in•lbf)	11.2 N•m (100 in•lbf)
Standard forward-mount probes - first three threads	22.6 N•m (200 in•lbf)	7.5 N•m (66 in•lbf)
Reverse mount probes	22.6 N•m (200 in•lbf)	7.5 N•m (66 in•lbf)

Connector-to-connector torque

Recommended torque:

see table:

Connector Type	**Tightening Instructions**
Two 3300 XL gold "click" type connectors	Finger tight
One non-XL stainless steel connector and one 3300 XL connector	Finger tight plus 1/8 turn using pliers

Maximum torque:

0.565 N•m (5 in•lbf)

Minimum Bend Radius:

25.4 mm (1.0 in)

Total System Mass (typical):

0.7 kg (1.5 lbm)

Probe:

323 g (11.38 oz)

Extension Cable:

34 g/m (0.4 oz/ft)

Armored Extension cable:

103 g/m (1.5 oz/ft)

Proximitor® Sensor:

246 g (8.7 oz)

Environmental Limits

Probe Temperature Range

Operating and Storage Temperature:

Standard probe:

-51 °C to +177 °C (-60 °F to +351 °F)

Extended Temperature Range probe:

-51 °C to +177 °C (-60 °F to +351 °F) for the probe tip; -51 °C to +260 °C (-60 °F to +500 °F) for the probe cable and connector.

Note: Exposing the probe to temperatures below –34 °C (-30 °F) may cause premature failure of the pressure seal.

Extension Cable Temperature Range

Operating and Storage Temperature:

Standard cable:

-51 °C to +177 °C (-60 °F to +351 °F)

Extended Temperature Range cable:

-51 °C to +260 °C (-60 °F to +500 °F)

Proximitor® Sensor Temperature Range

Operating Temperature:

-51 °C to +100 °C (-60 °F to +212 °F)

Storage Temperature:

-51 °C to +105 °C (-60 °F to +221 °F)

Relative Humidity:

Less than a 3% change in Average Scale Factor (ASF) when tested in 93% humidity in accordance with IEC standard 68-2-3 for up to 56 days.

Probe Pressure:

3300 XL 8 mm probes are designed to seal differential pressure between the probe tip and case. The probe sealing material consists of a Viton® O-ring. Probes are not pressure tested prior to shipment. Contact our custom design department if you require a test of the pressure seal for your application.

Note: It is the responsibility of the customer or user to ensure that all liquids and gases are contained and safely controlled should leakage occur from a proximity probe. In addition, solutions with high or low pH values may erode the tip assembly of the probe causing media leakage into surrounding areas. Bently Nevada®, LLC will not be held responsible for any damages resulting from leaking 3300 XL 8 mm proximity probes. In addition, 3300 XL 8 mm proximity probes will not be replaced under the service plan due to probe leakage.

Patents:

5,016,343;

5,126,664;

5,351,388, and

5,685,884.

Components or procedures described in these patents apply to this product.

Ordering Information

3300 XL 8 mm Proximity Probes:

330101 3300 XL 8 mm Probe, 3/8-24 UNF thread, without armor[3]

330102 3300 XL 8 mm Probe, 3/8-24 UNF thread, with armor[3]

Part Number-AXX-BXX-CXX-DXX-EXX

Option Descriptions

A: Unthreaded Length Option

Note: Unthreaded length must be at least 0.8 inches less than the case length.

Order in increments of 0.1 in

Length configurations:

Maximum unthreaded length: 8.8 in

Minimum unthreaded length: 0.0 in

Example: 0 4 = 0.4 in

B: Overall Case Length Option

Order in increments of 0.1 in

Threaded length configurations:

Maximum case length: 9.6 in

Minimum case length: 0.8 in

Example: 2 4 = 2.4 in

C: Total Length Option

0 5 0.5 metre (1.6 feet)

1 0 1.0 metre (3.3 feet)

1 5 1.5 metre (4.9 feet)

2 0 2.0 metres (6.6 feet)

5 0 5.0 metres (16.4 feet)[1]

9 0 9.0 metres (29.5 feet)

D: Connector and Cable-Type Option

0 1 Miniature coaxial ClickLoc™ connector with connector protector, standard cable

0 2 Miniature coaxial ClickLoc™ connector, standard cable

1 1 Miniature coaxial ClickLoc™ connector with connector protector, FluidLoc® cable

1 2 Miniature coaxial ClickLoc™ connector, FluidLoc® cable

E: Agency Approval Option

0 0 Not required

0 5 Multiple Approvals

3300 XL 8 mm Proximity Probes, Metric:

330103 3300 XL 8 mm Probe, M10 x 1 thread, without armor[3]

330104 3300 XL 8 mm Probe, M10 x 1 thread, with armor[3]

Part Number-AXX-BXX-CXX-DXX-EXX

Option Descriptions

A: Unthreaded Length Option

Note: Unthreaded length must be at least 20 mm less than the case length.

Order in increments of 10 mm.

Length configuration:

Maximum unthreaded length: 230 mm

Minimum unthreaded length: 0 mm

Example: 0 6 = 60 mm

B: Overall Case Length Option

Order in increments of 10 mm.

Metric thread configurations:

Maximum length: 250 mm

Minimum length: 20 mm

Example: 0 6 = 60 mm

C: Total Length Option

0 5 0.5 metre (1.6 feet)

1 0 1.0 metre (3.3 feet)

1 5 1.5 metres (4.9 feet)

2 0 2.0 metres (6.6 feet)

5 0 5.0 metres (16.4 feet) [1]

9 0 9.0 metres (29.5 feet)

D: Connector and Cable-Type Option

0 1 Miniature coaxial ClickLoc™ connector with connector protector, standard cable

0 2 Miniature coaxial ClickLoc™ connector, standard cable

1 1 Miniature coaxial ClickLoc™ connector with connector protector, FluidLoc® cable

1 2 Miniature coaxial ClickLoc™ connector, FluidLoc® cable

E: Agency Approval Option

0 0 Not required

0 5 Multiple Approvals

3300 XL 8 mm Reverse Mount Probes

330105-02-12-CXX-DXX-EXX, 3/8-24 UNF threads[3]

330106-05-30-CXX-DXX-EXX, M10 x 1 threads[3]

Option Descriptions

C: Total Length Option

0 5 0.5 metre (1.6 feet)

1 0 1.0 metre (3.3 feet)

1 5 1.5 metre (4.9 feet)

2 0 2.0 metres (6.6 feet)

5 0 5.0 metres (16.4 feet) [1]

9 0 9.0 metres (29.5 feet)

D: Connector Option

0 2 Miniature ClickLoc™ coaxial connector

1 2 Miniature ClickLoc™ coaxial connector, FluidLoc® cable

Note: The FluidLoc® cable options –10 and –12 are not necessary on the vast majority of 330105 and 330106 installations due to the presence of the probe sleeve. Consider carefully the application before ordering the FluidLoc® cable options

. **E:** Agency Approval Option

0 0 Not required

0 5 Multiple Approvals

3300 XL 8 mm Proximity Probes, Smooth Case:

330140 3300 XL 8 mm Probe without armor[2]

330141 3300 XL 8 mm Probe with armor[2]

Part Number-AXX-BXX-CXX-DXX

Option Descriptions

A: Overall Case Length Option

Order in increments of 0.1 in

Length configurations:

Maximum length: 9.6 in

Minimum length: 0.8 in

Example: 2 4 = 2.4 in

B: Total Length Option

0 5 0.5 metre (1.6 feet)

1 0 1.0 metre (3.3 feet)

1 5 1.5 metres (4.9 feet)

2 0 2.0 metres (6.6 feet)

5 0 5.0 metres (16.4 feet) [1]

9 0 9.0 metres (29.5 feet)

C: Connector and Cable-Type Option

0 1 Miniature coaxial ClickLoc™ connector with connector protector, standard cable

0 2 Miniature coaxial ClickLoc™ connector, standard cable

1 1 Miniature coaxial ClickLoc™ connector with connector protector, FluidLoc® cable

1 2 Miniature coaxial ClickLoc™ connector, FluidLoc® cable

D: Agency Approval Option

0 0 Not required

0 5 Multiple Approvals

3300 XL 8 mm Extended Temperature Range (ETR) Proximity Probes:

330191 3300 XL 8 mm ETR Probe, 3/8-24 UNF thread, without armor

330192 3300 XL 8 mm ETR Probe, 3/8-24 UNF thread, with armor

Part Number-AXX-BXX-CXX-DXX

Option Descriptions

A: Unthreaded Length Option

Note: Unthreaded length must be at least 0.8 inches less than the case length.

Order in increments of 0.1 in

Length configurations:

Maximum unthreaded length: 8.8 in

Minimum unthreaded length: 0.0 in

Example: 1 5 = 1.5 in

B: Overall Case Length Option

Order in increments of 0.5 in

Threaded length configurations:

Maximum case length: 9.6 in

Minimum case length: 0.8 in

Example: 2 5 = 2.5 in

C: Total Length Option

0 5 0.5 metre (1.6 feet)

1 0 1.0 metre (3.3 feet)

1 5 1.5 metre (4.9 feet)

2 0 2.0 metres (6.6 feet)

5 0 5.0 metres (16.4 feet)[1]

9 0 9.0 metres (29.5 feet)

D: Agency Approval Option

0 0 Not required

0 5 Multiple Approvals

3300 XL 8 mm Extended Temperature Range (ETR) Proximity Probes, Metric:

330193 3300 XL 8 mm Probe, M10 x 1 thread, without armor

330194 3300 XL 8 mm Probe, M10 x 1 thread, with armor

Part Number-AXX-BXX-CXX-DXX

Option Descriptions

A: Unthreaded Length Option

Note: Unthreaded length must be at least 20 mm less than the case length.

Order in increments of 10 mm.

Length configuration:

Maximum unthreaded length: 230 mm

Minimum unthreaded length: 0 mm

Example: 0 6 = 60 mm

B: Overall Case Length Option

Order in increments of 10 mm.

Metric thread configurations:

Maximum length: 250 mm

Minimum length: 20 mm

Example: 0 6 = 60 mm

C: Total Length Option

- **0 5** 0.5 metre (1.6 feet)
- **1 0** 1.0 metre (3.3 feet)
- **1 5** 1.5 metres (4.9 feet)
- **2 0** 2.0 metres (6.6 feet)
- **5 0** 5.0 metres (16.4 feet) [1]
- **9 0** 9.0 metres (29.5 feet)

D: Agency Approval Option

- **0 0** Not required
- **0 5** Multiple Approvals

3300 XL 8 mm Extended Temperature Range (ETR) Reverse Mount Probes

330195-02-12-CXX-DXX, 3/8-24 UNF threads

330196-05-30-CXX-DXX, M10 x 1 threads

Option Descriptions

C: Total Length Option

- **0 5** 0.5 metre (1.6 feet)
- **1 0** 1.0 metre (3.3 feet)
- **1 5** 1.5 metre (4.9 feet)
- **2 0** 2.0 metres (6.6 feet)
- **5 0** 5.0 metres (16.4 feet) [1]
- **9 0** 9.0 metres (29.5 feet)

D: Agency Approval Option

- **0 0** Not required
- **0 5** Multiple Approvals

3300 XL 8 mm Extended Temperature Range (ETR) Proximity Probes, Smooth Case:

330197 3300 XL 8 mm Probe without armor[2]

330198 3300 XL 8 mm Probe with armor[2]

Part Number-AXX-BXX-CXX

Option Descriptions

A: Overall Case Length Option

Order in increments of 0.5 in

Length configurations:

Maximum length: 9.5 in

Minimum length: 1.0 in

Example: 3 5 = 3.5 in

B: Total Length Option

- **0 5** 0.5 metre (1.6 feet)
- **1 0** 1.0 metre (3.3 feet)
- **1 5** 1.5 metres (4.9 feet)
- **2 0** 2.0 metres (6.6 feet)
- **5 0** 5.0 metres (16.4 feet) [1]
- **9 0** 9.0 metres (29.5 feet)

C: Agency Approval Option

- **0 0** Not required
- **0 5** Multiple Approvals

3300 XL Proximitor® Sensor

330180-AXX-BXX

Option Descriptions

A: Total Length and Mounting Option

- **5 0** 5.0 metre (16.4 feet) system length, panel mount
- **5 1** 5.0 metre (16.4 feet) system length, DIN mount
- **5 2** 5.0 metre (16.4 feet) system length, no mounting hardware
- **9 0** 9.0 metres (29.5 feet) system length, panel mount
- **9 1** 9.0 metres (29.5 feet) system length, DIN mount
- **9 2** 9.0 metres (29.5 feet) system length, no mounting hardware

B: Agency Approval Option

- **0 0** Not required
- **0 5** Multiple approvals

3300 XL Extension Cable

330130-AXXX-BXX-CXX

Note: Make sure that the extension cable length and the probe length, when added together, equal the Proximitor® Sensor total length.

Option Descriptions

A: Cable Length Option

- **0 3 0** 3.0 metres (9.8 feet)
- **0 3 5** 3.5 metres (11.5 feet)
- **0 4 0** 4.0 metres (13.1 feet)
- **0 4 5** 4.5 metres (14.8 feet)
- **0 7 0** 7.0 metres (22.9 feet)
- **0 7 5** 7.5 metres (24.6 feet)
- **0 8 0** 8.0 metres (26.2 feet)
- **0 8 5** 8.5 metres (27.9 feet)

B: Connector Protector and Cable Option

- **0 0** Standard cable
- **0 1** Armored cable
- **0 2** Standard cable with connector protectors
- **0 3** Armored cable with connector protectors
- **1 0** FluidLoc® cable
- **1 1** Armored FluidLoc® cable
- **1 2** FluidLoc® cable with connector protectors
- **1 3** Armored FluidLoc® cable with connector protectors

C: Agency Approval Option

- **0 0** Not required
- **0 5** Multiple Approvals

3300 XL Extended Temperature Range (ETR) Extension Cable

330190-AXXX-BXX-CXX

Note: Make sure that the extension cable length and the probe length, when added together, equal the Proximitor® Sensor total length.

Option Descriptions

A: Cable Length Option

- **0 3 0** 3.0 metres (9.8 feet)
- **0 3 5** 3.5 metres (11.5 feet)
- **0 4 0** 4.0 metres (13.1 feet)
- **0 4 5** 4.5 metres (14.8 feet)
- **0 7 0** 7.0 metres (22.9 feet)
- **0 7 5** 7.5 metres (24.6 feet)
- **0 8 0** 8.0 metres (26.2 feet)
- **0 8 5** 8.5 metres (27.9 feet)

B: Cable Option

- **0 0** Standard cable
- **0 1** Armored cable

C: Agency Approval Option

- **0 0** Not required
- **0 5** Multiple Approvals

Accessories

141078-01

Manual

159484

Performance Specification – 3300 XL Proximity Transducer System

162735

Performance Specification – 3300 XL ETR probes and extension cables

02120015

Bulk field wire. 1.0 mm^2 (18 AWG), 3 conductor, twisted, shielded cable with drain wire. Specify length in feet.

137491-AXX

Aluminum probe clamp bracket[2]

Option Descriptions

A: Mounting screw option

- **0 1** 10-24 UNC-2A mounting screws
- **0 2** M5 x 0.8-6g mounting screws

The aluminum clamp bracket is an unthreaded mounting bracket designed to use with the smooth case probes (330140, 330141, 330197 and 330198). After gapping the probe, tighten the clamp bracket by tightening the screws. The mounting screws have pre-drilled holes for safety wire.

137492-AXX

Aluminum probe threaded mounting bracket

Option Descriptions

A: Thread size

- **0 1** 3/8-24
- **0 4** M10 x 1

The aluminum probe threaded mounting bracket is the standard mounting bracket for most 3300 and 3300 XL probe

installations. The -01 option is supplied with two 10-24 UNC-2A mounting screws. The -04 option is supplied with two M5 x 0.8-6g mounting screws. The mounting screws have pre-drilled holes for safety wire.

27474-AXX

Phenolic threaded probe mounting bracket

Option Descriptions

A: Thread size

0 1 3/8-24

0 4 M10 x 1

The phenolic threaded mounting bracket is recommended if additional electric isolation from the mounting location is required (as in some generator and electrical motor bearing locations). The -01 option is supplied with two 10-24 UNC-2A mounting screws. The -04 option is supplied with two M5 x 0.8-6g mounting screws. The mounting screws have pre-drilled holes for safety wire.

138492-01

Replacement panel-mount mounting pad

138493-01

Replacement DIN-mount mounting pad

148722-01

3300 XL Test Plug. The 3300 XL Test Plug contains three small test pins attached to three color-coded wires 1 metre in length, each terminated in a banana plug. The three-pin adapter plugs into the test pin holes on 3300 XL-style Proximitor® Sensors. It is used to check the performance of the Proximitor® Sensor from the test pin holes in the terminal strip without requiring the removal of the field wiring.

04310310

3300 XL Proximitor® Sensor Panel-mount Screws. Package includes four 6-32 UNC thread forming mounting screws. (Supplied standard with Proximitor® Housings [3300 XL panel-mount option]).

03200006

Silicone self-fusing tape. A 9.1 metre (10 yard) roll of silicone tape to protect connectors. It is easy to install and provides excellent electrical isolation and protection from the environment. It is not recommended for use inside the casing of the machine.

40113-02

Connector Protector Kit. Connector Protector Kit for 3300 XL 8 mm probes and extension cables, including connector protectors and installation tools.

136536-01

Connector Protector Adapter. Allows connector protector installation tools manufactured prior to 1998 to be used with 75 Ω ClickLoc™ connectors.

40180-02

Connector Protectors. Package contains 10 pairs of connector protectors for 3300 XL 8 mm probes and 3300 XL 5 and 8 mm extension cables.

03839410

75 ohm Triaxial Male Connector Protector. Male connector protectors are installed onto the extension cable and attach to the female connector protector on the probe, providing environmental protection of connectors.

03839420

75 ohm Triaxial Female Connector Protector. Female connector protectors are installed onto the probe lead and attach to the male connector protector on the extension cable, providing environmental protection of connectors. Also placed on the extension cable to slide over the connection to the Proximitor® Sensor and protect it from the environment.

04301007

3/8-24 Probe Lock Nut with safety wire holes. Single probe lock nut with two holes drilled through the nut in order to secure the lock nut in place with safety wire.

04301008

M10 x 1 Probe Lock Nut with safety wire holes. Single probe lock nut with two holes drilled through the nut in order to secure the lock nut in place with safety wire.

330153-01

3300 XL Connector Kit. Used on 3300 XL 8 mm probes and extension cables. Contains one pair of male and female ClickLoc™ connectors, two

color-coded sleeves, two pieces of slit FEP tubing, and one strip of silicone tape.

163356

Connector Crimp Tool Kit. Includes one set of multiconnector inserts and connector installation instructions. Compatible only with 330153 connector kits or with probes shipped in 2003 or later with ClickLoc™ connectors uninstalled. Supplied with carrying case.

Notes:

1. Five metre probes are designed for use with the five metre Proximitor® Sensor only.
2. Mounting clamps must be ordered separately for 330140, 330141, 330197, and 330198.
3. For a shorter delivery time, order commonly stocked probes. Currently, stocked probes consist of the following part numbers:

   330101-00-08-05-02-00, 330101-00-08-05-02-05, 330101-00-08-10-02-00, 330101-00-08-10-02-05, 330101-00-12-10-02-00, 330101-00-12-10-02-05, 330101-00-16-10-02-00, 330101-00-16-10-02-05, 330101-00-20-05-02-00, 330101-00-20-10-02-00, 330101-00-20-10-02-05, 330101-00-30-10-02-00, 330101-00-30-10-02-05, 330101-00-40-05-02-00, 330101-00-40-10-02-00, 330101-00-40-10-02-05, 330101-00-60-10-02-00, 330101-00-60-10-02-05, 330102-00-20-10-02-00, 330103-00-02-10-02-05, 330103-00-03-10-02-05, 330103-00-04-10-02-00, 330103-00-04-50-02-00, 330103-00-05-10-02-00, 330103-00-06-10-02-00, 330104-00-06-10-02-00, 330104-01-05-50-02-00, 330105-02-12-05-02-00, 330105-02-12-05-02-05, 330105-02-12-10-02-00, 330105-02-12-10-02-05, 330106-05-30-05-02-00, 330106-05-30-05-02-05, 330106-05-30-10-02-00 and 330106-05-30-10-02-05.

Graphs and Dimensional Drawings

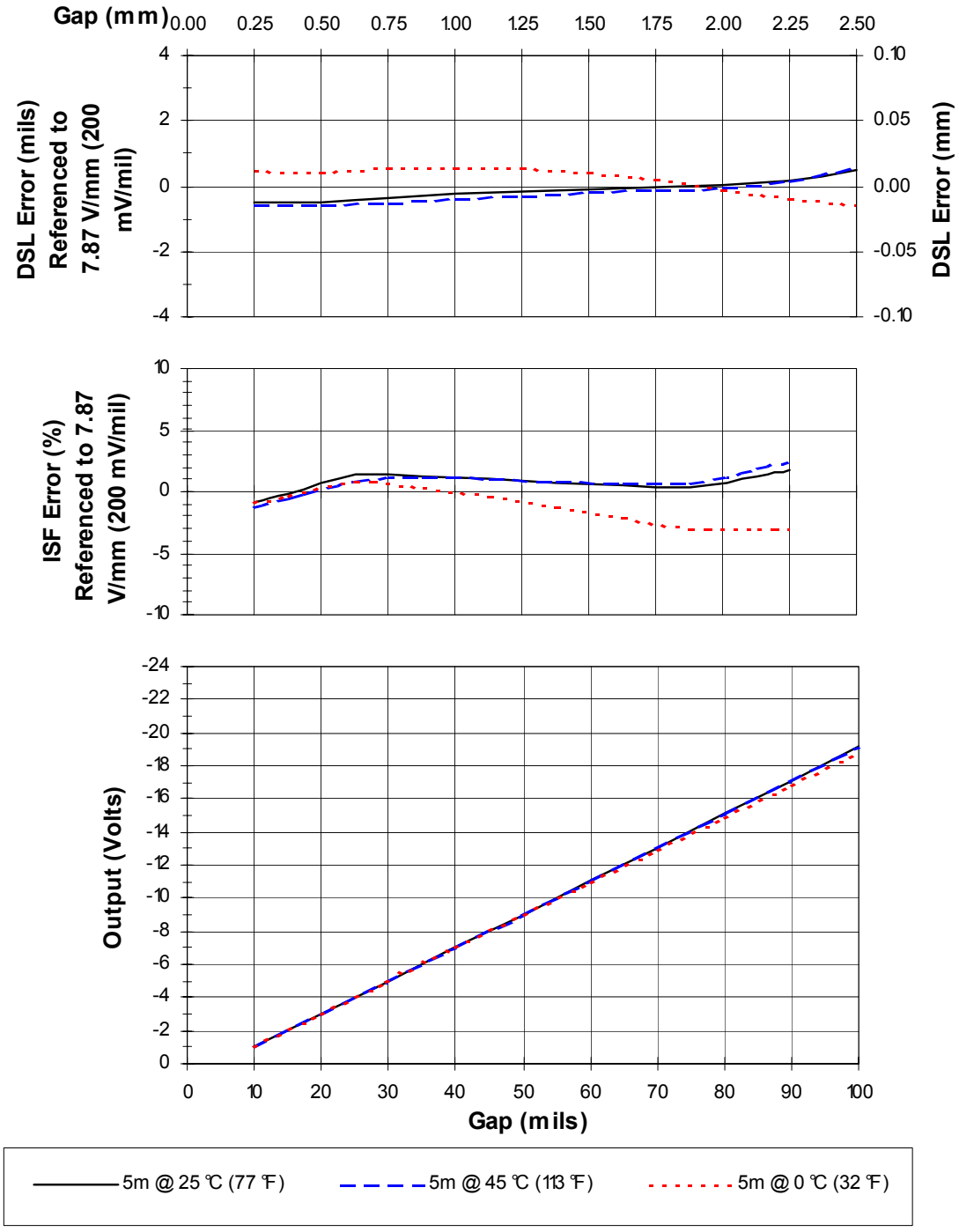


Figure 1 Typical 3300 XL 8 mm 5 m System over API 670 Testing Range

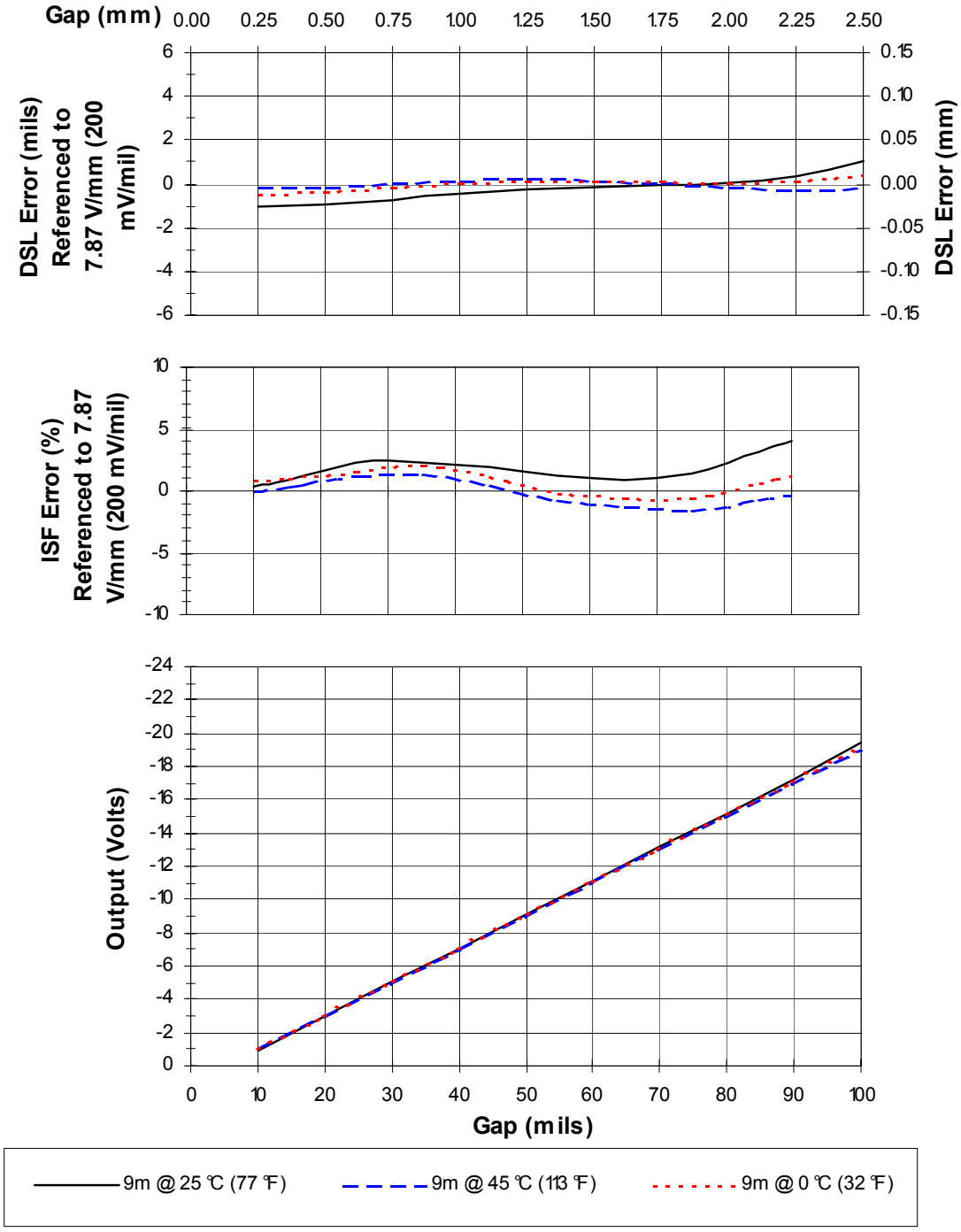


Figure 2 Typical 3300 XL 8 mm 9 m System over API 670 Testing Range

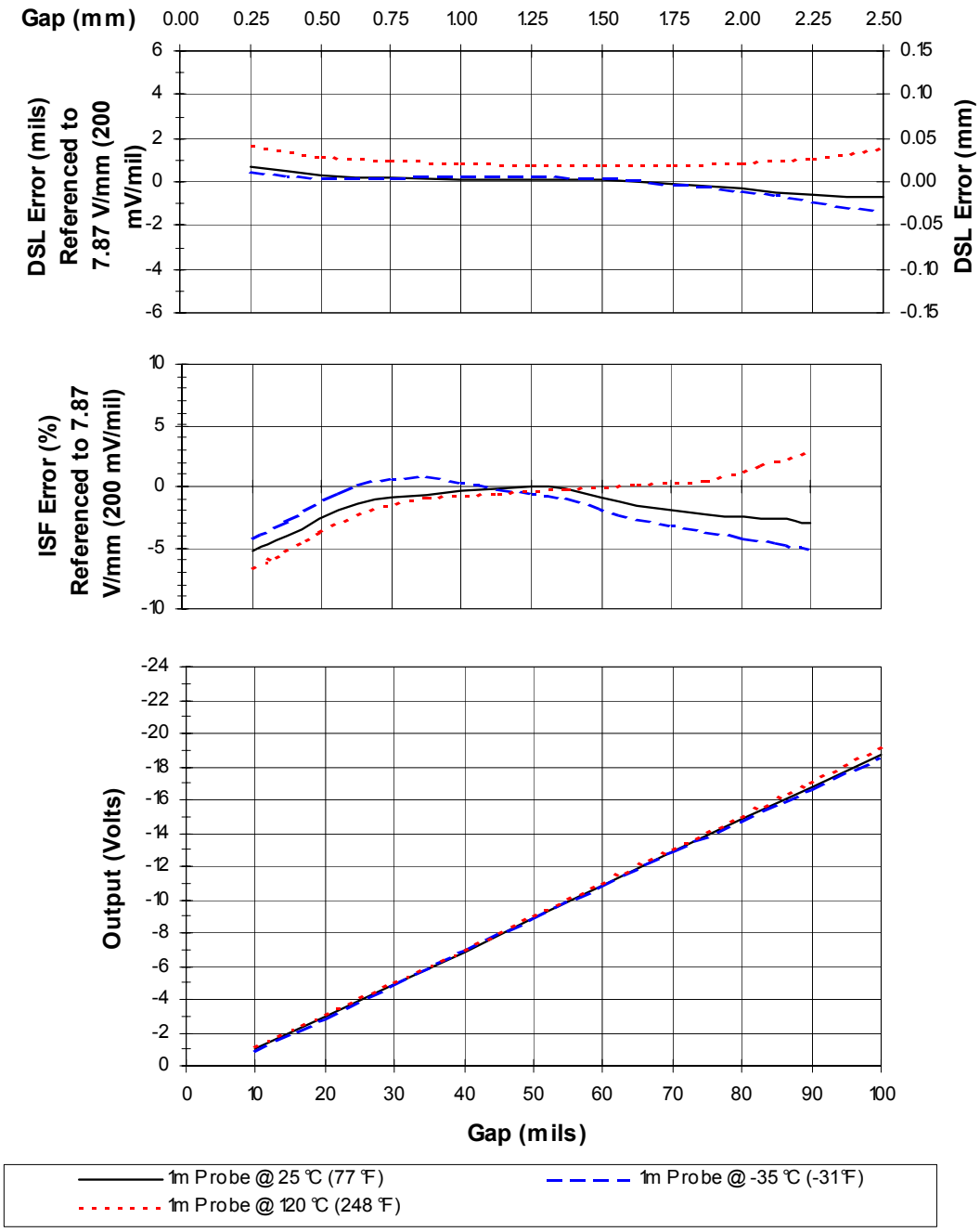


Figure 3 Typical 3300 XL 8 mm Probe over API 670 Operating Range

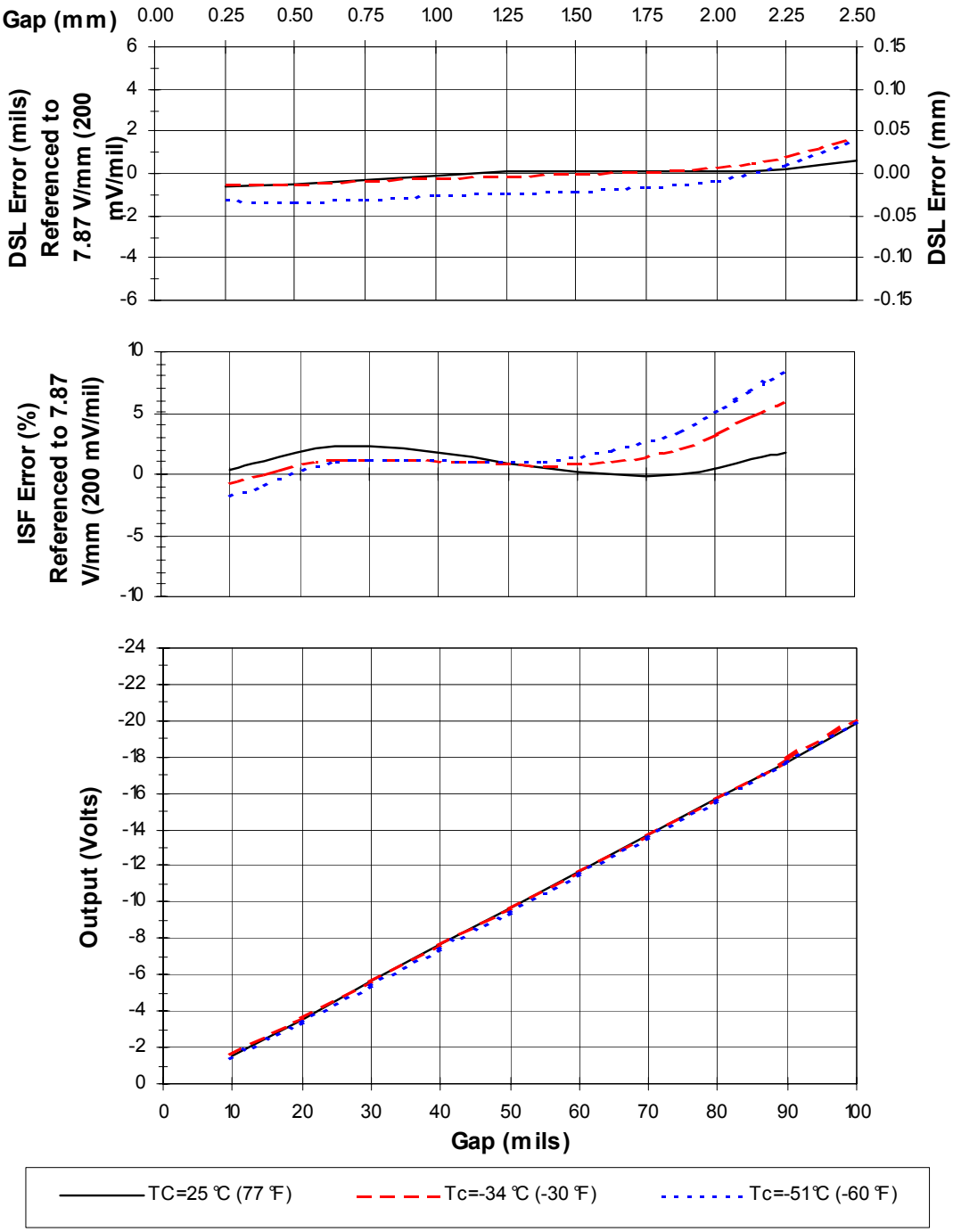


Figure 4 Typical 3300 XL 8 mm 5 m Proximitor® Sensor with 4 m of Extension Cable @ Tc (Probe is at 25 °C)

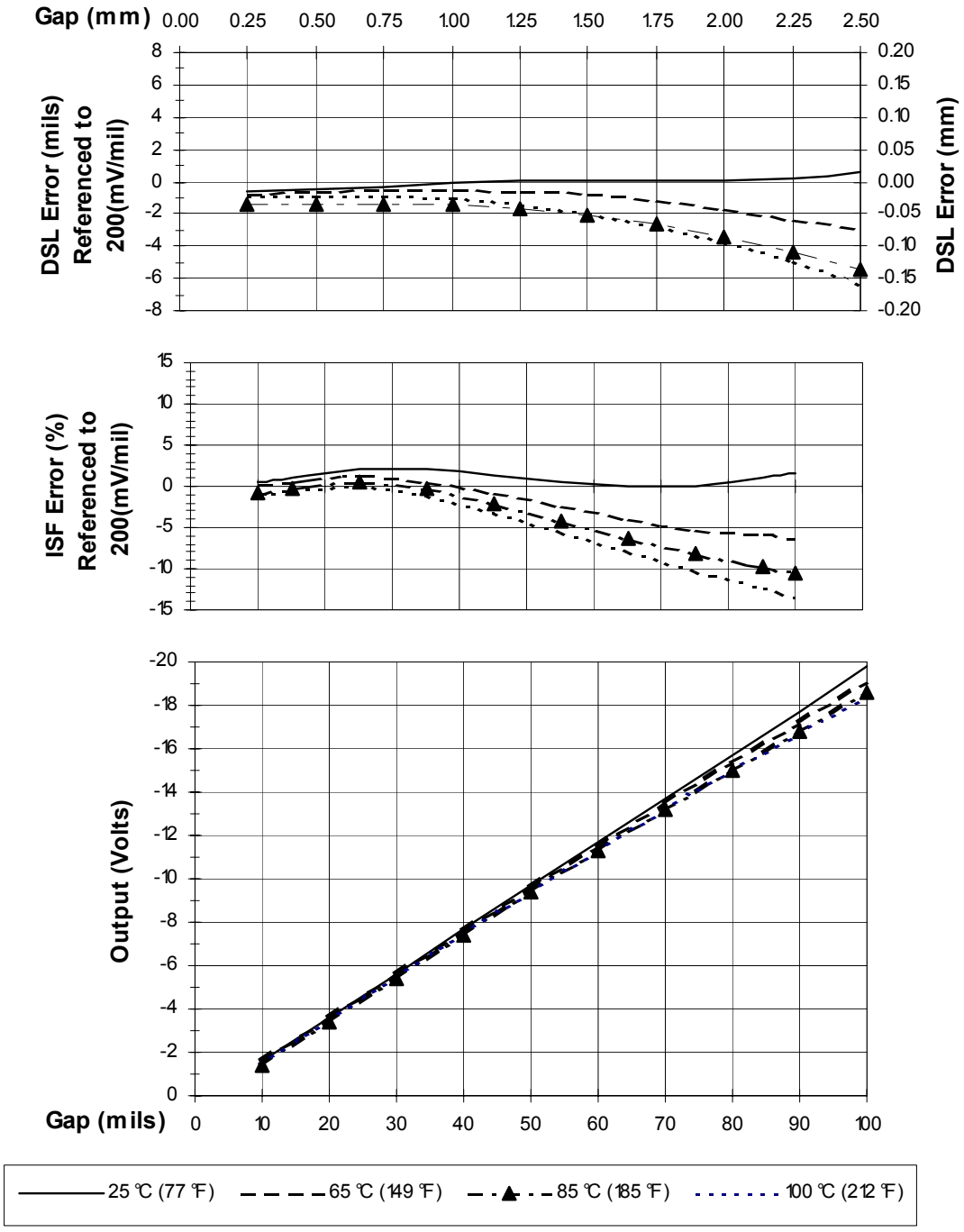


Figure 5 Typical 3300 XL 8 mm 5 m Proximitor® Sensor with 4 m Extension Cable @ Th (Probe is at 25°C)

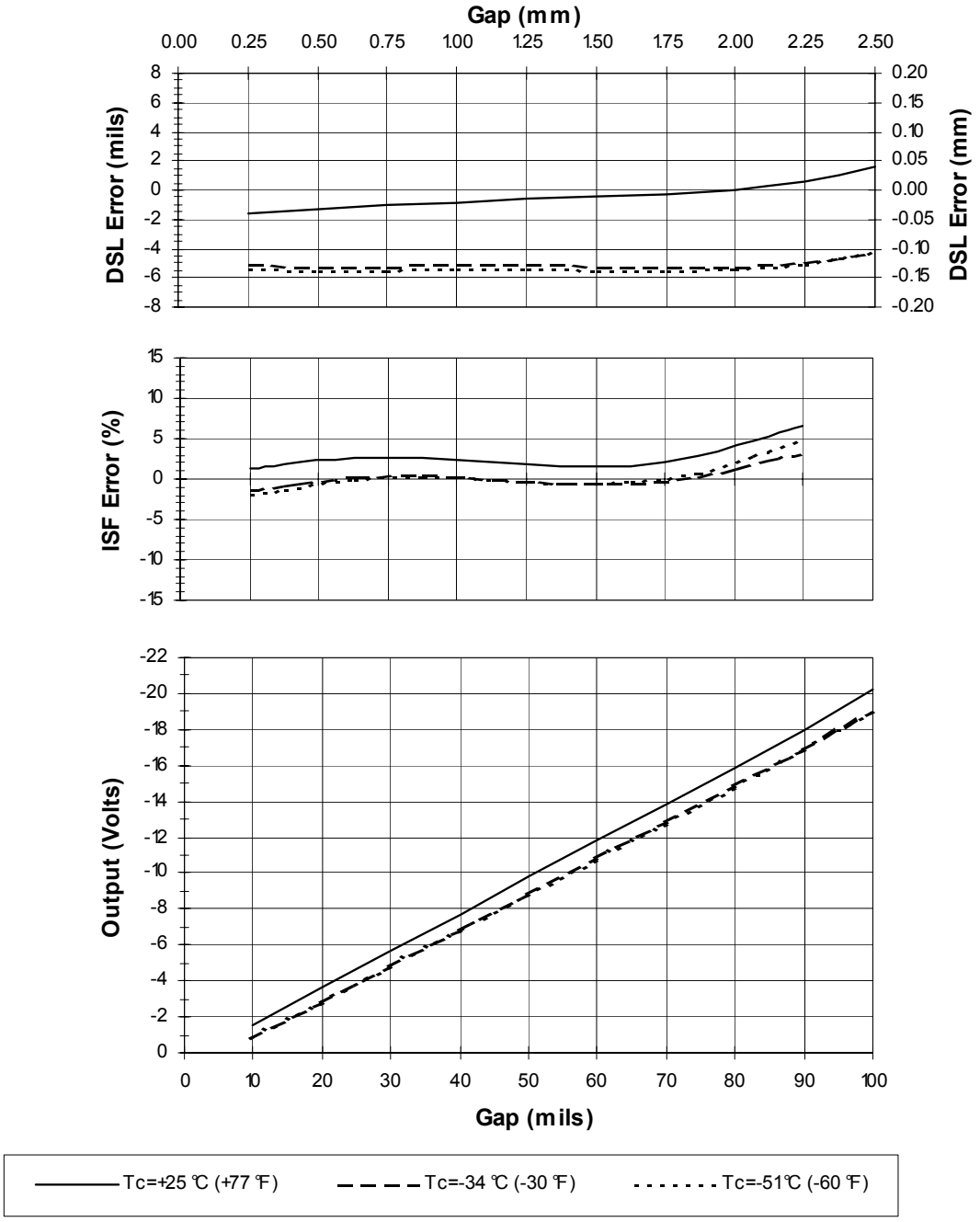


Figure 6 Typical 3300 XL 8 mm 9 m Proximitor® Sensor with 8 m of Extension Cable @ Tc (Probe is at 25 °C)

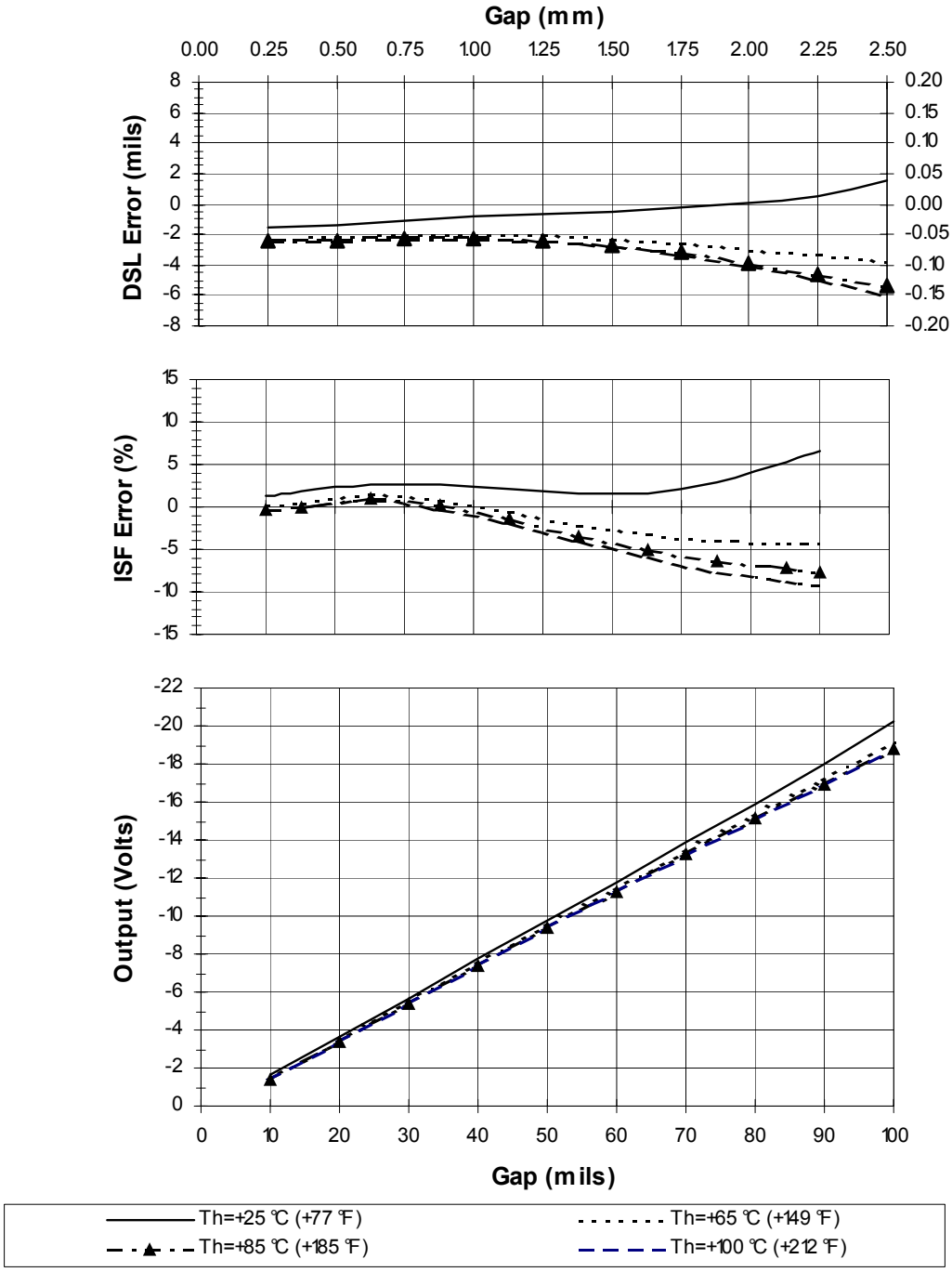


Figure 7 Typical 3300 XL 8 mm 9 m Proximitor® Sensor with 8 m of Extension Cable @ Th (Probe is at 25 °C)

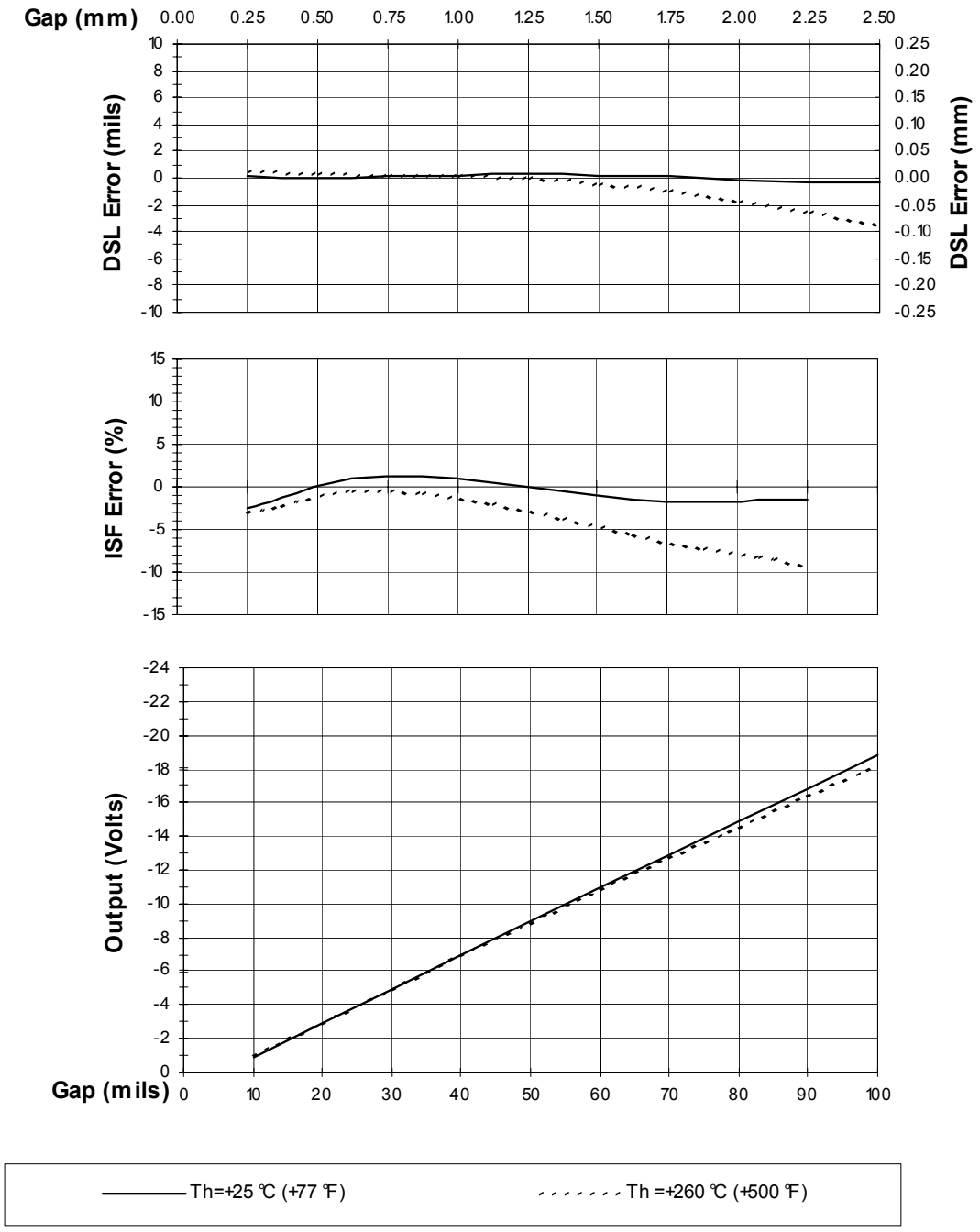


Figure 8 Typical 3300 XL Extended Temperature Range Probe and 4 metres of Extended Temperature Range Extension Cable @ Th (Proximitor® Sensor and probe tip with 1 foot of cable are at +25 °C)

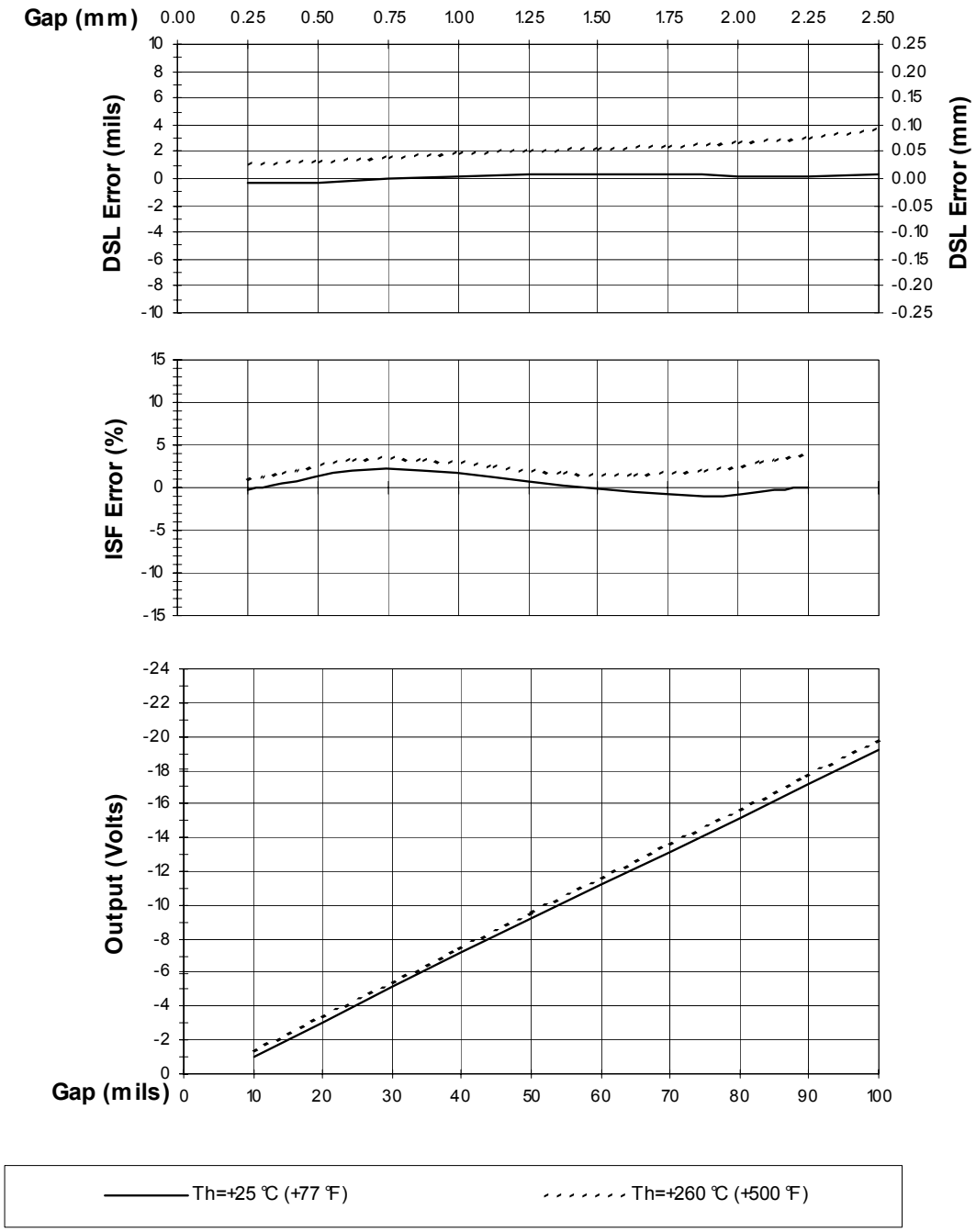


Figure 9 Typical 3300 XL Extended Temperature Range Probe and 8 metres of Extended Temperature Range Extension Cable @ Th (Proximitor® Sensor and probe tip with 1 foot of cable are at +25 °C)

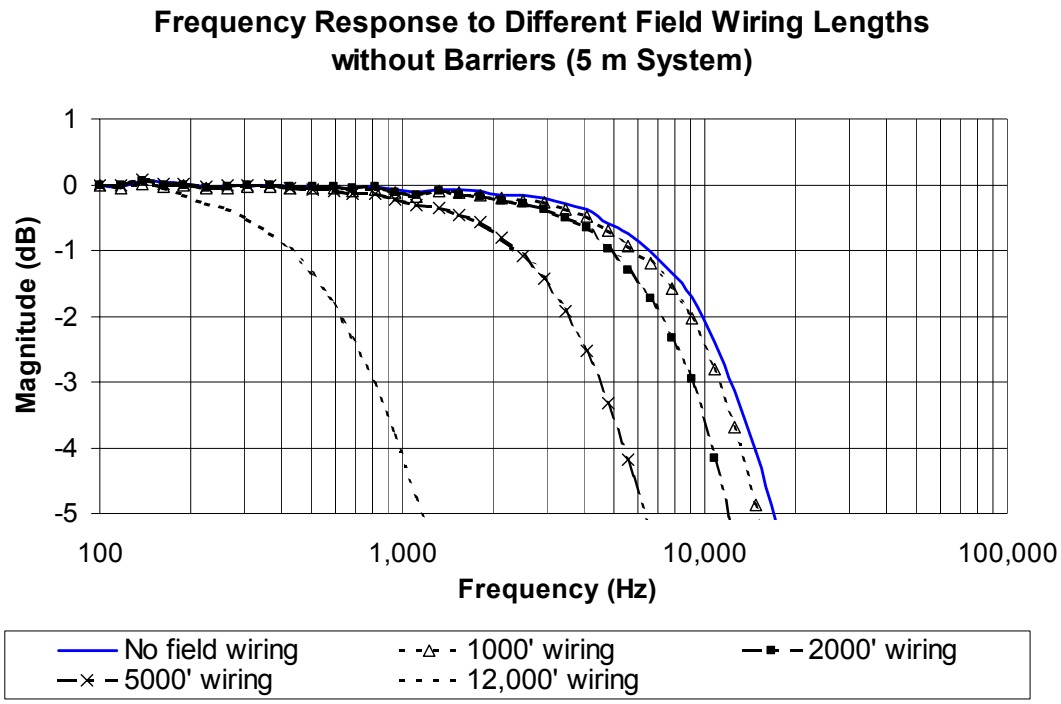


Figure 10 Frequency Response, typical 3300 XL 8 mm 5 m System with varying lengths of field wiring attached, no barriers

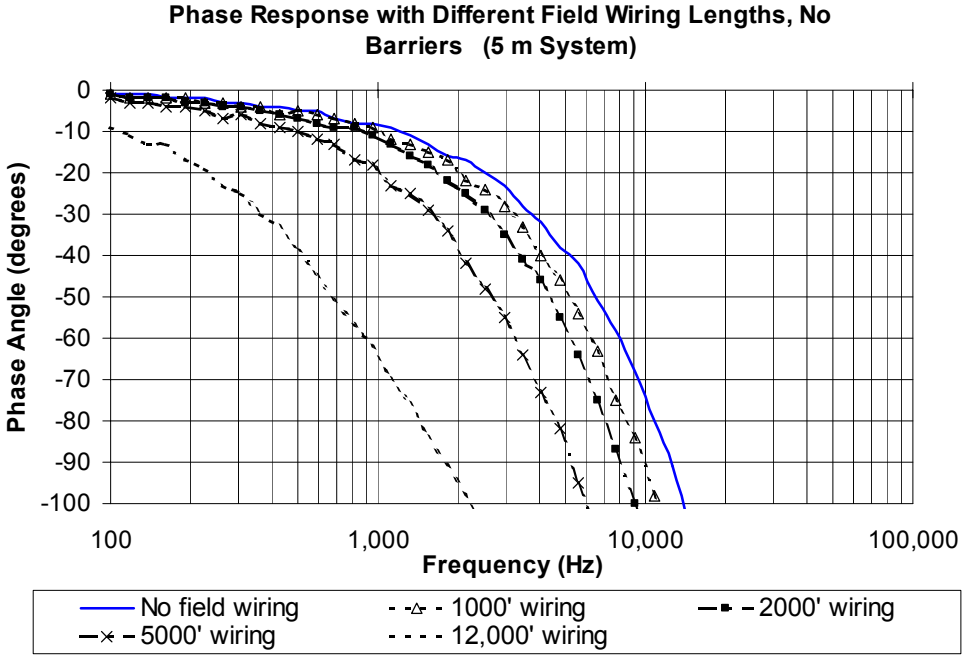


Figure 11 Phase Response, typical 3300 XL 8 mm 5 m System with varying lengths of field wiring attached, no barriers

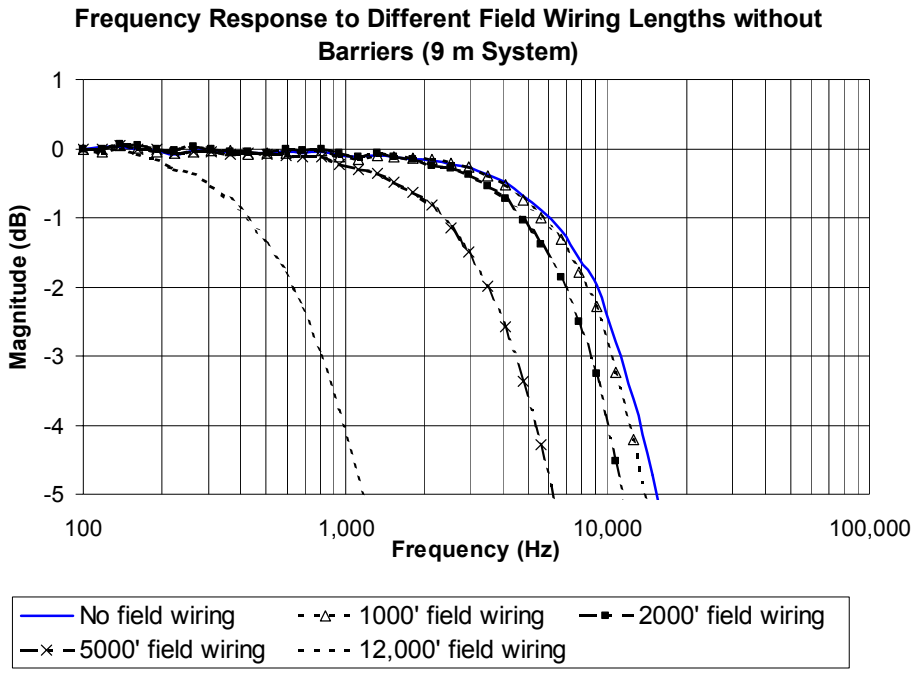


Figure 12 Frequency Response, typical 3300 XL 8 mm 9 m System with varying lengths of field wiring attached, no barriers

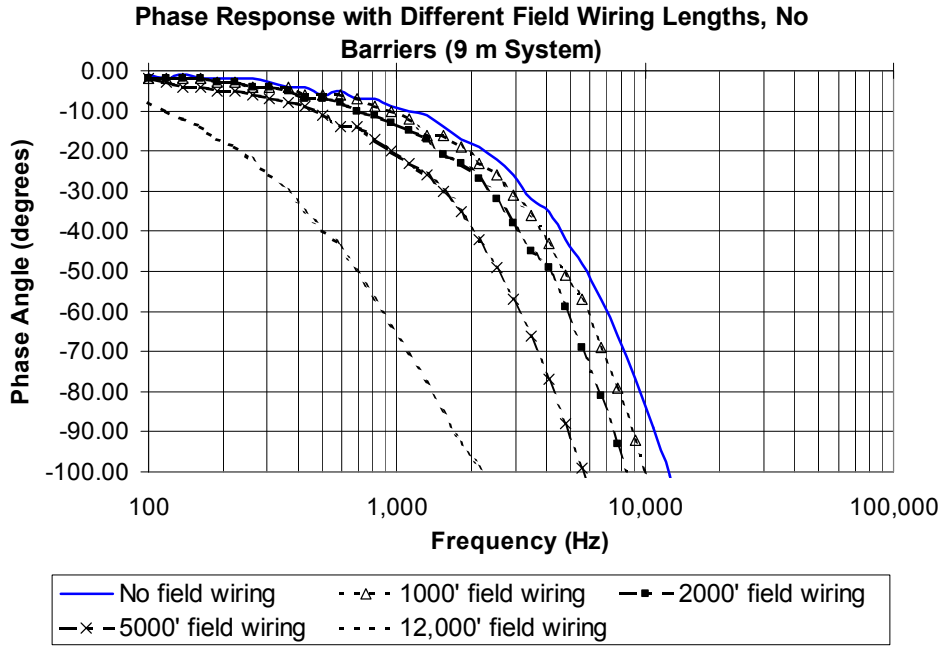


Figure 13 Phase Response, typical 3300 XL 8 mm 9 m System with varying lengths of field wiring attached, no barriers

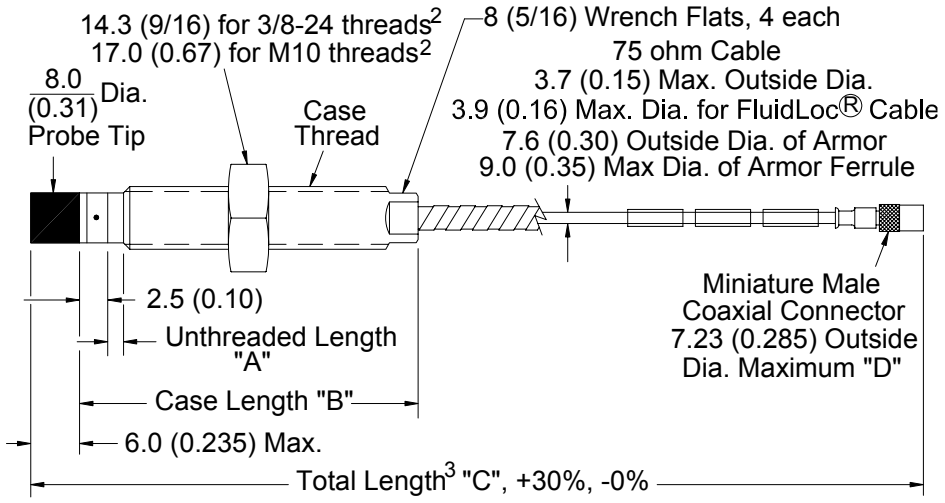


Figure 14 3300 XL 8 mm Proximity probes, Standard Mount

330101 and 330191, 3/8-24 UNF-2A, without armor [7]

330102 and 330192, 3/8-24 UNF-2A, with armor [6]

330103 and 330193, M10X1 thread, without armor [7]

330104 and 330194, M10X1 thread, with armor [6]

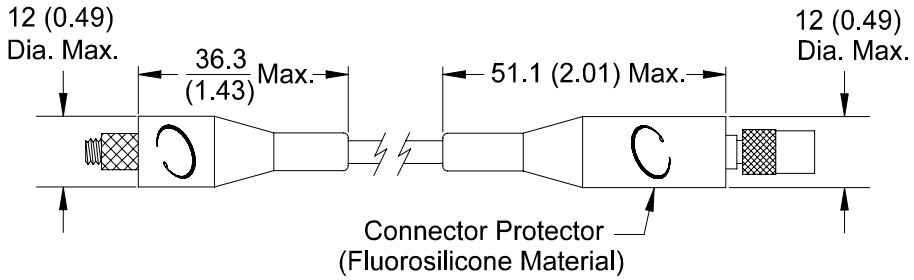


Figure 15 Installed Connector Protectors

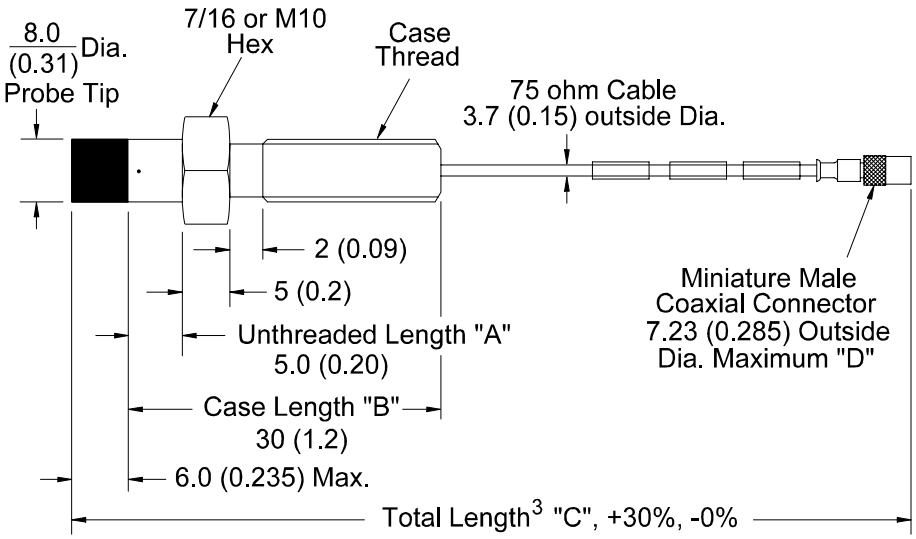


Figure 16 3300 XL 8 mm Proximity Probes, Reverse Mount [4, 7]

330105 and 330195, 3/8-24 UNF-2A threads

330106 and 330196, M10X1 threads

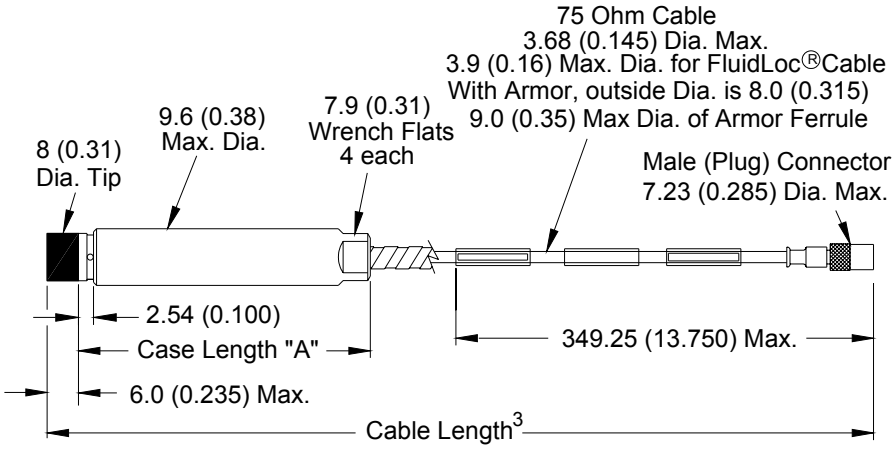


Figure 17 3300 XL 8 mm Proximity Probes, Smooth Case

330140 and 330197, without armor [7]

330141 and 330198, with armor [6]

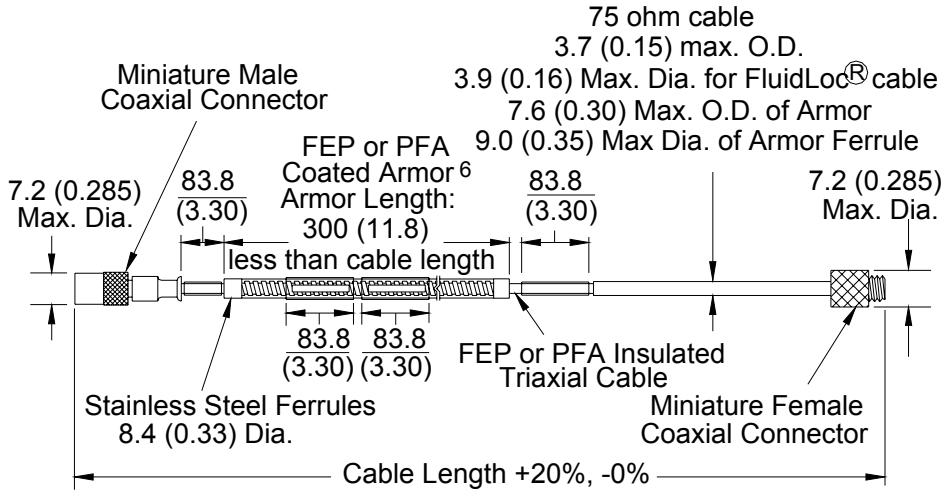


Figure 18 330130, 3300 XL Extension Cable (FEP armor and insulation)
30190, 3300 XL ETR Extension Cable (PFA armor and insulation)

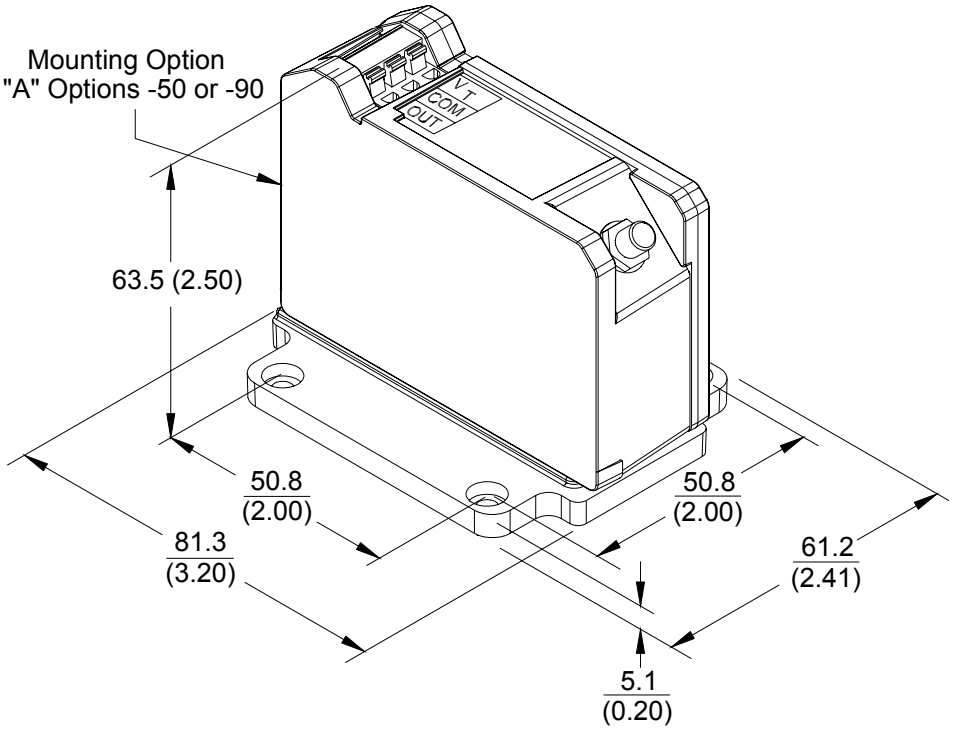


Figure 19 Panel Mount 3300 XL Proximitor® Sensor

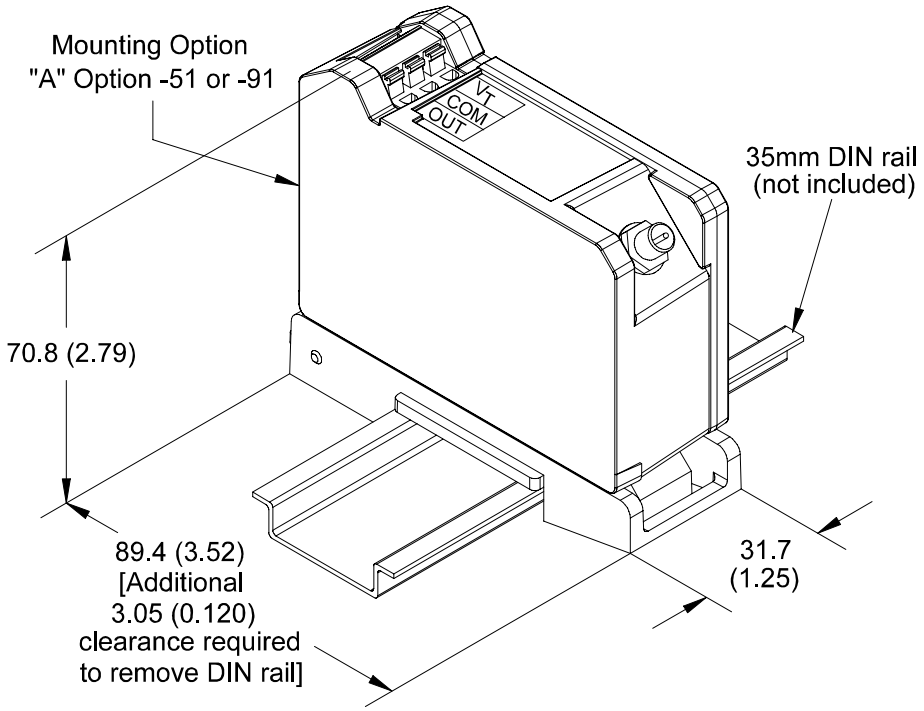


Figure 20 DIN Mount 3300 XL Proximitor® Sensor

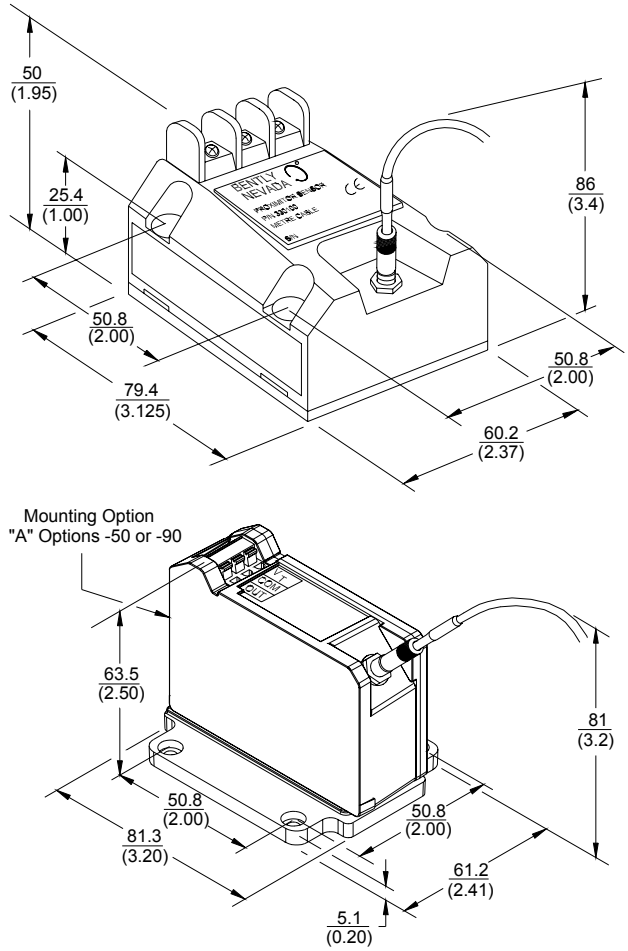


Figure 21 Physical mounting characteristics showing interchangeability of 3300 and 3300 XL Proximitor® Sensors when 4-hole mounting option is used[8]

Notes:

1. All dimensions on figures are in millimetres (inches) unless otherwise noted.
2. Standard mount 8 mm probes supplied with 17 mm or 9/16 inch lock nut.
3. Probes ordered with 5 or 9 metre integral cables have a length tolerance of +20%, -0%.
4. Reverse mount probes not available with armor or connector protector options.
5. Letters inside quotation marks on figures refer to probe ordering options.
6. Stainless steel armor is supplied with FEP outer jacket for standard probes, PFA outer jacket for ETR probes.
7. FEP jacket is standard non-armored portion of the cable for standard probes, PFA jacket on non-armored portion for ETR probes.
8. Use M3.5 or #6 screws for panel-mount Proximitor® Sensors (screws provided when purchasing Bently Nevada housings).

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