

3300 XL 25 mm Proximity Transducer System

Bently Nevada* Asset Condition Monitoring

Description

The 3300 XL 25 mm Transducer System consists of a separate 25 mm probe, an extension cable, and a 3300 XL 25 mm Proximitor* Sensor. The 0.787 V/mm (20 mV/mil) output gives this system a linear range of 12.7 mm (500 mils). Based on this linear range, the 3300 XL 25 mm Transducer System is suitable for measuring differential expansion (DE) on mid-size to large steam turbine generators caused by the difference in growth rates between the turbine rotor and the machine stator (casing).

Measuring Differential Expansion (DE)

The Differential Expansion measurement is made by two proximity transducers observing a collar or ramp some distance from the thrust bearing. Typical transducer mounting arrangements are:

- Two transducers observing the same side of a collar.
- Two complementary input transducers observing opposite sides of a collar, effectively doubling the measurable DE range.

Two transducers with at least one transducer viewing a ramp on a rotor and the second transducer viewing either a separate ramp or a different location on the rotor to compensate for radial movement. This arrangement adds some error to the measurement, but can measure a longer total DE distance than the complementary measurement.

The criteria for selecting a mounting method are the size of the available target, the expected amount of rotor axial movement and the type of DE target that exists in the machine (collar versus ramp). If sufficient collar height is available, two transducers observing the same side of a collar is the preferred configuration. These two transducers provide redundant measurements.

System Compatibility

The 3300 XL 25 mm probe comes in a large variety of case configurations to physically replace all standard 7200 25 mm, 7200 35 mm and 25 mm DE Integral transducer systems (including side and rear exit probes). The Proximitor Sensor also has an output that is identical to that of the 7200 and 25 mm DE Integral systems, allowing customers to upgrade without requiring any changes in the monitor configuration. When upgrading from previous systems, every transducer system component (probe, extension cable, and Proximitor Sensor) must be replaced with 3300 XL 25 mm components.



Proximity Probe and Extension Cable

The 3300 XL 25 mm probe is designed for maximum survivability in the harshest steam turbine DE environments. It can continually operate and maintain its accuracy in high temperatures up to 200 °C (392 °F), and can withstand intermittent high temperatures up to 250 °C (482 °F). The 25 mm probe has both a front and rear seal which, combined with the FluidLoc* cable (standard on all 25 mm probes), prevents moisture from entering the probe tip. Special high-temperature ClickLoc* connectors are also standard on the probe and extension cable. Each probe and cable are provided with connector protectors and a disposable connector protector installation tool to ensure that the connectors remain free of contamination. The ClickLoc connector on the probe lead has a removable collar that facilitates routing the cable through tight clearances.

The 3300 XL 25 mm probe is available in many probe case styles, including 1¼-12 or 1½-12 English threads, M30x2 or M39x1.5 metric threads, or side or rear exit probes with a 1.06 or 1.50 inch diameter smooth probe case. Additionally, threaded 3300 XL 25 mm probe cases come standard with a locknut with predrilled safety wire holes.

Proximitor Sensor

The 3300 XL 25 mm Proximitor Sensor¹ has the same advanced features as our previous 3300 XL Proximitor Sensors. Its thin design allows it to be mounted in either a high-density DIN-rail installation or a more traditional panel mount configuration. Improved RFI/EMI immunity allows the 3300 XL Proximitor Sensor to achieve European CE mark approvals without any special mounting considerations. This RFI immunity also prevents the transducer system from being adversely affected by nearby high frequency radio signals. SpringLoc* terminal strips on the Proximitor Sensor require no special installation tools and facilitate faster, highly robust field wiring connections.

Notes:

Proximitor Sensors are supplied by default from the factory calibrated to AISI 4140 steel. Calibration to other target materials is available upon request.

Mounting Accessories

The correct operation of the transducer system must be verified during installation, and periodically after installation, by physically moving it to simulate the motion of the shaft collar. This requires a mounting bracket that allows the transducer system to slide relative to the shaft rotor and collar.

An optional 3300 XL Sliding Bracket can be ordered for the 25 mm Differential Expansion Transducer for both single transducer and complementary input applications. This mounting bracket makes it easy to accurately verify the transducer system and gap the probes by allowing you to slide the transducer system throughout its linear range. The base plate of the sliding bracket is installed on the inner surface of the turbine case near the differential expansion collar. Probes are installed in the applicable probe adapter, which attaches to the sliding carriage. The sliding carriage slides onto and is secured to the base plate with bolts and safety wire. To verify and install the transducer, loosen the bolts securing the sliding carriage to the base plate and move the sliding carriage and probes. A Dial Indicator Verification Kit accessory provides a reference by measuring the movement of the sliding carriage. The 3300 XL Sliding Bracket helps ensure that the transducer system remains aligned with and perpendicular to the rotor.

Specifications

Unless otherwise noted, the following specifications are for a 3300 XL 25 mm Proximitor Sensor, extension cable and probe between 0°C and +45°C (+32°F to +113°F), with a -24 Vdc power supply, a 10 kΩ load, a Bently Nevada supplied AISI 4140 steel target that is 61 mm (2.4 in) diameter or larger, and a probe gap of 7.0 mm (275 mils). 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 XL 25 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:

Probe Length (m)	Resistance from the Center Conductor to the Outer Conductor (R_{PROBE}) (ohms)
1.0	6.2 ± 0.5
5.0	7.5 ± 0.8
9.0	8.8 ± 1.1

Extension cable dc resistance:

Length of Extension Cable (m)	Resistance from Center Conductor to Center Conductor (R_{CORE}) (ohms)	Resistance from Coaxial Conductor to Coaxial Conductor (R_{JACKET}) (ohms)
4.0	1.0 ± 0.25	0.3 ± 0.1
8.0	2.0 ± 0.5	0.6 ± 0.2

Extension cable capacitance:

69.9 pF/m (21.3 pF/ft) typical

Field wiring:

0.2 to 1.5 mm² (16 to 24 AWG) [0.25 to 0.75 mm² (18 to 23 AWG) with ferrules]. Recommend using three-conductor shielded triad cable. Maximum length of 305 metres (1,000 feet) between the 3300 XL Proximity Sensor and the monitor. See the frequency response graph for signal rolloff at high frequencies when using longer field wiring lengths.

Linear Range:

12.7 mm (500 mils). Linear range begins at approximately 0.63 mm (25 mils) from target and is from 0.63 to 13.33 mm (25 to 525 mils) (approximately -1.5 to -11.5 Vdc).

Average Scale Factor (ASF)

0.787 V/mm (20 mV/mil) nominal

Deviation from best fit straight line (DSL)

Less than ± 0.31 mm (± 12 mils)

System performance over extended temperatures:

Over a probe temperature range of -35°C to +120°C (-31°F to +248°F) with the Proximity Sensor and extension cable between 0°C to +45°C (+32°F to +113°F), the DSL remains within ± 0.92 mm (± 36 mils).

Over a Proximity 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 DSL remains within ± 0.92 mm (± 36 mils).

Frequency Response:

0 to 2.7 kHz: +0, -3 dB typical, with up to 305 metres (1000 feet) of field wiring.

Recommended Minimum Target Size:

61 mm (2.4 in) diameter (flat target)

Effects of 60 Hz Magnetic Fields Up to 300 Gauss (5 metre system):

Output voltage in millivolts/gauss:

Gap	Proximity Sensor	Probe	Ext. Cable
0.6 mm (25 mil)	0.224	0.008	0.002
7.0 mm (275 mil)	0.223	0.033	0.004
13.3 mm (525 mil)	0.225	0.076	0.023

Electrical Classification:

Complies with the European CE mark.

Hazardous Area Approvals

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

T5 @ Ta = -35 °C to +85 °C.

T4 @ Ta = -51 °C to +100 °C.

Europe:

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

 II 3 G EEx nA II 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.

Mechanical

Probe Tip Material:

Polyetheretherketone (PEEK).

Probe Case Material:

AISI 304 stainless steel (SST).

Probe Cable Specifications:

75 Ω triaxial, perfluoroalkoxyethylene (PFA) insulated FluidLoc probe cable in the following total probe lengths: 1, 5 or 9 metres.

Extension Cable Material:

75 Ω triaxial, perfluoroalkoxyethylene (PFA) insulated FluidLoc cable.

Proximity Sensor Material:

A380 aluminum

Sliding Bracket Material:

Anodized aluminum and stainless steel

**Sliding Bracket
Adjustment
Range**

Short bracket horizontal: ± 25.4 mm (± 1.0 in.)

Long bracket horizontal: ± 76.2 mm (± 3.0 in.)

Probe adapter vertical adjustment: 25.4 mm (1.00 in) total travel

System Length:

5 or 9 metres including extension cable

**Probe and
Extension Cable
Armor
(optional):**

Flexible AISI 302 SST with PFA outer jacket.

**Tensile Strength
(maximum
rated):**

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

**Connector
material:**

Gold-plated brass and gold-plated beryllium copper

Torque Specifications

Description	Maximum Rated	Recommended
All threaded probe cases	163 N•m (120 ft•lb)	68 N•m (50 ft•lb)
M5x.8 sliding bracket cap screws	9.6 N•m (85 in•lb)	7.3 N•m (65 in•lb)
M6x1 sliding bracket cap screw (probe clamp)	10.7 N•m (95 in•lb)	7.3 N•m (65 in•lb)

Connector-to-connector torque

**Recommended
torque:**

Finger tight

**Maximum
torque:**

0.565 N•m (5 in•lb)

**Minimum Bend
Radius (with or
without sst
armor):**

25.4 mm (1.0 in)

System Mass (typical):

Probe:

230 g (8.1 oz) (minimum length case, 1m lead, no armor)

330 g (11.6 oz) (minimum length case, 1m lead, with armor)

For longer case lengths add 5.7 g/mm (5.1 oz/in).

For 5 m probe length add 180 g (6.3 oz) for non-armored probe or 620 g (22 oz) for armored probe.

For 9 m probe length add 360 g (13 oz) for non-armored probe or 1240 g (44 oz) for armored probe.

Extension Cable:

45 g/m (0.5 oz/ft)

**Armored
Extension cable:**

140 g/m (1.5 oz/ft)

**Proximator
Sensor:**

255 g (9 oz)

Sliding Bracket:

Short with one probe adapter:
580 g (20.5 oz)

Long with two probe adapters:
1500 g (53 oz)

Environmental Limits

Probe Temperature Range

Operating and Storage

Temperature:

-35°C to +200°C (-31°F to +392°F)

Short Term

Operating and Storage

Temperature:

+250 °C (482 °F) max for less than
24 hours

Extension Cable Temperature Range

Operating and Storage Temperature:

-35°C to +200°C (-31°F to +392°F)

Proximitior 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)

Sliding Bracket Temperature Range

Operating and Storage Temperature:

-35°C to +200°C (-31°F to +392°F)

Relative Humidity:

100% condensing, non-
submersible when connectors are
protected. Tested to IEC 68-2-3
damp heat.

Probe Pressure:

3300 XL probes are designed to
seal differential pressure between
the probe tip and case. The probe
sealing material consists of a
Viton® O-ring and compression
seal. 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, Inc. will not be held responsible
for any damages resulting from leaking
3300 XL proximity probes. In addition,
3300 XL proximity probes will not be
replaced under the service plan due to
probe leakage.

Patents:

5,016,343

5,126,664

5,351,388

5,685,884

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

Ordering Information

3300 XL 25 mm Proximity Probe:

330851-AXX-BXXX-CXXX-DXX-EXX-FXX

A: Probe Case Type Option

Note: Standard case types are 01
through 04.

- | | |
|-----------|--------------------------------|
| 01 | 1¼ -12 Thread |
| 02 | M30x2 Thread |
| 03 | Smooth 1.06 in dia - Rear Exit |
| 04 | Smooth 1.06 in dia - Side Exit |
| 05 | 1½ -12 Thread |
| 06 | M39x1.5 Thread |
| 07 | Smooth 1.5 in. dia - Rear Exit |
| 08 | Smooth 1.5 in. dia - Side Exit |

B: Unthreaded Length Option

Note: Standard unthreaded length is 0.0
mm or 0.0 in. There is an additional
charge for non-standard unthreaded
lengths.

Unthreaded length must be at least 26
mm or 1.0 inch less than the case length.

Unthreaded length option is 0.0 in. for
smooth case probe types.

Metric Case Types:

Order in increments of 2 mm.

Specifications and Ordering Information
Part Number 163236
Rev. F (08/14)

Maximum
unthreaded
length:

224 mm

Minimum
unthreaded
length:

0 mm

Example:

0 5 0 = 50 mm

English Case
Types:

Order in increments of 0.1 in.

Maximum
unthreaded
length:

8.9 in.

Minimum
unthreaded
length:

0.0 in.

Example:

0 2 5 = 2.5 in.

C: Overall Case Length Option

Note: Standard case lengths are 26, 40, 60, 80, 100 and 250 mm for metric cases and 1.0, 2.0, 3.0, 4.0 and 9.9 in. for English cases. There is an additional charge for non-standard case lengths.

Metric Case
Types:

Order in increments of 2 mm

Maximum case
length:

250 mm

Minimum case
length:

26 mm

Example:

0 5 0 = 50 mm

English and
Smooth Case
Types:

Order in increments of 0.1 in

Maximum case
length:

9.9 in

Minimum case
length:

1.0 in (1.5 in for side exit case types)

Example:

0 2 0 = 2.0 in

D: Total Length Option

10 1.0 metre (3.3 feet)
50 5.0 metres (16.4 feet)
90 9.0 metres (29.5 feet)

Note: Five metre probes are designed for use with the five metre Proximitor Sensor only.

E: Armor Option

00 No Armor
01 with SST Armor

Note: When ordering SST Armor, the minimum probe length is 28 mm or 1.1 inch.

F: Agency Approval Option

00 No Approvals
05 Multiple Approvals

Note: For a shorter delivery time, order commonly stocked **multi-approvals** probes. Currently, stocked probes consist of the following part numbers:
330851-01-000-020-10-00-05
330851-01-000-030-10-00-05
330851-02-000-040-10-00-05
330851-02-000-080-10-00-05
330851-04-000-015-10-00-05
330851-04-000-020-10-00-05

3300 XL 25 mm Proximito Sensor

330850-AXX-BXX

A: Total Length and Mounting Option

- | | |
|------------|---|
| 5 0 | 5.0 metres (16.4 feet) system length, panel mount |
| 5 1 | 5.0 metres (16.4 feet) system length, DIN mount |
| 9 0 | 9.0 metres (29.5 feet) system length, panel mount |
| 9 1 | 9.0 metres (29.5 feet) system length, DIN mount |

B: Agency Approval Option

- | | |
|------------|--------------------|
| 0 0 | No Approvals |
| 0 5 | Multiple Approvals |

3300 XL 25 mm Extension Cable

330854-AXXX-BXX-CXX

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

A: Cable Length Option

- | | |
|--------------|------------------------|
| 0 4 0 | 4.0 metres (13.1 feet) |
| 0 8 0 | 8.0 metres (26.2 feet) |

B: Armor and Cable Option

- | | |
|------------|---|
| 2 4 | High Temperature FluidLoc cable |
| 2 5 | Armored High Temperature FluidLoc cable |

C: Agency Approval Option

- | | |
|------------|--------------------|
| 0 0 | No Approvals |
| 0 5 | Multiple Approvals |

3300 XL Sliding Bracket

330853-AXX-BXX

A: Bracket Length Option

- | | |
|------------|---|
| 0 1 | Short – Single Differential Expansion Application |
| 0 2 | Long – Complementary Input Differential Expansion Application |

B: Probe Adapter Option

- | | |
|------------|-------------------------|
| 0 0 | Adapter not supplied |
| 0 1 | 1¼-12 Thread |
| 0 2 | M30x2 Thread |
| 0 3 | 1.06 in diameter Smooth |

Note: When probe adapters are selected, one is supplied with the short bracket length and two are supplied with the long bracket length.

Dial Indicator Verification Kit

The dial indicator verification kit contains all of the parts needed to verify accuracy of a differential expansion installation. The kit contains a dial indicator, magnetic base, flex mounting arm, and indicator holding rod all housed in a protective carry case

163854-AXX

A: Measurement Units Option

- | | |
|------------|--------------------------|
| 0 1 | English Units (0–2 Inch) |
| 0 2 | Metric Units (0–50 mm) |

Accessories

163235

Manual

161984

Performance Specification

148722-01

3300 XL Test Plug. The 3300 XL Test Plug has three self-contained 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 Proximito sensors. It is used to check the performance of the Proximito sensor from the test pin holes in the terminal strip without requiring the removal of the field wiring.

330187

Extended Range Micrometer Kit.

The extended range micrometer kit contains a precision micrometer and AISI 4140 target and is intended for acceptance testing of our Bently Nevada extended range transducers. Bracket options are available to hold 8mm – 35mm probes and also the 50 mm DE transducer.

02120015

Bulk field wire. 1.0 mm² (18 AWG), 3 conductor, twisted, shielded cable with drain wire. Specify length in feet.

02173009

Bulk field wire. 1.0 mm² (18 AWG), 3 conductor, twisted, shielded cable. Specify length in feet.

138492-01

Replacement panel-mount mounting pad

138493-01

Replacement DIN-mount mounting pad

04310310

3300 XL Proximitor Sensor Panel-mount Screws. Package includes four 6-32 UNC thread forming mounting screws (Supplied standard with 3300 XL Proximitor Housings [3300 XL 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 probes and extension cables, including connector protectors and installation tools.

29660-01

Transducer Clamp. Optional mounting clamp for the 1.06" dia smooth 3300 XL 25mm probe case types (-03 and -04 only).

136536-01

Connector Protector Adapter.

Makes our previous 3300 connector protector kits compatible with 3300 XL probes and extension cable connectors.

40180-02

Connector Protectors. Package contains 10 pairs of connector protectors.

03839410

Male Connector Protector.

Placed on the extension cable to connect to the female connector protector on the probe and provide environmental protection of connectors.

03839420

Female Connector Protector.

Placed on the probe lead to connect to the male connector protector on the extension cable and provide environmental protection of connectors. Also placed on the extension cable to slide over the Proximitor Sensor connection and protect it from the environment.

330153-08

3300 XL 25 mm Connector Kit.

Used on 3300 XL 25 mm probes and extension cables. Contains one male (removable nut) and female ClickLoc connectors, color-coded sleeves and two pieces slit PFA tubing.

163356

Connector Crimp Tool Kit.

Includes one set of multi-connector inserts and connector installation instructions. Supplied with carrying case.

Graphs and Dimensional Drawings

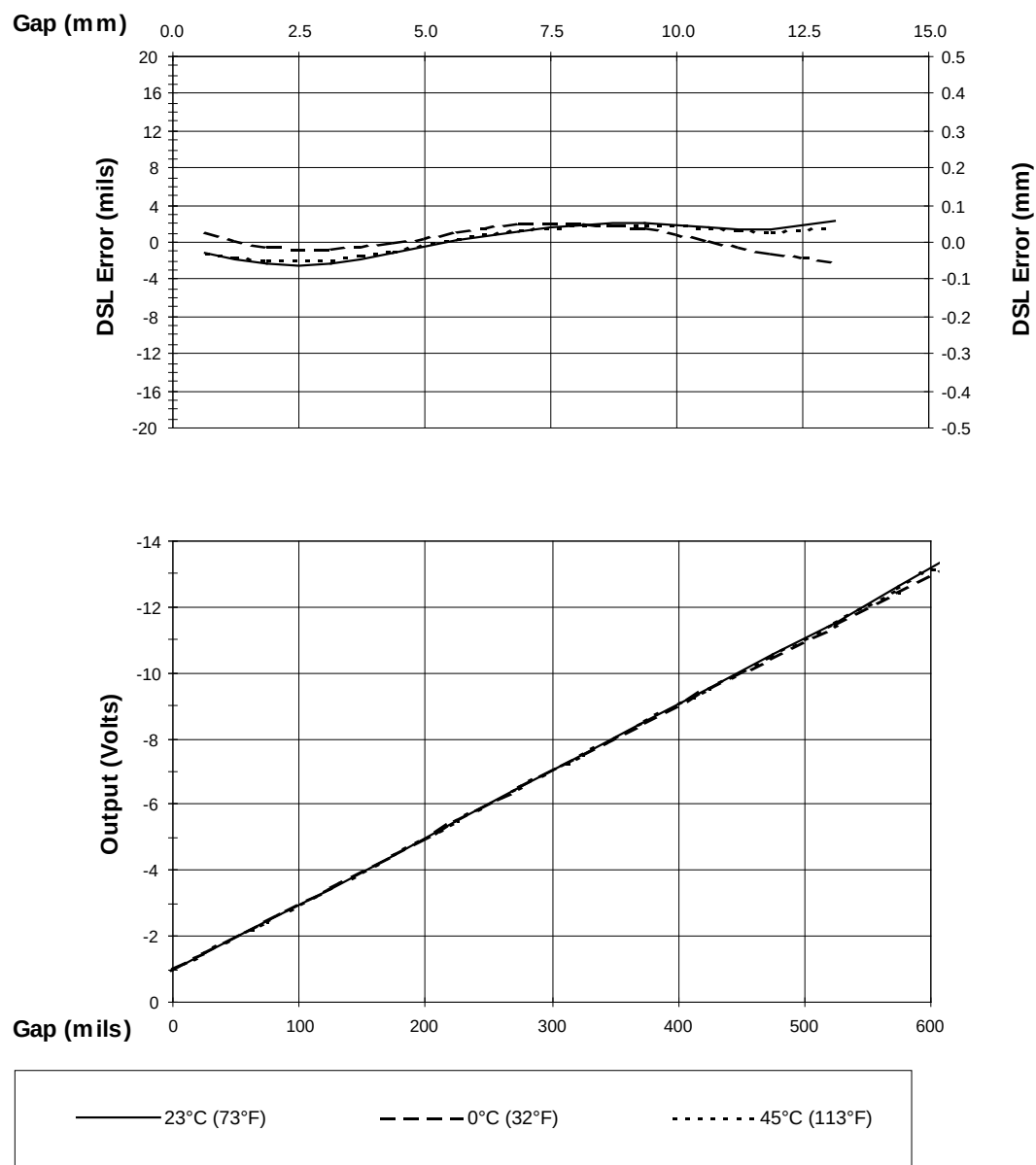


Figure 1 Typical 3300 XL 25 mm 5 m System Over Ambient Testing Range

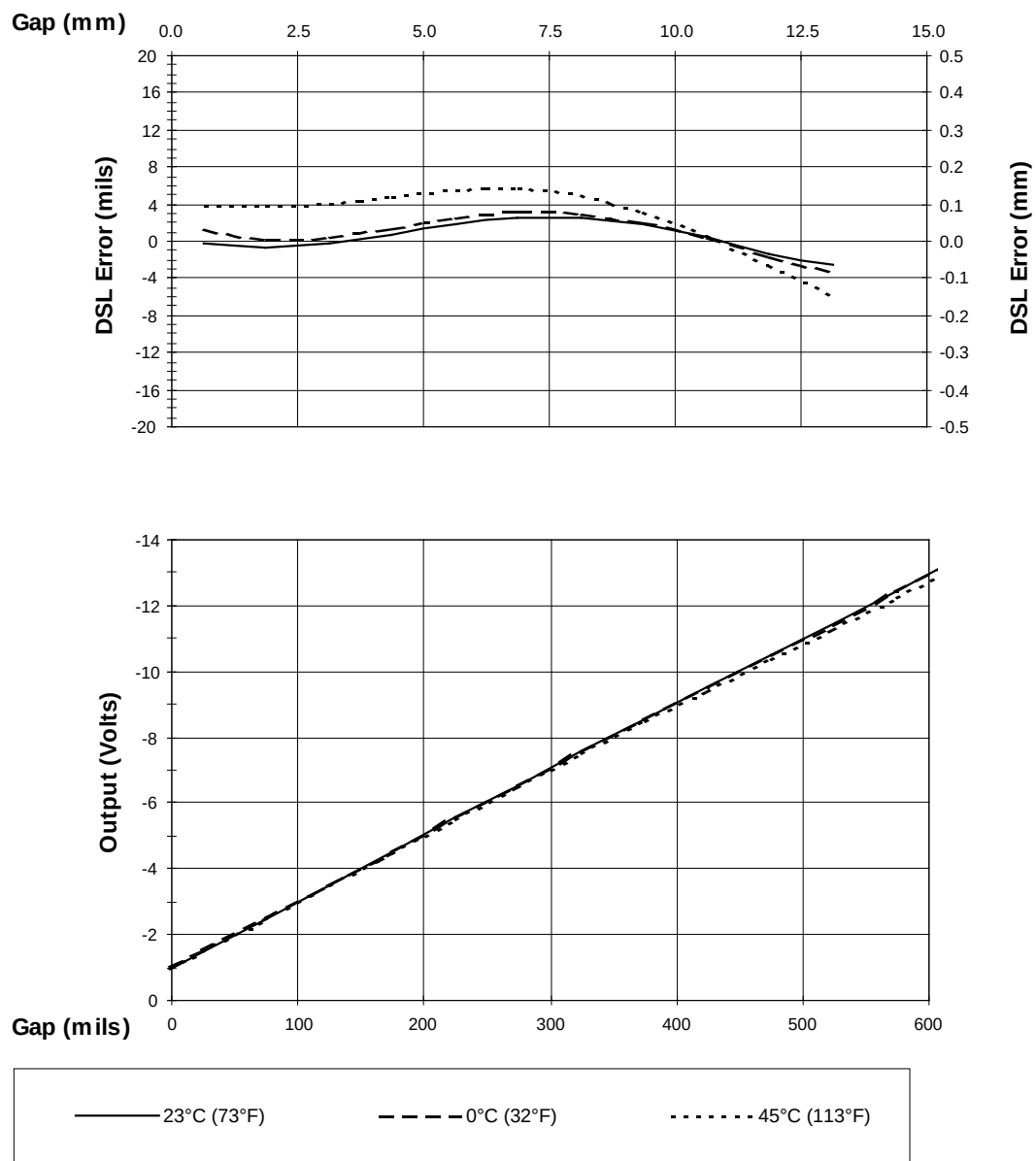


Figure 2 Typical 3300 XL 25 mm 9 m System Over Ambient Testing Range

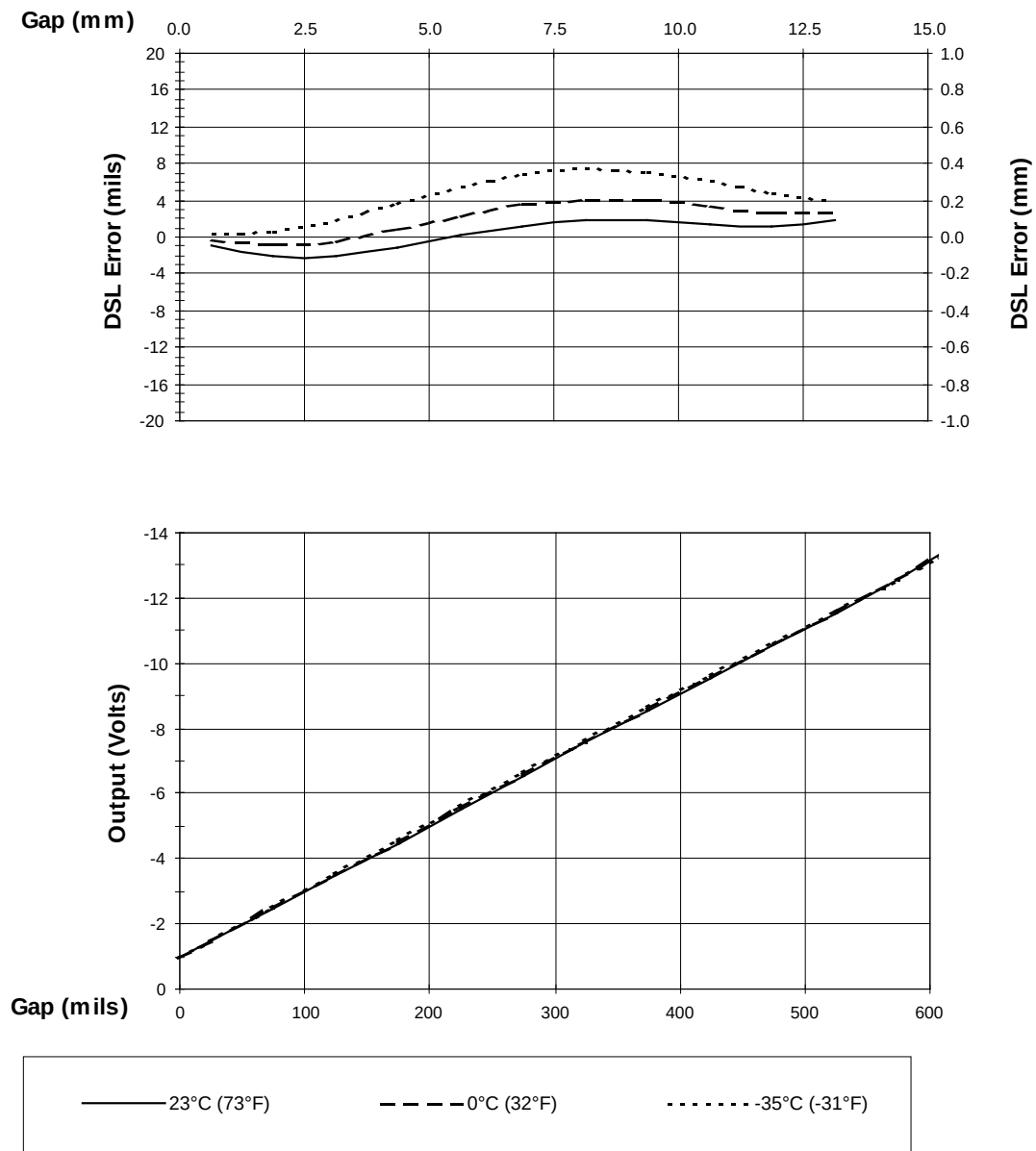


Figure 3 Typical 3300 XL 25 mm Probe + 1m Cable @ Low Temperature (Proximito Sensor + 4m of Extension Cable @ 25 °C)

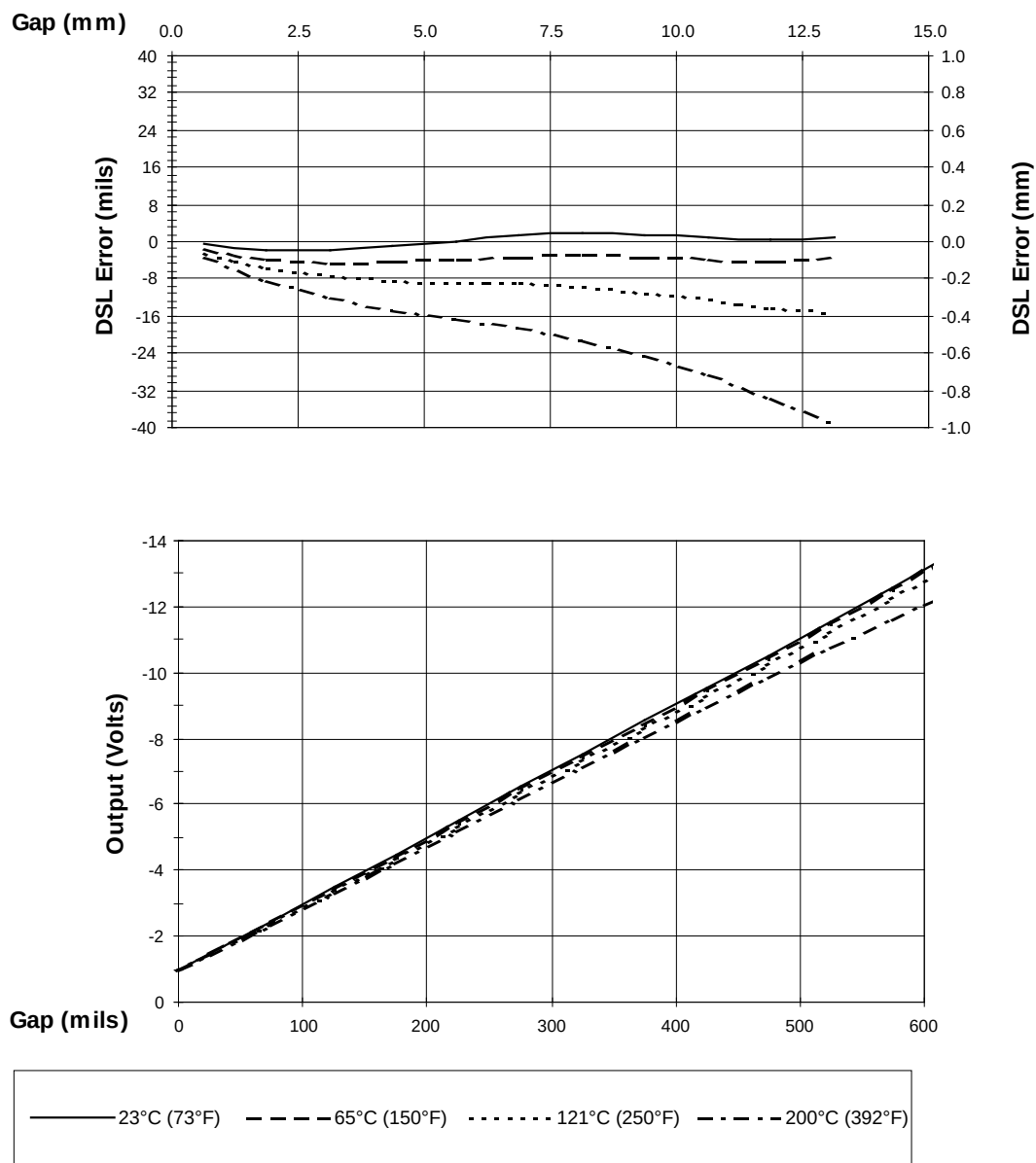


Figure 4 Typical 3300 XL 25 mm Probe + 1m Cable @ High Temperature (Proximitor Sensor + 4m of Extension Cable @ 25 °C)

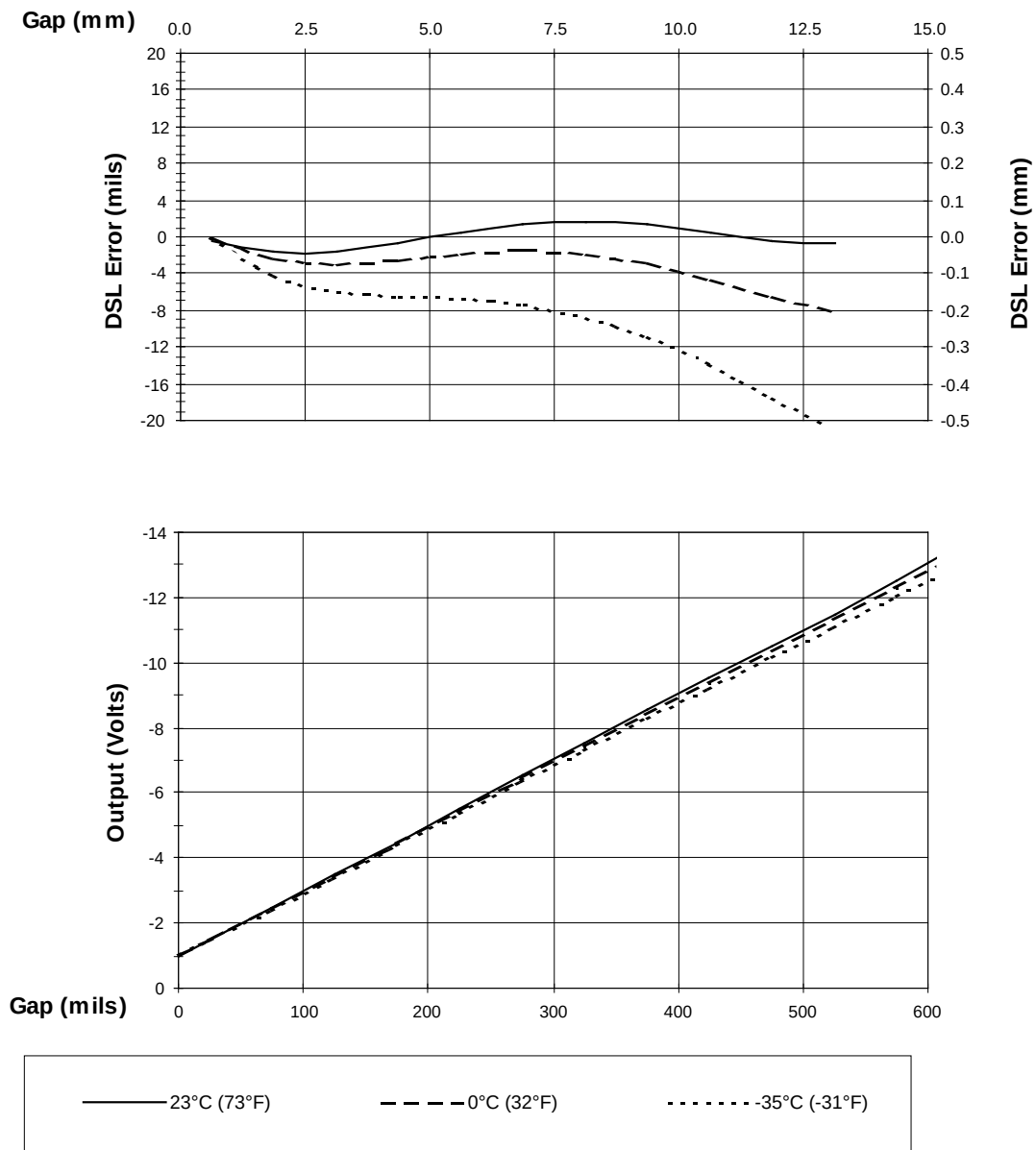


Figure 5 Typical 3300 XL 25 mm 5 m Proximity Sensor with 4 m of Extension Cable @ Cold Temperature (Probe is at 25°C)

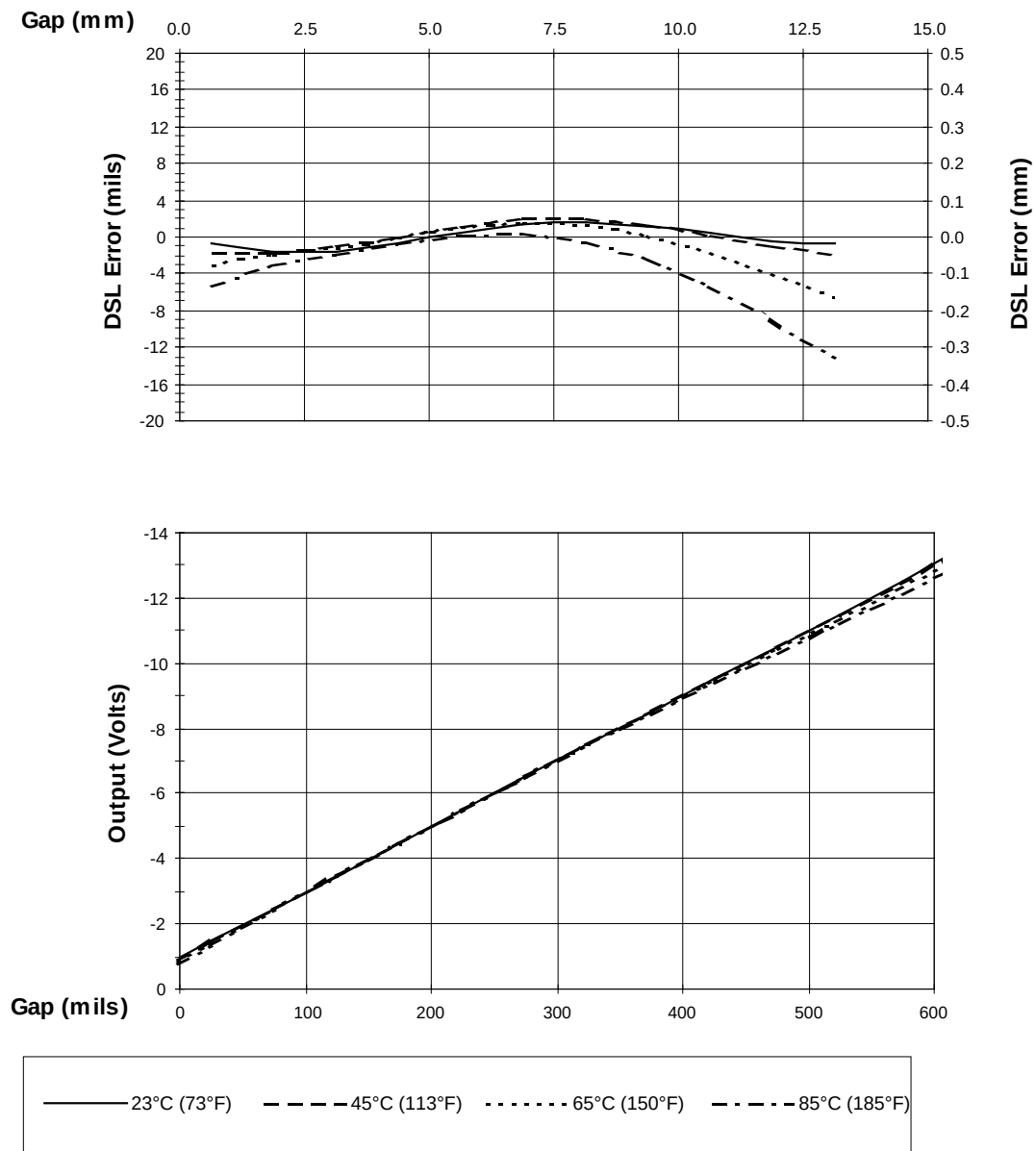


Figure 6 Typical 3300 XL 25 mm 5 m Proximity Sensor with 4 m Extension Cable @ High Temperature (Probe is at 25°C)

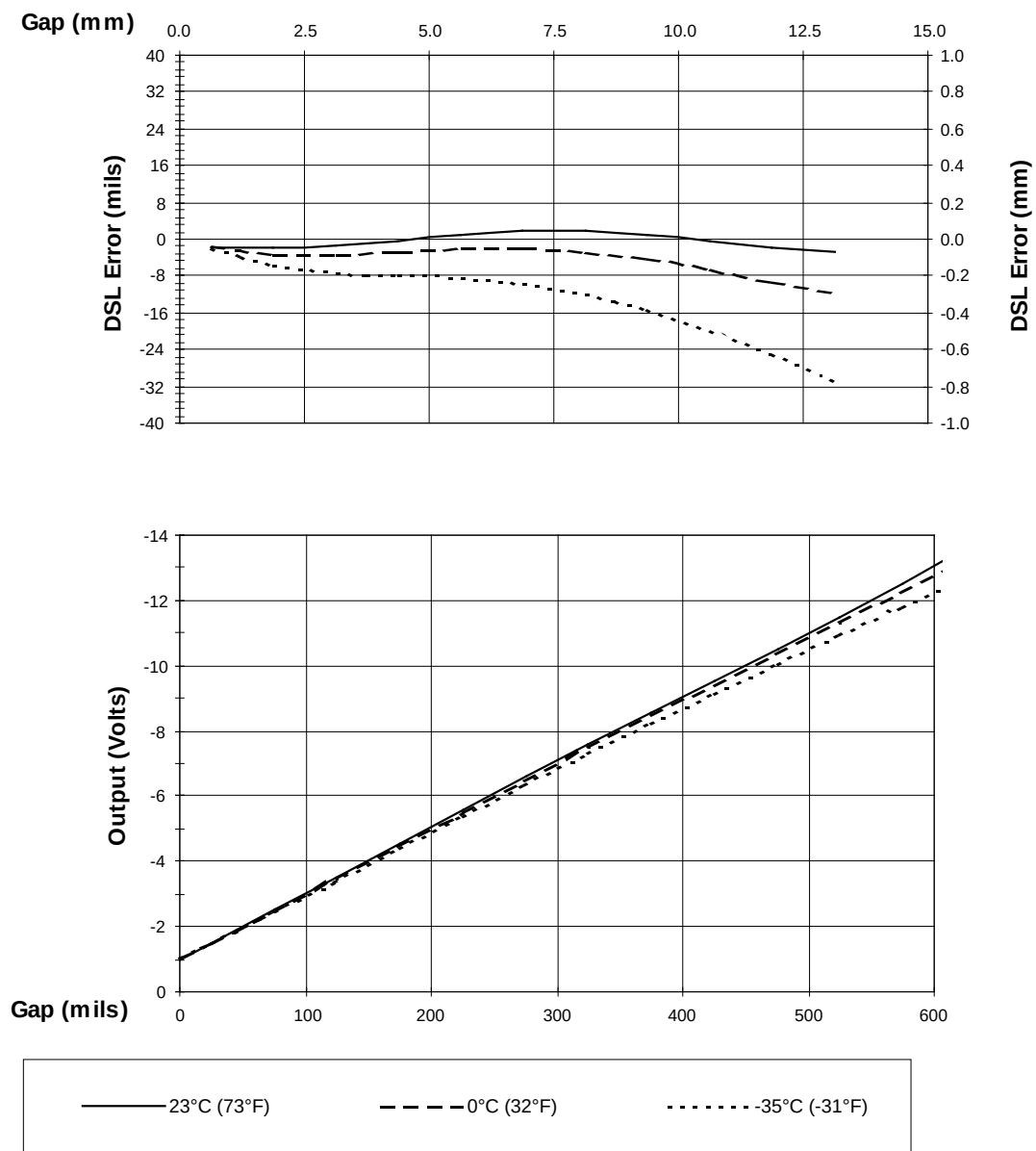


Figure 7 Typical 3300 XL 25 mm 9 m Proximity Sensor with 8 m of Extension Cable @ Low Temperature (Probe is at 25°C)

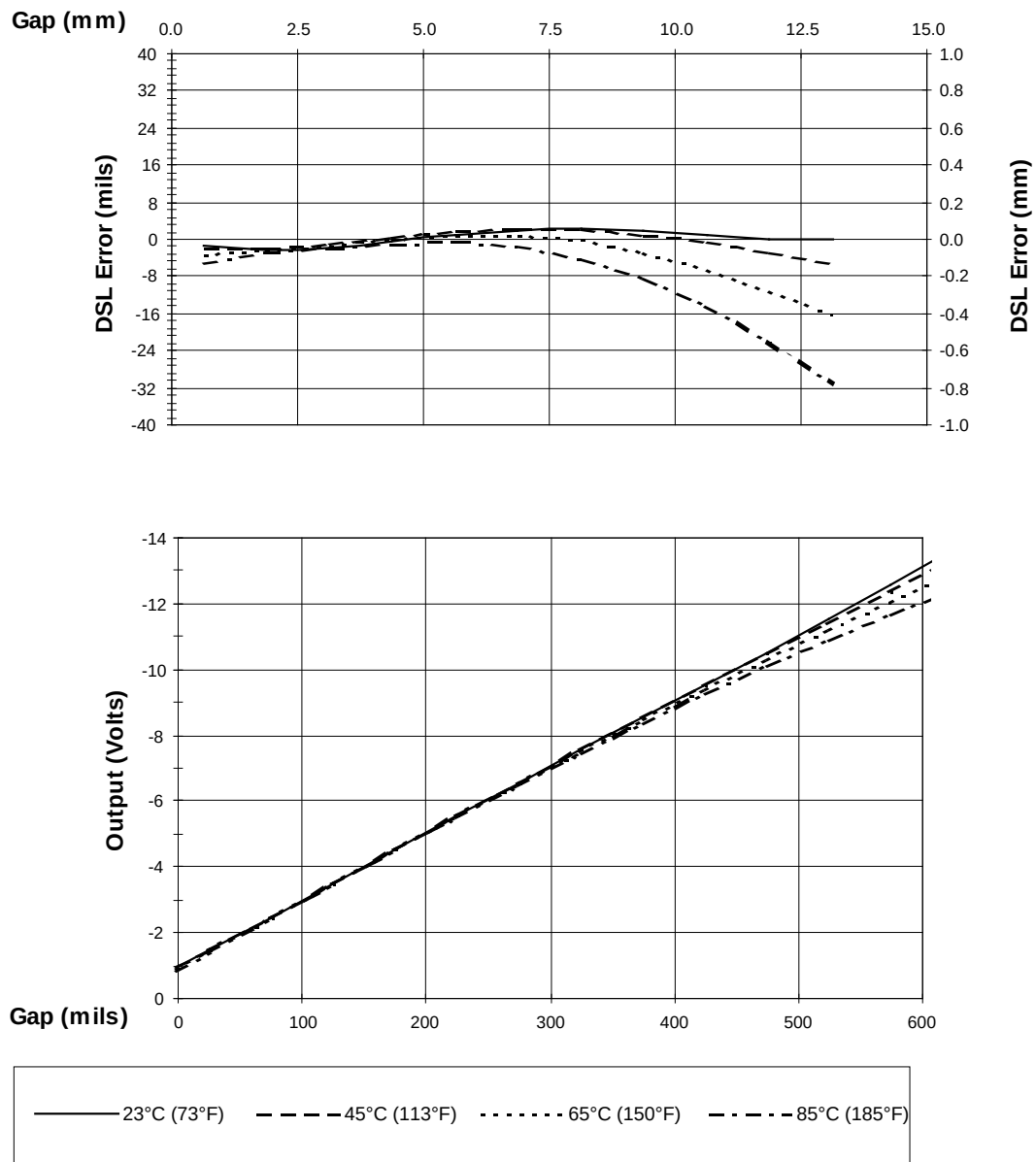


Figure 8 Typical 3300 XL 25 mm 9 m Proximito with 8 m of Extension Cable @ High Temperature (Probe is at 25°C.)

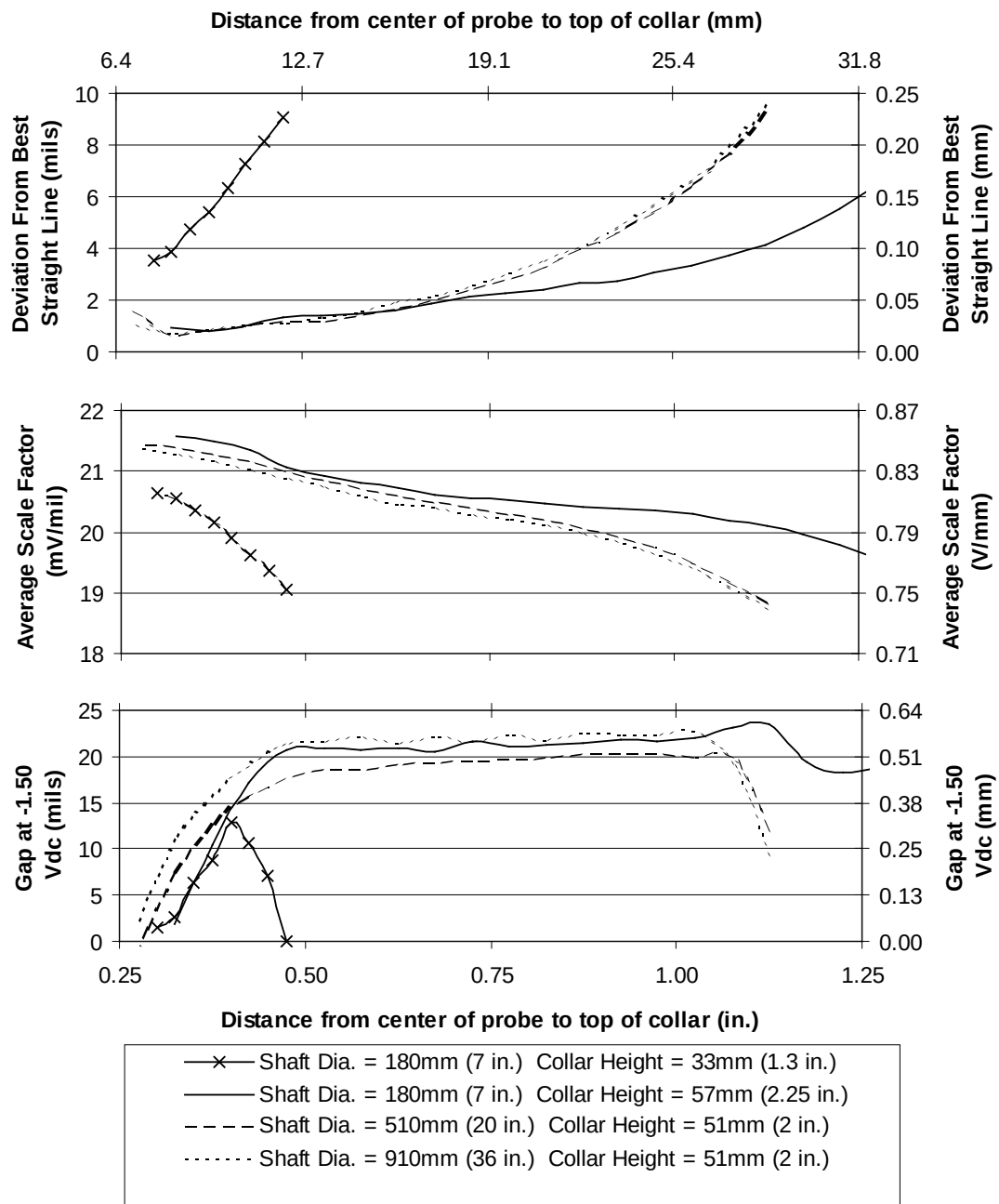


Figure 9 Variations of Collar Height for typical 3300 XL 25 mm System

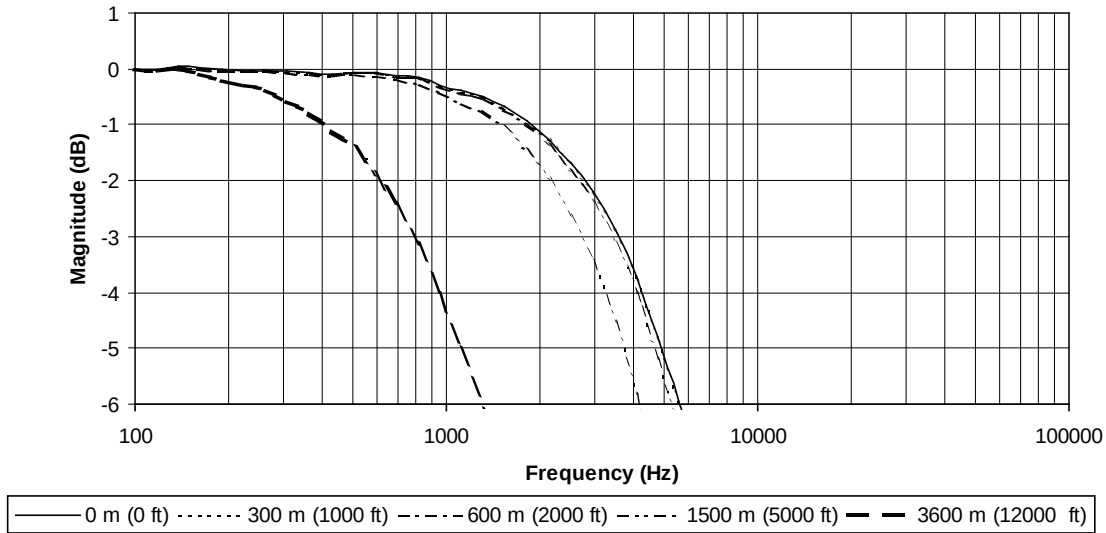


Figure 10 Frequency Response, magnitude of typical 3300 XL 25 mm System with various lengths of field wiring, no barriers

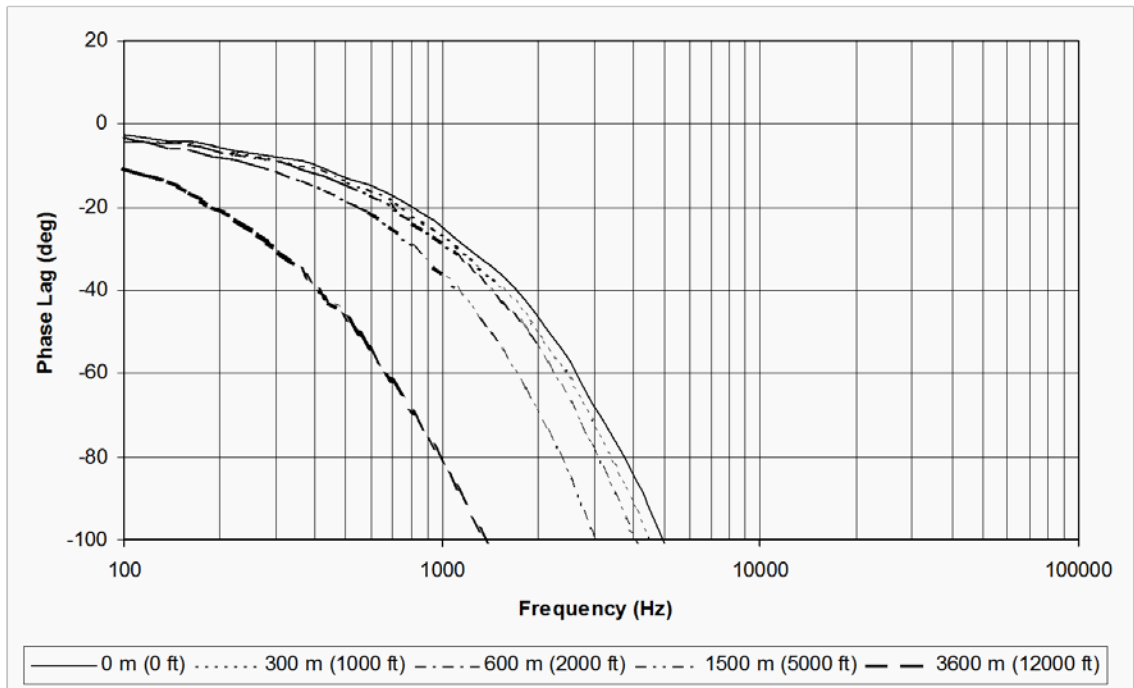


Figure 11 Frequency Response, phase change of typical 3300 XL 25 mm System with various lengths of field wiring, no barriers

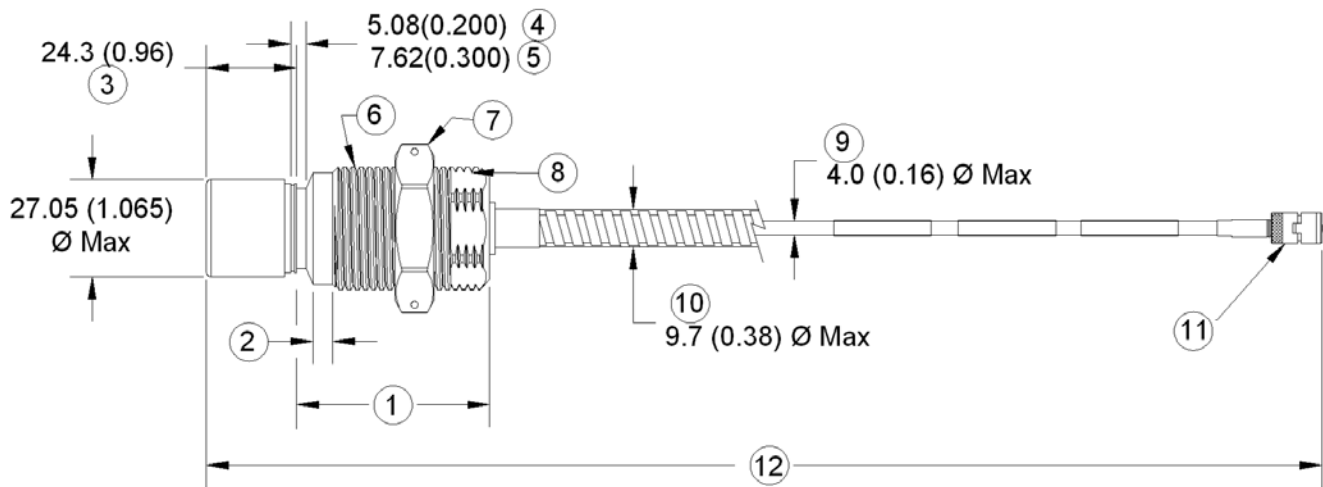


Figure 12 330851, 3300 XL 25 mm Proximity Probe, Threaded Cases

1. Case Length
2. Unthreaded Length
3. Probe Tip
4. Case Options -01 and -02
5. Case Options -05 and -06
6. Case Thread
7. Hex Nut w/Safety Wire Holes
8. Wrench Flats
9. 75 ohm FluidLoc Cable
10. Optional Stainless Steel Armor
11. Removable Nut Connector 5.3 (0.21) Diameter w/Nut Removed
12. Total Length +30%, -0% for 1m Probes and +20%, -0% for 5m and 9m Probes

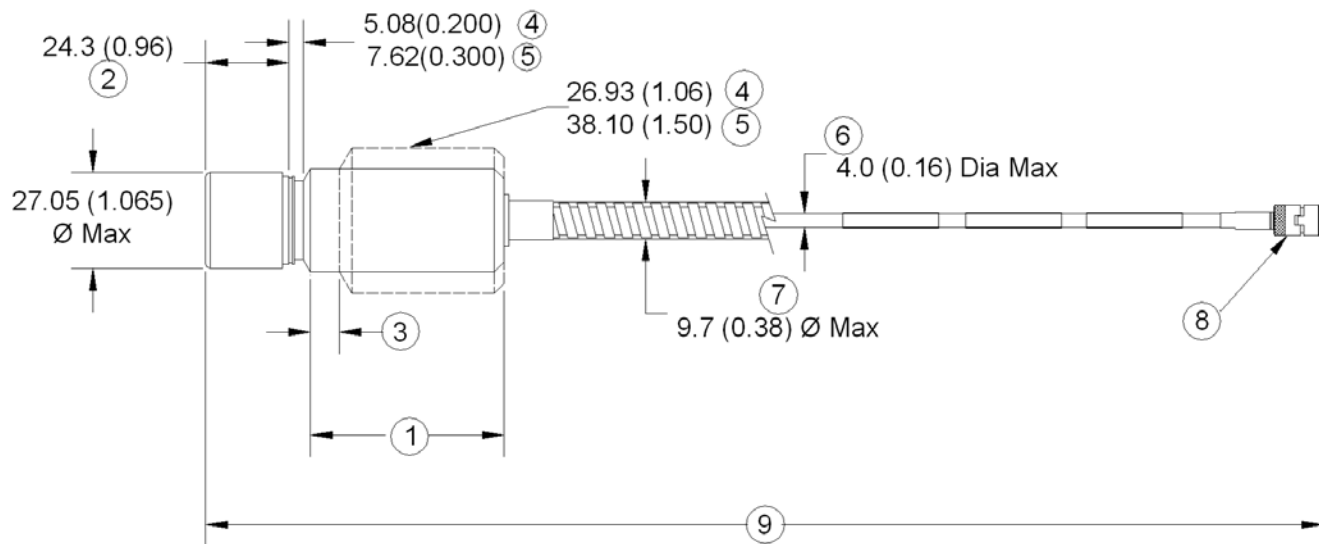


Figure 13 330851, 3300 XL 25 mm Proximity Probe, Smooth Cases

1. Case Length
2. Probe Tip
3. Case Option -07 only
4. Case Option -03 only
5. Case Option -07 only
6. 75 ohm FluidLoc Cable
7. Optional Stainless Steel Armor
8. Removable Nut Connector 5.3 (0.21) Diameter w/Nut Removed
9. Total Length +30%, -0% for 1m Probes and +20%, -0% for 5m and 9m Probes

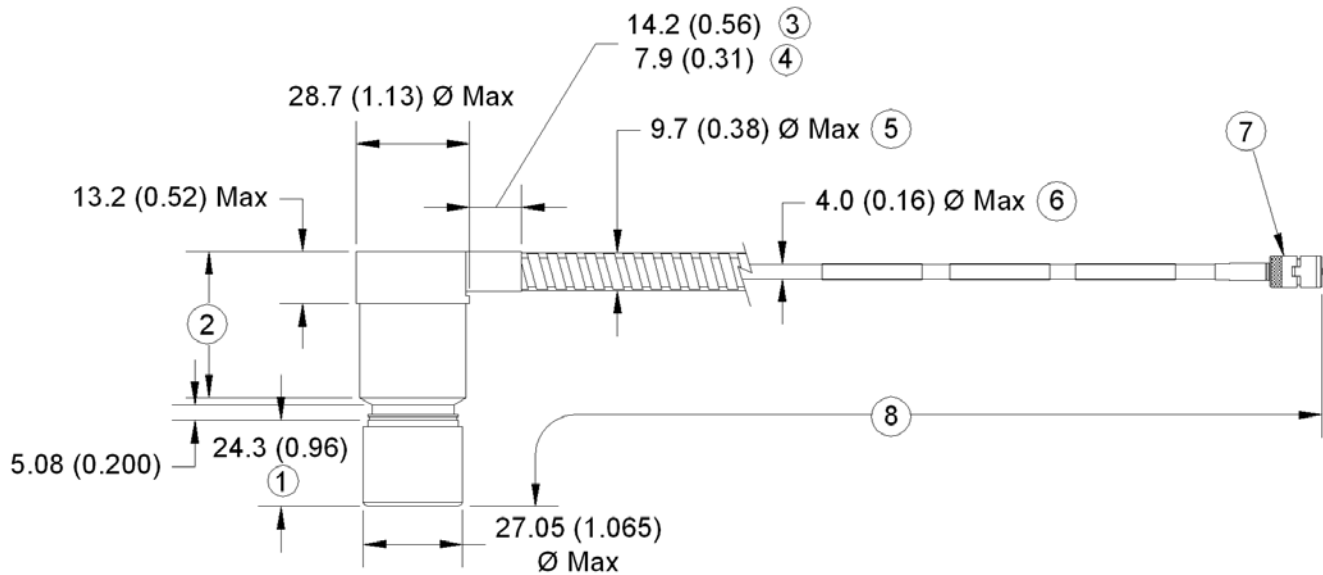


Figure 14 330851, 3300 XL 25 mm Proximity Probe, Smooth 1.06 Inch Dia. Side Exit Case

1. Probe Tip
2. Case Length
3. Dimension with SST Armor
4. Dimension without Armor
5. Optional Stainless Steel Armor
6. 75 ohm FluidLoc Cable
7. Removable Nut Connector 5.3 (0.21) Diameter w/Nut Removed
8. Total Length +30%, -0% for 1m Probes and +20%, -0% for 5m and 9m Probes

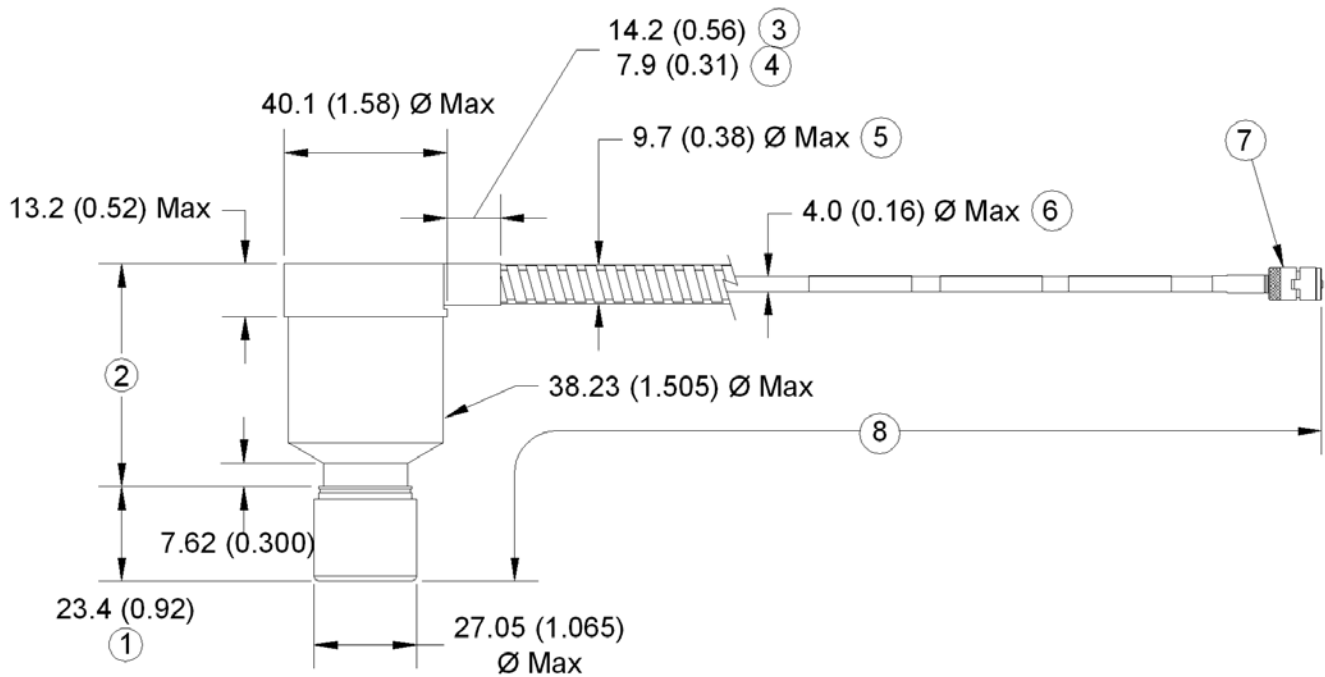


Figure 15 330851, 3300 XL 25 mm Proximity Probe, Smooth 1.50 Inch Dia. Side Exit Case

1. Probe Tip
2. Case Length
3. Dimension with SST Armor
4. Dimension without Armor
5. Optional Stainless Steel Armor
6. 75 ohm FluidLoc Cable
7. Removable Nut Connector 5.3 (0.21) Diameter w/Nut Removed
8. Total Length +30%, -0% for 1m Probes and +20%, -0% for 5m and 9m Probes

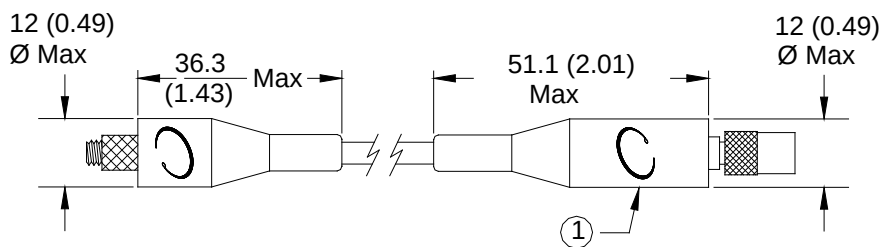


Figure 16 Installed Connector Protectors

1. Connector Protector (Fluorosilicone Material)

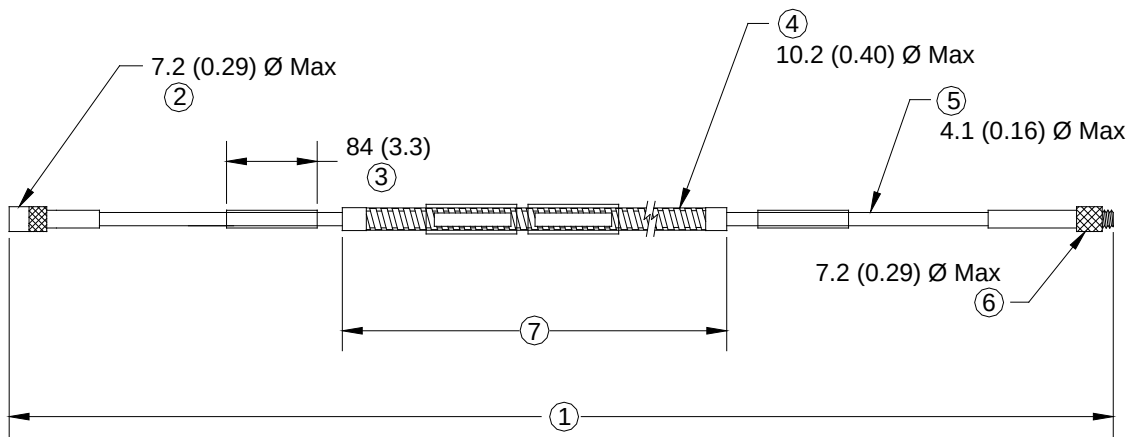


Figure 17 330854, 3300 XL 25 mm Extension Cable

1. Cable Length +20%, -0%
1. Miniature Male Coaxial Connector
2. Customer Shrink Tubing, 2 Places
3. Optional Stainless Steel Armor, PFA Jacket
4. FluidLoc Coaxial Cable, PFA Jacket
5. Miniature Female Coaxial Connector
6. Armor Length = Cable Length - 300 (11.8)

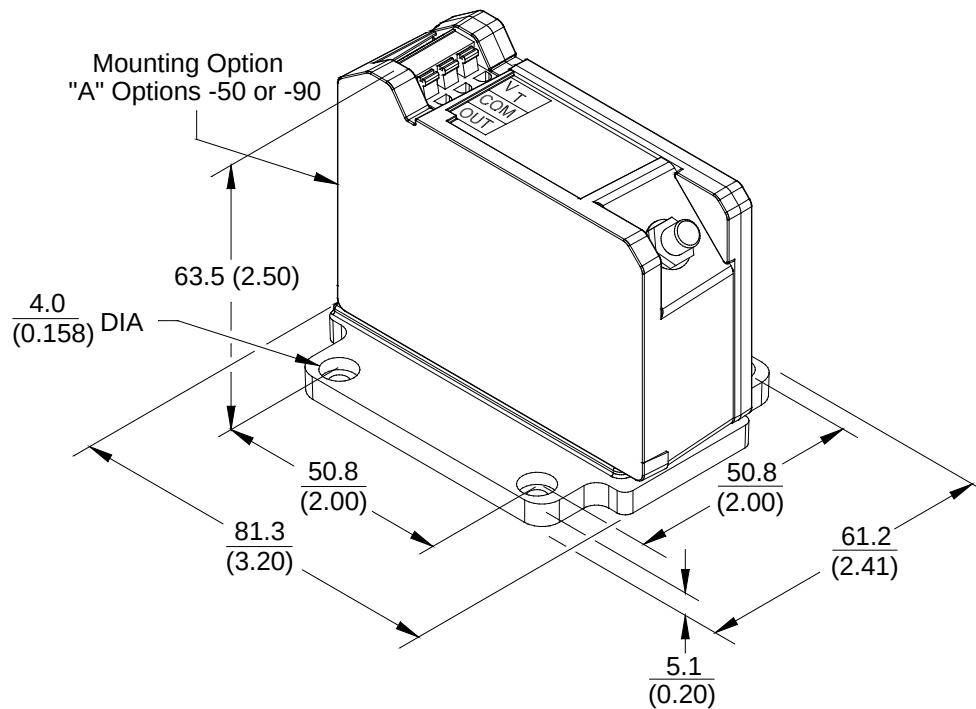


Figure 18 330850 Panel Mount 3300 XL 25 mm Proximity Sensor

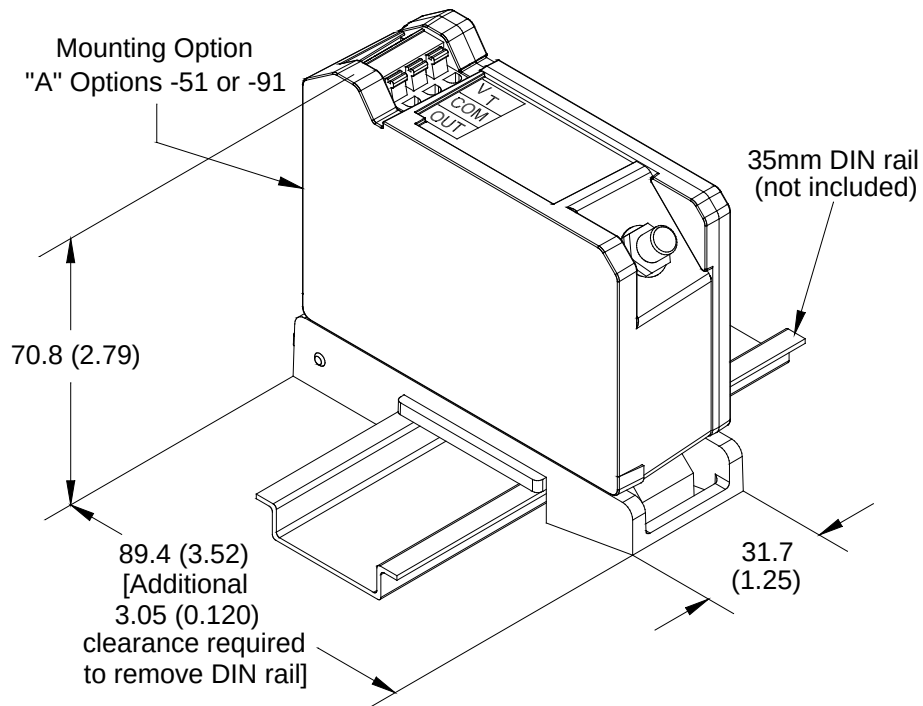


Figure 19 330850 DIN Mount 3300 XL 25 mm Proximity Sensor

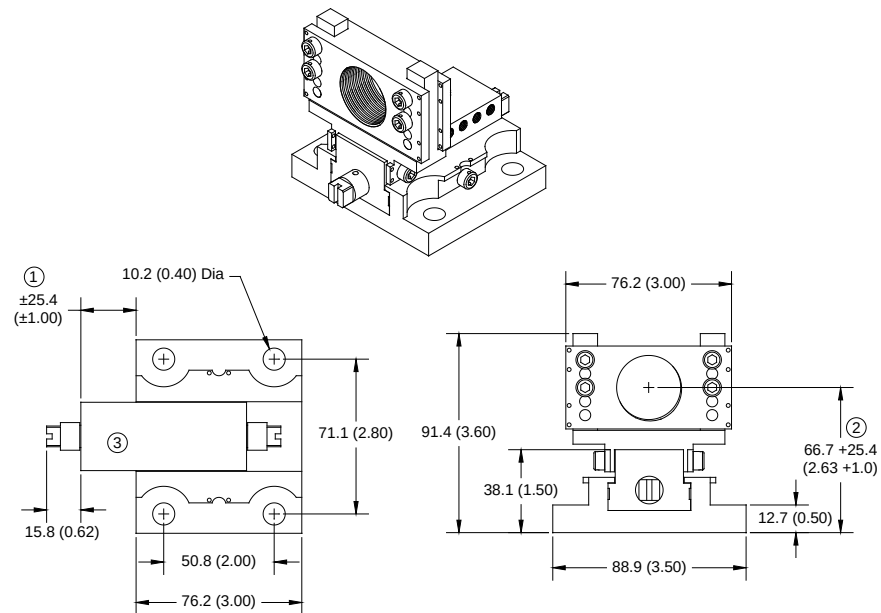


Figure 20 330853 Sliding Bracket, Single DE Version

1. Horizontal Adjustment Range
7. Vertical Adjustment Range
8. Probe Adapter Removed for Clarity

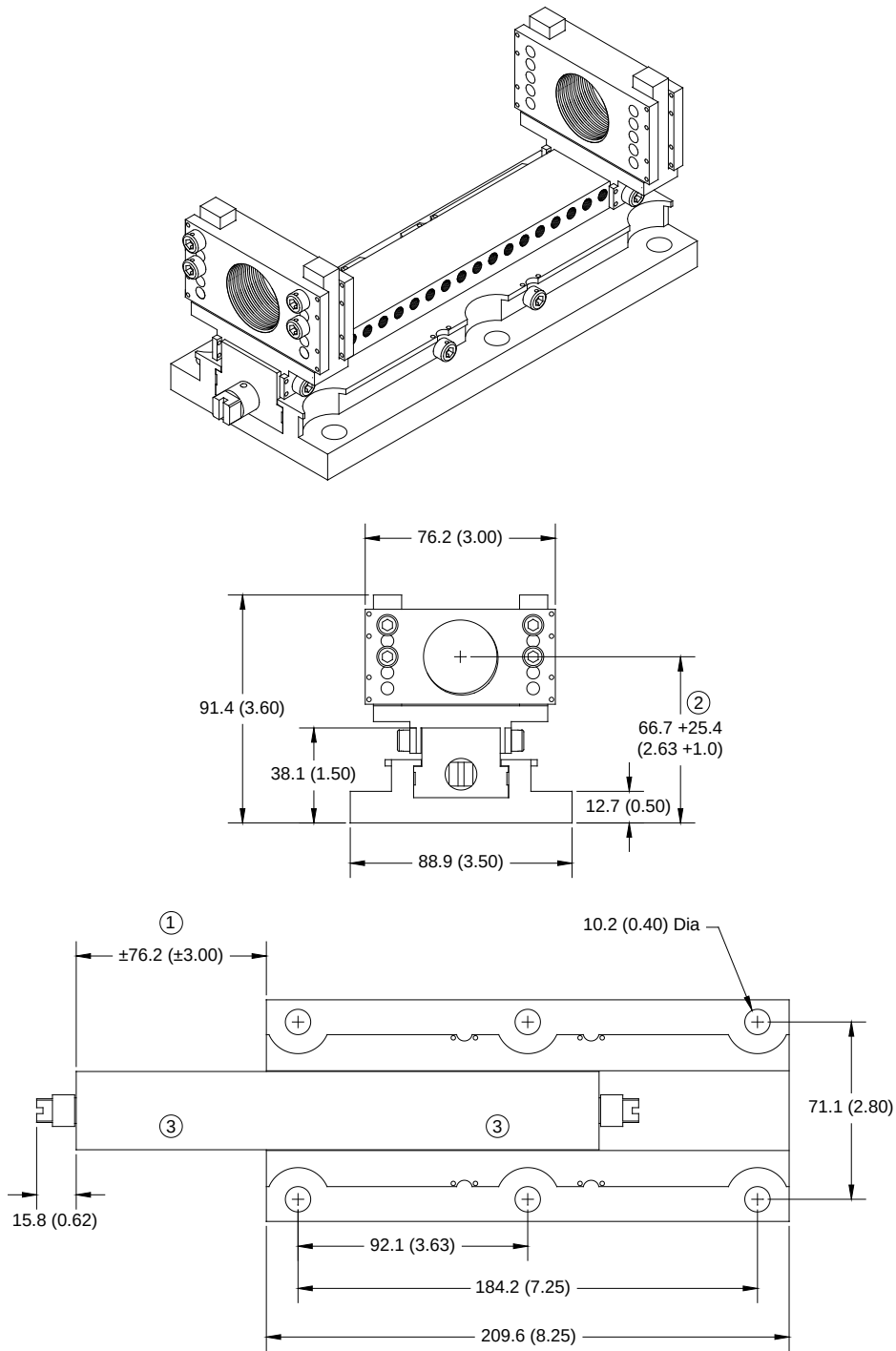


Figure 21 330853 Sliding Bracket, CIDE Version

1. Horizontal Adjustment Range
9. Vertical Adjustment Range
10. Probe Adapter Removed for Clarity

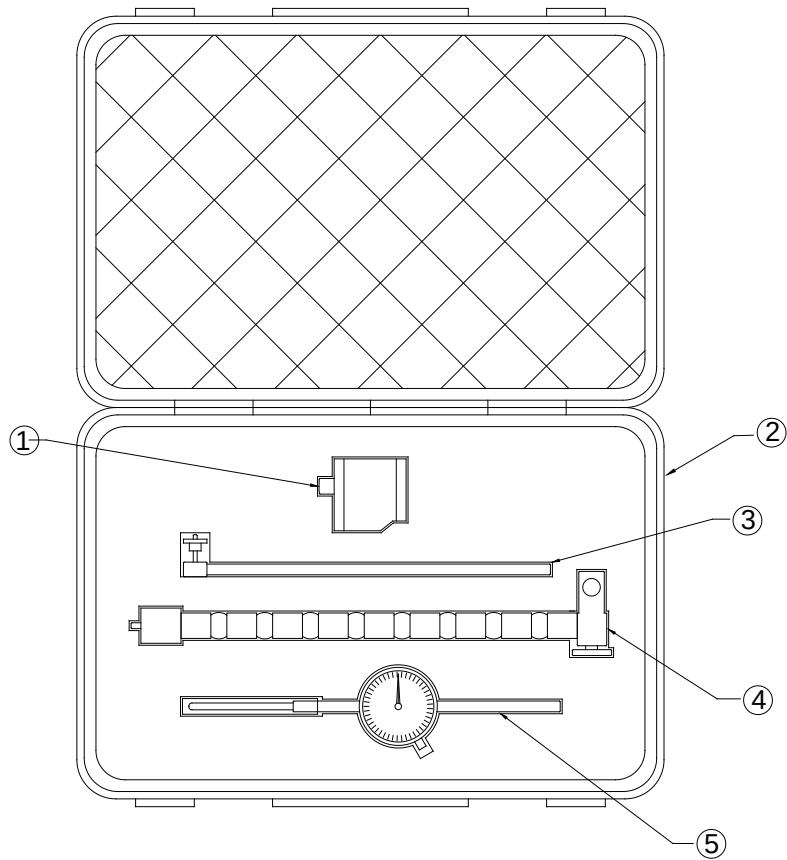


Figure 22 163854 Dial Indicator Verification Kit (with cover open)

- 11. Magnetic Base
- 12. Carrying Case
- 13. Indicator Holding Rod
- 14. Flexible Mounting Arm
- 15. Dial Indicator

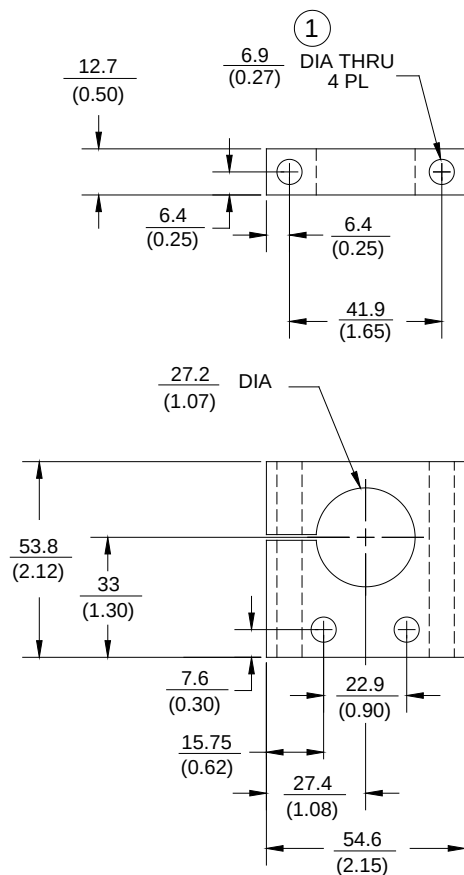


Figure 23 29660-01 Optional Mounting Clamp for -03 and -04 Smooth Case types only

1) For use with 1/4 or M6 bolts and nuts (not provided).

Notes:

1. All dimensions on figures are in millimetres (inches) unless otherwise noted.
2. Standard mount 1 1/4 -12 UNF thread probes are supplied with 1 1/2 inch lock nut and 1 1/8 inch wrench flats.
3. Standard mount M30x2 thread probes are supplied with 38 mm lock nut and 27 mm wrench flats.
4. Standard mount 1 1/2 -12 UNF thread probes are supplied with 1 3/4 inch lock nut and 1 5/16 wrench flats.
5. Standard mount M39x1.5 thread probes are supplied with 45 mm lock nut and 36 mm wrench flats.
6. Stainless steel armor is supplied with PFA outer jacket.
7. PFA jacket is standard on all non-armored probes.

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