# 3300 XL 8 mm Proximity Transducer System

## Datasheet

Cordant™

141194 Rev. AM




## Description

The 3300 XL 8 mm Proximity Transducer System consists of:

- One 3300 XL 8 mm probe,
- One 3300 XL extension cable[1], and
- One 3300 XL Proximitor Sensor[2].

The system provides an output voltage that is directly proportional to the distance between the probe tip and the observed conductive surface and can measure both static (position) and dynamic (vibration) values. The system's primary applications are vibration and position measurements on fluid-film bearing machines, as well as Keyphasor reference and speed measurements[3].

The 3300 XL 8 mm system delivers the most advanced performance in our eddy current proximity transducer systems. The standard 3300 XL 8 mm 5-meter system also fully complies with the American Petroleum Institute's (API) 670 Standard for mechanical configuration, linear range, accuracy, and temperature stability. All 3300 XL 8 mm proximity transducer systems provide this level of performance and support complete interchangeability of probes, extension cables, and Proximitor sensors, eliminating the need to match or bench calibrate individual components.

Each 3300 XL 8 mm Transducer System component is backward compatible and interchangeable[4] with other non-XL 3300 series 5 mm and 8 mm transducer system components[5]. This compatibility includes the 3300 5 mm probe, for applications in which an 8 mm probe is too large for the available mounting space[6,7].

Baker Hughes

<table>
<tr><td>ia</td><td>II 1 G<br>Ex ia IIC T5...T1 Ga,<br>(see Temperature Schedule table to follow)<br>Ex ia IIIC T90°C ... T280°C Dc<br>For EPL Dc:<table><tr><td>Ui= -28V</td><td>Ci = 1.5 nF</td></tr><tr><td>Ii = 140 mA</td><td>Li =610 µH</td></tr><tr><td>Pi = 0.91 W</td><td></td></tr></table></td></tr>
<tr><td>nA,ec</td><td>II 3 G<br>Ex nA IIC T5...T1 Gc,<br>Ex ec IIC T5...T1 Gc,<br>(see Temperature Schedule table to follow)<table><tr><td>Ui= -28V</td><td>Ii= 140 mA</td></tr></table></td></tr>
</table>

## Temperature Schedule

| Temperature Classification | Ambient Temperature (Probe Only) |
|---|---|
| For EPL Ga and Gc | |
| T1 | -55°C to +232°C |
| T2 | -55°C to +177°C |
| T3 | -55°C to +120°C |
| T4 | -55°C to +80°C |
| T5 | -55°C to +40°C |
| For EPL Dc | |
| T280°C @ Ta | -55°C to +232°C |
| T225°C @ Ta | -55°C to +177°C |
| T170°C @ Ta | -55C to +120°C |
| T130°C @ Ta | -55°C to +80°C |
| T105°C @ Ta | -55°C to +100°C |
| T90°C @ Ta | -55°C to +40°C |

# Hazardous Area Conditions of Safe Use

## cNRTLus:

**ia**

Install per Bently Nevada drawing 141092.

**nA, ec**

Install per Bently Nevada drawing 140979.

## ATEX/IECEx:

**ia**

Install per Bently Nevada drawing 141092.

**nA, ec**

The Proximitor must be installed so as to provide the terminals with a degree of protection of at least IP54.

# Ordering Information

For the detailed listing of country and product-specific approvals, refer to the *Approvals Quick Reference Guide (108M1756)*.

For additional technical documentation, please log in to bntechsupport.com and access the Bently Nevada Media Library.

## Ordering Information for Probes

### 3300 XL 8 mm Proximity Probes:

**330101** 3300 XL 8 mm Probe, 3/8-24 UNF thread, without armor(2)

**330102** 3300 XL 8 mm Probe, 3/8-24 UNF thread, with armor(2)

**Part Number-AA-BB-CC-DD-EE**

| **A: Unthreaded Length Option** | |
|---|---|
| Unthreaded length must be at least 0.8 in. less than the case length. | |
| Order in increments of 0.1 in.<br>**Length configurations:**<br>Maximum unthreaded length: 8.8 in.<br>Minimum unthreaded length: 0.0 in.<br>Example: **0 4** = 0.4 in. | |
| **B: Overall Case Length Option** | |
| Order in increments of 0.1 in.<br>**Standard thread configurations:**<br>Maximum case length: 9.6 in.<br>Minimum case length: 0.8 in.<br>Example: **2 4** = 2.4 in. | |
| **C: Total Length Option** | |
| **05** | 0.5 meter (1.6 feet) |
| **10** | 1.0 meter (3.3 feet) |
| **15** | 1.5 meter (4.9 feet) |
| **20** | 2.0 meters (6.6 feet) |
| **30** | 3.0 meters (9.8 feet) |
| **50** | 5.0 meters (16.4 feet) |
| **90** | 9.0 meters (29.5 feet) |

3-meter length option is only available on 330101 probes, and is designed for use with the 9 meter Proximitor sensor only.

5-meter probes are designed for use with the 5 meter Proximitor sensor only.

| **D: Connector and Cable-Type Option** | |
|---|---|
| **01** | Miniature coaxial ClickLoc connector with connector protector, standard cable |
| **02** | Miniature coaxial ClickLoc connector, standard cable |
| **11** | Miniature coaxial ClickLoc connector with connector protector, FluidLoc cable |
| **12** | Miniature coaxial ClickLoc connector, FluidLoc cable |
| **E: Agency Approval Option** | |
| **00** | Not required |
| **05** | CSA, ATEX, IECEx Approvals |

### 3300 XL 8 mm Proximity Probes, Metric:

**330103** 3300 XL 8 mm Probe, M10 x 1 thread, without armor (2)

**330104** 3300 XL 8 mm Probe, M10 x 1 thread, with armor (2)

**Part Number-AA-BB-CC-DD-EE**

| **A: Unthreaded Length Option** |
|---|

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

Order in increments of 10 mm
**Length configurations:**
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 case length: 250 mm
Minimum case length: 20 mm
Example: **0 6** = 60 mm

**C: Total Length Option**

| | |
|---|---|
| **05** | 0.5 meter (1.6 feet) |
| **10** | 1.0 meter (3.3 feet) |
| **15** | 1.5 meter (4.9 feet) |
| **20** | 2.0 meters (6.6 feet) |
| **50** | 5.0 meters (16.4 feet) |
| **90** | 9.0 meters (29.5 feet) |

5-meter probes are designed for use with the 5 meter Proximitor sensor only.

**D: Connector and Cable-Type Option**

| | |
|---|---|
| **01** | Miniature coaxial ClickLoc connector with connector protector, standard cable |
| **02** | Miniature coaxial ClickLoc connector, standard cable |
| **11** | Miniature coaxial ClickLoc connector with connector protector, FluidLoc cable |
| **12** | Miniature coaxial ClickLoc connector, FluidLoc cable |

**E: Agency Approval Option**

| | |
|---|---|
| **00** | Not required |
| **05** | CSA, ATEX, IECEx Approvals |

## 3300 XL 8 mm Reverse Mount Probes

**330105-02-12-CC-DD-EE**3/8-24 UNF threads(2)

**330106-05-30-CC-DD-EE** M10 x 1 threads(2)

**Option Descriptions**

**C: Total Length Option**

| | |
|---|---|
| **05** | 0.5 meter (1.6 feet) |
| **10** | 1.0 meter (3.3 feet) |
| **15** | 1.5 meter (4.9 feet) |
| **20** | 2.0 meters (6.6 feet) |
| **50** | 5.0 meters (16.4 feet) |
| **90** | 9.0 meters (29.5 feet) |

5-meter probes are designed for use with the 5 meter Proximitor sensor only.

**D: Connector and Cable-Type Option**

| | |
|---|---|
| **02** | Miniature ClickLoc coaxial connector |
| **12** | Miniature ClickLoc coaxial connector , FluidLoc cable |

The FluidLoc cable option –12 is 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 option for these probes.

**E: Agency Approval Option**

| | |
|---|---|
| **00** | Not required |
| **05** | CSA, ATEX, IECEx Approvals |

| A: Overall Case Length Option |
|---|
| Order in increments of 0.5 in.<br>**Length configurations:**<br>Maximum unthreaded length: 9.5 in.<br>Minimum unthreaded length: 1.0 in.<br>Example: **3 5** = 3.5 in. |

| B: Total Length Option | |
|---|---|
| **05** | 0.5 meter (1.6 feet) |
| **10** | 1.0 meter (3.3 feet) |
| **15** | 1.5 meter (4.9 feet) |
| **20** | 2.0 meters (6.6 feet) |
| **50** | 5.0 meters (16.4 feet) |
| **90** | 9.0 meters (29.5 feet) |

5-meter probes are designed for use with the 5 meter Proximitor sensor only.

| C: Agency Approval Option | |
|---|---|
| **00** | Not required |
| **05** | CSA, ATEX, IECEx Approvals |

## Aluminum probe clamp bracket[1]

**137491-AA**

| A: Mounting screw option | |
|---|---|
| **01** | 10-24 UNC-2A mounting screws |
| **02** | M5 x 0.8-6g mounting screws |

The aluminum clamp bracket is an unthreaded mounting bracket designed for 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.

## Aluminum probe threaded mounting bracket

**137492-AA**

| A: Thread size | |
|---|---|
| **01** | 3/8-24 |
| **04** | 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 includes two 10-24 UNC-2A mounting screws. The -04 option includes two M5 x 0.8-6g mounting screws. The mounting screws have pre-drilled holes for safety wire.

## Phenolic threaded probe mounting bracket

**27474-AA**

| A: Thread size | |
|---|---|
| **01** | 3/8-24 |
| **04** | M10 x 1 |

Bently Nevada recommends the phenolic threaded mounting bracket if your application requires additional electric isolation from the mounting location (as in some generator and electrical motor bearing locations). The -01 option includes two 10-24 UNC-2A mounting screws. The -04 option includes two M5 x 0.8-6g mounting screws. The mounting screws have pre-drilled holes for safety wire.

**Probe Ordering Information Notes:**

1. Mounting clamps must be ordered separately for 330140, 330141, 330197, and 330198.
2. For a shorter delivery time, order commonly stocked probes. The following part numbers are currently stocked probes:

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, 330103-00-04-10-02-00, 330103-00-05-10-02-00, 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, 330106-05-30-10-02-05.

## Ordering Information for Proximitor Sensor

### 3300 XL Proximitor Sensor

**330180-AA-BB**

| **A: Total Length and Mounting Option** | |
|---|---|
| **10** | 1.0 meter (3.3 feet) system length, panel mount |
| **11** | 1.0 meter (3.3 feet) system length, DIN mount |
| **12** | 1.0 meter (3.3 feet) system length, no mounting hardware |
| **50** | 5.0 meters (16.4 feet) system length, panel mount |
| **51** | 5.0 meters (16.4 feet) system length, DIN mount |
| **52** | 5.0 meters (16.4 feet) system length, no mounting hardware |
| **90** | 9.0 meters (29.5 feet) system length, panel mount |
| **91** | 9.0 meters (29.5 feet) system length, DIN mount |
| **92** | 9.0 meters (29.5 feet) system length, no mounting hardware |
| **B: Agency Approval Option** | |
| **00** | Not required |
| **05** | CSA, ATEX, IECEx Approvals |

## Ordering Information for Extension Cables

### 3300 XL Standard Extension Cable

**330130-AAA-BB-CC**

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

| **A: Cable Length Option** | |
|---|---|
| **030** | 3.0 meters (9.8 feet) |
| **035** | 3.5 meters (13.1 feet) |
| **040** | 4.0 meters (11.5 feet) |
| **045** | 4.5 meters (14.8 feet) |
| **060** | 6.0 meters (19.7 feet) |
| **070** | 7.0 meters (22.9 feet) |
| **075** | 7.5 meters (24.6 feet) |
| **080** | 8.0 meters (26.2 feet) |
| **085** | 8.5 meters (27.9 feet) |
| **B: Connector Protector and Cable Option** | |
| **00** | Standard cable |
| **01** | Armored cable |
| **02** | Standard cable with connector protector |

| | |
|---|---|
| **03** | Armored cable with connector protector |
| **10** | FluidLoc cable |
| **11** | Armored FluidLoc cable |
| **12** | FluidLoc cable with connector protector |
| **13** | Armored FluidLoc cable with connector protector |
| **C: Agency Approval Option** | |
| **00** | Not required |
| **05** | CSA, ATEX, IECEx Approvals |

## 3300 XL Extended Temperature Range (ETR) Extension Cable

**330190-AAA-BB-CC**

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

| | |
|---|---|
| **A: Cable Length Option** | |
| **030** | 3.0 meters (9.8 feet) |
| **035** | 3.5 meters (13.1 feet) |
| **040** | 4.0 meters (11.5 feet) |
| **045** | 4.5 meters (14.8 feet) |
| **070** | 7.0 meters (22.9 feet) |
| **075** | 7.5 meters (24.6 feet) |
| **080** | 8.0 meters (26.2 feet) |
| **085** | 8.5 meters (27.9 feet) |
| **B: Cable Option** | |
| **00** | Standard cable |
| **01** | Armored cable |
| **C: Agency Approval Option** | |
| **00** | Not required |
| **05** | CSA, ATEX, IECEx Approvals |

## Accessories

| | |
|---|---|
| 141078 | 3300 XL 8 mm and 3300 5 mm Proximity Transducer System Manual. |
| 175751 | 3300 XL Multi-Purpose Stainless Steel Housing. 12”x12”x6”. Can hold up to 8 Proximitor Sensors in a DIN-mount configuration or 6 Proximitor Sensors in a panel-mount configuration. (Available with ATEX Zone 0 and Zone 1 certifications.) |
| 176467 | 3300 XL Multi-Purpose Stainless Steel Housing. 12”x8”x6”. Can hold up to 4 3300XL Proximitor Sensors in both DIN-mount and panel-mount configurations. (Available with ATEX Zone 0 and Zone 1 certifications.) |
| 330181 | 3300 XL Multi-Purpose Stainless Steel Housing. 13”x9.5”x7”. Can hold up to 8 Proximitor sensors in a DIN-mount configuration or 6 Proximitor Sensors in a panel-mount configuration. Primarily used by customers requiring hazardous area approvals fro their installations. Available with ATEX Zone 0 and Zone 1 and North American Division 1 and Division 2 certifications. |
| 02120015 | Bulk field wire. 1.0 mm2 (18 AWG), 3 conductor, twisted, shielded cable with drain wire. Specify length in feet. |
| 138492-01 | Replacement panel-mount mounting pad. |
| 138493-01 | Replacement DIN-mount mounting pad. |

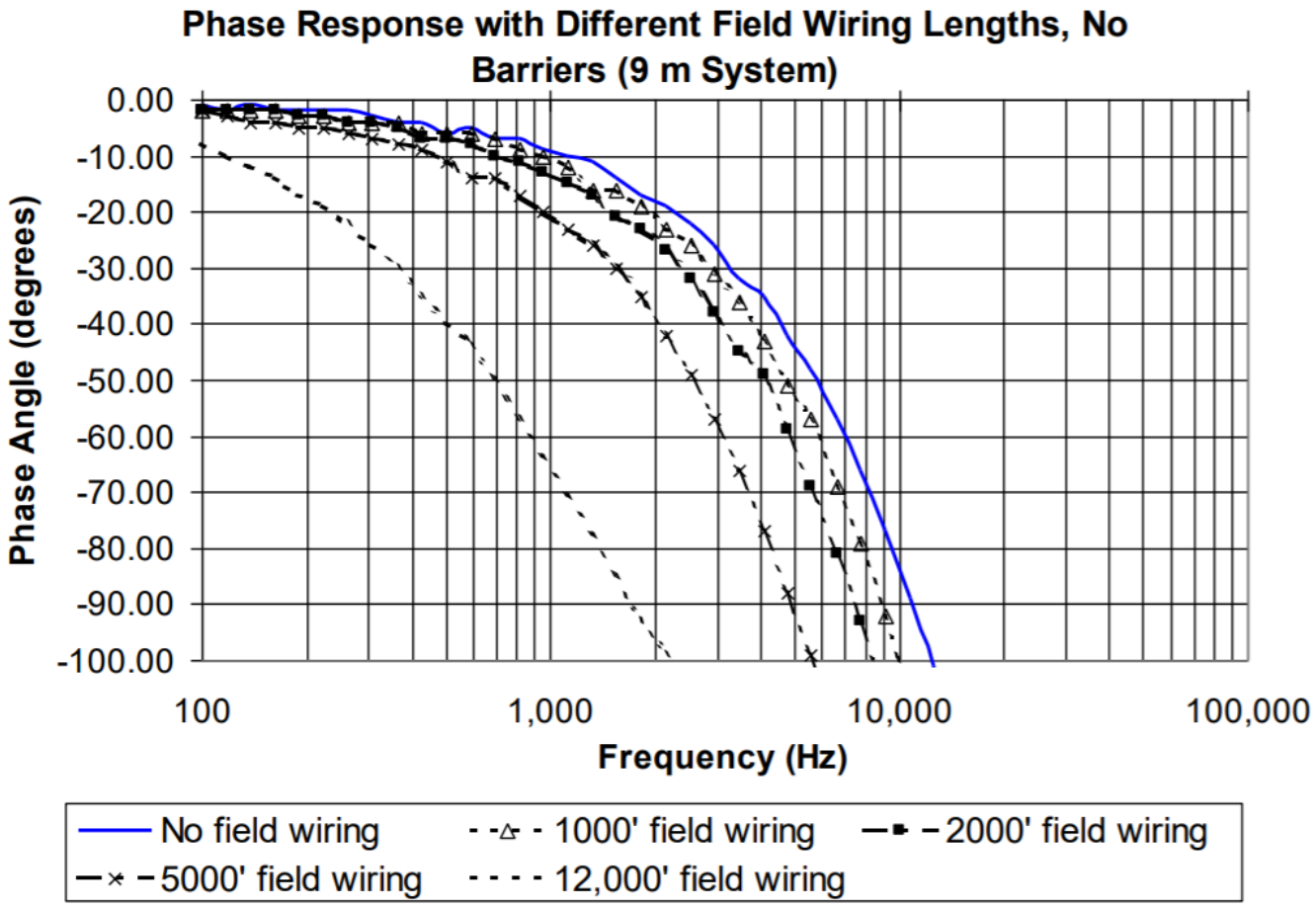
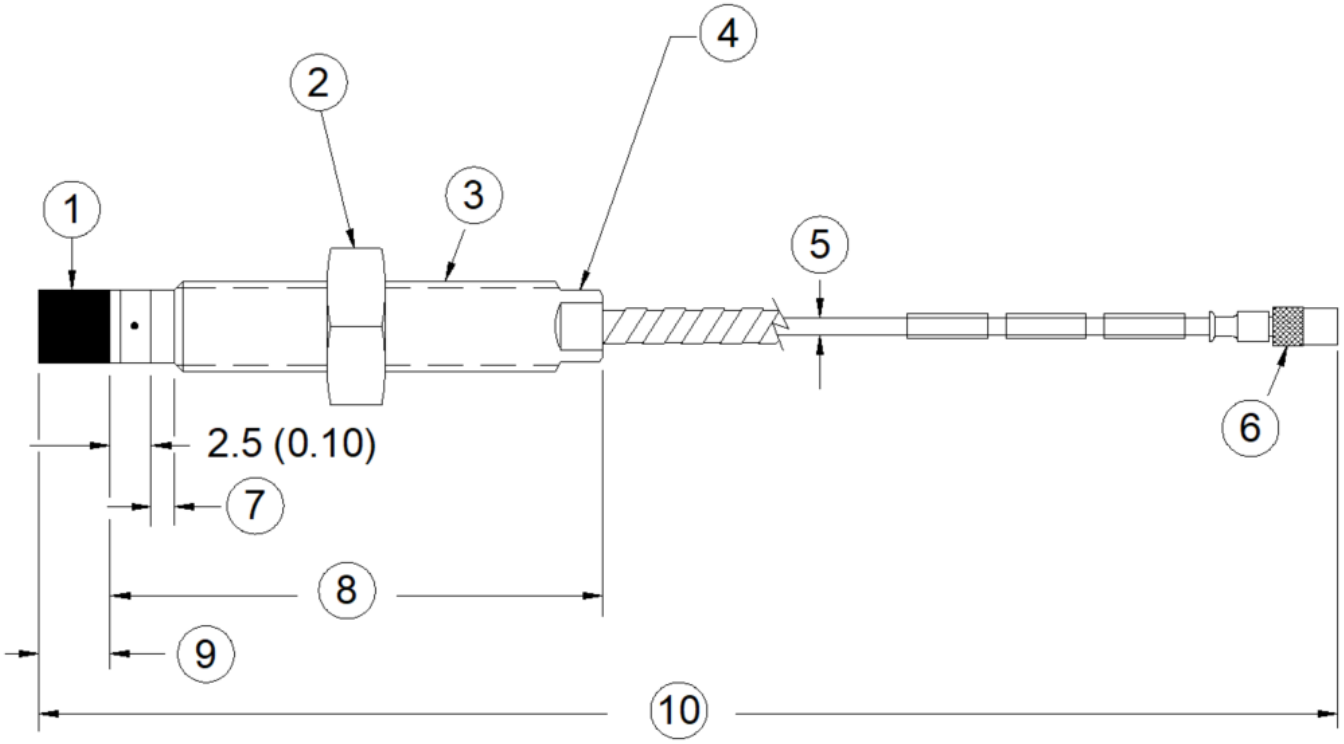



**Figure 13: Phase Response, Typical 3300 XL 8 mm 9 m System with Varying Lengths of Field Wiring Attached, No Barriers**




1. Probe tip, 8.0 mm (0.31 in) diameter
2. 9/16 in for 3/8-24 threads, M17 for M10 threads (see Note 2)
3. Case thread
4. 5/16 in wrench flats for 3/8-24 threads; 8mm wrench flats for M10 threads.
5. 75 Ω cable, 3.68 mm (0.145 in) maximum outside diameter, 3.94 mm (0.155 in) maximum outside diameter for FluidLoc cable, 7.67 mm (0.302 in) outside diameter of armor, 9.5 mm (0.38 in) maximum diameter of armor ferrule
6. Miniature male coaxial connector, 7.24 mm (0.285 in) maximum outside diameter “D”
7. Unthreaded length “A”
8. Case length “B”
9. 6.0 mm (0.235 in) maximum
10. Total length “C”, +30%, -0%[3]

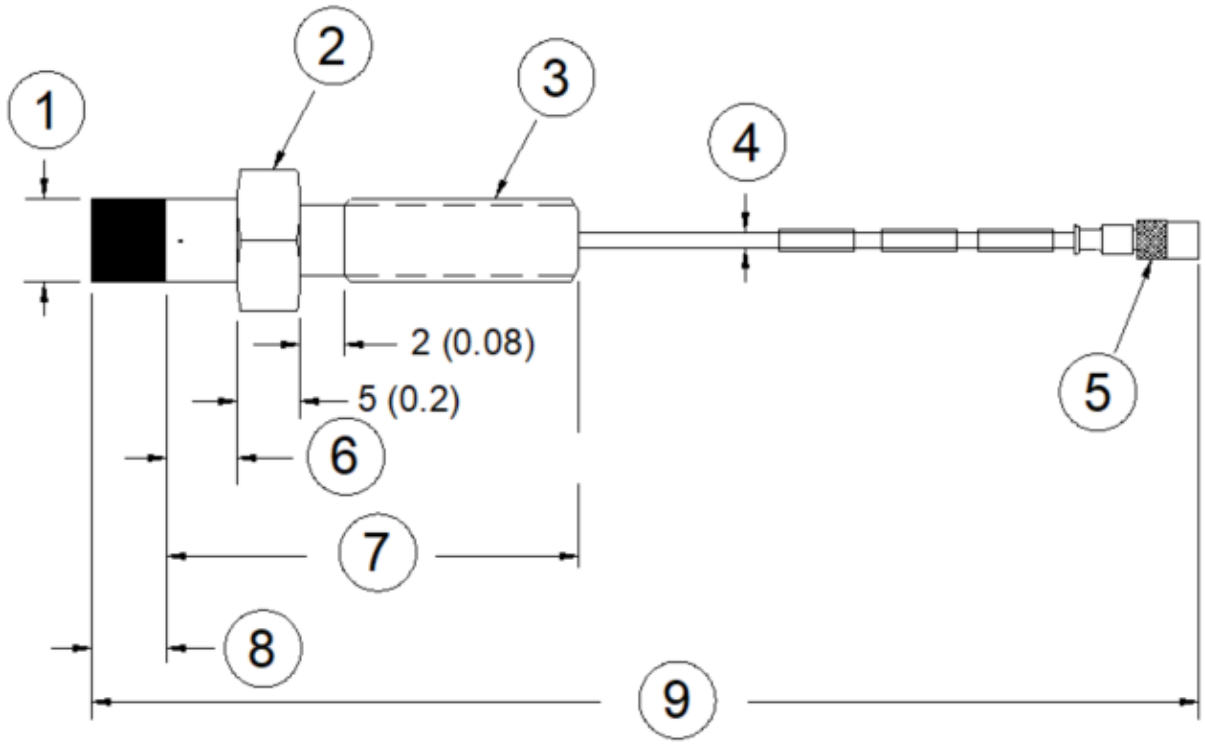
**Figure 14: 3300 XL 8 mm Proximity Probes, Standard Mount**

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]




1. Probe tip, 8.0 mm (0.31 in) diameter
2. 7/16 in or M10 hexagonal
3. Case thread
4. 75 Ω cable, 3.68 mm (0.145 in) outside diameter
5. Miniature male coaxial connector, 7.24 mm (0.285 in) maximum outside diameter “D”
6. Unthreaded length “A”, 5.0 mm (0.20 in)
7. Case length “B”, 30 mm (1.2 in)
8. 6.0 mm (0.235 in) maximum
9. Total length “C”, +30%, -0%[3]

**Figure 15: 3300 XL 8 mm Proximity Probes, Reverse Mount [4, 7]**

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

330106 and 330196, M10X1 threads