

MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

BENTLY NEVADA

330171-00-08-10-01-05

1/4-28 UNF 5 MM PROXIMITY PROBE WITHOUT ARMOR

Used with the applicable 3300 5 mm Proximity Transducer System system configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official pages follow this cover with source pagination retained.

172036 Rev. T

3300 5 mm Transducer System

Datasheet

Cordant™

172036 Rev. T

Description

Transducer System

The 3300 5 mm Proximity Transducer System consists of:

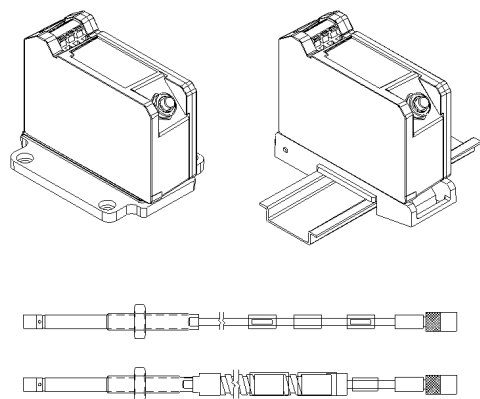
- a 3300 5 mm probe ^{1, 2}
- a 3300 XL extension cable (ref 141194-01)
- a 3300 XL Proximitor Sensor ^{3, 4, 5} (ref 141194-01)

When combined with a 3300 XL Proximitor Sensor and XL extension cable, the system provides an output voltage that is directly proportional to the distance between the probe tip and the observed conductive surface. The system can measure both static (position) and dynamic (vibration) data. Its primary use is in vibration and position measurement applications on fluid-film bearing machines, as well as Keyphasor measurement and speed measurement applications⁶.

The system provides an accurate, stable signal output over a wide temperature range. All 3300 XL Proximity Transducer Systems achieve this level of performance with complete interchangeability of probe, extension cable, and Proximitor sensor, eliminating the need for individual component matching or bench calibration.

Proximity Probe

The 3300 5 mm probe improves upon previous designs. A patented TipLoc molding method provides a more robust bond between the probe tip and the probe body. The 3300 5 mm system is orderable with Fluidloc cable options for preventing oil and other liquids from leaking out of the machine through the cable's interior.



Baker Hughes 

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).
Recommended Gap Setting	1.27 mm (50 mils).
Incremental Scale Factor	7.87 V/mm (200 mV/mil) $\pm 6.5\%$ typical, including interchangeability error when measured in increments of 0.25mm (10 mils) over the linear range.
Deviation from Best Fit Straight Line (DSL)	Less than ± 0.038 mm (± 1.5 mil) typical deviation from best fit straight line.
Probe Temperature Stability (typical)	Over probe temperature range of -35°C to $+177^{\circ}\text{C}$ (-31°F to $+350^{\circ}\text{F}$), the incremental scale factor remains within $\pm 10\%$ of 7.87 V/mm (200 mV/mil) and the deviation from the best fit straight line remains within ± 0.076 mm (± 3 mils).
Frequency Response	0 to 10 kHz: +0, -3 dB, with up to 305 meters (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 2 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 155687 for additional information.

Effects of 60 Hz Magnetic Fields Up to 300 Gauss

Output Voltage in Mil (pk-pk)/Gauss (5-Meter System)			
Gap	XL Proximator Sensor	Probe	XL Ext. Cable
10 mil	0.0119	0.0004	0.0004
50 mil	0.0131	0.0014	0.0014
90 mil	0.0133	0.0045	0.0045

Electrical Certification

Complies with the European CE mark.

Mechanical

Probe Tip Material	Polyphenylene sulfide (PPS)
Probe Case Material	AISI 303 or 304 stainless steel (SST)
Probe Cable	75 Ω triaxial, fluoroethylene propylene (FEP) insulated probe cable in the following lengths: 0.5, 1, 2, 5, or 9 meters (1.6, 3.3, 16.4, or 29.5 feet)
System Length	5 or 9 meters (16.4 or 29.5 feet) including extension cable
Extension Cable Material	75 W triaxial, fluoroethylene propylene (FEP) insulated
Probe and Extension Cable Armor	Flexible AISI 302 or 304 SST with FEP outer jacket

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.

3300 5mm Proximity Probes

330171 3300 5mm Probe, 1/4-28 UNF thread, without armor

330172 3300 5mm Probe, 1/4-28 UNF thread, with armor

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.

Length configurations: Maximum unthreaded length:

8 8 = 8.8 in. Minimum unthreaded length:

0 0 = 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 unthreaded length: **9 6** = 9.6 in.

Minimum unthreaded length: **0 8** = 0.8 in.

Example: 2 4 = 2.4 in.

C: Total Length Option

0 5	0.5 meter (1.6 feet)
1 0	1.0 metre (3.3 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 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	Agency Approval Option
0 5	Multiple Approvals

3300 5mm Proximity Probes, Metric

330173 3300 5mm Probe, M8 x 1 thread, without armor

330174 3300 5mm Probe, M8 x 1 thread, with armor

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

A: Unthreaded Length Option



Unthreaded length must be at least 20mm less than the case length. Order in increments of 10mm.

Length configurations: |

Maximum unthreaded length: **2 3** = 230mm

Minimum unthreaded length: **0 0** = 0.0mm

Example: 0 6 = 60mm

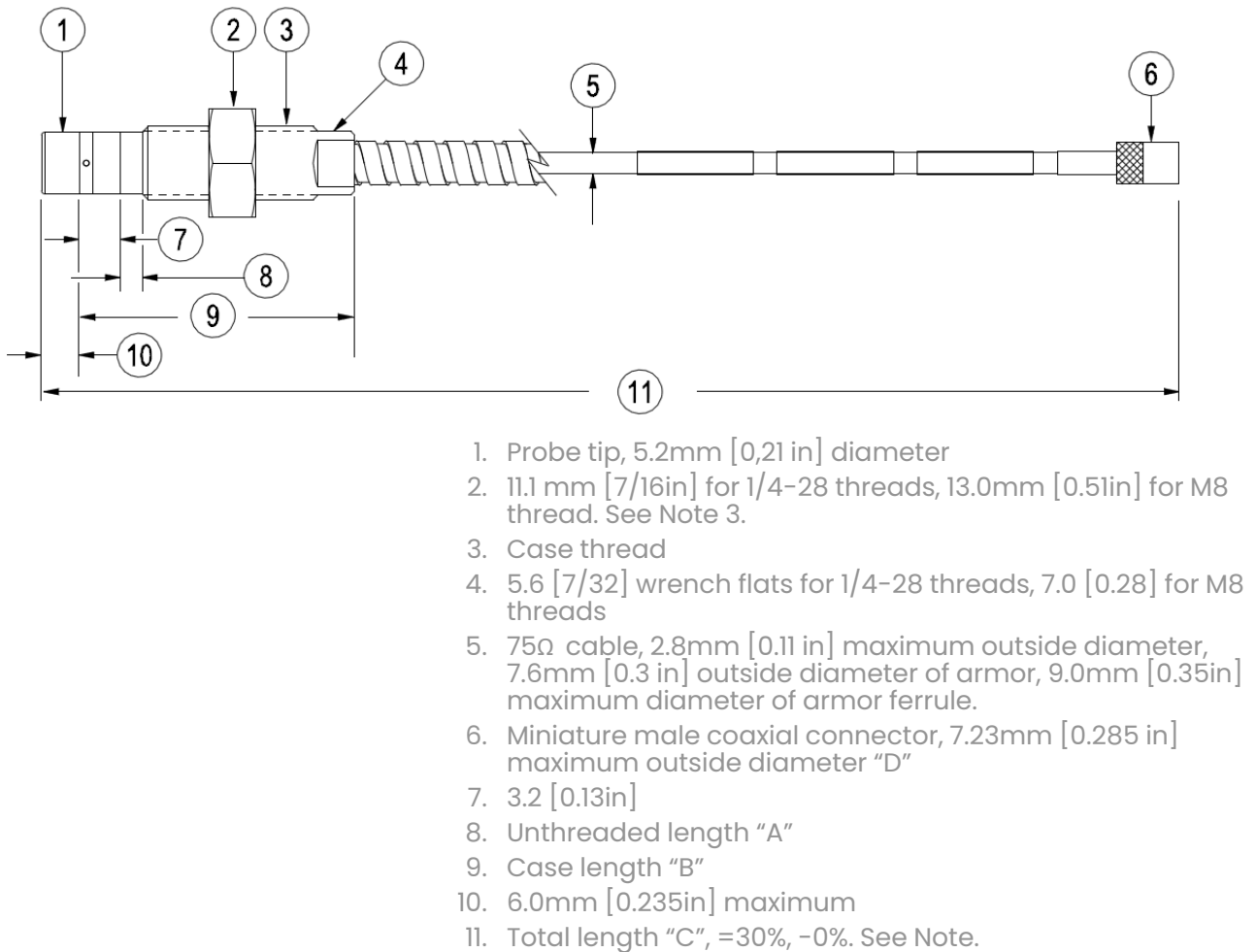


Figure 3: 3300 5mm Proximity Probes, Standard Mount3

330171, 1/4-28 UNF-2A, without armor⁷

330172, 1/4-28 UNF-2A, with armor⁶

330173, M8X1 thread, without armor⁷

330174, M8X1 thread, with armor⁶