MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

BENTLY NEVADA

330172-00-08-10-01-05

1/4-28 UNF 5 MM PROXIMITY PROBE WITH ARMOR

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

REFERENCE PACKAGE

Selected official pages follow this cover with source pagination retained.

OFFICIAL DOCUMENT

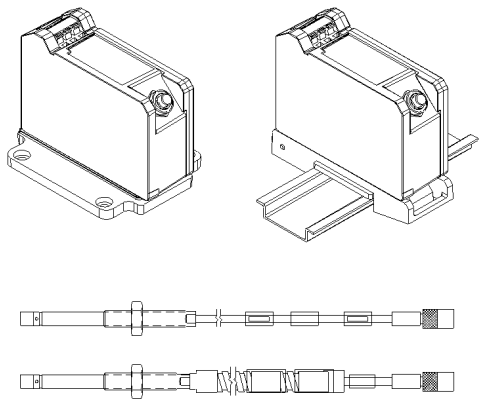
172036 Rev. T

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 applications[6].

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) ±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°C (-31°F to +350°F), the incremental scale factor remains within ±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 Proximitor 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

B: Overall Case Length Option	
Order in increments of 10mm **Metric thread configurations:** Maximum unthreaded length: **2 5** = 250mm Minimum unthreaded length: **0 2** = 20mm **Example:0 6** = 60mm	
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

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

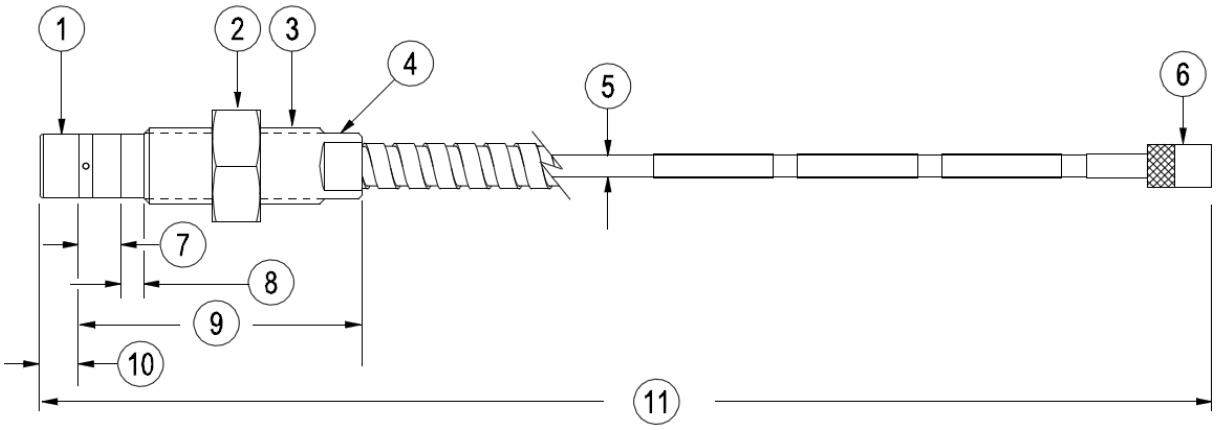
Ordering Information for Extension Cables

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)



1. Probe tip, 5.2mm [0,21 in] diameter
2. 11.1 mm [7/16in] for 1/4-28 threads, 13.0mm [0.51in] for M8 thread. See Note 3.
3. Case thread
4. 5.6 [7/32] wrench flats for 1/4-28 threads, 7.0 [0.28] for M8 threads
5. 75Ω cable, 2.8mm [0.11 in] maximum outside diameter, 7.6mm [0.3 in] outside diameter of armor, 9.0mm [0.35in] maximum diameter of armor ferrule.
6. Miniature male coaxial connector, 7.23mm [0.285 in] maximum outside diameter “D”
7. 3.2 [0.13in]
8. Unthreaded length “A”
9. Case length “B”
10. 6.0mm [0.235in] maximum
11. Total length “C”, =30%, -0%. See Note.

Figure 3: 3300 5mm Proximity Probes, Standard Mount3

330171, 1/4-28 UNF-2A, without armor[7]

330172, 1/4-28 UNF-2A, with armor[6]

330173, M8X1 thread, without armor[7]

330174, M8X1 thread, with armor[6]