

MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Amikon cover with selected official Bently Nevada pages

3300 5 MM TRANSDUCER SYSTEM

330173-00-05-10-02-00

FIVE MILLIMETER PROXIMITY PROBE

OFFICIAL SOURCES

Bently Nevada official manufacturer document for 3300 5 mm transducer system. Selected pages retain their original content, color and aspect ratio.

3300 5 mm Transducer System

Datasheet

Cordant™

172036 Rev. T

Description

Transducer System

The 3300 5 mm Proximity Transducer System consists of:

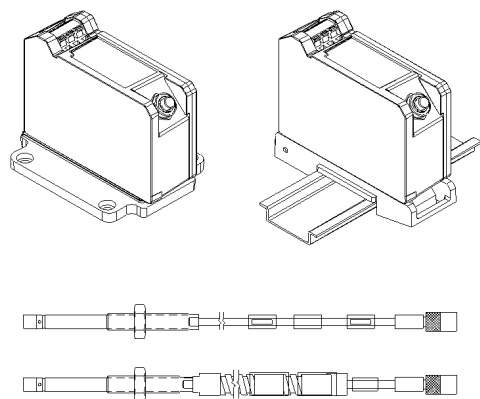
- a 3300 5 mm probe ^{1, 2}
- a 3300 XL extension cable (ref 141194-01)
- a 3300 XL Proximitor Sensor ^{3, 4, 5} (ref 141194-01)

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.



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Connectors

The 3300 5 mm probe and 3300 XL extension cable have corrosion-resistant, gold-plated brass ClickLoc connectors. These connectors require only finger-tight torque (connectors will "click"), and the specially engineered locking mechanism prevents the connectors from loosening. The connectors require no special tools for installation or removal.

3300 5 mm Probes and XL Extension Cables can be ordered with connector protectors already installed, or we can supply the connector protectors separately for installation in the field (such as when the cable must be run through restrictive conduit). We recommend connector protectors for all installations to provide increased environmental protection⁷.

Notes:

1. A 5 mm probe uses smaller physical packaging and provides the same linear range as a 3300 XL 8 mm probe (ref 141194-01). The 5 mm probe does not, however, reduce the sideview clearances or tip-to-tip spacing requirements as compared to an XL 8 mm probe. Use the 5 mm probe when physical (not electrical) constraints preclude the use of an 8 mm probe, such as mounting between thrust bearing pads or other constrained spaces. When your application requires narrow sideview probes, use the 3300 XL NSv probe and extension cable with the 3300 XL NSv Proximitor Sensor (refer to Specifications and Ordering Information p/n 147385-01).
2. XL 8 mm probes provide a thicker encapsulation of the probe coil in the molded PPS plastic probe tip to produce a more rugged probe. The larger diameter of the probe body also provides a stronger, more robust case. We recommend the use of XL 8 mm probes when possible to provide optimal robustness against physical abuse.
3. A 3300 XL Proximitor Sensor is available and provides many improvements over the non-XL version. The XL sensor is electrically and mechanically interchangeable with the non-XL version. Although the packaging of the 3300 XL Proximitor Sensor differs from its predecessor, its design allows for the use of a 4-hole mounting base to fit it in the same 4-hole mounting pattern and to fit within the same mounting space specifications (when the application observes the minimum permissible cable bend radius). Consult Specifications and Ordering Information (p/n 141194-01) or our sales and service professional for more information.
4. Use of XL components with 3300 5 mm Probes will limit system performance to the specifications for the non-XL 3300 system.
5. The factory supplies Proximitor Sensors that are calibrated by default to AISI 4140 steel. Calibration to other target materials is available upon request.
6. When using this transducer system for tachometer or over-speed measurements, consult [Bently.com](https://www.bentley.com) for the application note regarding the use of eddy current proximity probes for over-speed protection.
7. We provide silicone tape with each 3300 XL extension cable. Use this tape instead of connector protectors. We do not recommend silicone tape in applications which will expose the probe-to-extension cable connection to turbine oil.

3300 XL Probe

ia	Class I, Zone 0: Aex/Ex ia IIC T5...T1 Ga Class I, Groups A,B,C, and D, Class II, Groups E, F, and G, Class III
When installed with intrinsically safe zener barriers per drawing 141092 or when installed with galvanic isolators. (See table below, Temperature Schedule)	
nA, ec	Class I, Zone 2: AEx/Ex nA IIC T5...T1 Gc Class I, Division 2, Groups A, B, C, and D Class I, Zone 2 AEx/Ex ec IIC T5...T1 Gc; Class I, Division 2, Groups A, B, C, and D
When installed without barriers per drawing 140979 (See table below, Temperature Schedule)	

ATEX/IECEx

3300 XL Proximity Sensor

ia	Ex ia IIIC T90C/T105C Dc
	For EPL Dc: T105°C @ Ta = -55°C to 100°C T90°C @ Ta = -55°C to +85°C
 II 1 G Ex ia IIC T4/T5 Ga	
Ui = -28V Ii = 140mA Pi = 0.91W Ci = 47nF Li = 1460µH	Uo = -28V Io = 140mA Po = 0.742W Co = 1.5nF Lo = 610µH
nA,ec	
 II 3 G Ex nA IIC T4/T5 Gc Ex ec IIC T4/T5 Gc	

Ui = -28V	Li = 140 Ma
	T5 @ Ta = -55° C to +40 °C T4 @ Ta = -55 °C to +80 °C

3300 XL Probe



Probe entity parameters are met when used with BN extension cables and connected to BN Prox.

ia	Ex ia IIIC T90°C ... T280°C Dc
For EPL Dc: (see Table 5: Temperature Schedule)	
 II 1 G Ex ia IIC T5...T1 Ga, (see table below, Temperature Schedule)	
Ui = -28V Ci = 1.5 nF Ii = 140 mA Li = 610 µH Pi = 0.91 W	
nA, ec	
 II 3 G Ex nA IIC T5...T1 Gc, Ex ec IIC T5...T1 Gc, (see table below, Temperature Schedule).	
Ui = -28V Li = 140 mA	
 The Prox must be installed so as to provide the terminals with a degree of protection of at least IP54.	

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	
T280C @ Ta	-55°C to +232°C
T225C @ Ta	-55°C to +177°C
T170C @ Ta	-55°C to +120°C
T130C @ Ta	-55°C to +80°C
T90C @ Ta	-55°C to +40°C

Hazardous Area Conditions of Safe Use

Zone 0/1:

1. The exposed plastic surface of the Probes with 50 mm diameter, under certain extreme circumstances, may generate an ignition-capable level of electrostatic charge. Therefore, this version of the equipment shall not be installed in a location where the external conditions are conducive to the build-up of electrostatic charge on the plastic surface. In addition, the equipment shall only be cleaned with a damp cloth. This is particularly important if the equipment is installed in a Zone 0 location.
2. The end user is to ensure appropriate earthing upon installation.

Zone 2:

1. This product is not resistant to light as required by the relevant clause of EN 60079-0, therefore, it shall only be installed in a location where it is not exposed to direct sunlight or any other source of ultra-violet (UV) light.
2. The connector shall not be disconnected while the circuit is live unless the area is known to be non-hazardous.
3. The end user is to ensure appropriate earthing upon installation.

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