

MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

3300 XL 8MM PROXIMITY TRANSDUCER

330130-080-03-00

PROXIMITY TRANSDUCER EXTENSION CABLE

Used with the applicable 3300 XL 8 mm proximity transducer systems configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: Bently Nevada official manufacturer documentation

3300 XL 8 mm Proximity Transducer System

Datasheet

Bently Nevada Machinery Condition Monitoring

141194 Rev. AL



Description

The 3300 XL 8 mm Proximity Transducer System consists of:

- One 3300 XL 8 mm probe,
- One 3300 XL extension cable¹, and
- One 3300 XL Proximitron Sensor².

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 measurements³.

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 Proximitron sensors, eliminating the need to match or bench calibrate individual components.

Each 3300 XL 8 mm Transducer System component is backward compatible and interchangeable⁴ with other non-XL 3300 series 5 mm and 8 mm transducer system components⁵. 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}.



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Specifications

Unless otherwise noted, the following specifications are for a 3300 XL 8 mm Proximity Sensor, extension cable and 8 mm probe between +18°C and +27°C (+64°F to +80°F) at a maximum altitude of 2000 meters, with a -24 Vdc power supply, a 10 k Ω load, an AISI 4140 steel target, and a probe gapped at 1.27 mm (50 mils). Performance characteristics apply to systems that consist solely of 3300 XL 8 mm components. The system accuracy and interchangeability specifications do not apply to transducer systems that are calibrated to any target other than our AISI 4140 steel target.

Electrical

Proximity Sensor Input	Accepts one non-contacting 3300-series 5 mm, 3300 XL 8 mm Proximity Probe and Extension Cable.
Power	Requires -17.5 Vdc to -26 Vdc when installed with non-incendive circuit connected per installation drawing 140979 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

Nominal Probe DC Resistance

Resistance (R_{PROBE}) from Center Conductor to Outer Conductor

Probe Length (m)	R_{PROBE} (Ω)
0.5	7.45 $\pm$ 0.50
1.0	7.59 $\pm$ 0.50
1.5	7.73 $\pm$ 0.50
2.0	7.88 $\pm$ 0.50
3.0	8.17 $\pm$ 0.50
5.0	8.73 $\pm$ 0.50
9.0	9.87 $\pm$ 0.50

Nominal Extension Cable DC Resistance

Resistance (R_{CORE}) from Center Conductor to Center Conductor

Length of Extension Cable (m)	R_{CORE} (Ω)
3.0	0.66 $\pm$ 0.10
3.5	0.77 $\pm$ 0.12
4.0	0.88 $\pm$ 0.13
4.5	0.99 $\pm$ 0.15
6.0	1.32 $\pm$ 0.21
7.0	1.54 $\pm$ 0.23
7.5	1.65 $\pm$ 0.25
8.0	1.76 $\pm$ 0.26
8.5	1.87 $\pm$ 0.28

Connector-to-Connector Recommended Torque

Connector Type	Tightening Instructions
Two 3300 XL gold "click" type connectors	Finger tight
One non-XL stainless steel connector and one 3300 XL connector	Finger tight plus 1/8 turn using pliers

Materials

Proximator Sensor Material	A308 aluminum
Connector Material	Gold-plated brass or gold-plated beryllium copper.

Length

System Length	5 or 9 meters (including extension cable) or 1 meter (probe only).
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Weight

Total System Weight (Typical)	0.7 kg (1.5 lb m)
Probe	323 g/m (11.4 oz)
Extension Cable	34 g/m (0.4 oz/ft)
Armored Extension Cable	103 g/m (1.5 oz/ft)
Proximator Sensor	246 g (8.67 oz)

Thread Engagement Limits

Probe Case Thread	Maximum Length of Thread Engagement
3/8-24	0.563 in
M10x1	15 mm



Maximum thread engagement lengths are per the industry standard of 1.5 times the nominal thread diameter. A fit class matching that of the external probe thread is assumed for all internal threads. Applications with thread engagement lengths exceeding the values in the table above may exhibit binding during installation. Contact your Bently Nevada representative if you require probe thread engagement lengths exceeding the values above. Bently Nevada does not replace proximity probes under warranty due to excessive thread engagement lengths.

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.

Length configurations:

Maximum unthreaded length: 8.8 in.

Minimum unthreaded length: 0.0 in.

Example: **0 4** = 0.4 in.

B: Overall Case Length Option

Order in increments of 0.1 in.

Standard thread configurations:

Maximum case length: 9.6 in.

Minimum case length: 0.8 in.

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

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 Proximity 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

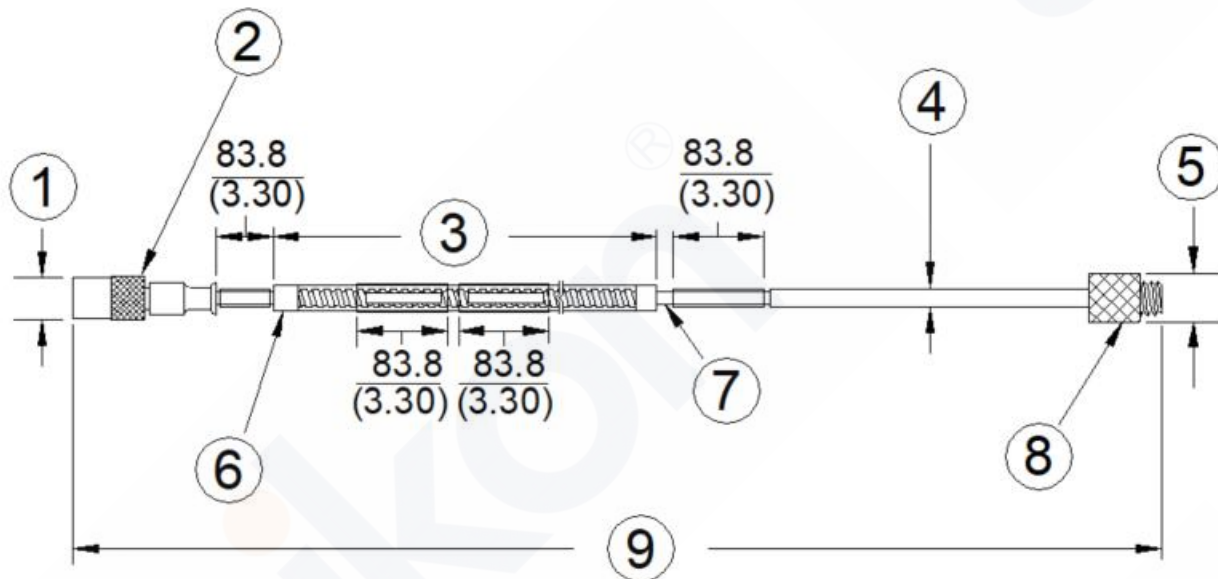
00	Standard cable
01	Armored cable

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 Proximity Sensors in a DIN-mount configuration or 6 Proximity 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 Proximity 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 Proximity sensors in a DIN-mount configuration or 6 Proximity Sensors in a panel-mount configuration. Primarily used by customers requiring hazardous area approvals for 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 mm ² (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.

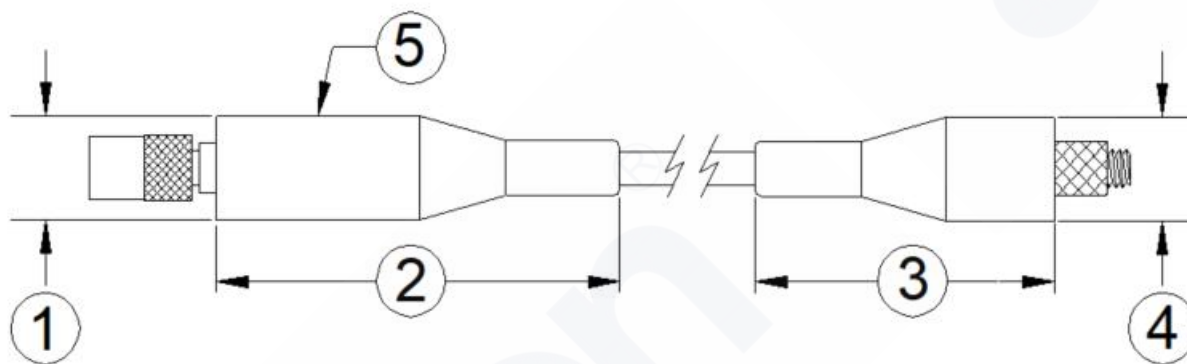


1. 7.24 mm (0.285 in) maximum diameter
2. Miniature male coaxial connector
3. FEP or PFA coated armor, armor length 300 mm (11.8 in) less than cable length (see Note 6)
4. 75Ω cable, 3.7 mm (0.15 in) maximum outside diameter, 3.94 mm (0.155 in) maximum diameter for FluidLoc cable, 7.67 mm (0.302 in) maximum outside diameter of armor, 10.2 mm (0.40 in) maximum diameter of armor ferrule
5. 7.24 mm (0.285 in) maximum diameter
6. Stainless steel ferrules, 10.2 mm (0.40 in) max diameter
7. FEP or PFA insulated triaxial cable
8. Miniature female coaxial connector
9. Cable length, +20%, -0%

Figure 17: Extension Cable without Connector Protectors

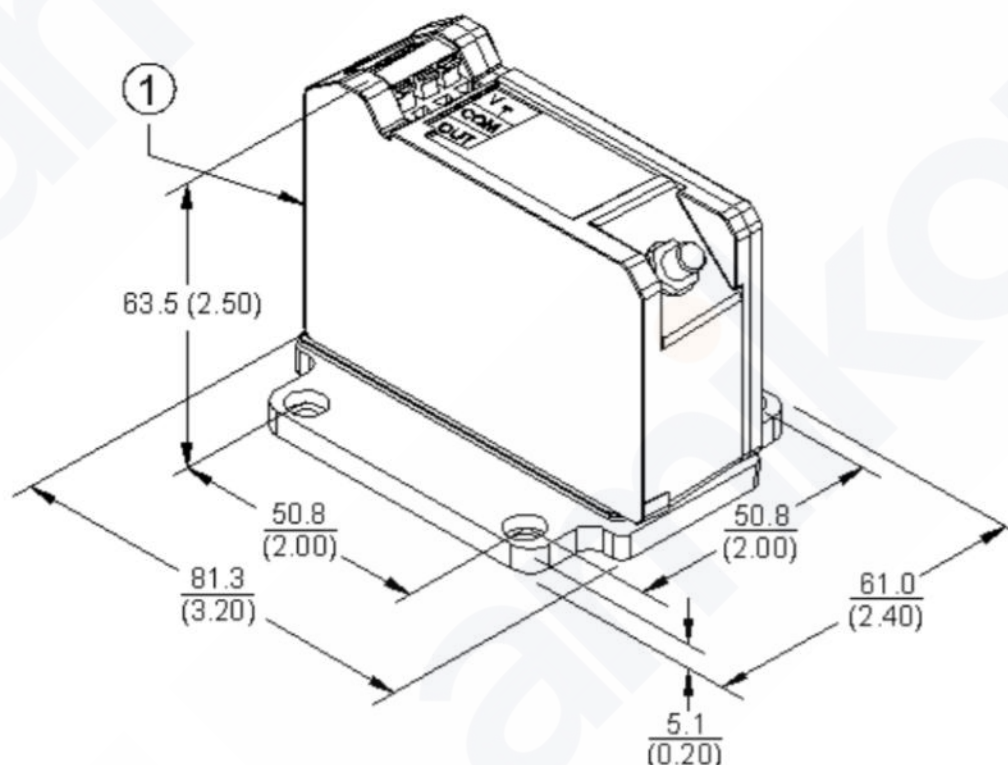
330130, 3300 XL Extension Cable (FEP Armor and Insulation)

330190, 3300 XL ETR Extension Cable (PFA Armor and Insulation)



1. 12.4 mm (0.49 in) maximum diameter
2. 51.1 mm (2.01 in) maximum
3. 36.3 mm (1.43 in) maximum.
4. 12.4 mm (0.49 in) maximum diameter
5. Connector protector (fluorosilicone material) only installed on female end when optioned. Both ends available as accessories.

Figure 18: Extension Cable with Connector Protectors



1. Mounting option "A", Options -50 or -90

Figure 19: Panel Mount 3300 XL Proximity Sensor