3300 XL Underwater Probes

Datasheet

Cordant™

175852 Rev. G



Description

3300 XL underwater probes are designed specifically for applications involving constant exposure to liquids, such as those in hydroelectric plants or sewage treatment facilities. These designs also seal the probes against gases. All our underwater probes are rated to 500 psi (34 Bar) on the interface between the tip and probe casing. Contact a sales representative for applications that require higher pressure ratings.

All of the underwater probes are compatible with standard 3300 XL Proximitor Sensors and extension cables. Note that these probes each belong to a different family (8mm, 11mm, or 25mm) and consequently require different Proximitor Sensors and extension cables. Refer to the standard data product sheets to obtain ordering information for the 8mm, 11mm, and 25mm transducer systems.

The 100630, 148239, and 174985 probes were developed for applications in which the entire probe is submerged or exposed to fluids. Tubing attached to the probe case protects the probe cable, but the connector end of the probe is not sealed against liquids and must not be submerged. In addition, the probe case is made of 304 Stainless Steel and is not suitable for salt-water applications. Contact a sales representative if you have an application involving salt water.

Baker Hughes

Specifications

Electrical and Mechanical

The electrical and mechanical specifications for each of these probes are the same as standard product for the 8mm, 11mm, and 25mm systems.

Reference data sheets as follows for complete specifications

Probe 100630	3300 XL 8mm System datasheet document 141194.
Probe 148239	3300 XL 11mm System datasheet document 146256.
Probe 174985	3300 XL 25mm System datasheet document 163236

Environmental Limits

Probe Temperature Range

Operating and Storage Temperature	-51 °C to +177 °C (-60 °F to +351 °F)
Probe Pressure	Rated to seal 34 Bar (500 psi) Nitrogen. Modifications are available for applications involving higher pressures. Contact a Sales Representative if your application requires a test of the pressure seal.[1]

(1) It is the responsibility of the customer or user to ensure that all liquids and gases are contained and safely controlled should leakage occur from a proximity probe. Bently Nevada does not be held responsible for any damages resulting from leaking proximity probes.

Compliance and Certifications

ATEX (where the applicable dash option has been ordered)

EN 60079-0

EN 60079-11

EN 60079-15

EN 60079-7

ATEX Directive 2014/34/EU

Hazardous Area Approvals

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.

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3300 XL Proximitor Sensor

ia	Class I, Zone 0: Aex/Ex ia IIC T4/T5 Ga Class 1, 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.	
nA, ec	Class I, Zone 2: AEx/Ex nA IIC T4/T5 Gc Class I, Division 2, Groups A, B, C, and D Class I, Zone 2 AEx/Ex ec IIC T4/T5 Gc; Class I, Divison 2, Groups A, B, C, and D
When installed without barriers per drawing 140979	
T5 @ Ta= -55°C to +40°C T4 @ Ta = -55°C to +80°C	

3300 XL Probe

ia	Class I, Zone 0: Aex/Ex ia IIC T5...T1 Ga Class 1, 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, Divison 2, Groups A, B, C, and D
When installed without barriers per drawing 140979 (See table below, Temperature Schedule)	

ATEX/IECEx

3300 XL Proximitor 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.

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 XL 8mm Underwater Proximity Probe

100630 3/8-24 UNF thread, sealed case with Tefzel Tubing

100630-AA-BB-CC-DD

A: Unthreaded Length Option

Unthreaded length must be at least 0.7 in. less than the case length.

Length configurations:
Order in increments of 0.1 in
Maximum unthreaded length: 9.6 in
Minimum unthreaded length: 0.8 in
Example: 04 = 0.4 in.

B: Overall Case Length Option

Length configurations:
Order in increments of 0.1 in
Maximum unthreaded length: 8 9 = 8.9 in
Minimum unthreaded length: 0 0 = 0.0 in
Example: 24 = 2.4 in.

C: Total Length Option

05	0.5 metre (1.6 feet)
10	1.0 metre (3.3 feet)
15	1.5 metre (4.9 feet)
20	2.0 metres (6.6 feet)
50	5.0 metres (16.4 feet)
90	9.0 metres (29.5 feet)

D: Connector and Cable Type Option

01	Miniature coaxial ClickLoc connector with connector protector, standard cable
02	Miniature coaxial ClickLoc connector, standard cable

E: Agency Approval Option

00	Not Required
05	CSA, ATEX, IECEx Approvals

3300 XL 11mm Underwater Proximity Probe

148239 5/8-18 UNF thread, sealed case with Tefzel Tubing

148239-AA-BB-CC-DD

A: Unthreaded Length Option

Unthreaded length must be at least 1.0 in. less than the case length.

Length configurations:
Order in increments of 0.1 in
Maximum unthreaded length: 11 =11.0 in
Minimum unthreaded length: 00 = 0.0 in
Example: 04 = 0.4 in.

B: Overall Case Length Option

Length configurations:
Order in increments of 0.1 in
Maximum unthreaded length: 12.0 in
Minimum unthreaded length: 1.8 in
Example: 24 = 2.4 in.

C: Total Length Option

10	1.0 metre (3.3 feet)
50	5.0 metres (16.4 feet)
90	9.0 metres (29.5 feet)

D: Connector and Cable Type Option

01	Miniature coaxial ClickLoc connector with connector protector, standard cable
02	Miniature coaxial ClickLoc connector, standard cable

3300 XL 25mm Underwater Proximity Probe

174985 1.25-12 UNF thread, sealed case with Tefzel Tubing.

174985-AA-BB-CC

A: Unthreaded Length Option

Unthreaded length must be at least 1.0 in. less than the case length.

Length configurations:
Order in increments of 0.1 in
Maximum unthreaded length:8.9 in
Minimum unthreaded length: 0.0 in
Example: 04 = 0.4 in.

B: Overall Case Length Option

Length configurations:
Order in increments of 0.1 in
Maximum unthreaded length: 9.9 in.
Minimum unthreaded length: 1.2 in
Example: 24 = 2.4 in.

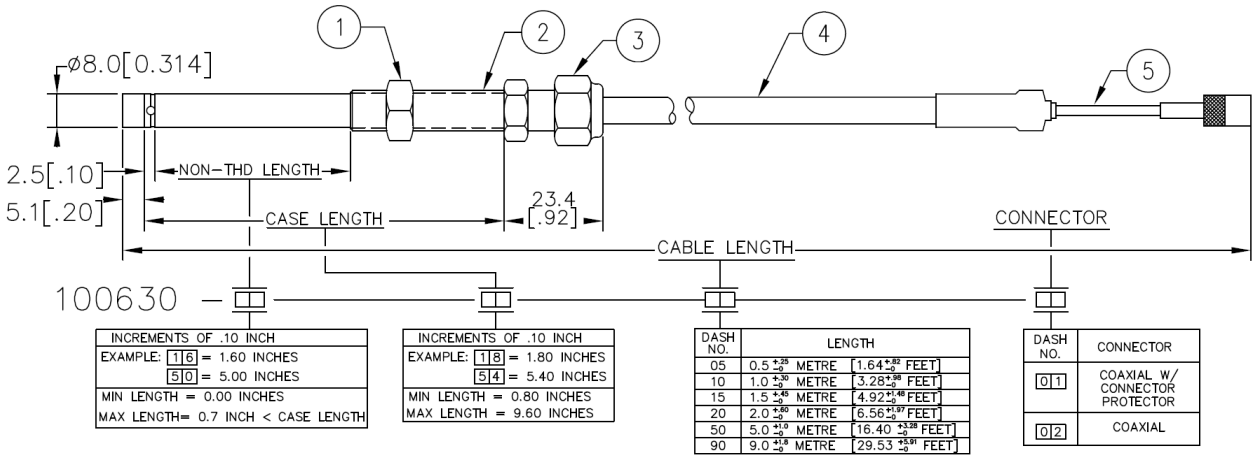
C: Total Length Option

10	1.0 metre (3.3 feet)
50	5.0 metres (16.4 feet)
90	9.0 metres (29.5 feet)

Accessories

40113-02	**Connector Protector Kit** Connector Protector Kit for probes and extension cables, including installation tools. The 03800001 connector protector must be ordered separately.
136536-01	**Connector Protector Adapter** Allows connector protector installation tools manufactured prior to 1998 to be used with 75 W ClickLoc connectors.
03839410	**75 ohm Triaxial Male Connector Protector** Male connector protectors are installed onto the extension cable and attach to the female connector protector on the probe, providing environmental protection of connectors.
03800001	75 ohm Coaxial Female Connector Protector Female connector protectors are installed onto the probe lead and attach to the male connector protector on the extension cable, providing environmental protection of connectors. Also placed on the extension cable to slide over the connection to the Proximitor Sensor and protect it from the environment.
04301007	3/8-24 Probe Lock Nut with safety wire holes Single probe lock nut with two holes drilled through the nut to allow safety wire to secure the lock nut in place.
173873	High Temperature Cable Ties The 173873 high temperature cable tie is an economical alternative to metal brackets in high temperature applications. These cable ties are molded from PEEK polymer for multiple uses in extreme environments up to 180°C (356°F). 7-inch length, bag of 50.

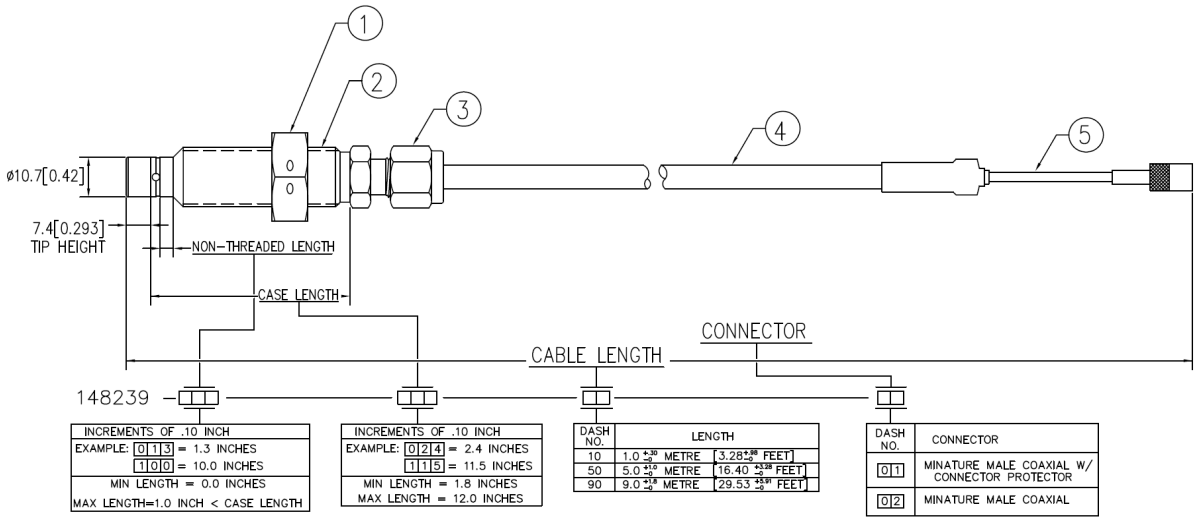
Graphs and Figures



1. Jam nut 9/16 inch wrench flats
2. Probe threads, 3/8-24 UNF 2A
3. Swagelok fitting, used to secure tubing to probe case. Do not loosen this fitting.
4. Tefzel tubing 0.25 inch outside diameter
5. Triaxial cable, 0.150 inch maximum diameter

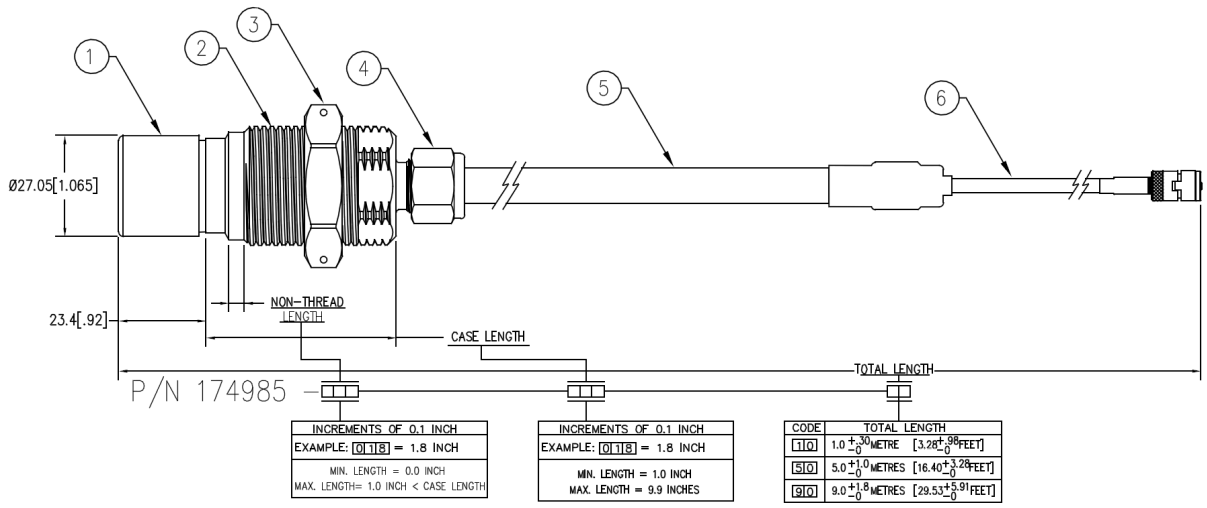
Figure 1: Probe 100630, 3300 XL 8mm 3/8-24 Thread Forward Mount

Agency Approval Option	
00	Not Required
05	CSA, ATEX, IECEx Approvals



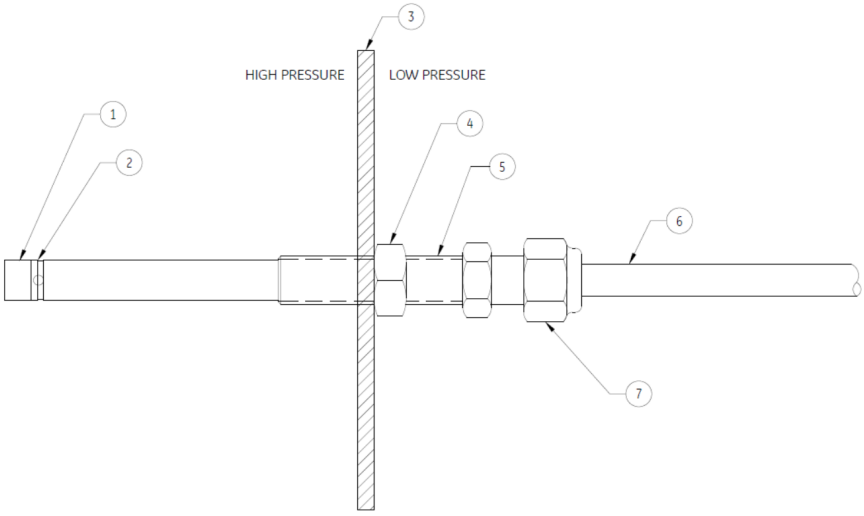
1. Jam nut, 15/16 inch hex with safety wire holes
2. 5/8-18 UNF 2A Mounting threads
3. Swagelok fitting, used to secure tubing to probe case. Do not loosen this fitting.
4. Tefzel tubing 0.25 inch outside diameter
5. Triaxial cable, 0.150 inch maximum diameter

Figure 2: Probe 148239, 3300 XL 11mm 5/8-18 Thread Forward Mount



1. PEEK polymer tip
2. 1.25-12 mounting threads with 1.125 inch integral wrench flats
3. Jam nut, 1.5 inch hex with safety wire holes
4. Swagelok fitting, used to secure tubing to probe case. Do not loosen this fitting.
5. Tefzel tubing 0.375 inch outside diameter
6. Triaxial cable, 0.150 inch maximum diameter

Figure 3: Probe 174985, 1.25 - 12 Thread, Forward Mount with TefzelTubing Protecting Probe Cable



1. Probe tip
2. 500 PSI rated seal between tip and case
3. Machine casing
4. Jam nut
5. Swagelock fitting
6. Tefzel tubing
7. Swagelok and Tefzel seal designed for submersion but not pressure rated

Figure 4: Probe Pressure Rating Detail

All dimensions on figures are in millimetres [inches] unless otherwise noted.

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