

# Bently Nevada 330903&330904&330905&330910 Series Service Manual

330910-01-10-10-02-05

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## 1. Description

Part Number: 330910-01-10-10-02-05

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## 3. Product Information



Part Number: 330910-01-10-10-02-05

Model: 3300 NSv Proximity Probes

Manufacturer: Bently Nevada

Condition: New & Original in Factory Packing

Factory Warranty: 12 Months

Ordering Information

Model: 330910 = 3300 NSv Probe, M10X1 thread, with armor

Unthreaded Length Option: -01=10 mm

Overall Case Length Option: -10 =100 mm

Total Length Option: -10 = 1.0 meter (39 in)

Connector and Cable Type Option: -02 - Miniature coaxial ClickLoc connector, standard cable

Agency Approval Option: -05 = Multiple Approvals

The 3300 NSv probe and extension cable are mechanically and electrically compatible and interchangeable with Bently Nevada's previous 3300 RAM proximity probe and extension cable.

The NSv probe has increased chemical resistance compared to the 3300 RAM probe, which allows its use in many process compressor applications. The side-view characteristics of the 3300 NSv probe are also superior to those of the 3000-series 190 probe when gapping the 3300 NSv probe at the same distance from the probe target.

Probe dc Resistance

Probe Length

(m) 1.0

Resistance from the Center

Conductor to the Outer

Conductor (RPROBE)

(ohms)

$4.2 \pm 0.5$

Extension cable

dc resistance

Center conductor: 0.220

$\Omega/\text{m}$  (0.067  $\Omega/\text{ft}$ )

Shield: 0.066  $\Omega/\text{m}$  (0.020

$\Omega/\text{ft}$ )

Extension cable

capacitance

69.9 pF/m (21.3 pF/ft)

typical

Field Wiring

0.2 to 1.5 mm<sup>2</sup> (16 to 24

AWG)[0.25 to 0.75 mm<sup>2</sup> (18

to 23 AWG) with ferrules].

Recommend using threeconductor shielded triad

cable. Maximum length of

305 meters (1,000 feet)

between the 3300 XL NSv

Proximitor Sensor and the

monitor. See the frequency

response graphs Figure 16

and Figure 17 for signal

rolloff at high frequencies

when using longer field

wiring lengths.

Linear Range

1.5 mm (60 mils). Linear



range begins at

approximately 0.25 mm (10

mils) from target and is

from 0.25 to 1.75 mm (10 to

70 mils) (approximately -1

to -13 Vdc).

Recommended

Gap Setting 1.0 mm (40 mils)

Incremental

Scale Factor

(ISF)

7.87 V/mm (200 mV/mil)

+12.5%/-20% including

interchangeability error

when measured in

increments of 0.25 mm (10

mils) over the 1.5 mm (60

mil) linear range.

Deviation from

best fit straight

line (DSL)

Less than  $\pm 0.06$  mm ( $\pm 2.3$

mils).

Frequency

Response

0 to 10 kHz: +0, -3 dB

typical, with up to 305

meters (1000 feet) of field

wiring.

Target Size (flat

target)

Minimum: 8.9 mm (0.35 in)

diameter

Recommended minimum:

13 mm (0.5 in) diameter

Axial position

measurements on shaft

diameters smaller than 13

mm (0.5 in) will generally

result in a change in scale

factor. Reducing the gap

between the probe and

target will help limit the

change in scale factor. See

Figure 12 for additional

information.

Probe Tip

Material Polyphenylene sulfide (PPS).

Probe Case

Material AISI 304 stainless steel (SST).

Probe Cable

Specifications

75  $\Omega$  coaxial, fluoroethylene

propylene (FEP) insulated

probe cable in the following

total probe lengths: 0.5, 1, 5,

or 7 meters.

Recommended

torque Finger tight



Maximum torque 0.56 N•m (5 in•lb)

Minimum Bend

Radius (with or

without sst

armor)

25.4 mm (1.0 in)

Operating

Temperature

-52°C to +177°C (-62°F to

+351°F)

Storage

Temperature

-52°C to +177°C (-62°F to

+351°F)

Probe

Pressure

3300 NSv probes are

designed to seal differential

pressure between the probe

tip and case. The probe

sealing material consists of a

Viton O-ring. Probes are not

pressure tested prior to

shipment. Contact our

custom design department if

you require a test of the

pressure seal for your

application.

Connector-to-connector Torque

Probe Case Torque 3/8-24 or M10X1 probe cases

Maximum Rated 33.9 N•m (300 in•lb)

Recommended 11.3 N•m (100 in•lb)

Connector-to-connector Torque

Probe Case Torque 3/8-24 or M10X1 probe cases – first three threads

Maximum Rated 22.6 N•m (200 in•lb)

Recommended 7.5 N•m (66 in•lb)

Thread Engagement Limits

Probe Case Thread 3/8-24

Maximum Length of Thread Engagement 0.563 in

System Weight (typical)

Probe Approximately 14 to 150 g

(0.5 to 5.3 oz)

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

T280°C @ Ta -55°C to +232°C

T225°C @ Ta -55°C to +177°C

T170°C @ Ta -55°C to +120°C

T130°C @ Ta -55°C to +80°C

T105°C @ Ta -55°C to +100°C



T90°C @ Ta -55°C to +40°C

