

# 991 Thrust Transmitter

## Datasheet

Cordant™

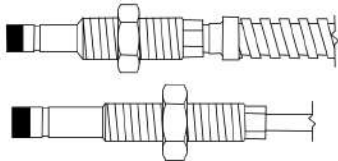
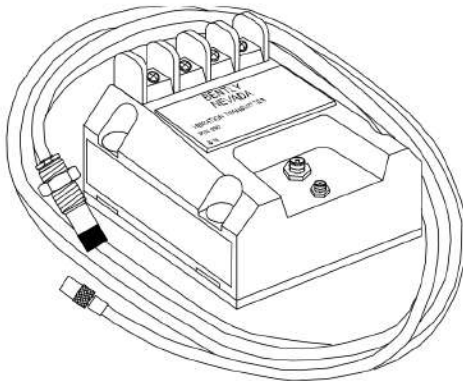
141618 Rev. P

### Description

The 991 Thrust Transmitter is intended primarily for the original equipment manufacturers (OEMs) of centrifugal air compressors or small pumps, motors, or fans who prefer to provide a simple 4 to 20 mA proportional axial displacement (thrust) signal as the input to their machinery control system. The transmitter is a 2-wire, loop-powered device that accepts input from our 3300 NSv proximity probe and its matching extension cable (available in 5 m and 7 m system length options). The transmitter conditions the signal into appropriate engineering units proportional to the shaft's axial position<sup>1</sup>, and provides it as a 4 to 20 mA industry-standard signal for input to the control system where machinery protection alarming and logic occurs<sup>2</sup>.

The 991 transmitter provides the following notable features:

- Integrated Proximitors Sensor requires no external unit
- Non-isolated PROX OUT and COM terminals plus a coaxial connector provide a dynamic vibration and gap voltage signal output for diagnostics<sup>3</sup>.
- Non-interacting zero and span potentiometers under the Transmitter label supports loop adjustment.
- Test Input pin allows quick verification of loop signal output, using a variable DC voltage source as the input.
- A Power-up Inhibit circuit eliminates signal errors due to line voltage transients.
- A Not OK/Signal Defeat circuit prevents high outputs or false alarms due to a faulty proximity probe or loose connection.
- Choice of DIN-rail clips or bulkhead mounting screws as standard options simplifies mounting.
- Potted construction for high humidity (up to 100% condensing) environments.
- Compatibility with 3300 NSv proximity probe allows transducer installation in small areas with minimal



## Specifications

Unless otherwise noted, the following specifications apply at +22°C (+72°F) using a 3300 NSv Probe and Extension Cable, and an AISI 4140 steel target.

### Electrical

Input	Accepts one non-contacting 3300 NSv Proximity Probe and extension cable.
Power	Requires +12 to +35 Vdc input at the transmitter terminal.
4 to 20 mA Signal Output	4 to 20 mA <sub>dc</sub> over specified full-scale range in 2-wire configuration.
4 to 20 mA Loop Accuracy	Within ±1.5% over specified full scale range (typical). Accuracy is rated from the TEST signal input to the voltage measured across a 250 Ω loop resistance.
Maximum Loop Resistance	1,000 Ω including cable at 35 Vdc.
Current Limiting	23 mA typical.
Zero and Span	Non-interacting external adjustments.
Not OK/Signal Defeat	Signal output will go to less than 3.6 mA within 100 μs after a Not OK condition occurs. Signal output is restored within 0.1 seconds after the Not OK condition is removed.
Proximitors Sensor Output	Compatible with ungrounded, portable test equipment. When using grounded, ac-powered test equipment, use the 122115-01 Test Adapter for signal isolation.

Output Impedance	Prox Out has a 10 kΩ output impedance calibrated for a 10 MΩ load.
Linear Range	0.25 to 1.65 mm (10 to 65 mils) for Prox Out. Suitable for 0.6-0-0.6 mm or 25-0-25 mils current loop linear ranges.
Prox Out Incremental Scale Factor	7.87 mV/μm (200 mV/mil) ±6.5% typical including interchangeability errors when measured in increments of 0.25 mm (10 mils) over the linear range using a flat 30 mm (1.2 inch) target.
Temperature Stability	Incremental scale factor remains within ±10% of 7.87 mV/μm (200 mV/mil) from 0°C to +70°C (+32°F to +158°F).
Minimum target size	9.5 mm (0.375 in) diameter.
Leadwire Length	Proximitors Sensor Output (BNC connector), maximum cable distance is 3 meters (10 feet).
Non-Hazardous, Zone 2 or Div 2 Hazardous area locations	13 km (8 miles) maximum between transmitter and receiving device for signal output.

### Environmental Limits

Transmitter Temperature	
Operating Temperature	-35°C to +85°C (-31°F to +185°F)
Storage Temperature	-51°C to +100°C (-60°F to +212°F).
Probe Temperature	
Operating Temperature	-52°C to +177°C (-62°F to +351°F)

## 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](http://bntechsupport.com) and access the Bently Nevada Media Library.

### 991-AA-BB-CC-DD

#### A: Full-scale Option

<b>06</b>	0.6–0–0.6 mm
<b>25</b>	25–0–25 mils

#### B: System Length Option

<b>50</b>	5.0 meters (16.4 feet)
<b>70</b>	7.0 meters (23.0 feet)

#### C: Mounting Option

<b>01</b>	35 mm DIN-rail clips
<b>02</b>	Bulkhead screws
<b>03</b>	DIN clips and screws

#### D: Agency Approval Option

<b>00</b>	Not required
<b>01</b>	CSA Division 2
<b>05</b>	CSA Division 2, ATEX Zone 0, ATEX Zone 2 and includes ABS maritime approval

## 3300 NSv Proximity Probes

### Part Number-AA-BB-CC-DD-EE

330901	3300 NSv Probe, 1/4–28 UNF thread, without armor.
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330902	3300 NSv Probe, 1/4–28 UNF thread, with armor.
330908	3300 NSv Probe, 3/8–24 UNF thread, without armor.
330909	3300 NSv Probe, 3/8–24 UNF thread, with armor.

#### A: Unthreaded Length Option



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

Order in increments of 0.1 in

Length configurations:

Minimum length: 0 in

Maximum length: 9.2 in

Example: **04** 0.4 in

#### B: Case Length Option

Order in increments of 0.1 in

Threaded length configurations:

Minimum length: 0.8 in

Maximum length: 9.9 in

Example: **35** 3.5 in

#### C: Total Length Option

<b>05</b>	0.5 meter (1.67 feet)
<b>10</b>	1.0 meter (3.25 feet)
<b>50</b>	5.0 meters (16.4 feet)
<b>70</b>	7.0 meters (23 feet)

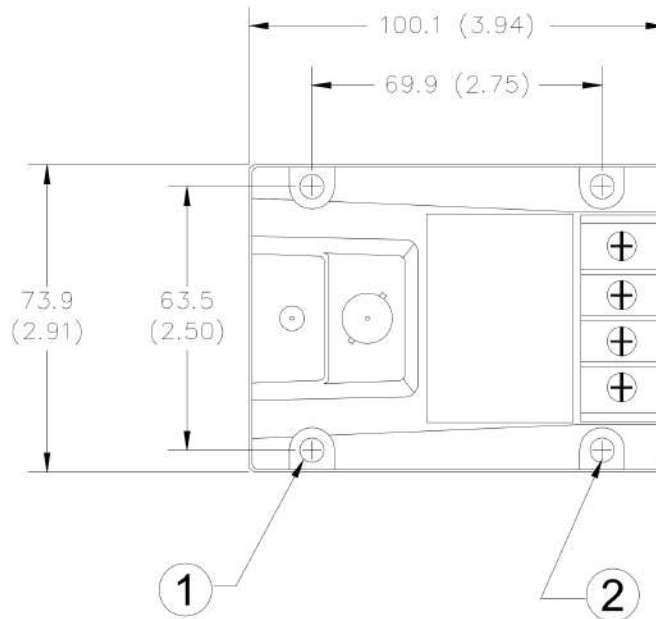
#### D: Connector Option

<b>01</b>	Miniature coaxial ClickLoc connector with connector protector, standard cable
<b>02</b>	Miniature coaxial ClickLoc connector, standard cable

## Graphs and Figures

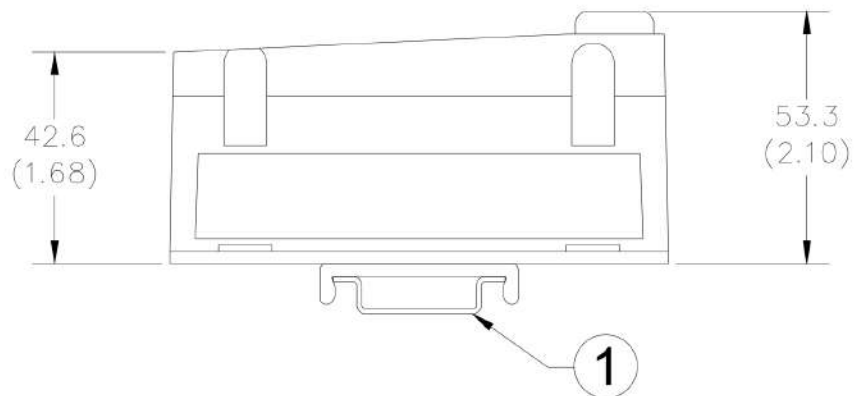


Note: All dimensions shown in millimeters (inches) unless noted otherwise.



1. Mounting holes, 5.8 mm (0.23 in) diameter, 4 places
2. Bulkhead mount holes, 4 each. 6-32 x 1.326 screws provided when mounting option specified

**Figure 1: 991 Thrust Transmitter Dimensions (Top View)**



1. 35mm DIN rail DIN mount clips (when DIN rail mounting is specified)

**Figure 2: 991 Thrust Transmitter Dimensions (Side View)**