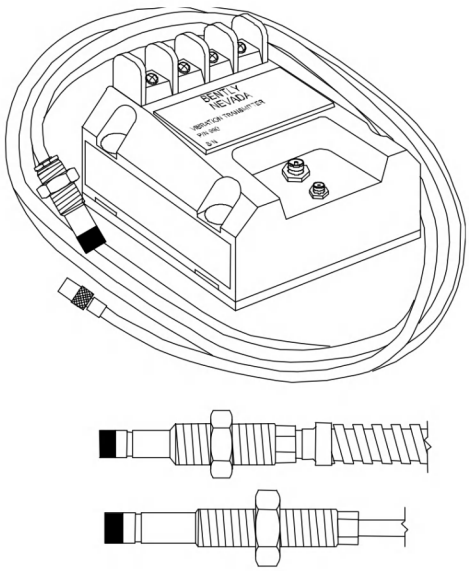
991 Thrust Transmitter

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[1], 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[2].

The 991 transmitter provides the following notable features:

- Integrated Proximitor 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[3].
- 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

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clearance, typical of centrifugal air compressors.

Notes:

1. Probe adjustment and range are critical in thrust position measurements. Incorrect probe gap settings may prevent the transmitter from reaching full-scale in either the normal or counter directions (no machinery monitoring). For proper adjustment, follow the instructions in the manual.
2. Thrust transmitters have many limitations when compared to a continuous monitoring system. They are a practical solution in some applications for measuring rotor axial position and are a valuable tool for trending thrust readings. While the transmitter is capable of alarming on thrust position and non-OK checking, monitor functions such as Timed OK channel defeat, Danger Bypass, and Trip Multiply cannot be used. In addition, PLCs attached to the thrust transmitter are not suitable for plant-wide diagnostic systems such as System 1 or Rule Paks.
3. The 991 Vibration Transmitter's PROX OUT coaxial connector provides a non-isolated dynamic transducer signal for machinery diagnostics. You can connect this signal directly to battery-powered or isolated test equipment to diagnose machinery problems. However, since the PROX OUT signal is not isolated from the 4 to 20 mA loop signal, an interface is available (and strongly recommended) for signal isolation. The 990/991 Test Adapter conditions the 990 Transmitter's PROX OUT signal for use with ac-powered test equipment. The adapter also inverts and isolates the 990's transducer signal, making it suitable for equipment such as oscilloscopes and analyzers, and preserving industry-standard conventions for signal polarity. We strongly recommend that you use this test adapter for all applications to maintain isolation between test equipment and the loop signal, and to maintain machinery protection integrity.

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.

991-AA-BB-CC-DD

A: Full-scale Option	
06	0.6-0-0.6 mm
25	25-0-25 mils
B: System Length Option	
50	5.0 meters (16.4 feet)
70	7.0 meters (23.0 feet)
C: Mounting Option	
01	35 mm DIN-rail clips
02	Bulkhead screws
03	DIN clips and screws
D: Agency Approval Option	
00	Not required
01	CSA Division 2
05	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.
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	
05	0.5 meter (1.67 feet)
10	1.0 meter (3.25 feet)
50	5.0 meters (16.4 feet)
70	7.0 meters (23 feet)
D: Connector 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 attached, FluidLoc cable
E: Agency Approval Option	
00	Not required
05	Multiple Approvals (CSA NRTL/C and BASEEFA/CENELEC, which includes CSA Division 2)

3300 NSv Probes, Metric

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

330903	3300 NSv Probe, M8 x 1 thread, without armor.
330904	3300 NSv Probe, M8 x 1 thread, with armor.
330905	3300 NSv Probe, M10 x 1 thread, without armor.
330910	3300 NSv Probe, M10 x 1 thread, with armor.
A: Unthreaded Length Option	

Unthreaded length must be at least 20 mm less than the case length.

Order in increments of 10 mm
Untreaded length configurations:
Minimum length: 0 mm
Maximum length: 230 mm
Example: **06** 60 mm
B: Case Length Option
Order in increments of 10 mm
Minimum length: 20 mm
Maximum length: 250 mm
Example: **25** 250 mm
C: Total Length Option

05	0.5 meter (1.67 feet)
10	1.0 meter (3.25 feet)
50	5.0 meters (16.4 feet)
70	7.0 meters (23 feet)
D: Connector 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 attached, FluidLoc cable
E: Agency Approval Option	
00	Not required
05	Multiple Approvals (CSA NRTL/C and BASEEFA/CENELEC, which includes CSA Division 2)

3300 NSv Reverse Mount Probe

330906-02-12-CC-DD-EE, 3/8-24 UNF threads

330907-05-30-CC-DD-EE, M10 x 1 UNF threads

C: Total Length Option	
05	0.5 meter (1.67 feet)
10	1.0 meter (3.25 feet)

50	5.0 meters (16.4 feet)
70	7.0 meters (23 feet)
D: Connector Option	
02	Miniature coaxial ClickLoc connector, standard cable
12	Miniature coaxial ClickLoc connector attached, FluidLoc cable
E: Agency Approval Option	
00	Not required
05	Multiple Approvals (CSA NRTL/C and BASEEFA/CENELEC, which includes CSA Division 2)

Extension Cable

330930-AAA-BB-CC

A: Cable Length Option	
040	4.0 meters (13.1 feet)
045	4.5 meters (14.8 feet)
060	6.0 meters (19.7 feet)
065	6.5 meters (21.3 feet)
B: Armor Option	
00	Without stainless steel armor
01	With FEP covered stainless steel armor
02	With stainless steel armor
03	Without stainless steel armor, with connector protector
04	With FEP covered stainless steel armor and connector protector
05	With stainless steel armor and connector protector

C: Agency Approval Option	
00	Not required
05	Multiple Approvals (CSA NRTL/C and BASEEFA/CENELEC (which includes CSA Division 2)