

# 3300 XL NSv™ (Narrow Side View) Proximity Transducer System and 170150 Internal 3300 NSv™ Proximity Transducer Module

Authored by:



Mike Hanifan

Senior Applications Engineer  
Bently Nevada Corporation  
e-mail: mike.hanifan@bently.com

Continuous monitoring of rotating machinery improves safety and machinery availability by providing continuous protection and machinery diagnosis for predictive maintenance. Non-contacting eddy current probes are typically used to measure the dynamic movement of a rotor relative to the bearing (shaft vibration) and shaft position (probe gap or thrust position). Combining the input from these signals with other measurements, Bently Nevada monitoring and diagnostic equipment allows one to trend machinery behavior, determine corrective action, and manage machinery assets.

Many machines have characteristics that limit the use of our standard 3300 XL 5 mm and 8 mm Transducer System. In some small machines, the allowable counterbore, side view, or rear view required for the specific installation is less than the minimum requirements of the 3300 XL system. For others, the rotor or target area is smaller than recommended, and still another limitation may be that the probe locations have less than the spacing necessary to prevent cross-talk.

In these instances, the most common alternative is to use the 3300 NSv™ probe. With its smaller eddy current field, the effects of small targets, limited spacing

around the probe tip, and cross-talk are reduced. We are now pleased to announce two new transducer systems that utilize the 3300 NSv™ probe.

The **3300 XL NSv™ Transducer System** consists of a 3300 XL NSv™ Proximitor® Sensor, and either a 3300 NSv™ or our previous 3300 RAM probe, and extension cable. Having many of the same benefits as the 3300 XL 5 mm and 8 mm Transducer, it should be utilized in applications involving 3500 Series or 3300 Series Monitoring Systems. It is available in either a 5-metre or a 7-metre total system length.



Also receiving inputs from either 3300 NSv™ or 3300 RAM probes and extension cables is the **170150 Internal 3300 NSv™ Dual Proximity Transducer Module**. Designed for use with the 1701 FieldMonitor™ Monitoring System, it is available in a 7-metre system length.

## Machinery Applications

The 3300 XL NSv™ Proximity Transducer System and 1701 Internal 3300 NSv™ Proximity Transducer Module are primarily used in centrifugal air compressors, small process gas compressors, refrigeration compressors, and other machines with tight installation requirements. They replace both the 3300 RAM Transducer and the 3000 Series 190 Proximity Transducer Systems. Each has a standard scale factor of 7.87 V/mm (200 mV/mil), consistent with most industrial vibration monitoring systems. The NSv™ probe is our most accurate for measuring radial vibration on shafts as small as 30 mm (1.2 in). Due to its reduced sensing area, counterbores and flat targets as small as 13 mm (0.5 in) can be measured with minimal effect on the scale factor.

3300 NSv™ probes are available armored and unarmored and with 1/4-28, 3/8-24, M8, and M10 standard probe thread options as well as 3/8-24 and M10 reverse-mount options.

### Probe and Extension Cable Improvements

The 3300 NSv™ Proximity Transducer System has many improvements compared to the 3300 RAM Transducer System. A change in the PPS mold design and the addition of an internal pressure seal make the NSv™ probe **more chemically resistant** than the 3300 RAM probe, thus allowing its use in most environments where process chemicals are present. Gold-plated brass ClickLoc™ connectors allow probe-to-cable and cable-to-Proximito™ Sensor connections to be made without using special tools; they also reduce maintenance costs by eliminating troublesome intermittent connections. Armored cable on proximity probes is now welded onto the probe case, which is a more reliable method of securing the armor to the probe.

The 3300 NSv™ probe is now available with either 5- or 7-metre probe lengths, eliminating the need for an extension cable for applications where a separate cable is undesirable. Additionally, 3300 NSv™ Probes and Extension Cables can have optional connector protectors installed at the factory. These new 75-ohm coaxial protectors can also be obtained separately, for installation situations requiring the probe or cable be routed through conduit prior to connector protector installation.

### 3300 XL NSv™ Proximito™ Sensor Features

Our previous transducer systems, including the 3300 RAM, required that the probe, extension cable, and field wiring to the monitor be installed in hardline or shielded conduit in order to meet the stringent radiated and conducted Radio Frequency Interference (RFI) requirements associated with attaining the European CE mark. The CE mark also requires that our previous 3300 Series Proximito™ Sensors (including the 3300 RAM) are installed in an Electromagnetic Interference (EMI)-shielded enclosure with a cover. The 3300 XL NSv™ Transducer System is designed such that RFI has minimal effect on the circuit – to such an extent that shielding is no longer required on any part of the transducer system or field wiring for CE compliance. This resistance to RFI also prevents radio signals (such as those from hand-held two-way radios or cellular phones) from generating false vibration signals when used near the Proximito™ Sensor. Still, some type of

instrumentation housing and conduit should be used for most installations to protect the transducer system from the environment.

The optional DIN-style mounting configuration for the 3300 XL NSv™ Proximito™ Sensor enables one to snap the Proximito™ Sensors onto a 35mm DIN-rail quickly and easily. This saves installation time and space, since twice as many Proximito™ Sensors fit into the same area as our previous transducers. A traditional panel-mount configuration is also available with the same spacing for screws as our previous 3300 and 7200 Series Proximito™ Sensors.

### 170150 Internal 3300 NSv™ Proximity Transducer Module

The 1701 Proximity Transducer Modules have the unique ability to accept two separate transducer signals into one module. They work with the 1701 FieldMonitor™, which is primarily used when vibration monitoring/protection systems are integrated with machine control systems using distributed I/O over appropriate networks. The 1701 FieldMonitor™ System combines the Internal Proximito™ Sensor into a common housing with the monitoring system, eliminating expensive field wiring between the two components. The thin mounting package allows one to combine numerous Proximito™ Modules and Monitor Modules into a common housing. Because 1701 Monitoring Systems are most commonly installed very near to the machine skid, a large number of Proximito™ Modules can be installed into the 1701 Monitoring System housing.

### Compatibility

Components of the 3300 XL NSv™ Transducer System and 170150 Internal 3300 NSv™ Proximity Transducer Module are only compatible with 3300 NSv™ or 3300 RAM components. All NSv™ components are color-coded gray, as well as the shrink tubing near the probe and extension cable connectors (3300 RAM probes and extension cables were gray throughout the length of the cable). The 3300 NSv™ Proximito™ Sensor and 170150 NSv™ Proximity Module also have gray-colored labels, to easily identify them as NSv™ components.

The 3300 XL NSv™ Proximito™ Sensor is fully compatible with 3500 and 3300 Monitoring Systems. Choose the 3300 RAM or 3300 RAM/NSv™ options for these monitoring systems. [↻](#)