Bently Nevada 3300/20-01-01-02-01-00

01 Axial-position measurement architecture

Two independent measurements of one mechanical clearance

The monitor receives proximity-system gap signals and presents the axial position of a shaft relative to its thrust-bearing clearance. A probe observing the thrust collar measures the relationship that matters to the bearing. The second channel provides a separate measurement of the same collar or shaft rather than a substitute estimate from another machine surface.

Selected monitor and input arrangement

Technical item	Configuration
Measurement channels	2 independent axial-position channels
Position scale	25-0-25 mils
Selected transducer sensitivity	200 mV/mil (approximately 8 V/mm)
Signal input impedance	10 kΩ
Nominal consumption	1.5 W
Signal-conditioning accuracy at +25 °C	±0.33% full-scale typical; ±1% maximum
Recorder output selections	4–20 mA; 1–5 V DC; 0 to -10 V DC
Current recorder load	0–600 Ω

Signal paths

Position indication
Each channel has its own displacement indication and normal/counter-thrust direction.

Machine protection
Alert and Danger settings act on the interpreted position signal.

Recorder interface
A separate proportional output for each channel supports an external recording system.

Diagnostic access
Front coaxial and rear terminal buffered signals permit access to each transducer signal.

Sensitivity is a conversion setting

This selection uses 200 mV/mil, expressed as 8 V/mm in the monitor specification. A receiving channel with the wrong sensitivity can display a believable but incorrectly scaled position. The installed proximity system and the monitor conversion must therefore be assessed together.

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02 Scale, accuracy and recorder loading

Measurement and output limits

Characteristic	Value or condition
Selected axial scale	25-0-25 mils
Signal-conditioning accuracy at +25 °C	±0.33% full scale typical; ±1% maximum
Recorder modes	4–20 mA; 0 to -10 V DC; 1–5 V DC
4–20 mA additional error at +25 °C	±0.7% of signal plus ±0.09 mA offset
1–5 V additional error at +25 °C	±1.1% of signal plus ±10 mV offset
0 to -10 V additional error at +25 °C	±1.1% of signal plus ±15 mV offset
Voltage-output impedance	100 Ω; minimum receiving load 10 kΩ
Current-output load	0–600 Ω; 0–12 V compliance

Keep the accuracy terms separate

Recorder accuracy is additional to the signal-conditioning accuracy. The LCD resolution, alarm repeatability and recorder error are different characteristics and should not be presented as one interchangeable accuracy number. Compare the complete path used by the measurement: local display, alarm function or external recorder.

Reading the interface correctly

Current loop
Account for the combined receiving-loop resistance when checking the 600 Ω limit.

Voltage recorder
A lower receiving impedance than 10 kΩ falls outside the stated load condition.

Buffered transducer
This access point carries the transducer signal, not the selected recorder scaling.

Shorted recorder
A short circuit on a recorder output does not affect monitor operation.

Supply allocation

The rack power supply selects -24 V DC or -18 V DC for transducers. Current limiting is on the individual monitor board. This transducer supply selection is separate from the recorder-output mode and does not define the recorder load capability.

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03 Alarm decisions and indication behavior

Alarm and display functions

Function	Selected or available characteristic
Alert / Danger direction	Normal and counter-thrust
Setpoint adjustment	0–100% of full scale
LCD setting resolution	±1.6% of full scale
Alarm repeatability	Within 0.39% of full scale
Delay choices	0.1, 1, 3 or 6 seconds
Alarm-relay hardware	Hermetically sealed
Barrier configuration	None
Display construction	Two independent 63-segment LCD indicators

Two-out-of-two decision

A failed or out-of-range probe can look like a position excursion because the monitor derives position from gap voltage. Using two probes observing the same collar or shaft and requiring both to cross the relevant setpoints reduces the vulnerability to a false thrust trip. Voting behavior must be checked with the actual relay configuration.

Interpreting front-panel states

Steady green OK
The associated measurement channel is in its normal OK state.

Flashing OK at 5 Hz
Stored error information is being indicated.

Flashing red alarm
First Out is enabled and identifies the alarm sequence; Alert and Danger indications are independent.

Red BYPASS
A Danger Bypass or Rack/Channel Bypass condition is present.

Separate contact state from alarm state

Normally energized or de-energized relay operation, Alert latching, Danger latching and voting are configuration choices. A relay contact reading must be interpreted with those settings, the current alarm state and any bypass condition. The contact enclosure type alone does not specify the logic.

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04 Questions about the selected configuration

Technical questions 1–4

Why can a failed probe produce a thrust alarm on 3300/20-01-01-02-01-00?
The monitor derives position from probe gap voltage. A failed or out-of-range transducer can resemble shaft movement; two probes observing the same collar with AND voting reduce this vulnerability.

Can 3300/20-01-01-02-01-00 alarm for movement on both sides of the zero position?
Yes. Both Alert and Danger functions have normal and counter-thrust settings, adjustable from 0 to 100% of the selected full-scale range.

What does the hermetically sealed relay selection change on 3300/20-01-01-02-01-00?
It specifies the alarm relay hardware. The monitored position range remains 25-0-25 mils, and the dual-channel alarm logic still needs to be configured for the application.

How much input-voltage change represents 10 mils of movement on 3300/20-01-01-02-01-00?
At the selected 200 mV/mil sensitivity, 10 mils corresponds to a 2 V signal change. This is a calculated conversion; use the actual transducer polarity and normal-thrust setting to determine the indicated direction.

Environmental and rack boundaries

Boundary	Requirement
Operating ambient	0 to +65 °C
Storage temperature	-40 to +85 °C
Humidity	95%, noncondensing
Rack position	Any supported monitor position except slots 1 and 2
Input impedance	10 kΩ
Nominal monitor consumption	1.5 W

Assess the assembled channel

A correct monitor selection does not by itself establish the usable axial travel. The probe operating gap, transducer linear range, collar position and selected display scale must allow the machine movement that the protection system is intended to detect. Check both ends of the planned movement rather than only the zero indication.

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05 Output, alarm and diagnostic questions

Technical questions 5–8

If a recorder circuit shorts, will 3300/20-01-01-02-01-00 lose its monitoring function?
No. Monitor operation is unaffected by short circuits on the recorder outputs. Investigate the recorder wiring separately from the monitor and transducer functions.

How much load can the 4–20 mA output of 3300/20-01-01-02-01-00 drive?
The stated load range is 0–600 Ω, with 0–12 V compliance across the load. Include the complete receiving-loop resistance when assessing the connection.

Which alarm-delay choices are available on 3300/20-01-01-02-01-00?
Plug-in jumpers select 0.1, 1, 3 or 6 seconds. Check the installed delay rather than assuming it from the relay type or full-scale range.

What does a flashing Alert or Danger indicator identify on 3300/20-01-01-02-01-00?
A flashing alarm LED indicates First Out when that function is enabled. Alert and Danger First Out indications are independent.

A recorder trend and a protection channel serve different purposes

A smooth recorder trace can coexist with an unsuitable alarm configuration. Review the measurement conversion, setpoint direction, voting and contact behavior independently. When diagnosing a discrepancy, compare the gap signal, local indication and recorder output at the same stable mechanical condition.

Other Bently Nevada measurement components

Bently Nevada 330103-00-05-10-01-00

Bently Nevada 330103-08-15-10-02-00

Component selection boundary

The linked products are separate measurement components. Their thread, cable system, sensitivity, power and installation constraints require their own engineering review. A related product link does not establish automatic interchangeability with the installed thrust channel.