Bently Nevada 3300/20-12-01-01-00-00

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	1.0-0-1.0 mm
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	1.0-0-1.0 mm
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	Epoxy 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

How is normal thrust direction assigned independently on 3300/20-12-01-01-00-00?
Each channel can be programmed for normal movement toward or away from its probe. Verify the indicated direction against a controlled physical movement of the target.

What input impedance does 3300/20-12-01-01-00-00 present to its proximity signal sources?
The signal input impedance is 10 kΩ. Use the intended Proximitor output and preserve the supply, common and signal connections for each channel.

Which transducer sensitivity matches the selected input in 3300/20-12-01-01-00-00?
The selected 3300 or 7200 Proximitor input uses 200 mV/mil, approximately 8 V/mm. The monitor can support another sensitivity configuration, but it must not be assumed for this selected input.

Can 3300/20-12-01-01-00-00 provide a voltage recorder signal instead of 4–20 mA?
Yes. Recorder outputs can be configured for 4–20 mA, 1–5 V DC or 0 to -10 V DC. Match the receiver input and scaling to the selected mode.

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

What load is required for a voltage recorder output from 3300/20-12-01-01-00-00?
The minimum receiver load resistance is 10 kΩ. The voltage output impedance is 100 Ω; verify the connected receiver rather than applying the current-loop load rule.

How repeatable are the alarm settings in 3300/20-12-01-01-00-00 after adjustment?
Once set, alarms are repeatable within 0.39% of full-scale. The LCD setting resolution is approximately ±1.6% of full-scale, which is a different specification from repeatability.

Where may 3300/20-12-01-01-00-00 be installed within a 3300 rack?
It occupies one monitor position other than positions 1 and 2, which are reserved for the power supply and system monitor. Confirm the associated rear interface and field wiring for that position.

Is a dark OK LED on 3300/20-12-01-01-00-00 enough to identify a failed transducer?
No. A dark OK LED can indicate a NOT OK condition or a bypassed channel. Check the red Bypass indication and the signal condition before diagnosing the transducer.

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 330104-00-24-10-02-00

Bently Nevada 330130-045-03-05

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.