# Bently Nevada 330500-02-01

Complete Product Information

Bently Nevada 330500-02-01 is a solid-state piezo-velocity sensor for absolute bearing-housing, casing or structural vibration. Its selected mounting and configuration suffix must agree with the delivered marking.

## 01 Product identity and verified data

| | |
|---|---|
| **Complete model** | 330500-02-01 |
| **Product type** | Velomitor piezo-velocity sensor |
| **Manufacturer** | Bently Nevada |
| **Technical source** | Bently Nevada 330500 Velomitor Piezo-velocity Sensor Datasheet, 141632 Rev. V |
| **Measurement** | Absolute bearing-housing, casing or structural vibration |
| **Sensitivity** | 3.94 mV/mm/s (100 mV/in/s) +/-5% |
| **Frequency response** | 4.5 Hz to 5 kHz, +/-3 dB |
| **Precision frequency band** | 6 Hz to 2.5 kHz, +/-0.9 dB |
| **Velocity range** | 1270 mm/s (50 in/s) peak |
| **Amplitude linearity** | +/-2% to 152 mm/s (6 in/s) peak |
| **Mounted resonant frequency** | >12 kHz |
| **Output bias voltage** | -12 +/-3 V DC |

## Engineering purpose

330500-02-01 combines a piezoelectric sensing element with embedded integration electronics to produce a velocity-proportional signal from absolute machine-casing vibration. It is applied on rigid bearing housings, casings or structural points connected to a compatible current-limited vibration monitor input.

## Selected order-code snapshot

| | |
|---|---|
| **Measurement role** | Absolute vibration from a piezoelectric element with embedded velocity integration. |
| **Selected mounting** | M8 x 1 mounting adapter; mounting surface and torque govern high-frequency coupling. |
| **Electrical output** | 3.94 mV/mm/s sensitivity with -12 +/-3 V DC output bias. |

## 02 Technical capability and engineering overview

| | |
|---|---|
| **Dynamic output impedance** | <2400 ohm |
| **Broadband noise floor** | 0.004 mm/s rms nominal |
| **Maximum signal cable length** | 305 m under stated cable conditions |

| | |
|---|---|
| **Operating temperature** | -55 to +121 deg C |
| **Case material** | 316L stainless steel |
| **Connector** | 2-pin MIL-C-5015, hermetically sealed |
| **Mounting torque** | 32 to 46 kg cm maximum |
| **Sensor diameter** | 25.3 mm |
| **Sensor height** | 63.2 mm |
| **Typical sensor mass** | 142 g |
| **Mounting adapter selection** | M8 x 1 mounting adapter |
| **Approval/configuration marking** | CSA/US/C approval |

## Evidence boundary

Exact order fields are decoded only where the cited manufacturer ordering table supports them. System performance values apply to the complete matched transducer chain under the stated reference conditions.

## Engineering overview

330500-02-01 integrates a piezoelectric acceleration signal inside a solid-state 316L stainless-steel sensor to provide velocity-proportional output for absolute machine-housing vibration.

The selected m8 x 1 mounting adapter must be seated on a rigid prepared surface. Preserve connector polarity, cable support and the monitor current-limiting arrangement, and keep mounting torque within 32 to 46 kg cm.

Published sensitivity and frequency response assume the stated loading and mounting conditions. Final acceptance should compare the installed velocity response with the established machine baseline across a controlled operating state.

## Application map

**Radial shaft vibration**

Use a documented bearing location and matched transducer chain to measure shaft motion relative to the probe mounting.

**Axial position**

Aim the probe at an approved conductive thrust target and keep the full expected travel inside the characterized working region.

**Phase or speed reference**

Use only with an approved once-per-turn target feature and a monitoring channel configured for phase or speed reference.

**Installed-channel maintenance**

Preserve the exact probe, cable, Proximitor, mounting geometry and machine baseline recorded for the existing channel.

## 03 Installed-chain controls and precautions

## Interpretation boundaries

| | |
|---|---|
| **Probe-only limit** | Do not present complete-system range, scale or linearity as a standalone output of 330500-02-01. |
| **Target influence** | Material, geometry, finish and nearby conductive surfaces can change the installed response. |

| | |
|---|---|
| **Length influence** | Probe lead and extension cable form part of the calibrated electrical relationship. |
| **Temperature influence** | Apply component temperature limits at their actual locations and compare with process transients. |
| **Mechanical influence** | Thread engagement, rigidity, target travel and cable support affect repeatability and service life. |
| **Acceptance rule** | Use the approved machine baseline and maintenance procedure for the final as-left decision. |

## Installed-chain controls

| | |
|---|---|
| **Installed drawing** | Record the drawing, machine location and channel designation that govern 330500-02-01. |
| **Probe marking** | Capture the complete order identity and any tag or revision visible on the delivered item. |
| **Mechanical reference** | Record thread or sleeve datum, insertion depth, lock position and expected target travel. |
| **Cable identity** | Confirm lead construction, connector condition, routing, strain relief and electrical-length relationship. |
| **Companion electronics** | Record the matching extension cable, Proximitor or signal conditioner and monitor channel. |
| **Target condition** | Confirm target material, width, runout surface and clearance from nearby conductive material. |
| **Static baseline** | Record stopped-machine gap or bias and compare it with the approved maintenance baseline. |
| **Operating baseline** | Record monitor indication and expected response after the complete channel is returned to service. |

## Product precautions

**Confirm the complete marking**

Match every field of 330500-02-01 with the installed spare-parts record before removal or installation.

**Protect the sensing face**

Keep the probe tip, connector and cable free from impact, moisture, metal chips and unsupported loading.

**Preserve the mechanical datum**

Record reach, thread engagement, lock position and target relationship before disturbing the installed component.

**Control the cable route**

Maintain the approved bend radius, separation and strain relief; do not twist, kink or crush the coaxial path.

**Restore the operating point**

Use the approved stopped-machine procedure to restore gap or bias and verify expected target travel.

**Prove the complete channel**

Verify the as-left electrical reading, monitor indication and operating response before return to service.

## 04 Installation, diagnostics and engineering decisions

| | |
|---|---|
| **01 Isolate** | Place the monitored machine and channel in the approved maintenance state; prove the required isolation. |
| **02 Photograph** | Capture 330500-02-01, the installed datum, connector, route and companion-component markings. |
| **03 Measure** | Record mechanical position and the applicable stopped-machine electrical reading before removal. |
| **04 Compare** | Check delivered identity, interfaces and evidence against the approved drawing and spare-parts record. |
| **05 Install** | Fit without twisting the lead; preserve thread engagement, target clearance, bend radius and strain relief. |
| **06 Set point** | Establish the operating gap or datum only with the approved stopped-machine procedure. |

| | |
|---|---|
| **07 Prove** | Compare local reading, monitor indication and controlled operating response with the accepted baseline. |
| **08 Handover** | Record as-left values, photographs, deviations, responsible technician and release approval. |

## Engineering questions

| | |
|---|---|
| **Where should 330500-02-01 be mounted?** | Use a rigid, prepared bearing-housing, casing or structural location that transfers the vibration of interest; avoid thin covers, flexible brackets and painted or uneven surfaces. |
| **How should the mounting interface of 330500-02-01 be prepared?** | Confirm the selected m8 x 1 mounting adapter, clean and flatten the mounting surface, apply the approved installation method, and keep torque within 32 to 46 kg cm. |
| **What electrical checks apply to 330500-02-01?** | Confirm the current-limited input and polarity, record the unloaded bias, inspect the 2-pin MIL-C-5015 connector, and keep field cable loading within the documented channel design. |
| **How should the response of 330500-02-01 be accepted?** | Compare the local velocity reading and monitor indication at a controlled operating state with the approved machine baseline; investigate resonance, loose mounting or cable motion before release. |
| **What evidence should be captured before removing 330500-02-01?** | Photograph the complete 330500-02-01 marking, installed datum, connector, cable route and companion electronics. Record the stopped-machine baseline for the Velomitor piezo-velocity sensor. |
| **How should connector integrity be checked on 330500-02-01?** | Isolate the channel, inspect the coaxial contacts for moisture and damage, verify continuity only with an approved method, and provide strain relief so the connector carries no cable load. |
| **What commissioning record is required for 330500-02-01?** | Retain the exact markings, mechanical datum, companion-component identities, as-left gap or bias, monitor indication and the accepted operating response. |
| **When should 330500-02-01 be withheld from service?** | Do not release the channel if the complete identity, mechanical fit, cable construction, connector, approval marking or measured response differs from the approved installed record. |

## 05 Escalation and as-left record

## Technical notes

| | |
|---|---|
| **Installation relationship** | Use the selected m8 x 1 mounting adapter on a rigid bearing-housing or casing surface; flexible brackets can attenuate or distort the response. |
| **Electrical boundary** | The sensor incorporates embedded electronics and requires the documented current-limited monitor input, cable loading and polarity. |
| **Technical reference** | Bently Nevada 330500 Velomitor Piezo-velocity Sensor Datasheet, 141632 Rev. V. |

## Escalation triggers

| | |
|---|---|
| **Identity conflict** | Stop if the complete marking, suffix, revision or approval identity differs from the approved record. |
| **Host mismatch** | Escalate if the rack, carrier, backplane, terminal unit or controller assignment is not documented for 330500-02-01. |
| **Interface damage** | Do not energize with bent contacts, damaged insulation, loose retainers, contamination or heat discoloration. |
| **Environmental breach** | Review any exposure beyond the documented temperature, vibration, humidity, contamination or enclosure boundary. |
| **Unapproved substitution** | Do not transfer ratings or compatibility from an adjacent order code without manufacturer evidence. |
| **Configuration conflict** | Stop if hardware settings, firmware, channel assignment or project configuration disagree with the installed record. |
| **Unstable measurement** | Investigate noise, drift, intermittent status or inconsistent readings before replacing another component. |

| | |
|---|---|
| **Failed functional proof** | Keep the asset in the approved maintenance state until the complete acceptance sequence is passed and recorded. |

## As-left verification worksheet

| | |
|---|---|
| **Exact delivered marking** | 330500-02-01; photograph and record any additional label detail. |
| **Installed asset reference** | Machine, bearing, train, channel and drawing identifiers. |
| **Mechanical as found** | Reach, lock position, gap reference, cable route and connector support. |
| **Static reading as found** | Gap, bias, continuity or channel value appropriate to the installed system. |
| **Companion identities** | Extension cable, Proximitor or conditioner and monitor channel markings. |
| **Mechanical as left** | Final reach, lock position, target clearance and route protection. |
| **Static reading as left** | Final gap, bias, continuity or channel value with test conditions. |
| **Operating proof** | Monitor response and machine observation accepted by the responsible authority. |
| **Deviation record** | Any difference from drawing or baseline, disposition and approval reference. |
| **Release signatures** | Technician, reviewer, operations owner and date. |

# 06 Evidence, lifecycle and offered scope

## Evidence package

| | |
|---|---|
| **Nameplate evidence** | Overall and close photographs showing 330500-02-01, revision, approval and serial details where present. |
| **Installation evidence** | Views of the rack position, mechanical datum, terminal assignment, cable route and strain relief. |
| **Configuration evidence** | Export or screenshots identifying the approved hardware assignment and parameters without exposing credentials. |
| **Baseline evidence** | As-found readings with units, test conditions, machine state and the instrument used. |
| **Inspection evidence** | Connector, contact, insulation, fastener, contamination and heat-condition observations. |
| **Functional evidence** | As-left readings and the controlled input, output or channel response used for acceptance. |
| **Change evidence** | Any wiring, setting, firmware or mechanical change linked to its approved work reference. |
| **Release evidence** | Technician, reviewer, date, asset reference and the maintenance-record location for traceability. |

## Lifecycle status

| | |
|---|---|
| **Exact order identity** | 330500-02-01 is a M8 x 1 mounting adapter Velomitor configuration; the complete suffix must remain in the spare-parts and installed-asset record. |
| **Installed-base support** | Retain the mounting adapter, approval or legacy configuration marking, connector, monitor input and machine baseline used by the existing velocity channel. |
| **Replacement boundary** | A 330500 variant with another adapter or approval/configuration suffix requires a fresh mechanical, electrical and documentation review. |

## Available unit details

| | |
|---|---|
| **Offered sensor** | One 330500-02-01, configured as a M8 x 1 mounting adapter Velomitor configuration. |
| **Selected interface** | M8 x 1 mounting adapter; 2-pin hermetically sealed MIL-C-5015 connector. |
| **Separate components** | Signal cable, mounting stud or adapter not integral to the selected code, monitor and field wiring are separate unless itemized in the quotation. |

## Additional related product references

| | |
|---|---|
| **Related product** | Bently Nevada 84661-96 |
| **Related product** | Bently Nevada 330102-00-28-10-02-05 |
| **Related product** | Bently Nevada 330104-00-16-10-02-00 |
| **Related product** | Bently Nevada 330500-00-01 |

## 07 Release and engineering support

## Engineering contact

Discuss the exact marking and installed application with Apter Power.
sales13@apterpower.com | +86 18030235313

## Evidence quality controls

| | |
|---|---|
| **Traceability** | Each value is tied to 330500-02-01, the asset location, test state, instrument and date. |
| **Repeatability** | The same approved method and comparable operating state are used for before-and-after readings. |
| **Resolution** | Recorded precision does not exceed the capability of the instrument or source document. |
| **Reference state** | Stopped, energized, loaded and process-running observations are clearly distinguished. |
| **Change control** | Every changed setting, connection or mechanical datum has an approved reason and reviewer. |
| **Retention** | Evidence remains accessible with the maintenance record for future troubleshooting and replacement review. |

## Release checklist

| | |
|---|---|
| **Identity accepted** | Complete marking agrees with the approved order and installed record. |
| **Interfaces accepted** | Mechanical fit, connector, cable and companion electronics match the documented chain. |
| **Static proof accepted** | Gap, bias and monitor indication have been recorded under the approved stopped-machine method. |
| **Operating proof accepted** | The returned channel response agrees with the accepted machine baseline. |