# Bently Nevada 330500-04-01

Engineering Installation, Diagnostic and Acceptance Guide

Bently Nevada 330500-04-01 is a solid-state piezo-velocity sensor for absolute bearing-housing, casing or structural vibration.

## 01 Job scope and identity

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| **Complete model** | 330500-04-01 |
| **Product type** | Velomitor piezo-velocity sensor |
| **Manufacturer** | Bently Nevada |
| **Technical source** | Bently Nevada 330500 Velomitor Piezo-velocity Sensor Datasheet, 141632 Rev. V |

## Field decisions

**1 Establish identity**

Capture the full marking, installed companion components and baseline before disconnection.

**2 Inspect interfaces**

Verify mounting, cable, connector, armor, approval and environmental boundaries.

**3 Fit the exact chain**

Preserve the documented probe-cable-Proximitor or sensor-monitor relationship.

**4 Prove response**

Use the approved stopped-machine and operating acceptance procedure.

**5 Record as left**

Save markings, configuration, test values and operating observations.

## Installation relationships

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| **Installation relationship** | Use the 1/4-20 unc mounting adapter on a rigid bearing-housing or casing surface; flexible brackets can attenuate or distort response. |
| **Electrical boundary** | The embedded electronics require the documented current-limited monitor input, cable loading and polarity. |
| **Technical reference** | Bently Nevada 330500 Velomitor Piezo-velocity Sensor Datasheet, 141632 Rev. V. |

## Pre-work evidence

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| **Installed drawing** | Record the approved cabinet, rail, slot, terminal, cable and system references that govern 330500-04-01. |
| **Complete marking** | Capture the complete order identity and every revision or approval marking on the delivered item. |
| **Mechanical reference** | Record mounting position, fasteners, connector orientation, access clearance and support points. |
| **Electrical interfaces** | Confirm supply, signal, bus, terminal and protective-conductor assignments against the installed drawing. |
| **Configuration state** | Record jumpers, switches, addresses, firmware or project settings that apply to this hardware. |

## 02 Pre-installation readiness

## Model-specific installation decisions

**Exact identity**

330500-04-01 and every delivered revision or approval marking must be recorded before removal.

**Installed system**

330500 Velomitor piezo-velocity sensor family companion components, channel assignment and approved machine reference must remain traceable.

**Mechanical baseline**

Record the as-found mounting datum, reach, lock position, target clearance, routing and connector support.

**Electrical baseline**

Record the applicable stopped-machine gap, bias, continuity or channel value together with test conditions.

**As-left configuration**

Document the final mechanical position, cable protection, connector condition and complete companion-component identities.

**Functional release**

Compare the final monitor indication and controlled operating response with the approved baseline before handover.

## Installation precautions

### Confirm the complete marking

Match every field of 330500-04-01 with the installed spare-parts and channel records.

### Protect the sensing face

Prevent impact, metal-particle contact and contamination at the probe tip during handling.

### Preserve the mechanical datum

Record thread engagement, reach, lock position, target relationship and as-found gap or bias before removal.

### Control the cable route

Maintain the approved bend radius, connector protection and independent strain relief; do not twist the probe lead.

### Restore the operating point

Use the approved stopped-machine procedure to restore the documented gap or bias.

### Prove the matched channel

Verify as-left electrical indication and controlled machine response against the accepted baseline.

## Companion and baseline records

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| **Companion hardware** | Record the connected drive, rack, motor, transducer, I/O base or control unit as applicable. |
| **As-found baseline** | Capture relevant voltages, currents, states, counts, fault history or channel response before removal. |
| **Operating baseline** | Record the controlled functional result after the complete system is returned to service. |

## Pre-installation release gates

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| **Identity gate** | The delivered marking is 330500-04-01 and all visible revision or approval details have been photographed. |
| **Drawing gate** | The installed asset, channel, mounting reference and companion-component assignments are identified on the approved record. |
| **Mechanical gate** | Mounting surface, thread or support points, access clearance and target relationship are suitable for the selected configuration. |
| **Interface gate** | Connector, conductor, shield, terminal and protective-conductor condition have been inspected before connection. |
| **Route gate** | Cable or lead routing preserves bend radius, strain relief, contamination protection and separation from damaging surfaces. |
| **Baseline gate** | The applicable stopped-machine reading and operating observation have been captured with units and test conditions. |

# 03 Installation and commissioning

## Controlled installation sequence

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| **01 Isolate** | Place the monitored machine and channel in the approved maintenance state; prove the required isolation. |
| **02 Photograph** | Capture 330500-04-01, 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. |

## Commissioning acceptance criteria

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| **Mechanical fit** | Absolute vibration from a piezoelectric element with embedded velocity integration. Confirm the installed datum and available target travel before final tightening. |
| **Lead or interface fit** | 1/4-20 UNC mounting adapter; rigid surface preparation and torque govern high-frequency coupling. Inspect the mating interface and provide independent route support. |
| **System position** | The offered item uses the 1/4-20 unc mounting adapter; mounting stiffness, connector, current-limited input and machine baseline govern application. |
| **As-found reference** | Record the applicable stopped-machine reading and the exact companion-component identities before disconnection. |
| **Static acceptance** | Restore the documented gap, bias, continuity or channel value with the machine in the approved test state. |

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| **Functional acceptance** | Compare local indication, monitor response and the controlled operating observation with the accepted machine baseline. |
| **Deviation control** | Withhold release when the delivered marking, mounting datum, interface, system length or response differs from the approved record. |
| **Release evidence** | Retain the complete marking, test conditions, measured results, photographs, reviewer and maintenance-record reference. |

## Acceptance test points

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| **After mechanical fit** | Record final mounting datum, engagement, lock position, target clearance and route support. |
| **After interface connection** | Confirm contact seating, conductor or shield assignment and continuity or bias as applicable. |
| **Before energization** | Reconcile companion identities, total chain configuration and monitor or collector channel assignment. |
| **Initial energized state** | Observe the local channel value and status without declaring acceptance from open-circuit voltage alone. |
| **Controlled functional proof** | Compare the returned indication and machine response with the approved operating baseline. |
| **Final record** | Attach photographs, measured values, deviations, approvals and the maintenance-record location. |

# 04 Diagnostics and escalation

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| **Where should 330500-04-01 be mounted?** | Use a rigid, prepared bearing-housing, casing or structural location that transfers the vibration of interest; avoid flexible covers, brackets and uneven surfaces. |
| **How should the mounting interface of 330500-04-01 be prepared?** | Confirm the 1/4-20 unc mounting adapter, clean and flatten the surface, apply the approved installation method and keep torque within 32 to 46 kg cm. |
| **What electrical checks apply to 330500-04-01?** | Confirm the current-limited input and polarity, record the unloaded bias, inspect the 2-pin connector and keep field cable loading within the documented design. |
| **How should the response of 330500-04-01 be accepted?** | Compare the local velocity reading and monitor indication at a controlled operating state with the approved machine baseline. |

## Additional diagnostic decisions

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| **What frequency range is documented for 330500-04-01?** | The manufacturer gives 4.5 Hz to 5 kHz at +/-3 dB and a 6 Hz to 2.5 kHz precision band at +/-0.9 dB under stated conditions. |
| **What output bias is expected from 330500-04-01?** | Use the compatible current-limited input and compare the measured bias with the documented -12 +/-3 V DC boundary before interpreting vibration output. |
| **When should 330500-04-01 be withheld from service?** | Do not release the channel if mounting stiffness, connector condition, bias, polarity or controlled response differs from the approved record. |
| **What as-left record should accompany 330500-04-01?** | Retain the complete marking, mounting adapter, torque method, connector and cable condition, bias voltage, local velocity reading and monitor response. |

## Escalation triggers

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| **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 330500-04-01. |
| **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. |

# 05 Handover and evidence package

## As-left verification worksheet

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| **Exact delivered marking** | 330500-04-01; photograph and record any additional label detail. |

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| **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. |

## Evidence quality controls

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| **Traceability** | Each value is tied to 330500-04-01, 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. |

## Model-specific application limits

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| **Bias acceptance** | Record the current-limited input and confirm -12 +/-3 V DC output bias before interpreting vibration. |
| **Velocity sensitivity** | Compare the controlled response with 3.94 mV/mm/s (100 mV/in/s) under the stated loading. |
| **Frequency boundary** | Use 4.5 Hz to 5 kHz at +/-3 dB; the precision band is 6 Hz to 2.5 kHz at +/-0.9 dB. |
| **Mounting proof** | Record the 1/4-20 unc mounting adapter, prepared surface and 32 to 46 kg cm torque method. |
| **Operating proof** | Compare local velocity and monitor indication with the accepted machine baseline. |

## Verified related product references

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| **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 |
| **Related product** | Bently Nevada 330980-70-CN |

## Engineering contact

Discuss the exact marking and installed application with Apter Power.
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