Product and supply scope

Bently Nevada / 21504-000-040-10-02

Bently Nevada

21504-000-040-10-02

Bently Nevada 21504-000-040-10-02 is an 8 mm eddy-current proximity probe for a matched 7200 measuring chain, with standard 3/8-24 mounting and an unarmored integral lead.

Probe + integral lead — Matched extension / Proximitor — Monitor input

Configuration	Selected construction
Base construction	21504
Transducer family	7200 5 mm and 8 mm system
Measurement principle	Noncontact eddy current
Probe tip diameter	8 mm
Mounting configuration	Standard forward mount
Case thread	3/8-24
Lead armor	None

Integration boundary

Confirm the offered probe, integral lead and connector. Extension cable and Proximitor are separate items unless expressly included.

Selection review	Technical basis
Probe construction	The 21504 design uses an 8 mm PPS tip and standard 3/8-24 mounting.
Lead route	The integral lead is unarmored; a protected machine route is required where physical abuse is possible.

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Technical specifications

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Probe construction and matched-system performance are separate. The stated span and sensitivity require the complete calibrated measuring chain.

Parameter	Value
Manufacturer	Bently Nevada
Base construction	21504
Transducer family	7200 5 mm and 8 mm system
Measurement principle	Noncontact eddy current
Probe tip diameter	8 mm
Mounting configuration	Standard forward mount
Case thread	3/8-24
Lead armor	None
Probe-tip material	Polyphenylene sulfide (PPS)
Coaxial cable impedance	95 ohms
Probe and extension temperature	-34 to +177 deg C
Maximum relative humidity	95%; noncondensing
Matched-system calibrated span	2.0 mm (80 mils)
Matched-system nominal scale factor	200 mV/mil (7.87 V/mm)
Matched-system frequency response	DC to 10 kHz; -5% at 10 kHz
Reference target	AISI 4140 steel at +22 deg C

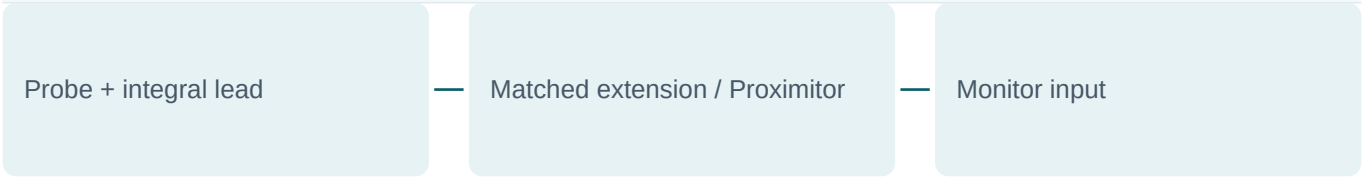
System use and integration

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Operating context

In a shaft-monitoring channel, Bently Nevada 21504-000-040-10-02 places the sensing tip at the target while its coaxial lead carries the radio-frequency signal to a separate conditioner.

Application	Engineering context
Radial shaft motion	Use the matched channel to observe shaft movement associated with bearing condition, rotor imbalance or misalignment.
Axial thrust position	Track static axial displacement in an appropriate thrust-position monitoring arrangement.
Average radial position	Use gap-related output to assess the shaft position and rotor attitude within the bearing.
Eccentricity observation	Measure slow-roll displacement for rotor-bow assessment using the appropriate monitor and reference arrangement.



Channel planning

Retain the complete probe reference with the machine mounting and calibrated channel records.

Maintenance boundary

Review the installed cable and conditioner when planning a hardware change; a common probe family alone does not establish an interchangeable assembly.

Interface review	Technical basis
Electrical length	Probe integral lead plus extension must match the selected total-chain design.
Five-metre system	Use the applicable combined chain with the 18745-03 conditioner.
Nine-metre system	Use the applicable combined chain with the 18745-04 conditioner.

Engineering precautions

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1. Preserve the electrical chain

Match integral lead, extension cable and conditioner to the installed 5 m or 9 m system configuration.

2. Protect the unarmored lead

Avoid physical abuse at the probe junction and cable route. Do not treat the coaxial lead as a power-input cable.

3. Verify the actual mounting

Match the standard 3/8-24 thread and actual case dimensions without altering the complete ordered reference.

4. Check the calibration target

Verify system response with the actual target; AISI 4140 steel is the reference calibration material.

5. Separate thermal zones

Keep the probe/extension within -34 to +177 deg C and the separate Proximitor within -51 to +100 deg C.

6. Keep the chain dry

Respect the 95% noncondensing humidity limit and protect the connector and field wiring from contamination.

Engineering notes

System matching: Keep the probe, extension cable and Proximitor matched as one electrical chain. Verify the installed total length before replacing a component.

Mechanical fit: Match the 3/8-24 interface and actual case geometry. Protect the unarmored lead and retain the complete 21504-000-040-10-02 marking in the assembly record.

Technical reference: Bently Nevada 7200 Proximity Transducer Systems, 5 mm and 8 mm, L5001 (04/90).

Technical questions - configuration

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How does 21504-000-040-10-02 sense a conductive shaft without touching it?

The 7200 Proximitor excites the probe with a radio-frequency signal. Eddy-current losses change as the target moves, and the conditioner converts the returned signal into a gap-related voltage for the monitor.

Which mechanical features distinguish 21504-000-040-10-02 from an armored probe?

The 21504 construction uses an 8 mm tip, standard mounting and a 3/8-24 case thread with no lead armor. Protect the exposed lead against physical damage and verify the actual case geometry at the mounting location.

Why is the measuring-chain length important when fitting 21504-000-040-10-02?

The integral probe lead and extension cable form a combined electrical length matched to the Proximitor. The 18745-03 conditioner is for a 5 m chain and the 18745-04 for a 9 m chain; retain the applicable complete combination.

What does the calibrated span mean for a channel using 21504-000-040-10-02?

The matched 7200 system has an 80 mil, or 2.0 mm, calibrated span beginning approximately 10 mil from the probe face. This is a system measurement range, so mechanical positioning must establish the actual operating gap.

Channel review	Requirement
Identity	Keep the complete 21504-000-040-10-02 marking and compare the actual tip, case and cable route with the installed probe.
Electrical length	Identify the integral lead and extension combination before selecting a 5 m or 9 m Proximitor.
Channel function	Record whether the monitor uses radial vibration, thrust position, average radial position or eccentricity.

Technical questions - service

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How can a different target material change the response of 21504-000-040-10-02?

The reference system calibration uses AISI 4140 steel at +22 deg C with a -24 V DC supply and a 10 kilohm load. A different target changes the electromagnetic coupling, so the installed chain should be checked against its actual target.

Should a DC supply be connected directly to the lead of 21504-000-040-10-02?

The coaxial probe lead connects to the matched measuring chain, not directly to an industrial DC supply. The separate Proximitor receives negative DC power and performs the signal conditioning.

Which component temperature limits apply around 21504-000-040-10-02?

The probe and extension-cable limit is -34 to +177 deg C, while the separate Proximitor limit is -51 to +100 deg C. Locate each component within its own permitted range rather than applying the probe limit to the conditioner.

What protection does the PPS tip of 21504-000-040-10-02 provide in a wet installation?

The 8 mm probe tip uses PPS, and its stated corrosion-resistance performance includes direct contact with water and lubricating oil. The measuring-chain environment still has a 95% noncondensing humidity limit; a robust tip does not make the entire installation submersible.

Related Bently Nevada products

Separate catalogue references for independent selection. These links do not establish compatibility or substitution.

Product reference	Explore
Bently Nevada 21504-0000-012-05-02	View Bently Nevada 21504-0000-012-05-02
Bently Nevada 21504-000-032-10-02	View Bently Nevada 21504-000-032-10-02
Bently Nevada 21504-000-020-10-02	View Bently Nevada 21504-000-020-10-02

Technical reference: Bently Nevada 7200 Proximity Transducer Systems, 5 mm and 8 mm, L5001 04/90.