Bently Nevada 330173-00-03-10-02-CN

01 Prepare the restricted measurement location

Installation objective

Place the 5 mm sensing tip at the intended conductive target without sacrificing electrical clearance or forcing the cable route. The compact M8 x 1 case can fit positions unsuitable for a larger probe body, but the complete measuring system must still be correctly matched.

Before removal or installation

01	Identify the monitored shaft position and preserve its gap voltage and channel settings.
02	Trace the one-metre probe lead to the extension cable and matching conditioner.
03	Measure available thread engagement and check the tapped-hole condition.
04	Inspect the target area for nearby metal, adjacent probes and potential cable abrasion.

Selected hardware checks

Item	Required configuration
Sensing tip	5 mm
Mounting thread	M8 x 1
Unthreaded length	0 mm
Overall case length	30 mm
Integral cable length	1.0 m
Probe cable	75 Ω triaxial, FEP insulation
Cable protection	Unarmored
Connection	Miniature coaxial ClickLoc, standard cable

Keep position and vibration information distinct

The average output represents the static gap; the changing part represents target motion. Record which quantity the receiving channel uses. A satisfactory static reading does not by itself verify the dynamic measurement or the intended alarm response.

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02 Secure the M8 mounting and set the gap

Mounting limits

Check	Limit
Probe case torque	5.1 N·m recommended, 7.3 N·m maximum
M8 x 1 thread engagement	12 mm maximum
Cable bend radius	25.4 mm minimum
Recommended gap	1.27 mm
Linear interval	Approximately 0.25 to 2.3 mm
Tip separation	Generally at least 40 mm axial or 38 mm radial

Avoid binding in a deep threaded hole

A correct M8 pitch does not make unlimited engagement acceptable. Stop if the probe binds and check the fit and engaged length. Do not use extra torque to overcome an unsuitable tapped hole or route the cable by twisting the probe lead.

Set the operating point

01	Position the sensing tip without contacting the target surface.
02	Connect the intended probe, extension cable and Proximitor combination.
03	Observe the output while setting the application gap.
04	Secure the case and verify that tightening has not shifted the final gap.

Allow for the whole motion envelope

The target must remain in the appropriate measuring interval throughout expected displacement. Check both directions of travel. The 5 mm physical tip does not justify closer neighbouring metal or probe spacing than the transducer specification permits.

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03 Assemble and inspect the signal circuit

Cable and connection checks

Check	Reference
One-metre probe resistance	7.59 ±0.50 Ω
Four-metre extension core / jacket resistance	0.88 ±0.13 Ω / 0.26 ±0.05 Ω
Eight-metre extension core / jacket resistance	1.76 ±0.26 Ω / 0.53 ±0.11 Ω
ClickLoc-to-ClickLoc assembly	Finger tight
Maximum connector torque	0.565 N·m
Minimum bend radius	25.4 mm

Make resistance measurements on isolated components

Disconnect the probe or extension from the electronics before checking resistance. For the extension cable, distinguish center-conductor continuity from outer-conductor continuity. The outer conductor is the shield connection, not a mechanical armor layer.

Connection protection

Clean mating surfaces
Keep contamination out of the small coaxial interface.

Locking engagement
Finger-tighten until the ClickLoc connection clicks.

Oil exposure
Use appropriate connector protection; avoid silicone tape in turbine oil.

Mechanical support
Keep tension and sharp bending away from the joint and cable exit.

Continuity does not finish acceptance

A cable can pass a basic continuity check while the assembled channel has the wrong electrical length or transfer characteristic. Reconnect the complete chain and verify output against displacement before returning it to service.

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04 Measure the complete channel response

Reference conditions

Condition	Value
System ambient	18–27 °C
Power supply	-24 V DC reference; allowed -17.5 to -26 V DC
Reference load	10 kΩ
Target material	AISI 4140 steel
Nominal gap	1.27 mm
Nominal sensitivity	7.87 V/mm
Typical incremental tolerance	±6.5%
Typical straight-line deviation	Less than ±0.038 mm

Displacement acceptance

01	Verify supply polarity and voltage at the conditioner under load.
02	Measure the static gap output with the target at the intended operating position.
03	Apply controlled displacement increments and compare the output change.
04	Confirm monitor indication, units, sensitivity and the applicable alarm function.

Use the actual target when necessary

A different target alloy or small shaft can alter the scale factor. Check response on the actual application target when the reference conditions do not represent the installation. Do not assign all-XL 8 mm tolerances to this 5 mm probe channel.

Assess the thermal operating condition

Across -35 to +177 °C probe temperature, the typical scale factor remains within ±10% and straight-line deviation within ±0.076 mm. Those wider limits differ from the room-temperature acceptance values and must not be silently substituted for them.

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05 Resolve faults and restore monitoring

Practical fault isolation

Observation	Technical investigation
Probe binds during installation	Check M8 fit and the 12 mm maximum engagement before applying further torque.
Gap output outside range	Check supply, target position and the full cable/conditioner combination.
Incorrect displacement scale	Check target alloy, shaft size and configured monitor sensitivity.
Intermittent response	Inspect connector locking, cable supports and damaged cable sections.
Adjacent channel interaction	Review tip spacing and surrounding conductive metal.
Oil at the joint	Check the connector-protection arrangement and cable route.

Verify the restored measuring quantity

After a change, compare both the static gap and any required dynamic signal with the intended measurement. A small body can be installed correctly yet still observe the wrong part of the target or leave insufficient movement margin.

Release checks

Mounting
Confirm case security, final gap and adequate clearance.

Signal chain
Identify the five- or nine-metre assembly and correct conditioner.

Environment
Confirm cable protection and pressure-containment provisions.

Monitoring
Verify channel indication and required protection tests.

Related cable and conditioner pages

Bently Nevada 330130-040-02-05

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