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01 Prepare the measurement point

Work boundary

Install this M10 x 1 probe as part of the specified proximity measurement channel. Before disturbing the probe, establish the machine state and the monitoring channel affected by the work. Preserve the operating gap, monitor sensitivity and alarm settings so that the restored channel can be compared with its previous measurement condition.

Preparation sequence

01	Identify the measurement location and the monitor channel connected to the probe.
02	Record the existing gap voltage and note whether the target is stationary or moving.
03	Trace the probe lead to its extension joint and identify the matching Proximitor.
04	Inspect the mounting bore, locking hardware and cable supports before removal.

Check the selected hardware

Item	Required configuration
Thread	M10 x 1
Case length	70 mm
Unthreaded section	0 mm
Probe lead	0.5 m, unarmored
Connector	Miniature ClickLoc with standard cable
Tip material	PPS
Case material	AISI 303 or 304 stainless steel

Establish the target condition

Remove contamination that would prevent a stable mechanical setup or conceal damage. Inspect the target surface and probe tip without using the sensing face as a mechanical stop. Do not replace a known gap setting with a guessed thread count: verify the electrical gap after the mounting is secured.

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02 Mount and secure the probe

Mechanical limits and clearances

Condition	Limit
Standard forward-mount torque	11.2 N·m recommended; 33.9 N·m maximum
Forward mounting on the first three threads	7.5 N·m recommended; 22.6 N·m maximum
Reverse-mount torque	7.5 N·m recommended; 22.6 N·m maximum
Cable bend radius	At least 25.4 mm
Flat target diameter	At least 15.2 mm
Shaft diameter	50.8 mm minimum; 76.2 mm recommended

Apply the right torque to the right part

The case mounting limits do not apply to the coaxial connector. Distinguish ordinary forward mounting, limited thread engagement and reverse mounting before applying torque. Stop if the thread binds or the case cannot be positioned without twisting the integral lead.

Gap-setting sequence

01	Bring the probe toward its intended measurement position without contacting the target.
02	Connect the complete calibrated circuit and observe the DC output.
03	Adjust the gap to the intended operating point for the application.
04	Secure the mounting hardware, then measure the gap voltage again.

Allow motion in both directions

A nominal 1.27 mm radial gap is approximately -9 V under the standard reference conditions. The installation also needs enough usable linear travel for expected shaft motion toward and away from the tip. A stable voltage at one point does not prove adequate clearance throughout machine operation.

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03 Connect and protect the cable circuit

Connection checks

Check	Requirement
ClickLoc tightening	Finger-tight until the connector clicks
Connector maximum torque	0.565 N·m
Lead resistance check	7.45 ±0.50 Ω, center to outer conductor, disconnected
Cable construction	75 Ω triaxial with FEP insulation
Electrical length	Probe plus extension must match the Proximitor system length
Joint protection	Use suitable connector protection for the installed environment

Avoid mixing mechanical and electrical lengths

The 70 mm case length determines mounting geometry; the 0.5 m total probe length contributes to the calibrated electrical system. A probe that fits the machine can still be wrong for a cable and Proximitor combination. Confirm both before commissioning.

Routing checks

At the probe exit
Leave sufficient bend radius and avoid forcing the lead against the machine casing.

At the joint
Provide support so the connector does not carry cable tension.

In exposed routes
Protect the unarmored lead from abrasion and moving equipment.

Where liquid is present
Distinguish joint sealing from internal cable liquid blocking.

Use resistance as a limited diagnostic

A disconnected resistance result can identify a gross open or short circuit. It cannot demonstrate the complete scale factor, linear range or dynamic response. Reconnect the intended transducer circuit and carry out a gap-response check before relying on the measurement.

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04 Verify power and calibrate the response

Commissioning reference

Measurement	Reference
Conditioner supply without barriers	-17.5 to -26 V DC
Conditioner supply with barriers	-23 to -26 V DC
Maximum conditioner consumption	12 mA
Typical radial gap	1.27 mm, approximately -9 V
Nominal displacement sensitivity	7.87 V/mm (200 mV/mil)
Linear range	2 mm, approximately 0.25–2.3 mm gap

Functional acceptance sequence

01	Measure supply polarity and magnitude at the conditioner with the circuit connected.
02	Confirm that the static gap voltage is within the usable range.
03	Apply a controlled target movement and confirm a corresponding output change.
04	Compare monitor displacement indication with the applied movement and configured sensitivity.

Target material and reference conditions

The standard transfer characteristic uses AISI 4140 steel. Verify the installed target material and the complete channel response when a different material is used. For comparative measurements, also control the reference supply, temperature, output loading and gap.

Separate DC and dynamic checks

A DC gap check confirms an operating point. A dynamic check confirms the changing signal used for vibration measurement. Complete both relevant checks, and verify the monitor alarm path under the site maintenance procedure before returning the machine protection function to service.

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05 Troubleshoot and release the channel

Symptom-led checks

Symptom	Investigation
No usable gap signal	Check conditioner supply, polarity, open or shorted cable, connector seating and target gap.
Gap changes during tightening	Recheck mounting engagement and set the gap after the hardware is secure.
Scale differs from expectation	Check target material, cable length, conditioner selection and monitor sensitivity.
Intermittent indication	Inspect the cable exit, joint support, connector protection and lead damage.
Unexpected interaction	Check nearby metal and separation from adjacent proximity probes.
Correct resistance, incorrect reading	Test the complete voltage-to-gap response; continuity alone is insufficient.

Preserve the established configuration

Record the final gap voltage, channel units, sensitivity, electrical-length combination and connector arrangement. These values support future comparison without treating the probe resistance or mechanical fit as a complete calibration record.

Return-to-service checks

Mechanical
Confirm the probe is secure and has adequate movement clearance.

Electrical
Confirm supply, gap response and receiving-channel indication.

Cable route
Inspect support, bend radius and environmental protection.

Protection function
Complete the applicable alarm and signal-failure tests before release.

Related probe configurations

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