

## 01 / ESTABLISH THE MEASUREMENT CHAIN

### Start from this execution

The selected 330103 probe is unarmored, has a 0.5 m standard electrical lead and uses the -02 connection without an included protector. Identify the ordered parts as one system before connecting the monitor. The procedure below describes checks; it does not change any machine shutdown or protection setting.

### Choose one length arrangement

|            |                               |
|------------|-------------------------------|
| 5 m sensor | 0.5 m probe + 4.5 m extension |
| 9 m sensor | 0.5 m probe + 8.5 m extension |

### 01 Identify the conditioner

Read the electrical-length marking on the Proximitor Sensor. Use the matching 4.5 m or 8.5 m extension arrangement for the 5 m or 9 m system. A 0.5 m probe is not the 1 m probe-only configuration. An extra general-purpose cable is not a substitute for the selected extension.

### 02 Verify the calibration basis

Confirm the target material used by the existing channel. AISI 4140 steel is the standard reference; accuracy and interchangeability statements do not automatically apply to another target calibration.

### 03 Check the area approval

The ordered probe ends in -00. Determine whether the actual installation requires an approved execution before installing; do not substitute a -05 rating merely because that option appears in the series table.

### Pre-installation decision

| Identify                  | Pair                         | Release                 |
|---------------------------|------------------------------|-------------------------|
| Full model and companions | Electrical length and target | Correct system selected |

### Handoff condition

Proceed to the connection stage only when the probe, cable where required, Proximitor length and installed channel role agree. Keep the existing monitor configuration available for the commissioning comparison.

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## 02 / INSTALL AND PROTECT THE CONNECTION

### 04 Fit the M10 x 1 receiving interface

Inspect the receiving thread and the support condition before seating the forward-mounted probe. Follow the actual equipment mounting instructions, and distinguish full case support from the reduced support condition at the first three threads.

#### Torque instruction depends on the interface

|                             |                                        |
|-----------------------------|----------------------------------------|
| Two XL gold ClickLocs       | Finger tight                           |
| Maximum connector torque    | 0.565 N m; do not treat as a target    |
| Standard forward-mount case | 11.2 N m recommended; 33.9 N m maximum |
| First three threads only    | 7.5 N m recommended; 22.6 N m maximum  |

### 05 Join the XL coaxial connectors

Keep the contacts clean, dry and undamaged. Two XL gold ClickLoc connectors are joined finger tight. The mixed non-XL/XL connection has a separate finger-tight-plus-one-eighth-turn instruction; it is not the instruction for two XL parts.

### 06 Protect the short lead and extension

Arrange environmental protection and electrical insulation at the -02 coaxial junction. Support the 0.5 m probe lead and its selected extension so normal operation does not pull on the case or service connection.

#### Materials to recognize during inspection

|            |                                       |
|------------|---------------------------------------|
| Tip        | Polyphenylene sulfide (PPS)           |
| Case       | AISI 303 or 304 stainless steel       |
| Connector  | Gold-plated brass or beryllium copper |
| Probe lead | Standard FEP-insulated triaxial cable |

#### Pressure-bearing positions

The probe seals differential pressure between its tip and case using a Viton O-ring. Units are not pressure-tested before shipment. A separate pressure test is an application requirement when needed; the installation must still contain liquids and gases safely if leakage occurs. Strongly acidic or alkaline media can erode the tip assembly.

#### Connection acceptance

The probe is securely supported, the correct mating connector is fully engaged, the junction is protected and insulated and the lead has no damage or persistent strain. Mechanical acceptance precedes an energized reading.

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## 03 / VERIFY ELECTRICAL CONDITIONS

### Conditioning-stage checks

|                                 |                                                    |
|---------------------------------|----------------------------------------------------|
| Non-incendive sensor supply     | -17.5 to -26 VDC when connected per drawing 140979 |
| Supply with barriers            | -23 to -26 VDC                                     |
| Maximum sensor demand           | 12 mA                                              |
| Output resistance               | 50 ohm                                             |
| Isolated 0.5 m probe resistance | 7.45 +/- 0.50 ohm                                  |

### 07 Check the isolated probe

Use the documented center-to-outer-conductor resistance as a component-level check. Disconnect the probe from the energized transducer chain before measuring; the nominal probe value is not a resistance limit for every cable and monitor connected in parallel.

### 08 Inspect the monitor wiring

The Proximator-to-monitor circuit is separate from the probe electrical length. The datasheet recommends a three-conductor shielded triad and tinned field wiring; its documented frequency-response curves show the effect of longer monitor wiring. Check the relevant curve before accepting a high-frequency channel.

### 09 Restore the documented supply

Verify voltage at the conditioning-stage terminals under the installed load. A supply more positive than -23.5 VDC can reduce linear range even within the broader non-incendive supply limits. Keep barrier-specific requirements separate.

### Connections and what each proves

|                          |                                                                                   |
|--------------------------|-----------------------------------------------------------------------------------|
| Probe coaxial lead       | Carries the sensing-element connection to the matched conditioner                 |
| Extension cable, if used | Completes the selected electrical system length                                   |
| Sensor-to-monitor triad  | Carries power/reference and conditioned signal according to the installed circuit |

### Electrical acceptance

A valid supply, intended reference, clean coaxial junction and correct resistance check support commissioning. None of these checks alone establishes the configured dynamic response of the channel.

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## 04 / SET THE GAP AND TEST THE CHANNEL

### 10 Establish the DC operating point

For radial-vibration measurements, use the recommended -9 VDC static gap setting. The matched system has a 2 mm linear range corresponding approximately to -1 through -17 VDC; allow the intended target motion to stay inside the applicable calibrated region.

### Commissioning sequence

|                    |                                                                  |
|--------------------|------------------------------------------------------------------|
| Static check       | Compare the DC gap with the selected channel operating point     |
| Dynamic check      | Verify response to the intended shaft or reference-target motion |
| Monitor check      | Confirm signal role, scaling and the approved baseline           |
| Protection release | Apply the equipment-specific acceptance and shutdown procedure   |

### 11 Judge accuracy under the actual conditions

The performance basis uses a complete 3300 XL 8 mm probe, extension where required and Proximitor Sensor, an AISI 4140 steel target, a -24 VDC supply and a 10 kohm load, with components between +18 and +27 deg C unless stated otherwise. Target material, temperature and the assembled electrical length affect the achieved calibration. A probe alone does not generate the conditioned monitor voltage.

### 12 Separate temperature capability from accuracy

A -52 to +177 deg C standard-probe operating limit does not mean the tightest ISF and DSL values apply over that entire span. Check the selected 5 m or 9 m performance row and the temperatures of each transducer-chain component.

### What changes when only the first three case threads of 330103-01-07-05-02-00 engage?

Use the reduced support-condition torque: 7.5 N m recommended and 22.6 N m maximum. Full standard forward-mount engagement has a different case-torque instruction.

### What target material establishes the standard calibration used with 330103-01-07-05-02-00?

AISI 4140 steel is the standard target basis. Confirm the actual shaft material and applicable calibration before transferring the nominal scale factor to a different target.

### Acceptance outcome

A stable static gap plus a credible dynamic response, correct monitor interpretation and the machine-specific functional test form the channel acceptance. Record the system length and target used for that test so a later service comparison has a valid basis.

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## 05 / FAULT ISOLATION AND SERVICE

### Move from symptom to the relevant check

|                                      |                                                                             |
|--------------------------------------|-----------------------------------------------------------------------------|
| Gap outside the expected region      | Check target position and conditioner supply before changing alarm settings |
| Stable gap but implausible amplitude | Inspect scaling, cable length and dynamic signal path                       |
| Intermittent signal during movement  | Inspect lead strain, junction seating and protection                        |
| Media leakage at the probe position  | Isolate the process and use the independent containment procedure           |

### Temperature and seal review

Inspect component temperatures separately. The standard probe and standard extension are rated -52 to +177 deg C; the conditioner has different limits. Below -34 deg C, pressure-seal performance can fail prematurely even though the broad probe temperature rating continues lower.

### Can 330103-01-07-05-02-00 measure static position below 10 Hz?

The matched-system response extends from DC to 10 kHz. The DC component represents static target position; 10 Hz is not the lower cutoff listed for this system.

### Related proximity portfolio

|                                     |                                               |
|-------------------------------------|-----------------------------------------------|
| Bently Nevada 330103-00-05-10-02-00 | Related XL 8 mm probe; compare full execution |
| Bently Nevada 330103-00-07-10-02-00 | Related XL 8 mm probe; compare full execution |
| Bently Nevada 330101-00-50-10-02-00 | Related XL 8 mm probe; compare full execution |
| Bently Nevada 330103-00-07-05-02-00 | Related XL 8 mm probe; compare full execution |

### Manufacturer reference

3300 XL 8 mm Proximity Transducer System | Datasheet 141194 Rev. AN. Identity and ordering: pp. 13-14; electrical and measurement data: pp. 4-6; materials and installation interfaces: pp. 7-8; environmental and pressure conditions: p. 9. This ApterPower document organizes selected technical facts and field checks; it does not replace the equipment installation instructions.

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