Bently Nevada 991-25-70-01-05

01 Product architecture

Product role

Bently Nevada 991-25-70-01-05 is a two-wire thrust transmitter with a 25-0-25 mil measurement range, a 7.0 m NSv transducer-system length and 35 mm DIN-rail mounting.

Operating context

The 25-0-25 mil selection measures displacement on both sides of the shaft reference. A correct probe gap leaves usable travel in both directions. The transmitter combines probe conditioning with a two-wire current output, while the receiving control system supplies the application alarm and protection logic.

Function map

01	7.0 m NSv chain
02	Integrated conditioning
03	2-wire 4-20 mA
04	Receiver alarm logic

Key capabilities

Capability 1
Includes the Proximitor function inside the transmitter.

Capability 2
Provides separate zero and span adjustments.

Capability 3
Offers a DC test-input connection for loop checks.

Capability 4
Suppresses erroneous high outputs when the probe signal becomes Not OK.

System integration

The PROX OUT terminals and coaxial connection expose dynamic and gap information for diagnostics. This diagnostic output is not isolated from the current loop, so grounded AC-powered instruments require an isolating test adapter.

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02 Technical data and interfaces

Principal technical data

Parameter	Value
Full-scale range	25-0-25 mils
Transducer system length	7.0 m
Output	4-20 mA DC; 2-wire
Supply at terminals	+12 to +35 V DC
Loop accuracy	±1.5% of full scale typical; TEST input to 250-ohm load
Maximum loop resistance	1000 ohm at 35 V DC
Current limiting	23 mA typical
Not OK current	Less than 3.6 mA
Not OK response	Within 100 microseconds
Signal restoration	Within 0.1 s after Not OK clears
Operating temperature	-35 to +85 °C
Mounting	35 mm DIN rail

Additional engineering data

Item	Value or condition
PROX OUT impedance	10 kilohm
PROX OUT calibration load	10 megohm
PROX OUT linear gap range	0.25-1.65 mm (10-65 mils)
PROX OUT scale factor	7.87 mV/µm (200 mV/mil), ±6.5% typical
Diagnostic cable limit	3 m maximum
Storage temperature	-51 to +100 °C
Humidity	100% condensing, non-submerged; protect coaxial joints

How to apply these data

The typical ±1.5% full-scale loop accuracy is specified from the TEST input to the voltage across a 250-ohm loop load at the stated reference conditions. It is not a blanket accuracy claim for every target, installation or diagnostic instrument. PROX OUT has its own scale-factor and loading requirements.

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03 Integration and application

Interface map

Interface	Purpose	Engineering note
Probe input	One NSv probe with its matching extension.	This selected transmitter requires a total 7.0 m system length.
Two-wire loop	Loop power and proportional axial-position signal.	Measure +12 to +35 V DC at the transmitter terminals.
TEST input	Variable DC input for checking current-loop output.	A loop check does not prove mechanical gap or probe calibration.
PROX OUT / COM	Dynamic and gap information for diagnostics.	Non-isolated from the loop; use the 122115-01 adapter with grounded AC test equipment.

Application contexts

Compressor thrust trending
Measure axial displacement on centrifugal air-compressor shafts.

Pump position monitoring
Provide a proportional current input for a small-pump control system.

Motor or fan thrust channels
Connect a compatible NSv probe to a local machinery current loop.

Diagnostic access
Observe the buffered probe signal using correctly isolated test equipment.

Integration constraint

Verify the receiving system treats the sub-3.6 mA fault state separately from a valid thrust reading. Preserve isolation when adding diagnostic instruments to PROX OUT.

Commissioning record

Keep the initial mechanical reference, probe and extension identities, total electrical length, zero/span settings, loop supply and receiver scaling. Note the diagnostic adapter used during testing. Verify alarm handling separately from the proportional reading because this transmitter does not provide every rack-monitor function.

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04 Engineering decisions

Diagnostic decisions

Cannot reach full scale in one direction
Check initial probe gap and available normal/counter travel. Correct the mechanical measurement window before changing span.

Current falls below 3.6 mA
Investigate the probe connection and Not OK condition. Treat the low-current state as a fault, not a valid thrust position.

Diagnostic instrument changes the loop
Check grounding and test-adapter isolation. Do not assume the coaxial diagnostic connector is isolated.

Loop test passes, machine reading wrong
Compare the TEST-input test with the actual probe path. They exercise different portions of the measurement chain.

Product precautions

01
Use an NSv probe and cable combination with a total electrical length of 7.0 m.

02
Adjust probe gap so both directions of the thrust range remain measurable.

03
Supply +12 to +35 V DC at the transmitter terminals.

04
Check total loop resistance against the actual available supply voltage.

05
Use the zero and span adjustments without disturbing the mechanical probe setting.

06
Connect grounded AC-powered diagnostic instruments through the isolating test adapter.

07
Verify a Not OK fault is interpreted correctly by the receiving control system.

08
Test normal and counter-direction movement before enabling the machinery protection logic.

Important notice

Keep the initial probe gap clear of either end of the usable linear range.

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05 Questions and functional acceptance

Product-specific engineering questions (continued)

Can an earthed oscilloscope connect directly to Bently Nevada 991-25-70-01-05 PROX OUT?
Use the 122115-01 Test Adapter with grounded AC-powered instruments because PROX OUT is not isolated from the current loop.

What does the accuracy rating of Bently Nevada 991-25-70-01-05 actually cover?
The typical ±1.5% full-scale rating is measured from the TEST input to the voltage across a 250-ohm loop resistance.

Product-specific engineering questions (continued)

When is a 1000-ohm loop load permissible for Bently Nevada 991-25-70-01-05?
The specified maximum of 1000 ohm, including cable resistance, applies with a 35 V DC supply.

Does Bently Nevada 991-25-70-01-05 require an external Proximitor unit?
No. The transmitter integrates the Proximitor function and accepts the matched NSv probe-and-extension assembly.

Related catalogue pages

Bently Nevada 991-25-50-01-05

Bently Nevada 991-25-70-01-00

Product-specific engineering questions

Why can incorrect probe gap prevent Bently Nevada 991-25-70-01-05 from reaching full scale?
A gap set too near either end of the usable probe range can exhaust the available travel in the normal or counter direction before the current loop reaches full scale.

How does Bently Nevada 991-25-70-01-05 signal a failed probe connection?
A Not OK condition drives the current below 3.6 mA within 100 microseconds; the signal returns within 0.1 s after the condition clears.

Product-specific engineering questions (continued)

Can Bently Nevada 991-25-70-01-05 replace every rack-monitor protection function?
No. Functions such as Timed OK channel defeat, Danger Bypass and Trip Multiply are unavailable in this transmitter arrangement.

Technical basis

Bently Nevada 141618 Rev. R, pages 1-4