Bently Nevada 140471-01

Prox/Velom I/O Module with Internal Terminations

Bently Nevada 140471-01 is the internal-termination Prox/Velom I/O module for the 3500/42M machinery-protection monitor. It provides the rear-rack interface for proximity and acceleration transducers, Velomitor sensors and High Temperature Velocity Sensors (HTVS). The associated four-channel monitor conditions these signals into configured vibration and position measurements and compares them with programmable alarm limits. Internal terminations place the field connection interface directly on the I/O module.



Technical Specifications

Product Identity	
Manufacturer	Bently Nevada
Complete part number	140471-01
Compatible monitor	3500/42M
I/O ordering option	AA = 09
I/O dimensions	241.3 × 24.4 × 99.1 mm (H × W × D)
Rack space	One full-height rear I/O slot
Functional Configuration	
Termination	Internal
Transducer types	Prox/Accel, Velomitor or HTVS
Performance & Power	
Monitor recorder outputs	4–20 mA; 0–600 Ω load
Environment	
Operating temperature	–30 to +65 °C
Storage temperature	–40 to +85 °C

Selected original manufacturer pages follow on pages 3–5.

Compatibility & Selection Guide

System compatibility. 140471-01 corresponds to 3500/42M I/O option AA = 09. The monitor uses 3500 Rack Configuration Software, with channels 1/2 and 3/4 programmed as two pairs. The general minimum software versions are 3500/01 v2.50, 3500/02 v2.20 and 3500/03 v1.21. Acceleration II, Velocity II and Circular Acceptance Region functions require 3500/42M firmware Rev. 2.10, 3500/01 v3.20 and DM2000 v3.30 or later.

Wiring & Installation Reference

Field connections

Match the actual channel-pair jumper positions to the connected transducer types.

Connect at the internal-termination connectors; use the actual module markings and monitor user guide.

Installation and replacement

Confirm I/O identity. Match the full part number and internal termination arrangement.

Check sensor configuration. Verify the Prox/Accel, Velomitor or HTVS selection and jumper positions.

Verify operation. Check configured measurements, recorder signals and alarms after connection.

Installation precautions. Use the applicable 3500 monitor user guide and the actual module markings for terminal assignments and service procedures. Match the complete I/O part number, monitor revision and transducer configuration before reconnecting field circuits.

View connection reference (PDF) · PDF page 5 | View module reference · PDF page 5

Manufacturer sources: 3500/42M Proximitor Seismic Monitor 143694 Rev. AE.

Filter Tracking / Stepping (Requires a valid speed signal)	
Switch from nominal to higher filter set	Current shaft speed ≥ 1.1 x (nominal shaft speed)
Switch from higher to nominal filter set	Current shaft speed ≤ 1.05 x (Nominal Shaft Speed)
Shaft speed error condition	Nominal filter set used

Environmental Limits

Operating Temperature	When used with Internal/External Termination I/O Module: -30°C to +65°C (-22°F to +150°F) When used with Internal Barrier I/O Module (Internal Termination): 0°C to +65°C (32°F to +150°F)
Storage Temperature	-40°C to +85°C (-40°F to +185°F).
Humidity	95%, noncondensing

Physical

Monitor Module (Main Board)	
Dimensions (Height x Width x Depth)	241.3 mm x 24.4 mm x 241.8 mm (9.50 in x 0.96 in x 9.52 in)
Weight	0.91 kg (2.0 lb)
I/O Modules (non-barrier)	
Dimensions (Height x Width x Depth)	241.3 mm x 24.4 mm x 99.1 mm (9.50 in x 0.96 in x 3.90 in)
Weight	0.20 kg (0.44 lb)
I/O Modules (barrier)	
Dimensions (Height x Width x Depth)	241.3 mm x 24.4 mm x 163.1 mm (9.50 in x 0.96 in x 6.42 in)
Weight	0.46 kg (1.01 lb)

Rack Space Requirements

Monitor	1 full-height front slot
I/O Modules	1 full-height rear slot

Barrier Parameters

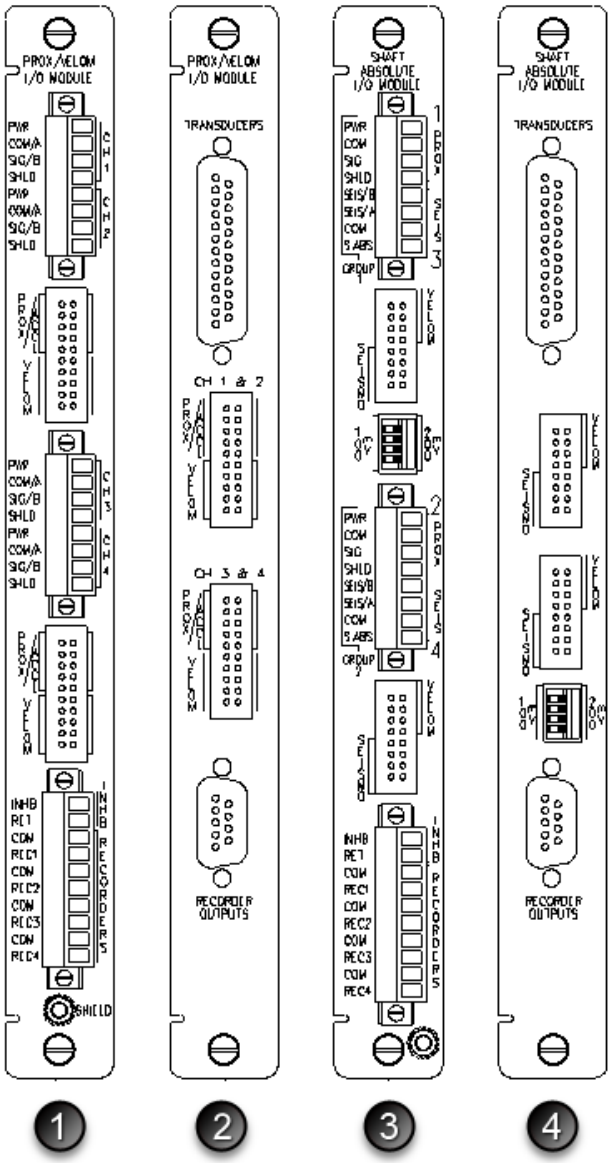
The following parameters apply to CSA-NRTL/C and ATEX approvals.

Proximitor Barrier	
Circuit Parameters	Vmax (PWR) = 26.80 V (SIG) = 14.05 V Imax (PWR) = 112.8 mA (SIG) = 2.82 mA Rmin (PWR) = 237.6 Ω (SIG) = 4985 Ω
Channel Parameters (entity)	Vmax = 28.0 V Imax = 115.62 mA Rmin (PWR) = 237.6 Ω (SIG) = 4985 Ω
Seismic Barrier	
Circuit Parameters	Vmax (PWR) = 27.25 V Imax (PWR) = 91.8 mA Rmin (PWR) = 297 Ω
Channel Parameters (entity)	Vmax = 27.25 V Imax = 91.8 mA Rmin (PWR) = 297 Ω

I/O Module Types

AA Ordering Option	I/O Part Number	I/O Description	Transducer Type
01	128229-01	Prox/Seismic I/O Module with internal terminations	Seismoprobe Prox/Accel and Velomitor are supported but are not recommended.
02	128240-01	Prox/Seismic I/O Module with external terminations	Seismoprobe Prox/Accel and Velomitor are supported but are not recommended.
04	135489-01	I/O Module with internal Barriers, internal terminations, 4 x Prox/Accel	Prox/Accel on channels 1 through 4
05	135489-02	I/O Module with internal barriers, internal terminations, 2 x Prox/Accel and 2 x Velomitor	Prox/Accel on channels 1 and 2 Velomitor on channels 3 and 4
06	135489-03	I/O Module with internal barriers, internal terminations, 4 x Velomitor	Velomitor on channels 1 through 4
07	138708-01	Shaft Absolute I/O Module with internal terminations	Prox/Accel or Velomitor or Seismorprobe
08	138700-01	Shaft Absolute I/O Modules with external terminations	Prox/Accel or Velomitor or Seismorprobe
09	140471-01	Prox/Velom I/O Module with internal terminations	Prox/Accel, Velomitor or HTVS
10	140482-01	Prox/Velom I/O Module with external terminations	Prox/Accel, Velomitor or HTVS

External termination blocks cannot be used with Internal Termination I/O Modules. When ordering I/O modules with external terminations, order the external termination blocks and cable separately for each I/O module.



1. Prox/Velom I/O Module, Internal Terminations
2. Prox/Velom I/O Module, External Terminations
3. Shaft Absolute I/O Module, Internal Terminations
4. Shaft Absolute I/O Module, External Terminations

Figure 2: Additional I/O Modules for Legacy 3500/42M