Bently Nevada 135489-01

Prox/Accel I/O Module with Internal Barriers

Bently Nevada 135489-01 is the internal-barrier Prox/Accel I/O module with internal terminations for the 3500/42M machinery-protection monitor. Channels 1–4 are allocated to proximity or acceleration transducers. The module combines the rear-rack field interface and built-in safety barriers used in approved intrinsically safe transducer circuits. In a configured 3500/42M assembly, the connected sensors support vibration and position monitoring, while the monitor compares measured values with programmed Alert and Danger limits for machinery protection.



Technical Specifications

Product Identity	
Manufacturer	Bently Nevada
Complete part number	135489-01
Compatible monitor	3500/42M
I/O dimensions	241.3 × 24.4 × 163.1 mm (H × W × D)
Rack space	One full-height rear I/O slot
Functional Configuration	
Termination	Internal
Barrier design	Internal barriers; system approval must be verified
Transducer allocation	Prox/Accel on channels 1–4
Performance & Power	
3500 monitor buffered output	3500/42M front-panel coaxial outputs, one per channel, 550 Ω output impedance
Environment	
Operating temperature	0 to +65 °C
Storage temperature	–40 to +85 °C

Selected original manufacturer pages follow on pages 3–5.

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Compatibility & Selection Guide

System compatibility. 135489-01 is the 3500/42M internal-barrier I/O option AA = 04. The monitor uses 3500 Rack Configuration Software, with channels 1/2 and 3/4 configured as two pairs and up to two measurement functions active at once. The general minimum software versions are 3500/01 v2.50, 3500/02 v2.20 and 3500/03 v1.21. Acceleration II operation requires 3500/42M firmware Rev. 2.10, 3500/01 v3.20 and DM2000 v3.30 or later.

Wiring & Installation Reference

Field connections

Follow the actual module terminal markings and applicable approved barrier drawing.

Review 3500 Internal Barriers document 141495 and the monitor user guide before connecting field circuits.

Installation and replacement

Verify the approved circuit. Match the barrier option, transducer and approval drawing; do not infer approval from the part family.

Check depth and environment. Allow for the 163.1 mm I/O depth and the 0 to +65 °C operating range.

Connect and validate. Use the applicable installation instructions and verify channel configuration before returning the system to service.

Installation precautions. Do not substitute another 135489 suffix without verifying the monitor and transducer allocation. Intrinsic safety depends on the complete approved installation, not the I/O module alone.

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

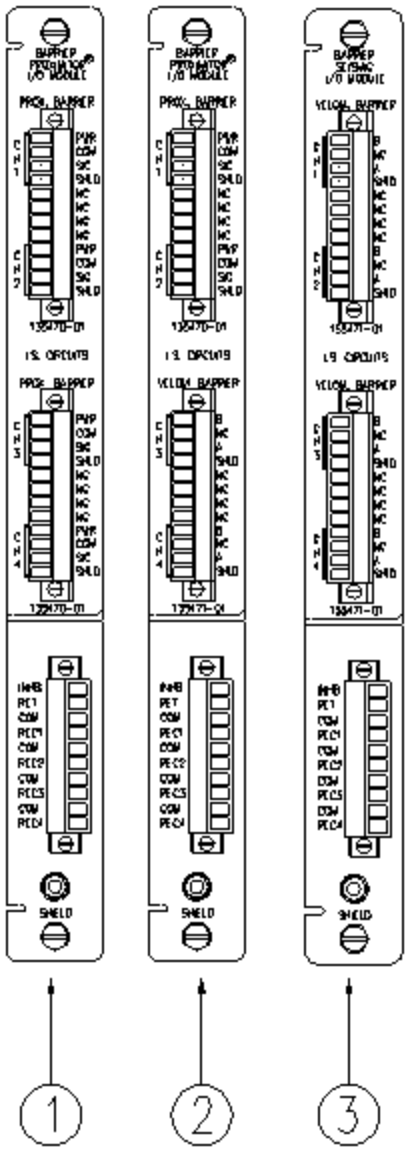
The following parameters apply to CSA-NRTL/C and ATEX approvals.

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. Barrier I/O Module for connecting four proximitor sensors
2. Barrier I/O Module for connecting four proximitor sensors and two velomitor sensor
3. Barrier I/O Module for connecting four velomitor sensors

Figure 4: Barrier I/O Modules of the 3500/42M Proximitor Seismic Monitor