

3500/72M Recip Rod Position Monitor

Datasheet

Cordant™

146478 Rev. M

Description

The four-channel Bently Nevada™ 3500/72M Recip Rod Position Monitor accepts input from proximity transducers, conditions the signal to provide dynamic and static position measurements, and compares the conditioned signals with user-programmable alarms.

Each channel, depending on how you configure it, typically conditions its input signal to generate various parameters called measured values.

Use the 3500 Rack Configuration Software to:

- Configure alert setpoints for each active measured value and danger setpoints for any two of the active measured values.
- Protect reciprocating compressors by continuously comparing monitored parameters against configured alarm setpoints to display alarms and trigger relays, if needed.
- Monitor the condition of essential reciprocating compressor machinery.



The monitor channels are programmed in pairs and can perform up to two functions at a time. For example, channels 1 and 2 can perform one function while channels 3 and 4 perform another or the same function.

The 3500/72M Recip Rod Position Monitor meets API 618 requirements for reciprocating compressors. It measures:

- Rod position
- Rod drop
- Hyper-compressor



Baker Hughes

Specifications

Inputs

Signal	Accepts from 1 to 4 proximity probe signals
Input Impedance	10 k Ω
Nominal Scale Factor	
Rod Position	0.79 mV/ μ m (20 mV/mil), 3.94 mV/ μ m (100 mV/mil), or 7.87 mV/ μ m (200 mV/mil)
Rod Position 2	3.94 mV/ μ m (100 mV/mil), or 7.87 mV/ μ m (200 mV/mil)
Rod Drop	3.94 mV/ μ m (100 mV/mil), or 7.87 mV/ μ m (200 mV/mil)
Hyper Compressor	3.94 mV/ μ m (100 mV/mil), or 7.87 mV/ μ m (200 mV/mil)
Power Consumption	7.7 watts, nominal

Outputs

Front Panel LEDs	
OK LED	Indicates when the Recip Rod Position Monitor is operating properly.
TX/RX LED	Indicates when the Recip Rod Position Monitor is communicating with other modules in the 3500 rack.
Bypass LED	Indicates when the Recip Rod Position Monitor is in Bypass Mode.
Front Buffered Outputs	
Buffered Transducer Outputs	The front of each monitor has one coaxial connector for each channel. Each connector is short-circuit protected.

Output Impedance	510 Ω
Transducer Power Supply	-24 Vdc

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

Environmental Limits

Operating Temperature	When used with Internal / External Termination Proximator / Seismic I/O Module: -30°C to +65°C (-22°F to +149°F) When used with Proximator / Seismic Internal Barrier I/O Module (Internal Termination) 0°C to +65°C (32°F to +149°F)
Storage Temperature	-40°C to +85°C (-40°F to +185°F)
Humidity	95% Non-condensing

Alarms

Alarm Setpoints	Use Rack Configuration Software to set alert levels for each value measured by the monitor and danger setpoints for any two of the values measured by the monitor. Alarms are adjustable from 0 to 100% of full-scale for each measured value. However, when the full-scale range exceeds the range of the transducer, the range of the transducer will limit the setpoint.
Accuracy of alarm setpoints	Within 0.13% of the desired value

Alarm Time Delays

You can program alarm delays using 3500 Rack Configuration Software.

Alert	From one to 60 seconds in one second intervals
Danger	0.1 seconds (nominal) or from one to 60 seconds in one second intervals
Timed OK Channel Defeat	OK Channel defeat is disabled for all Rod Position and Rod Drop configurations. As a hyper-compressor monitor, when both transducers are NOT OK, the monitor issues a Danger alarm immediately.

Cables

3500 Transducer (XDCR) to External Termination (ET) Block Cable 129525 - AAAA-BB

A: I/O Cable Length	
0005	5 feet (1.5 metres)
0007	7 feet (2.1 metres)
0010	10 feet (3.0 metres)
0025	25 feet (7.6 metres)
0050	50 feet (15.2 metres)
0100	100 feet (30.5 metres)
B: Assembly Instructions	
01	Not Assembled
02	Assembled

3500 Recorder Output to External Termination (ET) Block Cable 129529 - AAAA-BB

A: I/O Cable Length	
0005	5 feet (1.5 metres)
0007	7 feet (2.1 metres)
0010	10 feet (3.0 metres)
0025	25 feet (7.6 metres)
0050	50 feet (15.2 metres)
0100	100 feet (30.5 metres)
B: Assembly Instructions	
01	Not Assembled
02	Assembled

Spares

Part Number	Description
176449-08	3500/72M Recip Rod Position Monitor
140471-01	I/O Module with Internal Terminations
00580434	Internal I/O Module connector header Euro Style, 8-pin, green Used with I/O modules 140471-01
140482-01	I/O Module with External Terminations
135489-01	I/O Module with Internal Barriers and Internal Terminations
00580441	Internal I/O Module connector header Euro Style, 3-pin, green Used with I/O modules 135489-01 and 140471-01
00502133	Internal I/O Module connector header Euro Style, 12 pin, blue Used with I/O modules 135489-01
146479-01	3500/72M Recip Rod Position Monitor User Manual
166M4363	Connector header Push-in-spring type (Alternative for PN 00580441)
166M2389	Connector header Push-in-spring type (Alternative for PN 00580434)
166M2388	Connector header Push-in-spring type (Alternative for PN 00580432)