

3500/42M Proximator/Seismic Monitor



Description

The 3500/42M Proximator®/Seismic Monitor is a 4-channel monitor that accepts input from proximity and seismic transducers, conditions the signal to provide various vibration and position measurements, and compares the conditioned signals with user-programmable alarms. The user can program each channel of the 3500/42M using the 3500 Rack Configuration Software to perform any of the following functions:

- Radial Vibration
- Thrust Position
- Differential Expansion
- Eccentricity
- REBAM®
- Acceleration
- Velocity
- Shaft Absolute
- Circular Acceptance Region

Note: The monitor channels are programmed in pairs and can perform up to two of these functions at a time. Channels 1 and 2 can perform one function, while channels 3 and 4 perform another (or the same) function.

The primary purpose of the 3500/42M monitor is to provide:

1. Machinery protection by continuously comparing monitored parameters against configured alarm setpoints to drive alarms.
2. Essential machine information for both operations and maintenance personnel.

Each channel, depending on configuration, typically conditions its input signal to generate various parameters called "static values". The user can configure Alert setpoints for each active static value and Danger setpoints for any two of the active static values.



Specifications

Inputs

Signal

Accepts from 1 to 4 proximity, velocity or acceleration transducer signals.

Input Impedance

Standard I/O

10 k Ω (Proximator® and Acceleration Inputs).

TMR I/O

The effective impedance of three Bussed TMR I/O channels wired in parallel to one transducer is 50 k Ω .

Power Consumption

7.7 Watts, typical.

Sensitivity

Radial Vibration

3.94 mV/ μ m (100 mV/mil) or
7.87 mV/ μ m (200 mV/mil).

Thrust

3.94 mV/ μ m (100 mV/mil) or
7.87 mV/ μ m (200 mV/mil).

Eccentricity

3.94 mV/ μ m (100 mV/mil) or
7.87 mV/ μ m (200 mV/mil).

Differential Expansion

0.394 mV/ μ m (10 mV/mil) or
0.787 mV/ μ m (20 mV/mil).

REBAM®

40 mV/ μ m (1000 mV/mil) or
80 mV/ μ m (2000 mV/mil).

Acceleration and Acceleration²

10 mV/(m/s²) (100 mV/g).

Velocity and Velocity²

20 mV/(mm/s) pk (500 mV/(in/s) pk)
or
5.8 mV/(mm/s) pk (145 mV/(in/s) pk)
or
4 mV/(mm/s) pk (100 mV/(in/s) pk).

Shaft Absolute, Radial Vibration

3.94 mV/ μ m (100 mV/mil) or
7.87 mV/ μ m (200 mV/mil).

Shaft Absolute, Direct

3.94 mV/ μ m (100 mV/mil) or
7.87 mV/ μ m (200 mV/mil).

Shaft Absolute, Velocity

20 mV/(mm/s) pk (500 mV/(in/s) pk) or
5.8 mV/(mm/s) pk (145 mV/(in/s) pk) or
4 mV/(mm/s) pk (100 mV/(in/s) pk).

Circular Acceptance Region

See Radial Vibration.

Outputs

Front Panel LEDs

OK LED

Indicates when the 3500/42M is operating properly.

TX/RX LED

Indicates when the 3500/42M is communicating with other modules in the 3500 rack.

Bypass LED

Indicates when the 3500/42M is in Bypass Mode.

Buffered Transducer Outputs

The front of each monitor has one coaxial connector for each channel. Each connector is short-circuit protected.

Output Impedance

550 Ω

Transducer Power Supply

-24 Vdc

Recorder

+4 to +20 mA. Values are proportional to monitor full-scale. The monitor provides individual recorder values for each channel. Monitor operation is unaffected by short circuits on recorder outputs.

Voltage Compliance (current output)

0 to +12 Vdc range across load. Load resistance is 0 to 600 Ω .

Resolution

0.3662 μ A per bit
 \pm 0.25% error at room temperature
 \pm 0.7% error over temperature range.
Update rate 100 ms or less.

\pm 3% for machine speeds less than 30,000 cpm.

\pm 8.5% for machine speeds greater than 30,000 cpm.

Shaft Absolute Buffered Outputs

The Shaft Absolute I/O modules have one output for each channel group. Each output is short-circuit protected.

Shaft Absolute Output Impedance

300 Ω

Signal Conditioning

Note: Specified at +25 $^{\circ}$ C (+77 $^{\circ}$ F) unless otherwise noted

Radial Vibration

Frequency Response

Direct filter

User-programmable, 4 Hz to 4000 Hz or 1 Hz to 600 Hz.

Gap filter

-3 dB at 0.09 Hz.

Not 1X filter

60 cpm to 15.8 times running speed. Constant Q notch filter. Minimum rejection in stopband of -34.9 dB.

Smax

0.125 to 15.8 times running speed.

1X and 2X Vector filter

Constant Q Filter. Minimum rejection in stopband of -57.7 dB.

Note: 1X & 2X Vector, Not 1X, and Smax parameters are valid for machine speeds of 60 cpm to 60,000 cpm.

Accuracy

Direct and Gap

Within \pm 0.33% of full-scale typical, \pm 1% maximum.

1X and 2X

Within \pm 0.33% of full-scale typical, \pm 1% maximum.

Smax

Within \pm 5% maximum.

Not 1X

Thrust and Differential Expansion

Frequency Response

Direct filter

-3 dB at 1.2 Hz.

Gap filter

-3 dB at 0.41 Hz.

Accuracy

Within \pm 0.33% of full-scale typical, \pm 1% maximum.

Eccentricity

Frequency Response

Direct filter

-3 dB at 15.6 Hz.

Gap filter

-3 dB at 0.41 Hz.

Accuracy

Within \pm 0.33% of full-scale typical, \pm 1% maximum.

Acceleration

Frequency Response

The following table shows the frequency ranges if both channels of a channel pair are enabled:

Output Type	Without Filter	Low- or High-Pass Filter	With Integration
RMS	10 to 30,000 Hz	10 to 9,155 Hz	10 to 9,155 Hz
Peak	3 to 30,000 Hz	3 to 9,155 Hz	10 to 9,155 Hz

The following table shows the frequency ranges if a single channel is enabled for a channel pair.

Output Type	Without Filter, Low- or High-Pass Filter	With Integration
RMS	10 to 30,000 Hz	10 to 14,500 Hz
Peak	3 to 30,000 Hz	10 to 14,500 Hz

Filter quality

High-Pass

<i>Low-Pass</i>	4-pole (80 dB per decade, 24 dB per octave).
<i>Accuracy</i>	Within $\pm 0.33\%$ of full scale typical, $\pm 1\%$ maximum. Exclusive of filters.
Acceleration II	
<i>Frequency Response</i>	
<i>Bias filter</i>	-3 dB at 0.01 Hz
<i>Not OK filter</i>	-3 dB at 2400 Hz
<i>1X and 2X Vector filter</i>	Valid for machine speeds of 60 cpm to 100,000 cpm.

The following table represents the frequency ranges for the 3500/42M under different options using the Acceleration II Channel Type.

Output Type	Without Filter, Low- or High-Pass Filter	With Integration
RMS	10 to 30,000 Hz	10 to 20,000 Hz
Peak	3 to 30,000 Hz	10 to 20,000 Hz

<i>Filter Quality</i>	
<i>High-Pass</i>	4-pole (80 dB per decade, 24 dB per octave).
<i>Low-Pass</i>	4-pole (80 dB per decade, 24 dB per octave).
<i>Accuracy</i>	Within $\pm 0.33\%$ of full scale typical, $\pm 1\%$ maximum. Exclusive of filters.
Velocity and Velocity II	
<i>Frequency Response</i>	
<i>Bias</i>	-3dB at 0.01 Hz (Velocity II only)
<i>Not OK filter</i>	-3 dB at 40 Hz (Velocity II only)

<i>RMS</i>	10 to 5,500 Hz, -3 dB.
<i>Peak or Peak-to-Peak</i>	3 to 5,500 Hz, -3 dB
<i>1X and 2X Vector filter</i>	Valid for machine speeds of 60 to 100,000 cpm. (Velocity II only)
<i>Filter Quality</i>	
<i>High-Pass</i>	2-pole (40 dB per decade, 12 dB per octave).
<i>Low-Pass</i>	4-pole (80 dB per decade, 24 dB per octave).
<i>Accuracy</i>	Within $\pm 0.33\%$ of full scale typical, $\pm 1\%$ maximum. Exclusive of filters.
<i>Velomitor® Sensor Accuracy</i>	Full Scale 0-0.5: $\pm 3\%$ Typical Full Scale 0-1.0: $\pm 2\%$ Typical Full Scale 0-2.0: $\pm 1\%$ Typical

Shaft Absolute, Radial Vibration

<i>Frequency Response</i>	
<i>Direct filter</i>	User-programmable, 4 Hz to 4000 Hz or 1 Hz to 600 Hz.
<i>Gap filter</i>	-3 dB at 0.09 Hz.
<i>1X Vector filter</i>	Valid for machine speeds of 240 cpm to 60,000 cpm.
<i>Accuracy</i>	
<i>Direct and Gap</i>	Within $\pm 0.33\%$ of full-scale typical, $\pm 1\%$ maximum.
<i>1X</i>	Within $\pm 0.33\%$ of full-scale typical, $\pm 1\%$ maximum.
Shaft Absolute, Velocity	
<i>Frequency Response</i>	

Peak or Peak-to-Peak

User-programmable, 1 to 4,000 Hz, -3 dB.

The range of shaft speeds for which the value is valid is dependent upon the nominal Shaft Speed the channel is configured for. The following table summarizes the relationship:

Filter Quality

High-Pass

2-pole (40 dB per decade, 12 dB per octave).

Low-Pass

2-pole (40 dB per decade, 12 dB per octave).

1X Vector filter

Constant Q Filter. Minimum rejection in stopband of -57.7 dB.

Nominal Shaft Speed (Hz)	Valid Speed Range (Hz)
10 to <126	0.071 to 160
126 to <252	0.133 to 330
252 to <504	0.25 to 660
504 to 584	0.50 to 750

Note: If a multi-event gear or speed wheel generates the speed input, the resultant input signal has an upper limitation of approximately 20 KHz.

Accuracy

Within $\pm 0.33\%$ of full scale typical, $\pm 1\%$ maximum. Exclusive of filters.

Shaft Absolute Buffered Output Accuracy

$\pm 6.0\%$ @ 25 C

Circular Acceptance Region

See Radial Vibration

REBAM®

Frequency Response

Spike

User-programmable from 0.152 to 8678 Hz.

Element

User-programmable for BPFO ranging from 0.139 to 3836 Hz. High-pass corner is 0.8x BPFO. Low-pass corner is 2.2x BPFO.

Rotor

User programmable from 0.108 to 2221 Hz.

Direct

Programmable from 3.906 to 14.2 Hz. Selection is determined by Spike and Rotor filters.

Gap

Programmable from 0.002 to 1.0 Hz. Selection is determined by the Rotor filter.

1X Vector filter

Filter Quality

Spike high-pass

6-pole Elliptic (155 dB per decade, minimum). Corner frequency is -0.1 dB.

Element bandpass

8-pole Butterworth (155 dB per decade minimum). Corner frequency is -3 dB.

Rotor low-pass

6-pole Elliptic (155 dB per decade, minimum). Corner frequency is -0.1 dB.

Rotor, Direct high-pass

1-pole Butterworth (18 dB per decade, minimum). Corner frequency is -3 dB.

Spike, Direct low-pass

Corner is -0.3 dB maximum.

Gap low-pass

1-pole Butterworth (18 dB per decade, minimum). Corner frequency is -3 dB.

1X Amplitude

Constant Q of 16.67. Stopband frequencies are 0.91 and 1.09 times the running speed. Stopband attenuation is -51 dB minimum.

Accuracy

Amplitude

Within $\pm 0.33\%$ of full scale typical, $\pm 1\%$ maximum when input signal is at the center frequency of the proportional value's passband.

Phase

3 degrees error, maximum.

Accuracy of alarms are to within 0.13% of the desired value.

Channels enabled

Certain configurations allow the user to enable only one channel of a channel pair. See the discussion and graphs in the final pages of this datasheet.

Filter tracking/stepping (requires a valid speed signal)

Initial condition

Nominal filter set used.

Switch from nominal to lower filter set

Current shaft speed $\leq 0.9 \times$ (nominal shaft speed).

Switch from lower to nominal filter set

Current shaft speed $\geq 0.95 \times$ (nominal shaft speed).

Switch from nominal to higher filter set

Current shaft speed $\geq 1.1 \times$ (nominal shaft speed).

Switch from higher to nominal filter set

Current shaft speed $\leq 1.05 \times$ (Nominal Shaft Speed).

Shaft speed error condition

Nominal filter set used.

Alarms

Alarm setpoints

The user can set Alert levels can for each value measured by the monitor and Danger setpoints for any two of the values measured by the monitor using software configuration. Alarms are adjustable from 0 to 100% of full-scale for each measured value. The exception is when the full-scale range exceeds the range of the transducer. In this case, the range of the transducer will limit the setpoint.

Alarm Time Delays

Radial Vibration, Thrust, Differential Expansion, Eccentricity, Acceleration, Velocity, Acceleration2, Velocity2, Circular Acceptance Region, Shaft Absolute Radial Vibration

The user can program alarm delays using software as follows:

Alert

From 1 to 60 seconds in 1 second intervals.

Danger

0.1 seconds or from 1 to 60 seconds in 0.5 second intervals.

Shaft Absolute Velocity

The user can program Alarm delays using software as follows:

Alert

From 1 to 60 seconds in 1 second intervals.

Danger

From 1 to 60 seconds in 0.5 second intervals.

REBAM®

The user can program Alarm delays using software as follows:

Alert

From (calculated minimum value) to 400 seconds in 1 second intervals.

Danger

From (calculated minimum value) to 400 seconds in 0.5 second intervals.

Static Values

Static values are measurements used to monitor the machine. The Proximator®/Seismic Monitor returns the following static values:

Radial Vibration

Direct, Gap, 1X Amplitude, 1X Phase Lag, 2X Amplitude, 2X Phase Lag, Not 1X Amplitude, and Smax Amplitude.

Thrust Position

Direct, Gap

Differential Expansion	Direct, Gap	peak Velocity, peak-to-peak Displacement, or
Eccentricity	Peak-to-peak, Gap, Direct Minimum, Direct Maximum.	Band-pass peak Velocity, or Band-pass, or peak-to-peak Displacement.
REBAM®	Spike, Element, Rotor, Direct, Gap, 1X Amplitude, 1X Phase Lag	Additionally, 1X Phase, 2X Phase and Bias Voltage.
Acceleration	Direct, defined as one of the following: RMS Acceleration, or peak Acceleration, or RMS Velocity, or peak Velocity, or Band-pass peak Acceleration, or Band-pass peak Velocity.	Shaft Absolute, Radial Vibration and Shaft Absolute, Velocity Direct, Gap, 1X Amplitude, 1X Phase Lag
Acceleration II	Direct, 1X Amplitude, & 2X Amplitude; defined as one of the following: RMS Acceleration, or peak Acceleration, or RMS Velocity, or peak Velocity, or Band-pass peak Acceleration, or Band-pass peak Velocity. Additionally, 1X Phase, 2X Phase and Bias Voltage.	Circular Acceptance Region Direct, Gap, 1X Amplitude, 1X Phase Lag, 1X Circular Acceptance Radius, 2X Amplitude, 2X Phase Lag, 2X Circular Acceptance Radius
Velocity	Direct, defined as one of the following: RMS Velocity, or peak Velocity, peak-to-peak Displacement, or Band-pass peak Velocity, or Band-pass, or peak-to-peak Displacement.	<hr/> Barrier Parameters The following parameters apply for both CSA-NRTL/C and ATEX approvals. Proximator® Barrier <i>Circuit Parameters</i> 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 <i>Channel Parameters (entity)</i> Vmax = 28.0 V Imax = 115.62 mA Rmin (PWR) = 237.6 Ω (SIG) = 4985 Ω
Velocity II	Direct, 1X Amplitude, & 2X Amplitude: defined as one of the following: RMS Velocity, or	Seismic Barrier <i>Circuit Parameters</i> Vmax (PWR) = 27.25 V Imax (PWR) = 91.8 mA Rmin (PWR) = 297 Ω <i>Channel Parameters (entity)</i> Vmax = 27.25 V Imax = 91.8 mA

Rmin (PWR) = 297 Ω

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.

CE Mark Directives

EMC Directives

Declaration of Conformity

134036

IEC/EN 61000-6-4

Radiated Emissions

EN 55011, Class A

Conducted Emissions

EN 55011, Class A

IEC/EN 61000-6-2

Electrostatic Discharge

EN 61000-4-2, Criteria B

Radiated Susceptibility

EN61000-4-3, Criteria A

Conducted Susceptibility

EN61000-4-6, Criteria A

Radiated Susceptibility

ENV 50140, Criteria A

Conducted Susceptibility

ENV 50141, Criteria A

Electrical Fast Transient

EN 61000-4-4, Criteria B

Surge Capability

EN 61000-4-5, Criteria B

Magnetic Field

EN 61000-4-8, Criteria A

Power Supply Dip

EN 61000-4-11, Criteria B

Radio Telephone

ENV 50204, Criteria B

CE Mark Low-Voltage Directives

Declaration of Conformity

134036

Safety Requirements

EN6101001

Hazardous Area Approvals

CSA/NRTL/C

When used with Internal/External Termination I/O Module:

Class I, Div 2

Groups A, B, C, D

T4 @ Ta = -30 °C to +65 °C
(-22 °F to +150 °F)

Certification Number

CSA 150268-1002151 (LR 26744-211)

When used with I/O Module ordering option -09:

A/Ex nC[L] IIC

Class I, Div 2

T4 @ Ta = -30 °C to +65 °C
(-22 °F to +150 °F)

CSA 150268-1002151 (LR 26744-211)

For selected ordering options with internal barrier I/O module:

A/Ex nC[ia] IIC

Class I, Zone 2/(0)


Class I, Div I, Groups A,B,C,D

Certification Number

CSA 1389797 (LR 26744-211)

ATEX

For Selected Ordering Options with ATEX/CSA agency approvals:

 II 3/(3) G

Ex nCAL[L] IIC
T4 @ Ta = -20°C to +65°C
(-4°F to +150°F)

Note: When used with Internal Barrier I/O Module, refer to specification sheet 141495-01 for approvals information.

3500/03 Software – Version 1.21

External Termination Blocks cannot be used with Internal Termination I/O Modules.

When ordering I/O Modules with External Terminations the External Termination Blocks and Cable must be ordered separately for each I/O Module.

Bussed External Termination Blocks are to be used with TMR I/O Modules only.

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 lbs.).

I/O Module (non- barrier)

*Dimensions (Height
x Width x Depth)*

241.3 mm x 24.4 mm x 91.1 mm
(9.50 in x 0.96 in x 3.90 in).

Weight

0.20 kg (0.44 lbs.).

I/O Module (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 lbs.).

Rack Space Requirements

Monitor Module

1 full-height front slot.

I/O Modules

1 full-height rear slot.

Ordering Information

General

The 3500/42M Module requires the following (or later) firmware, and software revisions:

3500/01 Software – Version 2.50

3500/02 Software – Version 2.20

Internal Barrier I/O Modules

The 3500 Internal Barrier specification sheet (part number 141495-01) should be consulted if the Internal Barrier Option is selected.

Shaft Absolute

The Shaft Absolute Channel Type requires the following (or later) firmware and software revisions:

3500/42M Module Firmware – Revision B

3500/01 Software – Version 2.61

DM2000 Software - Version 3.10.

Requires the M version of the 3500 Proximitor®/Seismic Monitor.

REBAM®

The REBAM® channel type requires the following (or later) firmware, and software revisions:

3500/40M Module Firmware – Revision 2.1

3500/01 Software – Version 3.30

3500/02 Software – Version 2.40

3500/03 Software – Version 1.40

DM2000 Software - Version 3.40.

Requires the M version of the 3500 Proximitor® Monitor.

Acceleration II

The Acceleration II channel type requires the following (or later) firmware, and software revisions:

3500/42M Module Firmware – Revision 2.10

3500/01 Software – Version 3.20

DM2000 Software - Version 3.30.

Requires the M version of the 3500 Proximitor® Monitor.

Velocity II

See Acceleration II.

Circular Acceptance Region

See Acceleration II.

Ordering Information

**Proximitor® Seismic Monitor
3500/42-AXX-BXX**

A: I/O Module Type

- 0 1** Prox/Seismic I/O Module with Internal Terminations
- 0 2** Prox/Seismic I/O Module with External Terminations
- 0 3** TMR Prox/Seismic I/O Module.
- 0 4** I/O Module with Internal Barriers (4 x prox./accel. ch's) and Internal Terminations
- 0 5** I/O Module with Internal Barriers (2 x prox./accl. + 2 x Velomitor® channels) and Internal Terminations
- 0 6** I/O Module with Internal Barriers (4 x Velomitor® channels) and Internal Terminations
- 0 7** Shaft Absolute I/O Module with Internal Terminations
- 0 8** Shaft Absolute I/O Module with External Terminations
- 0 9** Prox/Velom I/O Module with Internal Terminations
- 1 0** Prox/Velom I/O Module with External Terminations

Note 1: The following table shows the ordering option and supported transducer types.

Ordering Option	Prox/Accel	Velom	Seismo-probe
A 01 & A 02	See Note 4		X
A 03	X	X	
A 04, A05, & A 06	See Note 2		
A 07 & A 08	X	X	X
A 09 & A 10	X	X	

Note 2: The following table shows the ordering options that are available for Internal Barriers with this monitor.

Option	Ch's 1 and 2	Ch's 3 and 4
A 04	Prox/Accel	Prox/Accel
A 05	Prox/Accel	Velomitor® sensor
A 06	Velomitor® sensor	Velomitor® sensor

Note 3: HTVS transducer is supported in A 09 and A 10 I/O module type options.

Note 4: Prox/Accel and Velom are supported with the A 01 & A 02 options. However, unless Seismoprobes® will be used the appropriate choice is the A 09 and A 10 options.

B: Agency Approval Option

- 0 0** None
- 0 1** CSA/NRTL/C (Class 1, Div 2)
- 0 2** ATEX/CSA (Class 1, Zone 2)

External Termination Blocks

- 125808-01 Proximitor® ET Block (Euro Style Connectors).
- 128015-01 Proximitor® ET Block (Terminal Strip Connectors).
- 132242-01 Prox/Seismic Bussed TMR ET Block (Euro Style connectors).
- 132234-01 Prox Seismic Bussed TMR ET Block (Terminal Strip connectors).
- 128702-01 Recorder External Termination Block (Euro Style connectors).
- 128710-01 Recorder External Termination Block (Terminal Strip connectors).
- 140993-01 Shaft Absolute External Termination Block (Euro Style connectors).
- 141001-01 Shaft Absolute External Termination Block (Euro Style connectors).
- 125808-08 Proximitor®/Velomitor® External Termination Block (Euro Style connectors).

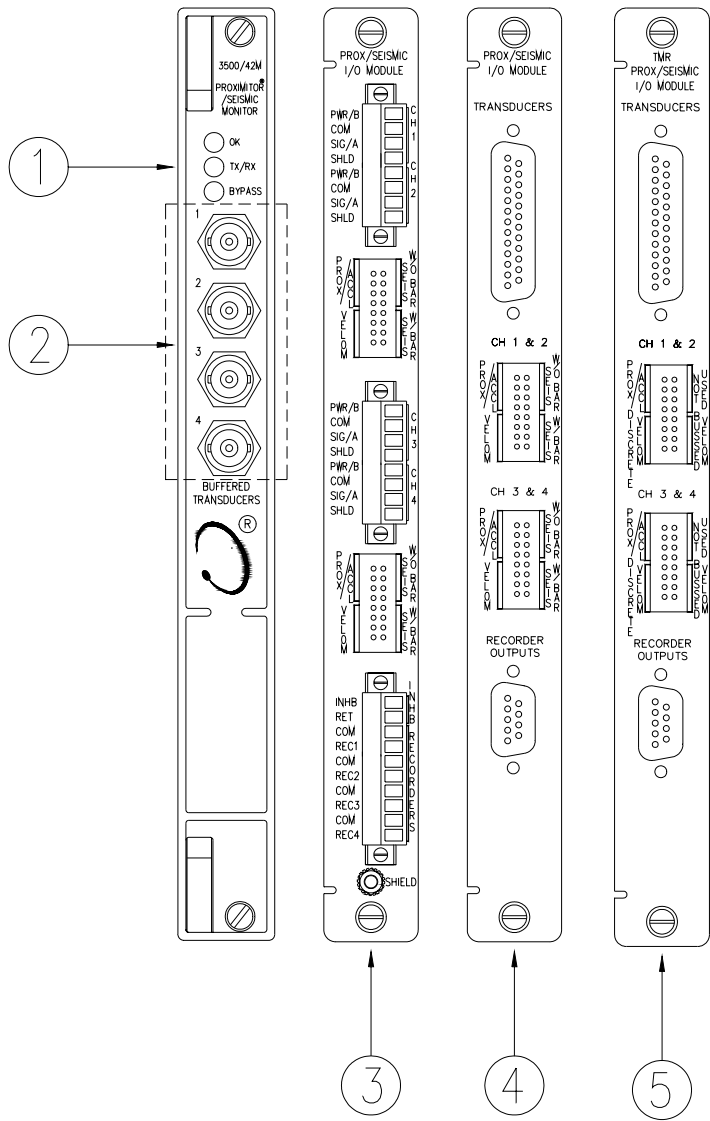
128015-08	Proximator®/Velomitor® External Termination Block (Terminal Strip connectors).	00530843	TMR I/O Module with External Terminations
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Cables			
3500 Transducer (XDCR) Signal to External Termination (ET) Block Cable		143489-01	3500/42M Prox/Seismic I/O Module four-pin connector shunt
129525 -AXXXX-BXX			3500/42M Monitor Manual
A: Cable Length		135489-01	
	0 0 0 5 5 feet (1.5 metres)		I/O Module with Internal Barriers (Internal Terminations)
	0 0 0 7 7 feet (2.1 metres)		(4 x Prox/Accel).
	0 0 1 0 10 feet (3.0 metres)		
	0 0 2 5 25 feet (7.6 metres)	135489-02	
	0 0 5 0 50 feet (15.2 metres)		I/O Module with Internal Barriers (Internal Terminations)
	0 1 0 0 100 feet (30.5 metres)		(2 x Prox/Accel + 2 x Velomitor®)
B: Assembly Instructions		135489-03	
	0 1 Not assembled		I/O Module with Internal Barriers (Internal Terminations)
	0 2 Assembled		(4 x Velomitor®)
<hr/>			
3500 Recorder Output to External Termination (ET) Block Cable		138708-01	
129529 -AXXXX-BXX			
A: Cable Length			Shaft Absolute I/O Module with Internal Terminations
	0 0 0 5 5 feet (1.5 metres)		
	0 0 0 7 7 feet (2.1 metres)	138700-01	
	0 0 1 0 10 feet (3.0 metres)		Shaft Absolute I/O Modules with External Terminations
	0 0 2 5 25 feet (7.6 metres)		
	0 0 5 0 50 feet (15.2 metres)	00517018	
	0 1 0 0 100 feet (30.5 metres)		3500/42M Shaft Absolute I/O Module eight-pin connector shunt
B: Assembly Instructions		140471-01	
	0 1 Not assembled		Prox/Velom I/O Module with Internal Terminations
	0 2 Assembled		
<hr/>			
Spares			
140734-02		140482-01	
	3500/42M Proximator®/Seismic Monitor	00561941	Prox/Velom I/O Module with External Terminations
128229-01			3500/42M Prox/Velom I/O Module ten-pin connector shunt
	Prox/Seismic I/O Module with Internal Terminations	00580434	
128240-01			Internal I/O Module connector header, Euro style, 8-pin. Used on I/O modules 128229-01 and 138708-01.
	Prox/Seismic I/O Module with External Terminations	00580432	
126632-01			

Internal I/O Module connector header, Euro style, 10-pin. Used on I/O modules 128229-01 and 138708-01.

00502133

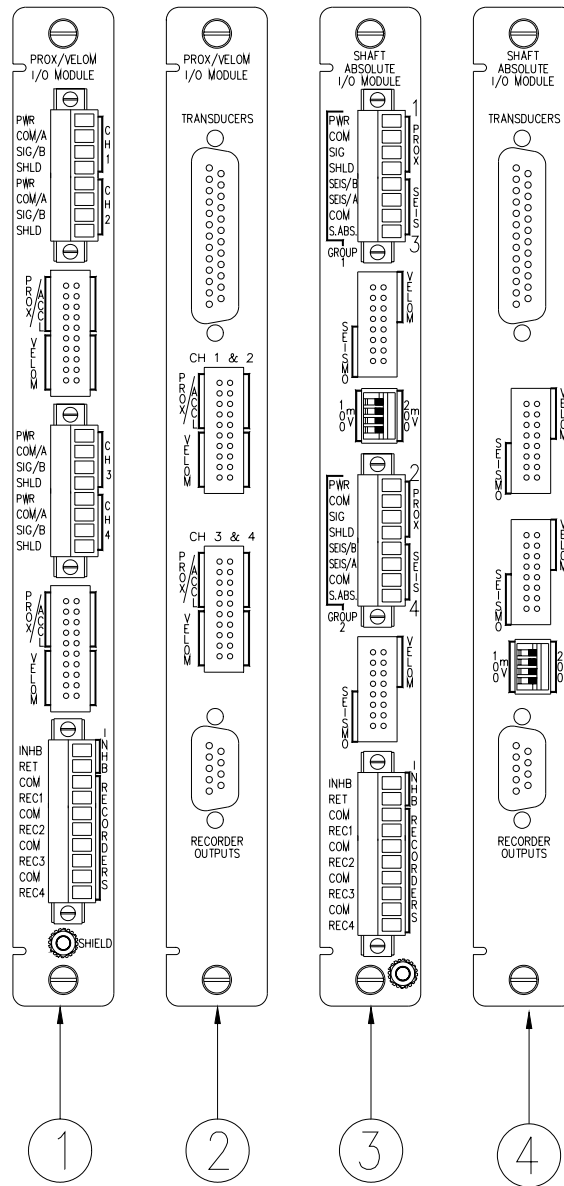
Internal I/O Module connector header, Euro style, 12-pin.

Figures



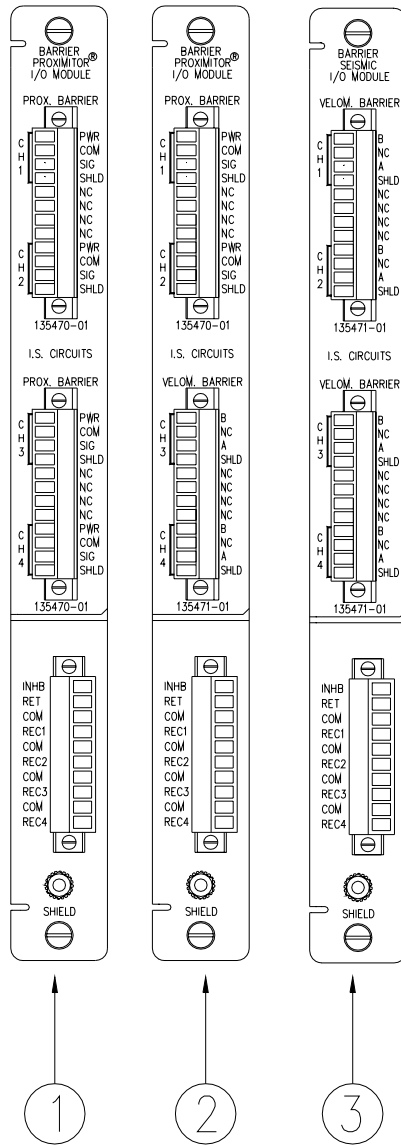
1. Status LEDs
2. Buffered Transducer Outputs
3. Prox/Seismic I/O Module with Internal Terminations
4. Prox/Seismic I/O Module with External Terminations
5. TMR I/O Module with External Terminations

Figure 1: Front and rear view of the ProximitoR®/Seismic Monitor



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 of the Proximitor®/Seismic Monitor

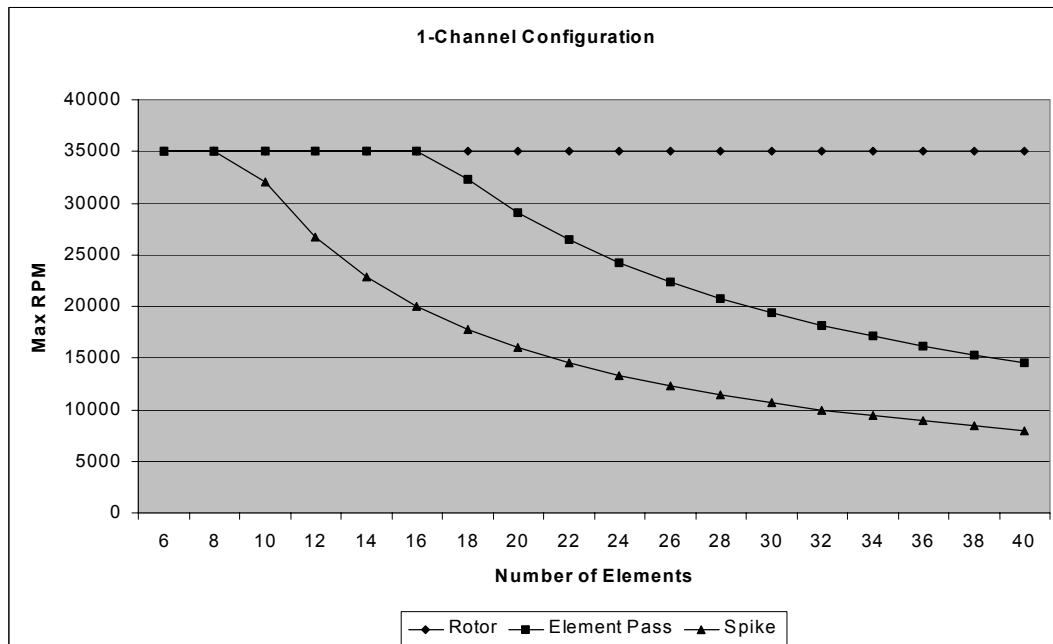
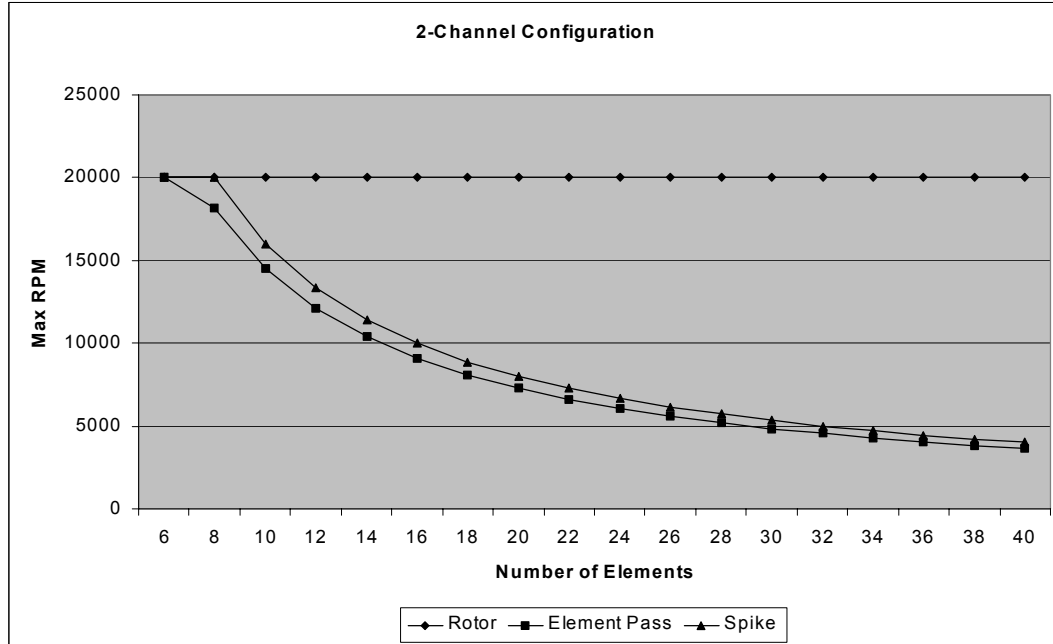


1. Barrier I/O module for connecting four Proximito® sensors.
2. Barrier I/O module for connecting two Proximito® sensor and two Velomito® sensor.
3. Barrier I/O module for connecting four Velomito® sensors.

Figure 3: Barrier I/O Modules for the Proximito®/Seismic Monitor

REBAM® Channels:

The following graphs show the maximum machine speed allowed for a monitor channel pair configured for REBAM®. The top graph assumes both channels of the channel pair are enabled. The bottom graph assumes only one channel of a channel pair is enabled. The maximum speed is dependent on the number of rolling elements in the bearing. The graph assumes that the rotor lowpass filter corner is set at 3.2X the shaft speed and the spike highpass filter corner is set at 4X the element pass frequency for the outer race (BPFO).



Data subject to change without notice.

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