Bently Nevada 3500 Series Service Manual

3500/50M-01-00 286566-02

1. Description

Manufacturer : Bently Nevada

3. Product Information

Manufacturer : Bently Nevada

Product No. : 3500/50M-01-00 286566-02

Product type : Tachometer Module

Made in U.S.A

I/O module type : 01 = I/O module with internal terminations

Agency approval option : 00 = None

Inputs

Signal

Each 3500/50M Tachometer Module accepts up to two transducer signals from proximity probe transducers or magnetic pickups.

Input signal range

+10.0 V to -24.0 V

Signals exceeding this range are limited internally by the module.

Input impedance

20 k Ω (standard)

40 k Ω (TMR)

7.15 k Ω (Internal Barrier)

Power consumption 5.8 Watts, typical

Transducers

Accepts 1 to 2 proximity transducer signals

Restrictions may apply to magnetic pickups (see on page 2).

Outputs

Front Panel LEDs

OK LED

Indicates when the 3500/50M Tachometer Module is operating properly.

TX/RX LED

Indicates when the Tachometer Module is communicating with other modules in the 3500 rack.

Bypass LED

Indicates when the Tachometer Module is in Bypass Mode.

Buffered Transducer Outputs

The front of each module has one coaxial connector for each channel.

Each connector is short circuit and ESD protected.

Buffered outputs are available at the I/O module via Euro style connectors.

Output Impedance 550 Ω

Transducer
Power Supply
24 Vdc, 40 mA maximum per channel
Recorder
+4 to +20 mA
Values are proportional to module full-scale range (rpm or rpm/min).
Individual recorder values are provided 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 µA per bit ±0.25% error at room temperature ±0.7% error over temperature range
Update rate approximately 100 ms
Signal Conditioning
Specified at +25ºC (+77ºF)
Speed Input
The 3500/50M Tachometer Module supports 1 to 255 events per revolution for Rotor Acceleration and Zero Speed channel types.
All other channel types support 0.0039 to 255 events per revolution.
All channel types support a maximum full scale range of 99,999 rpm and a maximum input frequency of 20 kHz.
Minimum input frequency for proximity transducers is 0.0167 Hz (1 rpm for 1 event per revolution).
Minimum input frequency for passive magnetic pickups is 3.3 Hz.
RPM Accuracy
Less than 100 rpm = ± 0.1 rpm
100 to 10,000 rpm = ±1 rpm
10,000 to 99,999 rpm = ± 0.01% of true shaft speed
RPM/Min Accuracy
± 20 rpm/min
Transducer Conditioning
Auto Threshold
Use for any input above

0.0167 Hz
(1 rpm for 1 event/revolution)
Minimum signal amplitude
for triggering is 1 volt peakto-peak.
Manual
Threshold
User selectable from +9.5
Vdc to -23.5 Vdc
Minimum signal amplitude
for triggering is 500 millivolts
peak-to-peak
Hysteresis User selectable from 0.2 to
2.5 volts
Alarms
Alarm
Setpoints
Alarm 1 levels (setpoints)
can be set for each value
measured by the
Tachometer.
Alarm 2 setpoints can be set
for any two of the values
measured by the
Tachometer.
Alarm setpoints are set using
software configuration.
Alarms are adjustable and
can normally be set from 0
to 100% of full scale for each
measured value.
Alarm Time
Delays
Programmable alarm delays
for Alarm 1 and Alarm 2
Alarm 1 Time
Delay
From 1 to 60 seconds in 1
second intervals
Alarm 2 Time
Delay
From 1 to 60 seconds in 0.1
second intervals
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 0.82 kg (1.8 lb)
Rack Space Requirements
Monitor
Module 1 full-height front slot
Ordering Considerations
To add the 3500/50M Tachometer Module to an
existing 3500 Monitoring System, you must
have the following versions of firmware and
software:

Firmware and Software Version

3500/22M Module

Firmware Revision (1.70)

3500/01 Configuration

Software

Version 4.20 or

later

3500/02 Data Acquisition

Software

Version 2.52 or

later

3500/03 Display Software Version 1.52 or

later

3500/50M Firmware Revision 5.30 or

later

3500/50M

Not compatible

with any version

of 3500/20