MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

3500 SYSTEM

126623-01

MACHINERY MONITORING COMPONENT

Used with the applicable 3500 System configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: Bently Nevada 126623-01 manufacturer documentation

3500/44M Aeroderivative Monitor

Bently Nevada* Asset Condition Monitoring

Description

The 3500/44M Aeroderivative GT Vibration Monitor is a four-channel monitor designed for Aeroderivative Gas Turbine applications. The Aero GT and TMR Aero GT I/Os interface to velocity transducers through Bently Nevada™ interface modules 86517 and 86497. The monitor uses the Prox/Velom I/O to interface to our Velomitor® sensors and accelerometers. The user can configure the 3500/44M, using the 3500 Rack configuration Software, for any of the following filter options:

- Signal Integration
- 1X vibration tracking
- Band-pass vibration

The 3500/44M accepts input from two separate Keyphasor® signals, allowing each channel pair to use a different tracking filter.

The 3500/44M is designed to meet the recommended requirements of the following Aeroderivative Gas Turbine Manufacturers:

1. Rolls Royce: RB211, Avon.
2. General Electric: LM1600, LM2500, LM5000, LM6000.
3. United Technologies: Turbo Power GG 3, G44, FT 4, FT 8.

The primary purpose of the 3500/44M 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.

For Triple Modular Redundant (TMR) applications, the user must install Aeroderivative Monitors adjacent to each other in groups of three. In this configuration the system uses voting to ensure accurate operation and to avoid single-point failures.

The user can configure multimode channels to have up to eight sets of alarm parameters (Alert and Danger setpoints and alarm time delays). The configuration of each set can be for a specific machine mode, and the monitor can switch to a specific set as the machine changes modes. This is done via contacts on multimode I/O modules or by software commands through a communications gateway.

Specifications

Inputs

Signal

Accepts 1 to 4 signals from our interface modules (86517 and 86497), Velomitors and Accelerometers.

Input Impedance

Aero GT I/O

Greater than 95 kΩ

Prox/Velom I/O and Multimode Prox/Velom I/O

10 kΩ for Prox/Accel.

3.5 MΩ for Velomitor.

Power Consumption

7.7 watts typical

Sensitivity

Aeroderivative

3.94 mV/(mm/s) (100mV/(in/s)) or

5.71 mV/(mm/s) (145mV/(in/s))

Aeroderivative2 and Multimode Aeroderivative

3.94 mV/(mm/s) (100mV/(in/s)) or

5.71 mV/(mm/s) (145mV/(in/s)) or

10.19 mV/(m/s²) (100 mV/g) or

2.55 mV/(m/s²) (25 mV/g) or

1.02 mV/(m/s²) (10 mV/g)

Outputs

Front Panel LEDs

OK LED

Indicates when the 3500/44M is operating properly.

TX/RX LED

Indicates when the 3500/44M is communicating with other modules in the 3500 rack.

Bypass LED

Indicates when the 3500/44M 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

-23 Vdc nominal at 43 mA max.

Recorder

+4 to +20 mA. Output is proportional to monitor full-scale. One output is 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.

Update rate 100 ms or less.