

MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

3701 MACHINERY DYNAMICS MONITOR

3701/44 175794-01

MACHINERY MONITORING MODULE

Used with the applicable 3701 Machinery Dynamics Monitor configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: Bently Nevada 3701/44 175794-01 manufacturer documentation

Bently Nevada* Asset Condition Monitoring

ADAPT 3701/44 Aeroderivative Monitor

Advanced distributed architecture platform technology - ADAPT

Bently Nevada's Advanced Distributed Architecture Platform Technology, or ADAPT 3701, is a family of compact, high performance safety, machinery protection and condition monitoring solutions. ADAPT products are targeted at specific assets and applications. The products excel at the intensive signal processing necessary to identify early indicators of machine failure modes long before an alarm.

The ADAPT 3701 family is targeted at machines ranked as critical to highly-critical where a permanent on-line protection and condition monitoring system is recommended. The compact form factor, sensor channel count, and signal processing capability make the ADAPT 3701 monitors a great solution for machine trains with smaller sensor point counts and challenging mechanical dynamics.

3701/44 aero monitor

Description

The ADAPT 3701/44 Aero Monitor is designed specifically for protection and condition monitoring on aeroderivative gas turbines.

The 3701/44 Aero Monitor is optimized for the signal processing required on aero gas turbines such as tracking filters on each casing sensor at multiple rotor speeds; narrow band high order bandpass filters; multiple bandpass filters on a signal source; and combustion dynamic pressure pulsation measurements; as well as more common measurements of shaft radial position and vibration, thrust position, and absolute vibration using accelerometers or velocity sensors.

The compact size, skid installation, and channel count of the 3701/44 Aero Monitor make it well suited for aero gas turbine protection and condition monitoring. A single 3701/44 Aero Monitor can often cover all the points on both the aeroderivative and its driven equipment.



The ADAPT 3701/44 Aero Monitor is suitable for use on these and other aeroderivative gas turbines:

- GE LM500, LM1600, LM2500, LM5000, LM6000
- Rolls-Royce RB211, Avon
- Pratt & Whitney GG3, GG4, FT4, FTB

ADAPT 3701 is configured and validated with Bently Nevada Monitor Configuration (BNMC) software. BNMC is a simple and powerful configuration and validation environment resulting from extensive user interaction studies with endusers, OEM's, and our field services team.

ADAPT 3701 interfaces to Bently Nevada's next generation conditioned monitoring platform, System 1 Evolution. This enables strategic, data driven maintenance planning and decision making, to help optimize productivity and performance, allowing the ADAPT 3701 to be used as a comprehensive CM solution.

Operator Display for ADAPT 3701 is also available in a simple, easy to use, entry package in the System 1® Evolution software family – termed System 1 Basic. This low cost, light footprint, display package is both an operator display and a troubleshooting tool with simple snapshot oscilloscope type features.

Integration with unit controls, HMI's, or other plant automation systems is conducted via an Ethernet connection using Modbus TCP or Bently Nevada's Ethernet Global Data (EGD) protocol.

Key features

- 12 Sensor Input Channels (Proximitys, Accelerometers, Velometers, Seismoprobes, Dynamic Pressure, Magnetic Speed pick-ups, and "custom", both Positive and Negative biased sensors)
- 2 Keyphasor or Speed Inputs – galvanically isolated magnetic pick-up speed sensors
- Redundant 24VDC Power Inputs
- Multiple custom measurements configurable on a signal source
- Configurable nX vectors
- Cross-rotor tracking filters
- Synchronized parallel sampling on all channels
- 24 bit A/D conversion and signal processing
- 40 kHz signal bandwidth
- 110 dB dynamic range
- Configurable synchronous and asynchronous spectrums – up to 3200 lines (Requires System 1® Evolution)
- Configurable Spectral Bands measuring amplitude spectral density in the configured band(s)

- Two 10Base-T/100Base-TX Autosensing Ethernet RJ45 connections per processor
- Hardware configuration lock prevents changes when in run mode, available in simplex or dual redundant processing (Dual Base)
- 1 Protection Fault SPDT Relay Output
- 8 Programmable SPDT Relay Outputs
- Modbus TCP communication
- Ethernet Global Data (EGD) communication
- Regulatory Compliance and Certifications: CE, North America General Safety, RoHS compliant, North America Zone 2 (Haz Loc, and ATEX Zone 2 planned)

Benefits

- Aeroderivative Gas Turbine specific signal processing and measurements
- Machinery protection and condition monitoring using state of the art electronics and signal processing
- New generation platform ensuring robust, long term lifecycle support
- Compact, skid mountable form factor can reduce wiring and installation cost
- Multiple customizable measurements configurable on a signal source to optimize early detection of failure modes and provide the condition monitoring data you need for PdM
- Global sales, services, and technical support, 24/7, with regional coverage and response time that only Bently Nevada can offer