



# ADAPT 3701/40 Machinery Dynamics Monitor

## Advanced Distributed Architecture Platform Technology – ADAPT

Bently Nevada Advanced Distributed Architecture Platform Technology, or ADAPT 3701, from Baker Hughes 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.

## Description

The ADAPT 3701/40 Machinery Dynamics Monitor is a versatile member of the ADAPT family targeted at critical rotating machinery. It offers compact form factor, skid installation, single train or casing focus, channel count, and signal processing capability providing a great solution and an alternative to a large rack-based system.

Predictive Maintenance (PdM) and Condition Based Maintenance (CBM) is the high ground where today's best-in-class businesses are moving in order to optimize return-on-assets. The 3701/40 Machinery Dynamics Monitor provides condition monitoring data in tiered steps from measurement data to the process control system to feeding waveform data to Bently Nevada System 1 Evolution Condition Monitoring Software from Baker Hughes. Of course, measurement data can come from any vibration monitoring system but the 3701/40 Machinery Dynamics Monitor signal processing flexibility lets you configure multiple measurements that provide enhanced indication of the failure modes posing the greatest risks to availability of your machinery.

The ADAPT 3701/40 Machinery Dynamics Monitor is suitable for use on a wide range of rotating machinery such as:

- Gas Turbines (fluid film bearings or REB)
- Small Steam Turbines (mechanical drive or small power generation)
- Gearboxes
- Centrifugal compressors and pumps
- Integrally geared compressors and pumps
- Axial and Screw compressors
- Expanders
- Generators
- Motors
- Fans
- Blowers

ADAPT 3701 is configured and validated with Bently Nevada Monitor Configuration (BNMC) software. BNMC offers a simple and powerful configuration and validation environment. This results from extensive user interaction studies with end-users, OEM's, and Bently Nevada field services team.

ADAPT 3701 interfaces to Baker Hughes, 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 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 Ethernet Global Data (EGD) protocol.

## Key features

- 12 Sensor Input Channels (Proximitys, Accelerometers, Velomitors, Seismoprobes, Dynamic Pressure, Magnetic Speed pick-ups, and "custom", both Positive and Negative biased sensors)
- 2 Keyphasor/Speed Inputs
- Redundant 24 Vdc Power Inputs
- Multiple custom measurements configurable on a signal source
- Vector measurements on a single channel for multiple shafts
- Configurable nX vectors
- 24 bit A/D conversion and signal processing
- Synchronized parallel sampling on all channels
- 110 dB dynamic range
- 40 kHz signal bandwidth
- Configurable synchronous and asynchronous spectrums –up to 3200 lines

- 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

- Machinery protection and condition monitoring using state of the art electronics and signal processing.
- New generation platform ensuring robust, long term lifecycle support.
- Compact form factor and skid or local mounting capability 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.

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