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## Описание на мониторы гидротурбин. Модель ADAPT 3701/46



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## Bently Nevada Asset Condition Monitoring ADAPT 3701/46 Hydro Monitor

# fact sheet

### Advanced Distributed Architecture Platform Technology - ADAPT

GE's Bently Nevada\* 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.

### 3701/46 Hydro Monitor

#### Description

The ADAPT 3701/46 Hydro Monitor is an asset specific member of the ADAPT family designed specifically for protection and condition monitoring on Hydro Turbines.

The 3701/46 Hydro Monitor is optimized for hydro turbines and specialized measurements to detect rough load zone, propeller, blade, or bucket nX frequencies and cavitation as well as conventional measurements of shaft radial position and vibration, thrust position, and absolute vibration using accelerometers or velocity sensors.

The compact size and channel count of the 3701/46 Hydro Monitor make it well suited for hydro turbines requiring no more than 12 sensor points. Hydro turbines in this category can range in size and type but are most commonly smaller units not requiring air gap or temperature measurements.

The ADAPT 3701 is configured and validated with Bently Nevada Monitor Configuration (BNMC) software. BNMC offers a simple



and powerful configuration and validation environment resulting from extensive user interaction studies with end-users, OEM's, and GE's Bently Nevada 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 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 GE's Ethernet Global Data (EGD) protocol.

## Key Features

- 12 Sensor Input Channels (Proximitors, Accelerometers, Velomitors, Seismoprobes, Dynamic Pressure, Magnetic Speed pick-ups, and "custom", both Positive and Negative biased sensors)
- 2 Keyphasor/Speed Inputs
- Redundant 24VDC Power Inputs
- Multiple custom measurements configurable on a signal source
- Configurable nX vectors
- 24 bit A/D conversion and signal processing
- Synchronized parallel sampling on all channels
- 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).
- Rough load zone detection.
- Wide frequency bandwidth for cavitation detection.
- Two 10Base-T/100Base-TX Autosensing Ethernet RJ45 connections

- Hardware configuration lock prevents changes when in run mode
- 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

- Hydro 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 form factor and robust environmental package enables mounting near the hydro unit reducing 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 GE Bently Nevada can offer.



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