



# vbOnline Pro

The vbOnline Pro provides automated, user-scheduled monitoring of an asset's mechanical health. It is a flexible and scalable system fully supported by the Bently Nevada System 1\* condition monitoring and diagnostic software. The system assists in the early detection of machinery and process problems. The vbOnline Pro provides economic vibration monitoring for important assets. The device is easy to install and configure.

## Machinery applications

vbOnline Pro is an ideal condition monitoring instrument for machinery with rolling element bearings and complex gearboxes, including:

- Agitators
- Air Compressors
- Blowers
- Centrifuges
- Cooling tower fans and pumps
- Extruders
- Machine tool spindles
- Mill stands
- Motors
- Paper machines
- Pumps
- Small Centrifugal Compressors
- Wind turbine generators

## Hardware key features

System 1 enables strategic, data-driven maintenance planning and decision making to optimize asset reliability. The key features and benefits include:

- Compact and easy to install
- Simultaneous 12 channel data sampling
- Support for use with single PC or network
- Wired Ethernet connection
- 24-bit A/D conversion
- Continues to operate and store data on communication loss
- Supports 2 wire IEPE/ICP accelerometers
- Multiple user configurable waveforms and types per channel
- Configurable setpoints with alarming and events
- Machine operating state based data storage and alarming

## Software key features

The vbOnline Pro and System 1 software complement your predictive maintenance program by performing cost effective data collection and condition monitoring analysis.

System 1 software is the core of GE's Bently Nevada\* condition monitoring solution. It is an innovative approach to provide users with a single ecosystem for full plant-wide machinery management.

# Capability

System 1 provides scale when it comes to database management, diagnostics, and work prioritization.

- High resolution trends and alarming
- Short-term “black box” flight recorder
- Anti-friction rolling element bearings
- Diagnostic reporting

## vbOnline specifications

### Analog inputs

Channels 1 to 10	IEPE/ICP 2 wire accelerometers
Channels 11 and 12	IEPE/ICP 2 wire accelerometers -or- Bently Nevada 3 wire accelerometers
Sampling method	All channels sampled simultaneously
AC coupled range	24 V peak-to-peak
Sensor drive current (2 wire mode)	3.3 mA @ -24 V
A to D conversion	24 bit
Input impedance	> 100KΩ for 2 wire accelerometers
Dynamic range	≥ 110 dB
Amplitude accuracy	± 1% (0.1 dB)

### Advanced features

Data storage intervals	Direct (overall) amplitudes – configurable in 30 second increments (default = 30 secs) Waveforms & Spectra – configurable in 10 minute increments (default = 10 mins)
Current values mode viewed in System 1	Direct (overall) amplitudes – 1 second Waveforms and Spectra – 1 second or as per waveform collection time
Waveform and spectrum support	Multiple user configurable waveforms, spectra and types per channel
Configuration assistance	Calculation of available vbOnline Pro resources based on monitor configuration
Alarming and events	Configurable setpoints for all direct (overall) amplitudes. Additional data snapshot of all measurements for all channels in a machine collection group when alarm threshold exceeded for user defined dwell period.
Machine operating state-dependent data collection	Supports machine operating state data collection and compartmentalization based on multi-parametric logic. Additional data snapshot of all measurements for all channels in a machine collection group on state change.
Offline operation	The instrument continues to operate independently, with full functionality on loss of connectivity with a System 1 server. Data is stored and retained on a FIFO basis.

### Dynamic channel measurements (Channels 1 – 12)

Measurement domains	Acceleration Velocity Demodulation
Measurement types	Asynchronous and synchronous
Trended measurements	Direct (overall) amplitude Bias voltage Spectral bands (from waveform dynamic data in System 1)
Sample rate	102.4 KHz maximum
Waveform samples per measurement	User configurable up to 32,768 samples
Spectral lines	1000 to 12,800 in 2x increments
Spectral resolution	Down to 0.78 mHz/line
Spectrum maximum frequency	User configurable up to 40 KHz
Window type	Hanning
Demodulation bandwidths	125 Hz – 10 IHz (19 preset options)

### Speed pulse inputs

Channels	2 (KPH1 & KPH2)
Input types	Keyphasor TTL
Power supply to speed pulse sensor	-24 VDC
Detection threshold	Auto detection
Events per revolution	User definable in System 1
Recommended sensor	Bently Nevada Proximitors/Keyphasors Proximity Switch Turck NI8-M18T-AP6X7M +5 V TTL
Type	Notch Key

### Instrument memory and system capacity

Offline storage capacity	3,000 waveforms to supporting 6,400 spectral lines per waveform. Retention time duration depends on user defined storage interval.
Data retrieval to System 1 enterprise database	Automatic synchronization and transfer of all captured data after a communication loss
System 1 enterprise database instrument capacity	200 vbOnline Pro instruments per database (2400 accelerometer channels, 400 speed pulse channels)

### Instrument configuration

Security	User configurable user name and password, via BNMC software
Network IP address and configuration	Via BNMC software
Firmware update	Via System 1 software -or- Via BNMC software
Measurement and channel configuration, alarm setpoints, machine operating state and data storage intervals	Via System 1 software

### Outputs

Status indicators	Individual LEDs for Power, OK, Danger, Alert, KPH1 OK, KPH 2 OK, Net A TX/RX, Net B TX/RX
Network communication	Ethernet v2.0 TCP/IP 10/100 Base-T
Communication protocols	Bently Nevada Instrument Protocol for communication with System 1. Modbus/TCP.
Network connector	Dual RJ45
Buffered transducer outputs	All 14 channels

### Power, mechanical, environmental and EMC

Power supply	1.7 A @ 18 to 36 VDC
Boot-up time	< 5 minutes
Mounting	Standard 35mm DIN rail
Size	199 mm x 130 mm x 45 mm
Temperature range	-40° C to +70° C (-40° F to +158° F)
Humidity	95% RH non-condensing
EMC	EMC Directive 2004/108/EC EN 55011/CISPR 11 EN 61000-6-2 EN 61000-6-4

