vbOnline™

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The new standard for online machine surveillance

The vbOnline™ system provides 24/7 round the clock surveillance of your critical assets. It is a flexible, modular system that is constantly and automatically evaluating machine operating condition, instantly notifying you when potential problems arise, thus avoiding costly downtime.
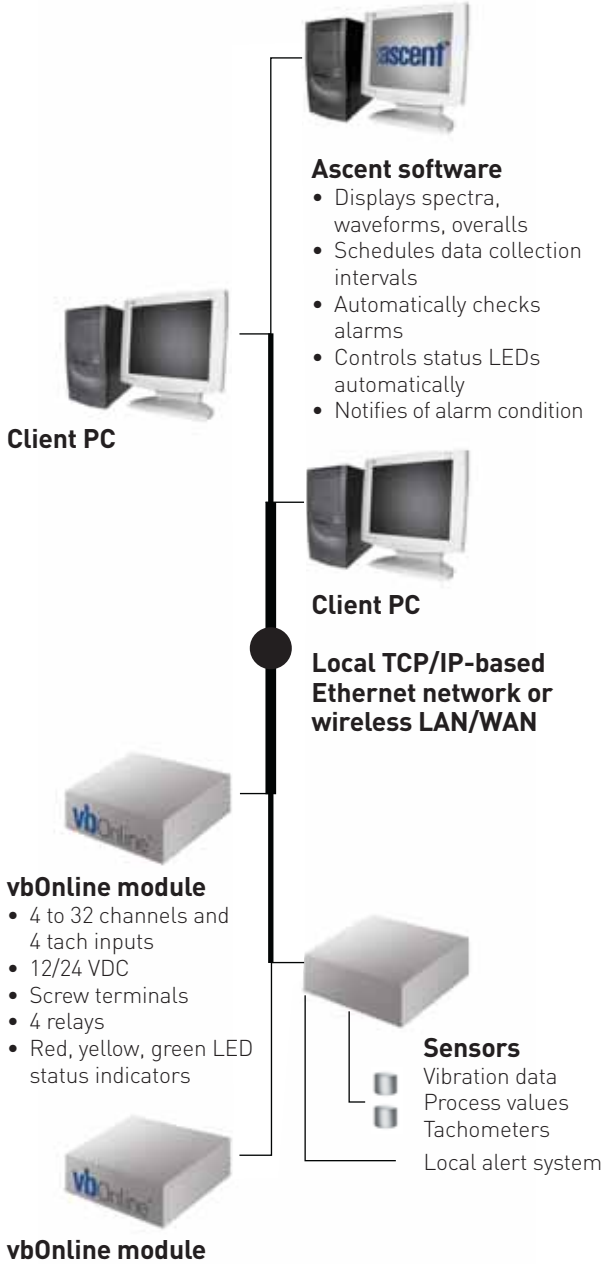
The vbOnline system allows you to collect data more cost effectively, more timely, and with improved accuracy compared with walk around portable routines. You can safely monitor machines in dangerous and inaccessible environments.

Within reach

vbOnline connectivity

Simplicity is our goal. Each vbOnline device connects directly into the LAN / WAN network within your plant. Single user PC or network capable, our system can be as small as required or is easily expandable. As your surveillance needs increase, simply plug in additional modules.

Client PC

Ascent software
- Displays spectra, waveforms, overalls
- Schedules data collection intervals
- Automatically checks alarms
- Controls status LEDs automatically
- Notifies of alarm condition

Client PC

Local TCP/IP-based Ethernet network or wireless LAN/WAN

vbOnline module
- 4 to 32 channels and 4 tach inputs
- 12/24 VDC
- Screw terminals
- 4 relays
- Red, yellow, green LED status indicators

Sensors
Vibration data
Process values
Tachometers

Local alert system
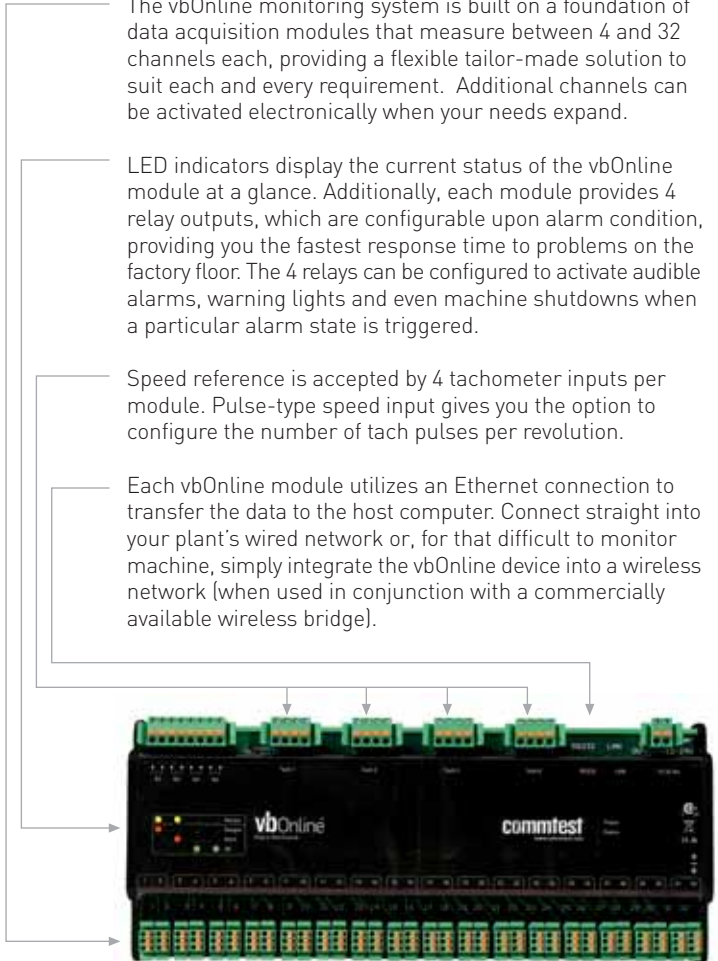
vbOnline module

vbOnline™ - a complete surveillance system

The vbOnline monitoring system is built on a foundation of data acquisition modules that measure between 4 and 32 channels each, providing a flexible tailor-made solution to suit each and every requirement. Additional channels can be activated electronically when your needs expand.

LED indicators display the current status of the vbOnline module at a glance. Additionally, each module provides 4 relay outputs, which are configurable upon alarm condition, providing you the fastest response time to problems on the factory floor. The 4 relays can be configured to activate audible alarms, warning lights and even machine shutdowns when a particular alarm state is triggered.

Speed reference is accepted by 4 tachometer inputs per module. Pulse-type speed input gives you the option to configure the number of tach pulses per revolution.

Each vbOnline module utilizes an Ethernet connection to transfer the data to the host computer. Connect straight into your plant's wired network or, for that difficult to monitor machine, simply integrate the vbOnline device into a wireless network (when used in conjunction with a commercially available wireless bridge).

Key features

- Modular design for system expansion
- Compact, easy to install
- 4 to 32 channel options, expandable in the field
- Powerful Ascent Level 3 vibration analysis software
- Common software platform supports both vbOnline and vb portable systems
- Simultaneous dual channel data sampling
- Single user PC or network compatible
- Ethernet wired or wireless connection
- 24 bit analog to digital conversion
- Intelligently designed to accept machine data from the following sensor types:
  - Accelerometers
  - Velocity probes
  - Proximity probes
  - AC/DC signal
  - 4–20 mA
- Automatic detection and reporting of alarms
- Plant personnel alerted by e-mail or text message
- Event-triggered data collection
- AscentView™ web-based machine reporting tool

Increase your awareness

Vibration analysis is the industry-preferred technology that allows you to monitor and accurately assess the health of your machinery. Continuous online surveillance is the most effective way to implement a vibration analysis program that will most dramatically minimize production losses and drive down the overall cost of maintenance.

In order to provide you the clearest possible picture of your machine operating condition, the vbOnline can measure and record many different process parameters. This gives you the ability to trend and trigger alarms so that you can assess not only vibration related faults, but also how your machines are performing on a continuous basis.

Ascent level 3 – our most advanced software

The powerful Ascent vibration analysis software is the cornerstone of both our online and portable hand held systems. Configured for a single user PC or as a network accessible application, Ascent Level 3 provides immediate notification of alarms and evaluation of problems. View the plant status at a glance - Ascent Level 3 provides visual notification of the current alarm levels.

Automatically set up measurement parameters and alarm values using the "The Proven Method", or ISO standards, then fine-tune alarm limits with statistical analysis based on each machine's historical data. Ascent Level 3 will also notify plant personnel by text message and/or e-mail when your machine develops a problem.

Time waveforms, FFT, overall vibration values, bearing demodulation, phase, speed and interactive charting are some of the Ascent software's diagnostic capabilities, allowing you to investigate specific machine problems with ease.

The vbOnline system can be configured to only collect data when specified operating conditions exist. For example, running speed is measured during data collection to ensure suitability of data. The vbOnline system can also collect additional data, and increase the data collection frequency, when alarm conditions occur.

The Ascent software is OPC data acquisition compliant which makes integration with your plant's DCS or SCADA system seamless.

Ascent Level 3 provides the following key benefits, through our key applications

- Information Networking – through Ascent®
  (Network License)
- View machine status anywhere anytime
  – through AscentView™
- Receive alarm notifications at any location 24/7
  – through AscentWatcher ™
- Enhance your existing plant monitoring system
  – through AscentOPC™
- Minimize man power allocated for routine data collection
  – through OnlineManager™
- Automated database file management – through routine backups and data thinning
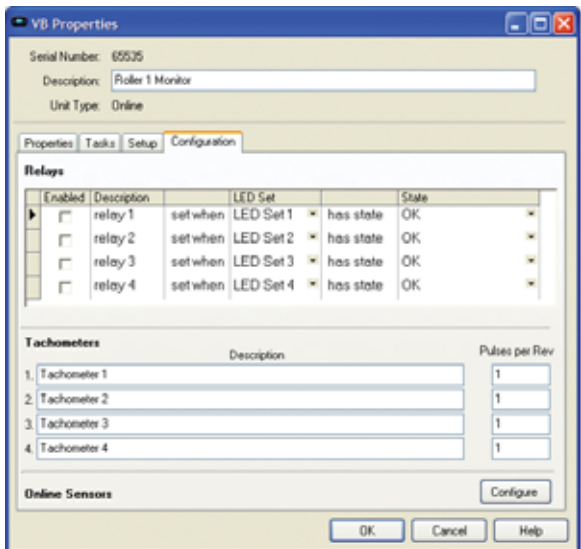
OnlineManager

The brain of the vbOnline system is our OnlineManager. The OnlineManager program is responsible for managing the collection of data as specified within the Ascent program, and writing the data to your network database. As is standard with all Commtest products, the simplicity and ease of use is an important feature within the OnlineManager - configuring the online system is trouble free.

The OnlineManager™ is a separate software application that takes measurements according to the collection schedules that have been specified in the Ascent program. The online log contains a recording of all the actions taken by the OnlineManager. It can show all actions or a basic summary of the data collection over a date range.
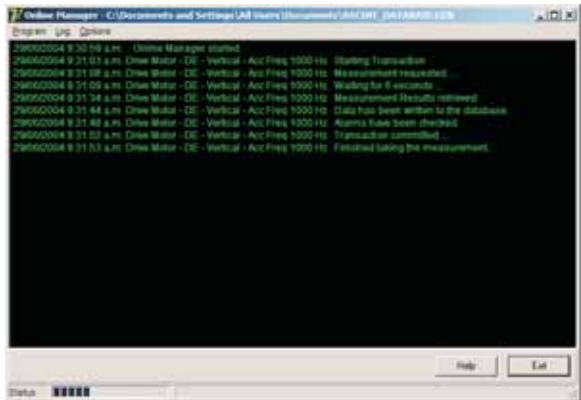
Initial setup is simple. From the main screen you can:
- choose when a relay should be activated according to which LEDs are set
- enter a description for each tachometer and the number of pulses per revolution
- specify what type of sensor will be attached to each channel

Configure the measurement capabilities of the module, perform a reset of the firmware and set the LEDs and relays to a configuration of your choice.

Here you can associate measurement criteria with a particular schedule entry. When the OnlineManager program attempts to collect the schedule entry it will first determine whether the collection criteria have been met. You can assign a collection schedule to a schedule entry allowing you to specify how often a recording should be taken, or assign a dual channel recording for simultaneous measuring.

SPECIFICATIONS	MODEL vbOnline	REMARKS
Analog Inputs		
Number of channels	4 to 32	Configuration in blocks of 4
Simultaneous recordings	Dual channel	Any odd #channel with any even #channel
Channel scan rate	≤8s per channel pair	Accel 1000 Hz 400 lines
Compatible sensors	Accel, vel, displ, voltage o/p, 4-20 mA	
DC-coupled ranges	0 V to 20 V, -10 V to 10 V, -20 V to 0 V	Selectable to suit sensor type
AC-coupled ranges	16 V peak-peak	Allows for ± 8 V sensor output swing
Sensor drive current	4 mA @ 24 V	Enable for ICP® type sensors
A to D conversion	24 bits	
Input impedance	>100 kΩ	
Analog Measurements		
Measurement types	Single value, time waveform, spectrum	
Quantities	Accel, vel, displ, demod, user-scaled	User scaling for voltage and 4-20 mA sensors
Max value (Accelerometer)	± 80 g, ± 100 mm/s (4 in/s), ± 10 mm (0.4 in)	with 100 mV/g sensor
Max value (Vel. sensor)	± 2000 mm/s (80 in/s)	with 100 mV/in/s sensor
Max value (Displ sensor)	± 2 mm (80 mil)	with 100 mV/mil sensor
Spectrum Fmax values	100 Hz to 40 kHz (6000 CPM to 2400 kCPM)	In 23 steps
Sampling rates	256 Hz to 102.4 kHz	In 23 steps
Dynamic range	≥95 dB	
Harmonic distortion	Less than -70 dB typical	Other distortions and noise are lower
Accuracy	± 1% (0.1 dB)	For DC level and AC measured at 100 Hz
AC Frequency response	± 0.1 dB from 10 Hz to 15 kHz;	From value measured at 100 Hz
	± 3 dB from 1 Hz to 40 kHz	High freq response also applies to DC ranges Accel and velocity
Signal Processing		
Number of spectral lines	400, 800, 1600, 3200, 6400	3200 lines (8192 samples) max for dual channel recordings
Time waveform samples	1024, 2048, 4096, 8192, 16384	
Window types	Hanning, rectangular	
Averaging types	Linear, exponential, peak hold, synchronous	
Number of averages	1, 2, 4, 8, 16, 32, 64, 128	
Overlap	0, 12.5, 25, 37.5, 50, 62.5, 75, 87.5%	
Demodulation bandwidths	20 bandwidth options	From 125 to 1250 Hz up to 16 to 20 kHz
Quickscan		
Scan rate	2 seconds per channel pair	For DC-coupled sensors, no integration (e.g. prox probes)þ
	5 seconds per channel pair	For other sensor types
Measurement type	Average DC value or 10 Hz to 1 kHz overall	Accelerometer readings are converted to velocity

SPECIFICATIONS	MODEL vbOnline	REMARKS
Tachometer Inputs		
Number	4	Multiplexed
Range	0.5 Hz to 5000 Hz	Divided by number of pulses
	(30 to 300 000) RPM	per revolution
Recommended sensor	Hall effect	Also optical, laser and
		Keyphasor® tach sensors
Power supply to sensor	12 V	Current limited by a
		50 mA PTC
Input type	Optically isolated,	
	accepts TTL	
TTL inputs pulses	2.5 V (2 mA) min, 12 V (20 mA)	
	max, off-state ‹0.8 V	
Relay Outputs		
Number	4	
Type	SPST, normally open	
Voltage and current rating	250 V AC or 30 V DC, 5 A	
Controlled by	Server	User configurable, based on
		alarms
Status Indicators		
System status	2 x LEDs	One for power, one for
		DSP status
Vibration status	4 sets LEDs: red,	Indicates alarm state, user
	yellow, green	configurable
Relay status	4 x LEDs	Indicates if each relay is
		energized
Comms and Power		
Network comms	Ethernet v2.0, IEEE 802.3,	Auto senses 10/100 Mbps and
	TCP/IP, 10/100baseT,	half/full duplex
Network connection,	RJ45 socket ≥ 256 kbps	Via any commercially
link speed	(optimum), 2400 bps (min)	available link
Diagnostic comms	RS232 @ 230 kbaud,	Auto-baud at power up 57.6
	RJ12 socket	to 230 kbaud
Power supply	250 mA @ 9 V to 36 V DC	
Mechanical		
Mounting	Standard 35 mm DIN rail	For installation in enclosed
		control cabinet
Size	308 mm x 130 mm x 45 mm	(60 mm including DIN rail)
Optional sealed housing	IP 65 / NEMA 4	
Environmental		
Temperature range	-10 °C to 60 °C (14 to 140) °F	
Humidity	95% RH non-condensing	
EMC	EN61326	Emissions and immunity
Analysis Software		
Name	Ascent Level 3	
Compatible portables	vbSeries®	

Profitable