INTRODUCING

vb and SCOUT Series

from Bently Nevada* Asset Condition Monitoring

Based on a design with a proven track record of quality and innovation, the all-new vb and SCOUT series data collectors, analyzers and balancers have been engineered from the ground up to offer leading-edge reliability, accuracy and usability.

The vb and SCOUT platforms bring industry-leading Bently Nevada condition monitoring expertise to the world of portable data collection and analysis, giving you access to a dependable, efficient, and cost-effective condition monitoring solution that is deployable across your entire plant.

Easy and efficient up to four-channel capability

The SCOUT100-EX and SCOUT140-EX analyzers offer the power and convenience of dual- or four-channel measurement and dual-plane balancing. The balancing function enables quick diagnosis and correction of dynamic unbalance, the most common form of unbalance. vb and SCOUT's combination of accuracy, intuitive operation, ease of use and outstanding storage capacity enables our analyzers to deliver a premium return on investment.

The vb and SCOUT series are compatible with powerful software solutions—System 1* Evolution and Ascent*.

Ascent enables you to program the instrument with thousands of separate machine definitions covering a number of route choices. A library of over 300 customizable parameter sets is also available, enabling a vast array of measurement options.

System 1 Evolution:

- Remote Communication Transfer via WIFI, controlled from Portable Device [Simplified Work Practice]
- TCP/IP Ethernet Transfer, controlled from Software
- USB Transfer, controlled from SoftwareXML File Mode Transfer, controlled from Portable Device and Software
- TCP/IP Client to Server Communication
- Run up to three different CM databases simultaneously on a server from remote clients

Ascent Level 2 software:

- Route enabled—build routes in Ascent software and send to the instrument
- CBDb—Commtest Bearing Database with over 30,000 bearings
- Orbit and Bode plots
- Waveform analysis tools—perfect for the power user
- User-designable SQL/HTML reports—unlimited reporting flexibility
- Statistical alarm creation and adjustment

Enhanced instrument functionality

- Improved ergonomics for walk-around data collection
- True left- and right-handed operation
- Large, high resolution (HVGA) backlit LCD
- Up to 4 simultaneous channel recordings
- 10 hour battery life
- Lightweight, rugged IP65 rated case
- DC coupled sensor support
- Wide measurement range: 1000 g, 25,000 mm/s, 2500 mm
- 2-plane balancing
- ≥ 95 dB dynamic range
- Up to 12,800 lines FFT resolution
- Up to 80 kHz Fmax
- 1 GB memory—virtually unlimited spectra and waveform storage
- USB host port for data transfer to external USB memory
- No Full Kits mean Laser tach is an optional extra now—included only in the Balancing Kit accessory, not included as standard
- Keyphasor* tach mode
- 5-year warranty on the instrument hardware
- SCOUT is ATEX Zone 2 certified
- Optional Wi-Fi networking
- Integration with both Ascent and System 1 Evolution software

Specifications

SPECIFICATIONS	VB AND SCOUT SERIES	REMARKS
Sensors		
Sensor input	2 or 4 channels	Simultaneous sampling
Sensors	Accelerometer, Velocity, Displacement, Current	
AC coupled range	16 V peak-peak	Allows for ± 8 V sensor output swing (±80 g)
DC coupled ranges	0 V to 20 V, -10 V to 10 V, -20 V to 0 V	e.g., for reading prox-probe gap
Connectors	2 x BNC (CH1/CH2)	Safety feature: Break-free inline connector
Analog to digital conversion	24-bit ADC	
Sensor excitation current	0 mA or 2.2 mA (configurable), 24 V maximum	2.2 mA required for IEPE/ICP®-type accelerometer
Sensor detection	Warns if short circuit or not connected	
Tachometer		
Sensor	Laser sensor with reflective tape sold as an extra accessory with Balancing Kit, not included as standard	Sensor triggers on beam reflection
Laser sensor range	10 cm to 2 m nominal	Dependent on size of reflective tape
Other sensor types supported	Contact, TTL pulse, Keyphasor	Instrument has optically isolated input
Power supply to sensor	5 V, 50 mA	Battery voltage with current limit
TTL Pulse rating	3.5 V (4 mA) min, 28 V (5 mA) max, off state 0.8 V	
Keyphasor threshold	13 V ± 1 V, 8V, 18V	
Speed range	10 RPM to 300,000 RPM (0.2 Hz to 5 kHz)	
Output to drive strobe	Up to 140 Hz (8400 CPM)	Typical. Depends on strobe type. Special cable required.
Parameter Indication		
Maximum levels	> 1000 g (10,000 m/s2), >1000 in/sec (25,000 mm/s),	Effective limit is sensor sensitivity and output voltage
	> 100 in (2500 mm), >10,000 Amps	
Dynamic signal range	> 95 dB (typical at 400 line resolution)	
Harmonic distortion	Less than -70 dB typical	Other distortions and noise are lower
Units	g or m/s2, in/s or mm/s, mil or mm or µm	O-peak, peak-peak or RMS, Auto-scale by 1000x when required
	adB, vdB, amps, user-defined	US and SI options for both adB and vdB
Magnitude and cursors	Overall RMS value, dual cursors, harmonics	Digital readouts on chart
Accuracy	± 1% (0.1 dB)	For DC level (%F.S.) and AC measured at 100 Hz
Frequency response	± 0.1 dB from 10 Hz (AC) or 0 Hz (DC) to 15 kHz;	Acceleration and velocity. From value measured at 100 Hz
	± 3 dB from 1 Hz (AC) or 0 Hz (DC) to 40 kHz	
Spectrum Display		
Fmax possible ranges	25, 50, 100, 125, 150, 200, 300, 400, 500, 600, 800, 1000, 1200, 1600, 2000, 2500, 3000, 4000, 5000, 6000, 8000, 10,000, 15,000, 20,000, 30,000, 40,000, 60,000, 80,000 Hz (only available in SCOUT140)	Or equivalent CPM values Or orders-based from 1X to 999X
Fmin possible range	0 to Fmax	Instrument zeroes all spectral lines below Fmin
Resolution	400, 800, 1600, 3200, 6400 lines; 12,800 lines (only available in SCOUT140)	3200 lines max. for dual channel measurements
Frequency scale	Hz, CPM, Orders	Linear scale with zooming
Amplitude scale	Acceleration, velocity, displacement or current	Linear or log scales, auto or manual scaling
Window shapes	Hanning, rectangular	Dependent on Fmax and number of lines
Overlap	(0, 12.5, 25, 37.5, 50, 62.5, 75, 87.5)%	Increases sampling time proportionally
Number of averages	1, 2, 4, 8, 16, 32, 64, 128	
Averaging types	Linear, exponential, peak hold, synchronous	From 125 Hz to 1250 Hz up to 16 kHz to 20 kHz
Demodulation bandwidths	23 bandwidth options	Tachometer required, mounted on high-speed shaft
Order tracking	Up to 6 kHz Fmax, orders-based	Within 50% to 200% speed variation during recording
Order tracking-distortion	Less than -65 dB	

SPECIFICATIONS	VB AND SCOUT SERIES	REMARKS
Waveform Display		
Number of samples	1024, 2048, 4096, 8192, 16,384 ; 32768 (only available in SCOUT140)	
Time scale	10 ms to 256 seconds	Or orders based from 1 to 999 revs
Time synchronous averages	1, 2, 4, 8, 16, 32, 64, 128	Only available when tachometer triggered
Long Time Waveform Fmax	25 Hz to 40 kHz	20 kHz dual channel
Long Time Waveform Duration	14.7 million samples (total over channels)	e.g., for Fmax 1 kHz, Fsample = 2.56 kHz and Duration = 1.6 hrs
Logging Features		
Output formats	LCD screen, transfer to Ascent or Evo PC-based software, XML	
Data storage	1 GB non-volatile flash memory	Virtually unlimited recording storage
Data storage structure	Folders/machines/points/locations/routes	No limits are applied, 50 character names
Max Folder size	10,000 measurement locations	
Balancing		
Planes	2 planes, 2 sensors (SCOUT100-EX); 2 planes, 4 sensors (SCOUT140-EX)	
Speed range	30 RPM to 60,000 RPM	
Measurement type	Acceleration, velocity, displacement	e.g., weights on fan blades, linear dist. around circumference
Weight modes	Angle 0° to 360°, fixed position, circumference arc	Automatic recalculation
Remove trial weights	Yes/No	Allows reentry of previous balance jobs
Manual data entry	Yes	No limits are applied
Storage	Against machines in data structure	
Channel selection	Up to 4 channels simultaneous (SCOUT100 is dual-channel only)	
Display and Communication		
Display	Graphic Grayscale LCD	
Resolution	480 x 320 pixels (HVGA)	
Viewing area	4.6" x 3.1" (117 x 79) mm	
Backlight	White LED, 4 V, 100 Cd/m2	
Communications with PC	USB and Ethernet, optional Wi-Fi through USB dongle	PROFLASH allows instrument firmware to be upgraded
USB Host	2.0 to external USB memory device	Save folders to USB flash drive
Battery and Charger		
Battery type	Custom lithium ion pack, 7.4 V, 4500 mAh	
Operating time	10 hours	Backlight on (60 second timeout)
Charger type	Internal charging, automatic control	External power pack 12 V DC, 3 A output, included in kit
Charge rate	3 A nominal	3 hours for complete charge
Mechanical		
Size	9.9" W x 5.8" L x 2.4" H (252 x 148 x 60 mm)	
Weight	2.7 lb (1.2 kg)	Including battery and strap
Environment		
Operating temperature	14°F to 122°F (-10 to 50)°C	
Storage temperature and humidity	-4°F to 140°F (-20 to 60)°C, 95% RH	
EMC	EN61326	
Ruggedness	4' (1.2 m) drop onto concrete, IP65	Procedure: 26 drops following MIL-STD-810F-516.5-IV
Hazardous locations	ATEX Zone 2 (II 3 G Ex ic IIB T4 Gc)	
Certification	CE, C-Tick	

Features and Capabilities

FEATURES	SCOUT100 KIT	SCOUT140 KIT
Software Included		
Ascent	Level 2	Level 2
Ascent Reference Guide	✓	✓
Instrument Inputs		
Analog Channels (Simultaneous)	2	4
Tachometer Input	✓	✓
DC Coupled Inputs	✓	✓
Triax Enabled		✓
Strobe Output	✓	✓
Sensors: Vel, Displ, Keyphasor Tach	✓	✓
Sensors: DC Voltage Output	✓	✓
Sensors: 4-20 mA Output		✓
Processing		
Fmax	40 kHz	80 kHz
Spectral Lines	6400	12,800
Recording Types		
Spectrum/Waveform	✓	✓
Route Enabled	✓	✓
Process Parameter Keypad Entry	✓	✓
Demodulation	✓	✓
6Pack	✓	✓
Bump Test	✓	✓
Coast-Down/Run-Up	✓	✓
Orbit Plot	✓	✓
Order Tracking	✓	✓
Time Synchronous Averaging	✓	✓
X-Channel Phase (Single Frequency)	✓	✓
Long Time Waveform	✓	✓
Modal Impact Test		✓
Cross Channel ODS		✓

FEATURES	SCOUT100 KIT	SCOUT140 KIT
Balancing Functionality		
Balancing Enabled	✓	✓
Number of Planes/Sensors	2 / 2	2 / 4
Accessories Included		
Instrument Carry Bag	✓	✓
Battery Pack	✓	✓
AC Power Adapter	✓	✓
DC Car Adapter	✓	✓
USB Data Transfer Cable	✓	✓
Shoulder Carry Strap	✓	✓
SensorKeeper	✓	✓
Accelerometers	2	4
Accelerometer Magnetic Base	2	4
Coiled Cables	2	4
Triple BNC Adapter		1
Keyphasor/Laser Tachometer cable	1	1
1m BNC-to-BNC Cables	2	2
Laser Tachometer**	✓	✓
Reflective Tape**	✓	✓
Balancing Kit Carry Bag**	✓	✓
Tachometer Magnetic Stand**	✓	✓
5 Meter Straight Cable**	2	2

** A Balancing Kit Component — Not Sold Separately

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