



Snapshot Family Keeps Growing

New intrinsically safe data collector and enhancements to Snapshot CE add power, versatility

Since the introduction of our Snapshot™ for Windows® CE (Snapshot CE) portable data collector and System 1™ software in 1999, we have steadily enhanced the power and scope of our portable offerings to provide the right mix of portability, functionality, and suitability for hazardous environments. In this article, we're pleased to introduce the latest addition to the Snapshot™ family – Snapshot IS – as well as summarize recent enhancements to Snapshot CE.

Snapshot IS – Intrinsic Safety ... and a Whole Lot More



For customers in petrochemical and other industries, hazardous area classifications are a fact of life. And while some find that they can use a “hot work” permit with a non-IS data collector, others find this undesirable or even contrary to plant operating policies.

They require an IS device. We’re pleased to now offer much of the power and functionality of our Snapshot CE instrument in a smaller package that is – as the name implies – intrinsically safe. With CENELEC ATEX Directive II 1G EEx ia IIC T4 (Ta -20C to +50C) hazardous area approval, it has been specifically designed for use in these environments without the need for a special “hot work” permit.

At just 1.5 lbs (680 grams) and a convenient palm-sized package, Snapshot IS also boasts two inputs: a dynamic signal input for asynchronous waveform capture/display capabilities and a phase input – making it the **only** intrinsically safe data collector in this size/weight class that can provide waveform, spectrum, vector, and phase data. Other systems with similar physical proportions are either non-IS, or only able to measure selected waveform “features” (such as overall amplitude or enveloped amplitude) and report this back as a single number, precluding the type of detailed analysis that requires spectral content, waveform shape, phase, and other dynamic information. The phase input enhances diagnostic capabilities by allowing spectral data to be reported as orders of running speed (instead of only in frequency units), by providing 1X and 2X vector data useful for balancing and other purposes, and by allowing phase to be alarmed and trended just like any other variable – useful for isolating malfunctions such as loose rotating parts, cracked shafts, and others.

We’re so confident that you’ll find the Snapshot IS to be a full-featured single-channel device capable of both predictive maintenance data collection *and* diagnostics,

THE **ONLY** INTRINSICALLY SAFE

DATA COLLECTOR

IN THIS **SIZE/WEIGHT CLASS**

PROVIDING WAVEFORM, SPECTRUM, VECTOR,
AND PHASE DATA

that even those who don’t have Intrinsic Safety requirements in their facilities may want to consider this data collector because of its light weight and small size. If your needs can be adequately met by a single-channel instrument (two inputs: one measurement channel plus one channel for phase reference), you’ll find that Snapshot IS has many of the features of our larger Snapshot CE instrument, but in a smaller, lighter package.

Like the bigger, two-channel Snapshot CE, Snapshot IS uses the Microsoft® Windows® CE operating system and is fully compatible with our System 1 host software for uploading and downloading data. It provides an intuitive user interface that will be familiar to existing Snapshot CE users. And, for those already using Snapshot CE, or with requirements for both a two-channel instrument as well as an IS instrument, many of the transducer and measurement devices (such as selected velocity transducers and hand-held temperature guns) can be interchanged between the two Snapshot instruments.

Snapshot™ for Windows® CE

Snapshot IS isn’t the only change in the Snapshot family of portable data collectors. We’ve also recently enhanced our Snapshot CE instrument as summarized on the next page.



Snapshot CE Enhancements

Ethernet Connectivity



Now you can enjoy the speed and convenience of uploading/downloading data to your Snapshot CE using Ethernet, instead of a slower serial link. While Snapshot CE still comes with a serial communications port for maximum flexibility, the addition of Ethernet functionality means you are no longer tethered to your System 1 host computer. You can now use *any* node in your network to communicate with System 1. Ready to download a route's worth of data, but don't want to walk all the way back to your System 1 computer? Just find the nearest Ethernet port on your network, connect, download, and your Snapshot CE is ready to go for more data acquisition.

Acceleration Enveloping



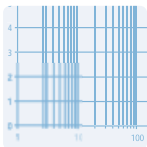
When applied properly by a knowledgeable practitioner, acceleration enveloping is a very useful signal processing tool for early warning of failures on certain types of machines and components – notably, rolling element bearings and gearboxes. Enveloping allows earlier detection than other methods, permitting more advanced warning and more proactive maintenance planning. We're pleased to announce that Snapshot CE now provides this powerful tool, as do our Snapshot IS portable data collector and Trendmaster Pro system. You can learn more in a feature-length article on enveloping coming in next quarter's issue of ORBIT.

Enhanced Cursor Tools



Designed with advanced users in mind, Snapshot CE has extensive analytical capabilities. It is more than just a 2-channel *data collector*, it's a portable *analyzer* as well. We've recently added even more analytical power and convenience by including more types of cursors to the instrument's display. Now, in addition to the cursors previously available, you'll also find sideband cursors, harmonic cursors, delta frequency cursors, a peak/next peak cursor, and a crosshair cursor.

Log/dB Scaling



While users have previously been able to download Snapshot data into System 1 and obtain log and dB scaling on plots, we've also recently added this capability to the instrument's built-in display. You can now plot data with log scaling along the x-axis and in dB along the y-axis, allowing easier viewing of data with widely varying amplitudes without suppressing important small-amplitude information.

TIM Tester Capabilities



Customers using our Trendmaster® online scanning system for condition monitoring on their assets have – until now – required a separate handheld instrument for verifying and configuring their Trendmaster Pro or Trendmaster 2000 system. Now, you can simply add appropriate cables and accessories to a compatible* Snapshot CE instrument, and your portable data collector can also function as a Trendmaster configuration tool. It allows you to program our new proTIM (programmable Transducer Interface Module) devices and perform a host of other verification, configuration, and system troubleshooting functions for your Trendmaster system, eliminating the need for separate portable devices. Conversely, those who own a Trendmaster system but do not currently augment their online measurements with portable data collection on other machines can also use their Snapshot-based TIM Tester as a full-featured portable data collector. For an additional fee, Bently Nevada can enable the data collection and condition monitoring functionality in the instrument, and add appropriate interfaces to the already installed System 1 software used for Trendmaster hardware.




** All new Snapshot CE instruments currently being shipped come pre-installed with the necessary circuitry and software to function as a TIM Tester. Simply purchase the TIM Tester cable kit. Customers with an existing Snapshot CE instrument may need to return it to the factory (depending on date of manufacture) for a free-of-charge upgrade to enable TIM Tester capabilities. Consult your local Bently Nevada sales professional for assistance.*




For more information on the entire family of Snapshot portable instruments, see our side-by-side comparison table on the following page, visit us online at www.bently.com, or contact your nearest Bently Nevada sales professional.

Which Snapshot is right for me?

A side-by-side comparison

Snapshot comes in three convenient packages, each with its own functionality designed to address specific classes of users and applications in your plant.

	 SNAPSHOT CLIPBOARD	 SNAPSHOT IS	 SNAPSHOT CE
Designed for...	<ul style="list-style-type: none"> Plant process operators who make periodic rounds and wish to replace a clipboard, pencil, and paper for their notes and observations with a truly pocket-sized device that captures data electronically and can download it to a common database for easy reference and long-term archival. <p>Snapshot Clipboard puts Snapshot CE's route-based ability to record notes, gauge readings, and general observations on asset conditions (noisy, leaking steam glands, belt frayed, etc.) into a variety of compatible pocket PC devices running the Windows® CE operating system. Both non-IS and Intrinsically Safe pocket PC types are supported.</p>	<ul style="list-style-type: none"> Maintenance or operations personnel who must routinely collect condition monitoring data in hazardous areas without the need for a "hot work" permit, who require dynamic vibration data capture and diagnostic capabilities, but who don't require more than one input channel. Those without IS-requirements, but who simply want the lightest, smallest package available without sacrificing the ability to collect and analyze waveform and spectrum data. <p>Snapshot IS combines the capabilities of Snapshot Clipboard with the single-channel features of Snapshot CE into an Intrinsically Safe package that's big on features and small in size – it fits in the palm of one hand and weighs only 1.5 lbs. (680 grams).</p>	<ul style="list-style-type: none"> Maintenance or diagnostic personnel who want two full channels of data collection/analysis capabilities and the most comprehensive list of features and expandability available. Those who don't require an Intrinsically Safe instrument Customers who want to add capabilities to their vibration data collector such as: <ul style="list-style-type: none"> Two-plane balancing Trendmaster system troubleshooting and configuration <p>When you absolutely can't sacrifice features or functions, don't require an Intrinsically Safe instrument, and don't mind a slightly larger (textbook-sized) package, Snapshot CE is for you.</p>
On board routes for data collection	✓	✓	✓
In-field alarm notification	✓	✓	✓
Ability to log and trend observed meter or gauge readings	✓	✓	✓
Record inspection details and free-hand notes	✓	✓	✓
Interface to System 1™ with Decision Support SM capabilities	✓	✓	✓
CE Mark	*	✓	✓
Windows® CE Operating System	✓	✓	✓
Runs on pocket PC device	✓		
Barcode reader option for point identification input	✓		
Operates as stand-alone machinery analyzer		✓	✓
Intrinsically Safe, ATEX – Cenelec II 1 G, EEx ia IIC T4 (Zone 0)	*	✓	
CSA – Class I Div 2 approved (EEx nl IIC T4 Pending)	*	✓	✓
Number of data acquisition channels		1 + phase	2 + phase
Infrared temperature input		✓	✓
Real time on-display data viewing		✓	✓
Unfiltered Timebase		✓	✓
Spectrum		✓	✓
Acceleration enveloping		✓	✓
Current Value / Bargraph Display		✓	✓
Phase		✓	✓
Asynchronous sampling		✓	✓
Synchronous sampling			✓
Onboard Balancing software application option			✓
Trendmaster® TIM Tester capability option			✓
Orbit / Filtered Orbit / Synchronous Spectrum / Full Spectrum / Synchronous Timebase / Filtered Timebase plots			✓

	 SNAPSHOT CLIPBOARD	 SNAPSHOT IS	 SNAPSHOT CE
Shaft Centerline plots			✓
X-Y plots			✓
Internal -24Vdc power (for proximity probes requiring external power)			✓
Serial Port Connectivity	*	✓	✓
Ethernet connectivity	*		✓
Input Types Supported	<ul style="list-style-type: none"> • Manually keyed alphanumeric • Barcode wand (optional) 	<ul style="list-style-type: none"> • Manually keyed alphanumeric • Piezo-velocity (2-wire) • Accelerometers (2-wire) • Infrared (IR) Thermometer • Buffered transducer outputs (from permanent monitoring systems) • Proportional Voltage • Dynamic Voltage • Strobe or laser (for phase reference) 	<ul style="list-style-type: none"> • Manually keyed alphanumeric • Proximity Probes (for vibration, position, or phase reference) • REBAM® • Moving-coil velocity • Piezo-velocity • Accelerometers • Infrared (IR) Thermometer • Buffered transducer outputs (from permanent monitoring systems) • Proportional Voltage • Dynamic Voltage • Strobe or laser (for phase reference)
Measurements Supported		<ul style="list-style-type: none"> • mm/s², g (0-pk and rms) • mm/s, in/s (0-pk and rms) • μm, mil (pp) • Integrated Velocity • Integrated Displacement • Direct Amplitude • 1X & 2X Vectors • REBAM® (rotor region and prime spike filters) • Gap • Temperature • Proportional Voltage • Speed (10 to 100,000rpm) • Phase • User-definable low-, high-, and band-pass filters 	<ul style="list-style-type: none"> • mm/s², g (0-pk and rms) • mm/s, in/s (0-pk and rms) • μm, mil (pp) • Integrated Velocity • Integrated Displacement • Direct Amplitude • 1X & 2X Vectors • REBAM® (rotor region and prime spike filters) • Gap • Temperature • Proportional Voltage • Speed (10 to 100,000rpm) • Phase • User-definable low-, high-, and band-pass filters
Spectrum Frequency Resolution		User configurable, up to 6400 lines	User configurable, up to 6400 lines
Frequency Range		User configurable, up to 40 kHz	User configurable, up to 40 kHz
Operating temperature range	*	- 10C to +50C (+14F to +122F)	- 20C to +55C (-4F to +131F)
Weight	*	1.5 lbs. (680 g)	3.8 lbs (1.7 kg)
Size (Height x Width x Thickness)	*	186 x 134 x 51 mm	250 x 163 x 60 mm
Display Type	*	Quarter VGA, Monochrome LCD	Quarter VGA, Monochrome LCD
Display Size (Height x Width)	*	77 x 58 mm	86 x 114 mm

* Snapshot Clipboard software is compatible with a variety of Intrinsically Safe and non-Intrinsically Safe pocket PC devices. Specifications noted depend on the type of pocket PC being used.

All three Snapshot instruments are fully compatible with our System 1™ software, meaning regardless of whether you use one, two, or all three of them, the data can be archived, viewed, correlated, and analyzed in the same convenient software platform. In fact, because System 1 supports our online continuous monitoring (3500, 3300, 1701) and scanning (Trendmaster® Pro) systems, you now have a single platform for your entire machinery management program, regardless of the data collection device used. Measurements made with an online system (such as 3500 with a TDI communications processor or less-critical process pumps monitored with our Trendmaster® Pro system) can be combined with the supplementary offline measurements taken with your Snapshot instrument(s). The result is a truly integrated condition monitoring system for all your plant assets. ☺