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CoCo-80/90

Handheld Data Recorder
Dynamic Signal Analyzer
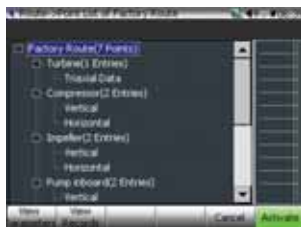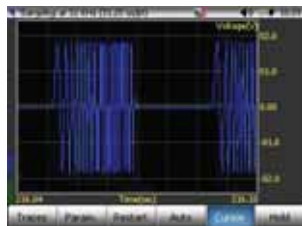Vibration Data Collector

CoCo-80/90

◆ Highlights

- High quality data recorder, signal analyzer, and vibration data collector
- Handheld, compact, light, and battery-powered
- Qualified for rough operating conditions
- 5.7" color LCD
- Weighs less than 1.7 kg
- 2/4/8/16 input channels, 1 signal source
- Up to 102.4 kHz sampling rate per channel
- 24 bit A/D and D/A converters
- 130 dB dynamic range
- Stream recording for all channels at full speed
- Over eight hours of battery use
- Ethernet, USB, and SD Card
- Hundreds of analysis functions including Time, Spectra, PSD, FRF/Coh, Phase, RMS, and others
- Octave filters, order tracking, swept sine, limiting, histogram
- Route collection, Trending and Alarm, Coast Down/Run Up, Overall/Peak, and Rotor Balancing

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◆ State of the Art Performance

The CoCo delivers state of the art lab quality performance. It excels in both dynamic and static measurements. When used for dynamic measurements, the input channels offer an extremely high-quality dynamic range, signal to noise ratio, cross channel gain match, phase match, and spectrum flatness over the analysis frequency range. When it is used to measure static or quasi-static signals, it offers very high accuracy at DC or near DC frequencies.

The CoCo is the first battery-powered handheld data acquisition system that matches the performance and functions of high-end systems. The CoCo-80 is equipped with 2, 4, or 8 input channels and can accurately measure and record both dynamic and static signals. The flash memory can record 8 channels of streaming signals simultaneously up to 102.4 kHz. An embedded signal source channel provides various signal output waveforms that are synchronized with the input sampling rate. For higher channel count systems, that are still portable, we also offer the CoCo-90 equipped with 16 input channels.

◆ The Best of Both Worlds

Until now signal analysis tools have been divided into two families: High-fidelity, expensive and bulky, lab-bench sized instruments that perform all the computation you need, versus small rugged portable vibration data collectors that provide limited analysis features with lower performance. Why should you compromise quality to get portability? Now you can have both high-fidelity, lab quality data analysis and a portable and rugged package with the CoCo from Crystal Instruments.

◆ Rugged, Compact, and Mobile

In addition to state of the art performance, the rugged, compact, and mobile design is ideal for portable field measurements and vibration data collection. The CoCo weighs less than 1.7 kg. The design includes a rugged enclosure with grips, strap, and a folding arm. It can sit on a table, be strapped to a car seat, or carried by hand in the field. With the optional IP65 rated enclosure, the CoCo will even withstand dust and water. Advanced thermal design eliminates any need for a cooling fan, extending the battery life and reducing operating noise. The CoCo can run for up to eight hours with a fully charged battery. It may also be plugged into an AC adapter or a cigarette power adaptor which will not only charge the CoCo will also support unlimited hours of operation. With no internal moving parts and solid state construction, the CoCo is rugged enough for the most demanding field use.

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◆ Versatile

The CoCo has the versatility to meet all your analysis needs. With the push of a button the CoCo can be changed from a powerful Dynamic Signal Analyzer (DSA mode), to a fully functional Vibration Data Collector (VDC mode).

The Dynamic Signal Analyzer mode includes general signal analysis, FFT analysis, time recording, FRF data acquisition, alarm/abort checking, and many others. The CoCo DSA mode is ideal for a wide variety of industries including automotive, aviation, aerospace, electronics, and military.

The Vibration Data Collector mode is a specialized user interface designed to be used in the vibration and machine condition monitoring industry. It includes route setup and measurement tools, standard vibration data collection measurements such as RMS, true-RMS, overall-RMS, peak and also waveform, spectrum and demodulation measurements. Routes are created on a PC and uploaded to the CoCo. The PC software makes setting up any combination of routes, factories, machines, and measurement points simple and includes convenient tools for managing and backing up all your data. After the routes are uploaded from the PC, the CoCo operates as a portable device for all the data collection. Once field measurements are collected, data is downloaded from the CoCo to a PC, where reporting and trending tools are available to help analyze the data to identify machine faults.

VDC mode can also be used for "off route" measurement when irregularities are identified during the normal monitoring schedule. The VDC mode includes a balancing module to identify and correct rotor imbalance problems. If further analysis is required, it is easy to change from VDC mode to DSA mode and take advantage of the full suite of processing tools.

◆ Intuitive

The CoCo is designed to be simple to use so that you can start a measurement in seconds without a long setup time. The IEPE support eliminates the need for additional sensor signal conditioners so wiring is minimized. The unit boots up in seconds and no tethered PC is required to make measurements. CSA setup scripts allow you to start

a measurement with all the correct settings every time. The 5.7 inch color LCD display lets you monitor the data in any format you choose to ensure you capture the event you need. The dedicated keypad lets you quickly change settings and displays, start and stop a measurement, and record data. And at the end of the day when you finish your recordings you can download data to a PC by USB or Ethernet.

Revolutionary 24-bit A/D converter digital technology and a unique hardware design offers more than 130 dB dynamic range, 10 times higher than competitive products. This allows you to capture signals as high as 10 volts and as low as a few micro-volts in the same test without changing any settings. The high dynamic range and fidelity of the CoCo enables measurement of a wide range of signals, regardless of the input signal magnitude.

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◆ Modern Interface

The CoCo handheld system is equipped with a powerful array of hardware interfaces that allow complete flexibility and optimized functionality. Transferring data to and from the CoCo is simple using the client USB port, 100Base-T Ethernet port, or SD card. The 100Base-T Ethernet port can also be used for remote operation and monitoring, and a second master USB port connects alternate peripherals such as a mouse or bar code scanner. The built-in microphone lets you record voice annotations, and the speaker and earphones provide audio feedback. The 5.7 inch color LCD displays live data which can be captured as a screen shot or recorded over time.

The 100Base-T Ethernet connection and USB port also insure that downloading files and upgrading software will be a smooth and simple task. With a single click of the mouse, files can be downloaded to the PC. And because of the Ethernet capability, never again will the system need to be sent to the factory for a software upgrade. This combination of powerful peripheral interfaces makes the CoCo perfect for all situations.
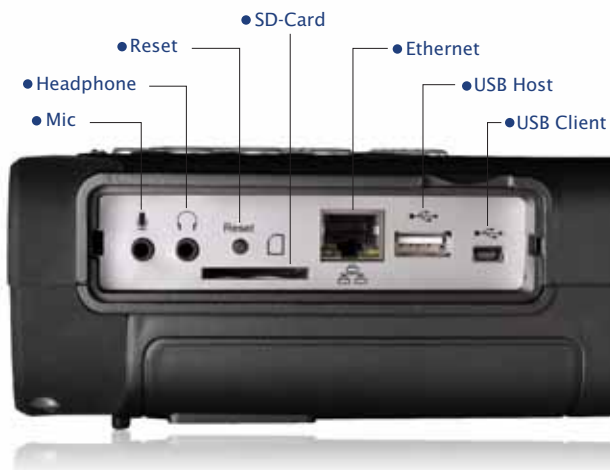
◆ Reliable

The CoCo is designed to provide a simple and reliable tool for signal measurement. The 4 GB of mass internal memory for storing data, combined with a live display to validate data makes the CoCo the most reliable tool for field measurements.

By comparison, PC-tethered instruments can behave unreliably in the field and can be overly complex for quick operation and reliable acquisition. Communication issues and power cables complicate the setup. They are also limited by laptop battery power and cannot provide long hours of operations. The CoCo ensures that you will get the data you need without the hassle of lugging around a ton of extra equipment.

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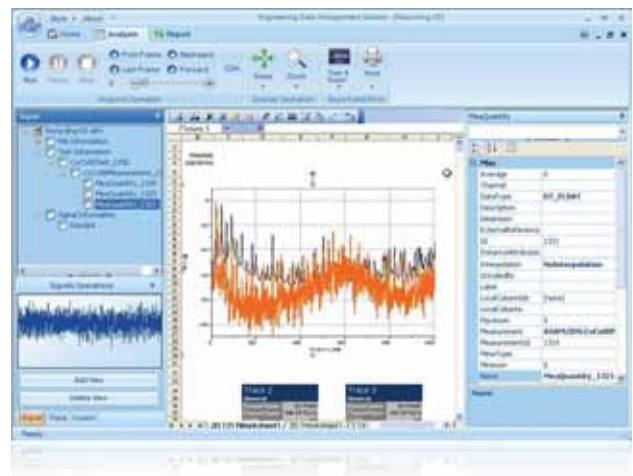
CoCo-80/90

◆ Flexible Analysis Functions

High-end systems that try to meet everyone's needs often become overly complicated with too many functions that bog down the user interface. Specialists may appreciate the wealth of functions, but basic signal analysis becomes too difficult.

The CoCo is based on a unique and powerful system that keeps the advanced functionality that the specialist needs while keeping the basics easy to use. This system is called Configurable Signal Analysis or CSA. It breaks different analysis functions down into different packages that can be enabled by the user. Users with specialized needs can even create their own CSA packages to meet their needs. Real-time analysis functions can be created that might not be available in any other device. This makes the CoCo possibly the most advanced system available.

◆ Integrated Acquisition and Analysis Capabilities

The CoCo is more than just a data recorder. It can record all channels at a 102.4 kHz sampling rate, and in addition, the DSP technology delivers advanced real-time processing. While recording data to flash memory, you can simultaneously compute FFT, APS, FRF, and more with all the windowing, averaging, and triggering functions you expect in a signal analyzer. During operation you can view the processed data on the display or save the spectrum for later analysis. This combination of data recording and real-time processing makes the CoCo a versatile and powerful tool.
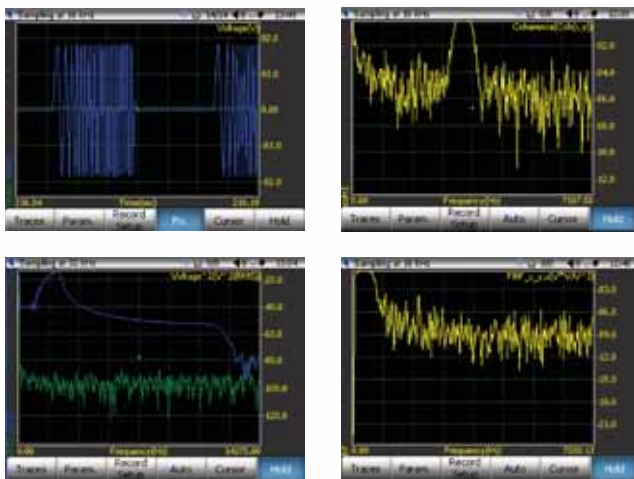
◆ Multi-Language Support

The user interface and documentation is available in English, Japanese, and Chinese.

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◆ PC software

The Engineering Data Management software, or EDM, is the desktop interface to the CoCo hardware. This simple to use, Windows native software can download, view, and post-process data from the CoCo, and can export in many formats including ASAM-ODS, UFF, BUFF and user-defined ASCII. EDM lets you browse through large collections of data and quickly find the record you are looking for based on file attributes, keywords, and thumbnail displays. Data can be viewed with cursors and markers or post-processed. A template -based report system can quickly generate customized reports in MS Word. EDM post-processing includes FFT spectral analysis, frequency response, octave measurements, and order tracking.

EDM is also a comprehensive tool for managing and organizing data from machine condition measurements in the Vibration Data Collector mode. Trending, alarms, and machine status reports are intuitive and easy to use.

◆ Distributed Measurements and Remote Monitoring

The Ethernet interface combined with the remote EDM software allows the CoCo to be used for distributed measurements with multiple units. Imagine machine condition monitoring an entire facility from your office, in a different building or even from the other side of the world. Low cost, flexibility, and strong performance makes the CoCo the ideal remote monitoring and distributed measurement tool.
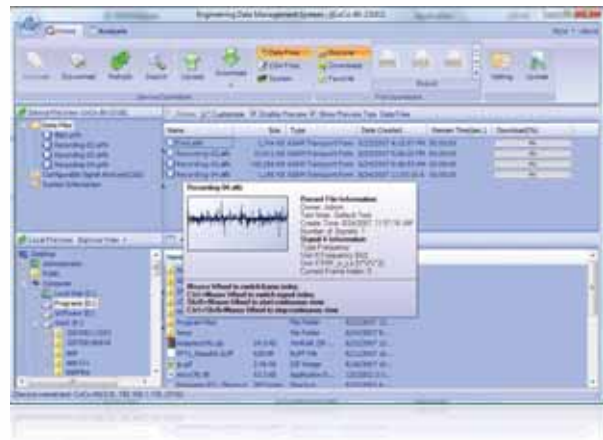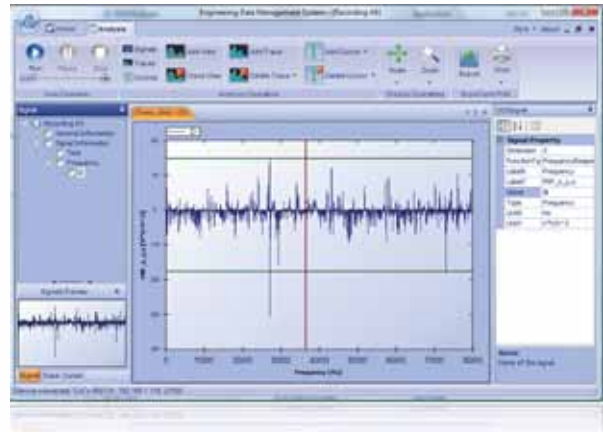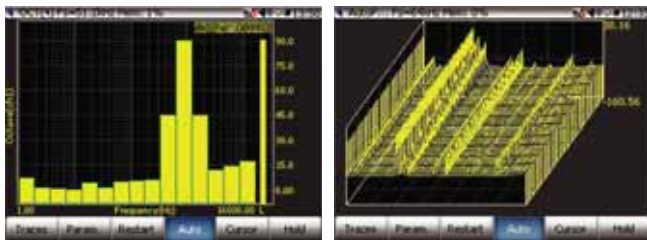
The CoCo brings together high fidelity, lab quality data analysis in a portable and rugged package to meet all your demanding analysis needs. Don't compromise quality for mobility. Get the best of both worlds with the CoCo.

● Ethernet Local Area Network

● Computer

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06:CRYSTAL: INSTRUMENTS

◆ Specifications

Inputs of CoCo-80	Up to 8 BNC connectors, built-in IEPE current source, single-ended or differential, AC or DC coupling, 130 dB dynamic range, 24 bit-A/D converters, range ±10 Volts (Optional ±20 Volts range)
Inputs of CoCo-90	16 SMB connectors, built-in IEPE current source, single-ended, AC or DC coupling, 100 dB dynamic range, 24-bit A/D converters, range ±10 volts
Outputs	1 SMB connector, 100 dB dynamic range, 24-bit D/A converter
Audio	3.5 mm Audio Jack Stereo connector for earphones, plus built-in speaker and microphone
Dimensions	231 x 170 x 69 mm
Weight	1.71 kg including battery
AC Adapter	110-240 Volts AC
Max Power Consumption	14 Watts
Battery Operation	8 hours in automatic mode
Host Interface	2 USB ports, 100Base-T Ethernet, SD Card
Maximum Sampling Rate	102.4 kHz simultaneously
Flash Memory	4 GB used for system and data storage
LCD	5.7 inch LED backlight, 320 x 240 resolution
Typical Real-Time Analysis Functions	Math (+,-,*, /), integration, differentiation, FFT, averaging, windowing, auto power spectra, cross spectra, FRF, coherence, real-time filters, RMS, octave, order tracking, swept sine, limiting, alarm/abort and much more.
Vibration Data Collection Functions	RMS, true-RMS, overall-RMS, waveforms, spectrum, demodulated spectrum, trending and alarm, 2 plane balancing. Measure acceleration, velocity, displacement and tacho.

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