

CoCo-80/90

Handheld Data Recorder
Dynamic Signal Analyzer
Vibration Data Collector

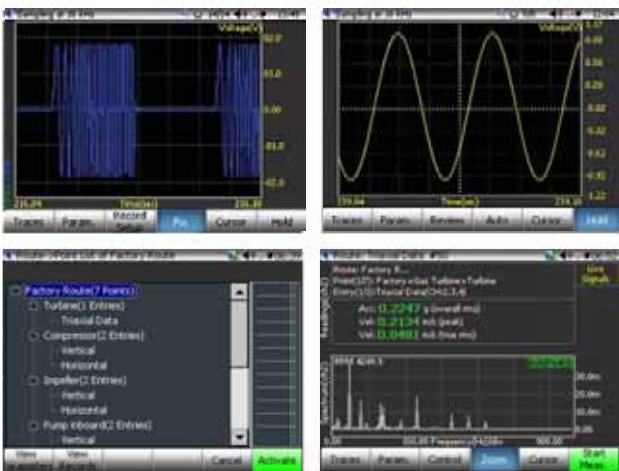


CoCo-80/90



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CRYSTAL INSTRUMENTS : 01



- 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
- 130 dB dynamic range
- Streaming recording for all channels at full speed
- Long battery hours
- 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 Balancing

◆ 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.

CoCo is the first battery-powered handheld data acquisition system that matches the performance and functions of high-end systems. CoCo-80 is equipped with 4 or 8 input channels and can accurately measure and record both dynamic and static signals. The mass 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. CoCo-90 is 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, and then some, 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

But in addition to the 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, a strap and a folding arm. It can sit on a table, be strapped to a car seat or carried by hand in the field. Advanced thermal design eliminates any need for a cooling fan, extending the battery life and reducing operating noise. It can run up to six hours with a fully charged battery or an AC adapter or an automobile cigarette power adaptor can be used to charge the device and 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 full functioned vibration data collector (VDC mode).

The Dynamic Signal Analyzer mode includes general signal analysis, FFT analysis, time recording, FRF data acquisition, alarm/abort checking, machine condition monitoring, 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 set up on a PC and then 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. After the field measurements are collected, the 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.

The VDC can also be used for “off route” measurement when irregularities are identified during the normal monitoring schedule. The VDC includes balancing module to identify and correct rotor imbalance problems. If further analysis is required then you can change from VDC to Dynamic Signal Analyzer (DSA) mode and take advantage of the full suite of processing tools.

◆ Simple to Use

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 the wiring is minimal. The unit boots up in seconds and no tethered PC is required to make measurements. Prerecorded 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, Ethernet or a wireless link.

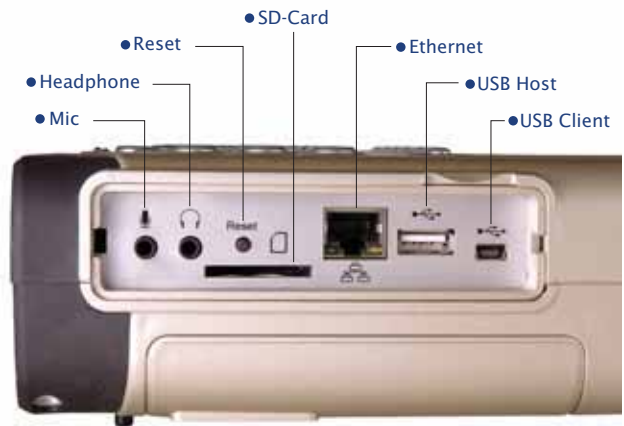
Revolutionary 24-bit A/D converter digital technology and a unique hardware design offers more than 130 dB dynamic range, 10 times higher than competitive products. This allows you to capture signals as high as 10 volts and as low as a few micro-volts in the same test without changing any settings. The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



◆ Modern Interface

The handheld system is equipped with a powerful array of hardware interfaces to give you complete flexibility. It has two USB ports: a client USB to upload and download data to a PC and a master USB to connect other USB devices to the CoCo such as a mouse, memory card, barcode scanner etc. A 100 BaseT Ethernet interface allows the unit to communicate over any Internet connection for remote operation. An SD-card interface allows you to save data to an SD card or use other SD card peripherals such as a wireless Internet connection. The built-in microphone lets you record voice annotations and the speaker and earphones provide audio feedback for the actions taken. The 5.7 inch color LCD allows you to display live data as you record and the keypad allows you to start measuring and capture snapshots with a few simple buttons.

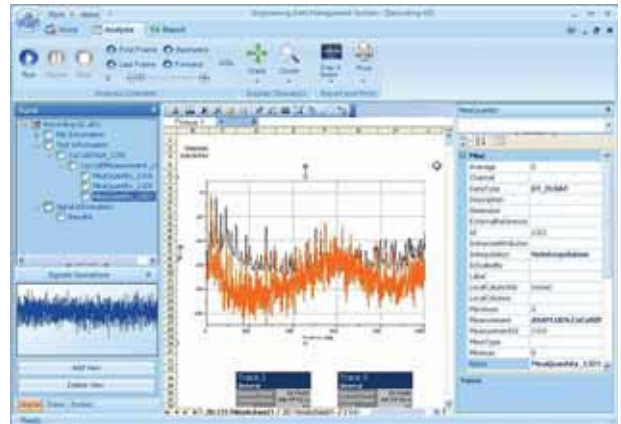
You can connect the CoCo to a PC, download files and upgrade the software in a number of ways depending on which is most convenient: either through a USB connection, 100 BaseT Ethernet cable, or wireless SD card. This powerful combination of peripheral interfaces lets you use the CoCo in any situation that you can imagine.



◆ Reliable

The CoCo is designed to provide a simple and reliable tool for signal measurement. The combination of mass internal memory for storing data, combined with a live display to validate data during the process and finally simple and powerful Windows native software for analysis 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, extra communication and power cables complicate the setup. They are also limited by battery power and cannot provide long hours of operations. With the CoCo you know that you will get the data you need without the hassle of lugging around a ton of extra equipment.



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◆ Flexible Analysis Functions

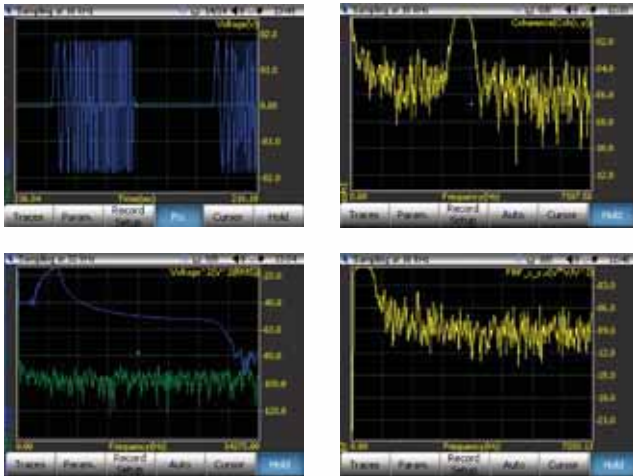
The problem with high end systems is that as they try to meet everyone's needs. Over time the software gets more and more complicated. Eventually you need a Ph.D. just to get a basic measurement. On the other hand, for the specialist who needs the exotic features this is an advantage.

The CoCo is based on a unique and powerful system that allows the specialist to get advanced real-time analysis results yet maintains the simple interface for the general user. This system is called Configurable Signal Analysis or CSA and is one of the most powerful and unique features of the CoCo. Although it is programmed with all the basic features used by the vast majority of users, CSA enables users with specialized needs to customize the analysis to suit their unique applications. A completely documented instruction manual allows you to develop new realtime analysis functions that might not be available in any other device. This makes the CoCo possibly the most advanced system available. possibly the most advanced system available.



◆ Integrated Acquisition and Analysis Capabilities

The CoCo is more than just a data recorder. Although it can record all channels at a 102.4 kHz sampling rate, in addition, the real-time DSP technology delivers advanced real-time processing. While recording data to flash memory, you can simultaneously compute FFT, FRF, Tri-Spectra, APSD 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 spectra to ensure that you are recording the event you need. 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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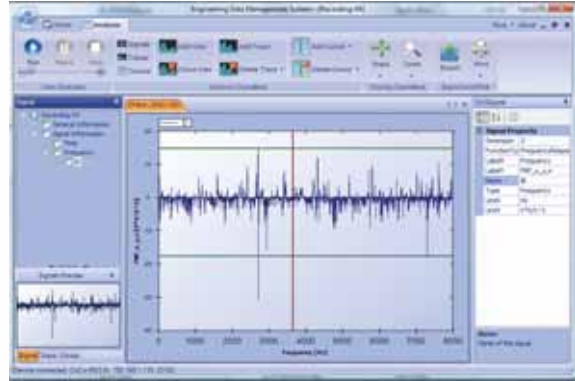
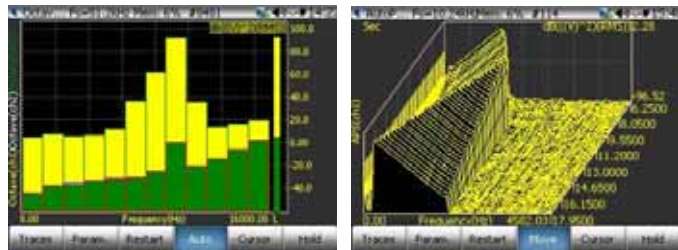
◆ PC Software

The Engineering Data Management Software, EDM is the interface between the CoCo and other data analysis applications. This simple to use, Windows native software manages the communication between the PC and the CoCo, downloads the data to the PC, displays the data in any format required and exports the data in the standard formats including ASAM-ODS, UFF, BUFF and user-defined ASCII. EDM lets you browse through data and quickly find the record you are looking for based on file attributes or a thumbnail display of the data. Time traces can be played back and cursors and zoom features let you measure signal properties. EDM Post processing includes FFT spectral analysis, octave, order tracking, trending and alarms.

EDM is also a comprehensive tool for editing the machine points, measurement entries and parameter sets for the vibration data collector functions. Trending, alarms and machine status report 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. Multiple CoCo units can be connected to the same LAN network and managed through one piece of software, EDM. The low cost, flexibility and high performance makes the CoCo the ideal remote, distributed measurement tool.



The CoCo brings together high fidelity, lab quality data analysis in a portable and rugged package to meet all your demanding signal analysis needs. Don't compromise quality for mobility. Get the best of both worlds with the CoCo.



◆ Specifications

Inputs of CoCo-80	8 BNC connectors with voltage or IEPE, single-ended or differential, AC or DC coupling, 130 dB dynamic range, 24 bit A/D converters, range +/-10 volts
Inputs of CoCo-90	16 SMB connectors with voltage or IEPE, single-ended, AC or DC coupling, 100 dB dynamic range, 24 bit A/D converters, range +/-10 volts
Outputs	3.5mm Audio Jack Stereo connector, 100dB dynamic range, 24bit D/A converter
Audio	3.5mm Audio Jack Stereo connector for earphone, plus built in speaker and microphone
Dimensions	231 mm x 170 mm x 69 mm
Weight	1.71kg including battery, 1.23kg without battery
AC Adapter	110-240 Volts AC
Max Power Consumption	14 Watts
Battery Operation	6 hours in automatic mode
Host Interfaces	2 USB ports/100 BaseT Ethernet/SD-Card
Maximum Sampling Rate	102.4 kHz simultaneously
Flash Memory	4 GB used for system and data storage
LCD	5.7" backlight, 320X240 resolution
Typical Real-Time Analysis Functions	Math (+, -, *, /), integration, differentiation, FFT, average, window, Autopower spectra, cross-spectra, FRF, Coherence, real-time filters, RMS, octave, order tracking, swept sine, limiting, alarm/abort and many 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.



- ◆ 4633 Old Ironsides Dr., Suite 304, Santa Clara, CA 95054, USA
- ◆ Phone: 408-986-8880
- ◆ E-Mail: sales@go-ci.com