



## CoCo-70X VIBRATION ANALYZER

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# CoCo-70X Vibration Analyzer

[www.crystalinstruments.com/coco70x-vibration-analyzer](http://www.crystalinstruments.com/coco70x-vibration-analyzer)

The CoCo-70X is Crystal Instruments' latest handheld vibration analyzer, featuring an improved user interface and redesigned chassis. The CoCo-70X is a four-channel vibration analyzer with an IP-67 rating, designed specifically for the machinery Predictive Maintenance (PdM) community. The CoCo-70X offers powerful processing capabilities and an intuitive user-interface, providing users with an easy-to-use data collection experience. The newly designed chassis is lighter and more ruggedized, making the CoCo-70X a perfect device for route-based measurements.

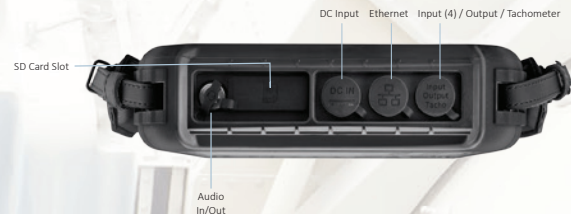


## CoCo-80X

- Released in 2016 -



An 8 channel dynamic signal analyzer designed for test and measurement.



## CoCo-90X

- Released in 2018 -



A 16 channel dynamic signal analyzer designed for data acquisition.

## CoCo-70X

### Highlighted Features

- Includes VDS PC Software
- Route Vibration Collection
- Off Route Measurements
- Job Management
- Dynamic Signal Analysis Mode

# CoCo-70X Features

## High Dynamic Range

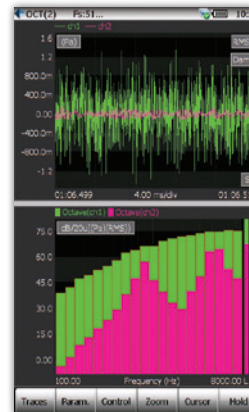
Crystal Instruments achieves its very high dynamic range for all its measurement instruments by using a unique patented technology that uses two A/D converters in each measurement channel.

With such high dynamic range of each input, the gain settings (voltage range settings) are very much eliminated.



## Performance

The new dual-core Da-Vinci Series processor allows for a very fast and reactive user interface. This processor handles the user interface, project configuration, power management, network communication, and all peripherals. A high-speed floating point DSP manages the data input/output and real-time processing.



## Portable Recording Solution

In addition to providing advanced real-time signal analysis, the CoCo-70X also serves as an excellent data recording device. The CoCo and Spider platforms support the unique ability to simultaneously perform both real-time processing and continuous data recording. To increase the reliability of data recording, a special check sum algorithm is always applied to the measurements.



# CoCo-70X Features (continued)

## Waterproof

Crystal Instruments has improved the CoCo's protection against water compared to the previous model. The new CoCo-70X can withstand up to 1 meter of water for a maximum of 30 minutes.



## Battery-Powered

The CoCo-70X is a rugged, lightweight, battery-powered handheld system with unparalleled performance and accuracy. Operate the device for up to 10 hours without charging.



## SD Card Storage

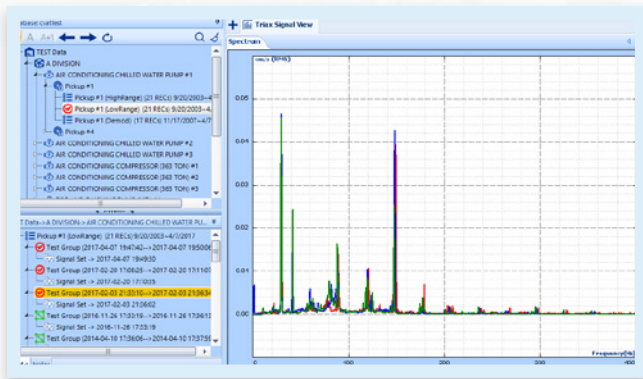
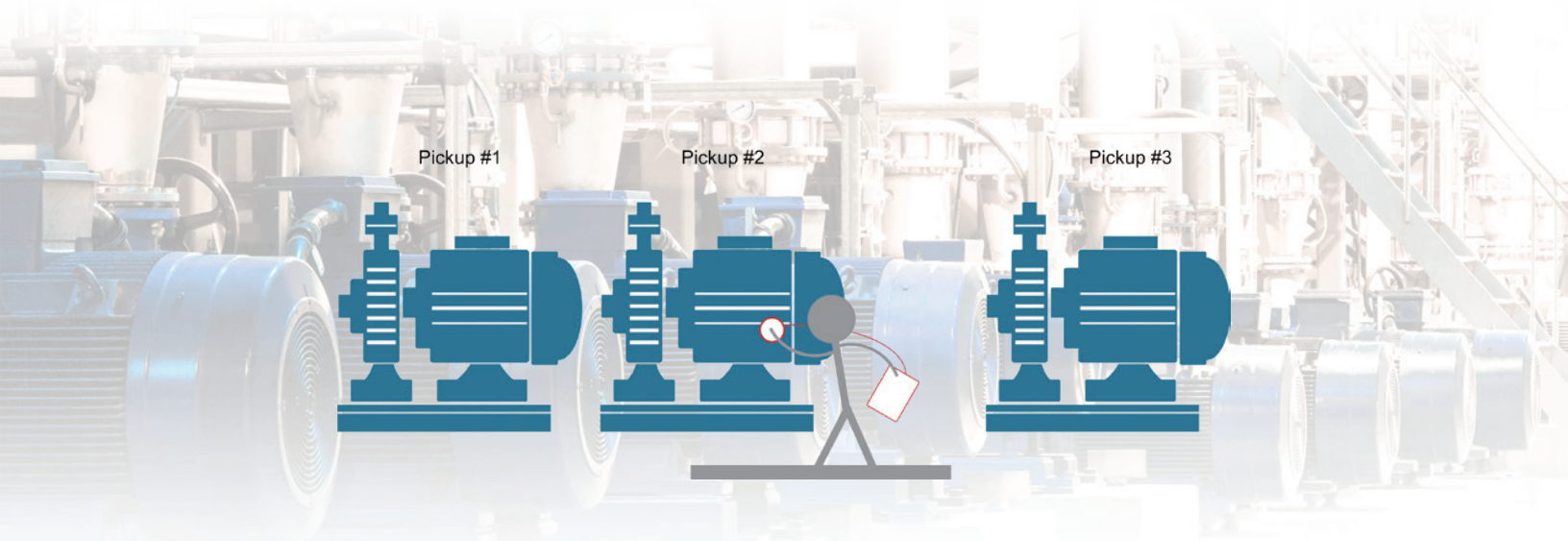
All data is stored to the SD card. This addresses concerns about data security. The SD card simultaneously records 4 channels of data at up to 102.4 kHz while performing real-time frequency and time domain calculations.



Up to 256 GB SD card storage

# Vibration Diagnostics System

[www.crystallinstruments.com/vibration-diagnostics-system](http://www.crystallinstruments.com/vibration-diagnostics-system)



*Easily Overlay Data from multiple data sets or machines*

## Vibration Diagnostic System

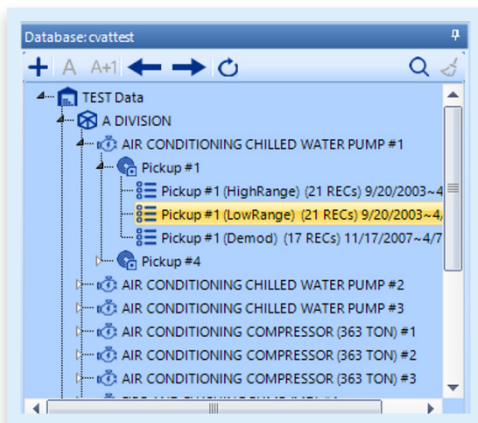
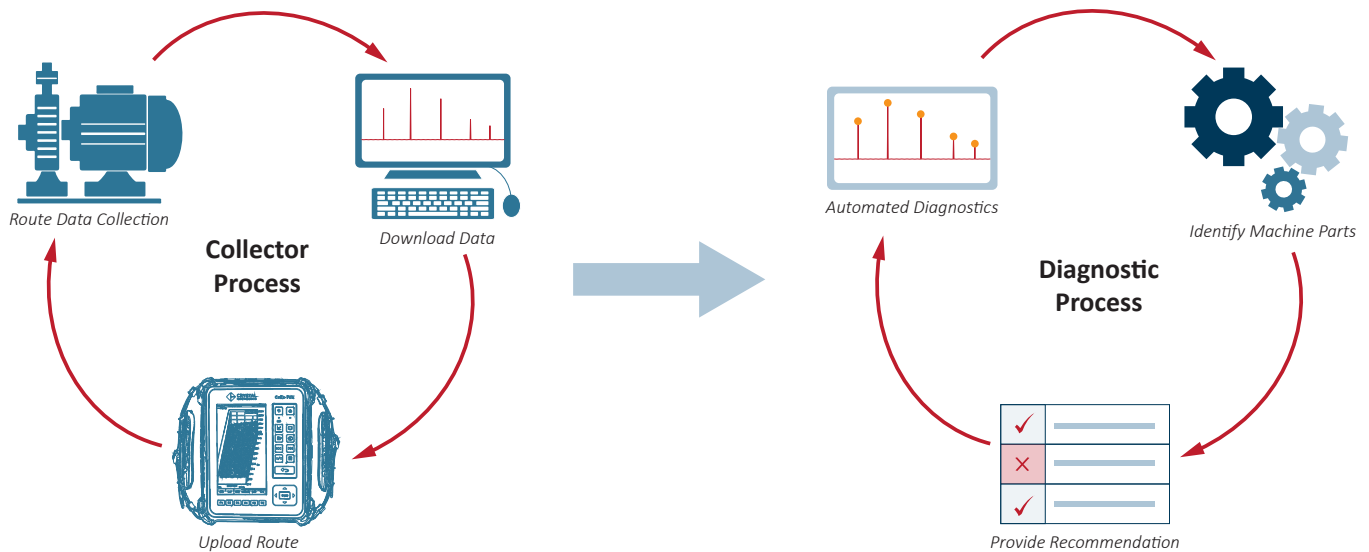
The Vibration Diagnostic System (VDS) is a vibration data management system designed specifically for the machinery Predictive Maintenance (PdM) community. It harnesses the graphic display capabilities of our EDM Software for the work of machinery vibration analysts.

In addition to great graphics we have developed an extensible machine modeling system specifically for vibration analysis. It allows users to model machines based on the elements of the machine that can contribute to the vibration energy of the whole. Model bearings, rotors such as motor bars, couplings such as flexible and fluid couplings, account for slip in things like fluid couplings, model gears and pulley systems, and model turbines by accounting for each stage. It's wide open, you can create new elements to use in your system.

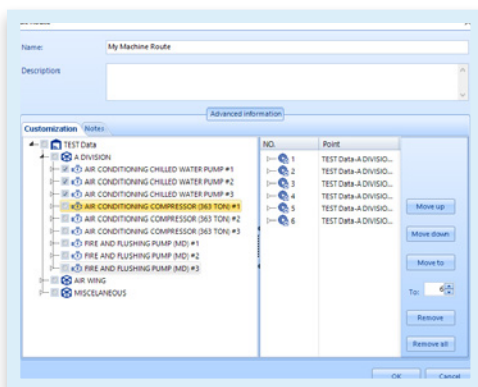
## VIBRATION DIAGNOSTIC SYSTEM VDS Features & Support

- Machine Modeling System - allows us to model machine components and to know the relative rotational speeds of all the shafts of the system.
- A method to organize Machine Class Average (baseline) data for each designated pickup location.
- Associate a physical machine with a Machine Class.
- A diagnostic rule processing system based on a forward-chaining, probabilistic, inference engine.
- A method to define machinery faults.
- A method to define recommended actions based on recognized faults.
- Provides functions to support basic vibration analysis

## Improving Machinery Health with Crystal Instruments' **VIBRATION DIAGNOSTIC SYSTEM (VDS)**



Data structure is Factory, Space, Machine, Pickup



VDS supports maintaining one or more machine routes

### Database

Data structure is Factory, Space, Machine, Pickup. We added "Space" to the data hierarchy to give more control over how you group your machines.

All data is stored in a MS SQL Server database. The database may be accessed locally or served on a network to allow multiuser access. Access to the database as well as program features can be managed with individual usernames and passwords. Each user is assigned an access level that can be customized for the tasks that individual needs to perform with the system.

### Routes

VDS supports maintaining one or more machine routes. Routes can be thought of as a to-do list that is loaded onto a CoCo-70X.

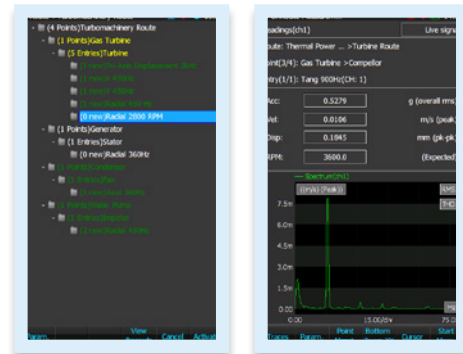
Once uploaded to a data collector the user can use it to gather data for some or all of the machines in the route. The data is then downloaded to VDS for storage in the database. Before the data is placed into the database each set of machine data is grouped together and assigned a Test Group and the user is given an opportunity to check that the data has been grouped properly. The Test Group ensures that the data for this data collection cycle will always be identifiable. No need to check data timestamps to ensure the data you are analyzing is all from the same collection period.

# Vibration Data Collector Software Features

## Route Based Condition Monitoring

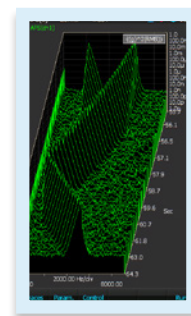
Measurement Channels: 1 or 3 channels (tri-axis) with tachometer enabled or disabled.

Route Collection Control: Easy navigation from the UI level to routes. View or hold live signals, review saved data, previous measurement entry, next measurement entry, previous point, next point, point and route management.



## Quick Analysis

No need to spend time configuring tests for non-routine measurements - pre-configured analysis tools are available for all types of diagnostic applications.



## Off Route Measurements

Data can be stored to machines in the VDS database. Unlike Route Mode, Off Route measurements allow users to setup the analysis directly on the CoCo.



## Job Management

Jobs act as folders for storing and managing Off Route measurements. Create, edit, and delete jobs using the Job Setup menu. Jobs may be assigned to a factory machine or a custom machine. The data of one or more jobs can be sent to the PC.





### CoCo-70X Specifications

The CoCo-70X is equipped with 4 input channels through LEMO connectors. The removable SD card can record 4 channels of streaming signals simultaneously (up to 102.4 kHz) while computing real-time time and frequency based functions. An embedded signal source channel provides various signal output waveforms that are synchronized with the input sampling rate.

#### Inputs

4 input channels through a 9-pin LEMO connector, supporting IEPE, single-ended, AC, and DC coupling. Features dual 24-bit A/D converters with 150 dBFS dynamic range and a  $\pm 20$  V input range. A LEMO-to-BNC adapter is included.

#### Output

1 output channel is provided via the shared 9-pin LEMO connector, offering 100 dB dynamic range. A LEMO-to-BNC adapter is included.

#### Tacho

A single tachometer input shares the 9-pin LEMO connector with the input and output channels.

#### Connectivity & Ports

Includes 100Base-T Ethernet via LEMO connector, SD card slot, and audio input/output ports.

#### Maximum Sampling Rate

102.4 kHz simultaneously for all inputs

#### LCD

6.5" color display 800x480 resolution

#### Dimensions

235 x 188 x 48.26 mm (L X W X H)

#### Weight

1.65 kg including battery

#### Power

Power Input: DC power 15 V ( $\pm 10\%$ )/3A

Max Power Consumption: 12 watts

Battery Operations: 8-10 hours

#### 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, limiting, alarm/abort and 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 tachometer.

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