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CoCo-70X VIBRATION ANALYZER

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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.

SD Card Slot

DC Input   Ethernet   Input (4) / Output / Tachometer

Audio In/Out

CoCo-90X
- Released in 2018 -

CoCo-70X

Highlighted Features:

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

A 16 channel dynamic signal analyzer designed for data acquisition.

Analog Input

Signal Conditioning

Amplifier Gain = A

Amplifier Gain = B

A/D Converter

A/D Converter

DSP

Digital Output

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.
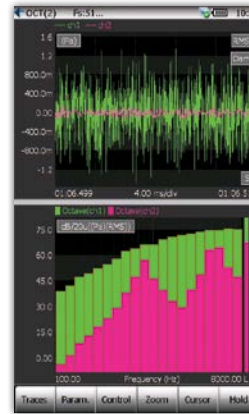
Portable Recording Solution

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.

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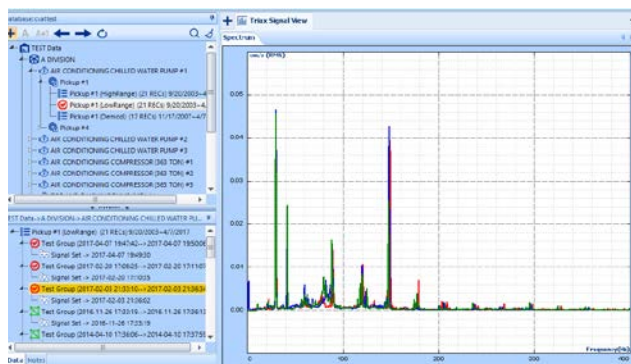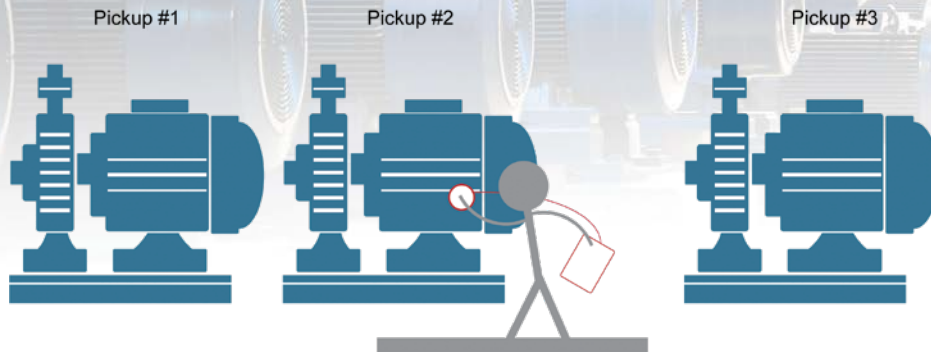
SD Card Storage
All data is stored to the SD card. This addresses concerns about data security. The SD card simultaneously records 4 channels of data at up to 102.4 kHz while performing real-time frequency and time domain calculations.

Up to 256 GB SD card storage

Pickup #1   Pickup #2   Pickup #3

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.
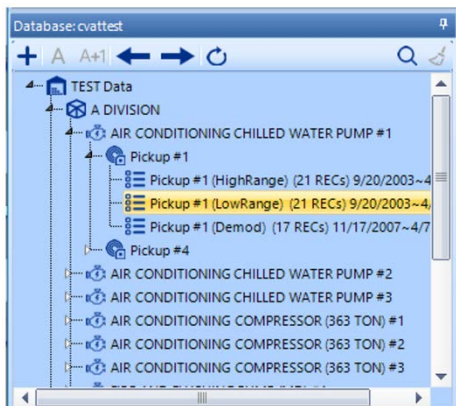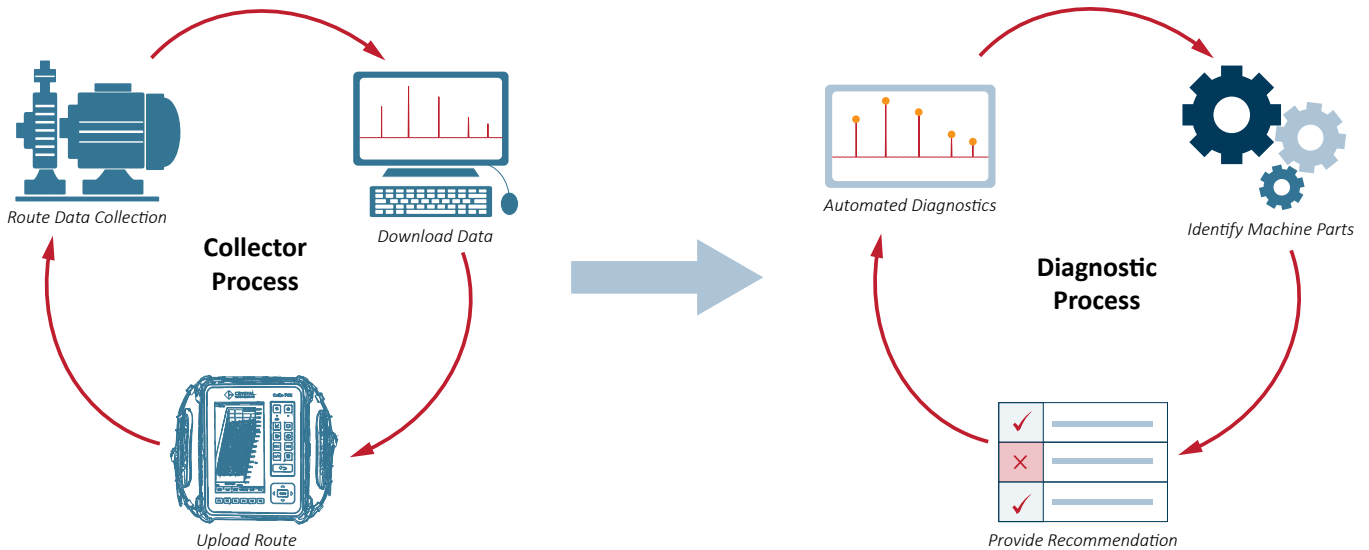
In addition to great graphics we have developed an extensible machine modeling system specifically for vibration analysis. It allows users to model machines based on the elements of the machine that can contribute to the vibration energy of the whole. Model bearings, rotors such as motor bars, couplings 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.

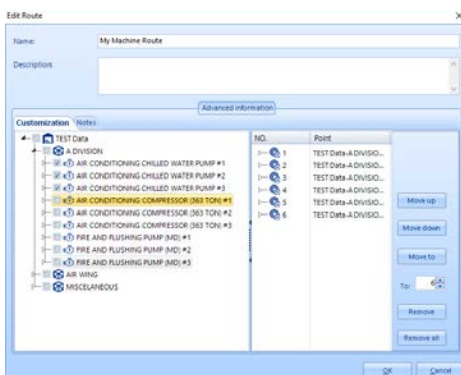## VIBRATION DIAGNOSTIC SYSTEM
VDS Features & Support

- 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)

Collector Process
- Route Data Collection
- Download Data
- Upload Route

Diagnostic Process
- Automated Diagnostics
- Identify Machine Parts
- Provide Recommendation

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 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.
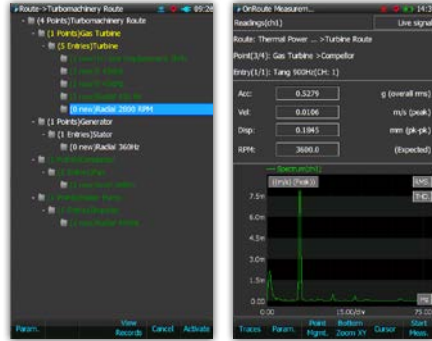
Routes

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.

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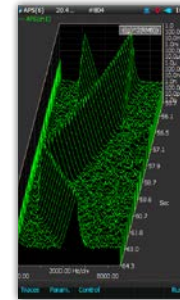
Off Route Measurements
Data can be stored to machines in the VDS database. Unlike Route Mode, Off Route measurements allow users to setup the analysis directly on the CoCo.

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 channels
Up to 4 BNC connectors (using LEMO-BNC adapter), built-in IEPE current source, single-ended or differential, AC, DC coupling, 150 dBFS dynamic range, dual 24-bit A/D converters, input range ±20 Volts

Output
1 BNC connector (using LEMO-BNC adapter), 100 dB dynamic range, 24-bit A/D converter

Tacho
1 LEMO connector: Tachometer Type 1 and 2 share one LEMO connector and can be selected by the software Interface

Ports
100 Base-T Ethernet, SD Card, Audio input and output

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 (±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.

To find a distributor near you, please visit our website:

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