CoCo-70X Hardware Specifications

- Route vibration collection
- Off-Route measurements
- Job Management
- Dynamic Signal Analysis Mode

The newly designed chassis is lighter and more ruggedized, making the CoCo-70X a perfect device for route-based measurements.

Table of Contents

CRYSTAL INSTRUMENTS

nbn Austria GmbH

nbn

INTRODUCTION

The CoCo-70X is a 4-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, resulting in 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 and in-field machine health diagnosis.

The handheld system is equipped with a 6.5" LCD display as well as a physical keypad. Flexible connections include a 100Base-T ethernet, SD card interface, stereo headphone, and a microphone jack. Each analog input is serviced by two 24-bit ADCs to achieve better than 150 dBFS dynamic range. LEMO cables are used for the 4 input channels, the tachometer channel, and the signal output channel. The CoCo-70X is also equipped with TEDS (Transducer Electronic Data Sheet) detection, allowing the software to acquire the sensitivities and other manufacturing details of the transducer.

The CoCo-70X serves as the vibration analyzer for Crystal Instruments' comprehensive vibration expert system, Vibration Diagnostic System (VDS). The CoCo-70X provides fast, actionable information through an effective user interface, making tasks easier and more intuitive. Effortlessly upload route data and corrective maintenance jobs from the field to the Vibration Diagnostic System. Routes are created in VDS and then uploaded to the CoCo-70X. Once routes have been uploaded to a data collector, the user can use it to gather data for some or all machines in a route. The data is then downloaded to VDS for storage in the database.

Advanced analysis tools provide a low barrier-to-entry for new users to perform sophisticated troubleshooting tests. Technicians don't need to spend time configuring tests for non-routine measurements – pre-configured analysis tools are available for all types of diagnostic applications. Other signal analysis features are available at the user's request, including continuous data recording, FFT spectral analysis, order tracking, zoom analysis, octave analysis, rotor balancing, power system stabilizer, customizable digital filters, and sound power analysis.

The CoCo-70X standard software functions include:
- Route Vibration Collection
- Advanced Vibration Analysis
- Transient Analysis
- Dynamic Balancing
- ODS Modal Analysis

Advanced software options will be installed on request.

HARDWARE SPECIFICATIONS
Analog Input Channel

- **Number of Input Channels:** 4
- **Connector Type:** 8Pins LEMO
- **Coupling:** AC, DC, or IEPE (ICP©)
- **Input Type:** Single-ended
- **TEDS:** IEEE 1451.4 compliant
- **Input Range:** ±20 V
- **A/D Resolution:** 2 x 24-bit per input channel
- **Sampling Rate:** 0.48 Hz to 102.4 kHz, with 54 stages
- **Maximum Bandwidth:** 46.08 kHz
- **Input Impedance:** 226 kΩ
- **AC Coupling:** Analog high-pass filter (-3 dB @ 0.375 Hz; -0.1 dB @ 2.45 Hz)
- **Input Protection Voltage:** ±40 V
- **Analog Low Pass Filter** -3 dB @ 1 kHz (Enable/Disable by software)
- **Anti-Aliasing Filter:** Analog anti-aliasing filters (-3 dB @ 500 kHz)
- **Digital Filter:** Digital high-, low-, and band-pass filters
- **Dynamic Range:** 150 dBFS (100 Hz to 46 kHz)
- **THD:** -95 dB @ 1 kHz, 5 V
- **Crosstalk:** Less than -90 dB
- **Amplitude Accuracy:** ±0.04 dB
- **Amplitude Channel Match:** < 0.04 dB
- **Phase Channel Match:** Better than 1.0 degree up to 20 kHz

Tachometer Input Channel

- **Number of Tacho Channels:** 1
- **RPM Range:** 1 to 100,000
- **Connector Type:** LEMO, shared with Output channel
- **Tacho Pulse Input Range:** ±10 V

Accuracy

All measurements taken at a temperature of 25°C.

For All Dynamic Input Channels:

Frequency Accuracy (crystal based)	0.01%
Non-integrated Spectral Amplitude Accuracy	3% over the range of 3 Hz to 20 kHz
Single Integrated Spectral Amplitude Accuracy	3% over the range of 3 Hz to 20 kHz
DC Accuracy (from 0.01 V to 20V)	3%

Overall Level (W/ Averaging, band limited)	3% over range of 3 Hz to 48 kHz, 0.001 to 10 V$_{rms}$

Peak and Phase Measurements:

1X Synchronous Peak Accuracy	3% over the range of 3 Hz to 1500 Hz, 0.01 V to 20 V)
1X Synchronous Phase Accuracy	3 deg over the range 3 to 20 kHz
Tachometer Frequency Accuracy	0.1% at 1 kHz

Output Channel

- **Number of Outputs:** 1
- **Connector Type:** LEMO shared with Tacho
- **Max Frequency:** 46 kHz
- **Output Range:** ±10 V
- **D/A Resolution:** 24 bits
- **Dynamic Range:** 120 dB
- **Output Impedance:** 50 Ω
- **Maximum Output Current:** 25 mA
- **Sine Amplitude Accuracy:**
  - ±0.2 dB at 1 kHz for 600 µV to 10 V
  - ±1.0 dB at 1 kHz for 10 µV to 600 µV
- **Anti-Imaging Filtering:** 160 dB/octave digital filter in addition to analog filters
- **Digital Filter:** high-pass and low-pass digital filters

Interface Ports

- **Audio:** 3.5 mm stereo headphone jack
- **Ethernet:** 100Base-T Ethernet. RJ 45 connector
- **SD Card:** SD/SDHC up to 32 GB. SDXC up to 2 TB. Requires speed class 10.
- **Grounding:** Ground terminal to chassis

System

- **System CPU:** Dual-core ARM+DSP Processor

- **Total RAM:** 1 GB
- **LCD:** 6.5" color TFT WVGA display 800x480 resolution
- **SD Card Storage:** up to 256 GB (removable)
- **Hard Keys:** Power, Settings, Analysis, Display, File, Input Channels, Previous Trace, Next Trace, Record/ Stop, Save, Back, 5 Direction Arrows, Enter
- **LED Indicators:** Power lights up red when charging, green when fully charged
  - Power Button LED turns red when the unit is on
- **Internal Clock:** Real-time Clock with dedicated battery

Environmental and General Specification

- **Enclosure Size:** 235*188*48.26 mm (L * W * H)
- **Weight:** 1.65 kg
- **Power Consumption:** 12 W
- **Battery:** 6800 mAh rechargeable Li-ion type
- **Operating Time:** 7-9 hours
- **Charge Time:** 4 hours
- **Power Supply:** 100 to 240 V$_{AC}$ (50/60 Hz), DC power 15 V (±10%)/3A
- **Safety Standard:** EN 61326:1997+A1:1998+A2:2001
- **EN61000-3-2:** 2000
- **EN61000-3-3:** 1995 + A1:2001
- **Protection Rating:** IP67
- **Cooling:** No cooling fan required
- **Temperature:**
  - **Operational:** -20°C to +55°C (LCD dims below -20°C),
  - **Storage:** -25°C to +70°C
- **Vibration:**
  - **Shock:** 50 g's, 315 in/sec, tested at 6 sides, non-operational test
  - **Operational, 3 sides:** 0.3 g$_{rms}$ from 5–500 Hz
  - **Non-operational, 3 sides:** 2.42 g$_{rms}$ from 5–500 Hz

Crystal Instruments Corporation
2370 Owen Street
Santa Clara, CA 95054
United States of America
T: +1.408.986.8880
F: +1.408.834.7818

www.crystalinstruments.com
info@go-ci.com

CRYSTAL INSTRUMENTS

Aufgrund laufender Weiterentwicklungen sind Änderungen der Spezifikationen vorbehalten. Alle Angaben vorbehaltlich Satz- und Druckfehler.

nbn Austria GmbH

Riesstraße 146, 8010 Graz   Tel. +43 316 40 28 05 | Fax +43 316 40 25 06   nbn@nbn.at | www.nbn.at