SKF Microlog Analyzer CMXA 51-MSHA

U.S. Mine Safety & Health Administration (MSHA) Permissable hand-held portable data collection system

The SKF Microlog Analyzer CMXA 51-MSHA for vibration data collection in gassy mines in the United States

The SKF Microlog Analyzer CMXA 51 has been certified and approved by the U.S. Department of Labor's Mine Safety and Health Administration (MSHA) for use in hazardous "gassy" areas of all mine operations in the United States. The certification stipulates that the SKF Microlog Analyzer meets MSHA standards as a "permissible" and "intrinsically safe" device for areas where potentially explosive firedamp (a flammable gas, usually methane) is commonly found.

All coal mines in the U.S. are considered "gassy" and only MSHA certified instruments are allowed to be used in gassy "permissible" areas. Certification to the MSHA standard affirms that the SKF analyzer is properly designed to perform safely in such hazardous mine environments by preventing any possible ignition of gas and dust fuels.

The SKF Microlog Analyzer CMXA 51-MSHA is a rugged, portable, handheld condition-monitoring instrument for collecting vibration, process, and dynamic data from machinery.

The newly designated SKF Microlog Analyzer CMXA 51-MSHA has been designed and manufactured to achieve MSHA "system approval" certification using methods applicable to intrinsic safety. The design reduces the amount of generated energy (heat) and effectively eliminates the risk of the device igniting a flammable mixture.

- Tested for use in methane-air mixtures
- MSHA approval no.18-A170001-0
- Complete system includes MSHA-approved sensor

Features

- 1/4 VGA (240 x 320) backlit monochrome touch screen LCD
- Intuitive user interface with left or right hand operation and context sensitive "Help" function
- Four cursor keys, and numeric keypad for easy screen navigation and user input
- Acceleration Enveloping (gE), SKF technology for bearing assessment
- Red, amber, green LED indicators
- Windows CE operating system

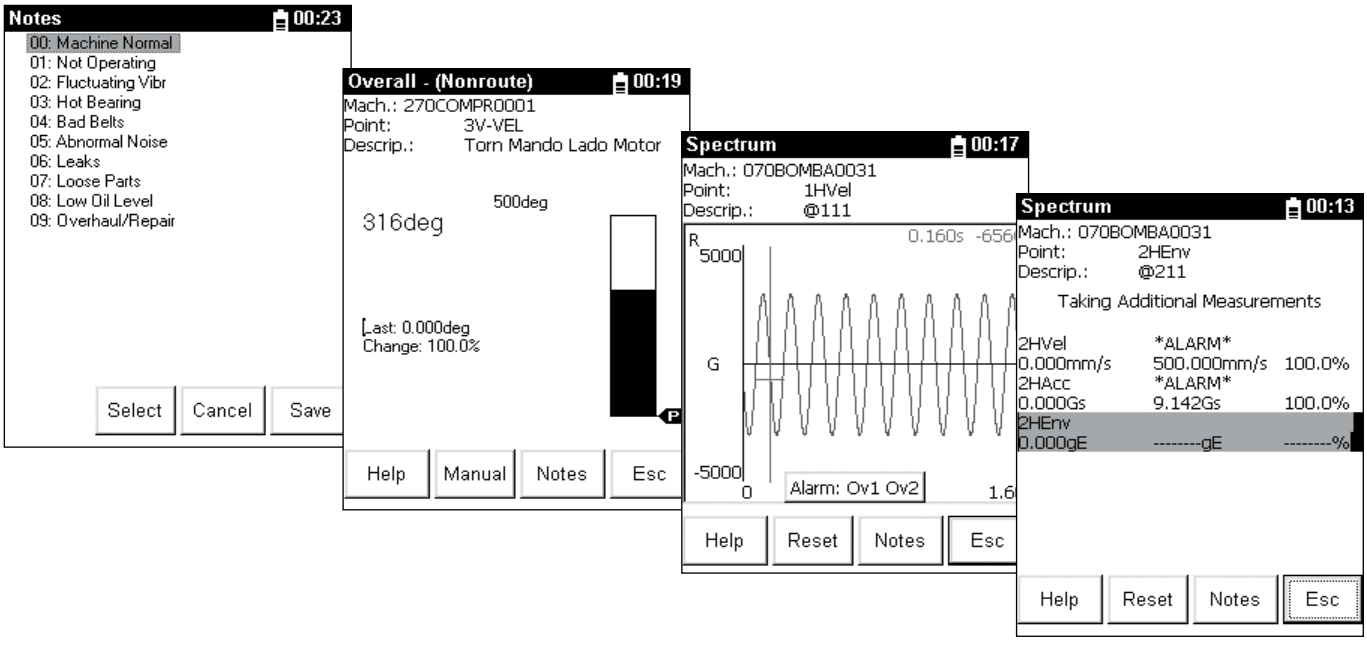
Integration

The SKF Microlog Analyzer CMXA 51-MSHA integrates with SKF @ptitude Monitoring Suite, a comprehensive software solution with powerful diagnostic and analytical capabilities.

For additional information on the SKF Microlog Analyzer CMXA 51-MSHA, contact your local SKF Sales Representative or visit our web site at ***www.skf.com.***

Warning advisories from MSHA

1. Charge and replace battery in fresh air only.
2. MSHA approved for use with SKF part number BP-7M battery pack only.
3. Charge with SKF P/N PSU-7 (Hitron P/N RES05-083060-51R) charger only.
4. Must be used in accordance with the MSHA System Diagram, Drawing No. 100-96111.



Specifications

Input sources

- Input signal types: MSHA-approved accelerometers:
  - CMSS793EE
  - CMSS797EE
  - CMPT2310AM
  - CMPT2323AM

Input parameters

- Input signal range:
  - ICP: 0 to 20 V
  - Non ICP: ±12 V, or 0 to 24 V for displacement
- Signal: RMS / peak / peak-to-peak / true peak / true peak-to-peak
- Transducer check: Bias voltage integrity (ICP)
- Auto range: Yes
- Dynamic range: >85 dB (20 bit ADC sigma-delta)
- Amplitude accuracy: 5%
- Input connectors:
  - Signal: Four pin Fischer, 102 type
  - Power in / battery charge: Two pin Fischer, 102 type
  - Trigger: Three pin Fischer, 102 type

Measurement processing

- Measurement parameters: Acceleration, velocity, displacement, gE, temperature, phase, voltage, user specified
- Measurement types: Overall, spectrum, time waveform, phase, order nomalized
- Range (route and non route): 3 to 40 Hz
- Frequency range: DC to 40 kHz maximum
- Integrated measurements: 5% Accurate >10 Hz
- Filters – high pass: 2 and 200 Hz hardware filter, second order
- Bearing condition: gE, dHFD
- gE Filters:
  - 5 Hz to 100 Hz
  - 50 Hz to 1 000 Hz
  - 500 Hz to 10 kHz
  - 5 kHz to 40 kHz
- FFT resolution: 100 to 6 400 lines (route), 100 to 12 800 (non-route)
- Averaging: Time, spectral, peak hold
- Alarms: Overall and spectrum
- Note codes: 100 note codes (select up to 6 from 100)
- Measurement windows: Hanning, flattop and rectangular
- Multi-point automation: Up to 12 measurements can be linked for one button push automated data collection for each measurement location

Data processing and storage

- Microprocessor: MIPS
- Memory:
  - OS 16 MB flash
  - Disk (user data) 8 MB flash

Data displays

- Spectrum, time, phase table, and process
- Up to 12 bands (fixed or order base) downloadable from host software
  - Machine identification: Plant, train, machine and point ID, point description, units, alarm levels, previous measurements, alarm types

Power

- Battery size: Custom rechargeable NiMH
  - 1 800 mAh removable battery pack
  - No loss of data during battery charges
  - Battery charges in the collector

Physical data

- Keyboard: Sealed chemical resistant elastomeric silicon, tactile touch, alpha-numeric
- Dedicated keys: Up, down, right and left two enter keys for right and left hand operation
- LCD screen: 1/4 VGA Monochrome touch screen, 240 x 320 pixels *(2.25 x 3 in.)* viewable
- Size:
  - Narrowest point: 7.44 x 3.72 in. *(186 x 93 mm)*
  - Widest point: 7.44 x 5.36 in. *(186 x 134 mm)*
- Weight: 1.51 lb. *(700 grams)*

Environmental

- Tested for use in methane-air mixtures
- IP rating: IP 65 (Dust and Waterproof)
- Temperature range storage: –4 to +140 °F *(–20 to +60 °C)*
- Temperature range operating: +14 to +122 °F *(–10 to +50 °C)*, or as required by the safety approval
- Humidity: 0 to 80% relative humidity, non-condensing
- EMC:
  - EN61000-6-4 (Emission)
  - EN61000-6-2 (Susceptibility)
- Drop test: 3.3 ft. *(1 meter)*

Communications

- Communication: RS 232, SKF Microlog protocol

Printing

- PCL and PJ 200 compatible printers through interface

Host software

- SKF @ptitude Analyst, version 3.1.3 or higher

Ordering Information

Standard kit

The SKF Microlog CMXA 51-MSHA Intrinsically Safe (IS) Portable Data Collector / FFT Analyzer standard kit includes:

- SKF Microlog CMXA 51-MSHA unit, programmed for one-channel route measurements and one-channel off-route
- CD-ROM with user manuals, utilities, asset information page and literature
- Accelerometer, ATEX (100 mVg) [CMSS 793-EE]
- Accelerometer cable, CA-40, Fischer four pin, 2 m *(6.6 ft.)* coil, to two pin MIL [CMAC 5115]
- BNC cable adapter [CMAC 3715]
- RS232 communications cable [CMAC 5201]
- Magnetic base accelerometer (pull-strength, 20 kg, 1/4 × 28 UNF male thread ∅ 35 mm two pole) [CMSS 908-MD]
- MSHA-approved battery pack [BP-7M]
- Power adapter / charger [CMAC 5110 (PSU-7)]
- Hard shell carrying case (transit case) [CMAC 5118]
- Hand strap [CMAC 5013]
- Leather neck strap [CMAC 5113]
- Rubber boot [RB-1]
- Stylus [CMAC 5251]

Optional accessories

MSHA-approved for use with:

- CMXA 51-MSHA CMSS 797EE (100 mV/g)

MSHA-approved vibration sensors for permanent mounting underground:

- CMPT 2310AM (100 mV/g)
- CMPT 2323AM (230 mV/g)

MSHA BNC enclosure for terminating permanently-mounted sensors:

- CMPT CPHD 04BM (four BNC terminals)
- CMPT CPHD 08BM (eight BNC terminals)

Product Support Plans (PSP)

A range of Product Support Plans are available to protect your investment. Contact your local SKF Sales Representative for additional information.

http://www.skf.com

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