



# Microlog<sup>®</sup>

## CMVA 65 Portable Data Collector/FFT Analyzer

*Color Display! Adds Power,  
Advanced Capability and the  
Expertise of SKF to Your  
Reliability Efforts*

Imagine an instrument that not only collects data and performs standard analysis functions, but also utilizes on-board intelligence to facilitate detection, analysis and correction of machine problems. With a range of new features and functions, the Microlog CMVA 65 builds upon the power, value and success of its predecessor the CMVA 60, and offers the greatest value yet for your reliability investment.

### **New Technology**

Digital signal processing continues to provide for speed, accuracy and reliability in data collection and processing. A digital board with advanced programmable logic brings you the utmost in portable analysis technology. This means dramatically enhanced processing speed, performance, data capacity and analysis flexibility.

The new Microlog CMVA 65 makes it easier than ever to detect and identify the causes of machine failures. For example, the new, patented Harmonic Activity Locator (HAL) – proprietary SKF embedded intelligence – makes analysis and detection of mechanical problems more efficient and effective by mimicking the process used by analysts to detect harmonic series.



Additional new features include a color LCD screen that provides outstanding visibility indoors or out. ISO-compliant alarm indicators and a redesigned, color-coded keypad complement the intuitive menus and preset defaults.

And the CMVA 65 is designed with the future in mind, setting the stage for ongoing enhancements and additional capabilities. Upgrades to the unit are easily downloaded to the on-board Flash memory. Simply connect the Microlog to your computer and download firmware files, or sign on to the Internet and download your upgrade right from our web site.

## Wizards Facilitate Troubleshooting

The newest Microlog carries on the tradition of its predecessor with “Wizards” – embedded intelligence that facilitate critical analysis and correction with minimal setup effort. A feature first introduced to portable data collectors by SKF in 1996, Wizards guide a user through the commands needed for a specific application. This technology makes it easy for novices and experts alike to detect, analyze and correct machine problems.

The newly incorporated HAL Wizard facilitates more effective and efficient troubleshooting by helping users identify possible bearing fault frequencies and comparing results to data in the SKF Bearing Library – now embedded in the firmware. This provides instant access to volumes of important bearing detail with the press of a button. HAL even notifies the operator when an abnormality is detected!

Other embedded Wizards include:

- Configuration Wizard for storing up to six user-defined application configurations
- Run-Up/Coast Down and Bump Test Wizards for monitoring shaft criticals and resonance testing
- Enhanced Field Balancing Wizard for easier machine balancing
- Motor Current and Cyclic Analysis Wizards for monitoring motors, engines, compressors and more

With the Microlog CMVA 65, all the features you need are neatly packaged in one diagnostic tool – with no additional modules or upgrades to buy! The Microlog CMVA 65 helps you to dramatically improve machine and plant reliability while maintaining your budget.

For additional information on the Microlog CMVA 65, contact your local SKF Reliability Systems Sales Representative or visit our web site at [www.skf.com/reliability](http://www.skf.com/reliability).

The first screenshot shows the HAL BSF Defect Spectrum. It displays a frequency spectrum with a peak at 215.0 Hz. The top status bar shows: 05/01/04 100% BNC EXT 02:41:03, AVG 1/1, 0.266 Gs, ORD 7.16, 215.0 Hz. The x-axis is labeled 'Speed' and 'Hz' with markers at 00, 30, 60, and 1000. Navigation options are SAVE-Save data, F3-HAL, and ESC-Exit.

The second screenshot shows the HAL Setup Menu. It displays a box with the following settings: RPM:1950, Bandwidth: 2.0 %, High Conf. Level: 3.5, Low Conf. Level: 2.5, and Bearing List:C10013040V. The top status bar shows: 05/01/04 100% BNC EXT 02:25:08, 5.125 Gs, ORD 0.00, OVERALL. The x-axis is labeled 'Speed' and 'Hz' with markers at 00, 60, and 1000. Navigation options are SAVE-Save data, F3-HAL, and ESC-Exit.

The third screenshot shows the HAL Results screen. It contains a table with the following data:

Defect	Order	Score	Confidence
BSF	1.0X	12.0	High
HAL C	2.0X	5.0	High
FIF	0.5X	1.9	Low
HAL B	7.2X	1.4	Low
BPFI	24.1X	0.5	Low
BPFO	20.9X	0.2	Low
HAL A	0.5X	0.0	Low

Below the table, it shows: Machine Speed: 1800.000 RPM and Press ESCAPE to exit. The top status bar shows: 05/01/04 100% BNC EXT 02:33:44. Navigation options are SAVE-Save data, F3-HAL, and ESC-Exit.

## Specifications

### INPUT SOURCES

Acceleration, Velocity and Displacement from hand-held or installed sensors or monitoring systems.

**SEE™ Sensor:** CMSS 786M SEE sensor (SKF patented Acoustic Emission Technology)

#### AC/DC Current Sensors

#### Pressure Sensors

#### Temperature Sensors

**Keyboard Entry:** Measurements read from indicators or installed instruments entered in engineering units. Maximum of eight (8) places including sign (+ or -) and decimal point.

**Universal Tachometer Input:** Accepts pulse inputs up to  $\pm 25$  V

**Visual Inspections:** Added to measurement as coded notes or in plain language to a total of 32 characters per measurement point

### PREPROCESSING

**Hardware Enveloper (Demodulator):** With four (4) selectable input filters for enhanced bearing and gear mesh fault detection

**Filter Selection:** 5 Hz-100 Hz; 50 Hz-1,000 Hz; 500 Hz-10 kHz; 5 kHz-40 kHz

### INPUT PARAMETERS

**Tachometer:** Minimum pulse amplitude 2 volt peak to peak, 10% rise/fall time, minimum 0.1 ms pulse width, and conditioning circuitry

**Input Impedance:** 1 M Ohm

**Input Coupling:** Low frequency 3 dB roll off at 1.0 Hz

**Input Voltage Range:** 25 V peak AC,  $\pm 50$  VDC

**Dynamic Range:** 80 dB (14 bit signal conversion) plus 60 dB of gain ranging for a total signal input range of 140 dB

**Amplitude:** Accuracy within 1% input at one specified frequency

**Input Connectors:** BNC (3) input, output, and tachometer/phase and multi-pin D connector

### DATA PROCESSING AND STORAGE

**Microprocessor:** Intel, 32-bit microprocessor

**Memory:** 6 MB (Flash 4 MB)



### MEASUREMENT

**Range:** 0.5 Hz to 20 kHz (continuously adjustable)

**Averaging:** Programmable from 1 to 9,999

- *Type:* Average, peak hold, synchronous time, and off.
- *Mode:* Continuous, finite, and repeat.

**Markers:** Fixed and cursor lock. Single, harmonic, relative, and sideband.

**Trigger Modes:** Amplitude trigger thresholds, trigger slope, and pre- and post trigger time delays are fully programmable. Free run, external, and input.

#### FFT Analysis:

- *Start Frequency:* Preprogrammed between 0 and the maximum frequency (true zoom)
- *Maximum Frequency:* Selected between 1 Hz and 20 kHz
- *Resolution:* Programmable 100, 200, 400, 800, 1600, 3200, and 6400 lines
- *Frequency Accuracy:* 0.01% of the frequency measured at the position of the display cursor
- *Measurement Windows:* Hanning, Uniform, and Flat Top

**Data Collection Rate:** Up to 5X rate of previous generation data collectors

**Multi-Point Automation:** Up to 12 measurements can be linked for one button push automated data collection for each measurement location

### DATA DISPLAYS

- Enhanced color alarm displays
- Single or dual split screen – magnitude, time, and phase
- Digital tracking filter (1X and 2X)
- Amplitude vs. degrees and amplitude vs. time
- Motor current analysis (zoomed and enveloped)
- Up to 12 bands (fixed or order based) downloadable from host software

### POWER

- Battery Size: 7.2 V 3.8 AH
- Long life removable NiMH battery packs
- No loss of data during battery charges
- Field and office removable batteries with no tools required
- Smart charger module

### APPLICATION RESIDENT PROGRAMS

- New HAL patented (Harmonic Activity Locator) Wizard™
- Basic Balancing Wizard™
- Advanced Balancing Wizard™
- Tracking Filter Wizard™
- Cyclic Analysis Wizard™
- Motor Current Wizard™
- Bump Test Wizard™
- Configuration Wizard™
- Run-Up/Coast Down Wizard™

### MODES OF DATA COLLECTION

- Route
- NonRoute
- Analyzer

### PHYSICAL DATA

**Enhanced Keypad:** Color keys and larger, easier-to-read font

**Keyboard:** Sealed chemical resistant elastomeric silicon, tactile touch

- *Dedicated Keys:* Right, left, up, and down arrow; right and left handed enter; backlight; markers on/off, freeze display, zoom in/out, save data, display expand, set RPM (running frequency index for orders), reset measurement, LIN/LOG, and shift cursor.
- *Hot Keys:* Find peak, find last route point measured, overall and cursor values, motor current fault criteria and Fmax.

**Color LCD Screen:** New transfective technology with adjustable backlight, 4.65" (118.18 mm) x 3.52" (89.38 mm) and disposable stick-on lens cover.

Enhanced to provide higher resolution and brighter viewing indoors and out.

**Case:** High impact polycarbonate polyester injection molded with IP 64 dust and splash rating.

**Size:** *Width:* 7.88" (200 mm)


*Height:* 10.50" (267 mm)

*Depth:* 2.50" (64 mm)

**Weight:** 5 lbs. (2.3 kg)

### ENVIRONMENTAL

**CSA "C and US" Mark:**  Class I, Division 2, Groups A, B, C, D

**CE Mark:**  EN50081-2, EN50082-2.

**IP Rating:** IP 64 (dust and splash-proof)

**Temperature Range Storage:** +14°F to +122°F (-10°C to +50°C)

**Temperature Range Operating:** +32°F to +122°F (0°C to +50°C)

**Humidity:** 95% non-condensing

### COMMUNICATIONS

**Communication:** 1200, 2400, 4800, 9600, 19200, 38400, 57600, and 115,200 baud rates and ability to input modem commands

### PRINTING

LaserJet or Dot Matrix, 8.5" x 11.0" and A4 metric formats (CMSS 6160 Printer Adapter must be used)

## CMVA 65 Portable Data Collector/FFT Analyzer

## Ordering Information

### STANDARD KIT

- **CMVA 65** Microlog Data Collector/FFT Analyzer, Single Channel
- **CMVA 6112-CE** Microlog Support Module
- **CMVA 50230-4** Battery Pack, NiMH (Spare)
- **CMVA 3355** AC/DC Adapter, Universal 115V/230V
- **CMVA 3351** Cable Power Cord for CMVA 3355 UL110
- **CMVA 6131** Microlog Carrying Case, Nylon, Black
- **CMSS 50077A-CE** Cable, Microlog to Support Module, 4 feet
- **CMSS 50080-CE** Cable, Support Module to PC, 4 feet
- **CMAC 4301** BOV Adapter
- **CMSS 50079-CE** Cable, Microlog to BNC (No Power) 5 feet
- **CMSS 2200** Accelerometer
- **CMSS 31707500-CE** Cable, Microlog to CMSS 2200 Accelerometer
- **CMSS 60139-04** Stinger Accelerometer Tip 4.5 inches
- **CMSS 908-MD** Magnetic Base, Accelerometer, 1.5 inches
- **31641400** Installation and Implementation of Portable Condition Monitoring Programs
- **CM-F0072S** Machinery Data Sheets (25 Sheets)
- **CM-F0077** Literature, Using Machinery Data Sheets
- **CMVA 65** Microlog Standard Languages User Manual and Firmware on CD-ROM

### OPTIONAL KITS

- CSA (Non-incendive Kits) Available.

### OPTIONAL ACCESSORIES

- **CMAC 4300** Microlog to MARLIN® Stud Adapter
- **CMAC 4360-K** Triax Accelerometer Kit
- **CMCP 800-01** Microlog Field Balancing Accessory Kit with Optical Sensor

### OPTIONAL ACCESSORIES (continued)

- **CMCP 800-02** Microlog Field Balancing Accessory Kit with Laser Sensor
- **CMAC 4200-SL** Infrared Thermometer
- **CMIN 400-K** Inspector 400 Ultrasonic Probe
- **CMSS 6160** Printer Adapter
- **CMSS 6187-CE** "Primary" Current Clamp Probe (0-60 amps and 0-600 amps AC and DC)
- **CMSS 6187-1-CE** "Secondary" Current Clamp Probe (0-20 amps and 0-200 amps AC and DC)
- **CMSS 6190L** Audio Headphones (No special cables required)
- **CMSS 6165K-0-CE** (115 V) and **CMSS 6165K-1-CE** (230 V) StrobeLite Kits
- **CMSS 6155K-0-W** (115 V) and **CMSS 6155K-1-W** (230 V) Optical Phase Reference Kits
- **CMSS 6195AK-W** Laser Phase Reference Kit
- **CMSS 50401** 25 feet (7.5 meters) Extension Cable for CMSS 6155 Optical Phase Reference Kit and CMSS 6195 Laser Phase Reference Kits
- **CMSS 6156** Magnetic Holder for CMSS 6155 Optical Phase Reference Kit and CMSS 6195 Laser Phase Reference Kits
- **CMVA 6134-HD** Hard Shell Carrying Case
- **CMSS 6188K** High Temperature Accelerometer Kit
- **CMSS 797L** Low Frequency Accelerometer
- **CMAC 4400** One (1) Packet with Five (5) Replaceable Snap-On Lens Cover
- **CMAC 4500** One (1) Packet with Five (5) Soft Replaceable Lens Cover
- **CMSS 50280-CE** CMVA 65 Video-Out Cable

## Product Support Plans (PSP)

**PSP 044** One (1), Two (2) or Three (3) Year Product Support Plans. Basic, Standard, Premier, Premier Plus, PSP/e and PSP/e Plus Packages Available.



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