SKF MicroVibe P

CMVL 3860-ML

Power without complexity, an advanced instrument for simplified vibration assessment that fits in your pocket

Available in multiple languages (ML): English, Chinese, German, and Spanish.

With the SKF MicroVibe P, vibration assessment is as close and convenient as your PDA! This economical vibration meter expansion module fits in a PocketPC's compact flash card slot (CF Type II) and features the user-friendly Windows Mobile Operating System. Identify problems and assess machine condition quickly and easily with this versatile and easy-to-use pocket tool.

Features

- Exceptional value
  - Low cost, compact, and lightweight
- Quickly identify problems
  - Expert judgment criteria based on ISO vibration severity standard and SKF bearing condition evaluation
  - FFT Spectrum analysis enables user to pinpoint problems like unbalance, misalignment, bearing, rubs, etc.
  - Multi-point automation for faster data collection
- Standard vibration measurements
  - Envelope acceleration, acceleration, velocity, and displacement in both FFT spectrum and time waveform displays
- Store and recall measurements
  - For trending and analysis, store up to:
    - 2 000 overall vibration signals,
    - 1 000 FFT spectrum, and
    - 200 time waveforms
- Data management software
  - Enables users to transfer machinery vibration data to a computer for trending and further analysis
- SKF MicroVibe P kit includes:
  - SKF MicroVibe P module, data management software, accelerometer and cable, magnetic base, earphones, user manual, and carrying case (everything but the PDA).

Power without complexity

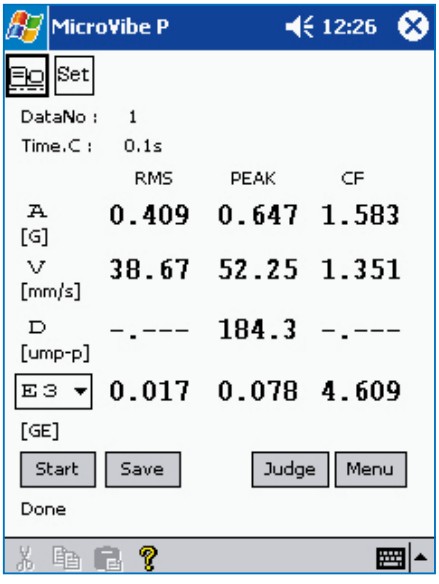
A handy "quick-check" solution, based on the universal PDA platform, SKF MicroVibe P is simple to use. Built-in automatic functions virtually eliminate setup, while analytical displays and automatic judgment of machine vibration readings help users identify machine problems on the spot!

An advanced instrument for simplified vibration assessment

The SKF MicroVibe P collects and displays overall vibration readings and automatically provides expert judgment of the measured velocity and overall enveloped acceleration levels, enabling immediate, accurate, and reliable assessment of machine or bearing condition.

Multi-point automation saves time and improves reliability

Automatically collect the most useful measurements for vibration analysis – acceleration, velocity, displacement, and enveloped acceleration – simultaneously. SKF's multi-point automation saves time and enhances the power, accuracy, and overall reliability of your decision making – giving you the information needed to make the best possible judgment call.



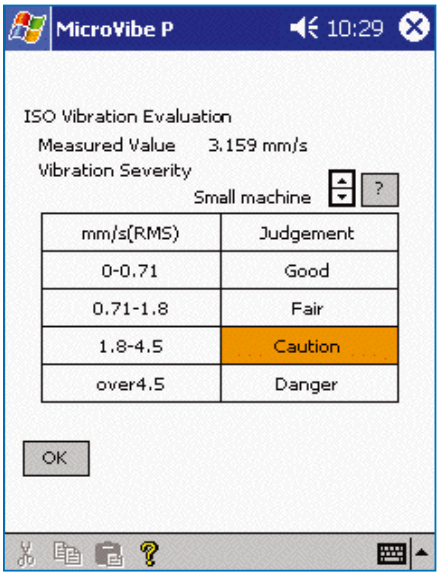
The SKF MicroVibe P system.

Automatic setup and onboard expertise

The SKF MicroVibe P provides automatic setup and extensive evaluation of vibration results. Simply collect the data and the SKF MicroVibe P does the rest – comparing readings to pre-programmed velocity and enveloped acceleration severity criteria for accurate evaluation of machine vibration levels. This helps even novice users to easily determine abnormal conditions and take appropriate action.

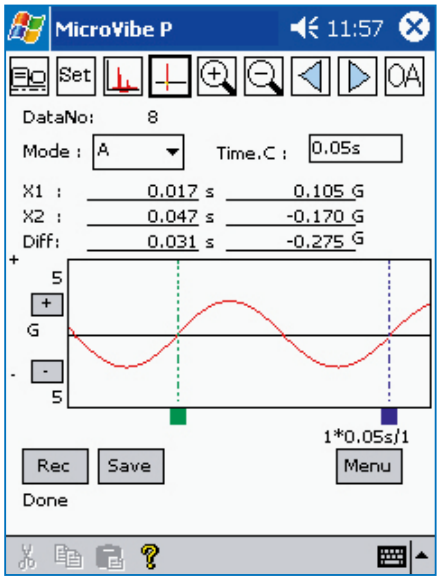
Time waveform displays

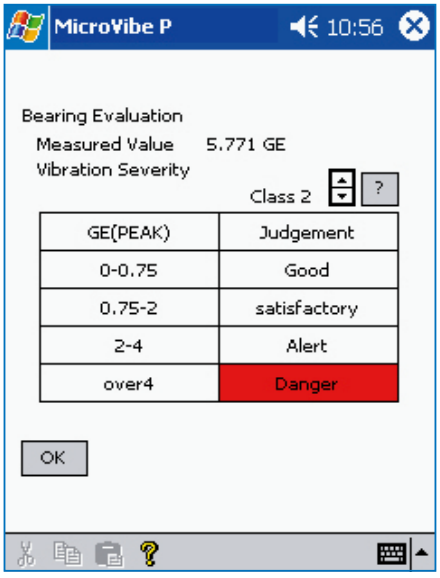
Measure and store time waveform data, with the capability to select measurement type and duration. Time waveform displays are available for acceleration, velocity, displacement, or enveloped acceleration measurements. A unique "automatic transient capture" feature automatically starts data collection when the measured vibration signal exceeds a user-specified trigger level, enabling more detailed analysis of the pre- and post-trigger events surrounding a change in machine condition.

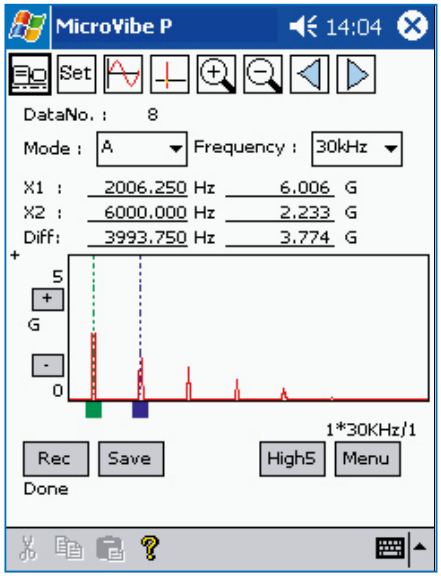


FFT spectrum analysis capabilities

With pre-set measurements and user selectable FFT resolution at 400, 800 or 1 600 lines, selectable Fmax, and a 90 dB dynamic range, the SKF MicroVibe P has what it takes to help you easily pinpoint impending machine problems. Cursor position readout with display zoom optimizes your analysis power. In addition, it automatically tabulates and displays the highest vibration peaks from a spectrum, making it easy to quickly identify signals indicative of specific machine problems, like misalignment, imbalance, or bearing faults.







Versatile measurement capability

The SKF MicroVibe P works with the two most commonly used vibration sensors – accelerometers and dynamic velocity transducers. Both enable you to take a multi-parameter approach to your analysis and optimize the SKF MicroVibe P's data collection capabilities.

Audio analysis

Now you can actually listen to machine problems using the SKF MicroVibe P's acoustic capability. Simply connect the earphones and listen to the measured vibration signal. When abnormal noise is detected, use the SKF MicroVibe P's vibration analysis capabilities to help determine the type and severity of the problem.

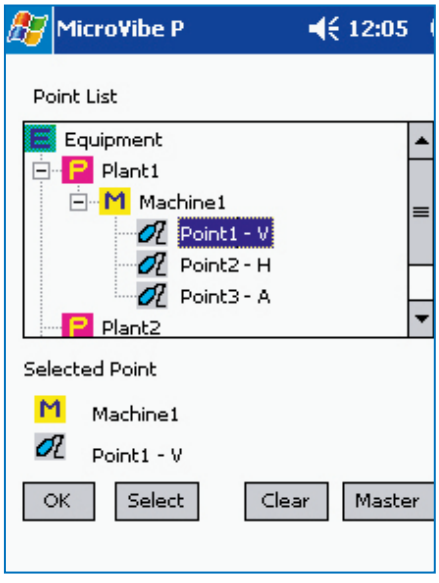
Store and recall measurements for trending and analysis

The SKF MicroVibe P's data storage capacity is extraordinarily impressive. It can store up to 2 000 overall vibration signals, 1 000 FFT spectrums or 200 records of time waveform data for later recall. A search feature quickly retrieves specific collected measurement, and a "repeat measurement" feature let's you recall and repeat any measurement for more focused analysis or trending of a potential problem. Finally, a "recall data storage" list helps you keep track of and reference all collected data.

Data management and software for your desktop computer

The SKF MicroVibe P offers added functionality, including a software program to extract, save, edit, and display collected data. It's ideal for small route data collection.

Data may be uploaded to your desktop computer for further analysis and trending using the data management software. Once uploaded, vibration data, overall trends, and spectra can be stored, trended, graphically displayed, and even exported to Microsoft Excel.



Utilities add value

Several exciting utilities help make the SKF MicroVibe P a universal tool for machine vibration analysis, for any expertise level. Collect data in imperical or metric units.

The SKF MicroVibe P truly provides you vibration monitoring and analysis power, without complexity. It's tomorrow's big solution for vibration analysis in a small, smart package – and it's available today! Get more information at ***www.skf.com/cm***.

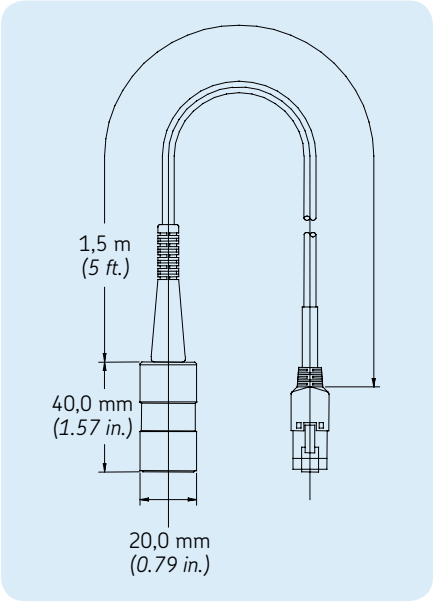
Specifications

SKF MicroVibe P CMVL 3860-EN

- Minimum PDA requirements(*): Conforms to the Pocket PC specifications
- Operating system: Microsoft Windows Mobile 3.0/5.0/6.0
- Processor: ARM processor
- Interface: Compact Flash TYPE II Slot 3.3 V only
- Recommended specifications:
  - Processor: PXA255 400 MHz or higher
  - Memory (RAM): 64 MB or higher
- Interface with Pocket PC: Compact Flash TYPE II, slot 3.3 V only
- Power supply: +3.3 V (supplied by Pocket PC)
- Current:
  - Standby: 44 µ A
  - Under measurement: 48 mA
- Pickup input (PU IN):
  - AC voltage signal: Maximum ±2.5 V
  - Input terminal: Eight pin modular jack (RJ-45), constant current type pre-amp built-in accelerometer is not connected.
- Raw waveform output (PU OUT):
  - AC voltage signal: Maximum ±2.5 V
  - Output terminal: Mini-jack (2,5 mm F)
- Sampling frequency: Maximum 76.8 kHz (changes according to mode) 76.8 kHz/ 38.4 kHz
- Aliasing filter: 20 kHz/2 kHz (changes according to mode and sampling frequency)
- A/D: 16-Bit
- Temperature range: 0 to +45 °C *(32 to +113 °F)*
- Humidity range: <90% relative humidity, non-condensing
- Weight: 25 g *(0.88 oz.)* approximate (card only)
- Dimensions:
  - Width: 42,1 mm *(1.66 in.)*
  - Height: 60,0 mm *(2.36 in.)*
  - Depth: 16,9 mm *(0.67 in.)*
- Shape: Conforms to CF Card TYPE II, Card Type. See photograph.
- Color: Black

CMSS 3811 Accelerometer

- Type: Pre-amp is built-in, shear type
- Power supply: DC ±5 V
- Voltage sensitivity: 20 mV/g
- Resonance frequency: 20 kHz approximate
- Frequency range: 3 to 10 000 Hz
- Maximum acceleration: 500 m/s^2
- Vibration limit: 5 000 m/s^2
- Maximum output voltage: ±1 V
- Output impedance: Below 100 Ω
- Temperature range: –20 to +80 °C *(–4 to +176 °F)*
- Material: SUS
- Weight: 60 g *(2.1 oz.)* approximate
- Tapped hole: M6, P = 1, depth 5 mm, internal thread
- Integral cable: Length 1,5 m *(5 ft.)*
- Connector: Eight pin modular plug
- Dimensions: See drawing CMSS 3811 Accelerometer dimension drawing
- Structure: Dust-proof, spray-proof



CMSS 3811 Accelerometer dimensions.

* May not work with all PDAs. Please see list of certified PDAs.

Measurement specifications (for measurement with CMSS 3811 Accelerometer)

Frequency specifications

Item	Specifications
Frequency range	
A	Acceleration: 10 to 15 kHz (1)
V	Velocity: 10 to 1 000 Hz
D	Displacement: 10 to 150 Hz
E1	Envelope detection: 5 to 100 Hz
E2	Envelope detection: 50 to 1 kHz
E3	Envelope detection: 500 to 10 kHz
E4	Envelope detection: 5 k to 20 kHz
Sampling frequency	A, E3, E4: 76,8 kHz E1, E2, V, D: 38,4 kHz
Aliasing filter	A, E3, E4: 20 kHz E1, E2, V, D: 2 kHz
Range	
A, E1, E2, E3, E4	0 to 1 g: 100x range 0 to 5 g: 20x range 0 to 20 g: 5x range 0 to 100 g: 1x range
V	0 to 10 mm/s: 100x range 0 to 50 mm/s: 20x range 0 to 200 mm/s: 5x range 0 to 1 000 mm/s: 1x range
D	0 to 50 µm: 100x range 0 to 250 µm: 20x range 0 to 1 000 µm: 5x range 0 to 5 000 µm: 1x range

(1) The upper bound frequency can be changed by Utility Menu's A Filter.

Overall and judgment specifications

Item	Specifications
Overall value simultaneous measurement	• Simultaneous measurement of overall vibration level, multi-mode (A, V, D, E1 to E4) • Range = Auto • Measuring time = 0.1/0.5/1.0 s • Measurement data = RMS value, PEAK value, C. F. value • Measured value display digits: Significant figure 4 digits • Example: .9999/999.9/99.99/9.999 • Status display (under measurement, measurement end)
Judgment	• Abnormal judgment by vibration severity standard (ISO 10816 [JIS-B-0906] Standard) • Abnormal bearing judgment by enveloped acceleration E3 mode

Display specifications

Item	Specifications
Graph display	FFT graph • Dominant frequency component (highest five frequencies) • Cursor indication value display • Zoom scroll value display Waveform graph • Cursor indication display • Zoom scroll display

FFT specifications

Item	Specifications
FFT, waveform analysis	**Mode =** A/V D/E1/E2/E3/E4 **Range =** Fixed/auto **FFT measurement condition:** • Analysis frequencies: Selection list – A: 250/500/1 000/2 000/5 000/ 10 000/15 000/30 000 Hz – V: 250/500/1 000 Hz – D: 250 Hz/(500 Hz for CMSS 3812 Velocity Sensor only) – E1: 50 Hz – E2: 250/500 Hz – E3: 250/500/1 000/2 000/5 000 Hz – E4: 250/500/1 000/2 000/5 000/ 10 000 Hz • Lines of resolution: 1 600/800/400 • Averaging: Stable/exponential/peak hold • 1/2/4/8 times • Window: Hanning **Measurement mode: Normal/recorder/post process** • Normal: Recording time of waveform data is determined by FFT measurement condition (analysis frequency, line number). Executes the measurement for average cycle in FFT and records the waveform for frame time (final frame time). • Recorder: Records the waveform of specified time by recording time. Average cycle of FFT is one time. • Recording time: 1/2/5/10 s • Post-process: Calculates from raw waveform data (temporary saved data). Average cycle of FFT is one time.

Ordering information

SKF MicroVibe P kit CMVL 3860-ML includes:

- SKF MicroVibe P Module
- Accelerometer, 1,5 m *(5 ft.)* integral cable, with plug, and stinger one (1) each [CMSS 3811]
- Two-bar magnetic base, high strength 35 lb. pull, one (1) each [CMAC 3825]
- Earphones, one (1) each [CMAC 3830]
- Data management software CD-ROM, one (1) each
- SKF MicroVibe P documentation (English only)
  - User manual
  - Data management software manual
  - Quick start guide
  - CE declaration of confirmation
- Carrying case

Note:
Pocket PC (PDA) NOT INCLUDED.

SKF MicroVibe P kits with Pocket PC:

SKF MicroVibe P kit CMVL 3860-EN-PPC for USA includes:

- SKF MicroVibe P kit, one (1) each [CMVL 3860-ML]
- Hewlett Packard – HP iPAQ 210/211 Pocket PC with English operating system Windows Mobile 6.0, one (1) each [CMAC 3835]

SKF MicroVibe P kit CMVL 3860-EN-U-PPC:

- SKF MicroVibe P kit, one (1) each [CMVL 3860-ML]
- Hewlett Packard – HP iPAQ 210/211 Pocket PC with English operating system Windows Mobile 6.0, one (1) each [CMAC 3835]
- Hewlett Packard – Universal AC adapter, one (1) each [CMAC 3840]

Additional accessories

- Accelerometer, 1,5 m *(5 ft.)* integral cable (replacement), with plug [CMSS 3811]
- Velocity pickup sensor, 1,5 m *(5 ft.)* integral cable, with plug [CMSS 3812]
- Two-bar magnetic base, high strength 35 lb. pull, one (1) each [CMAC 3825]
- Earphones, one (1) each [CMAC 3830]

Certified Pocket PC's

Certified Pocket PC's (PDA) with Windows Mobile 2006

- Hewlett Packard (HP)
  - iPAQ 210
  - iPAQ 211
  - iPAQ 212
  - iPAQ 214
  - iPAQ 216

Certified Pocket PC's (PDA) with Windows Mobile 2005

- Hewlett Packard (HP)
  - iPAQ hx2490
  - iPAQ hx2495
  - iPAQ hx2790

Optional certificates

- Calibration certificate, certification of successful inspection results [DOC-CAL CERT CMVL 3860]
- Verification/calibration record, features the actual data and tolerance's [DOC-TEST CERT CMVL 3860]