

SKF Microlog Analyzer AX series

CMXA 80

Advanced data collector / FFT analyzer

The SKF Microlog Analyzer AX is the most advanced large screen route based analyzer offered by SKF today. The SKF Microlog AX's features allow you to capture a wide range of vibration data quickly.

The analyzer provides the flexibility to support applications that are most important to your company's specific predictive maintenance program. Developed for use in a wide range of industries, the SKF Microlog AX series is approved for use in hazardous environments requiring ATEX, IECEx and Class I Division 2 certifications.

Key features

- Simultaneous triaxial or four channel measurements for fast data collection
- Marvell 806 MHz PXA320 processor means faster real time rate and display updates
- Rugged, dust / waterproof IP 65 design for reliability in industrial environments
- Rechargeable lithium battery supports eight hours of continuous data collection
- Large 6.4 in. VGA color display for easy viewing and analysis in any light



SKF Microlog AX provides fast data collection and analysis. The large screen facilitates viewing in any light.



SKF Microlog AX is a full-featured, four channel, high performance route and non-route portable data collector/FFT analyzer.

SKF Microlog Analyzer AX series

The SKF Microlog AX facilitates easier, more powerful condition monitoring by analyzing vibration signals and process variables using four channel non-route measurements and one or two plane static or dynamic couple balancing applications over a range of 10 CPM (0,16 Hz) to 4 800 000 CPM (80 kHz). Bearing assessments are carried out using the industry proven SKF Acceleration Enveloping (gE) technology. The SKF Microlog AX utilizes the latest advances in analog and digital electronics, including digital signal processing (DSP) and high resolution sigma-delta A/D converters, to provide both speed and accuracy in the data collection process.



Application modules to customize SKF Microlog AX

The SKF Microlog AX uses a modular design to allow users to select application modules to suit their individual requirements.

SKF Microlog AX-M model

Four channel non-route / two channel or simultaneous triaxial route Analysis and two channel Balancing modules are already installed.
The AX-M is upgradable to the AX-S or AX-F.

SKF Microlog AX-S model

All the features of the AX-M with the Bump Test and Data Recorder modules added.

SKF Microlog AX-F model

Further enhances capability by adding Run up Coast down (RuCd), Frequency Response Function (FRF), FFT Analyzer, SKF Idler Sound Monitor and Conformance Check modules.

Note: All modules may also be ordered separately.

Application modules

Complete specifications and details about the SKF Microlog modules are available in the SKF Microlog Module Suite catalog (SKF publication CM/P8 11083 EN).

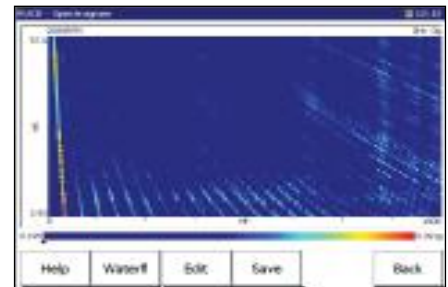
The SKF Microlog AX is shipped with the full SKF Microlog suite of modules installed. To add additional functionality, simply purchase the module and enter the supplied license key.

Run up Coast down



The Run up Coast down module analyzes data from machines where noise or vibration levels are changing with speed, time or load (applications that cause transient phenomena) to establish the critical / resonant speeds of a machine.

The module simultaneously acquires a vibration and a tachometer signal and stores the data as a time waveform (.wav file) for further analysis. The module can create Bode, Nyquist, waterfall, color spectrogram or tables of data all from a single captured event.



Conformance Check



The Conformance Check functionality transforms the SKF Microlog AX into a tool that operators not trained in noise and vibration can use to obtain expert data.

An automated assessment compares vibration levels with established limits, and a pass or fail indication is displayed to indicate whether the product complies with predefined quality indicators or required standards. It has the ability to assess up to 64 individual fault criteria simultaneously and provide colored indication if a warning or alarm level is reached.

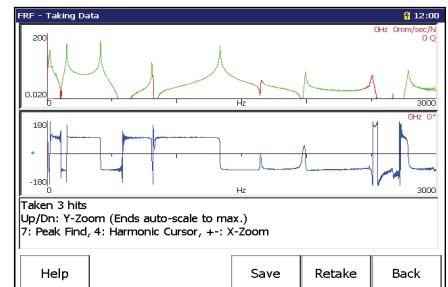


Frequency Response Function



The Frequency Response Function (FRF) module is designed to enable a user to quickly establish a structure's properties (accelerance, apparent mass, mobility, impedance stiffness or compliance). Color coding on the FRF indicates the selectable level of coherence. A key feature of this module is its ability to

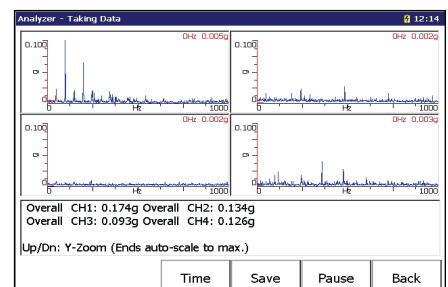
automatically detect and reject double hits. The module can also measure the transfer function between two transducers while a machine is running. The measurements can be imported into a variety of modal analysis software for animation.



FFT Analyzer



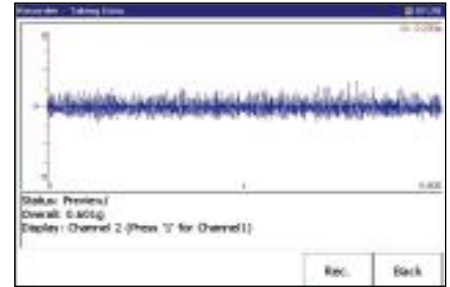
The FFT Analyzer module allows you to quickly set up spectral / phase measurements for analysis. The user has the option to select up to four channels, up to 25 600 lines of resolution and 80 kHz F_{max} (single channel). The data is stored in the SKF Microlog Consultant for future analysis, and can be transferred to the host computer in comma separated value format (.csv) for analysis in host PC applications such as SKF's Analysis and Reporting module.



Data Recorder



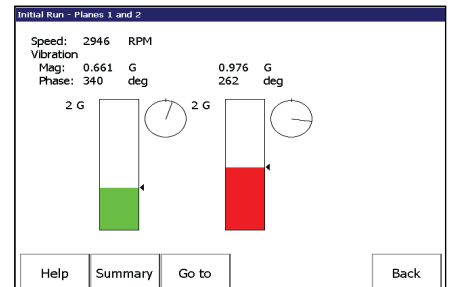
Signals from sensors connected to the SKF Microlog AX are digitally recorded and stored as standard .wav files allowing a user to listen to and filter signals. These files can also be sent via email or transferred directly to SKF's Analysis and Reporting module for post-processing. Using the storage capacity of SD cards allows a user to record many hours of continuous raw data.



Balancing



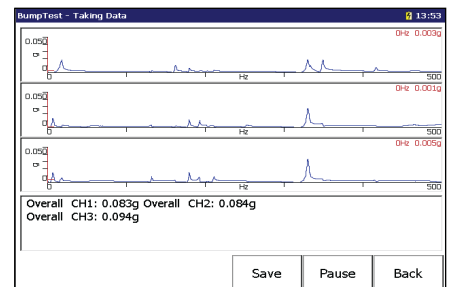
The Balancing application resolves single-plane, two-plane and static-couple balances (three planes) with high precision. Clear, comprehensive setup menus and easy-to-follow display screens with graphical data representations combined with the ability to set an acceptance limit ensure easy operation. The SKF Microlog AX series can accept a variety of trigger signals including key phasors, tachometers and strobes.



Bump test



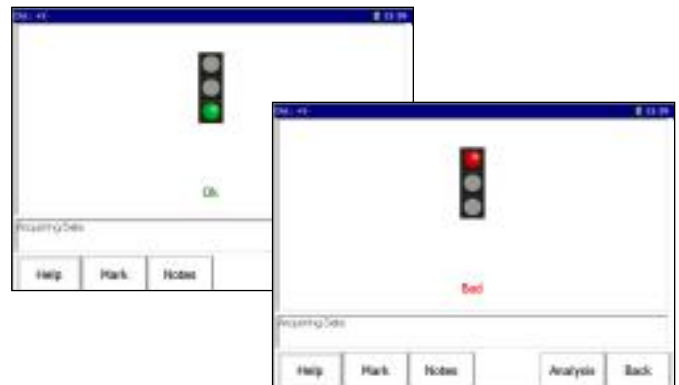
A Bump (rap) Test is an impact test carried out to excite the machine and measure its natural frequencies. This helps to determine if resonance is responsible for high noise or vibration levels or if there is a potential machinery problem. Using three channels allows the user to determine if there are directional resonant frequencies present. There is no requirement for an instrumented hammer to be connected to capture the data.



SKF Idler Sound Monitor

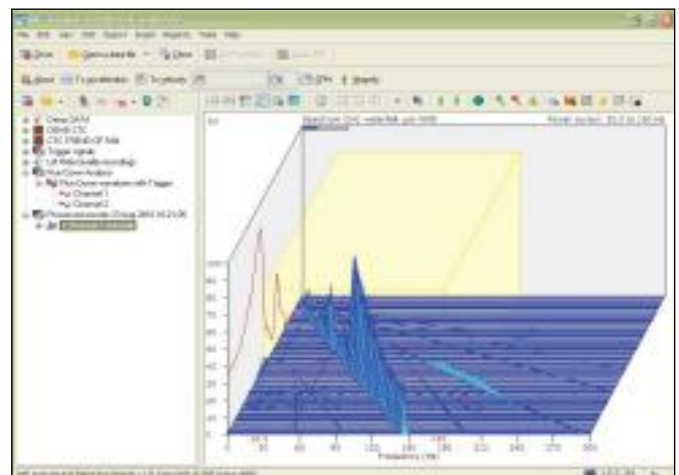


The SKF Idler Sound Monitor module is designed for early detection of faults in conveyor belt support and return idler rollers in industries such as mining and cement. Using patented SKF enveloping technology applied acoustically, the SKF Idler Sound Monitor module allows users to distinguish between good and faulty idler rollers. It detects faulty rollers earlier and more reliably than the traditional conveyor belt maintenance.



Analysis and Reporting module

The Analysis and Reporting module is a PC based software application for transferring, displaying and analyzing data generated by the application modules of the SKF Microlog AX series. Once uploaded, the data is automatically shown in the application main window, and a single mouse click is all that is needed to view the data in a powerful, interactive graphical plot. The Analysis and Reporting module also provides a range of post-processing features that allow you to get the most out of your data.



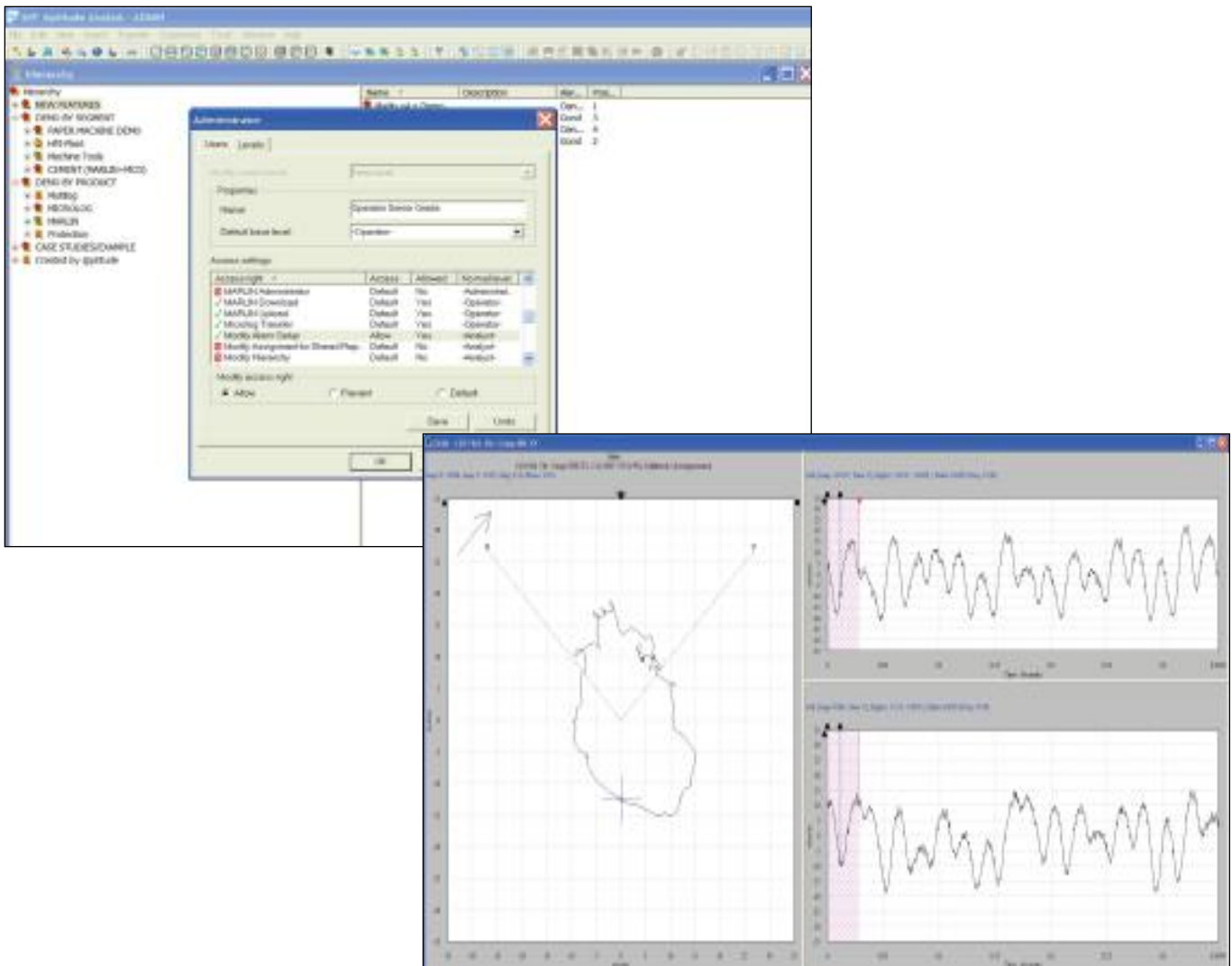
SKF @ptitude Monitoring Suite

Asset data available fast, enterprise wide and in the formats you want

The route based SKF Microlog AX transfers data to SKF @ptitude Analyst software, a comprehensive software solution with powerful diagnostic and analytical capabilities. SKF @ptitude Analyst provides fast, efficient and reliable storage, analysis, and retrieval of complex asset information and makes the information accessible throughout your entire organization. With this powerful analysis tool, you are in complete control – from how you set up hierarchies, filtered workspaces, routes, and analysis parameters, to the customized format for reporting. You can collect information based on location, machine type, frequency, or other selections. SKF @ptitude Analyst allows you to determine the appropriate limits for alarm conditions and how alarms are categorized, so you receive consistent, reliable data in the format that suits you best. SKF @ptitude Analyst can incorporate data from other sources, such as OPC servers, and seamlessly interface with your organization's Computerized Maintenance Management System (CMMS), Enterprise Resource Planning (ERP) or other information management systems.

Key features

- One software program to manage asset condition data from portable and on-line devices
- Easy for novice or experienced users to learn and use
- Interconnectivity with multiple enterprise-wide software programs and systems
- Scalable and flexible to meet your unique needs
 - Start with one of three base models and expand functionality according to your needs
 - Easy personalization for individual users
 - Application add-ons extend core functionality without migration to other base models
 - User access control to support functional roles and department needs
 - User programmable functions compute your company's KPIs (Key Performance Indicators)
- Supports Oracle and Microsoft SQL Server database managers
- Compliance reporting and scheduling direct tasks and workforce



Specifications


Performance

- Signal input: Accelerometer, velocity, displacement (from hand-held or installed transducers), AC / DC sensors, pressure sensors, temperature sensors, tachometer and manual entry
- Measurement parameters: Acceleration, velocity, displacement, gE, temperature, phase, voltage, user specified
- Measurement types: Overall, spectrum, time waveform, cross phase, orbits, shaft centerline
- Input channels:
 - CH1: Six pin Fischer CH1, CH2, CH3, CH4 (labeled R) (ICP / AC / DC input), strobe out
 - CH2: Six pin Fischer CH2 and CH3 (ICP / AC / DC input), +5 V tacho out
 - USB HOST / CHR: Seven pin Fischer R (ICP / AC / DC input), USB HOST, audio out
 - USB DEV / TRIG / PWR: Seven pin Fischer USB DEV, charger, external trigger aux, +5 V tachometer out
- Input signal range: ± 25 V maximum
- Signal: RMS / Peak / Peak-Peak / True Peak / True Peak-Peak
- Transducer check: Bias Voltage Integrity (O / C and S / C detection)
- Auto range: Yes
- Dynamic range: >90 dB
- Frequency range: DC to 80 kHz
- Bearing condition: gE
- gE filters:
 - 5 Hz to 100 Hz
 - 50 Hz to 1 kHz
 - 500 Hz to 10 kHz
 - 5 kHz to 40 kHz
- FFT resolution: 100 to 25 600 lines
- Time block length: 256 to 65 536 samples
- Averaging: RMS, Time, Peak Hold
- Alarms: Overall and Spectrum (Peak and RMS level)

Enclosures

- Size:
 - Width: 220 mm (8.7 in.)
 - Height: 220 mm (8.7 in.)
 - Depth: 71 mm (2.8 in.)
- Weight: 1,54 kg (3.4 lb.)
- Display: 6.4 in. TFT VGA, backlit color LCD, (640 × 480 resolution, 16 bit color)

Environmental

- Sealing: EN60529 IP 65 (Dust- and waterproof)
- Drop test: 1,2 m (4 ft.), to MIL STD 810F (with stand retracted)
- Temperature ratings:
 - Operating temperature: -10 to $+60$ °C (14 to $+140$ °F)
 - Storage temperature: -20 to $+60$ °C (-4 to $+140$ °F)
- Humidity: 10 to 90% relative humidity, non-condensing at 0 to $+50$ °C (32 to $+122$ °F)
- Vibration: MIL STD 810 transportation
- Certifications:
 - **Special conditions per certifications**
 - ATEX:  II 3 G Ex ic IIC T4 Gc (Ta = -10 °C to $+50$ °C)
 - IECEx: Ex ic IIC T4 Gc (Ta = -10 °C to $+50$ °C)
 - CE rated
 - CSA Class I, Division 2, Groups A, B, C, D, temperature code T4A@Ta = 50 °C

System

- Communication:
 - USB 1.1 (rear panel and docking station)
 - Microsoft ActiveSync
- User indicators: Blue, green, amber, and red LED's
- Battery: Li-ion 6 600 mAh with integral gas gauging (eight hours continuous operation minimum)
- Operating system: Microsoft Windows Embedded CE 6.0
- Processor: Marvell 806 MHz PXA320
- DSP: Freescale DSP56311

Memory

- Internal RAM:
 - 128 MB DDR SDRAM
 - 128 MB NAND Flash
- SD card: Can support up to 16 GB

Host software

The SKF Microlog AX series connects directly to SKF @ptitude Analyst for SKF Microlog software. The Analysis and Reporting module plug-in to SKF @ptitude Analyst provides support for the SKF Microlog application modules.

Ordering information

SKF Microlog AX-F model data collector / FFT analyzer

The SKF Microlog AX-F [CMXA 80-F-K-SL] standard kit includes:

- CMXA 80-F unit, programmed for four channel non-route measurements, two channel or simultaneous triaxial route and one or two plane static or dynamic couple balancing application, Bump Test, Data Recorder, Run up Coast down, Frequency Response Function, Conformance Check, FFT Analyzer and SKF Idler Sound Monitor modules.
- Two (2) accelerometers, general purpose, low profile, side exit, industrial, non-NI, with 1/4-28 and M6 mounting studs [CMSS 2200]
- For additional components available for this kit, see "Kit Components"

SKF Microlog AX-S model data collector / FFT analyzer

The SKF Microlog AX-S [CMXA 80-S-K-SL] standard kit includes:

- CMXA 80-S unit, programmed for four channel non-route / two channel route or simultaneous triaxial route, Balancing, Bump Test and Data Recorder modules.
- Two (2) accelerometers, general purpose, low profile, side exit, industrial, non-NI, with 1/4-28 and M6 mounting studs [CMSS 2200]
- For additional components available for this kit, see "Kit Components"

SKF Microlog AX-M model data collector / FFT analyzer

The SKF Microlog AX-M [CMXA 80-M-K-SL] standard kit includes:

- CMXA 80-M unit, programmed for four channel non-route / two channel route or simultaneous triaxial route and Balancing modules.
- Two (2) accelerometers, general purpose, low profile, side exit, industrial, non-NI, with 1/4-28 and M6 mounting studs [CMSS 2200]
- For additional components available for this kit, see "Kit Components"

ATEX (II 3 G Ex ic IIC T4 Gc) and IECEx (Ex ic IIC T4 Gc) Zone 2 certified kits

CMXA 80-F-K-SL-Z2 kit includes:

- Two (2) accelerometer, ATEX approved, top exit 100 mVg [CMSS 793-EE], replace the two CMSS 2200 accelerometers
- Balance of kit same as CMXA 80-F-K-SL standard kit

CMXA 80-S-K-SL-Z2 kit includes:

- Two (2) accelerometer, ATEX approved, top exit 100 mVg [CMSS 793-EE], replace the two CMSS 2200 accelerometers
- Balance of kit same as CMXA 80-S-K-SL standard kit

CMXA 80-M-K-SL-Z2 kit includes:

- Two (2) accelerometer, ATEX approved, top exit 100 mVg [CMSS 793-EE], replace the two CMSS 2200 accelerometers
- Balance of kit same as CMXA 80-M-K-SL standard kit

CSA, Class I, Division 2, Groups A, B, C, D certified kits

CMXA 80-F-CP-SL kit includes:

- Two (2) accelerometer, CSA rated [CMSS 793-CA], replace the two CMSS 2200 accelerometers
- Balance of kit same as CMXA 80-F-K-SL standard kit

CMXA 80-S-CP-SL kit includes:

- Two (2) accelerometer, CSA rated [CMSS 793-CA], replace the two CMSS 2200 accelerometers
- Balance of kit same as CMXA 80-S-K-SL standard kit

CMXA 80-M-CP-SL kit includes:

- Two (2) accelerometer, CSA rated [CMSS 793-CA], replace the two CMSS 2200 accelerometers
- Balance of kit same as CMXA 80-M-K-SL standard kit

Kit components (included for all kits)

- CD-ROM, user manuals, utilities, asset information page and literature
- USB communication / power splitter straight cable, 2 m (6.6 ft.) [CMAC 5095]
- Two (2) accelerometer coiled cables, 1,8 m (6 ft.) [CMAC 5209]
- Two (2) medium duty magnetic bases, 35 mm (1.5 in.) diameter [CMSS 908-MD]
- USB / A to B straight cable [CMAC 5082]
- SD slot / dock connector cover [CMAC 5083]
- Docking station [CMAC 5068]
- Battery [CMAC 5070]
- Universal power supply [CMAC 5090]
- Carry case [CMAC 5069]
- Soft case [CMAC 5071]*
- Two (2) hand straps [CMAC 5072]
- Shoulder strap [CMAC 5073]
- Two (2) screen protectors [CMAC 5074]*
- Fischer and audio connector cover set [CMAC 5075]
- 4 GB SD Card [CMAC 5077]

* Not included in ATEX kit.

Field upgrades to SKF Microlog AX series

- Data Recorder module [CMXA MOD-REC-SL]
- Run up Coast down module [CMXA MOD-RUCD-SL]
- Frequency Response Function (FRF) module [CMXA MOD-FRF-SL]
- Conformance Check module [CMXA MOD-CTC-SL]
- Bump Test and FFT Analyzer modules [CMXA MOD-ABB-SL]
- SKF Spindle Assessment module [CMXA MOD-MTX-SL]
- AX-M to AX-S series field upgrade [CMXA 80-AXM/S-SL]
- AX-M to AX-F series field upgrade [CMXA 80-AXM/F-SL]
- AX-S to AX-F series field upgrade [CMXA 80-AXS/F-SL]
- SKF Idler Sound Monitor module [CMXA 80-MOD-ISM-SL]

Optional accessories

A number of accessories are available to complement the SKF Microlog AX. For technical details or information on any item, please contact your local SKF Reliability Systems sales representative. Specifications and photographs of the SKF Microlog series accessories are available in the SKF Microlog Accessories catalog (SKF publication CM/P1 11643 EN).

Hardware

- Infrared thermometer [CMAC 4200-SL]
- Infrared thermometer, CE compliant [CMAC 4200-CE-SL]
- Triax accelerometer kit [CMAC 4370-K]
- Laser tachometer kit [CMAC 5030-K]
- Laser tachometer kit with ATEX certified tachometer [CMAC 5030-K-ZZ]
- Modal hammer kit for use on structures with a mass of 210 g (7.6 oz.) and above [CMAC 5056]
- Modal hammer kit for use on structures with a mass of 56 g (2.0 oz.) and above [CMAC 5057]
- Modal hammer kit without accelerometers [CMAC 5058]
- AC / DC current clamp [CMAC 5208]
- SKF Microlog Analyzer field balancing accessory kit (with optical sensor) [CMCP 850-01]
- SKF Microlog Analyzer field balancing accessory kit (with laser sensor) [CMCP 850-02]
- SKF Microlog Analyzer field balancing accessory kit (with laser tachometer) [CMCP 850-03]
- Optical phase reference kit [CMSS 6155XK-U-CE]
- Optical phase reference magnetic holder [CMAC 6156]
- Strobe light [CMSS 6165K-AX]
- Smart laser sensor tachometer kit [CMSS 6195AX-K]
- SKF Idler Sound Monitor accessory kit [CMAC 5411]

Battery and power supply

- Universal power supply [CMAC 5090]
- Battery [CMAC 5070]
- Battery for use in ATEX units, SKF Microlog AX only [CMAC 5092]

Accelerometers

- Accelerometer, general purpose, low profile, side exit, industrial, non-NI, with 1/4-28 and M6 mounting studs [CMSS 2200]
- Accelerometer, general purpose, low profile, side exit, industrial, non-NI, with M8 mounting stud [CMSS 2200-M8]
- Accelerometer, ATEX approved, general purpose, industrial [CMSS 793-EE]
- Accelerometer, CSA approved, general purpose, industrial [CMSS 793-CA]
- High frequency accelerometer kit [CMSS 2114-K]
- Medium duty magnetic base, 35 mm (1.5 in.) diameter [CMSS 908-MD]

Cables

Accelerometer cables

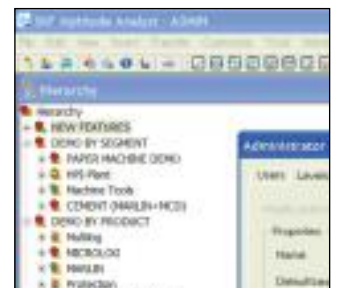
- Triaxial accelerometer coiled cable [CMAC 5009]
 - for use with triax accelerometer kit CMAC 4370-K
- Splitter, four channel, two (2) required [CMAC 5079]
- Accelerometer coiled cable, 1,8 m (6 ft.) [CMAC 5209]
- Accelerometer coiled cable with safety breakaway, 1,8 m (6 ft.) [CMAC 5209-06S]
- Accelerometer coiled cable, 3 m (10 ft.) [CMAC 5209-10]

Tachometer cables

- BNC tachometer straight cable, 1 m (3.3 ft.) [CMAC 5211]
- Laser tachometer kit, straight cable, 2 m (6.6 ft.) [CMAC 5213]
 - for laser tachometer kit CMAC 5030-K (sold with kit only)
- Laser tachometer kit, straight cable, 2 m (6.6 ft.) [CMAC 5214]
 - for laser tachometer kit CMAC 5030-K (sold individually)

Extension cables

- CHX signal input straight extension cable, 5 m (16.4 ft.) [CMAC 5036]
- CHX signal input straight extension cable, 10 m (32.8 ft.) [CMAC 5037]
- Tachometer straight extension cable, 5 m (16.4 ft.) [CMAC 5043]
 - for use with laser tachometer kit CMAC 5030-K
- Tachometer straight extension cable, 10 m (32.8 ft.) [CMAC 5044]
 - for use with laser tachometer kit CMAC 5030-K



Miscellaneous cables

- Cable converter, two pin MIL to BNC [CMAC 3715]
- USB communication/power splitter straight cable, 2 m (6.6 ft.) [CMAC 5019]
- Fischer to BNC signal input straight cable, lightweight for hammer kits, 1 m (3.3 ft.) [CMAC 5023]
- Fischer to BNC signal input cable [CMAC 5088]
- Audio headphone straight cable [CMAC 5078]
- USB / A to B straight cable [CMAC 5082]
- Infrared thermometer gun cable [CMAC 5087]
- Input to strobe light cable [CMAC 5404]
- Output from strobe light cable [CMAC 5406]

Miscellaneous accessories

- Docking station [CMAC 5068]
- Carry case [CMAC 5069]
- Soft case [CMAC 5071]
- Hand strap [CMAC 5072]
- Shoulder strap [CMAC 5073]
- Screen protector [CMAC 5074]
- Fischer and audio connector cover set [CMAC 5075]
- Audio headset, hard hat compatible [CMAC 5403]
- 4 GB SD Card [CMAC 5077]

Product Support Plans

SKF is committed to providing the highest degree of customer support in the industry. Product Support Plans (PSP) extend the standard product warranty for an additional length of time to continue your unlimited access to Technical Support, global repair coverage and more.

Protect your investment

Product Support Plans help to make sure that your equipment is maintained to the highest standards. Condition monitoring products are an investment, and a Product Support Plan is a great way to protect your investment for years.

Greater peace of mind

- Firmware and / or software upgrades keep your products advancing with current industry standards*
- Unlimited technical support from knowledgeable professionals can save you time and frustration by quickly resolving problems
- Data accuracy with unlimited calibrations that comply with ISO standards
- Loaner equipment supplied when your product is brought in for service*
- Hassle-free repairs. We've got you covered with parts, labor and shipping.

Premier product support plans also include a full SKF @ptitude Exchange subscription. SKF @ptitude Exchange is SKF's knowledge portal, complete with white papers, articles, interactive services, tutorials and more – available 24 hours a day to help build your staff's asset maintenance and reliability expertise.

* Provided with Premier PSP coverage.

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