

SKF Microlog Consultant

CMXA 48

Unmatched versatility and high speed performance

State-of-the-art technology

Combined with four channel functionality, the SKF Microlog Consultant is a revolutionary dynamic signal analyzer bringing high performance technology to those analysts not requiring route based data collectors. The SKF Microlog Consultant offers a sophisticated range of diagnostic options including in-the-field analysis, machinery diagnostics, and production line testing in a compact, rugged hand held computer.

The bright 6.4 inch VGA color screen clearly displays spectra, time waveforms, cross channel phase, Bode, Nyquist, waterfall and color spectrograms. Able to work in harsh, humid environments that laptops or other PC based instruments simply cannot, the rugged, IP 65 rated SKF Microlog Consultant offers true, laptop-free portability.

Quality and compliance verification

Used worldwide by experts in the field of vibration analysis, the SKF Microlog Consultant also offers manufacturers and repair technicians a simple, specialized user interface that provides machinery diagnostics and decision support by simultaneously assessing up to 64 individual fault criteria. Users can choose to set their own limits by using the conformance set up generator tool from an included library of standards.



Key features

- Extended battery life supports eight hours of continuous use
- Ultra quiet to minimize noise interference
- 80 kHz F_{max}
- 25 600 lines of resolution
- Dust- and water-proof IP 65 design for reliability in industrial environments
- Data storage in Microsoft Excel format for easy import into any analysis software
- Direct import into Analysis and Reporting module software for further analysis and report generation
- Broad range of compatible accessories expand features further
- Includes a full suite of SKF Microlog modules



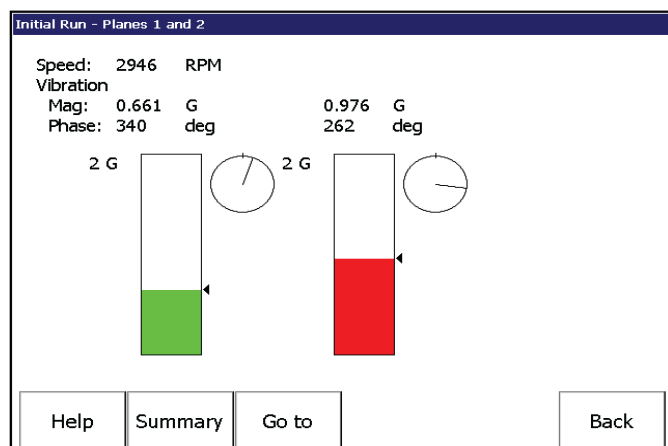
Application modules

The SKF Microlog Consultant is shipped with a full SKF Microlog suite of modules installed. Complete specifications and details about the SKF Microlog modules are available in the SKF Microlog Module Suite catalog (SKF publication CM/P8 11083 EN).

Balancing



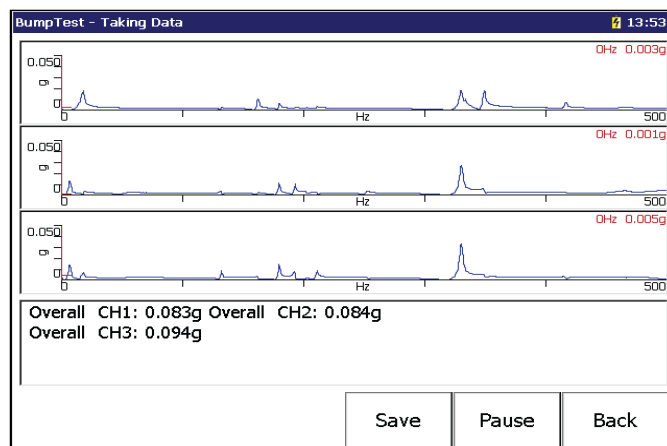
The Balancing application resolves single-plane, two-plane and static-couple balances (three planes) with high precision. Clear, comprehensive setup menus, easy-to-follow display screens with graphical data representations, combined with the ability to set an acceptance limit ensure easy operation. The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



Bump Test



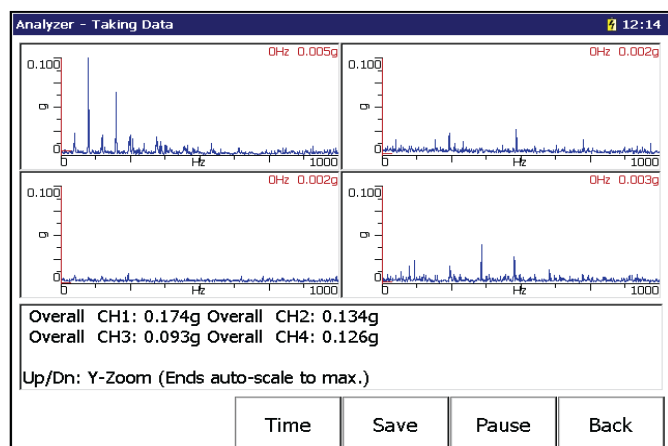
A Bump (rap) Test is an impact test carried out to excite the machine and measure its natural frequencies. This helps to determine if resonance is responsible for high noise or vibration levels, or if there is a potential machinery problem. Using three channels allows the user to determine if there are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



FFT Analyzer



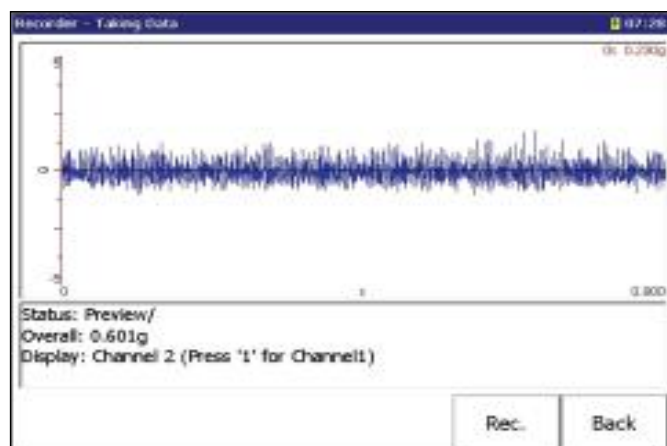
The FFT Analyzer module allows you to quickly set up spectral / phase measurements for analysis. The user has the option to select up to four channels, up to 25 600 lines of resolution and 80 kHz F_{max} (single channel). The data is stored in the SKF Microlog Consultant for future analysis, and can 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



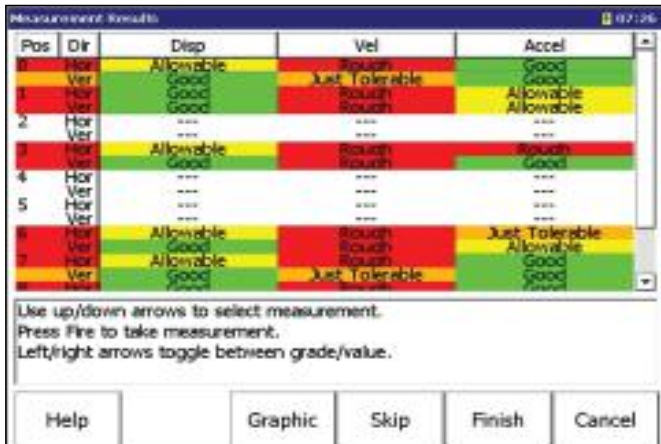
Signals from sensors connected to the SKF Microlog Consultant are digitally recorded and stored as standard .wav files allowing a user to listen to and filter signals. These files can also be sent via email or transferred directly to SKF's Analysis and Reporting module for post-processing. Using the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



Conformance check



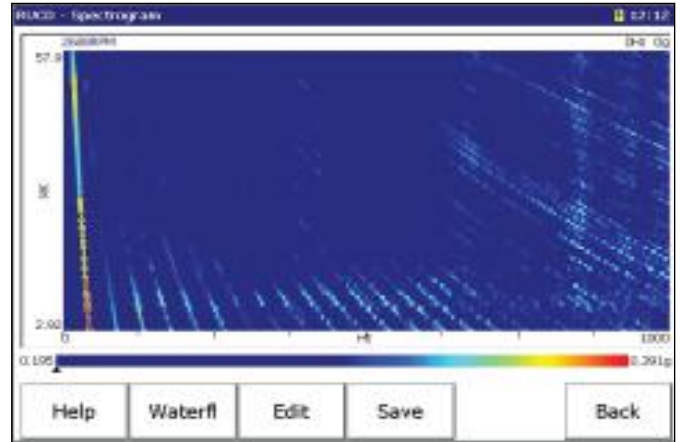
The Conformance Check functionality transforms the SKF Microlog Consultant into a tool that operators not trained in noise and vibration can use to obtain expert data. An automated assessment compares vibration levels with established limits and a pass or fail indication is displayed to check that the product complies with predefined quality indicators or required standards. It has the ability to assess up to 64 individual fault criteria simultaneously and provide an on the screen indication if a warning or alarm level is reached.



Run up Coast down



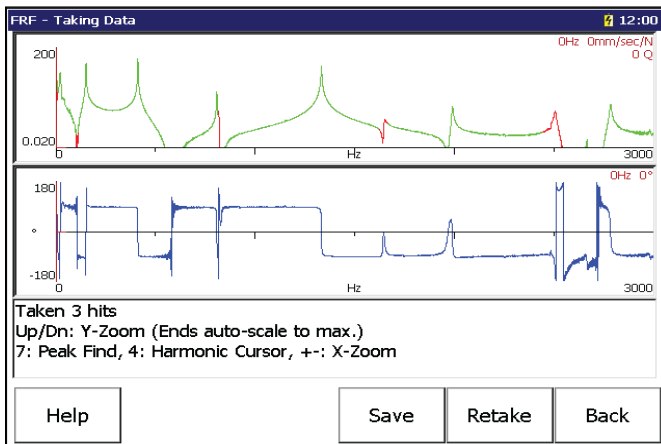
The Run up Coast down module analyzes data from machines where noise or vibration levels are changing with speed, time or load (applications that cause transient phenomena) to establish the critical / resonant speeds of a machine. The module simultaneously acquires a vibration and a tachometer signal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



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 of 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.



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

SKF's Analysis and Reporting module is a PC based software application for transferring, displaying and analyzing data generated by the application modules for the SKF Microlog Consultant hand-held instrument. It provides an easy mechanism for uploading data from your instrument; once uploaded, the data is automatically shown in the application's 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 you with a range of post-processing features that allow you to get the most out of your application module data.

Key features

- Digital Signal Processing window – enables post processing of time waveform (.wav) data using Fast Fourier Transform (FFT) routines into Spectrum or Waterfall plots
- File download management – specify file locations on your PC or network; data is sorted by date / time and module type when it is uploaded
- Import Conformance Check module results, including the report table with the machine graphic, as well as the spectral results files
- Conformance Check results can be combined to generate trend plots
- Import Run up Coast down module data files, including the original .wav recording and the CSV results files

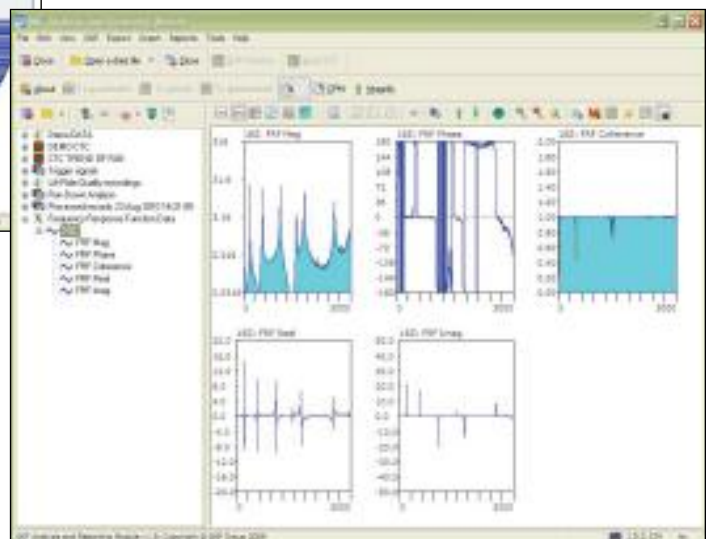
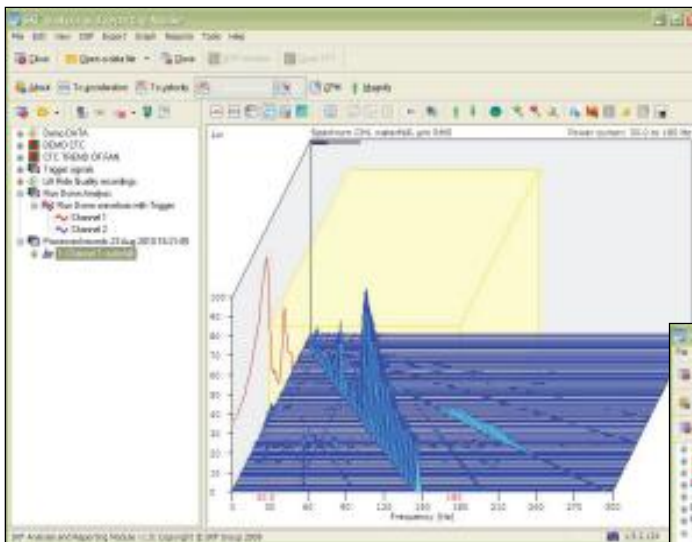
- Export data to UFF (type 58) files allowing easy import into structural analysis packages
- Batch exporting of data into Microsoft Excel, allowing consolidation of multiple measurements into a single workbook with multiple tabs, or separate workbooks
- Creation of Microsoft Word documents from data, including support of templates via bookmarks. Graph plots and numerical values may be included, and Conformance Check results tables may be created.
- Custom balance reports created in Microsoft Word

Powerful interactive graph plots:

- Single and multiple time waveform or spectrum
- Waterfall
- Overlay
- Orbit and polar plots (with a moving zoom function allowing easy traversal of orbit / polar data)
- Bode and Nyquist
- Spectrogram

Easy to understand graphical display:

- Zooming and magnification
- Dynamic cursor types (harmonic, power, peak-in-band, side band, etc.)
- Integration, control of engineering units and vertical scale
- Unlimited annotations and notes, allowing you to record and highlight information about your data



Specifications


Performance

- Signal input: Accelerometer, velocity, displacement (from hand-held or installed transducers), AC / DC sensors, pressure sensors, tachometer and manual entry
- Measurement parameters: Acceleration, velocity, displacement, gE, phase, voltage, user specified
- Measurement types: Overall, spectrum, time waveform, cross phase
- 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, Peak Hold

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 Consultant connects directly to the SKF's Analysis and Reporting module, a supporting application for SKF Microlog Modules for analysis and report generation. Data is stored in a .csv format and can easily transfer into Microsoft Excel or other third party software.

Ordering information

SKF Microlog Consultant

The SKF Microlog Consultant [CMXA 48-K-SL] standard kit includes:

- CMXA 48 unit, includes the Balancing, Conformance Check, Data Recorder, Bump Test / FFT Analyzer, Frequency Response Function, Run up Coast down, SKF Idler Sound Monitor and Analysis and Reporting modules installed and licensed
- CD-ROM, user manuals, utilities and Conformance Check standards library and literature
- Analysis and Reporting module, stand alone configuration [CMSW 7311-EN]
- USB communication / power splitter straight cable, 2 m (6.6 ft.) [CMAC 5019]
- 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]
- Four (4) accelerometers with integral cables and magnets [CMSS 2111]
- Two (2) splitter, four channel [CMAC 5079]
- Laser tachometer kit [CMAC 5030-K]
- Optical phase reference magnetic holder [CMAC 6156]
- Soft case [CMAC 5071]
- Two (2) hand straps [CMAC 5072]
- Shoulder strap [CMAC 5073]
- Fischer and audio connector cover set [CMAC 5075]
- 4 GB SD card [CMAC 5077]
- Carrying case, large screen [CMAC 5069]

Field upgrades to SKF Microlog Consultant

- SKF Spindle Assessment Kit [CMXA MOD-MTX-SL]

Optional accessories

A number of accessories are available to complement the SKF Microlog Consultant. 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]
- 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]
- ICP Microphone with integral preamplifier kit [CMAC 5084]
- 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]



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, CSA approved, general purpose, industrial [CMSS 793-CA]
- Accelerometer with integral cables and magnets [CMSS 2111]
- High frequency accelerometer kit [CMSS 2114-K]
- Medium duty magnetic base, 35 mm (1.4 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

- 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

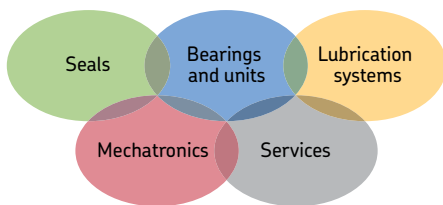
Product Support Plans help to make sure that your equipment is maintained to the highest standards. Condition monitoring products are an investment, and a Product Support Plan is a great way to protect your investment for years.

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.



The Power of Knowledge Engineering

Drawing on five areas of competence and application-specific expertise amassed over more than 100 years, SKF brings innovative solutions to OEMs and production facilities in every major industry worldwide. These five competence areas include bearings and units, seals, lubrication systems, mechatronics (combining mechanics and electronics into intelligent systems), and a wide range of services, from 3-D computer modelling to advanced condition monitoring and reliability and asset management systems. A global presence provides SKF customers uniform quality standards and worldwide product availability.

Please contact:

SKF USA Inc.

Condition Monitoring Center – San Diego

5271 Viewridge Court • San Diego, California 92123 USA

Tel: +1 858-496-3400 • Fax: +1 858-496-3531

Web Site: www.skf.com/cm

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