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# The SKF Microlog Series

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# The SKF Microlog Analyzer series

The industry's premier range of portable, handheld data collectors and analyzers

The Power of Knowledge Engineering

# Put the power of SKF knowledge engineering in your hands

As the world's leading manufacturer of rolling bearings, SKF has a unique understanding of rotating equipment and how machine components are interrelated. We drew on this knowledge to create the Microlog Analyzer family of data collectors and FFT analyzers, today the industry standard for stand-alone and route-based condition monitoring.

In use around the world and in virtually every industrial segment, SKF Microlog Analyzer instruments are supported by sophisticated yet user-friendly software that enables machine data to be translated into actionable intelligence. By making it easier to collect, analyze, use and share machine condition data, SKF Microlog Analyzer portable devices help maintenance engineers optimize machine reliability, increase availability, reduce maintenance costs, improve energy efficiency and reduce total cost of ownership.

## Exceptional versatility. Remarkable usability.

In response to changing customer needs, the SKF Microlog Analyzer family has evolved over the past decade to leverage the latest technologies, offering market leading functionality for experienced users, while becoming easier to use for entry level reliability personnel. The SKF Microlog Analyzer product line offers a number of hardware and software options, making it easy for reliability professionals to select, customize and upgrade their instruments. All SKF Microlog Analyzer products, except the 51-IS, use the same high speed processor, internal electronics and firmware. This results in a modular design making upgrades and updates easy, and making your SKF Microlog Analyzer an even better investment than before.

Building on a heritage of over 20 years experience in the design and manufacture of portable data collectors and analyzers, the SKF Microlog Analyzer family is more user-friendly and flexible than ever, enabling users to customize menus, maximize speed of data collection routes and gain efficiency in specific tasks such as balancing. Today's SKF Microlog Analyzer family is the most comprehensive and capable data collection and analyzer system SKF has ever offered.

## The right Microlog Analyzer instrument for every operation



The Microlog Analyzer range includes route-based instruments that work with powerful SKF predictive maintenance software systems and stand-alone instruments that offer on-the-spot advice and signal analysis capabilities. Both options enable you to migrate from time-based to condition-based maintenance, helping you to reduce the risk of unplanned downtime, reduce operational costs, and optimize manpower resources.

Whether your condition monitoring programme is just getting started or moving to the next level, the SKF Microlog Analyzer series can handle all of the tasks required to perform maintenance on a wide range of rotating machinery. Along with unmatched versatility, reliability, and functionality, SKF Microlog Analyzer units feature:

- **Data capture from a range of sources**
- **Additional functionality via application-specific firmware modules**
- **Rugged, ergonomic design**
- **128 MB flash memory***
- **PXA320 processors***
- **Windows CE OS**
- **Approved for use in hazardous environments requiring ATEX, IECEx, and Class I Division 2 certification**

*\* Except for the 51-IS*

# SKF Microlog Analyzer GX

## Route-based, one-to-four channel data collector/FFT analyzer

Developed for maintenance engineers in a range of industries, the SKF Microlog Analyzer GX series are high performance, one-to-four channel, route-based data collectors/FFT analyzers. Four-channel, simultaneous triaxial input with separate tachometer input enables faster and more comprehensive data collection, without adding more collection time.

For even faster data collection, users can configure up to 12 measurements for automatic data collection at one measurement location, using the same sensor and with the press of one button.

The modular design of the GX series offers customers the option to upgrade and expand functionality without having to buy another instrument. Accessories are inter-changeable between models. Due to the fact that the entire SKF Microlog Analyzer product line (except the 51-IS) uses the same internal electronics and firmware, users can upgrade to more advanced models simply by entering a license key.

The SKF Microlog Analyzer GX is available in the following range of models, each with different features and functionality to meet your specific needs:

- **GX-A: Entry-level kit comprising of instrument with all modules installed but unlicensed. Must be purchased with at least one module license or an application bundle.**

- **GX-R: Single-channel, multi-route measurements**

- **GX-M: Four-channel off-route/two-channel or simultaneous triaxial route analysis and two-channel balancing modules and FFT Analyzer module are already licensed.**

- **GX-F: Further enhances capability by adding run up coast down (RuCd), frequency response function (FRF), conformance check, idler sound monitor and spindle test modules.**

# SKF Microlog Analyzer AX

## Route-based, four-channel data collector/FFT analyzer

The SKF Microlog Analyzer AX is available in the following range of models, each with different features and functionality to meet your specific needs. Additional modules are available to meet your specific condition monitoring requirements:

- **AX-A: Entry-level kit comprising of instrument with all modules installed but unlicensed. Must be purchased with at least one module license or an application bundle.**

- **AX-M: Four-channel off-route/two-channel or simultaneous triaxial route analysis and two-channel balancing modules and FFT Analyzer module are already licensed.**

- **AX-F: Further enhances capability by adding run up coast down (RuCd), frequency response function (FRF), conformance check, idler sound monitor and spindle test modules.**

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 Analyzer 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.

Fast real-time rate and display updates are easily viewed in any light on a vivid 6.4" VGA color display. The result is fast data collection, saving valuable time and money in condition monitoring rounds.

# SKF analysis modules

## Customize your programme functionality with firmware modules

The SKF Microlog Analyzer family of portable instruments are complemented by a wide range of application-specific firmware modules. These firmware modules are bundled with some models/kits to suit your needs, or can be added as required, extending the functionality of your SKF Microlog Analyzer without the need to purchase a new instrument.

### Check to conformance module

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

### Data recorder module

Signals from sensors connected to the Microlog Analyzer are digitally recorded and stored as standard time waveform (WAV) files. These files can be sent via e-mail or transferred to a computer for post processing in external software.

### Run up coast down module

This module records and analyzes data from machines where noise or vibration levels are changing with speed, time or load to establish the critical/resonant speeds of a machine. The module simultaneously acquires a noise or a vibration signal plus a tachometer signal and stores the data as a time waveform (WAV) file for further analysis.
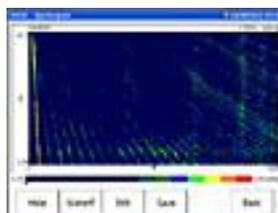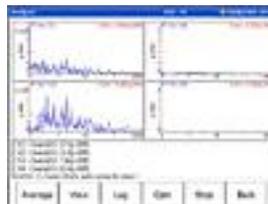
### Balancing module

This module allows precision balancing of rotating machinery across a wide range of speeds. It performs single plane, two-plane, and static-couple balancing with high precision. Clear, comprehensive setup menus and easy-to-follow display screens with graphical data representation allow easy operation.

### FFT analyzer

This module allows you to quickly set up spectral phase measurements and immediately collect the data for in the field FFT spectrum and phase analysis purposes. After collection, the data may be stored in the Microlog for future review and can be transferred to a computer for additional analysis, reporting or storage.

### Frequency response function module

This module has two primary functions: Establishes the properties of mechanical structures (mass, stiffness and damping) by performing modal analysis using a calibrated hammer for the excitation. Measures and displays the transfer function (ratio) between two accelerometers while a machine is running. Measurements can be exported to external software to calculate and animate the Operating Deflection Shapes (ODS).
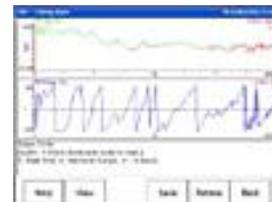
### Idler sound monitor module

The idler sound monitor module and accessories were designed to detect faults in conveyor support and return idler rollers in mining and cement industries. Using patented SKF enveloping technology applied acoustically, it allows users to distinguish between good and faulty idler rollers through a simple traffic light color display.

### Spindle test module

Developed in conjunction with the SKF Spindle Services, the spindle test module performs nine tests on machine tools and spindles, including imbalance, mechanical condition, bearing condition, tool nose runout, clamp force (ISO, HSK), clamp EM, belt tension, speed accuracy and resonance frequency.

▶ **Learn more about the SKF analysis modules here**

# SKF Microlog application bundles

The SKF Microlog Analyzer application bundles allow maintenance, service and quality inspection technicians on-the-spot, fast and easy to understand machine condition diagnosis by tailoring the application for Microlog GX-A or AX-A to specific needs. Some of these application bundles do not rely on prior measurement data, and do not require advanced predictive maintenance (PdM) software. As a result, users can immediately benefit from a proactive maintenance approach without the need for vibration expertise, or prior setup of an advanced PdM route-based system.

Designed for use by expert and novice-level users alike, the application bundles are ideal for service, maintenance, inspection, and diagnostic applications. These application bundles create a four-channel, portable maintenance tool which combines an intuitive user interface, simple wizard-driven measurement instructions, and an automated analysis system based on pre-programmed ISO standards. Green, yellow and red color-codes quickly and clearly indicate test status, invalid or abnormal measurements, and machinery condition.

The following application-specific kits are available, each including all associated accessories and sensors, and application specific modules:

- **CMXA CTC-K-SL:** Conformance test kit includes the conformance check module, full suite of SKF test templates and analysis and reporting manager (ARM) sofware.

- **CMXA ANL-K-SL:** FFT analyzer kit includes the FFT analyzer module and one additional accelerometer with integral cable.

- **CMXA BAL-K-SL:** Balancing kit includes the balancing and FFT analyzer modules, CMAC 5030-K Laser tachometer kit, phase reference magnetic holder and ARM software.

- **CMXA MTX-K-SL:** SKF Spindle Assessment Kit includes spindle test, balancing, and run up coast down modules, laser tachometer kit, laser tachometer mount, run-out gage (graduation 0,001 mm, range 0,14 mm, reading 0-70-0, accuracy 3 μm), belt tension checkers, machine tool spindle assessment guide (on CD).

- **CMXA ISM-K-SL:** SKF Idler Sound Monitor Kit includes the idler sound monitor and FFT analyzer modules, a high frequency microphone and a connector cable encased in a rugged handheld parabola, headphones with audible condition alarm, a parabolic windjammer and standard accessories.

- **CMXA MX-K-SL (Marine monitoring kit):** Conformance check module with container ship templates, laser tachometer kit (CMAC 5030-K), gooseneck clamp with magnetic base (CMSS 6156), service case, quick connect adaptor (CMAC 5220), quick connect studs (CMAC 5221) and pre-printed labels (CMAC 5222).

- **CMXA MXP-K-SL (Marine monitoring kit):** Conformance check module with container ship templates, laser tachometer kit (CMAC 5030-K), gooseneck clamp with magnetic base (CMSS 6156), service case, quick connect adaptor (CMAC 5220), quick connect studs (CMAC 5221), pre-printed labels (CMAC 5222) and ARM software (CMSW 7311).

- **CMXA 75-A/R-SL and CMXA 80-A/R-SL:** Route upgrade for – A variants

- **CMXA 75-A/M-SL and CMXA 80-A/M-SL:** Route, balancing and FFT analyzer module upgrade for – A variants

- **CMXA 75-A/F-SL and CMXA 80-A/F-SL:** Full module upgrade for – A variants

# SKF Microlog CMXA 51-IS

## Proactive maintenance and data collection in hazardous areas

The SKF Microlog Analyzer CMXA 51-IS takes portable data collection and analysis into the most hostile of environments. With ATEX Zone 0 certification, the SKF Microlog Analyzer CMXA 51-IS is ideal for proactive maintenance programmes within petrochemical, oil and gas facilities, water treatment or pharmaceutical plants, or any plant where potentially explosive atmospheres preclude the use of all but the most highly certified electronic instrumentation. The 51-IS is a single route-based instrument, which interfaces like all route-based SKF Microlog Analyzer products to SKF @ptitude Analyst for detailed post processing and analysis.

### Key features

- ATEX certification: II 1G EEx ia IIC T4 (Ta –20° C to +50° C)

- Complete system includes an ATEX approved sensor

- 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 easier screen navigation and user input

- Patented SKF technology: Acceleration Enveloping (gE) technology for bearing assessment

- Red, amber, green LED indicators

- One data acquisition and one phase channel for compatibility with ICP™ accelerometers, velocity transducers, displacement probes, infrared temperature sensors, photo-optical pickups, DC inputs and manual entry

- Windows CE operating system

# Monitoring software systems

## An integrated platform for turning data into actionable intelligence

### SKF @ptitude Analyst

SKF @ptitude Analyst is a comprehensive software solution with powerful diagnostic and analytical capabilities, designed for use with SKF Microlog route-based instruments (SKF Microlog Analyzer AX, GX and 51-IS.) With the ability to view data from different sources, the SKF @ptitude Analyst software is adept at storage, retrieval and analysis of complex data sets. With this package you can collect and share data making communication about the status of your assets accessible throughout the organization.

Whether it is condition monitoring data collection or in-depth vibration analysis, SKF @ptitude Analyst easily scales to your specific needs. It integrates with the SKF Microlog series of analyzers, and incorporates data from other sources, such as OPC servers. Additionally, it seamlessly interfaces with your organization's Computerized Maintenance Management System (CMMS), Enterprise Resource Planning (ERP) or other information management systems.

SKF @ptitude Analyst provides one software program to manage asset condition data from portable and online devices. Its integrated platform forms the hub to share information, foster teamwork, and facilitate consistent and reliable decision making across functional departments.

### Monitoring software systems

SKF's analysis and reporting manager is a PC-based application for transferring, displaying and analyzing data generated by the application modules of the SKF Microlog Analyzer AX and GX instruments. With SKF's analysis and reporting manager, data is stored in a .csv format and can easily be transferred into Microsoft Excel or other third party software as the application provides an easy mechanism for uploading data from your instrument. 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 manager also provides a range of post-processing features that allow users to get the most out of the application module data.

### Analysis and reporting manager support is provided to the following modules:

- **Balancing**
- **Data recorder**
- **Frequency response function (FRF)**
- **Run up coast down (RuCd)**
- **Spindle test**
- **Analyzer**
- **Check to conformance**

### Key features:

- **Digital signal processing**
- **Once post-processing is complete, the plots can be assigned to the asset for later reference.**
- **Export of data to Universal File Format (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**
- **Custom balancing reports created in Microsoft Word**

# Product support plans (PSP)

## Protect your investment

SKF is committed to providing the highest degree of customer support in the industry. The goal of a product support plan (PSP) is to help you get the greatest return on your purchase. This includes helping to maximise the life of your SKF Microlog Analyzer, leading to a successful maintenance programme, reducing machine downtime and helping you remain competitive in your industry while benefiting from using cutting edge technology.

SKF's product support plan gives you the confidence to know that your equipment is maintained to the highest standards. Condition monitoring products are an investment and there is no better way to protect your investment for years than with a product support plan.

### Greater peace of mind

- Unlimited telephone technical support

- E-mail/web-based technical support

- Firmware maintenance releases and updates

- Hardware repairs, modifications, and proactive maintenance

- Unlimited calibration

- Annual preventive maintenance (APM) service

- Hardware loaner units*

- Courier return shipping after repair or maintenance

- SKF Knowledge Centre subscription

- SKF technical support self-help portal access

- Live webinar training notifications

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. Based on hardware systems compatibility, firmware updates may not be available for some products.**

# Expert calibration and repair services

## Available at select SKF Solution Factory and CMC locations

### Options for SKF validated calibration

The SKF Microlog Analyzer product range has a suggested calibration interval of 12 months, which is a requirement for most companies' ISO quality control system. However, some customers choose not to ship their instruments to the SKF factory for calibration. This may be due to the length of time required to ship the instrument abroad or, in many cases, because government restrictions prevent the instruments from being shipped at all or, if shipped, cause them to incur large export/import charges. Consequently, some customers turn to local calibration centres that have not been authorized or trained by SKF, making the calibration invalid.

### Approved locations

For the convenience of customers, the following SKF Solution Factory locations are equipped, trained and authorized to perform SKF Microlog Analyzer calibration and repair services:

- **Shanghai, China**
- **Pune, India**
- **Cajamar, Brazil**
- **Buenos Aires, Argentina**
- **Bogotá, Colombia**
- **Abu Dhabi, United Arab Emirates**

The following other local repair centers also offer repair and calibration services:

- **San Diego, USA**
- **Livingston, Scotland**
- **Kuala Lumpur, Malaysia**

### Customer benefits

- **Authorized local calibration and repair service**
- **Reduced turnaround times**
- **Increased confidence in accuracy of data collected**
- **Local knowledge to perform hardware field troubleshooting**
- **Increased traceability of repairs to assist in improving product quality**

### Defined process for SKF Microlog Analyzer calibration and repair:

- **Calibration check**
- **Full instrument test**
- **Calibration adjustment***
- **Hardware upgrade***
- **Firmware upgrade***
- **Disassembly***
- **Replace faulty sub-assembly***
- **Reassembly***
- **Re-calibration***
- **Fully test***
- **Clean**
- **Calibration certificate**
- **Service report**

*as needed

**SKF** Product repairs

**SKF** Equipment calibration
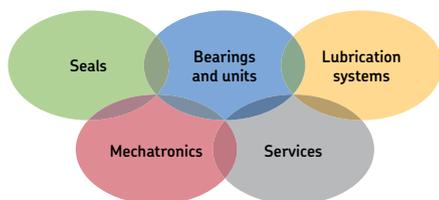
**The Power of Knowledge Engineering**
Combining products, people, and application-specific knowledge, SKF delivers innovative solutions to equipment manufacturers and production facilities in every major industry world-wide. Having expertise in multiple competence areas supports SKF Life Cycle Management, a proven approach to improving equipment reliability, optimizing operational and energy efficiency and reducing total cost of ownership.

These competence areas include bearings and units, seals, lubrication systems, mechatronics, and a wide range of services, from 3-D computer modelling to cloud-based condition monitoring and asset management services.

SKF's global footprint provides SKF customers with uniform quality standards and worldwide product availability. Our local presence provides direct access to the experience, knowledge and ingenuity of SKF people.

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