SKF Microlog Analyzer dBX

Quick Start Guide
Part Number **15V-090-00102-200**
Revision **E – October 2024**

Read this manual carefully before using the product. Failure to follow the instructions and safety precautions in this manual can result in serious injury, damage to the product or incorrect readings. Keep this manual in a safe location for future reference.

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Product Registration

Please take a moment to register your product to receive exclusive benefits offered only to our registered customers, including technical support, tracking your proof of ownership and staying informed about upgrades and special offers. (Please visit our website for more details on these benefits.)

General Product Information

General information such as datasheets and catalogues are published on the Condition Monitoring Systems site on SKF.com. Supporting product information can also be downloaded from the SKF Technical Support self-service web portal.

Product Support Contact Information

Repair** and **Calibration Services – Under Warranty, please contact your nearest SKF Technical Support representative and raise a support case. For more details about the Warranty, see Appendix A.

Product Sales – For information on purchasing condition monitoring products, services and support on products out of warranty, please contact your local SKF sales office or distributor.

How to request Technical Support – Please open a support case using the Technical Support group's self-help portal at www.skf.com/cm/tsg. Once your support case is submitted, a technician will contact you to begin working on your issue. For urgent issues we are available at these times:

- Monday through Friday, 5:00 a.m. to 4:00 p.m. Pacific Time
  Phone: +1 800 523 7514 within the US or +1 858 496 3627 outside the US.
- Monday through Friday, 8:00 a.m. to 4:00 p.m. Central European Time
  Phone: +46 31 337 65 00.
- Monday through Friday, 7:30 a.m. to 4.30 p.m. India Standard Time
  Phone: +60 16 699 9506.

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1 Safety messages

Warning! *Your safety is extremely important! Read and follow all warnings in this document before handling and operating the equipment. You can be seriously injured, and equipment and data can be damaged if you do not follow the safety warnings.*

Warning! *Warning messages can alert you to an operating procedure, practice, condition, or statement that must be strictly observed to prevent equipment damage or destruction, or corruption or loss of data.*

Important! *Important messages means that there is a risk of product or property damage if the instruction is not heeded.*

1.1 Personnel safety

- Dress properly. Do not wear loose clothing or jewellery. Keep your hair, clothing, and gloves away from moving parts.
- Do not overreach. Always keep proper footing and balance to enable better control of the device during unexpected situations.
- Use safety equipment. Always wear eye protection. Non-slip safety shoes, hard hat and hearing protection must be used in the appropriate settings.
- Do not repair or adjust energized equipment alone, under any circumstances. Someone capable of providing first aid must always be present for your safety.
- Persons working on or near high-voltage equipment should be familiar with approved industrial first-aid methods.
- Never open or work on energised electrical systems unless authorised by a responsible authority. Energized electrical systems are dangerous and electric shocks from energized systems can be fatal. Always ensure that the necessary permission or permit to work has been obtained before commencing any work.
- Always obtain first aid or medical attention immediately after sustaining an injury. Never neglect an injury, no matter how superficial it initially seems.

1.2 Device safety

- If the device has been dropped, check for damage before using. Device service must be performed only by qualified SKF repair personnel.
- Do not attempt to open the device (except for changing batteries).
- Use only accessories recommended or provided by SKF or the manufacturer.
- Connect only compatible USB devices to USB Port A on the Microlog Analyzer dBX. Devices that are not USB 2.0 or later compliant may damage the USB Port.

1.3 Energized equipment

Never work on energized equipment unless authorized by a responsible authority. Energized electrical equipment is dangerous. Electrical shock from energized equipment can cause death. If you must perform authorized emergency work on energized equipment, be sure that you comply strictly with approved safety regulations.

1.4 Hazardous locations

Hazardous instructions are included with this device and must be followed in accordance with the safety instructions provided with device.

1.5 No submersion / immersion

This equipment has been designed to be splash and dust resistant. However, avoid direct contact with water, wet surfaces, or condensing humidity. If the instrument is subjected to these conditions, adverse operation may result, and there is a risk of serious injury or damage should electrical shock or fire occurs. Allow the instrument to dry thoroughly before operation. Do not open the battery compartment in locations where contact with water or other contaminants may occur.

1.6 Avoid damage and injury

To avoid costly damage to the instrument or injury from a falling instrument, place the device on a solid stable surface when not in use and do not place any heavy objects on it.
Use a damp, clean cloth for cleaning. Do not use cleaning fluids, abrasives, or aerosols. They could cause damage, fire, or electrical shock.

1.7 Avoid battery compartment exposure

Do not open the battery compartment in a hazardous area, or in locations where contact with water or other contaminants may occur.

2 Overview and setup

2.1 Introduction

This manual gives a general introduction to the Microlog Analyzer dBX. It provides an overview of the layout, keypad, connectors, and other hardware features. Details of the individual operation of each function are described in separate user manual.

SKF Microlog Analyzer dBX is a portable condition monitoring system that uses hybrid, keypad and touchscreen navigation based on a Microsoft Windows operating system.

The dBX Series Microlog system is used by machinery maintenance personnel who wish to collect and analyse vibration data from their rotating machinery, to help reduce maintenance costs and downtime.

A dBX Series Microlog System consists of three components:

- Microlog dBX Vibration Analyser.
- Application modules installed on the Microlog Vibration Analyser.
- A host computer with SKF @ptitude Analyst software and the Thin Client Transfer TCT.dBX or SKF @ptitude Observer software and the Data Bridge web service.

  Note: If the SKF @ptitude Analyst software is hosted on the cloud, only TCT.dBX is required on the host computer, along with the end point connection information to access the @ptitude Analyst Transaction Service.

The Microlog Analyzer dBX data collector is a portable, four channel data acquisition and storage terminal. It collects machinery vibration, temperature, and other condition monitoring measurements. Together with visual observations, Microlog Analyzer dBX allows for detailed machine condition analyses in a harsh industrial environment.

The Microlog Analyzer dBX, with its preinstalled and licensed modules, performs tasks required for machinery predictive maintenance. It automatically collects both dynamic (vibration) and static (process) measurements from almost any source, it provides easy to use setup screens for quickly capturing data related to specific applications, such as balancing, etc., and it allows you to configure up to twelve measurements for automatic data collection at one sensor location.

2.2 Front view

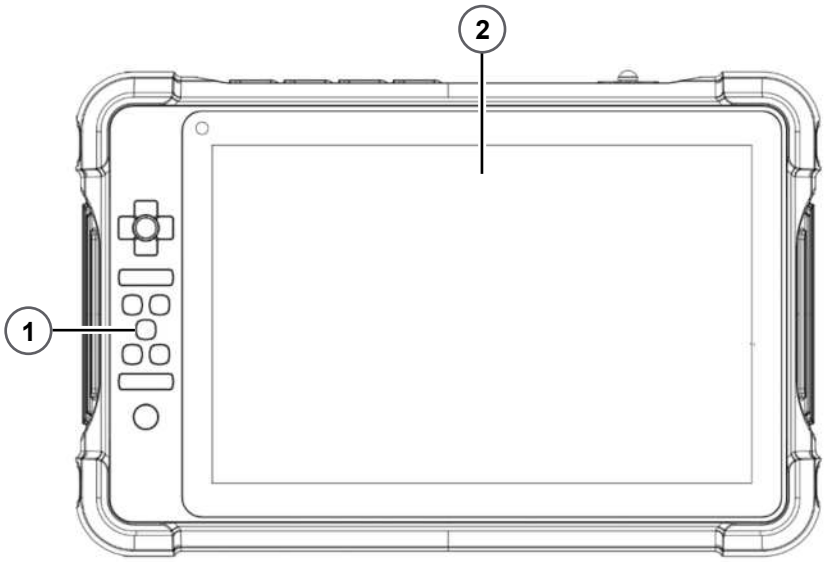


Figure 1 Microlog Analyzer dBX – front view

1. Keypad
2. 10.1 inch (25.6 cm) Colour LCD touch screen

2.2.1 Keypad

The graphic below locates and identifies Microlog Analyzer dBX keypad functions. The keypad uses backlight to enhance the visibility of the keypad in various brightness levels.

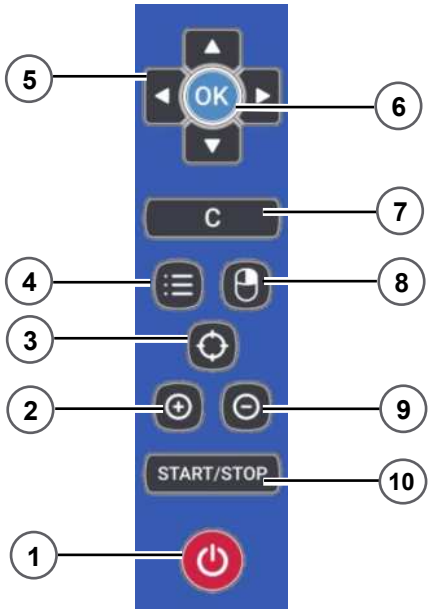


Figure 2 Microlog Analyzer dBX – keypad

1. **Power** key – Turn the device on or off.
    a. When the device is off, press once to turn the power on
    The power key backlight will light on.
    b. When the device is on, press for 1 second to turn on or off the LCD screen.
    c. When the device is on, press and hold for 3 seconds to start the shutdown procedure.

2. **Zoom in** key – Zoom in a plot or user-defined.

3. **Cursor toggling** key – Change the type of cursor or user-defined.
    a. **RFID** tag reader (**NFC**) shortcut key.

4. **Menu** key – Select the main menu.
    a. Use the **OK** key to open a menu.
    b. Use the **Right** and **Left** navigation keys to select other menu items.

5. **Navigation** keys – Use these keys to navigate throughout the program on the following occasions:
    a. Move the cursor to the left or right.
    b. Move the focus to a list of options.
    c. Select an active window.

6. **OK** key
    a. Enter or confirm a selection.
    b. Call out the trace setup menu.

7. **Cancel** key
    a. Exit or abort from a menu.
    b. Backspace when entering a string.

8. **Right click** key – Opens the right-click menu.

9. **Zoom out** key – Zoom out a plot or user define.

10. **Start**/**Stop** key – Use this key to start or stop a measurement.

2.3 Top view

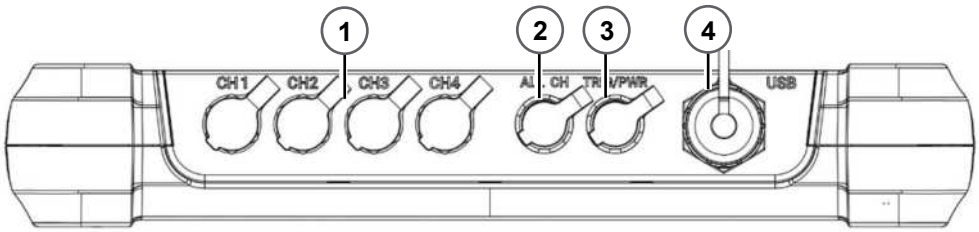


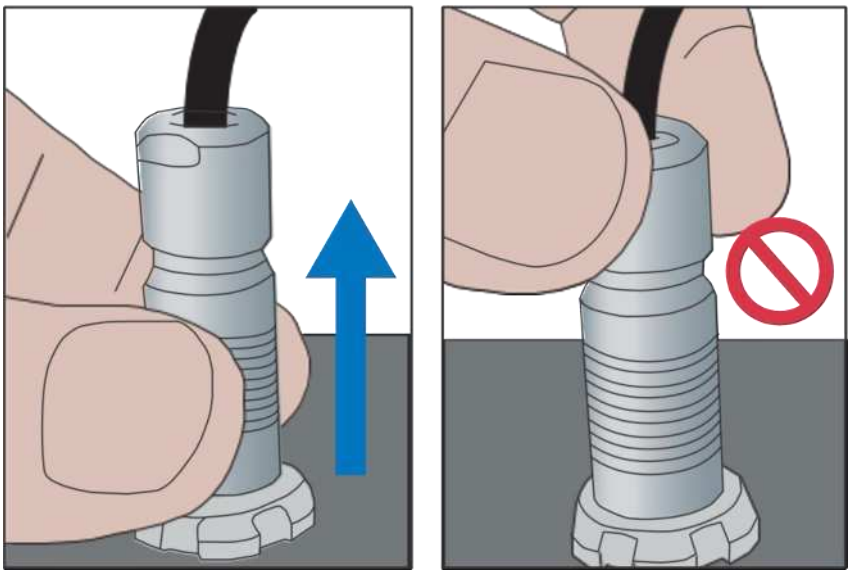
Figure 3 Microlog Analyzer dBX – top view connectors

1. Four BNC channel connectors
   - Channel one – CH1
   - Channel two – CH2
   - Channel three – CH3
   - Channel four – CH4
2. All channel connector
3. Trigger and power connector
4. USB Port – A connector

2.3.1 Connectors description

On top of the Microlog Analyzer dBX is a series of connectors to provide an interface to acquire external signals (usually from your sensors), power supply or output communications with external devices like a computer.

Important! *Microlog Analyzer dBX connectors use a locking mechanism for secure connections. To disconnect cables from the Microlog's connectors, pull gently on the lower portion of the connector as illustrated below.*



The BNC connectors provide a convenient sensor connection when you need to connect four separate sensors to your Microlog dBX.

- **CH1** – BNC connector for the Analog input channel 1, AC/DC/ICP coupling.
- **CH2** – BNC connector for the Analog input channel 2, AC/DC/ICP coupling.
- **CH3** – BNC connector for the Analog input channel 3, AC/DC/ICP coupling.
- **CH4** – BNC connector for the Analog input channel 4, AC/DC/ICP coupling.
- **All CH** – 6 pins Fischer connector connecting to CH 1, 2, 3 and 4.

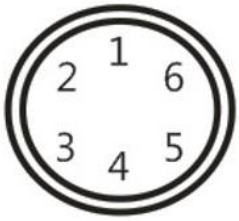


Figure 5 All CH (Fischer DBPE 103A-056-130)

1. Channel 1
2. Channel 2
3. NC
4. Channel 4
5. Analog Gnd
6. Channel 3

- **TRIG/PWR** – 7 pins Fischer connector for connecting to an external triggering source (usually a tachometer). This connector is also used for external power supply.

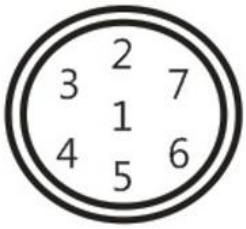


Figure 6 TRIG/PWR (Fischer DBPE 103A-057-130)

1. EXT-DC-IN
2. NC
3. NC
4. Digital Gnd
5. EXT-TRIG-AUX
6. NC
7. +5 V-Tacho-Out

- **USB** – Type A USB socket, providing a USB 3.1 connection to external devices. Connect the provided **CMAC 9010** (Data Link GT168) USB cable between the Microlog's USB device connector and your host computer's USB port connector to synchronise data files between Microlog dBX and the host software.

  Note: Connect only compatible USB devices to USB Port A.
  For more information, refer to Device safety.

For more information, refer to the SKF Microlog Analyzer dBX User Manual.

2.4 Side view

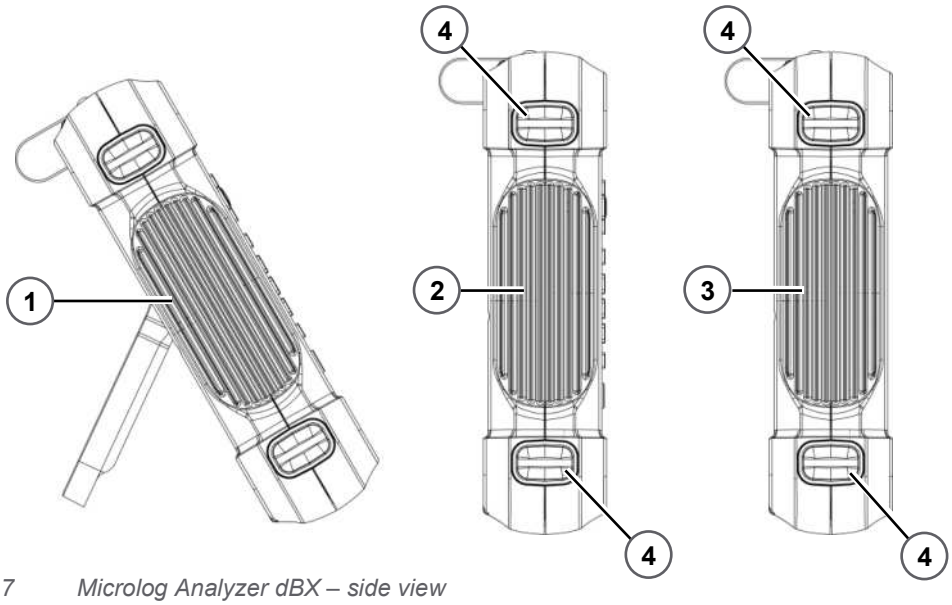


Figure 7 Microlog Analyzer dBX – side view

1. Side view with stand open
2. Left side
3. Right side
4. Hand strap and neck strap holders

2.5 Rear view

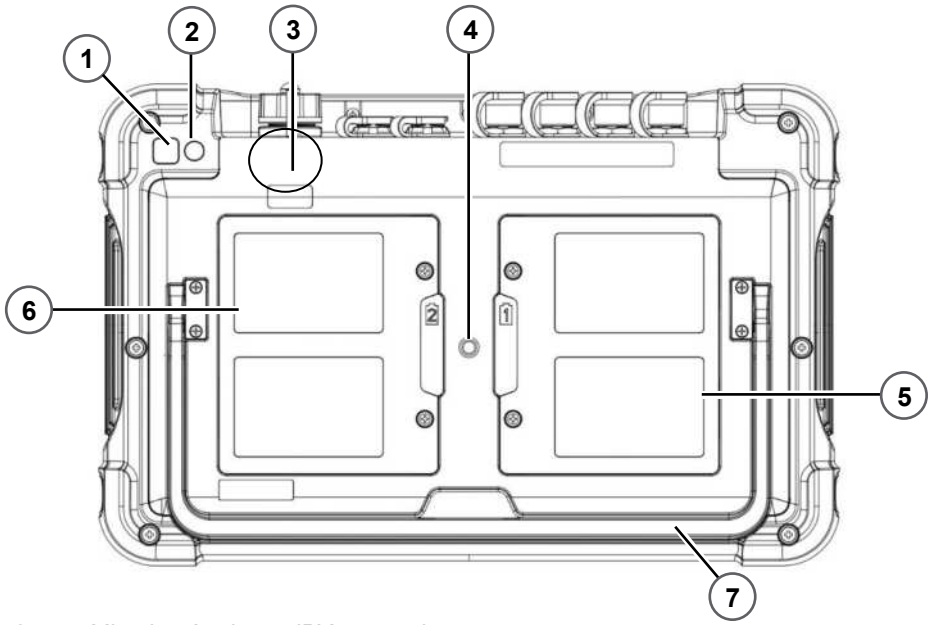


Figure 8 Microlog Analyzer dBX – rear view

1. Camera
2. LED flash
3. Near field communication (NFC) reader
4. Screw hole for tripod stand
5. Cover and battery compartment 1
6. Cover and battery compartment 2
7. Foldable stand

2.6 Battery installation

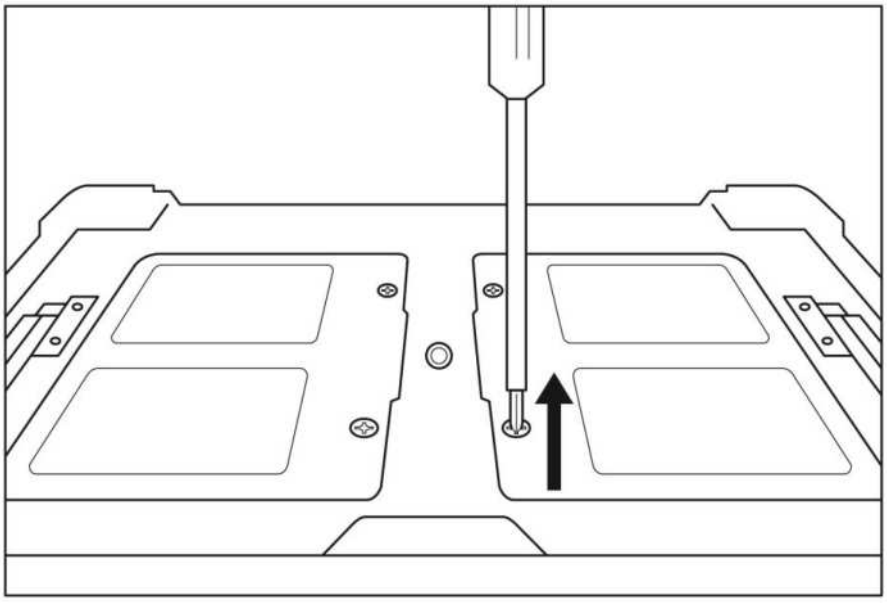


Figure 9 Battery installation - step 1

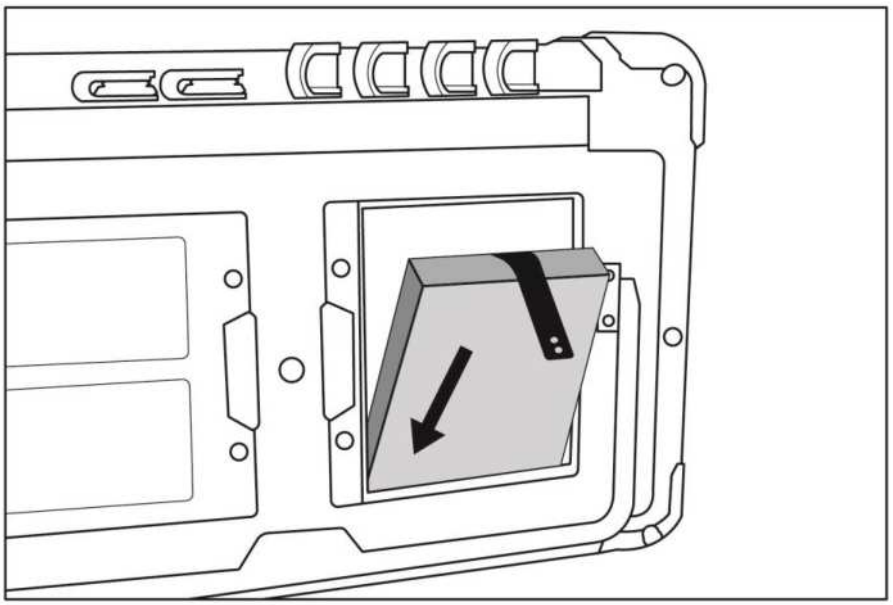


Figure 10 Battery installation – step 2

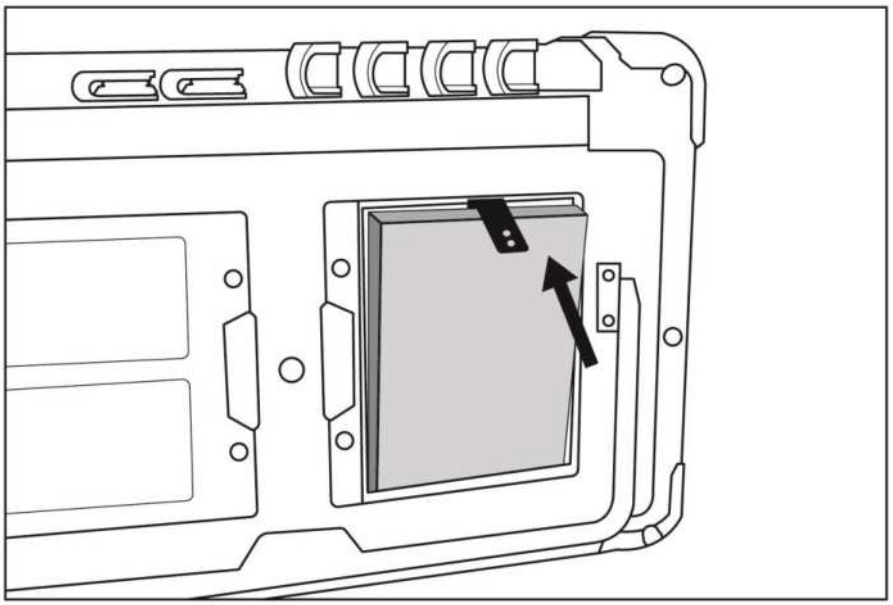


Figure 11 Battery installation – step 3

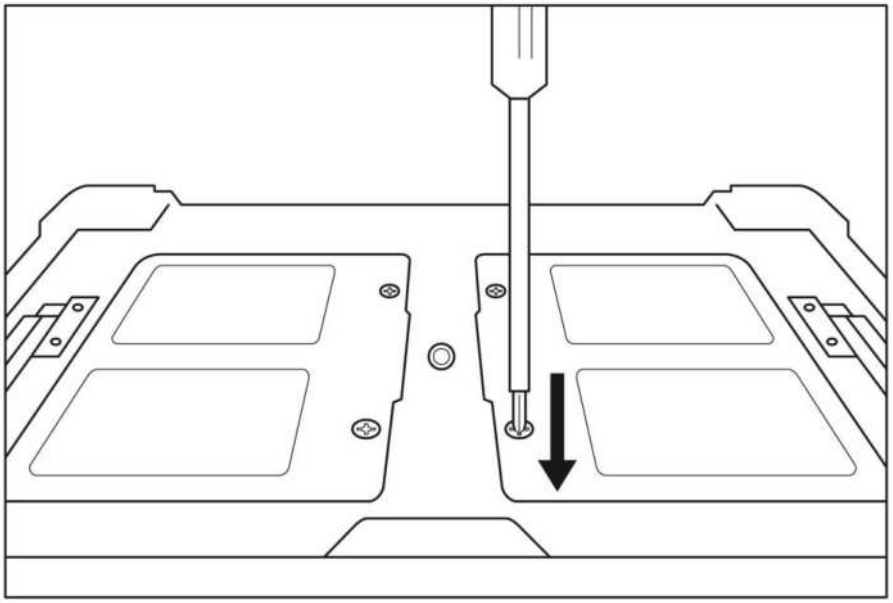


Figure 12 Battery installation – step 4

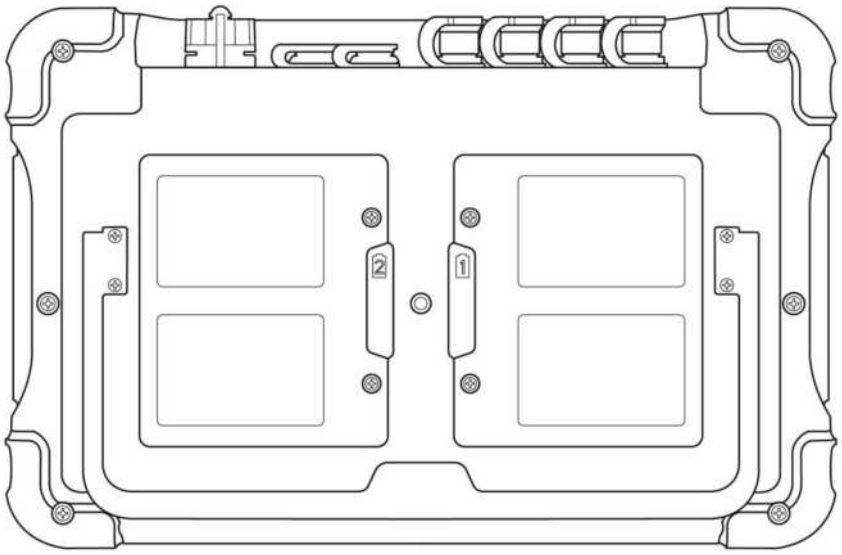


Figure 13 Battery installation – completed

2.7 Charging the battery

> ***Handle the batteries with care!***
> *This product contains a Li-ion battery. There is a risk of fire and burns if the battery pack is handled improperly. Do not attempt to open or service the battery pack. Do not disassemble, crush, puncture, short external contacts, or circuits, dispose of in fire or water, or expose a battery pack to temperatures higher than 60 ˚C (140 ˚F).*

Before using the Microlog Analyzer dBX for the first time, charge the Microlog batteries for at least 6 hours to ensure the battery is fully charged.

To charge your Microlog Analyzer dBX, plug the AC power adapter/battery charger connector to the 7-pin connector (TRIG/PWR) of your Microlog Analyzer dBX.

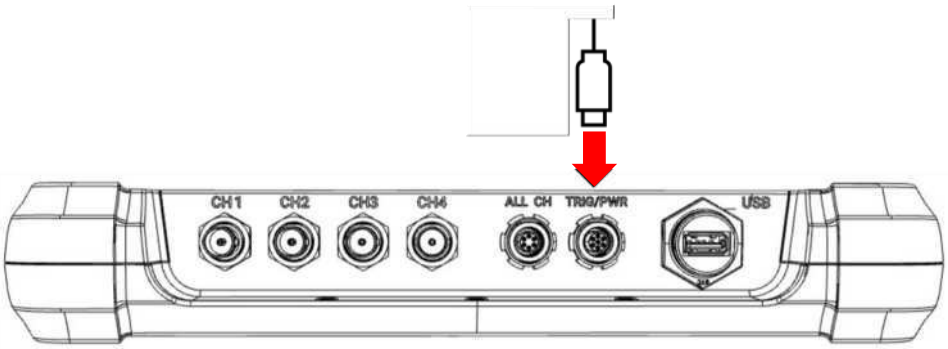


Figure 14 Connect charger

The AC power adapter/battery charger unit accepts **100 ~ 200 V AC** power. When the charger is connected, the battery symbol will change  to indicate that the device is charging. Note that charging symbol may take up to 20 seconds to appear after connecting the charger.

Note: The charging symbol may take up to 20 seconds to appear after connecting the charger.

Note: The actual per-charge life can vary drastically depending on conditions, equipment options, and usage patterns.

The Microlog Analyzer dBX is designed to operate continuously for up to 8 hours with a pair of fully charged batteries in typical operating environments.

You can extend the operational hours in the field by replacing the battery with a backup.

2.8 Start using your Microlog dBX

Press the power key to turn on your Microlog Analyzer dBX.

2.8.1 Startup password

When the device is powered for the first time, the system requires you to set up a startup password.

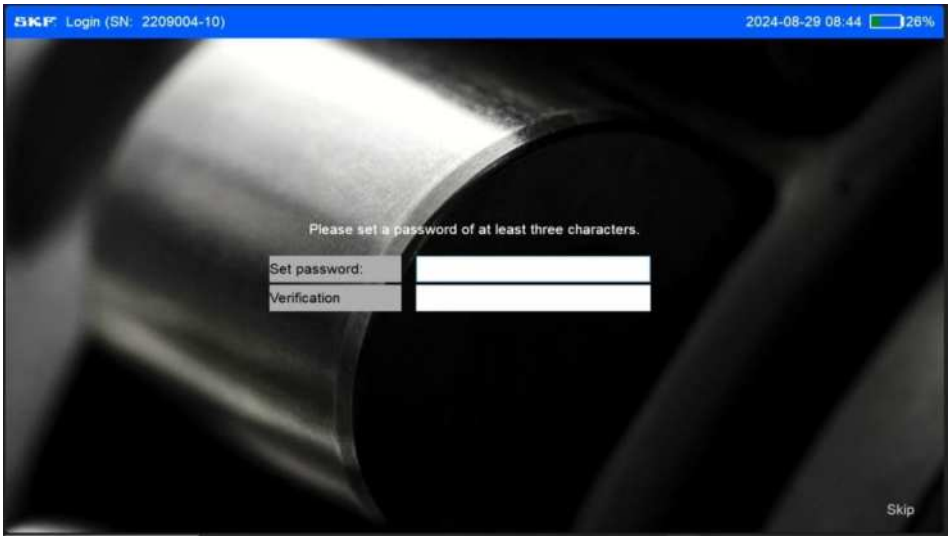


Figure 15 Login screen – set password

1. Tap the **Set password** field to display the keypad and enter the password.
2. Re-enter the password in the **Verification** field.

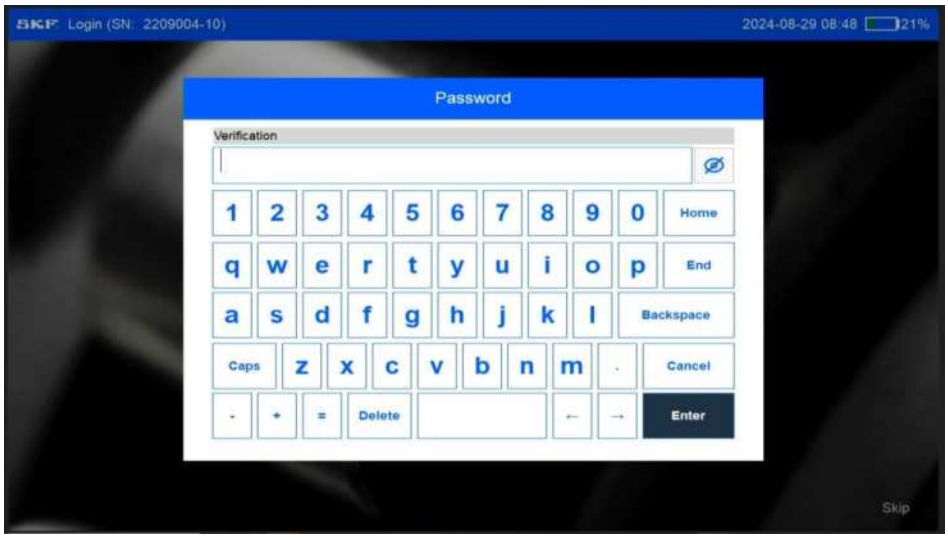


Figure 16 Password keypad

When the password configuration is completed, the system will require you to enter the password every time the device is powered on.

Tap the **Password** field to display the keypad and enter the password to log in.

Figure 17 Log in with password

For more information on how to manage the password option, refer to the Microlog Analyzer dBX User Manual.

2.8.2 Home screen

After logging in, the home screen displays the available operating modules.

Figure 18 Microlog Analyzer dBX – home screen

The number of icons depends on your device version and associated options.
At the top right corner, you can see the language code, date and time, and the battery indicator. To run an application, using the navigation keys, select an icon and press **OK** or double tap the respective icon.

3 Product specifications

3.1 Technical data

Microlog Analyzer dBX CMVA 90	
Dimension	300 × 195 × 50 mm (11.8 × 7.6 × 1.9 in.)
Weight	1.9 kg (4.18 lb)
Screen	Multi-point colour touch screen 1280 × 800 mm (10.1 in.)
Enclosure	Dual material mould injection, soft TPU material and hard PC material
Temperature ratings	Operating temperature: -10 to +50 °C (14 to 122 °F) Storage temperature: -20 to +60 °C (-4 to 140 °F) Charge temperature: 10 to 45 °C (50 to 113 °F)
Inputs channels	• 4 analogue input channels with ICP power supply • Tacho channel with built-in power supply to a laser tachometer
Data acquisition	24–bit A/D converters
Accuracy	± 2.5%
Max bandwidth	Up to 40 kHz (102.4 kHz sampling rate)
Input ranges	+/- 5 V, +/- 20 V
Data storage	256 GB flash memory (100 GB allocated for OS)
Operating System	Microsoft Windows
Connector Style	• 6 pin Fischer and BNC on 4 Input Channels, • 7 pin Fischer on power supply and external trigger input
Channel Coupling	AC, DC, ICP
Tacho Channel	From external trigger
Batteries	Replaceable Li-Lithium battery × 2, 14.4 V, 2270 mA, 32.7 Wh
PC Interface	USB 3.1 A type USB Connector
Camera	Built-in, 1080p rear-facing camera
RF tag reader	Built-in, Near-Field Communications (NFC), located on the rear
Electrical Rating (battery)	12 V, 5 A / 60 W
IP Rating	IP 65

3.2 Certifications

Mark	Meaning
	EU Declaration of Conformity
	Restriction of Hazardous Substances Directive 2002/95/EC
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
	Korea Communication Commission
	Restriction of Hazardous Substances
	The Regulatory Compliance Mark (RCM)
	UK Conformity Assessed (UKCA)
US CEC	Commission for Environmental Cooperation
	Federal Communications Commission
	California Energy Commission Compliant

3.3 Product label

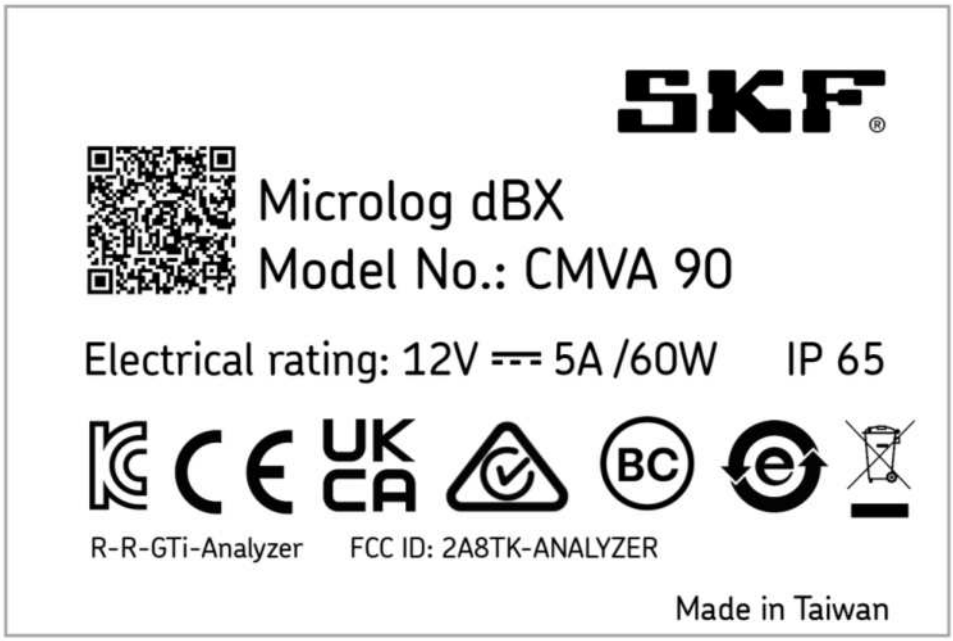
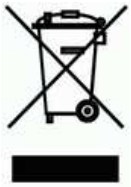


Figure 19 Microlog Analyzer dBX CMVA 90 – product label

4 Electrical waste



Electrical waste and electrical equipment should be recycled as specified by the WEEE-directive and not be placed in the general refuse. Product should be sent to an approved recycling centre for safe recycling, recovery, reuse or returned to SKF for proper recycling.

SKF Sverige AB
Ålgatan 10D
973 34 Luleå
Sweden

5 Calibration and repair

It is recommended that the Microlog Analyzer dBX is calibrated every **24 months**, with the first calibration due 24 months from the first date of in-service use.

A calibration reminder located in the Microlog dBX Utility module can be set to either 12 or 24 months.

SKF can provide calibration and repair/replacement of Microlog Analyzer dBX if needed. Contact your nearest SKF Technical Support Group TSG representative for more details.

Appendix A Limited Warranty

If you have experienced an issue with your Microlog Analyzer dBX, to help expedite your concern, please contact your nearest SKF Technical Support representative and raise a support case.

SKF – Limited Warranty

Download the latest version from www.skf.com.

Appendix B End User License Agreement

Terms & Conditions

By accessing or using this mobile application of the SKF Group an end user license agreement (“Agreement”) has been entered into between you and SKF Sverige AB (“SKF”), a company registered under the laws of Sweden, and you agree to be bound by the following terms and conditions. If a separate written end user license agreement for this mobile application has been agreed by you and an SKF entity, or if your employer has an agreement with an SKF entity regarding Microlog Analyzer dBX, such agreement will prevail over this Agreement. SKF may at any time update or change the Terms and Conditions without giving notice to you.

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SKF reserves the right to make changes or additions to this mobile application at any time. This Agreement will terminate automatically upon the earlier of: (a) your failure to comply with any term of this Agreement; (b) you deleting the mobile applications(s) from your devices; and (c) if you are using the mobile application(s) in connection with a paid service, the end of the time period specified at time of purchase. In addition, SKF may terminate this Agreement at any time, for any reason or no reason. If this Agreement terminates, you must stop using the mobile application(s) and delete them from your devices.

Applicable law

The laws of Sweden shall apply to this Agreement.

Export controls

You shall not export or re-export, directly or indirectly, the mobile application, or use the mobile application to export or re-export any information, without complying with export controls imposed by any applicable country (or any future export control legislation) and the regulations promulgated thereunder.

Privacy Notice

SKF will handle any personal data obtained from you in accordance with the [insert app name] Privacy Notice. Please read this Privacy Notice carefully before using this mobile application.

Appendix C Federal Communications Commission Interface Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

- Consult the dealer or an experienced radio/ TV technician for help.

CAUTION:

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

RF exposure warning

The equipment complies with FCC RF exposure limits set forth for an uncontrolled environment.
The equipment must not be co-located or operating in conjunction with any other antenna or transmitter.