

# SKF Microlog Analyzer dBX



Quick Start Guide Part Number **15V-090-00102-200** Revision **B – June 2023** 

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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SKF Sverige AB Ålgatan 10D, 973 34 Luleå, Sweden Telephone: +46 (0) 31 337 10 00



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Please take a moment to <u>register</u> 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 <u>Condition Monitoring</u> <u>Systems</u> site on SKF.com. Supporting product information can also be downloaded from the <u>SKF</u> <u>Technical Support</u> self-service web portal.

#### **Product Support Contact Information**

<u>Repair and Calibration Services</u> – Submit a <u>Return Authorization (RA) request</u> to arrange for repair or calibration of your product. You will receive an RA number and shipping instructions usually within 48 business hours.

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

*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.
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SAFETY MESSAGES

Personnel safety

## 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.

#### SAFETY MESSAGES

Avoid damage and injury



### 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.



## SAFETY MESSAGES

Avoid battery compartment exposure

## 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.

Introduction



## 2 **Product description**

### 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.

**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 TCT.dBX thin client transfer utility
   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 all the 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.



Front view

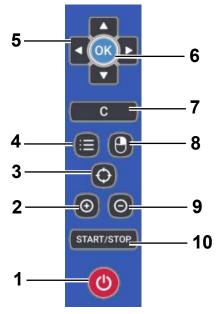
2.2 Front view



- 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.





Front view



- 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.
  - d. When the device is on, press and hold for 10 seconds to conduct a force shutdown, which means the power cuts without a proper shutdown procedure. Perform a force shutdown only when you have a problem performing a normal shutdown.
- 2. **Zoom in** key Zoom in a plot or user-defined.
- 3. **Cursor toggling** key Change the type of cursor or user-defined.
- 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.



Top view

#### 2.3 Top view

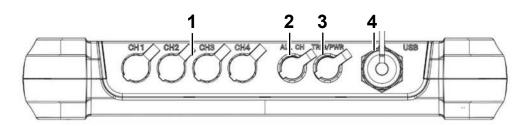


Figure 3 Microlog Analyzer dBX – top view connectors

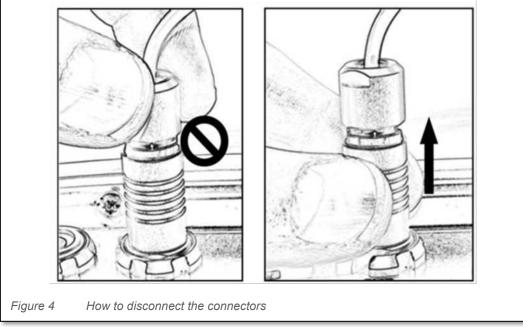
- 1. Four BNC channel connectors
  - Channel one CH1
  - Channel two CH2
  - Channel three CH3
  - Channel four CH4

#### 2.3.1 Connectors description

- 2. All channel connector
- 3. Trigger and power connector
- 4. USB Port A connector

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.

Top view



- 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

- 5. EXT-TRIG-AUX
   6. NC
- 7. +5 V-Tacho-Out

4. Digital Gnd



Side view

• **USB** – Type A USB socket, providing a USB 3.1 connection to external devices. Connect the supplied 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 computer 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

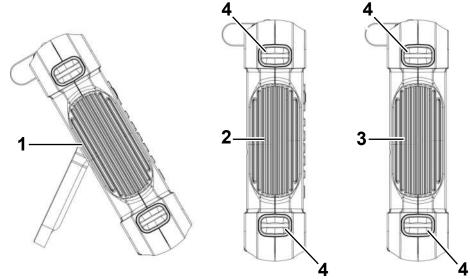


Figure 7 Microlog Analyzer dBX – side view

- 1. Side view with stand open
- 2. Left side

- 3. Right side
- 4. Hand strap and neck strap holders

Battery installation

2.5 Rear view

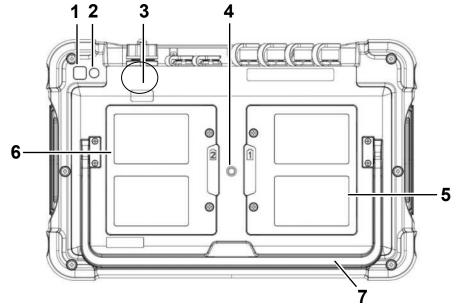


Figure 8 Microlog Analyzer dBX – rear view

- 1. Camera
- 2. LED flash
- 3. RFID 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

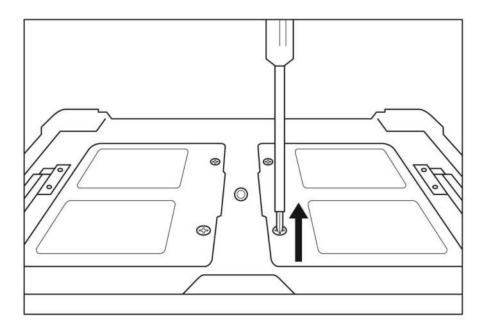


Figure 9 Battery installation - step 1 SKF Microlog Analyzer dBX Quick Start Guide Revision B





Battery installation

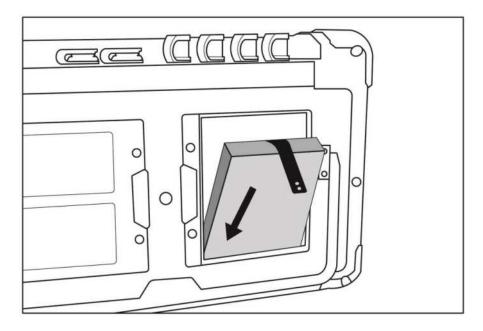


Figure 10 Battery installation – step 2

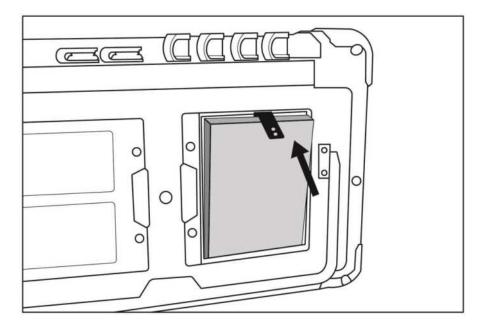


Figure 11 Battery installation – step 3

Battery installation



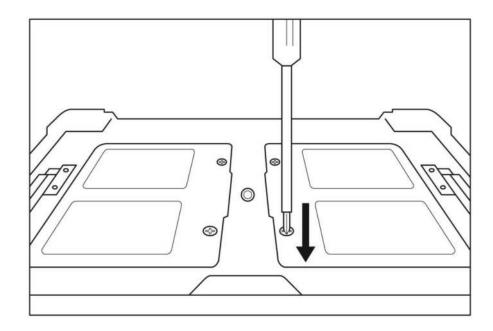


Figure 12 Battery installation – step 4

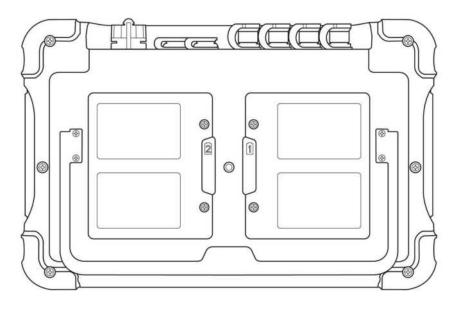


Figure 13 Battery installation – completed



Charging the battery

## 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  $60 \degree C$  (140  $\degree F$ ).

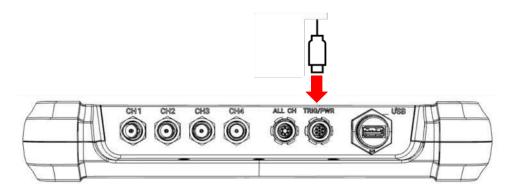
Before using the Microlog Analyzer dBX for the first time, charge the Microlog batteries for at least 6 hours to ensure the battery is fully charged.

The Microlog Analyzer dBX is designed to operate continuously for up to 10 hours with a pair of fully charged batteries in typical operating environments.

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

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.

The AC power adapter/battery charger unit accepts **100 ~ 200 V AC** power. During the charging process, if you turn the device on, you'll notice that the battery level indicator lights in red. The device casing gets a bit warmer during charging.





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

## 2.8 Start using your Microlog dBX

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

16 (29)

Start using your Microlog 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.

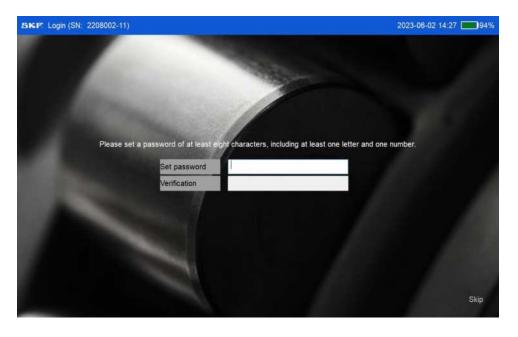


Figure 15 Login screen – set password

1. Press the **OK** key to display the keypad and enter the password in the **Set** password field.

**Note**: The password should contain at least eight characters, including at least one letter and number.

2. Re-enter the password in the Verification field.

					Pass	uard				
Pass	word				1 055	aren u				
1	2	3	4	5	6	7	8	9	0	Home
q	w	е	r	t	У	u	i	ο	р	End
a	s	d	f	g	h	j	k	1	Ba	ckspace
Ca	ps	z	x	c	v	b	n	m		Cancel
	1.	-	Dele	**						Enter





Start using your Microlog dBX

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

Press the  $\mathbf{OK}$  key to display the keypad and enter the password to log in.

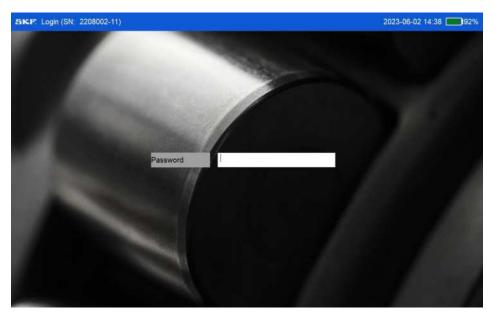


Figure 17 Log in with password

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 18 (29)

Start using your Microlog dBX



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.



#### **PRODUCT SPECIFICATIONS**

Technical data

## **3 Product specifications**

### 3.1 Technical data

Model designation	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	<ul> <li>4 analogue input channels with ICP power supply</li> <li>Tacho channel with built-in power supply to a laser tachometer</li> </ul>
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
Operating System	Microsoft Windows
Connector Style	<ul> <li>6 pin Fischer and BNC on 4 Input Channels,</li> <li>7 pin Fischer on power supply and external trigger input</li> </ul>
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
Electrical Rating (battery)	12 V, 5 A / 60 W
IP Rating	IP 65

## PRODUCT SPECIFICATIONS

Certifications



## 3.2 Certifications

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



**PRODUCT SPECIFICATIONS** 

Product label

### 3.3 Product label

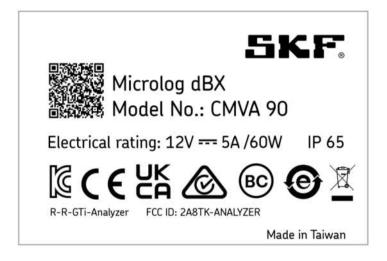


Figure 19 Microlog Analyzer dBX CMVA 90 – product label

#### ELECTRICAL WASTE



## 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



### CALIBRATION AND REPAIR

## 5 Calibration and repair

It is recommended that the Microlog Analyzer dBX is calibrated every **12 months**, with the first calibration due 12 months from the first date of in-service use. 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** 



## **Appendix A Limited Warranty**

### SKF – Limited Warranty

Download the latest version from skf.com.



APPENDIX B End User Licence Agreement

## **Appendix B End User License Agreement**

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#### APPENDIX B End User Licence Agreement

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#### **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



## 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.