



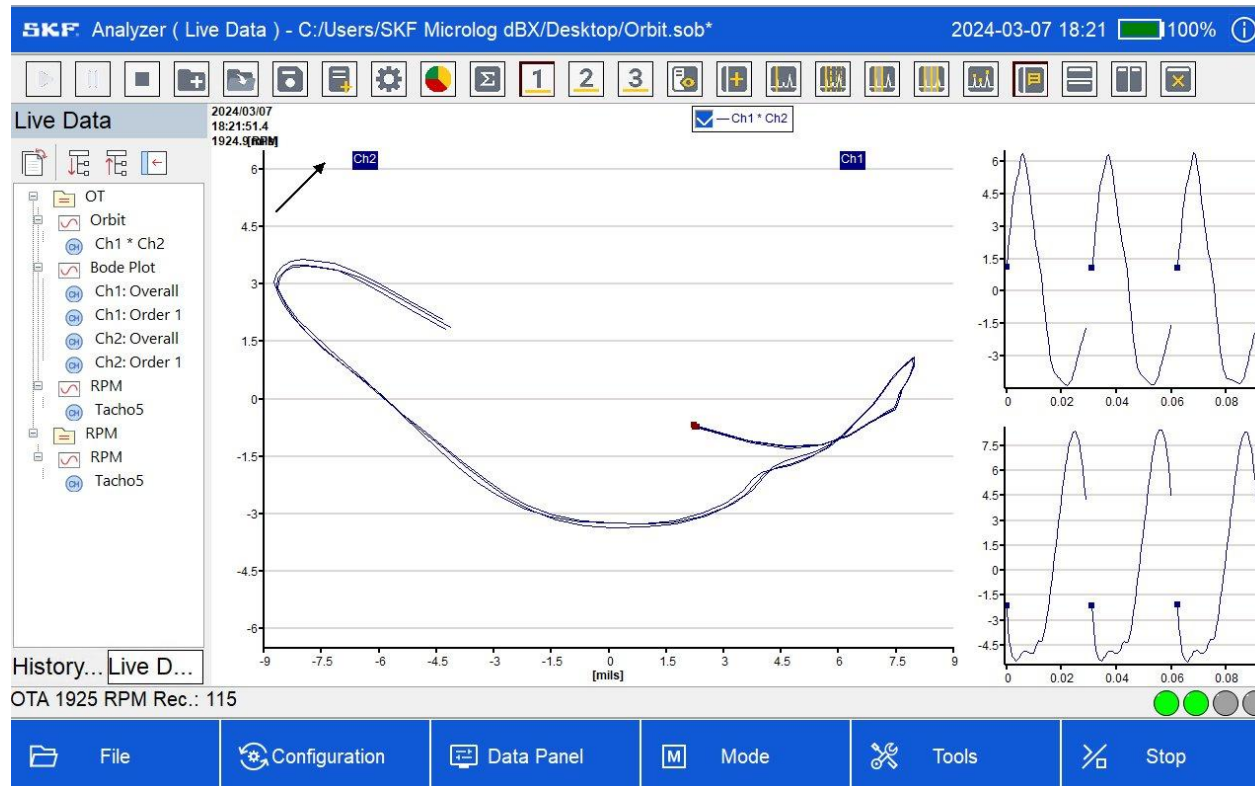
# SKF Microlog Analyzer dBX - v1.x

Orbit Analysis Template

# Objective

Present an overview of the orbit analysis data measurement setup for orbital analysis using SKF Microlog Analyzer dBX.

# Orbit Analysis Template



With the Orbit analyzer template, visualize the rotational behavior of a rotating axis. Orbit charts are often used to diagnose faults in machines with plain bearings.

# Orbit Analysis Module - Configuration

Configuration

Analyzer Setup | Channel Setup | Engineering Unit | OT |

Tachometer Setup

Hardware	Channel	Number	RPM	FFT	Order Tracking
s/n: 1168010019	Ain	1	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Ain	2	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Ain	3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Ain	4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Tacho	5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Assign Single Column | Assign All Columns

Save to Default | OK | Next

On the Analyzer configuration tab, you must select the channels to be used.

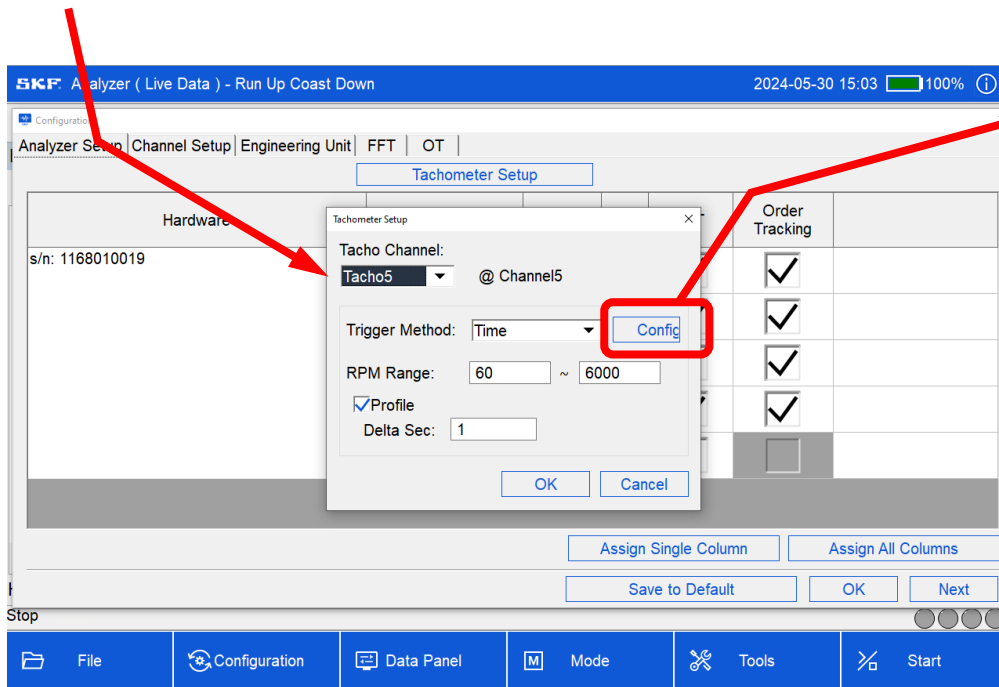
In the example in question, channels 1 and 2 were selected for order tracking and channel 5 for the tachometer.

# Configuration – Tachometer Setup

## Tachometer Setup

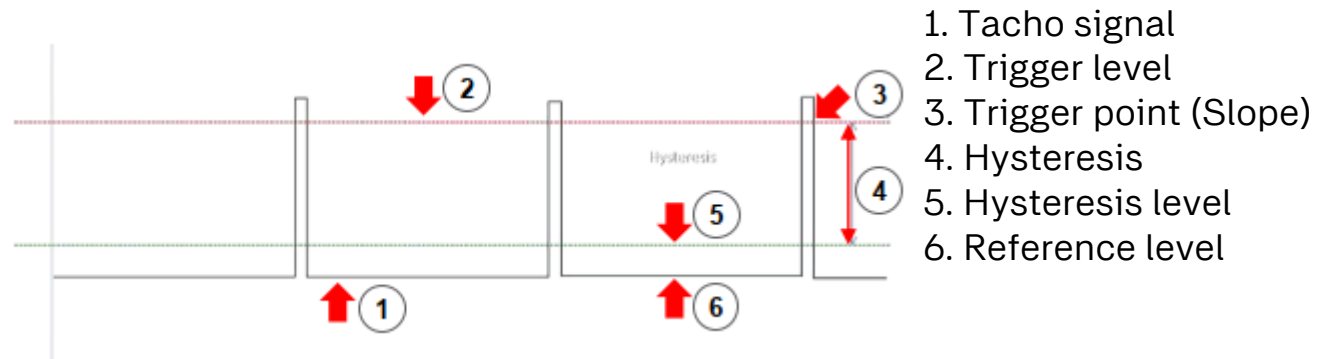
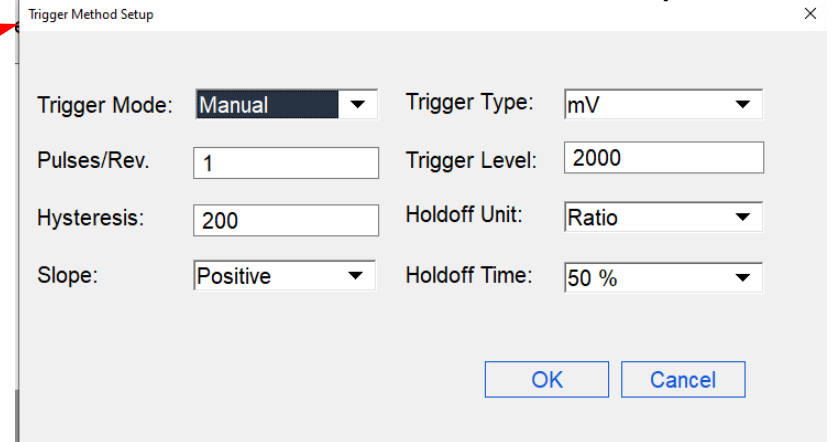
### Trigger Method

- If Tacho, use Time
- If no Tacho, use Spectrum



## Trigger Method Config

- Trigger Mode – use Auto for TTL
- Trigger Type (mV or %)
- Hysteresis (mV) defines minimum drop required
- Holdoff Unit (msec or ratio)
- Holdoff Time - minimum time between pulses



1. Tacho signal
2. Trigger level
3. Trigger point (Slope)
4. Hysteresis
5. Hysteresis level
6. Reference level

# Orbit Analysis – Channel Configuration

Configuration

Analyzer Setup **Channel Setup** Engineering Unit OT

Channel ID: Modal

Channel	Coupling	Input Range	Window	Node	Direction	Advance Number	Label
Ch1	DC	20V	Hann	1	+X	0	
Ch2	DC	20V	Hann	1	+X	0	
Ch5	AC	5V	Hann	1	+X	0	

Force Factor: 0.1 Exponential Factor: 0.1

Assign Single Column Assign All Columns

Save to Default OK Next

On the second tab, you need to configure the previously selected channels.

The required fields are the coupling type, the sensor input range, and the windowing.

The other fields are optional.

# Orbit Analysis – Engineering Unit

Configuration

Analyzer Setup | Channel Setup | **Engineering Unit** | OT

Detection: Pk-Pk

Channel	Sensor Type	Sensor Unit (SU)	Sensitivity mV/SU	Display Unit (DU)	dB Ref.	Weighting	Gain	DC Offset mV	Filter
Ch1	Displacement	um	7.874	um	1	None	1	0	Off
Ch2	Displacement	um	7.874	um	1	None	1	0	Off
Ch5	Voltage	V	1000	V	1	None	1	0	Off

Next, the settings on the Engineering Units tab are required.

# Orbit Analysis – Order Tracking – Function

Configuration

Analyzer Setup | Channel Setup | Engineering Unit **OT**

Function | Frequency | Average

Bode Plot  
 Spectrum  
 Waterfall  
 Orbit

Tacho: Tacho5  
 @ Channel5

**Bode Plot Setup**

Ch	Order
1, 2	1
1, 2	Overall

**Orbit Setup**

Ch-A	Ch-B
1	2

Save to Default OK Next

The Order Tracking tab contains the subtabs, Function, Frequency, and Average.

Under Function, select which types of measurements to perform. The options are: Bode diagram, FFT spectrum, cascade, and orbit.

You will also be shown the channel for the tachometer, which has been previously defined.

If the orbit diagram has been selected, you must edit the tracking properties.

Likewise, when choosing the orbit option, it is necessary to edit its configuration.

# Orbit Analysis – Order Tracking – Frequency

The screenshot shows the SKF Configuration window for Orbit Analysis. The window has a title bar with a close button (X) and a menu bar with 'Analyzer Setup', 'Channel Setup', 'Engineering Unit', and 'OT'. Below the menu bar, there are three tabs: 'Function', 'Frequency', and 'Average'. The 'Frequency' tab is selected. The 'Resolution' is set to '1/8 Order' with a slider bar. The 'Max Order' is set to '10' with a slider bar. The 'Measurement Control' section has three radio buttons: 'RPM Step', 'Time Step', and 'Both Step', with 'Both Step' selected. The 'RPM Range' is set to '400 ~ 3600'. The 'RPM' section has an 'Event' dropdown set to 'Up\_Down' and a 'Delta RPM' input field set to '10'. The 'Time' section has a 'Delta Sec' input field set to '5' and a 'Stop By' dropdown set to 'Manual'. The 'No. of counts' input field is set to '50'. At the bottom of the window, there are three buttons: 'Save to Default', 'OK', and 'Next'.

Configuration

Analyzer Setup | Channel Setup | Engineering Unit | OT

Function | **Frequency** | Average

Resolution:  
1/8 Order

Max Order:  
10

Measurement Control

RPM Step

Time Step

Both Step

RPM Range: 400 ~ 3600

RPM  
Event: Up\_Down Delta RPM: 10

Time  
Delta Sec: 5 Stop By: Manual

No. of counts: 50

Save to Default OK Next

The Frequency sub tab is used to configure the resolution, maximum number of orders, and measurement control.

Ensure Tachometer Setup is set to allow collection for the RPM Range

# Orbit Analysis – Order Tracking – Average

The screenshot shows a software configuration window titled "Configuration" with a close button (X) in the top right corner. The window has four main tabs: "Analyzer Setup", "Channel Setup", "Engineering Unit", and "OT". The "Average" sub-tab is selected under the "Function" category. The "Type of Average:" dropdown menu is set to "Linear". The "Overlap Level:" dropdown menu is set to "50%", and a corresponding slider control is positioned at the 50% mark. At the bottom of the window, there are three buttons: "Save to Default", "OK", and "Next".

On the Average Sub tab, you must select the media type and overlap level.

# Real-time data collection

# Orbit Analysis – Data collection

Create up to 3 chart visualizations

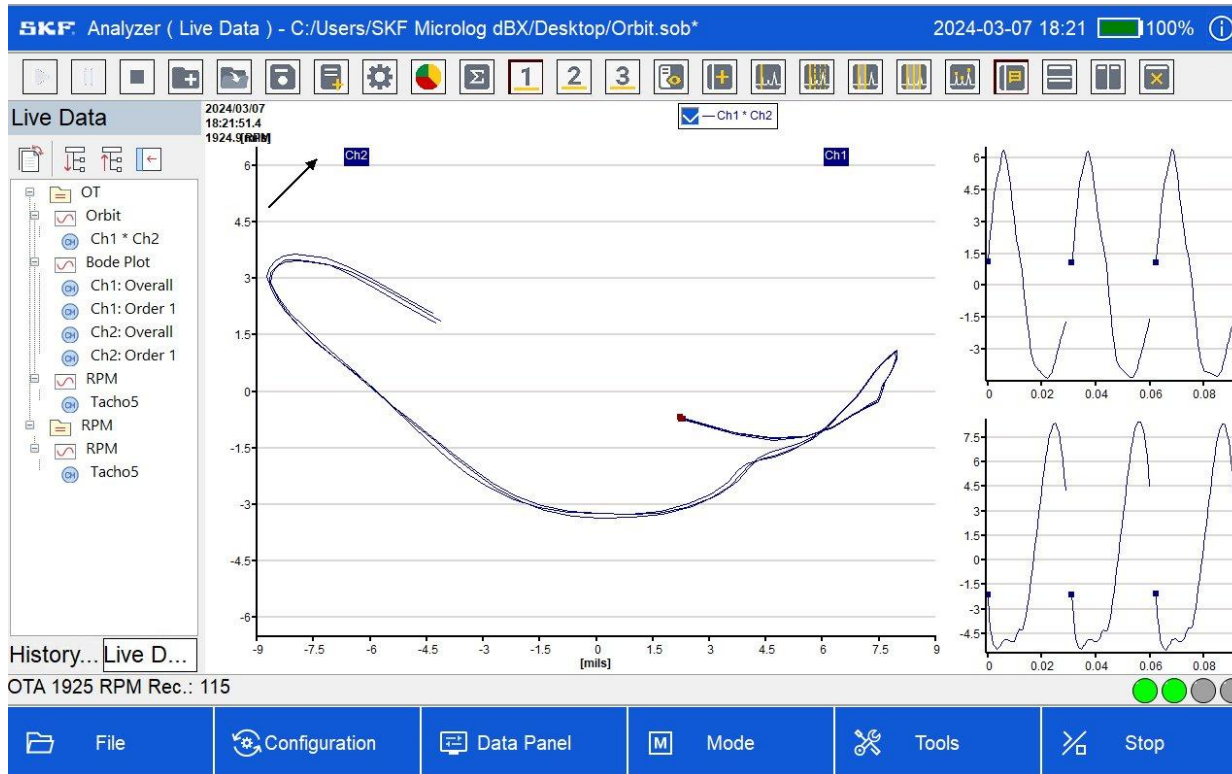
When you're ready, press the **Play** button to start data collection

Select the plot to add to the current view

The screenshot displays the SKF Analyzer (Live Data) - Orbit interface. At the top, the title bar shows 'SKF Analyzer (Live Data) - Orbit' and the date/time '2024-06-03 06:49' with a 100% battery indicator. Below the title bar is a toolbar with various icons. A red box highlights three numbered buttons (1, 2, 3) in the toolbar, with a red arrow pointing to them from the text 'Create up to 3 chart visualizations'. To the left of the main plot area is a 'Live Data' panel with a tree view of data sources. A yellow box highlights this panel, with a yellow arrow pointing to it from the text 'Select the plot to add to the current view'. The main plot area is titled 'Orbit + Waveform - OT' and shows a coordinate system with both x and y axes labeled '[um]'. A legend in the top right of the plot area shows a checked box for 'Ch1 \* Ch2'. The plot area is currently empty. At the bottom of the interface is a navigation bar with buttons for 'File', 'Configuration', 'Data Panel', 'Mode', 'Tools', and 'Start'. A 'Stop' button is also visible on the left side of the bottom bar.

# Viewing Orbit Measurements

# Orbit Analysis – Orbit Plotting

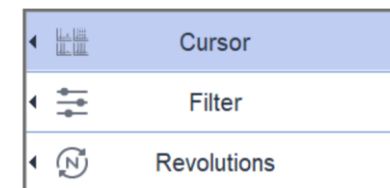


At the top of the orbit chart, the following parameters are shown:

- Rotation;
- Filter;
- DC GAP value;
- Cursor value.

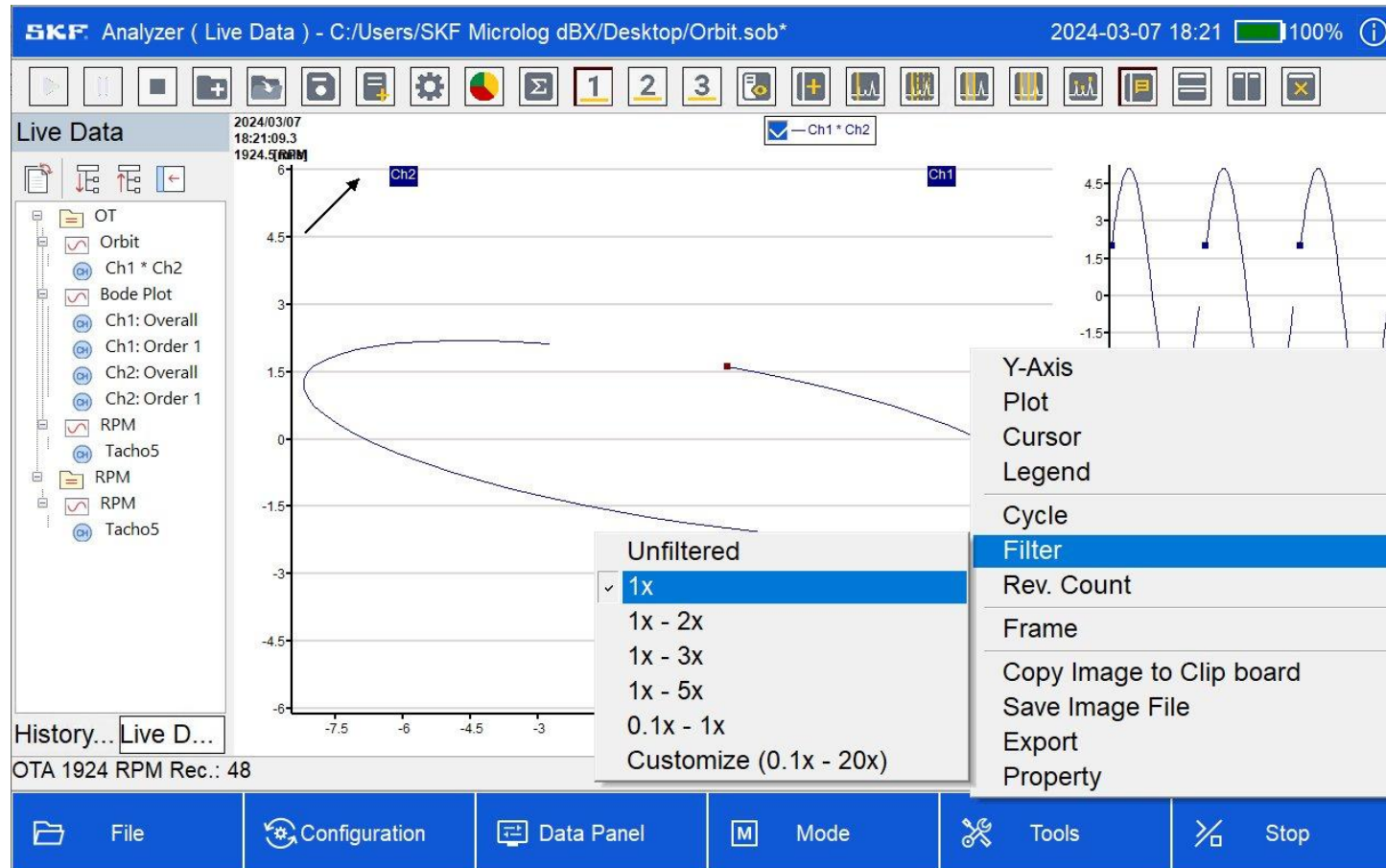
To access other view options, press the view option in the bottom right corner.

The orbit graph menu allows you to configure the following display items: cursor type, filter, and number of revolutions.



# Orbit Analysis – Orbit Plotting

The application of filters allows the visualization of the orbit of one or more revolutions.



# Additional information

# SKF Microlog Analyzer dBX – Quick Start Guide

## SKF Microlog Analyzer dBX, CMVA 90 Quick Start Guide:

27 pages of information about the SKF Microlog Analyzer dBX product.


Contains, safety information, Product description, Product Specification, Electrical waste guidance, calibration, repair and warranty statement, EULA and FCC statements

<https://www.skf.com/group/products/condition-monitoring-systems/product-support-training/product-manuals>

## 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.

Copyright © 2023 by SKF Group  
All rights reserved.

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

# SKF Microlog Analyzer dBX – User Manual

## SKF Microlog Analyzer dBX, CMVA 90 User Manual:

202 pages of information about the SKF Microlog Analyzer dBX software tools/Apps.


Explains Data Collector, Bump Test, dBX Analyzer, gE Enveloping, Balancing, FRF & ODS analysis, etc. features and functionality.

<https://www.skf.com/group/products/condition-monitoring-systems/product-support-training/product-manuals>

## SKF Microlog Analyzer dBX



User Manual  
Part Number **15V-090-00102-100**  
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.

Copyright © 2023 by SKF Group  
All rights reserved.

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

Thank you!



**SKF®**