

ROHM RKX-EVK-001 Kionix EVK GUI SW for Accelerometer User Guide



User's Guide

Accelerometer

Kionix™ Technology



ROHM EVK GUI SW Manual for Accelerometer

RKX-EVK-001 is an Evaluation Kit for ROHM accelerometer. Connecting an accelerometer evaluation board to the RKX-EVK-001 is one of the options for evaluating an accelerometer. ROHM EVK GUI SW is software for the RKX-EVK-001, offering the following functions.

- Showing acceleration waveform
- Changing accelerometer register
- Recording acceleration output
- Wake-up and Back-to-sleep demo

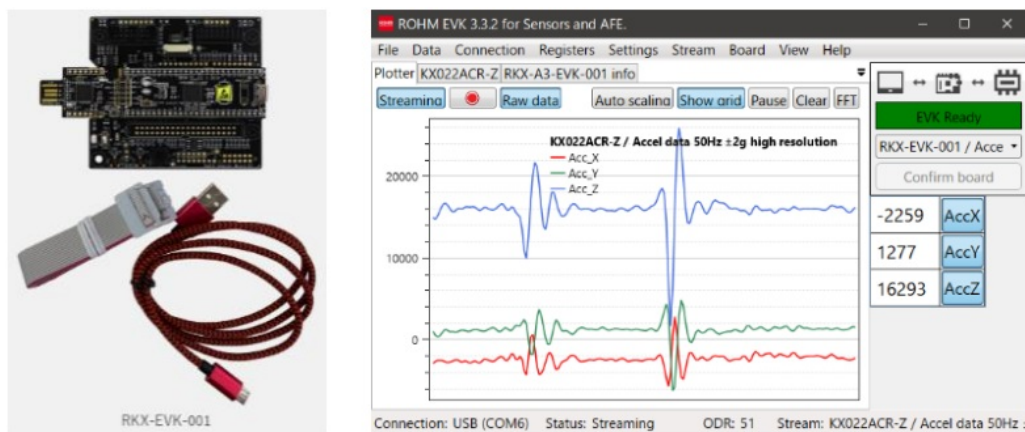


Figure 1 RKX-EVK-001 and ROHM EVK GUI SW

Now^{*1}, the following evaluation boards are available for ROHM EVK GUI SW.

- KX022ACR-EVK-001, KX132ACR-EVK-001, KX134ACR-EVK-001
- KXTJ3-1057-EVK-001, KX132-1211-EVK-001, KX134-1211-EVK-001

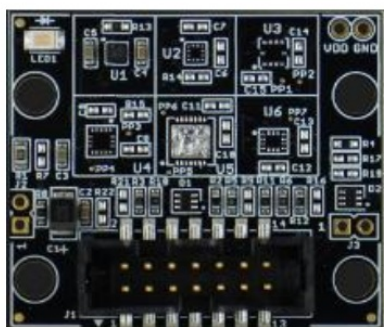


Figure 2 ROHM accelerometer evaluation board

^{*1} As of January 2025. New parts will be available from time to time.

This User's Guide shows how to use ROHM EVK GUI SW for accelerometer. We also provide the following reference manuals. The links to these manuals are available at [Accelerometer Evaluation Kit](#).

- ROHM EVK SW User's Guide

ROHM EVK GUI SW is used with several ROHM products. This document provides explanations of common functions.

- ROHM EVK HW User's Guide

This document provides explanations of RKX-EVK-001.

ROHM Accelerometer evaluation board reference information like pin assignment can be obtained from each product page. The links to each product page are available at [Accelerometer ICs](#).

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Setup and basic operations

Refer to ROHM EVK SW User's Guide for setup and basic operations. It's available at

[Accelerometer Evaluation Kit](#). A brief overview is given here.

SW download

Download and install ROHM EVK GUI SW from the following URL. [Accelerometer Evaluation Kit](#)

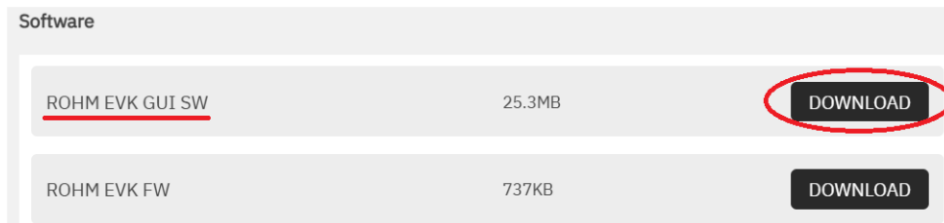


Figure 3 Software download

HW setup

Connect the Accelerometer evaluation board to the RKX-EVK-001 using either Option A or Option B and then connect the USB cable to the PC.

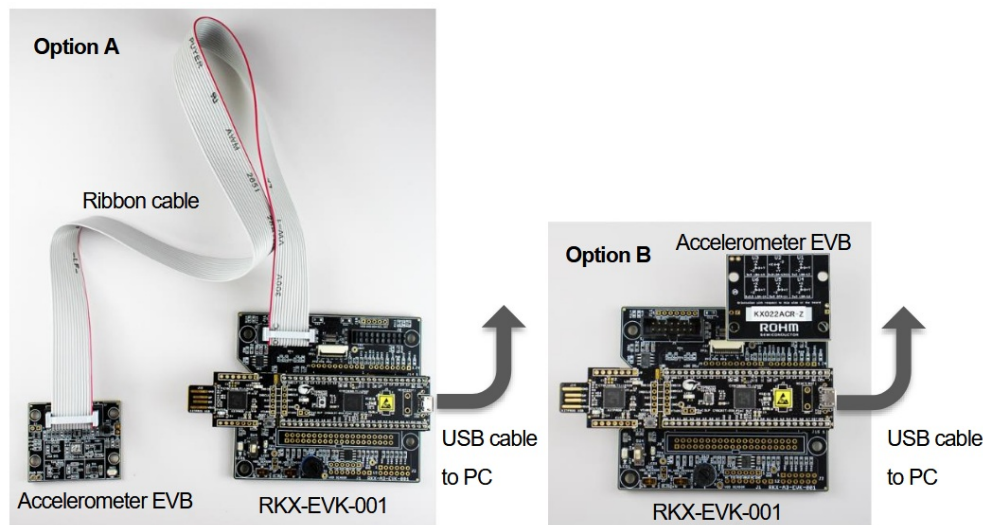


Figure 4 HW Connection

GUI start

Start ROHM EVK GUI SW from the shortcut created on the desktop or from the list of applications.



Figure 5 GUI start

EVK connection

Check that 'EVK Connected' is displayed in yellow at the top right of the screen. Select Accelerometer EVB and I/F from the drop-down menu. The following is an example of selecting I2C. Click 'Confirm board' and check that 'EVK Ready' is displayed in green.

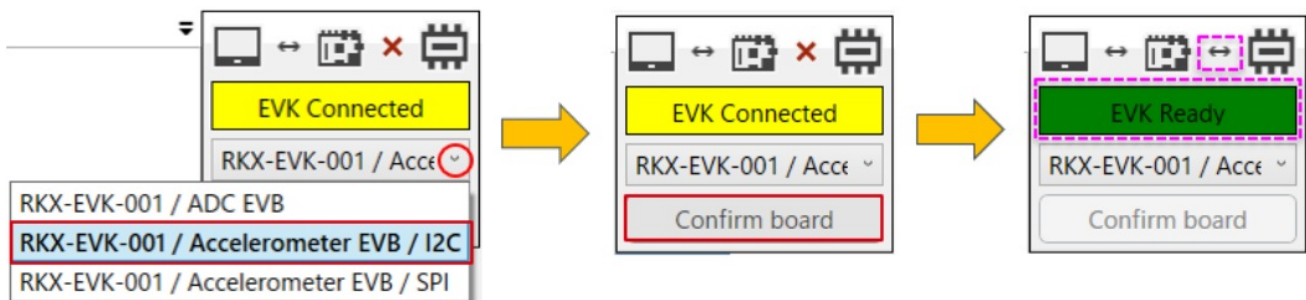


Figure 6 EVK connection

When setting a high ODR (e.g., 6400Hz or higher), I2C may not be fast enough. In that case, it is recommended to use SPI.

Part number and Stream selection

From the Stream menu bar, select the connected EVB and choose Stream (preconfigured register settings). As an example, this section explains the 'Accel data 50Hz $\pm 2g$ high resolution' case of KX022ACR-Z.

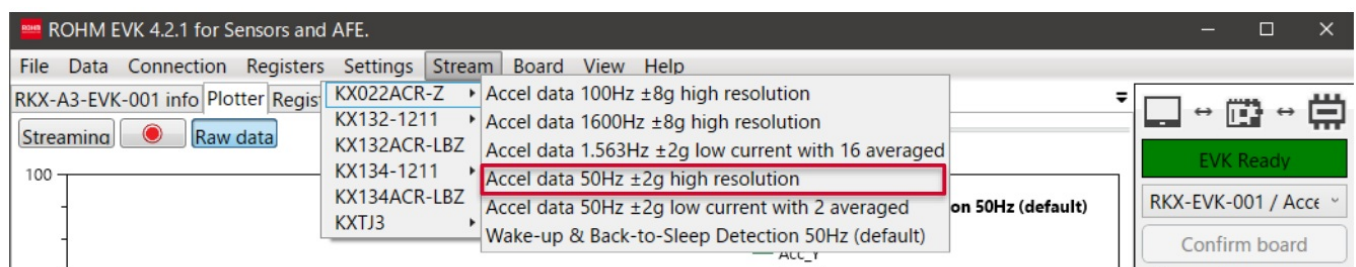


Figure 7 Stream selection

In the Plotter tab, the acceleration waveform is automatically output. Toggling Streaming

will turn the acceleration waveform output ON/OFF.



Figure 8 Streaming

Supporting features

Here are some useful features.

Data range (Time)

With the slider, it is possible to adjust the amount of data points shown in the plotter.

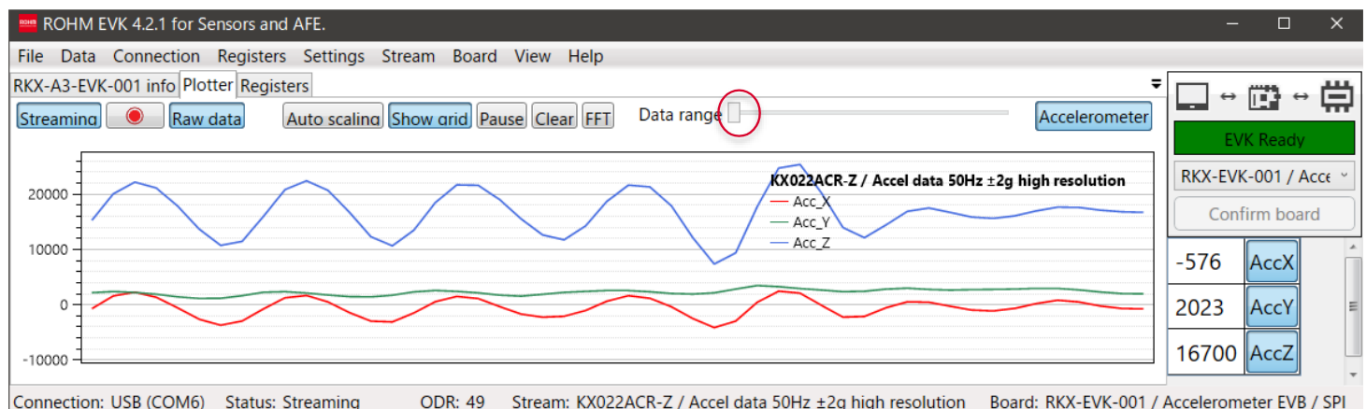


Figure 9 Short data range

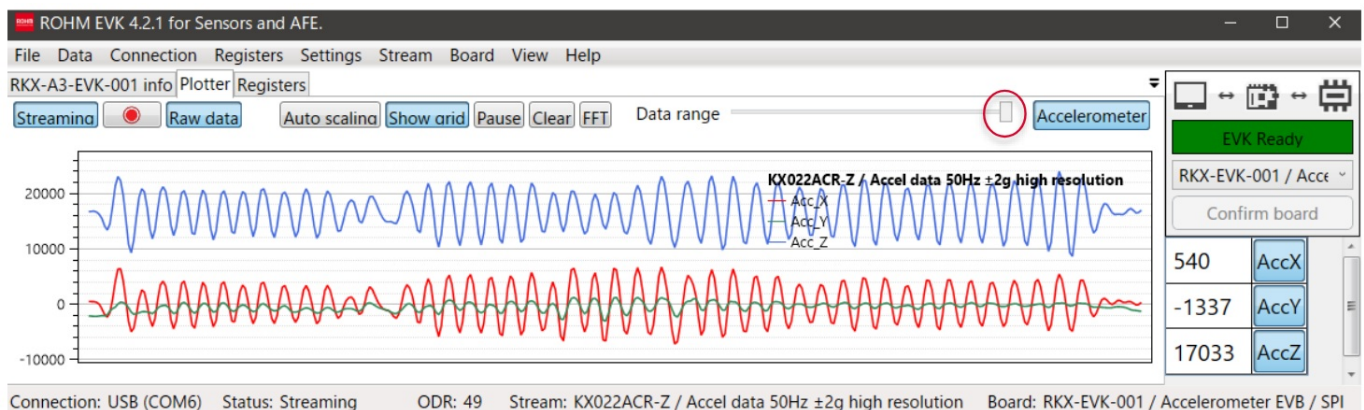


Figure 10 Long data range

Output range (Acceleration)

The acceleration output range on the screen can be changed by using the mouse wheel. The acceleration output position on the screen can be shifted up and down by dragging up and down with the right mouse button.

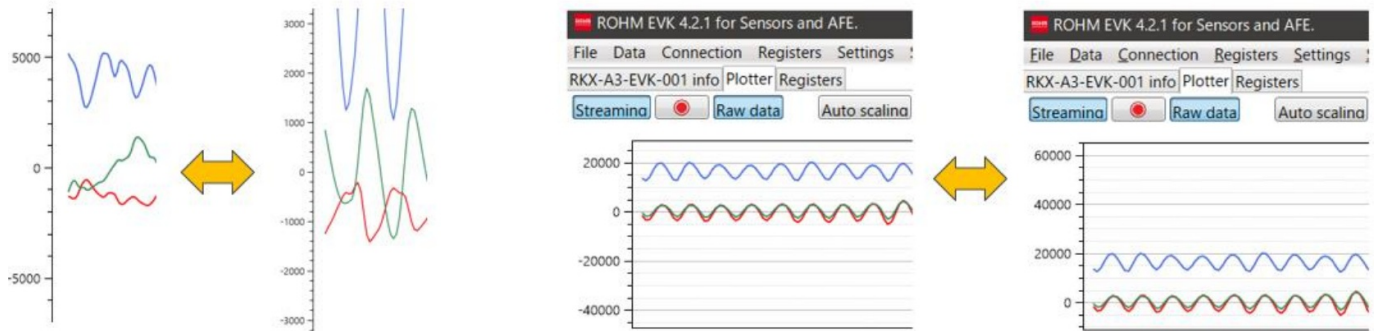


Figure 11 'Zoom up/down by the mouse wheel' and 'Shift up/down by dragging with the right mouse button'

Logging

ROHM EVK GUI SW has a logging function for acceleration data.

File name and logging start

When you press the red circle, the screen for setting the file name to save the acceleration data log will open. Keyboard shortcut is CTRL + L.



Figure 12 Red circle

After entering the file name, press save to start logging. The file will be saved at the following address.

C:\Users\(\Username)\Documents\ROHM_EVK_v4\ROHM-EVK-GUI\log_files

(Username) is username of the PC. When the software version is updated,

ROHM_EVK_v4 may be replaced with, for example, ROHM_EVK_v5.

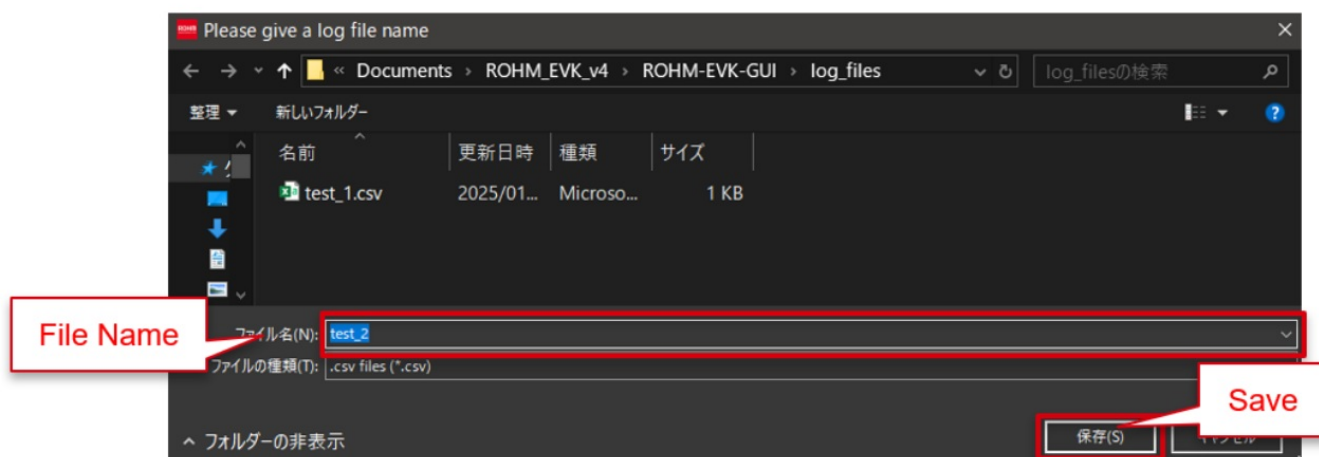


Figure 13 File name and logging start

Logging stop

When you press the red circle again, logging will stop. Keyboard shortcut is also CTRL + L.

Registers change

This section explains how to change the accelerometer registers

Registers

Select Registers **while the acceleration output is enabled (Streaming ON)**. Please note that if you change the registers while the acceleration output is disabled (Streaming OFF), the changes will not be reflected because the settings of the selected Stream will be overwritten when Streaming is turned ON.

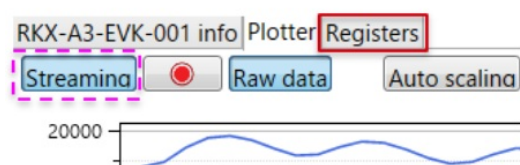


Figure 14 Registers tab

Device name

If the target device is not displayed in the Device name, select Device name from the drop-down menu.

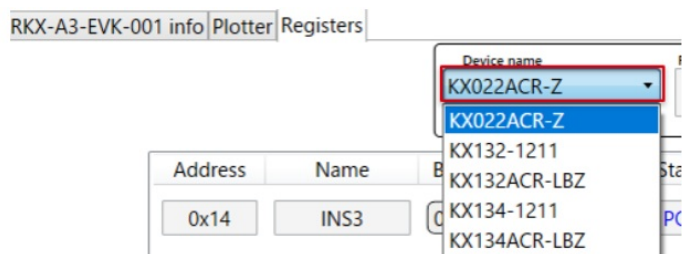


Figure 15 Device name

Standby mode

To reflect the current register settings on the screen, press Read in CNTL1 at 0x18.

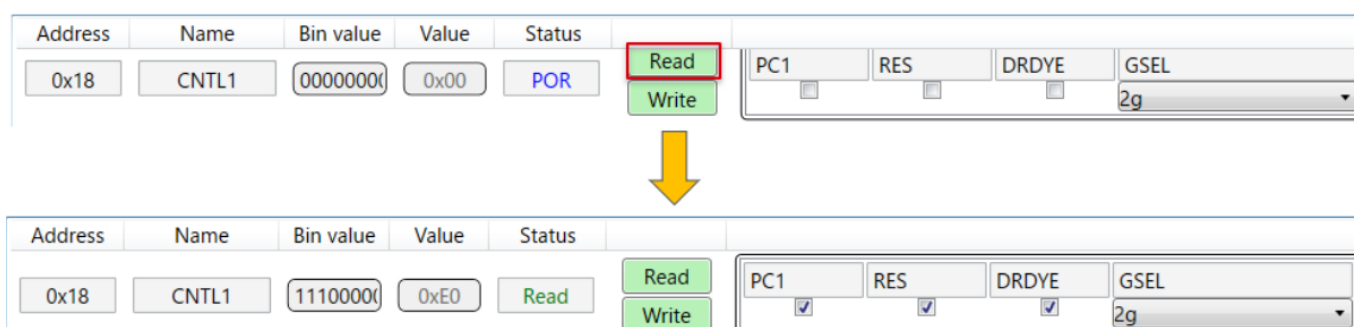


Figure 16 Read CNTL1

Uncheck PC1 in CNTL1 at 0x18 to enter standby mode, and press Write.



Figure 17 Standby mode

Registers change

Select, check, or enter the register value for the register you want to change, and press Write. Here is an example of changing the OSA (Accelerometer output data rate) from 100Hz to 12.5Hz.

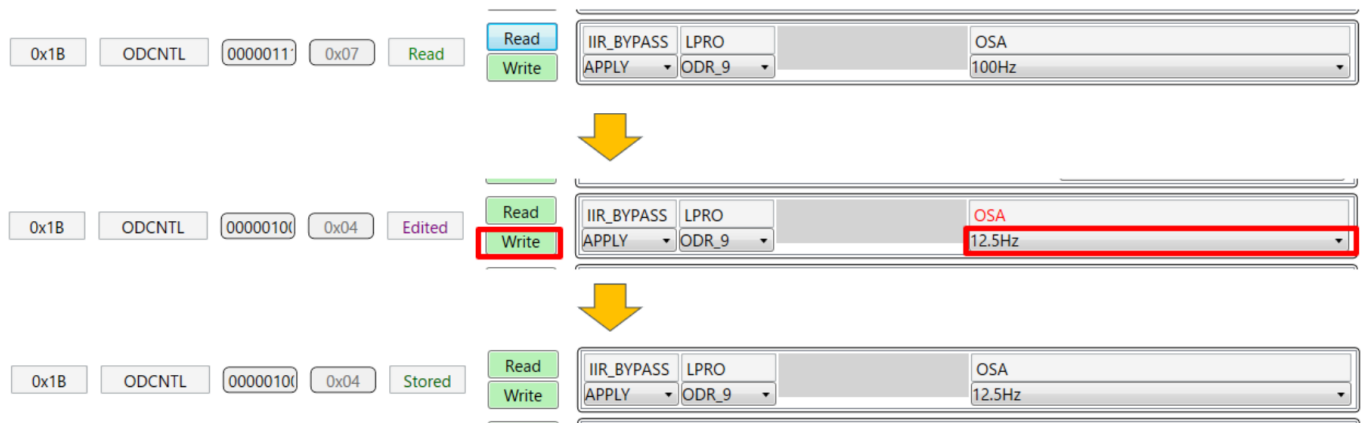


Figure 18 Registers change

When changing multiple registers, you can press Write all at the top of the screen at the end instead of pressing Write each time.

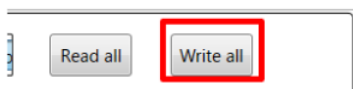


Figure 19 Write all

Operation mode

After completing all the register settings, check PC1 in CNTL1 at 0x18 to enter operation mode, and press Write.

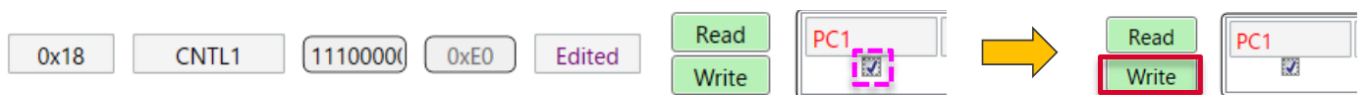


Figure 20 Operation mode

When you select the Plotter tab, the output after changing the registers is displayed. The original Stream name remains, but it is displayed as (MODIFIED), indicating that the register changes have been applied.

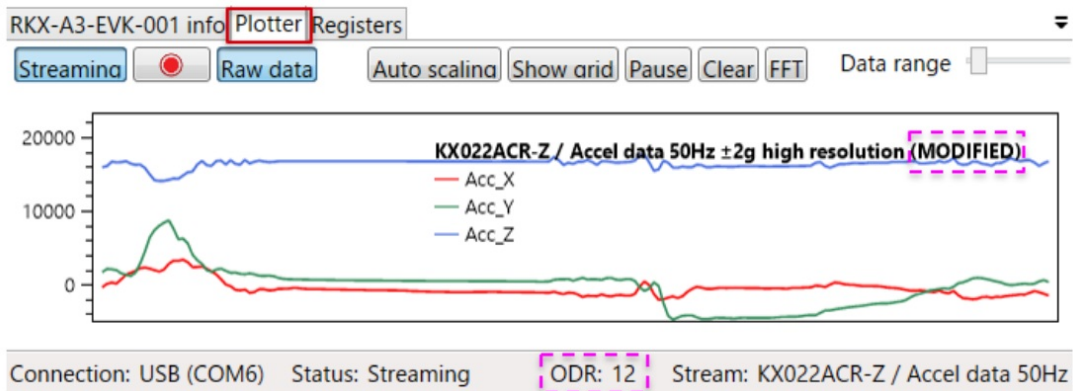


Figure 21 MODIFIED

Note: Toggling Raw data will change the acceleration unit. Please note that when using SI units, changing the g-range will result in the output level on the screen not being correctly reflected. The g-range has been correctly changed, so if you switch to counts units, the correct output level will be shown on the screen. When changing the g-range, it is recommended to use counts units.

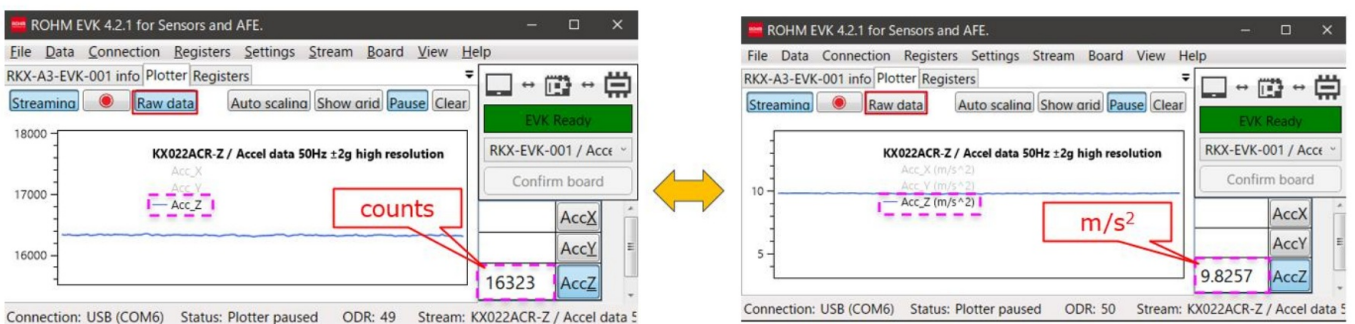


Figure 22 Change of acceleration unit

Note: If a too high ODR is set, a pop-up will appear (e.g., 6400Hz or higher in I2C). Pressing ESC will dismiss the pop-up, but the desired ODR has not been reached. Please take measures such as switching to SPI.

ODR does not match with the target value
Press Esc to acknowledge

Figure 23 ODR mismatch pop-up.

Wake-up and Back-to-sleep

This section explains Wake-up and Back-to-sleep. Wake-up and Back-to-sleep are

available on the following accelerometers (KX022ACR-Z, KX132ACR-LBZ, KX134ACR-LBZ, KX132-1211 and KX134-1211). KXTJ3-1057 only supports Wake-up and does not support Back-to-sleep. As an example, this section explains the case of the KX022ACR-Z.

Stream selection

Select Wake-up from Stream.

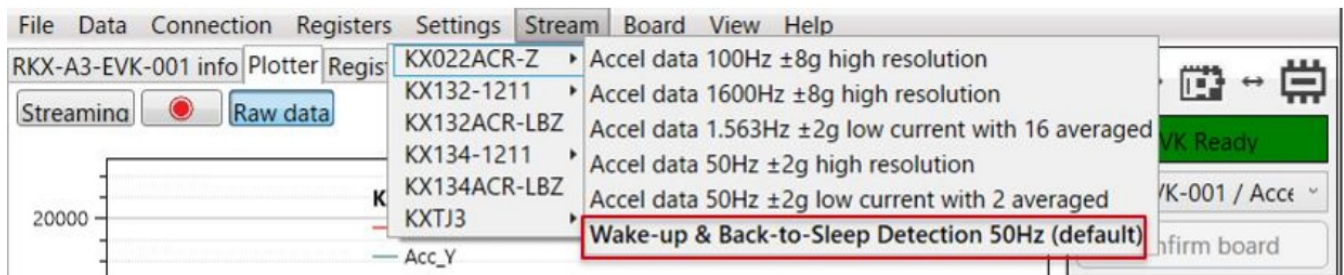


Figure 24 Wake-up stream

Wake-up pop-up

When you lightly shake the accelerometer EVB by hand, Wake-up event occurs, and pop-up is displayed.

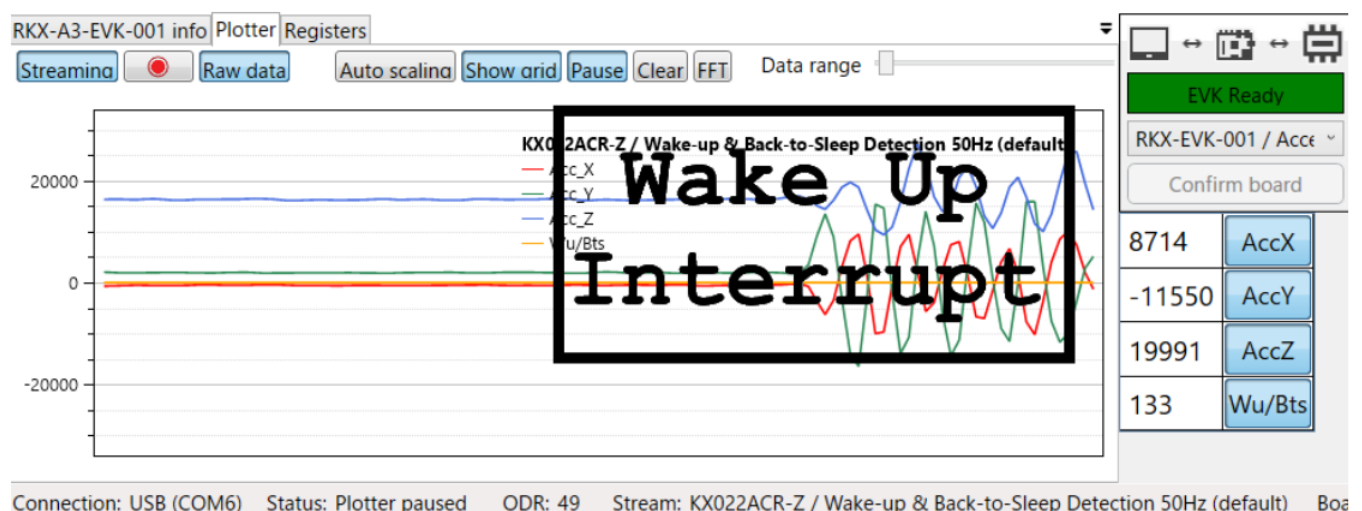


Figure 25 Wake-up pop-up

When the accelerometer EVB is then held still, Back-to-sleep event occurs, and the pop-up disappears. By changing the registers, you can customize the threshold and timer (e.g., WUFTH, WUFC) to your preferred values.

Yellow line

In the case of KX022ACR-Z, the yellow line represents the decimal value of STATUS_REG (15h). In Figure 26, the outputs of X-axis and Y-axis are masked to make the waveform easier to see. Positions A, B, C, and D indicate the locations of the yellow line.

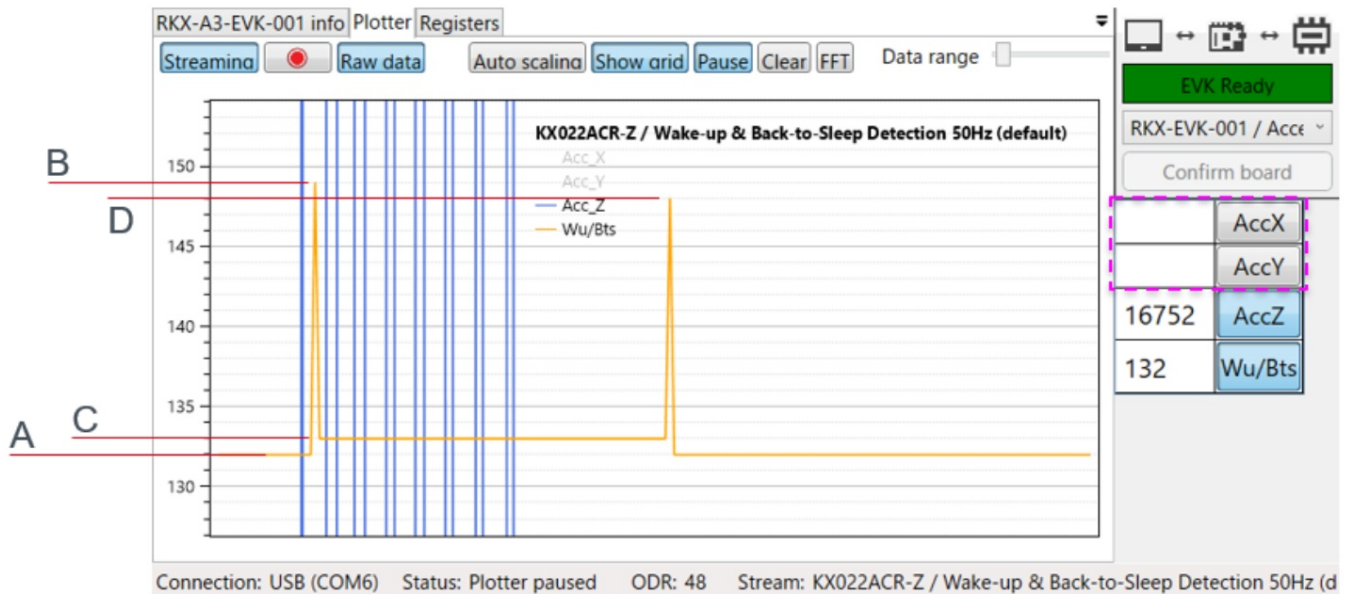


Figure 26 Yellow line

In Figure 27, STATUS_REG (15h) values at each position are represented bitwise.

Position on Figure 26	Register Name	Register Value			D7	D6	D5	D4	D3	D2	D1	D0	Status
		dec	hex	bin	PC1_STAT	RES_STAT	CRC_F	INT	POR_STAT	STAT_REG	Reserved	WAKE	
A	STATUS_REG	132	84	10000100	1	0	0	0	0	1	0	0	Waiting Wake-up
B	STATUS_REG	149	95	10010101	1	0	0	1	0	1	0	1	Wake-up occurs
C	STATUS_REG	133	85	10000101	1	0	0	0	0	1	0	1	Waiting Back-to-sleep
D	STATUS_REG	148	94	10010100	1	0	0	1	0	1	0	0	Back-to-sleep occurs

Figure 27 STATUS_REG

The INT bit becomes 1 when an interrupt occurs. The WAKE bit becomes 1 after a Wake-up event and becomes 0 after a Back-to-sleep event.

Revision history

Date	Revision	Changes
30.Jan.2025	001	New Release

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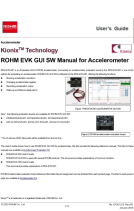
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Documents / Resources

	<p>ROHM RKX-EVK-001 Kionix EVK GUI SW for Accelerometer [pdf] User Guide</p> <p>RKX-EVK-001, RKX-EVK-001 Kionix EVK GUI SW for Accelerometer, Kionix EVK GUI SW for Accelerometer, EVK GUI SW for Accelerometer, GUI SW for Accelerometer</p>
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References

- [User Manual](#)

📁 ROHM

🔗 EVK GUI SW for Accelerometer, GUI SW for Accelerometer, Kionix EVK GUI SW for Accelerometer, RKX-EVK-001, RKX-EVK-001 Kionix EVK GUI SW for Accelerometer, ROHM

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