Solist-AI™ Starter Kit
Solist-AI™ Starter Kit Start Guide

Thank you very much for purchasing the Solist-AI™ Starter Kit (hereafter referred to as “this starter kit”).
This starter kit contains the boards and cables listed below.
Please check first to ensure that no items are missing.

Table 1 Contents of This Starter Kit

Item	Quantity
Solist-AI™ Starter Kit Start Guide (Japanese/ English) (this document)	1 each
RB-D63Q2557TB64 (Reference board equipped with Solist-AI™ MCU ML63Q2557)	1
KXTJ3-1057-EVK-001 (Acceleration sensor board)	1
MM-FT232HC (Multi-function USB conversion module)	1
Jumper cables (female-female) 15 cm (red/black/blue/green)	1 each color
USB cable USB2.0 Type-A male ⇔ Type-C male 0.5 m	1

If any item is missing or defective, please contact ROHM.
For questions regarding the Sanhayato MM-FT232HC included in this starter kit, please also contact ROHM.

- **When developing software using this starter kit, please prepare a debug adapter separately on your own.**
- **This starter kit comes with a sample program pre-written to the Solist-AI™ MCU (ML63Q2557) on the RB-D63Q2557TB64 board (hereafter referred to as the reference board) so that you can evaluate the functions of Solist-AI™.**
- **Since this manual was created using tools available at the time of development, the versions and screen displays may differ.**

■Stand-Alone Operation

Here, you can check the operation of the anomaly detection sample program that uses an acceleration sensor, which has been written to the Solist-AI™ MCU (hereafter referred to as the “anomaly detection sample program”).
The anomaly detection sample program calculates the anomaly score using sensor input values and displays the results in Solist-AI™ Scope.

1. Downloading and Installing Solist-AI™ Scope and Sample Program

1-1. Access the URL below and download the following from the displayed page:
“Solist-AI™ Scope (Real-Time Waveform Display Tool) ”, and
“Anomaly Detection Using Accelerometers and AI Library”.
<https://www.rohm.com/products/micon/solist-ai/ml63q2500-group/ml63q2557-nnntb_taping_-product#developmentSupportsubmenu>

1-2. Extract the downloaded file Solist-AI_Scope_*x.x.x*.zip (where *x.x.x* indicates the version) and install Solist-AI™ Scope.
For installation instructions, refer to FEXT63Q2500_SOLIST-AI_SCOPE_UG-*xx*.pdf (where *xx* indicates the revision number) located in the Document folder.

- **To run Solist-AI™ Scope, the Microsoft Visual C++ Redistributable Packages for Visual Studio 2013 (32-bit version: vcredist_x86.exe) must be installed. Please install vcredist_x86.exe even when using a 64-bit version of Windows (Download Here).**

Extract Solist-AI_FW_AnomalyDetectionSample_*yyyymmdd*.zip (where *yyyymmdd* indicates the version) to any folder of your choice.

- **Use only half-width alphanumeric characters in paths and folder names (no spaces).**

2. Connections

2-1. Connect the reference board and the MM-FT232HC as shown below.

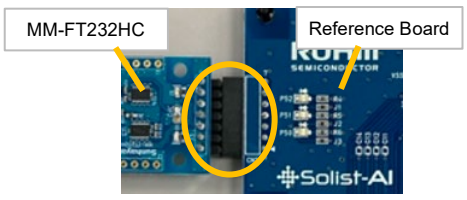
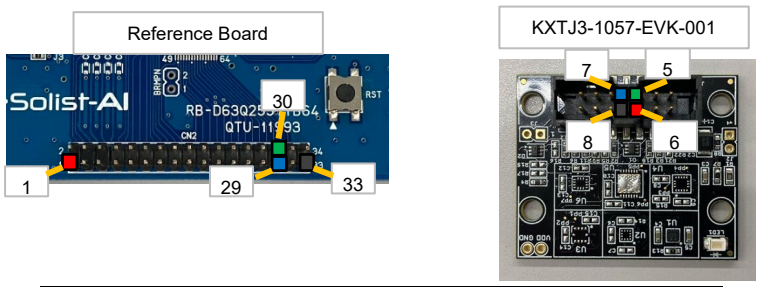


Figure 1 Connecting MM-FT232HC and the Reference Board

2-2. Connect the reference board and the KXTJ3-1057-EVK-001 using jumper cables.



Reference Board CN2 No.	Signal	Jumper Cable Color	KXTJ3-1057-EVK-001 J1 No.
1	+3.3V	**Red**	6
29	SDA	**Blue**	7
30	SCL	**Green**	5
33	GND	**Black**	8

Figure 2 Connecting the Reference Board and KXTJ3-1057-EVK-001

2-3. Connect the MM-FT232HC to the PC using a USB cable.
The pre-written program in the Solist-AI™ MCU will start running, the LED (P50) on the reference board will blink, and the LED on the KXTJ3-1057-EVK-001 will turn on.

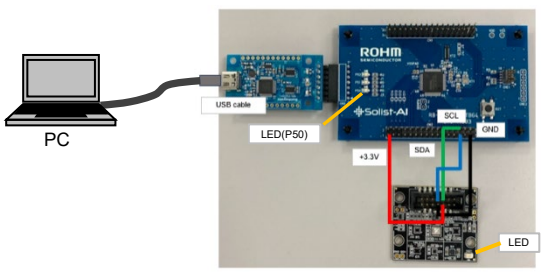
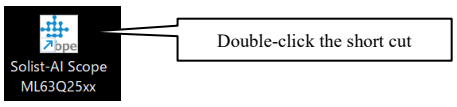


Figure 3 Overall Connection Diagram

3. Checking Operation with Solist-AI™ Scope

3-1. Launch Solist-AI™ Scope.
Double-click the shortcut created during installation to launch Solist-AI™ Scope.
If you did not create a shortcut, open it from the Windows Start menu by selecting [All Apps] > [ROHM] > [Solist-AI Scope ML63Q25xx].



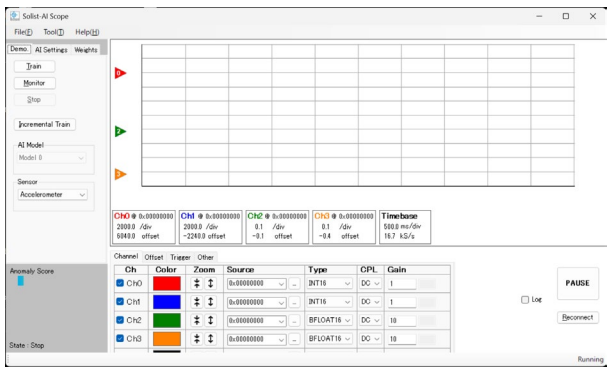


Figure 4 Startup screen of Solist-AI™ Scope

3-2. From File > Mapfile in Solist-AI™ Scope, specify the map file of the anomaly-detection sample program to be referenced.

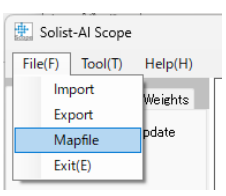


Figure 5 Specifying the MAP File

Please specify the map file located in “samples\Solist-AI\AnomalyDetectionDemo\Debug\AnomalyDetectionDemo.map” under the folder where Solist-AI_FW_AnomalyDetectionSample_ *yyyymmdd*.zip was extracted.

3-3. Specify the signals (variables) to be displayed in Solist-AI™ Scope.
Check Ch0 to Ch3 under Ch, select the desired signal (variable) under Source, and specify the data type under Type.
i2AccOutX_ / i2AccOutY_ represent the X/Y-axis values of the accelerometer,
learning_loss indicates the error during learning, and
output_loss represents the anomaly score.

Use the Zoom button ↕ to adjust the display range.
For acceleration sensor values, set the Zoom to 2000–5000.
For error and anomaly score, adjusting the Zoom to 0.01 or below provides better visibility.
The adjusted values will be displayed in each channel’s field.

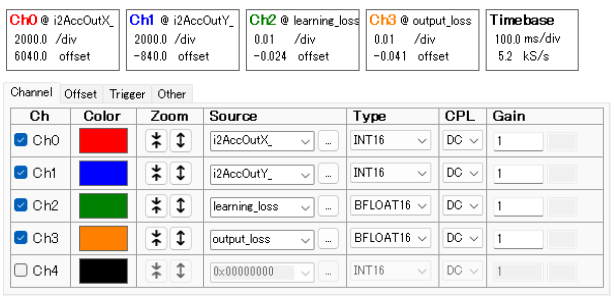


Figure 6 Specifying Signals to Display and Adjusting Values

3-4. When Solist-AI™ Scope receives data, the changes in the values are displayed in the graph area.
You can observe how the values change by tilting or moving the KXTJ3-1057-EVK-001.

In Figure 7, the system is trained to treat the state without vibration as normal.
Set the sensor in a vibration-free condition and click the [Train] button in Solist-AI™ Scope.
The value of “learning_loss” will increase once, indicating that learning is in progress.
When the value returns to its original level, the learning process is complete.

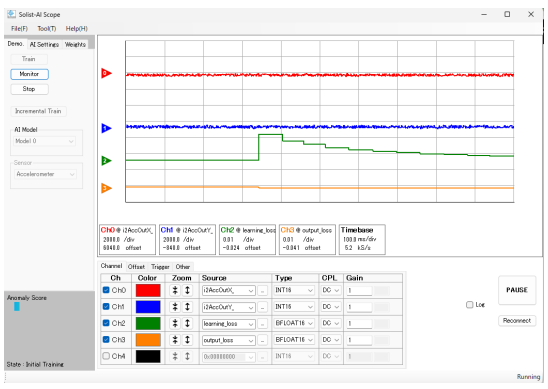


Figure 7 Example of Value Changes (During Training)

In Figure 8, after clicking the [Monitor] button in Solist-AI™ Scope to switch to prediction mode, the sensor is shaken or otherwise moved to create a condition different from the learned normal state and confirm that anomalies are detected.
An anomaly is indicated where the value of “output_loss” becomes large.

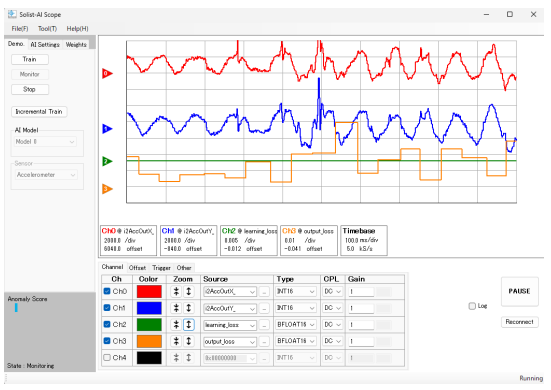


Figure 8 Example of Value Changes (During Monitoring)

■Operation Using Development Tools

Here, we explain an example of building the anomaly detection sample program using the development support system, writing it to the Solist-AI™ MCU ML63Q2557, and running it.

- **When developing software using this starter kit, please prepare a debug adapter separately on your own.**

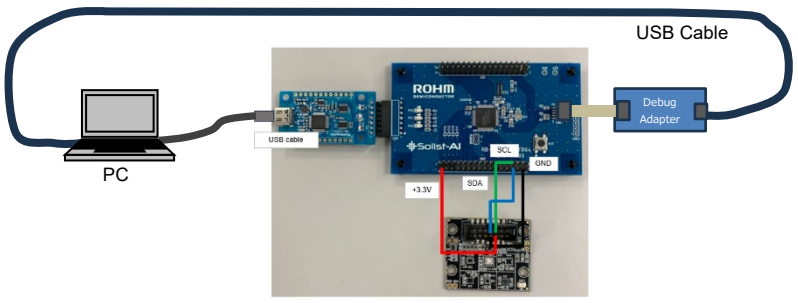


Figure 9 System configuration with Development Tools

4. Downloading and Installing Development Environment

4-1. Access the following URL, download “ML63Q2500 Software Pack (device information files)” and “LAPIS Development Tools LEXIDE-Ω” from the displayed page, and extract them to any folder.
<https://www.rohm.com/products/micon/solist-ai/ml63q2500-group/ml63q2557-nnntb_taping_-product>

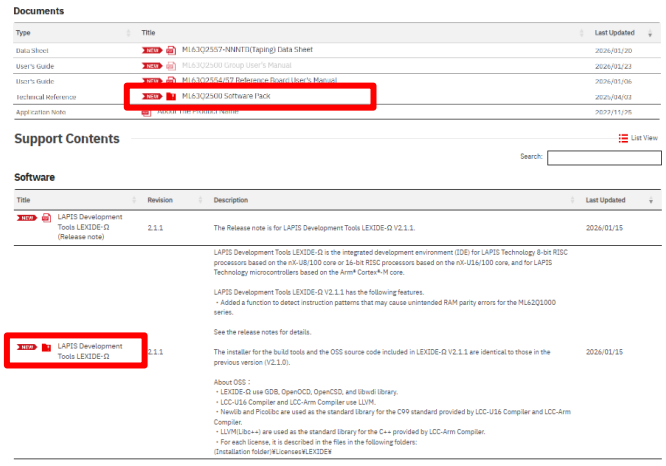


Figure 10 Locations Related to the Development Support System Software

Access the following URL and download the file “ARM.CMSIS.*x.x.x*.pack” (where *x.x.x* represents the version) from the displayed page.
<https://www.keil.arm.com/packs/cmsis-arm/versions/>

4-2. Install LAPIS Development Tools LEXIDE-Ω.
Run LexideInstaller_*yyyymmdd*.exe.
Follow the instructions in the installer to complete the installation.

4-3. Install ML63Q2500 Software Pack and ARM.CMSIS.*x.x.x*.pack.
First, launch LEXIDE-Ω.
Select Windows Start > All Apps > LAPIS LEXIDE Tools > LEXIDE-Ω.
When the [Select a directory as workspace] dialog appears, set the workspace to “C:\lexide\workspace_omega_v2_arm” and click the [Launch] button.

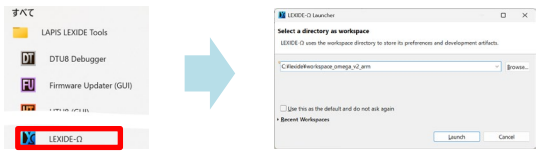


Figure 11 Starting LEXIDE-Ω

After LEXIDE-Ω starts, display the CMSIS-Pack Manager.
You can open the CMSIS-Pack Manager by clicking the icon in the upper-right corner of LEXIDE-Ω to open the [Open Perspective] dialog, selecting [CMSIS-Pack Manager], and then clicking [Open].

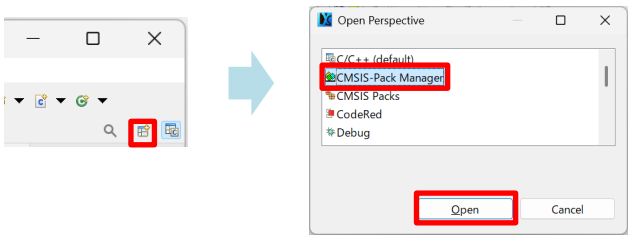


Figure 12 How to open CMSIS-Pack Manager

Click [Import existing packs…] in the displayed [CMSIS-Pack Manager] perspective.
In the [Import Packs] dialog that appears, specify ROHM.ML63Q25x7_DFP.*x.x.x*.pack (where *x.x.x* represents the version) from the folder you downloaded and extracted, and then click the [Open] button.

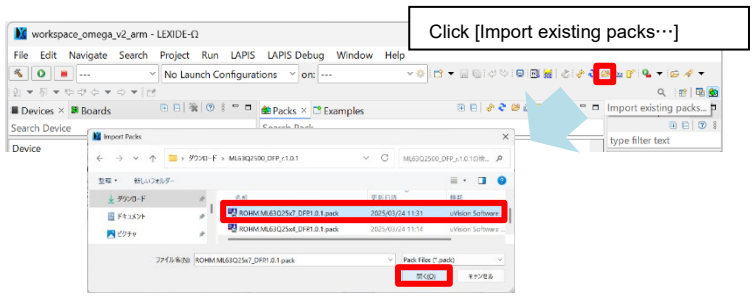


Figure 13 Import ML63Q2500 Software Pack

Similarly, in the [Import Packs] dialog, specify ARM.CMSIS.*x.x.x*.pack and install it.

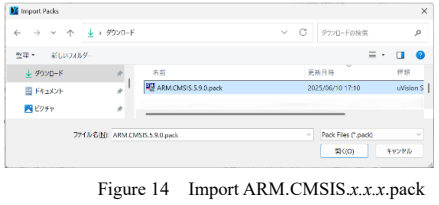


Figure 14 Import ARM.CMSIS.*x.x.x*.pack

5. Importing the Anomaly Detection Sample Program

Use the “Import” function in LEXIDE-Ω to load the anomaly-detection sample program project.

5-1. From the File menu in LEXIDE-Ω, select [Import...] to open the Import dialog box.

5-2. In the Import dialog box, select [General] > [Existing Projects into Workspace], then click [Next].

5-3. Specify the folder that contains the project files for the sample program under [Select root directory](samples\Solist-AI\AnomalyDetectionDemo) and click the [Finish] button.

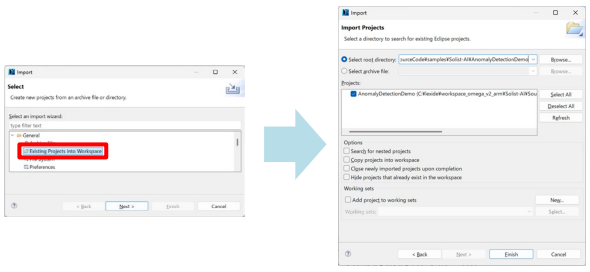


Figure 15 Importing the Sample Program Project

6. Building the Anomaly Detection Sample Program

Configure the build options and then perform the build.

6-1. From the [Project] menu in LEXIDE-Ω, select [Properties] to open the [Properties] dialog.

6-2. If the directory indicating the CMSIS version under [C/C++ Build] > [Settings] > [Tool Settings] tab > [Compiler] > [Includes] differs from the version you actually installed, change it to match the installed version.

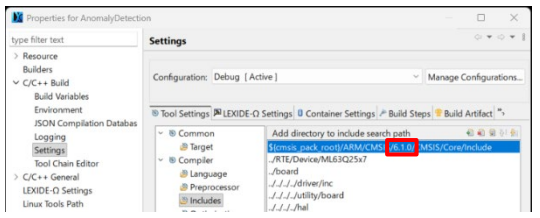


Figure 16 Include Path Settings

6-3. In the [Project Explorer], select the project (AnomalyDetectionDemo), and click the button on the toolbar to build the project.
When the build is complete, “Build Finished.” will be displayed in the [Console] view.
Please make sure that no errors have occurred.

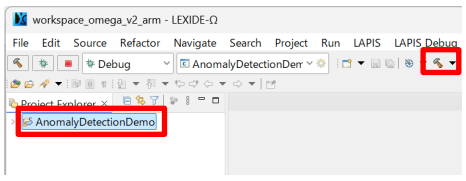


Figure 17 Build

7. Debugging

Configure the debug settings and start debugging.
This manual describes the procedure when using a CMSIS-DAP debug adapter.

- **The method for configuring the debug settings varies depending on the debug adapter you are using.**
- **For details on how to configure the settings and perform debugging, refer to Chapter 6 “Arm Debugging Features” in the LEXIDE-Ω for ARM Core Microcontrollers User’s Manual.**

7-1. In the [Project Explorer], select the project, then right-click and choose [Debug As] > [Debug Configurations…] from the popup menu to open the [Debug Configurations] dialog.

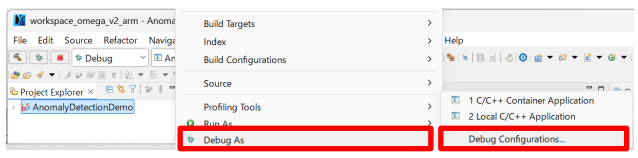


Figure 18 How to Open the [Debug Configurations] Dialog

7-2. In the [Debug Configurations] dialog, select [LAPIS GDB Debugging (Arm)], click the [New launch configuration] button to create a debug configuration, and then select CMSIS-DAP under the [Debugger] tab in [Target ICE].

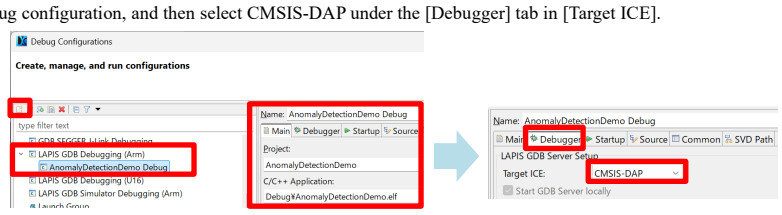


Figure 19 Creating a New Debug Configuration

Click the [Close] button to close the [Debug Configurations] dialog.
If a confirmation dialog appears asking whether to save the settings, click [Save] to save the configuration.

7-3. In [Launch Configuration], select the debug configuration for the target you want to debug, and click the [Launch in ‘Debug’ mode] button to start debugging. If a dialog appears asking whether to switch perspectives, click the [Switch] button.

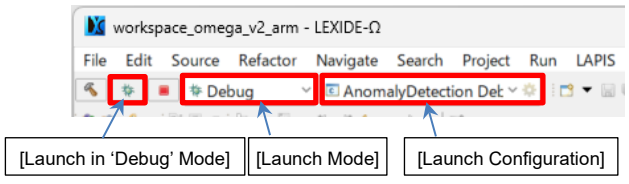


Figure 20 Starting Debugging

7-4. The view switches to the debug perspective. Use the [Resume] button on the toolbar to run the program, the [Suspend] button to pause it, and the [Terminate] or [Stop] button to end the debug session.

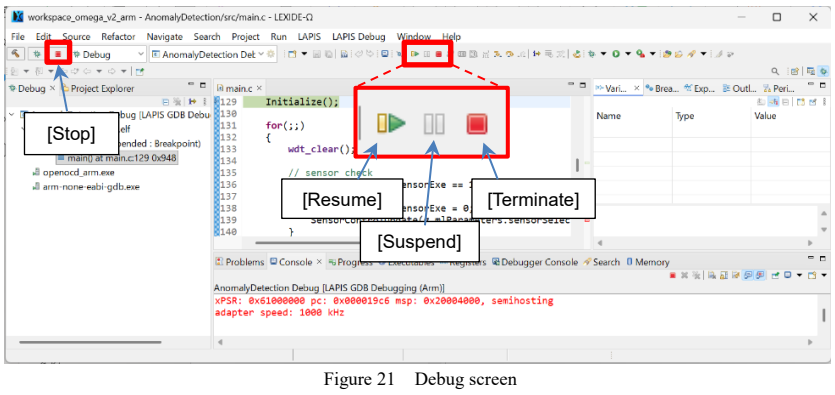


Figure 21 Debug screen

Oct. 2026
FEXTSK-AD06-D63Q2557TB64_StartGuide-03
PDDC600888
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