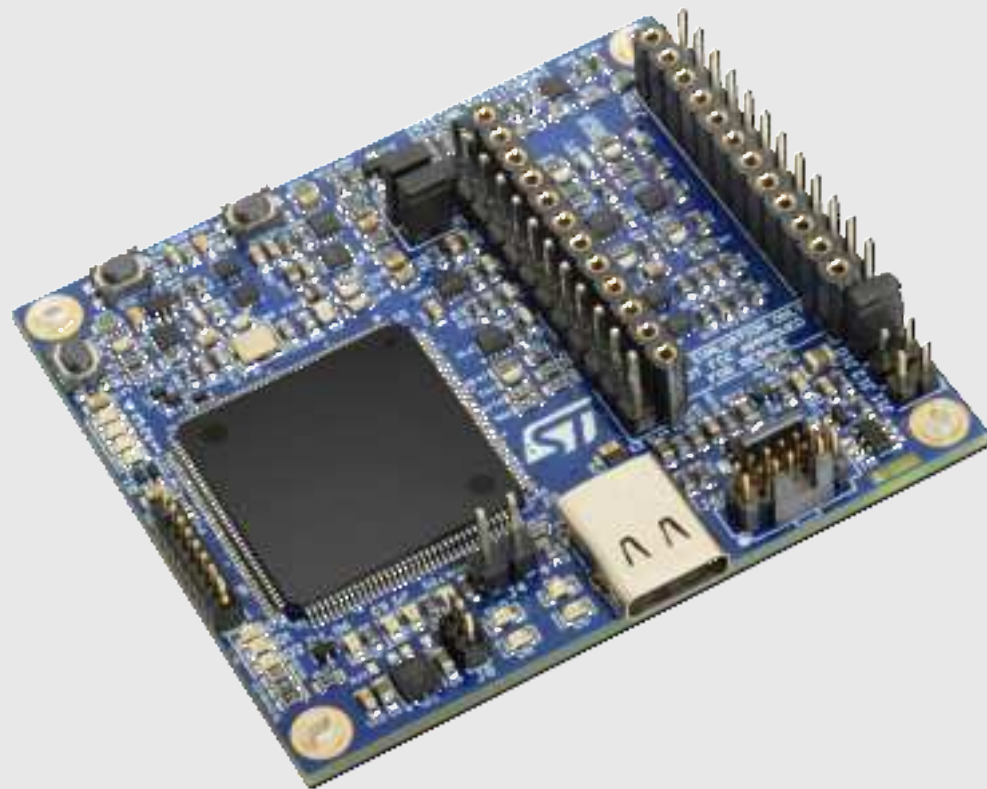




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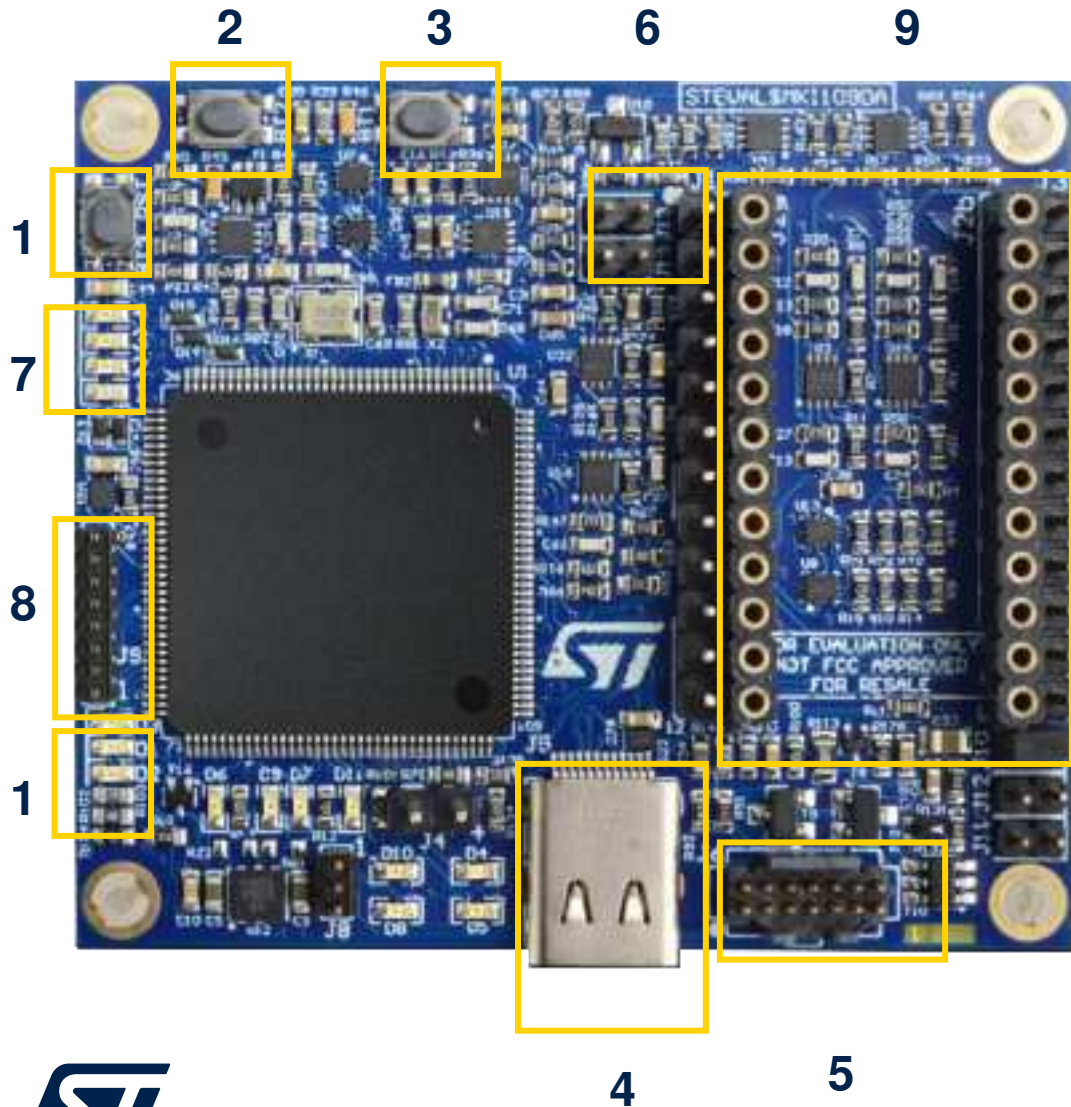
Quick start guide

STEVAL-MKI109D

- 1 STEVAL-MKI109D hardware overview
- 2 MEMS Studio software overview
- 3 Demo board setup with external adapter or kit
- 4 Documents & related resources

STEVAL-MKI109D hardware overview

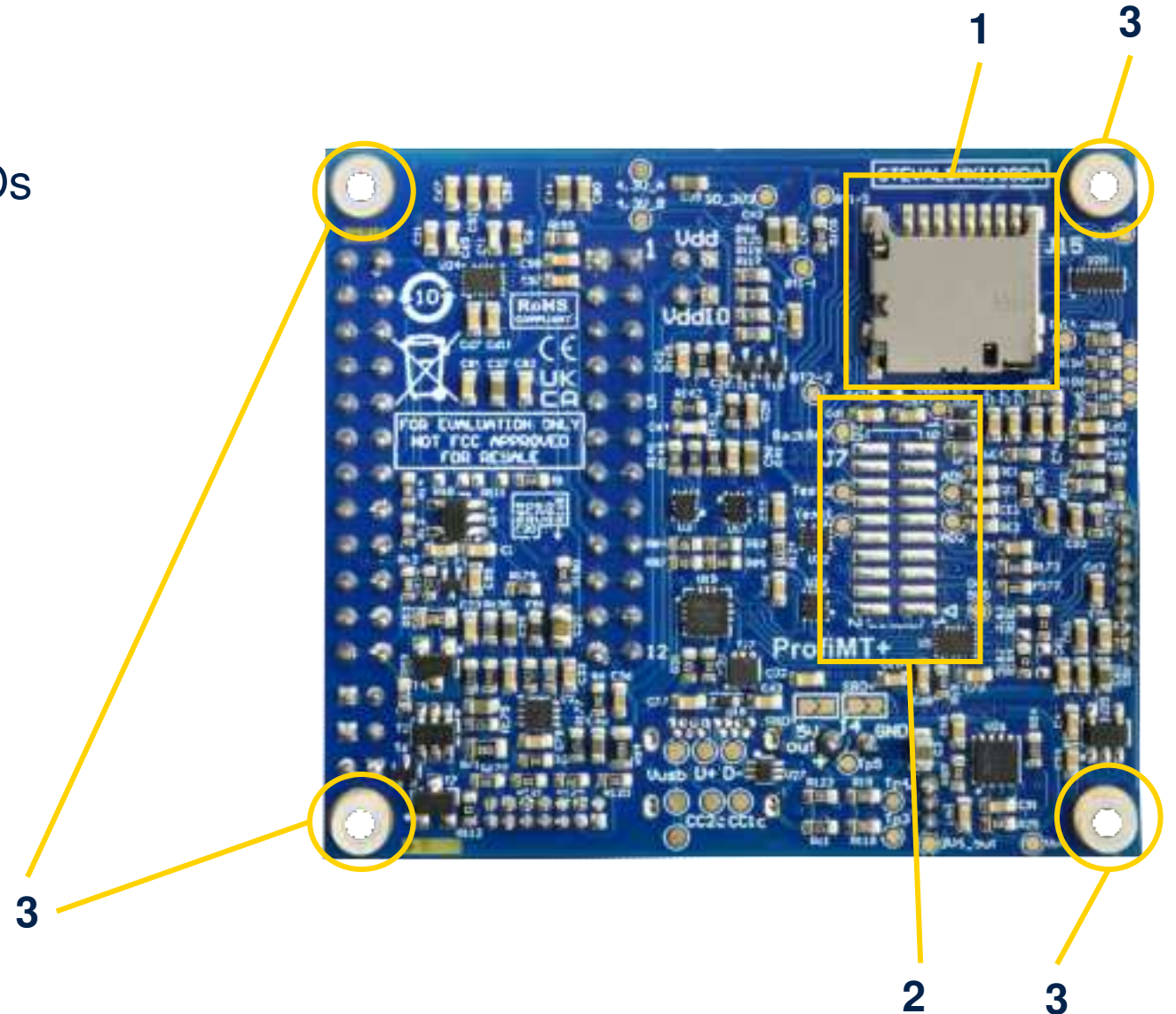
Top layer: main features



1. Button BT3 used to RESET STM32
2. Button BT2 used as GPIO of STM32. It's used to enter in DFU mode
3. Button BT1 connected to STM32 GPIOs
4. USB Type-C connector
5. The j6 connector can be used to reprogram the STM32 and debug the code
6. Jumpers J13 (VDD) and J14 (VDDIO)
7. User LEDs linked to INT1..INT4 of adapter
8. The J9 can be used for general purpose SPI / I2C bus
9. Female connector to plug MEMS adapter board / Kit

Bottom layer: main features

1. microSD card slot (SD card not included)
2. J7 connector for auxiliary SPI / I²C / GPIOs (not soldered)
3. 4 spacers to ensure that the microSD connector don't touch the bottom surface



MEMS Studio software overview

What's MEMS Studio?

One desktop software solution
for a 360-degree MEMS sensor entire portfolio experience



Experience a versatile **development environment**, enabling the **evaluation and programming** of all MEMS sensors



Develop embedded **AI features**, evaluate embedded **libraries**, **analyze data**, and design **no-code algorithms**



Discover the **all-in-one solution** that includes Unico-GUI, Unicleo-GUI and AlgoBuilder

MEMS Studio main functionalities

Board setup



- Select the type of communication and power supply and select the adapter board

Advanced features



- Advanced features configuration, testing, and debug

Demo board setup with external adapter or kit

DIL24 adapter boards

Adapter



- Standard DIL24 adapter
- Can include different consumer, industrial, or automotive sensors

Remote kit



- Allows placing the sensor in a different position compared to being plugged on the main board
- Suit many industrial applications

vAFE kit



- Kits containing electrodes that can be stacked on the standard DIL24 adapter
- Used for detecting biopotential signals

MEMS Studio: connect and update STEVAL-MKI109D firmware (when required)



1

Plug the STEVAL-MKI109D to the PC with a USB-C cable

2

Launch MEMS Studio

The serial port is automatically selected

3

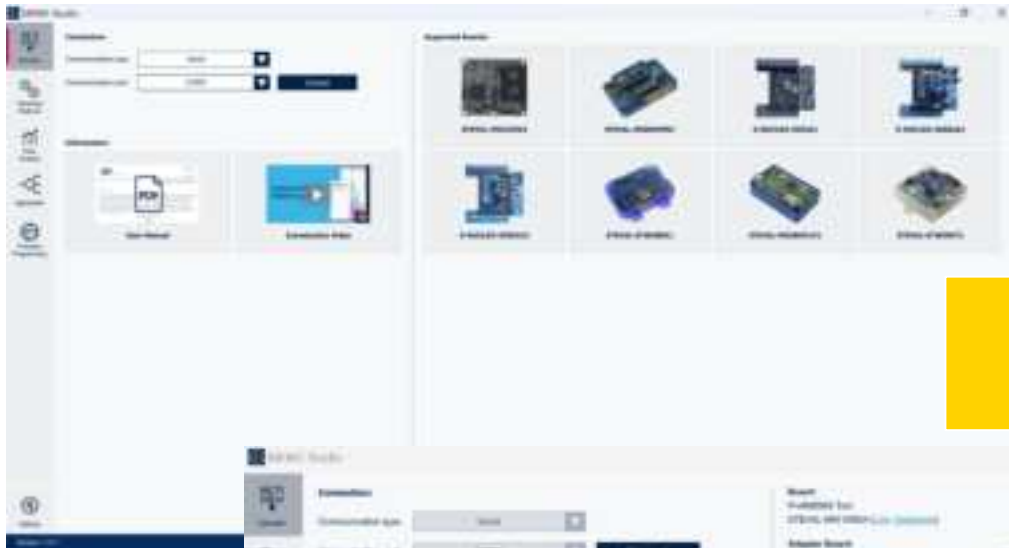
Press **Connect**

4

Firmware upgrade

In case older firmware is recognized by MEMS Studio, a message will appear. It's possible to download the firmware using STM32Cube Programmer or ignore the warning message.

MEMS Studio: select the board and connect



Select the board from the list
Or write the board name in the "*Direct device search*"



MEMS Studio setup

STEVAL-MKI239A configuration



- When the board has been selected, default VDD and VDDIO supply voltages are applied to DIL24 to verify the communication and WHO_AM_I
- When the device responds correctly, start the GUI for a dedicated board with default register values
- To see basic output, press the **Easy Configuration** button

MEMS Studio evaluation

STEVAL-MKI239A evaluation



- In MEMS Studio you can navigate in the left menu (Connect, Sensor evaluation, Advanced feature, Data Analysis,.....) and in the submenu items.
- In **Sensor Evaluation**, the following sub menus are available:
 - Quick setup
 - Register Map
 - Save to file
 - Data table
 -
 - Load / save configuration

MEMS Studio evaluation

STEVAL-MKI239A basic test



- Go in **Sensor Evaluation** menu and select the **Line Charts** submenu
- To view the accelerometer and gyroscope trend, press the **Start/Stop** button

Documents & related resources

Resources for STEVAL-MKI109D

Professional MEMS tool: evaluation board for all ST MEMS sensors



Get the **board** now!

eStore



Discover the data brief



Read our user manual



Show schematic and bill of material



Find answers in ST's MEMS & Sensors community

Our technology starts with You



Find out more at www.st.com

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