ModusToolbox™ Motor Suite FAQ
Frequently Asked Questions

About this document

Scope and purpose

ModusToolbox™ Motor Suite GUI is a tool provided as part of Motor Suite ecosystem, that helps motor drive engineers to evaluate, run and optimize quickly motor control solutions. This document provides frequently asked questions about ModusToolbox™ Motor Suite. This document helps engineers to resolve questions on usage, optimization and integration with ModusToolbox™ among others

Intended audience

The intended audiences for this document are design engineers, developers of motor control systems and in general any user of ModusToolbox™ Motor Suite GUI.

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1 Frequently Asked Questions

1. **QUESTION:** What are key parameters to consider for 1 shunt operation fine tuning?

    a. **ANSWER:** three parameters directly influence the single current measurement. These parameters are defined in *configuration/motor-ctrl-lib-config/ParamConfig.h*:

        i. ADC_CS_SS_MIN_SEGMENT_TIME /*[us], Current measurement single shunt minimum measurable window

        ii. ADC_CS_SETTLE_RATIO - settling ratio used for single-shunt current sampling

        iii. MOTOR_CTRL_SS_HMOD_KI

    Minimum segment time [ADC_CS_SS_MIN_SEGMENT_TIME] has one significant impact, default value is 3us. Reduce this value to 1 – 1.25us and check it. Other two parameter default values should work well. ADC_CS_SETTLE_RATIO can be adjusted to avoid current measurement in the ringing area or based on board propagation time. As a starting point, try with minimum segment time.

2. **QUESTION:** Can I run a debugger session at the same time as I run Motor Suite GUI, any configurations/considerations?

    a. **ANSWER**: Yes, multiple sessions can be run at the same time. No specific configuration is required. But one limitation is maximum number of connections. Up-to 4 connections can be opened to the same target. When using Motor Suite GUI with Oscilloscope and GUI Builder (in "run" mode), these applications open their own connections. So when using GUI with theses tools, 3 parallel connections are opened. This means only 1 more connection can be opened, using a 3rd party application.

3. **QUESTION:** Can I use Motor Suite GUI with any debugger probe?

    a. ANSWER: No. At this moment, only Segger Jlink is supported. Most of our evaluation boards include a version of Segger JLink running on a 'On-Board-Debugger' integrated in the PCB itself, so a USB connection is all needed.

    If Motor Suite is to be used with, for example, a custom PCB, please use Segger JLink, for example using Segger JLink debug probes (https://www.segger.com/products/debug-probes/j-link/)

4. **QUESTION**: Where can I find the source code for the project that runs in Motor Suite GUI?

    a. **ANSWER**: Any evaluation board released in Motor Suite GUI has associated with it a code example in ModusToolbox. This code example can be accessed in GitHub directly (www.github.com/infineon) or directly from ModusToolbox via Project Creator tool.

    Each tile in Motor Suite GUI shows the code example used for that set up on the description section on the right of the window.

5. **QUESTION**: Can I make changes to the Motor Lib as it is in ‘mtb-shared’ folder?

    a. **ANSWER**: Yes, consider that ‘mtb-shared’ is a shared folder to all workspace projects, so if you make changes to the library, all projects is using Motor Lib will be impacted. It is a common practice however, to use a single project per workspace, which results in no risk of affecting other projects when modifying Motor Lib in mtb-shared folder

Note: updates to the library, for example, via 'Library Manager' tool or via 'Quick Panel' --> 'Generate Launches for' will overwrite changes done manually to the library. Avoid those updates if library is manually modified

6. **QUESTION**: Can I overwrite/replace library functions with my own implementation?

    a. **ANSWER**: yes. Library functions in general in ModusToolbox™ can be replaced with user defined ones. Library function/s can be excluded from the build using make file and add the user defined function in the application code.

    Here an example to replace the Speed control function with user defined function:

    i. Modify the '*makefile*' in ModusToolbox™ project to exclude Speed control file from build

    ii. `CY_IGNORE+=$(wildcard ../mtb_shared/motor-ctrl-lib/release-v3.0.0/OperationalCode/SpeedCtrl.c)`

    iii. Define user defined functions

        a. Copy "SpeedCtrl.c" file from library and place into the Application code

        b. Modify the copied "SpeedCtrl.c" file based on user needs

        c. Make sure Speed Control output variable is updated correctly.

Note: Complete functions can be redefined in a new file without copy "SpeedCtrl.c" file. It should not modify the function name, but definition (Content) of the function can be modified. It should not delete any functions, define empty function with same function name

Functions executed in each state can be modified in "StateMachine.c" file. Follow the same step given above to modify the "StateMachine.c" file

7. **QUESTION**: How can I know which variables in source code (code example) are configured by Motor Suite GUI parameters?

    a. **ANSWER**: Version 2.6 onwards of Motor Suite GUI includes a 'mouse-over' function that displays the actual source code variable name assigned to that parameter. Also you can see the C code variable in the orange description box on bottom right of 'Configurator' and 'Testbench' views. This information is updated when user clicks the parameter name on the configuration section.

Note: For details on parameter meaning in library, you can always refer to 'Firmware_Reference_Manual' provided as part of the Motor_Lib ('docs' folder).

8. **QUESTION**: Where can I find documentation?

    a. **ANSWER**: Motor Suite GUI user guide is released in ModusToolbox™ for Motor Control website (LINK) in documents section.

    b. For Motor Lib, you can find a folder called 'docs' which contains a pdf file ('*Firmware_Reference_Manual*') with details of the library and algorithms as well as user guide.

9. **QUESTION**: can I use Motor Suite GUI if I add code in the code example and recompile?

    a. **ANSWER**: yes, as long as parameter tables in firmware, which are used by GUI, are not modified (name of params remains) during that process, GUI will work properly. Motor Suite GUI looks for

parameter name and finds address in .elf file (.elf file parsing). So changes in code are ok. If you need to monitor a variable that is not part of provided GUI, you can use GUI Builder tool in Motor Suite GUI to create custom dashboard with new variables using the different graphic widgets provided.

10. **QUESTION**: When I create a protype with my own PCB, I start based on a solution I tested from Infineon that is shown in Motor Suite GUI. How can I add new parameters in the GUI that are not default in Motor Suite GUI Infineon evaluation boards for my prototype code example and PCB?

    a. **ANSWER**: the main GUI window for 'Configurator' and 'Test Bench' views are fixed, however, you can use in 'Test Bench' view the 'GUI builder' tool to add more variables. It is important to mention that 'GUI builder' can be opened in two ways:

        i. from 'Getting Started' tools section

        ii. within GUI 'Test Bench' view in tools menu or on top right icon.

    For this use case (add customer live monitoring parameters on top of existing ones), you need to use method ii.

    Motor Suite GUI will not allow two windows (sessions) at the same time of 'GUI builder' if opened from 'Getting started' as in method i.

References

[1] Infineon Technologies: ModusToolbox™ Motor Suite GUI user guide, Aug 15th 2025, https://www.infineon.com/assets/row/public/documents/30/44/infineon-modustoolbox-motor-suite-gui-user-guide-usermanual-en.pdf

[2] Infineon Technologies: Motor Control Ecosystem Introduction-Motor Suite, April 1st 2025, https://www.infineon.com/assets/row/public/documents/30/45/infineon-motor-control-ecosystem-introduction-motor-suite-productbrief-en.pdf

Revision history

Document revision	Date	Description of changes
**	2025-10-03	First release

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Edition 2025-10-03
Published by

Infineon Technologies AG
81726 Munich, Germany

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Document reference
002-42184 Rev. **

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Document Reference Number

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