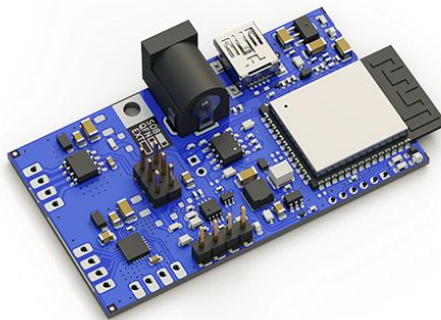




MCM81339

Upgrade Manual



Doc # 3901281339 - Revision 001 - 16/09/2026

Contents

- 1. Revision history 3
- 2. Upgrade Overview 4
- 3. Preparation 4
 - 3.1. Change Jumper Position4
 - 3.2. Connect the hardware4
- 4. Perform the MCM board system upgrade 8
- 5. Update the configuration of the MLX81339 SO8 chip..... 10
 - 5.1. Before using the web tool10
 - 5.2. Registering your ‘Start-to-Run’ account10
 - 5.3. Create a New Motor Entry12
- 6. Disclaimer..... 22

1. Revision history

Version	Date	Description
001	16/9/2026	Initial version

Table 1 Revision history

2. Upgrade Overview

In order for you to upgrade your MCM81339 to the new released status the following steps need to be executed.

1. Perform the MCM board system upgrade
2. Update the configuration of the MLX81339 SO8 chip

You will find more details about these steps in the next sections

3. Preparation

3.1. Change Jumper Position

Move the jumper to the **left** position (pointing to the SO8 chip) as depicted below. This will activate the MLX81339 SO8 chip on the MCM board that needs updating.

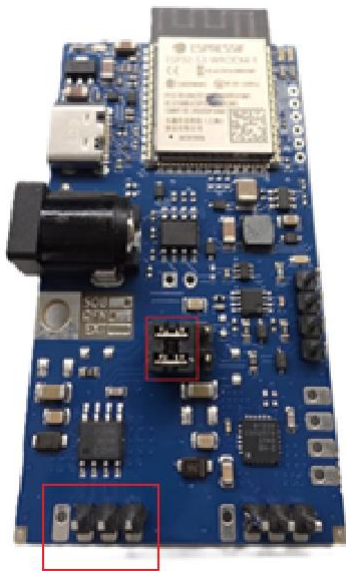


Figure 1: MCM81339 SO8 jumper and pin header position

3.2. Connect the hardware

Now connect your full setup:

- Your motor: note that your 3 phase BLDC motor needs to be connected to the U, V and W pins of the pin header located close to the SO8 chip (See Figure 1). The MCM81339 T-phase pin is not in use.
- USB-C cable: connect between the MCM board and your PC.
- Your power supply: a 12V or 24V with a 2.5 mm x 5.5 mm barrel connector. Power it on.

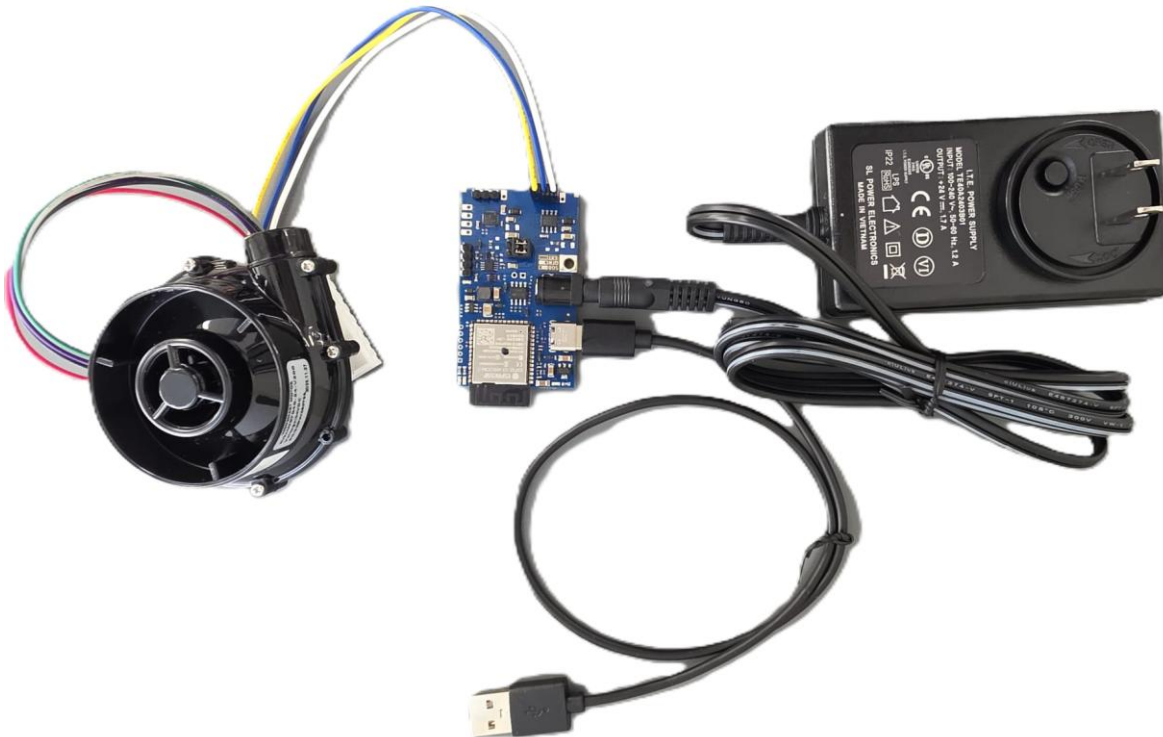
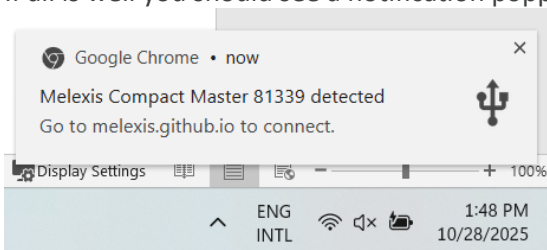
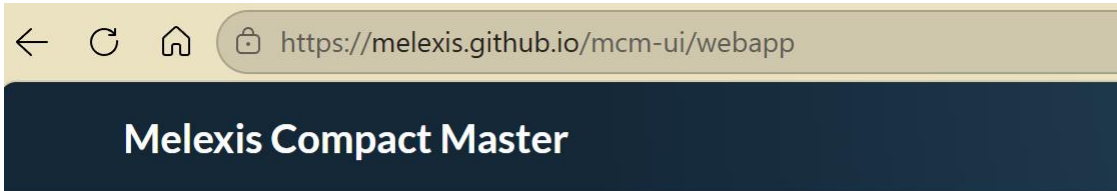


Figure 2: Connected MCM81339 example

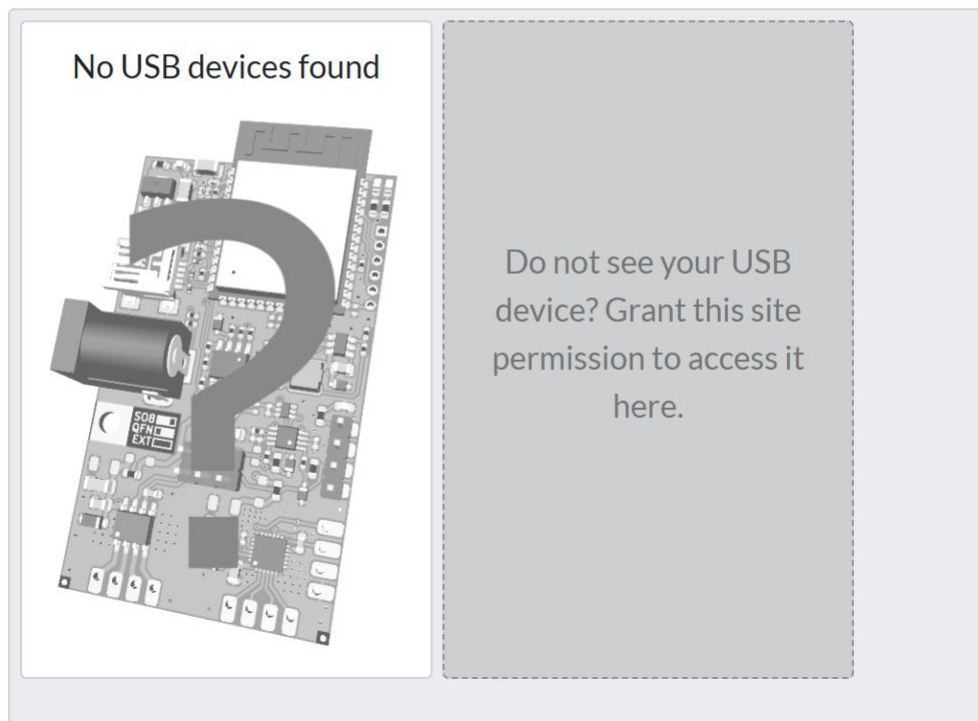
If all is well you should see a notification popping up.



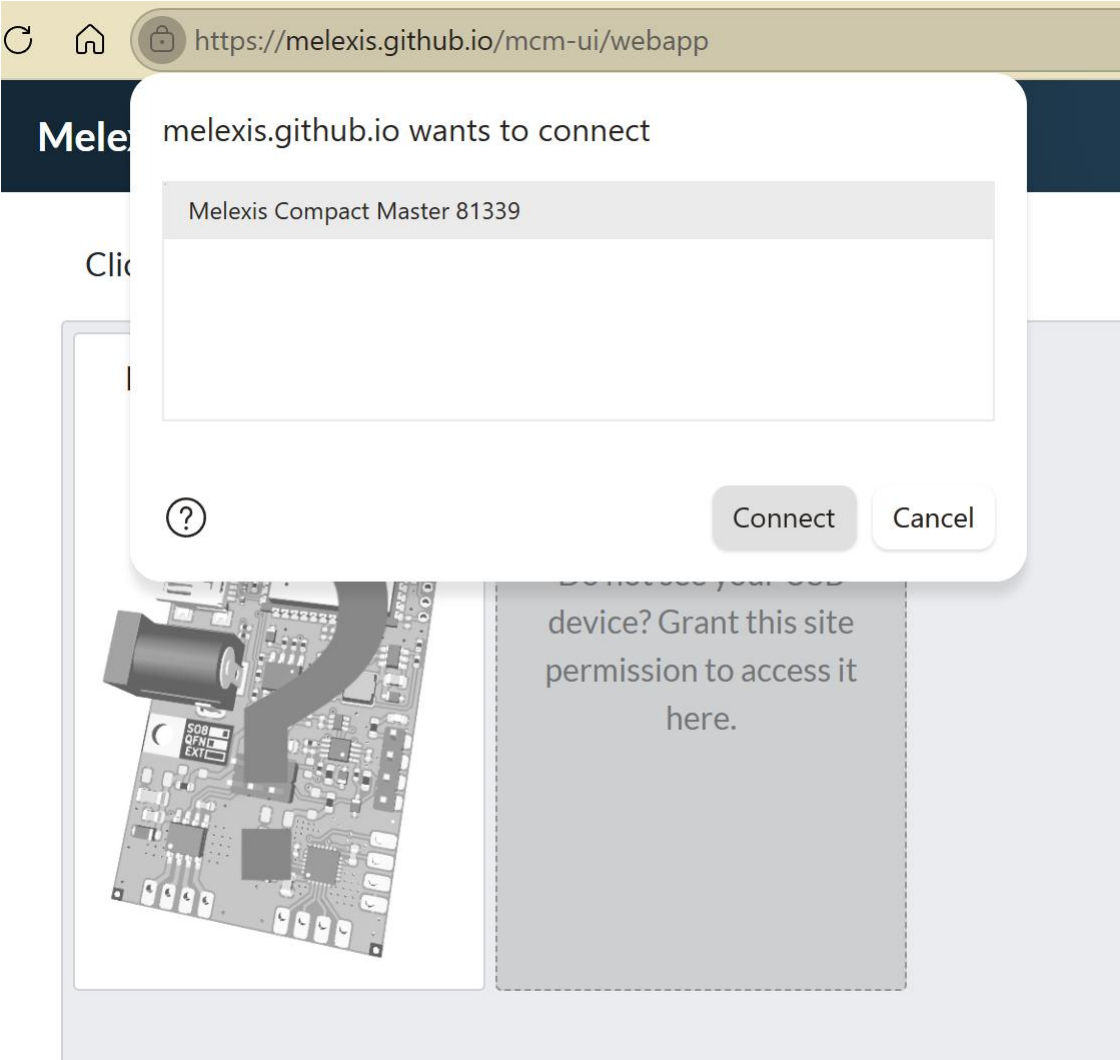
Click on this notification. The following screen should appear.



Click on a board below to open the UI.



Click on the board and select the "Melexis Compact Master 81339".



Press the Connect button.

  <https://melexis.github.io/mcm-ui/webapp>

Melexis Compact Master

Click on a board below to open the UI.



 **forget**

Melexis Compact Master
81339
(S/N: 3CDC75F8FC60)

Do not see your USB
device? Grant this site
permission to access it
here.

Now the board should have turned blue, select it again. You are ready for the next step.

4. Perform the MCM board system upgrade

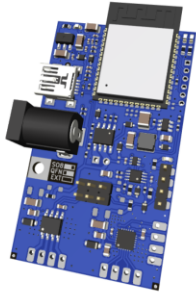
Select the “System” menu and click on “upgrade”

Melexis Compact Master 81339

I2C ▾ PWM ▾ UART ▾ System ▾ Disconnect

Home

Melexis Compact Master (MCM) for controlling UART protocol busses.
The device is for development only.



details

configuration

upgrade

reboot

Confirm the upgrade process.

Melexis Compact Master 81339

I2C ▾ PWM ▾ UART ▾ System ▾ Disconnect

System Upgrade

Press 'Upgrade' to upgrade the firmware from v0.35.0 to v0.37.0.

Upgrade

During the update you can see the progress indicator.

↻ ⌂ 🔒 https://melexis.github.io/mcm-ui/webapp/system/upgrade

Melexis Compact Master 81339

System Upgrade

Press 'Upgrade' to upgrade the firmware from v0.35.0 to v0.37.0.

Upgrade

7 %

Transferring binary...

Note that actual firmware numbers can be different. Once the progress indicator reaches 100%, the upgrade has finished.

If you select the “System” menu and upgrade again, you should see this window.



Perform a “Power on Reset”: remove the DC power supply and the USB cable and plug them in again. Then proceed to the next step.

5. Update the configuration of the MLX81339 SO8 chip

The configuration will be updated by performing a full characterization in the Start-to-Run web environment. It is absolutely crucial that you execute these steps until the end – as only then the new configuration will be downloaded to the SO8 chip

5.1. Before using the web tool

The Melexis Start-to-Run Code-Free environment runs in the cloud and requires an account. You need to register in either of the following situations:

- This is your first time using Melexis Start-to-Run Code-Free
- You already have a Melexis Start-to-Run account, but it is not enabled for Code-Free. **In this case, you must register using a different email address.**

Follow the instructions in 5.2 to register a new account. If you already have a Melexis Start-to-Run Code-Free account, please proceed to 5.3

5.2. Registering your ‘Start-to-Run’ account

Browse to <https://starttorun.melexis.com/>



Enter your email address and click NEXT.

MD

START-TO-RUN | <Code Free>

Melexis

Melexis Code-Free Start-To-Run

Sign In or Register to access the web application

Create account

Email
John.Smith@gmail.com

First & last name

Choose password

CANCEL SAVE

You can create a new account or sign in above.

Complete **all** required fields and click SAVE.

MD

START-TO-RUN | <Code Free>

Melexis

Melexis Code-Free Start-To-Run



Verify Your Email Address

We've sent a verification link to:
John.Smith@gmail.com

Please click the link in your inbox to verify and activate your account.

✓ A verification email has been sent to your inbox.

I Have Verified My Email

Resend Verification Email

[Sign out and use a different account](#)

You will receive an email from starttorun@melexis.com asking you to verify your email address.

Click the verification link in the email to complete your registration. You will then be redirected to the Start-to-Run Code-Free home page.

 START-TO-RUN | 

Melexis

Important Note: A setup without end stops must be used.
Driving Direction: The default driving direction used is UVW.

My Motors

☒ Show successful measurements only 

Please create a motor first.

Store your password securely, as you will need it for future logins.

5.3. Create a New Motor Entry

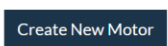
Browse to <https://starttorun.melexis.com/>

 START-TO-RUN | 

Melexis  Account ▾

Important Note: A setup without end stops must be used.
Driving Direction: The default driving direction used is UVW.

My Motors

☒ Show successful measurements only 

Please create a motor first.

Before we go further: double check that the power supply and USB cable are connected. You should see a solid Power MCM led and flashing heartbeat LED on the MCM board. Correct your configuration if this is not the case.

Press the 'Create New Motor' button.

Fill in a Motor name and the maximal current (see rating label on your motor) and leave the other fields as they are and press the 'Create' button.

MD

START-TO-RUN | <Code Free>

Melexis Account

Home / New Motor

Motor name

First STR characterization

Maximal Current [A]

2

Shunt resistance (value used for applicable products only) [Ohm]

0.002

Number of Pole Pair ([I do not know](#))

1

Create

The application goes back to the overview screen, where you can press the measure button of your motor configuration (icon indicated by the arrow).

MD

START-TO-RUN | <Code Free>

Melexis Account

Important Note: A setup without end stops must be used.
Driving Direction: The default driving direction used is UVW.

My Motors

Search motors...

☒ Show successful measurements only

Create New Motor

▼ First STR characterization





The motor information screen is displayed, we still need to connect your MCM board to the web application

MD

START-TO-RUN | <Code Free>

Melexis

Account

Home / Measure

Motor information

- Name: First STR characterization
- Max current: 2
- Number of pole pairs: 1
- Shunt resistance: 0.002

Measurement

Select MUM or MCM

Hostname or IP

192.168.7.2

Do not see your USB device?

Grant this site permission to access it here.

Start

Logging

clear

Autoscroll

Select the grey box. In the next dialog box select the Melexis Compact Master line (should become blue) and press the Connect button

starttorun.melexis.com wants to connect

Melexis Compact Master 81339

?

Connect

Cancel

Your MCM board is now connected to the web tool.

Home / Measure

Motor information

- Name: First STR characterization
- Max current: 2
- Number of pole pairs: 1
- Shunt resistance: 0.002

Measurement

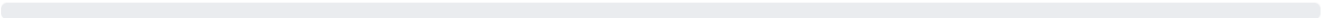
Select MUM or MCM

Hostname or IP
192.168.7.2

Melexis Compact Master
81339
(S/N: 206EF18A54D8)

Do not see your USB device?
Grant this site permission to
access it here.

Start



Logging [clear](#)

☒Autoscroll

Press the Start button to get the measurements started. After a couple of second the “Power MLX” led should turn on.

The log window reflects the ongoing activity, while the percentage bar indicates the progress.

 **START-TO-RUN** | <Code Free>

Melexis  Account

Home / Measure

Motor information

- Name: First STR characterization
- Max current: 2
- Number of pole pairs: 1
- Shunt resistance: 0.002

Measurement

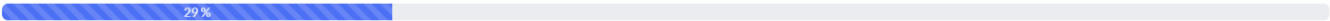
Select MUM or MCM

Hostname or IP
192.168.7.2

Melexis Compact Master
81339
(S/N: 206EF18A54D8)

Do not see your USB device?
Grant this site permission to
access it here.

Stop



Logging

[clear](#)

Connection to Melexis Compact Master 81339 established
Server v0.34.0
Detecting Melexis IC type...
Uploading firmware...
Check phase connections...
Measuring coil resistance...
Measuring coil resistance...

☒ Autoscroll

After a while the motor should start running at a high speed. Let this run for a while (this takes a couple of minutes); the right parameters are being measured and then collected.

71%

Logging [clear](#)

Measuring inertia...
Measuring inertia...
Detecting maximum speed...
Measuring DEMF...
Detecting maximum speed...
Measuring load...
Detecting maximum speed...

☒ Autoscroll

At the end of the measurement, the measurement data is presented.



Home / Measurement

Chip info

- Characterized with: MLX81339 KLV-BMx-202-RE

Motor info

- Name: First STR characterization
- Motor type: 3 phase BLDC
- Max current: 2 A
- Number of pole pairs: 1
- Shunt resistance: 35.0 mOhm

Measurement results

- VSM reference: 24.0 V
- Phase resistance (1 coil, assuming star configuration): 822 mOhm
- Phase inductance (1 coil, assuming star configuration): 262 uH
- Mechanical BEMF constant: 0.291 V_{ph,pk}/(1k m-rpm)
- Inertia: 1.183e-6 kg*m²
- Static friction coefficient: 0.000e+0 N*m
- Linear friction coefficient: 8.074e-8 N*m/m-rpm
- Quadratic friction coefficient: 5.609e-12 N*m/(m-rpm²)
- Max speed: 31492 m-rpm

Download Measurement CSV

Automatic controller tunings

Please request an autotuning first.

Request AutoTuning

We are now only one step away from generating the correct EEPROM parameter set. Press the 'Request Autotuning' button, this opens the Auto Controller Tuning Parameters screen.



Home / Measurement / Request Auto Tuning

Auto Controller Tuning Parameters

Maximum Current [A]

2

Request

Press 'Request' to confirm. This will take you back to the main screen. After the auto tuning operation stops you should see the "finished" state.

The screenshot shows the Melexis web interface. At the top, there is a navigation bar with 'MD START-TO-RUN | <Code Free>' and the Melexis logo with an 'Account' dropdown. Below the navigation bar, the breadcrumb 'Home / Measurement' is visible. The main content area is divided into three sections: 'Chip info' (Characterized with: MLX81339 KLV-BMx-202-RE), 'Motor info' (Name: First STR characterization, Motor type: 3 phase BLDC, Max current: 2 A, Number of pole pairs: 1, Shunt resistance: 35.0 mOhm), and 'Measurement results' (VSM reference: 24.0 V, Phase resistance (1 coil, assuming star configuration): 822 mOhm, Phase inductance (1 coil, assuming star configuration): 262 uH, Mechanical BEMF constant: 0.291 V.ph/k/(1k m-rpm), Inertia: 1.183e-6 kg*m^2, Static friction coefficient: 0.000e+0 N*m, Linear friction coefficient: 8.074e-8 N*m/m-rpm, Quadratic friction coefficient: 5.609e-12 N*m/(m-rpm^2), Max speed: 31492 m-rpm). Below the measurement results is a 'Download Measurement CSV' button. The 'Automatic controller tunings' section shows a progress bar with '50 usec', '2 A', and 'finished' (circled in red). To the right of the progress bar is a magnifying glass icon and a download icon. Below the progress bar is a 'Request AutoTuning' button.

Select the magnifying glass.

The screenshot shows the Melexis web interface. At the top, there is a navigation bar with 'MD START-TO-RUN | <Code Free>' and the Melexis logo with an 'Account' dropdown. Below the navigation bar, the breadcrumb 'Home / Measurement / Auto Tuning' is visible. The main content area is divided into three sections: 'Chip info' (Characterized with: MLX81339 KLV-BMx-202-RE), 'Motor info' (Name: First STR characterization, Motor type: 3 phase BLDC, Max current: 2 A, Number of pole pairs: 1, Shunt resistance: 35.0 mOhm), and 'Auto controller tuning info' (FOC period: 50 usec, Maximum current: 2 A). Below the auto controller tuning info is a 'Test Code-Free' button.

Select the 'Test Code-Free' button.

Verify whether your Melexis Compact Master 81339 box is still colored blue.

If it is colored blue, then skip the following step (go to the "Connect" step).

If it is not blue, the MCM board is not connected to your PC anymore. In that case: make sure the USB cable is connected and select the adjacent grey box. In the following dialog box select the Melexis Compact Master line and press the Connect button. Now the Melexis Compact Master line should turn blue again.

starttorun.melexis.com wants to connect

Melexis Compact Master 81339

?

Connect

Cancel

MD START-TO-RUN | <Code Free>

Melexis Account

Home / Measurement / Auto Tuning / Controller

Test on target

Select MUM or MCM

Hostname or IP
192.168.7.2

Melexis Compact Master 81339
(S/N: 206EF18A54D8)

Do not see your USB device?
Grant this site permission to access it here.

Connect

Application

Configuration

Speed
-- rpm

Current
-- A

Voltage
-- V

Temperature
-- °C

2.0

1.5

1.0

0.5

0.0

Time [sec]

Ipk [A]

Speed [m-rpm]

Target speed

STOPPED

Press the ‘Connect’ button. The motor will now be configured with the “Start-to-Run” configuration parameters. Wait until the graph at the bottom of the screen is moving.

Test on target

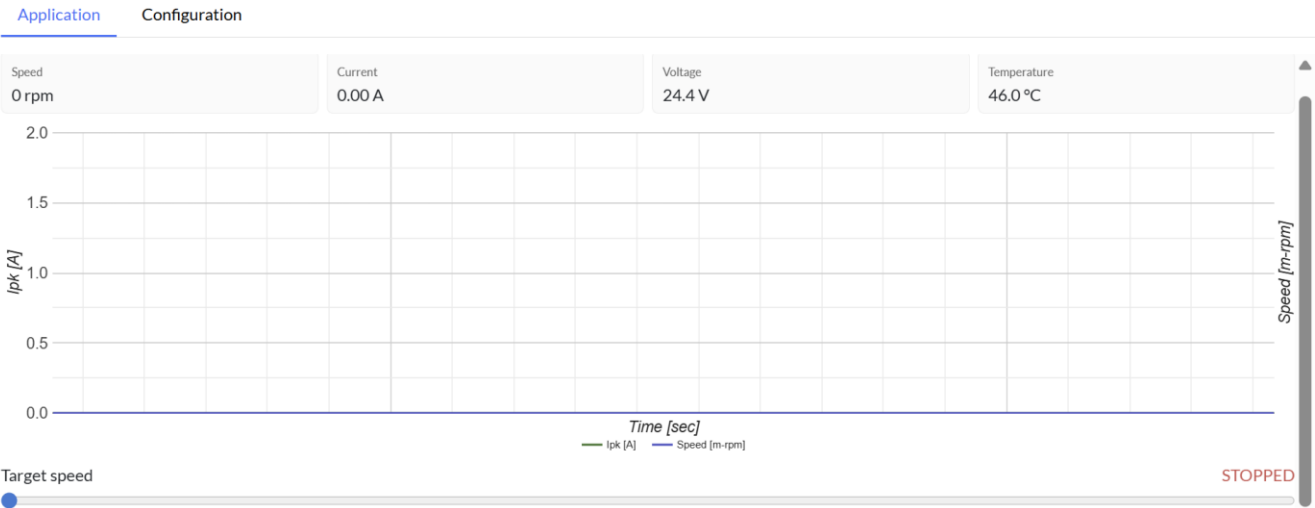
Select MUM or MCM

Hostname or IP
192.168.7.2

Melexis Compact Master
81339
(S/N: 206EF18A54D8)

Do not see your USB device?
Grant this site permission to
access it here.

Disconnect Connected



Move the slider to the right, the motor should start running.

Test on target

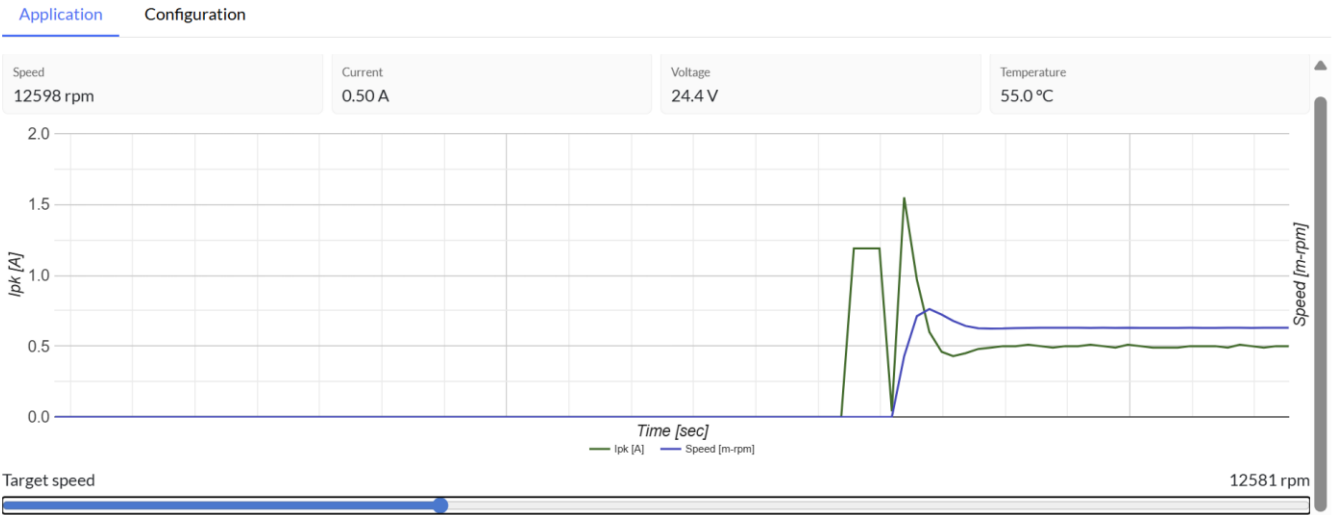
Select MUM or MCM

Hostname or IP
192.168.7.2

Melexis Compact Master
81339
(S/N: 206EF18A54D8)

Do not see your USB device?
Grant this site permission to
access it here.

Disconnect Connected



Move the slider back to the starting position at the left – the motor will stop spinning.

Press the Disconnect button.

By now your MCM firmware and MLX81339 SO8 chip configuration has been updated to the latest configuration.

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