# TMC6100-EVAL Evaluation Kit

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The TMC6100-EVAL is designed for evaluating all features of the TMC6100. The evaluation board is part of TRINAMICs user-friendly plug-in system for chip evaluation. Just connect the TMC6100-EVAL with Landungsbruecke, the associated base board. Therefore, use the dedicated connector board, called Eselsbruecke. Eselsbruecke offers test points for every connector pin.
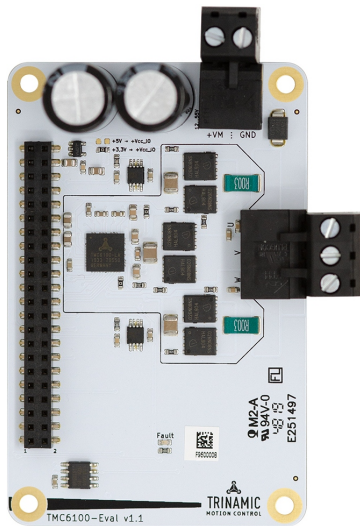
Features

- 3-phase BLDC/PMSM motor with up to 10A coil current
- Gate Drive Programmable 0.5A/1A/1.5A
- Supply Voltage 12...48V (55V max)
- SPI Interface for diagnostics / configuration
- Optional BBM logic for single line control
- Programmable Control Interface with 3 or 6 line drive
- Full Protection & programmable Diagnostics
- Onboard Current Shunt Amplifiers

Applications

- PMSM FOC drives
- BLDC motors
- Robotics

- CNC Machines
- Industrial Drives
- LEV

- Factory Automation
- Blowers
- Pumps

Simplified Block Diagram

Read entire documentation.
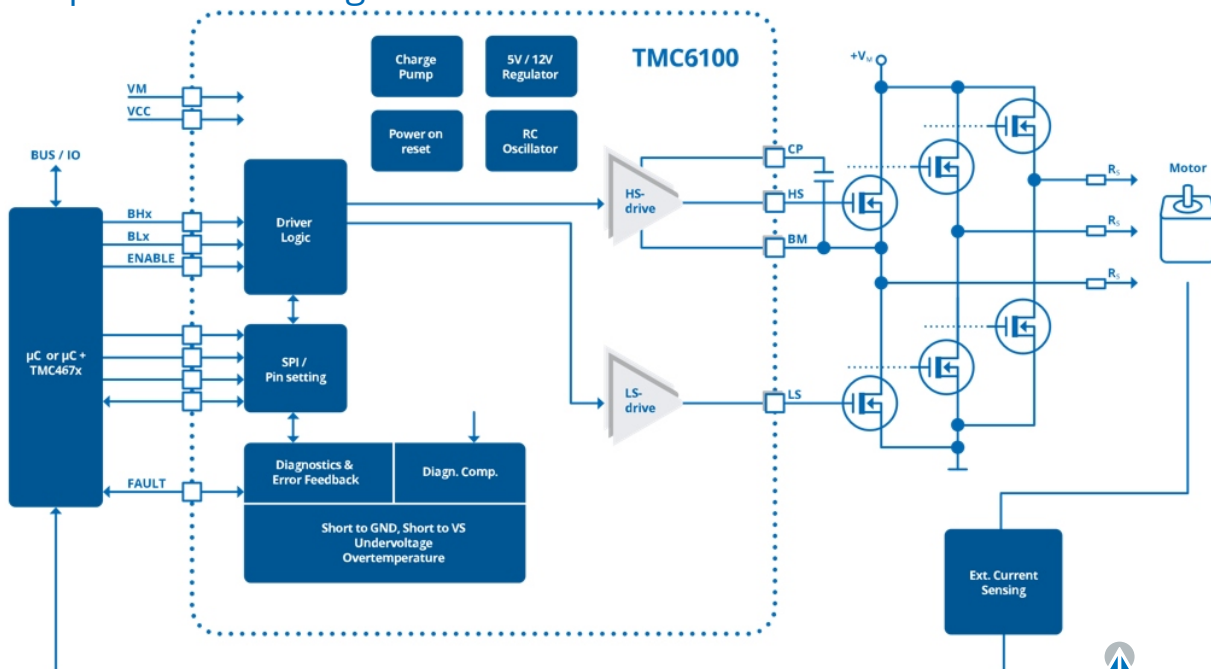
TRINAMIC
MOTION CONTROL

Contents

1   Getting Started

You need

- TMC6100-EVAL
- Landungsbruecke or Startrampe with latest firmware.   We recommend the Landungs-bruecke as it offers faster USB communication.
- Latest TMCL-IDE (please download from www.trinamic.com) and PC
- 1x Eselsbruecke adapter board
- TMC4671-EVAL (Hardware FOC Controller)
- BLDC motor
- USB interface
- Power Supply
- Cables for interface, motors and power

Precautions

- Do not mix up connections or short-circuit pins.
- Avoid bounding I/O wires with motor wires.
- Do not exceed the maximum rated supply sup-ply voltage!
- Do not connect or disconnect the motor while powered!
- Please check schematics for Jumper settings and input/output connector description.
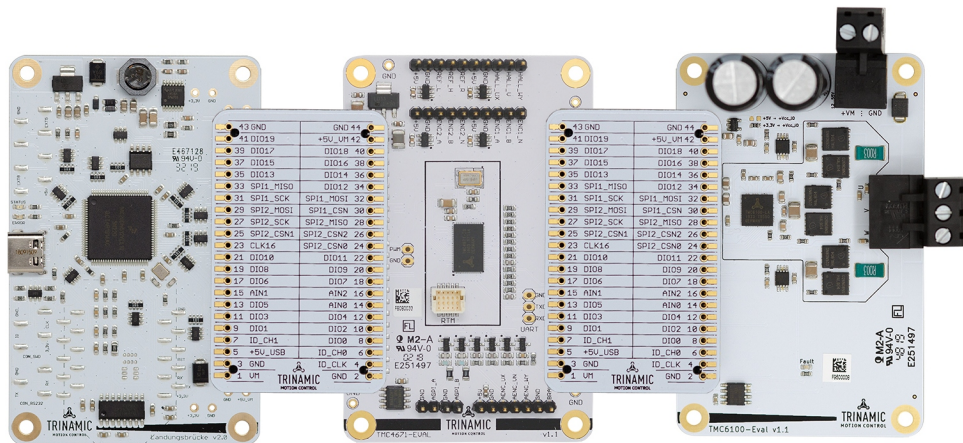- START WITH POWER SUPPLY OFF!

Figure 1: TMC6100-EVAL -Kit view

| **NOTICE** | The Landungsbruecke operates on USB Power Supply. All other voltages are generated from +VM. Kit works only, when +VM is applied. |

1.1 First Start-Up

1. Make sure that the latest version of the TMCL-IDE is installed. The TMCL-IDE can be downloaded from www.trinamic.com/support/software/tmcl-ide/.

2. Open the TMCL-IDE and connect the Landungsbruecke or Startrampe via USB to the computer. For Windows 8 and higher is no driver needed, on Windows 7 machines the TMCL-IDE is installing the driver automatically.

3. Verify that the Landungsbruecke or Startrampe is using the latest firmware version. The firmware version is shown in the connected device tree.
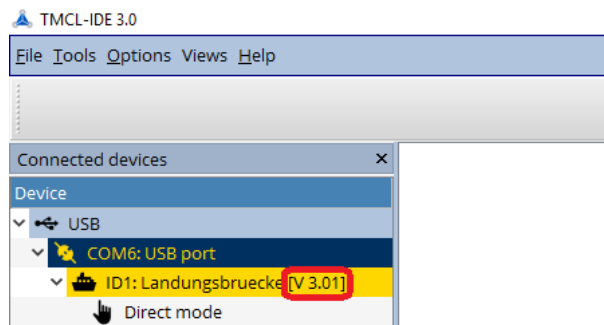

Figure 2: Firmware Version

4. The TMCL-IDE 3.0 needs room to show all important information and to provide a good overview. Therefore, arrange the main window related to your needs. We recommend using full screen. For evaluation boards it is essential to have access to the registers. Therefore open up the Register Browser (left side). For a better view click top right on the normal icon to get a maximized register browser window.
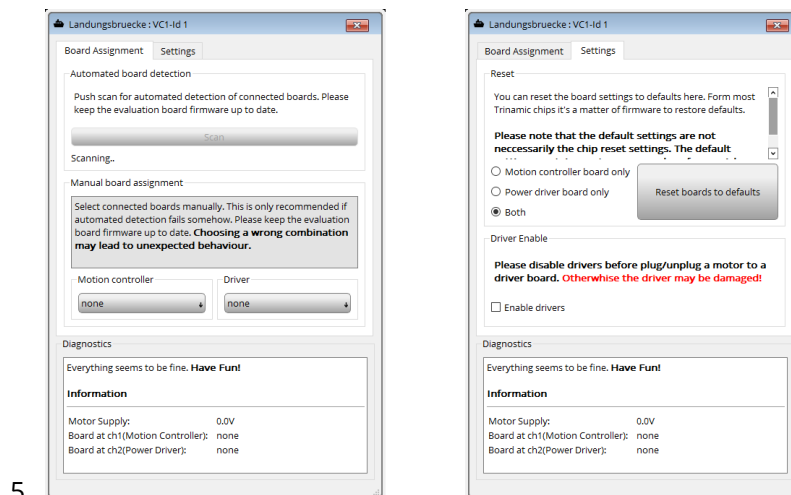
5.

Figure 3: Landungsbruecke Dialogue

6. There is 1 solder option on the TMC6100-EVAL as highlighted in red in the image below.
   It allows for changing the VCCIO between 3.3V and 5V.Resistor R402 (0 Ω) selects VCCIO = 3.3V and is
   assembled by default. R401 is not assembled in this case.If R401 (0 Ω) is assembled instead of R402,
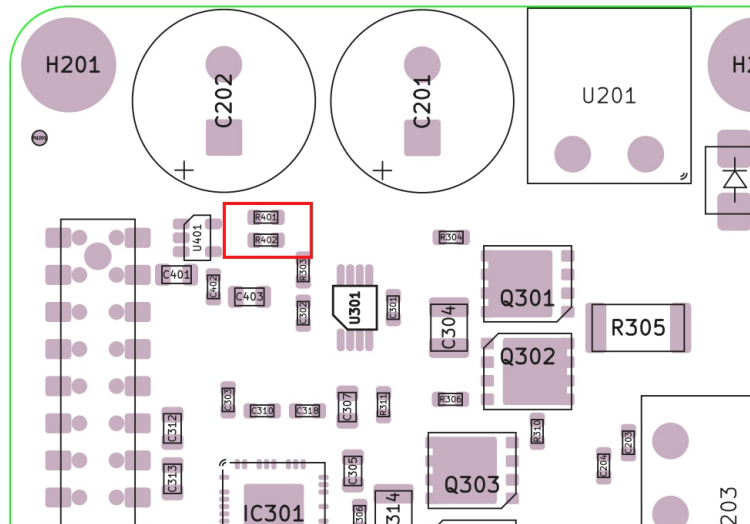   then VCCIO = 5V.

Figure 4: Solder jumper on the TMC6100-EVAL

2   Hardware Information

All design files for our evaluation boards are available for free. The TMC6100-EVAL has been done with
KiCAD. We offer the original ECAD files, Gerber data, the BOM, and PDF copies.

The files can be downloaded from the evaluation boards' website directly at `https://www.trinamic.com/support/eval-kits/`.

Note	If files are missing on the website or something is wrong please send us a note.

3 Revision History

3.1 Document Revision

Version	Date	Author	Description
1.00	2019-12-20	SK	Initial release.

Table 1: Document Revision

Mouser Electronics

Authorized Distributor

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