



Toshiba software for motor-drive development supports faster time to market

- ❖ *MCU Motor Studio v3.0 simplifies the initial setup of sensor-less operation*
- ❖ *New Motor Tuning Studio introduces real-time automatic parameter tuning*

Düsseldorf, Germany, 19th March 2024 – Toshiba Electronics Europe (“Toshiba”) has updated and extended its design framework for Brushless DC (BLDC) and Permanent Magnet Synchronous Motor (PMSM) drives, adding new features that automatically capture motor parameters and simplify optimising settings. By easing these notoriously difficult challenges when starting a new project, the latest tools accelerate application development and reduce time to market for energy-efficient variable-speed drives.

To help optimise the settings for field-oriented control (FOC), the latest version of Toshiba’s MCU Motor Studio (MMS v3.0), introduces a new technique for estimating rotor position based on flux observation. The flux observer combines the estimated α - and β -axis flux components to compute the rotor electrical position and reduces the complexity of the initial PI gain settings, as required for conventional position estimation methods used in PI control loops, allowing users to progress quickly to developing the motor application.

Accompanying MMS 3.0, Toshiba has revealed a new tool, Motor Tuning Studio (MTS v1.0) that simplifies capturing motor and drive control parameters. MTS comprises firmware loaded on the motor MCU and an accompanying PC-based tool. The firmware calculates the rotor resistance, the d/q axis inductance, the moment of inertia, and magnetic flux. Created for Toshiba TMPM4K and TMPM3H MCUs, it also supports software vector control in normal motor-drive operation.

The companion MTS PC tool handles flux observation and calculates the PI gain parameters for current control, speed control, and position estimation. It creates a C header file containing these tuned parameters and generates the XML initialisation file needed for motor evaluation and drive development using MMS 3.0.

To accelerate drive development with the latest tools, Toshiba has teamed up with MikroElektronika (MIKROE) to offer the cost-effective [Clicker 4 for TMPM4K](#) board, the [Clicker 4 for TMPM3H](#) board and an [inverter shield](#). The kit comprises a compact development board for the Toshiba TMPM4K or TMPM3H MCU and the inverter shield and requires no additional hardware to connect to a sensorless motor and begin evaluation.

Learn more and download the MCU Motor Studio v3.0 and Motor Tuning Studio on Toshiba's website: <https://toshiba.semicon-storage.com/eu/semiconductor/product/microcontrollers/motor-studio.html>

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About Toshiba Electronics Europe

[Toshiba Electronics Europe GmbH](#) (TEE) offers European consumers and businesses a wide variety of hard disk drive (HDD) products plus semiconductor solutions for automotive, industrial, IoT, motion control, telecoms, networking, consumer and white goods applications. Next to HDDs, the company's broad portfolio encompasses power semiconductors and other discrete devices ranging from diodes to logic ICs, optical semiconductors as well as microcontrollers and application specific standard products (ASSPs) amongst others.

In addition, TEE also offers Toshiba's SCiB™ battery cells and modules with lithium titanium oxide (LTO) for heavy-duty applications and Silicon Nitride (SiN) ceramic substrates used in power semiconductor modules, inverters and converters for their heat dissipation characteristics and strength.

TEE has its headquarters in Düsseldorf, Germany, with branch offices in France, Italy, Spain, Sweden and the United Kingdom providing marketing, sales and logistics services.

Visit Toshiba's websites at www.toshiba.semicon-storage.com, www.scib.jp/en and www.toshiba-tmat.co.jp/en/ for further company and product information.

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