

Motor Control Kit Spins and Tunes Three-Phase Motors in Minutes

Adding to its growing portfolio of motor control solutions, Texas Instruments announced a new motor control kit for spinning three-phase brushless motors with a Stellaris Cortex-M3 microcontroller (MCU). The new [DK-LM3S-DRV8312](#) [1] motor control kit features a 32-bit Stellaris LM3S818 microcontroller and DRV8312 motor driver to spin sub-50V, 6.5A three-phase brushless DC (BLDC) motors in minutes. The easy-to-use kit is a low-cost solution for high-volume motor control applications, including low-voltage fans, blowers, pumps, tools and compressors. For more information, visit www.ti.com/stellaris-motor-pr-lp [1].

The Stellaris LM3S818 controlCARD module included in the kit has the required firmware pre-programmed in flash memory to run TI's new InstaSPIN-BLDC solution out-of-the-box, along with other customer-developed applications, when plugged into the [DRV8312 motor driver](#) [2] base board. The [InstaSPIN-BLDC](#) [3] solution is an innovative and free back-electromagnetic field (EMF) technique that spins any motor in seconds without knowledge of any motor parameters. Unlike traditional back-EMF zero crossing techniques, InstaSPIN-BLDC extends sensorless operation down to lower speeds and exhibits high immunity to miscommutation caused by rapid speed changes. Reliable motor start-up has been demonstrated over a wide range of conditions, including full torque.

Features and benefits of the Stellaris motor control kit:

- The controlCARD module with Stellaris LM3S818 MCU features 50 MHz performance, 64 KB flash, 8 KB SRAM and 6 PWM generators, allowing developers to create complex motion control designs with a tiny footprint
- [DRV8312](#) [4] motor driver provides the highest current output in its class, delivering up to 6.5A, without the need for a costly external heat sink. It is a reliable, fully protected motor driver with cycle-by-cycle over-current, over-temperature, cross-conduction and under-voltage protection, reducing design complexity and board space and ensuring higher system reliability
- Kit includes a 24V three-phase BLDC motor operating at up to 3.5A continuous
- Supporting software includes [StellarisWare software](#) [5] with TI's [IQmath Library](#) [6] for easy fixed to floating point conversion and InstaSPIN-BLDC software for quick and reliable motor start-up on any motor
- Accelerate system design with intuitive graphical user interface (GUI) powered by third party Crosshairs Embedded. Customize the existing GUI or create your own with easy drag and drop development by downloading Crosshairs Interface Designer.

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Pricing and availability

Developers can get started immediately with the DK-LM3S-DRV8312 development kit for \$299 USD at www.ti.com/stellaris-motor-pr-es [7]. Those who have already purchased the [DRV8312-C2-KIT](http://www.ti.com/stellaris-motor-pr-es) [8], which includes the DRV8312 and C2000™ Piccolo™ MCU, can swap out the existing controlCARD with the Stellaris LM3S818 controlCARD module for \$49 USD at www.ti.com/stellaris-motor-pr-es2 [9].

Find out more about TI's MCUs, motor drivers, tools and software:

- Download motor control block diagrams, application notes and selection guides: <http://www.ti.com/motor> [10]
- Ask questions and help solve problems in the Motor Drivers forum on TI's E2E™ Community: www.ti.com/stellaris-motor-pr-e2e [11]
- Read blogs and watch videos from TI motor experts in the new Motor Solutions Group on TI's E2E Community: www.ti.com/stellaris-motor-pr-forum [12]
- Stellaris Cortex-M microcontrollers: www.ti.com/stellaris-motor-pr-hp [13]
- Make the Switch to TI MCUs: www.ti.com/make-the-switch-pr-lp [14]
- TI eStore: www.ti.com/stellaris-motor-pr-es [7]
- Download a full featured free trial version of Crosshairs Embedded Interface Designer: <http://crosshairembedded.com> [15]

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Links:

- [1] <http://www.ti.com/stellaris-motor-pr-lp>
- [2] <http://www.ti.com/drv8312-pr>
- [3] <http://www.ti.com/stellaris-motor-pr-spin>
- [4] <http://www.ti.com/product/drv8312>
- [5] <http://www.ti.com/stellaris-motor-pr-sw>
- [6] <http://www.ti.com/iqmath>
- [7] <http://www.ti.com/stellaris-motor-pr-es>
- [8] <http://www.ti.com/drv8312-c2-kit-pr>
- [9] <http://www.ti.com/stellaris-motor-pr-es2>
- [10] <http://www.ti.com/motor>
- [11] <http://www.ti.com/stellaris-motor-pr-e2e>
- [12] <http://www.ti.com/stellaris-motor-pr-forum>
- [13] <http://www.ti.com/stellaris-motor-pr-hp>
- [14] <http://www.ti.com/make-the-switch-pr-lp>
- [15] <http://crosshairembedded.com/>