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3-Axes Motion Control Motherboard

Achieving multi-axis motion control in your system does not have to be difficult.

The release of the maxon EPOS4 Micro 24/5 CAN (Part number 638328) positioning controller has realized the option of significantly minimizing the “real estate” traditionally occupied by motor controllers. The “Micro” is capable of motion control of brushed DC motors with encoders, and brushless DC motors with hall sensors and encoders. The power and functionality density in these “Micro” boards are unmatched. With a 5 A continuous current output, this miniature controller allows precise control of motors up to 120 W continuously (360 W intermittently).

The “Micro” boasts impressive specifications in its control. Given its miniature size, measuring 32 x 22 x 7mm, it was not designed to offer connectors for a plug-and-play facility (unlike the “EPOS4 Compact”). Integration of the “Micro” into a drive system requires integration through motherboard electronics design, which can be costly and time-consuming for the customer’s system engineering team if an application-specific PCB is not already being developed.

To eliminate this cost, and to give designers an easy development path, the maxon Australia engineering team developed the “EPOS4 Micro 24/5 CAN 3-Axes Motherboard” as an easy-to-integrate solution to multi-axis motion control. In this case, a single “3-Axes Motherboard” offers the ability to control up to 3 x DC/BLDC motors. Achieving multi-axis motion control has never been more accessible.

As the “EPOS4 Micro” controllers are CANopen slaves, they require a CANopen master to send data and commands. With the “3-Axes Motherboard”, connection to a CANopen master and the rest of the CAN bus is made easy with two CAN connectors. Adhering to the CiA® 402 protocol, the “EPOS4 Micro” controllers are standardized Motion Control Slaves, ensuring compatibility with motion libraries from various PLC manufacturers.

Recognizing the often-intricate nature of drive elements within complex systems, the “3-Axes Motherboard” provides extensive connectivity options. The motherboard caters to 4 x digital inputs, 2 x analog inputs, and 1 x analogue output for each “EPOS4 Micro”. With the flexibility to connect an SSI absolute encoder for each axis, the available options will have you covered for most applications.

Each axis can be configured individually over a USB connection. The EPOS Studio software offers regulation tuning, parameter configuration, and object dictionary visualization tools to assist in the integration process.

The “3-Axes Motherboard” has been optimized for size, measuring 84 x 54 x 27.3 mm, without a trade-off in functionality. This small size means the motherboard is still viable if you are only driving one or two motors,

and the units can be daisy-chained for any multiple DC motors required for the application. Additional technical details are available in the “EPOS4 Micro 24/5 CAN 3-Axes Motherboard Hardware Reference” attached to this article.

For those seeking tailored solutions, the maxon Australia engineering team stands ready to offer a spectrum of services, including motherboard design and custom modifications, software programming and configuration, and comprehensive system design.

For additional information, please contact us at info.us@maxongroup.com or 508-677-0520.



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The Swiss specialist for quality drives

maxon is a developer and manufacturer of brushed and brushless DC motors, as well as gearheads, encoders, controllers, and entire mechatronic systems. maxon drives are used wherever the requirements are particularly high: in NASA's Mars rovers, in surgical power tools, in humanoid robots, and in precision industrial applications, for example. To maintain its leadership in this demanding market, the company invests a considerable share of its annual revenue in research and development. Worldwide, maxon has more than 3000 employees at nine production sites and is represented by sales companies in more than 30 countries.