Programmable drive provides advanced control for compact motion solutions

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Performance Motion Devices (PMD) has released a new programmable drive, able to configure advanced motion for the control of brush and brushless DC motors, as well as stepper motors, up to 500W. Providing distributed motion control and freeing up host processing, the ION 500 digital drive is based on PMD's powerful, programmable Magellan motion control integrated chip (IC). With a compact footprint, the ION 500 is designed for applications that demand small size and light weight, including robotics applications such as autonomous guided vehicles (AGVs), as well as medical devices.

The ION 500 delivers 20A continuous current and 30A peak current across a single axis, while the Magellan chip enables on-board intelligent drive functions that cover the most advanced motion requirements.

On-board programming enables distributed control, which can improve motion performance, and also frees up central processing with motion functions executed at the required axis. The PMD Magellan chip also gives the benefit of standalone control, which can remove the requirement for a separate controller. This can significantly reduce cost, as well as creating a more compact and lightweight overall motion solution footprint, vital for applications such as robotics.

On-board motion control capability via the 32-bit Magellan chip, includes profile generation, PID position loop closure, PWM signal generation, and field oriented control. Meanwhile, specific motion profiling includes trajectory generation, including trapezoidal and S-curve point-to-point profiling, velocity contouring, and electronic gearing. The drive can also perform position servo compensation, step motor stall detection, and microstep generation. Integrated encoder position feedback includes quadrature encoder and pulse & direction input signal processing.

With a code execution rate up to 96 MIPS (million instructions per second), plus microstepping outputs with up to 256 microsteps per step, the drive's motion control commands are executed at high speed. This optimises response time and optimises control performance for the most demanding applications.

This performance is achieved within a compact and lightweight footprint. The ION 500 drive measures just 108 mm x 77 mm x 37 mm. Despite the module's small size, a rugged metal and plastic construction enables durable integration to suit demanding applications and environments. To ensure electrical reliability, the ION 500 includes integrated, high-power drive stages that protect from overcurrent, undervoltage, overvoltage, overtemperature, and short-circuit faults.

To achieve high speed and flexible communications integration, the ION 500 includes Ethernet and Serial communication ports, including RS232 and RS485, for all motor types. Enabling additional hardware connectivity, the drive also includes digital and analogue I/O functions, including eight general purpose bi-directional digital channels and a +/- 10V analogue input channel.

Commissioning the ION 500 is quickly achieved via PMD's Windows-based Pro-Motion software, which includes tuning and motion testing features. Meanwhile, C/C++ programming is enabled via the C-Motion development software, complete with source code libraries. All set-up and development software is included free with ION drives.

The new drives are distributed in the UK by motion specialist INMOCO. The ION 500 series are complimentary to the ION N series, designed for embedded control. INMOCO also supplies a full motion solution, including all supported motor types, encoder solutions, as well as actuator devices. INMOCO's engineers can also interface with OEM development teams to ensure the optimum specification is achieved.

Find out more information about the PMD ION 500.

About Performance Motion Devices

Performance Motion Devices, Inc. (PMD) is a world leader in motion control technology for life sciences, robotics, and industrial automation. PMD's full line of advanced motion control solutions provide single and multi-axis motion control for Brushless DC, DC Brush, and step motors. Our motion control ICs, modules, and boards give our customers a wide range of motion control solutions while providing unparalleled packaging flexibility. OEMs and engineering teams worldwide rely on our components to build automation and machinery with the highest performance, the highest reliability, and the lowest cost.

Image Captions:

Image 1: Performance Motion Devices - ION®/CME 500 Digital Drives

About INMOCO

Established in 1987, INMOCO now offers an extensive range of motion control equipment including: compact servo amplifiers, position controllers, stepper motors, PLC controllers, linear motors, sensors, electric actuators and gearheads. INMOCO's product portfolio is supported by extensive applications and technical expertise, in addition to customer-specified electro-mechanical development and sub-assembly services; including calibrating and testing in a class 10,000 clean room facility.

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