Robot arm encoder range increases to cover all joint sizes

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Celera Motion has increased the available diameters of its absolute rotary chip encoder, to enable accurate angular measurement across virtually all types of robot joints. The encoder range will cover all the typical sizes required in arms, from small end effectors at the end of the arm to the upper shoulder joints. Distributed in the UK by motion specialist, INMOCO, the range now also includes linear as well as rotary encoders.

Celera Motion's range of Aura series rotary encoders is for OEMs designing applications such as surgical robots, cobots, robot joints and grippers, exoskeleton and wearables and semiconductors. Linear encoders now also join the range, suitable for applications such as focussing accuracy for optical devices.

Previously extending to an outside diameter of 33mm, the update now means the rotary encoder range spans from 18mm outside diameter up to 63.5mm outside diameter. The new linear scale ranges from 9mm to 195mm. Customisable scale sizes can also be provided for both rotary and linear types.

An advantage of the Aura series rotary encoder design is that the sensor is developed specifically for each size of rotary scale. This approach optimises precision across the scale, ensuring accuracy even for an extended radius of measurement.

Absolute position feedback is achieved with 18–22 bit high resolution interpolation. Meanwhile, the high speed sensor, running at over 80k rpm on the 18mm size track, optimises feedback precision. Position is measured down to +/- 0.01° with high repeatability of 1 LSB (least significant bit).

Celera Motion's design also ensures accuracy against eccentric angular error, thanks to the device's built-in compensation algorithm. This solution also removes the alternative compensation method of using two encoders, saving footprint and cost.

Communications flexibility suits a wide range of integration options, including SSI and SPI. The Aura series also features a real time BiSS-C continuous mode interface, providing high speed communications and minimal latency for high bandwidth control loops. The encoder also supports an ABZ interface, providing incremental encoder capabilities for the lowest latency, which can also be used to provide secondary position information.

The chip encoder is simple to install into a PCB, with a compact footprint of just 9mm x 7mm, and has efficient energy and thermal management. The system is also easy to set up via Celera's SmartPrecision III software. The software handles all aspects of commissioning, and encoder data can be downloaded in CSV file format.

INMOCO supports OEM development in the UK and Ireland, and the company's engineers can also interface with Celera Motion for customised development, supporting the whole project to speed up time to market.

Image captions:

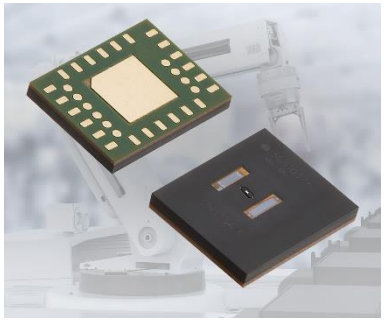

Image 1: Celera Motion's range of Aura series rotary encoders is applications such as surgical robots, cobots, robot joints and grippers, exoskeleton and wearables and semiconductors.

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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