SICK Develops Non-Contact Linear Encoders Around Flexible Product Platform

SICK has expanded its proven, non-contact magnetostrictive linear encoder portfolio with the launch of a versatile product family for wide-ranging industrial applications. The DAX® linear encoders precisely determine the absolute position of pistons in hydraulic cylinders, as well as reliably monitoring linear motion in many common industrial machines.

The SICK DAX linear encoders have been designed with a flexible product concept to make specification quick and easy for both new and existing users, using a unique online configuration tool with options for additional customisation. They therefore offer a timesaving way for cylinder manufacturers, OEMS and end-users to access a reliable source of supply.

The DAX encoder family has industry-appropriate measuring ranges for countless applications as diverse as packaging machines, wind, hydro and solar plants, wood processing machinery, or medical technology. The encoders offer space-saving benefits for new machinery, as well as backwards compatibility with existing installations, and can be customised to work with all common magnet types.

Development Milestone

“The DAX encoder represents an important milestone in the development of SICK’s encoder portfolio,” explains Darren Pratt, SICK UK’s Market Product Manager for Measurement and Instrumentation. “The encoders open up the availability of our magnetostrictive technology to industrial users for the first time.

“In just a few steps, SICK’s Online Configurator guides the user through the specification process to generate a part number and create an online order. Thanks to the platform concept of the DAX, application-specific versions can be generated quickly. There is also the flexibility of further customisation for new machine designs, or to enable adaptation to existing machines, including where proprietary magnets are already in situ.”

The DAX is being launched with three housing designs: one for integration into industrial hydraulic cylinders; a low-profile type with block magnets for mounting in tight installation situations; and a

version with an integrated slider that guides the position magnet, easing the requirements on alignment during mounting.

Integration into existing or new machinery is straightforward using standard mechanical interfaces. For electrical installation, the DAX® product family offers a CANopen as well as an analog output for either 0-10 VDC or 4-20 mA.

Diagnostics and Operating Protection

Via the CANopen variant, operators have access to diagnostic capabilities to monitor both sensor parameters and environmental conditions, including the magnet signal, temperature, piston cycles/travel distance, power supply and operating hours. Diagnostics can also output speed and time profiles to monitor for changes in machine performance over time.

In addition, the DAX encoders offer significant protection to ensure machine reliability in conditions where the power supply is vulnerable to fluctuations. The DAX offers integrated over-voltage protection to enable continued operation despite power spikes, while under-voltage conditions are alerted to the machine operator.

Flexible Machine Design

Machine designers are afforded significant flexibility to install the encoders in the tightest machine spaces, thanks to a minimal damping zone and an available measuring range between 50mm and 2,500mm, individually configurable in 1mm increments.

Specific variants of DAX can also use multiple magnets to provide differential values between positions along the measurement range, e.g. providing an output directly proportional to the amount of separation on a press. This feature can also be useful for example, to enable machine adjustments for format changes.

The SICK DAX encoders offer all the advantages of non-contact, wear-free magnetostrictive technology to measure absolute position, so no reference run is required. The linear encoders have an enclosure rating of IP65 and IP67, as well as a temperature range between -40 °C and +85 °C. Their rugged design and high shock and vibration resistance ensures long-term machine availability even under harsh application conditions.

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