Sensor technology for above, on and below the stage

TR Electronic ensures safety and precision in event technology

TR Electronic has been a reliable partner in professional event technology for many years. Rotary encoders detect the position of stage platforms, turntables, brochure and lighting hoists. Linear encoders, directly installed in hydraulic cylinders, precisely report the position of lower machinery.

The highest safety requirements apply to these applications. This is because malfunctions and the resulting incorrect positioning can endanger human life. Plant components can also be destroyed.

Especially when individual components make a decisive contribution to the safety and reliability of complex stage machinery, system planners and users must be able to rely on their partner. In now almost 40 years, TR Electronic has already supplied a number of stage machinery equipment with highly reliable encoders.

In April 2023, event technology will meet again in the Main metropolis at ProLight+Sound. Of course, TR will also be in the midst of the professionals for stage technology equipment. Especially in the safety-related design of complex stage systems, various strategies are used to be able to carry out positioning reliably and safely. With its extensive industry experience, TR supports various safety structures.

Certified safe

Functionally safe encoders of the CD_582 and CD_75 series offer the highest level of integration of safety functions directly into the sensor. The actual value is recorded by two independent measuring systems in one housing and its validity is already checked within the encoder by cross comparison. The position and speed data thus considered "safe" are transmitted via bus systems such as PROFIsafe (via PROFIBUS and PROFINET), CIPsafety (via Ethernet/IP), openSAFETY (via Powerlink) or FSoE (via EtherCAT) and now quite recently CANopen safety. Development and production of these KAT-4 encoders are certified so that the encoders can be used directly in applications that require a Safety Integrity Level ("SIL") of 3 or Performance Level ("PL") e. Where appropriate, devices with SIL2 or PLd can also be supplied. Most interface variants are available in the compact industrial size of 58 mm. This means that safety fits in everywhere where "normal" single rotary encoders used to work.

Reliably redundant

Another approach is to perform the actual value comparison in the controller or an axis computer. The CR_582 series of redundant absolute encoders was created for this purpose. Based on double single and multi-

turn scanning, two measured values from the same encoder shaft are determined independently of each other in a compact sensor. The actual values are transmitted either via two SSI interfaces (which can also be parameterized differently in resolution and zero point) or via one SSI and one incremental interface. The parts of the two internally installed scans up to the output driver are completely galvanically isolated including the supply. As bus version CR_582 offers a CANopen interface, which has internally two CAN participants for the two independently determined values. These redundant encoders follow the structure and interface of TR Electronic's long-established CE65 and QDH80 product series; now with the latest technology and more compact than ever before.

The encoders of the 582 series (functionally safe, redundant or with single scanning) are available as solid shaft, blind shaft and (except CR_) with through hollow shaft. The encoders can be positively mounted on shafts up to 15 mm. All these compact encoder systems fit into stationary leaflet hoists, moving point feeders as well as flexible belt and chain hoists for complex motion control.

For specific sensing tasks, TR Electronic complements the selected sensing technology with long-life rope length encoders. Lifting movements such as podiums or in brochure stores can thus be specifically detected; regardless of whether retrofitting or initial equipment.

For all these technologies, the experts from TR Electronic will be providing advice at ProLight+Sound from April 25 to 28 in Frankfurt in Hall 12.0 at Stand C35.

https://www.tr-electronic.com/applications/event-technology

Certified safe, redundant encoders and wire draw encoders made by TR Electronic