

Scientific Automation integrates high-precision temperature measurement and dynamic load cell analysis in the control system

Ultra fast and precise: EtherCAT measurement terminals

Measurement applications with demanding requirements for accuracy and dynamics can now be seamlessly integrated into a standard control system with new EtherCAT Terminals from Beckhoff. These new terminals handle measurements for temperature or weighing. The 4-channel EL3314-0010 thermocouple input terminal, for example, meets all requirements for high-precision temperature measurement. Also, the new EL3356-0010 is an analog input terminal for direct connection to a resistor bridge or load cell.

With the EL3314-0010 EtherCAT Terminal, Beckhoff extends its impressive range of measurement terminals even further. This dynamic terminal integrates temperature measurement into the standard automation system so that a dedicated and separate measurement system is no longer required. The analog input terminal enables direct connection of four thermocouples. Compared with the previous EL3314, the measuring accuracy of the new EL3314-0010 has more than doubled. For sensor type K this equates to $\pm 4.11^\circ$ for the EL3314 and $\pm 1.8^\circ$ for the EL3314-0010. The terminal circuit can operate thermocouple sensors in a 2-wire system. A microprocessor implements linearization over the whole, freely selectable temperature range. Cold junction compensation is dealt with via internal, high-precision temperature measurement in the terminals. The EL3314-0010 can also deal with mV measurements.

The new EL3356-0010 EtherCAT Terminal makes the range of Beckhoff solutions for weighing applications even more finely scalable. The high-precision and fast sampling of signal values – every 100 μs , with 24-bit resolution and a measuring error of less than $\pm 0.01\%$ – was developed for weighing applications and for vibration measurements on moving structures. The single-channel analog input terminal enables direct connection of a resistor bridge (strain gauge) or a load cell. The terminal determines the ratio between the bridge voltage U_0 and the supply voltage U_{REF} with high precision. The load value is output directly as a process value based on the settings in the terminal. High-speed, synchronous data sampling is achieved thanks to the EtherCAT distributed clock functionality.



Further Information:

www.beckhoff.com/EL3314

www.beckhoff.com/EL3356