CAN *Newsletter Online*

JUNCTION BOX

Monitoring load cell weighing systems

The Intelligent Junction Box by Hense (Germany) is designed for monitoring load cell weighing systems for error or fault conditions. All fault messages are transmitted via the on board CAN interface.


The box in action (Photo: Hense)

A weighing system consists of one or more loading assemblies, a junction box for signal summing, and an electronic unit to display the weight value and transfer the weight information to the PLC system. Because Hense Wägetechnik offers telephone support and provides field start up on demand, its service engineers figured out that a number of typical installation errors always repeat themselves in practice: false connection of the four to six wires between the load cells and the junction box; the load cells are out of balance; and cable break or bad connection at the terminals.

In practice service engineers often ask customers to measure the single load cell signals with a multimeter (voltage meter). For this reason it is necessary to disconnect the load cells and measure the excitation voltage and the individual mV signals of each load cell. All things considered this is a very time consuming process. To solve this problem in the future, Hense developed a solution called the Intelligent Junction Box, which they showed at the Powtech 2016 from April 19 to 21 in Nuremberg.

The box is powered via the load cell amplifier and does not require a separate supply voltage. For this reason it can be used in place of a standard junction box. The following parameter are continuously monitored and displayed: over- and underload of load cell signals (adjustable), cable break and contact faults, excitation voltage to load cells, and load deviation on load cells.
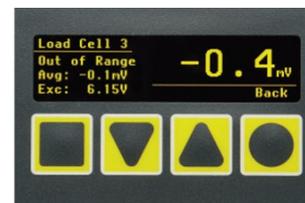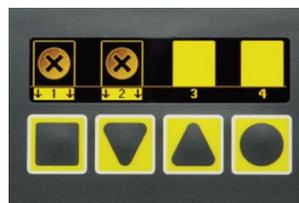
The display shows the actual conditions of the weighing system (Photo: Hense)

The bright OLED graphical display shows system errors and fault conditions with the facility to view individual load cell outputs, average load cell outputs and excitation voltage. A volt free relay contact is available for external connections. All fault messages are transmitted via the on board CAN interface.
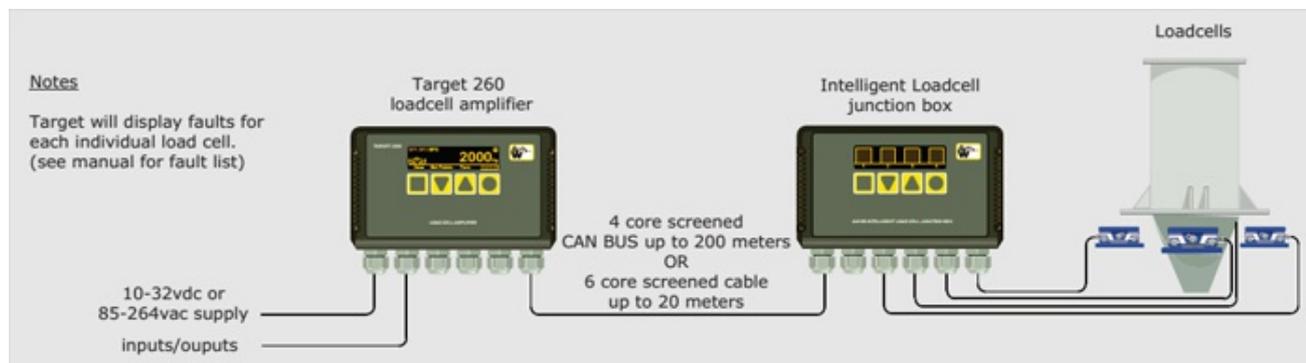
(Photo: Hense)

The load cell signal can be transferred via a conventional four or six wire connection to the amplifier. Alternatively, a two-wire CAN connection can be used for a distance of 200 m and more. If more than four load cells or one silo are to be monitored, CAN allows establishing a two-wire network.

To complete the system, the company offers a load cell amplifier, which is able to communicate with the junction box. The load cell amplifier Target 260 receives the CAN information and shows the weight and fault information in the display. Errors are stored in the memory of the box and the Target 260 electronic. This diagnostic function helps to isolate the source of the error with a short time period. The amplifier can be supplied for wall or table, panel or DIN-rail mounting. A stainless steel enclosure is available as an option. The following output signals are available: 0 (4) mA to 20 mA, 0 V to 10 V, 0 V to 5 V, three voltage-free relay contacts, and USB interface or serial interface EIA-232. Optional interfaces are Profibus DP and Profinet.

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