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Cleveland Motion Controls

ULTRA ISC

TENSION TRANSDUCERS



Ultra Tension Transducers with Embedded Amplifier

ULTRA ISC TENSION TRANSDUCERS

ULTRA ISC OVERVIEW

The Ultra ISC is a tension transducer that directly outputs a +/- 10 VDC signal. CMC offers an ISC version for all models of our Ultra tension transducers. All Ultra ISC transducers include an Integrated Signal Conditioner (ISC) that is embedded directly in the "Ultra" type load cells. This is accomplished by extending the connector housing one inch and inserting a proprietary integrated amplifier designed by CMC.

The Ultra ISC has been developed for those customers who desire to send the transducer signal directly

into their Controller, PLC, PAC, Drive, or Local I/O. The signal outputs are zeroed, scaled, and summed (if a pair of transducers is used) by software. It is responsibility of the customer to write this software. The Ultra ISC transducer is shipped preset from CMC with 0 volts representing no load, and 10 volts representing the full rating of the transducer. (Example: A 100 lb Ultra ISC transducer with no load outputs 0 volts. With a 100 lb. load the output is 10 VDC when loaded in one direction and -10VDC when loaded in the opposite direction.)

FEATURES
Includes Integrated Signal Conditioner (ISC)
No additional amplifier required
Direct +/- 10 VDC output
Local signal conditioning minimizes electrical noise
40:1 tension range
Factory preset zero and gain 0V= no load, 10V = load cell rating
Available in all Ultra Line models – Cartridge, Slim Cell, UPB, and CLT

BENEFITS
Eliminates hard ware costs of a separate amplifier
Frees up panel space
Reduces the amount of documentation drawings
Reduces wiring costs
Eliminates amplifier setup and calibration
Ability to bring signal directly to local I/O on Network
Improved diagnostic and balance capability with load cells scaled in controller

Advantages to Using the Ultra Amplifier

The Ultra ISC eliminates the need for a separate amplifier. This offers the following advantages:

- 1) Eliminates the hardware cost of a separate amplifier
- 2) Frees up panel space
- 3) Reduces the amount of documentation drawings
- 4) Reduces the amount of wiring
- 5) Eliminates amplifier setup and calibration
- 6) Ability to bring signal directly to local I/O on Network

Result: Less cost due to reduction in hardware, engineering, and labor.

Ultra ISC Slim-Style Transducer



Ultra ISC UPB Transducer

The Ultra ISC allows the customer to calibrate (zero and scale) and sum in his controller. This offers the following advantages:

- 1) Amplifier adjustments are eliminated, making setup and calibration truly a software based process.
- 2) Automatic zeroing in controller can be done at any time during "slack web" to compensate for any slight offsets that may occur over time.
- 3) Each transducer can be monitored and diagnosed individually.

Result: Improved performance and less maintenance

What are Considerations in Applying the Ultra ISC?

Whether to use the Ultra ISC Transducers or the Ultra Transducer with its associated DIN Rail Amplifier depends on the following Ultra ISC requirements:

- 1) Requires OEM and Users who have the capability to write programs that zero, scale, and sum in software.
- 2) Requires an analog input for each transducer. The input must be bipolar (+/- 10 VDC) in order to offset the weight of the roller in certain orientations.
- 3) Successful application of the Ultra ISC requires proper sizing and knowledge of the application.

The intent is for the OEM or User to implement the Ultra ISC with its preset zero and gain values. This requires that the transducer be sized properly and the controller software be properly written. The zero and gain adjustments in the Ultra ISC can be adjusted by the user but are not easily accessible. Field adjustment of the ISC should be done only if absolutely necessary. (As in the case where the transducer was improperly sized)

Does the Ultra ISC Eliminate Calibration?

Calibration is still required, but instead of adjusting the Ultra DIN Rail Amplifier pots for zero and gain, this can be done in application software that written by the customer. The customer accesses these software parameters via an HMI, keypad, or other device. The transducer is still calibrated using weights as is done currently.



Ultra ISC Cartridge-Style Transducer



Item	Specification	Comments
Input Supply		
Power Supply Requirements	24 VDC +/- 10% @ 30mA	
Load Cell (Transducer)		
Transducer Excitation (Vexc)	3.0 VDC Fixed	30-40mA max.
Transducer Resistance Range	100 to 800 Ohms	Do not exceed max. excitation current
Integrated Amplifier		
Span Adjustment	Preset at CMC	Accessible by user if necessary
Zero Adjustment	Preset at CMC	Accessible by user if necessary
Output Signal	+/- 10 VDC Full Scale @2mA max.	Output galvanically isolated from DC power input
Physical Specifications		
ISC Enclosure	Isolated Signal Conditioner (ISC) mounted in housing	Aluminum enclosure with M12 connector
ISC Enclosure Size with Connector	Base: 25mm (width) x 25 mm (height) x 43 mm (length)	1.0 in (width) x 1.0 in (height) x 1.7 in (length)
Weight – Ultra ISC Amplifier	50 grams	1.8 ounces
Connector M12	4-PIN male; DC keyed	
Environmental Requirements		
Operating Temperature	0 to 70 Degrees C	32 to 158 degrees F
Altitude	1000 meters	3300 feet



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(Separate amplifier NOT required!)

Cleveland Motion Controls, Inc.
 7550 Hub Parkway
 Cleveland, OH 44125
 tel: 216.524.8800 or 800.321.8072
 fax: 216.642.2199
 www.cmcontrols.com