

Cleveland-Kidder® Ultra

LOAD CELL AMPLIFIER

ULTRA LINE*



Performance Benefits

Cleveland Motion Controls new Cleveland-Kidder® Ultra Line Load Cell Amplifiers operate over a wider tension range, accepting output from full bridge Ultra Line Load Cells (that provide a higher output signal for better signal resolution). They have the ability to measure lower (light) tensions, eliminating drift that can distort low-tension measurements, resulting in a substantial and stable output signal. They reject electrical noise with a four-wire differential technology, providing a common mode of rejection to electrical noise and disturbances—resulting in clean and accurate output signals devoid of distortion. Plus, with an advanced temperature compensation network that cancels out temperature influences, Ultra Line Load Cell Amplifiers produce a minimum amount of deviation of signal output, regardless of ambient temperature changes.

When used in conjunction with Ultra Line Load Cells, Ultra Line Load Cell Amplifiers provide better performance than competitive load cell amplifiers by increasing the operating tension range from 8:1 to 40:1. They also provide more accurate measurement by eliminating electrical disturbances caused by AC drives, servos, and other modern high frequency devices.

Design Features

The Ultra Line Load Cell Amplifier is designed to interface with a wide variety of controls for monitoring and measuring web tension. Two versions are available—the basic amplifier or an electrically-isolated amplifier. Analog outputs on both include 0 to +/- 10 VDC and 4-20 mA for use as a tension feedback signal or tension indicator (for use with PCs, PLCs or other controls), 0-2 VDC with damping (for use with digital indicators) and a 0-1 mA signal with damping (for use with analog meters). It has a low power requirement, only 24 VDC power at 160 milli-amps. The analog outputs of the isolated module are galvanically isolated from the transducer load cell and power supply. This is a useful feature in systems where the tension signal is used for feedback, where ground loop or noise elimination is important.

The Ultra Line Load Cell Amplifier is low-profile, only 1.77 in. wide (45 mm), 4.14 in. deep (105 mm), and 2.95 in. high (75 mm). It weighs only 6.0 ounces (170 grams). The Ultra Line Amplifier is designed so that calibration adjustments and terminal strips are conveniently accessible from the front. Pluggable connections are removable for easy wiring. Essential specifications and a wiring schematic are located on the side, eliminating the need for a manual.

**Provides up to 40:1
Tension Range when
used with one or two
Ultra Line Load Cell
Solutions.**

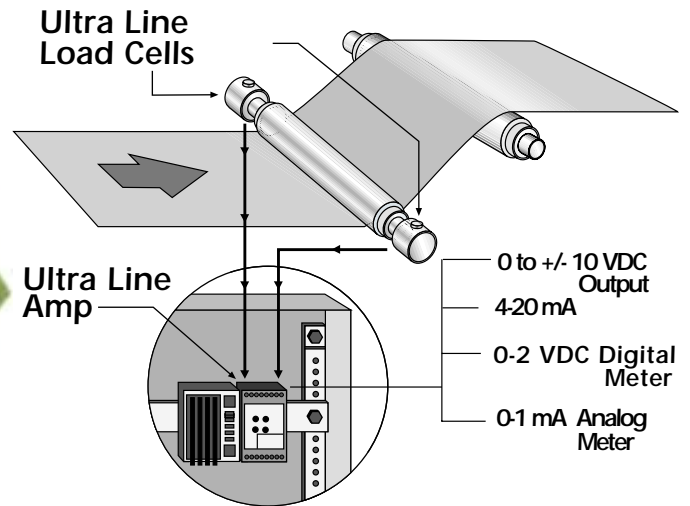
- Provides up to 40:1 tension range (Ex: accurately measures from 2.5 lbs to 100 lbs of tension when used with a 100 lb rated Ultra Line Load Cell).
- Rejects electrical noise from AC motors, servo motors, relay coils, as well as other electrical disturbances.
- Operates over a wide tension range.
- Specially designed to measure lower (light) tensions.
- Easily maintains proper tension measurement regardless of changes in ambient temperature.
- Easy to set up and calibrate.
- Interfaces with a wide variety of controls for measuring and monitoring web tension.

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GENERAL AMPLIFIER SPECIFICATIONS

Item	Specification	Comments
Amplifier (Instrumentation)		
Number of Input Channels	2, Fully Differential	True instrumentation amplifier
4 Switch Selectable Gains	8, 30, 150, 600	Gains established by high precision thin film resistors for maximum stability.
Zero Range	+/- Full Scale Output	Coarse and fine zero adjustments.
Nominal Input Signal Levels	0-500 millivolts 0-20 millivolts	Each channel full bridge semiconductor load cell Each channel foil-based load cell
Ultra Amplifier Output Signals	0 to +/- 10 VDC, 4 milliAmps and 4-20 ma, internal loop excitation, 50 -750 ohms burdened 0-2 VDC, 1 milliAmp or 0-1 mA	Undamped signals. Both can be used simultaneously. Switch Selectable Damping for Digital Meters. Switch Selectable Damping for Analog Meters.
Ultra Amplifier Output Signals (Isolated Model)	Isolated 0 to +/- 10 VDC, 4 milliAmps isolated and 4-20 ma, internal loop excitation 0-2 VDC , 1 milliAmp or 0-1 mA	Output galvanically isolated from Load Cell and power supply. Undamped signals. Both can be used simultaneously. Switch Selectable Damping for Digital Meters. Switch Selectable Damping for Analog Meters.

Amplifier (Summing, Combines Left and Right Channels)

Vernier Gain	10/1	High precision multi-turn Cermet potentiometer
Balance Adjustment	Matches the left and right channel gain	Eliminates error in tension measurement from shift in web position
DC Accurate 2 Pole Active Filter	Excludes out of band frequencies	Fc (Cut-off Frequency) = 1.6 kHz
Source Select Switch	Sum (Left + Right), Left Only	Accommodates either one or two load cells

Input Supply

Power Supply Requirements	24 VDC @ 160 milliAmps	Ultra Line Load Cell Amplifier (Basic)
Power Supply Requirements	25 VDC @ 180 milliAmps	Ultra Line Load Cell Amplifier (Isolated)
Power Supply Limits	20 to 28 VDC	

INDUSTRIAL PRODUCTS

7550 Hub Parkway
Cleveland, OH 44125-5794
Tel: 216-524-8800 or (800)-321-8072
Fax: 216-642-2100
www.ClevelandKidder.com

GVC Cleveland
Motion Controls
An IMC Company

Item	Specification	Comments
Load Cell (Transducer)		
Bridge Excitation Voltage	5.0 to 10.0 VDC @ 100mA	Highly stable. Switch selectable. Shipped with excitation voltage set for 5.0 VDC.
Load Cell Resistance Range	100 to 1000 Ohms	
Load Gage Type	Semi-Conductor (1-100 mV/V) or Foil (2-3 mV/V)	

Physical Specifications

Enclosure Type	DIN-Rail mountable with user adjustments accessible from front surface. Snap-on cover to access factory adjustments.	Phoenix EG type ABS enclosure. Color green.
Enclosure Size	Base: 45 mm wide by 75 mm high Depth: 105 mm	1.77 inches wide by 2.95 inches high 4.13 inches
Weight	170 Grams (6.0 Ozs.) 175 Grams (6.2 Ozs.)	Basic amplifier Isolated amplifier
Terminals	Two removable plugs of eight terminals each.	Screw type terminals, will accept one 12 AWG or equivalent. Phoenix "Combicon" type.

Environmental Requirements

Enclosure	Chassis mounting IP00	Chassis mounting, open
Operating temperature	0 to 55 degrees C	32 to 132 degrees F
Humidity	85% at 55 degrees C	85% at 132 degrees F
Altitude	1000m	3300ft
Atmosphere	Non-flammable, non-corrosive and dust free	Non-flammable, non-corrosive and dust free
Storage temperature range	-25 to 55 degrees C	-13 to 132 degrees F
Transport temperature range	-25 to 55 degrees C	-13 to 132 degrees F

Operating Conditions

Installation category	Category III
Pollution	Pollution degree 2
Input supply	Earth (Ground) referenced
Protection	Enclosure mounted

HOW TO ORDER

Part Number	Description
MWI-13262	Ultra Line Load Cell Amplifier (Basic)
MWI-13261	Ultra Line Load Cell Amplifier with Isolated Outputs

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WIRING DIAGRAM & ESSENTIAL SPECIFICATIONS

For Easy Reference Labels Are Provided On The Side Of Each Ultra Line Load Cell Amplifier

Essential Specifications--MWI-13262

CLEVELAND-KIDDER®
 ULTRA LINE LOAD CELL AMPLIFIER
 WITH NON-ISOLATED OUTPUTS
 CMC PART NUMBER: MWI-13262


S / N

REQUIRED SUPPLY : 24 VDC, 0.16A
 TRANSDUCER EXCITATION : 5V OR 10 V
 @ 100 mA MAX
 FACTORY SET FOR 5V

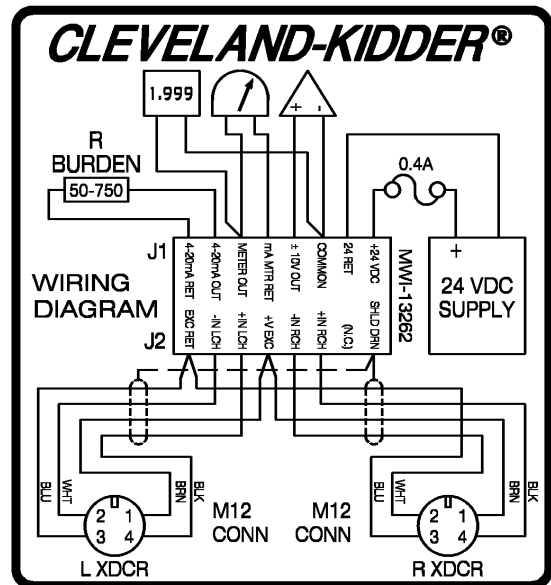
NOMINAL INPUT VOLTAGE PER TRANSDUCER:
 FOIL STRAIN-GAGE : 20 mV
 SEMICONDUCTOR GAGE : 500 mV

VOLTAGE OUTPUT : ± 10 V @ 2 mA MAX
 CURRENT LOOP OUTPUT : 4 - 20 mA (50-750 OHMS)
 METER OUTPUT : 2V @ 2 mA FOR DPM
 1 mA INTO 8K OHM

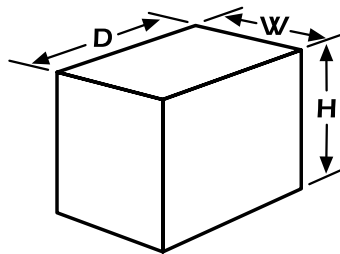
ORDER MANUAL : MAN-13262
 WWW.CMCCONTROLS.COM



Wiring Diagram Same For Ultra Basic and Ultra Isolated



DIMENSIONS



Part Number	Description	Height H	Width W	Depth D	Weight
MWI-13262	Ultra Line Load Cell Amplifier (Basic)	2.95" 75mm	1.77" 45mm	4.14" 105mm	6.0 oz 170g
MWI-13261	Ultra Line Load Cell Amplifier (Isolated)	2.95" 75mm	1.77" 45mm	4.14" 105mm	6.2 oz 175g

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