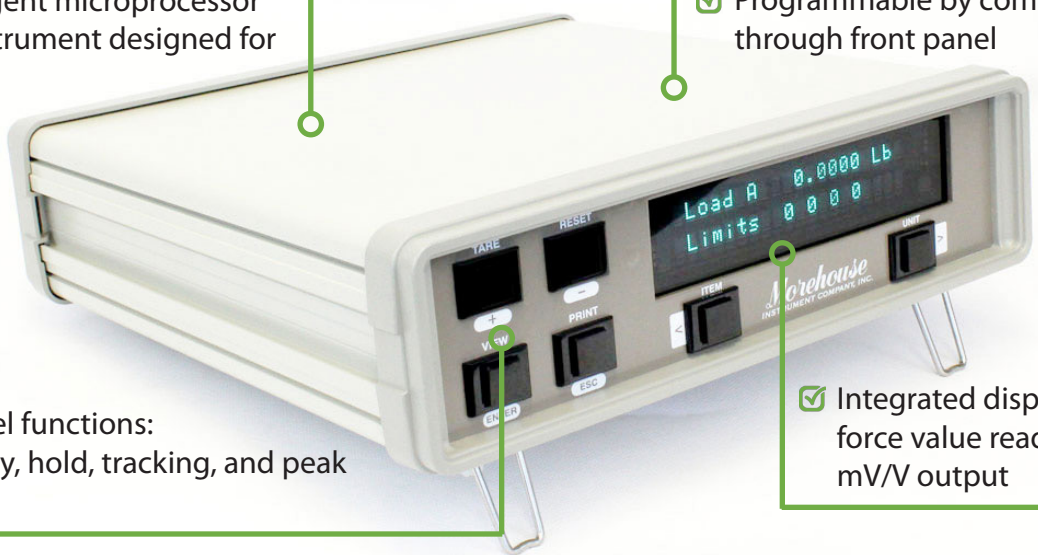
Morehouse
THE FORCE IN CALIBRATION SINCE 1925

4215 Indicator
(Single & Dual Channel Models)

- An intelligent microprocessor based instrument designed for load cells
- RS232 and USB output ports
- Programmable by computer or through front panel



- Front panel functions: Peak, valley, hold, tracking, and peak reset
- Integrated display for direct force value read or ratiometric mV/V output

Standard Features

- Single-channel and dual-channel models available
- Provides strain amplifier and signal conditioning for load cells
- Remote operation capability by a computer over USb or serial ports provides for control applications
- High accuracy high stability suitable to be used with laboratory reference load cells, or field applications
- Front panel display and user-selectable functions such as unit conversion, tare, and hold
- TEDS-Tag® auto load cell identification via TEDS plug & play ready IEEE1451.4 compliance

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Technical Specifications

Specifications	Load Cell Indicator Model: 4215
Input	
Non-Linearity	< 0.005 % FS
Load Cell Excitation	Selectable 5 or 10 VDC
Load Cell Wiring System	6 wire inclusive sense
Load Cell Input Range	± 4.5 mV/V
A/D Performance	Scalable ±10 VDC
Filter	6 user selectable filters
Display *	
Screen Type	2-line X 20-character vacuum fluorescent
Internal Resolution	24 bit
Update Rate	4 /sec
Maximum Count	Fully bipolar range ± 999,999
Engineering Units	Auto-convert: Lbf, Kgf, N, psi, MPa, Klbf, kN, t
General I/O's	
Hardware Interfaces	RS-232/RS422, RS485 communication standard
Power Supply	115 – 230 VAC, 50-60 Hz
Environmental	
Operating Temperature	32°F to 122°F (0°C to 50°C)
Storage Temperature	14°F to 140°F (-10°C to 60°C)
Maximum Relative Humidity	95 % at 104°F non-condensing
Dimensions	
Height x Depth x Width	3.0" H, 10.5" D, 10.0" W
Weight	6.6 lbs (3 kg)
Standards	
CE EMC directive 89/336	EN 61326/A1 Table A.1. passed
Certified accuracy	Class III: 10000e; 0.1 µV/VSI

* Single channel unit has two-line operation for simultaneous display of two quantities.
*Dual channel unit has two independent lines of 20-character display for simultaneous viewing of both channels.

Wiring

Sensor Connectors (DB9 Female)	
Connector Pin	Description
1	Excitation +
2	Sense +
3	Signal +
4	Signal -
5	Sense -
6	Excitation -
7	Auto ID - A
8	Auto ID - B
9	Chassis GND

Chart Rec. Connector (DB9 male)	
Connector Pin	Description
2	Analog – Out*
3	Analog – GND
4	High Bandwidth – Out** (Channel A)
5	4-20 mA – Out*** (Channel A)
6	2nd Analog – Out* (Optional)
7	4-20 mA – Out*** (Channel B)
8	High Bandwidth – Out** (Channel B)
9	No Connect

* The source and scaling of Analog-Out is selected through the menus.
** The High Bandwidth-Out is a buffered analog output permanently connected to the load cell channel.
*** If the 4-20 mA Option is purchased.

Wiring

Serial Port Connector (DB15 Male)	
Connector Pin	Description
1	TXD
2	RXD
3	No Connect
4	Serial GND
5	TXD + (Printer)
6	TXD – (Printer)
7	RXD – (RS485)
8	RXD + (RS485)
9	No Connect
10	Serial GND
11-13	No Connect
14	TXD + (RS485)
15	TXD – (RS485)

* Pins 1,2 and 4 are used for RS232 ASCII command set communications. Use 8 data bits, no parity, 1 stop, and set the baud rate using the Com Baudrate entry on the System Options menu.
** The printer uses RS422 differential signaling on pins 5, 6 and 10. Baud rate for the printer is selectable using the Printer Baud entry on the System Options menu.
*** Pins 7, 8, 14 and 15 are used for RS485 ASCII command set communications. Use 8 data bits, no parity, 1 stop, and set the baud rate using the Com Baudrate entry on the System Options menu.

Serial Port Connector (DB15 Male)	
Connector Pin	Description
1	LIM 1 A*
2	LIM 1 B*
3	LIM 2 A
4	LIM 2 B
5	LIM 3 A
6	LIM 3 B
7	LIM 4 A
8	LIM 4 B
9	ISO IN 1 – HI**
10	ISO IN 1 – LO**
11	ISO IN 2 – HI
12	ISO IN 2 – LO
13	ISO IN 3 – HI
14	ISO IN 3 – LO
15	ISO IN 4 – HI
16	ISO IN 4 – LO
17	Keylock***
18	GND
19	Encoder CHA-L****
20	Encoder CHA
21	GND
22	Encoder CHB-L
23	Encoder CHB
24	GND
25	GND
26	+12 VDC****

* Limits are optically isolated solid state switches that can control AC or DC voltage. Peak blocking voltage is 350V, maximum continuous current is 120 mA.

** Digital inputs are opto-isolated with internal current limiting resistors. Voltage range is +4 to +22 VDC on the "HI" input with respect to the "LO" input. Other voltage ranges are possible with added external resistors, contact Morehouse for details. If isolation is not required these inputs may be operated using the +12 VDC supplied on pin 26 and the GND on pin 24.

*** The keylock input will be in the "unlocked" state if left unconnected. Tie this pin to GND to "lock" it. When locked the setup of the Model 4215 cannot be changed (you cannot enter Setup mode).

**** The encoder inputs are intended for use with a +12 VDC quadrature encoder. For single ended signaling use the CHA and CHB pins, the CHA-L and CHB-L pins are provided for differential signals. The encoder can be supplied with the +12 VDC and GND available on pins 26 and 24. The Model 4215 will also accept +5 VDC encoder inputs but this MUST be differential. Single ended +5 VDC inputs are not supported on the standard unit. Options for +5 VDC encoders are available. Pin 26 will supply +5 VDC for this option and must be ordered accordingly.