![Morehouse logo](MHFORCE Morehouse - THE FORCE IN CALIBRATION SINCE 1925)

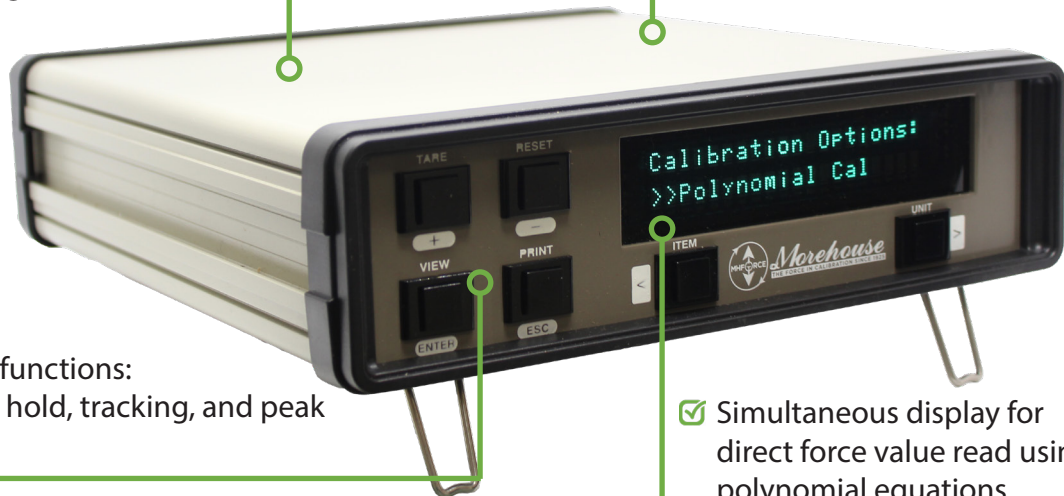ISO/IEC 17025 / ANSI/NCSLI Z540.3 Accredited

Product Guide

4215 Plus Indicator

Single Channel Indicator

☑ 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

☑ Simultaneous display for direct force value read using polynomial equations

Calibration Options:
>>Polynomial Cal

Standard Features

- Uses the polynomial equation found on ASTM E74, ISO 376, and other calibration certificates, reducing bias and providing more accurate force readings.
- Two-line display shows mV/V output and force values simultaneously
- Convert mV/V using the Polynomial Equation to direct read force units of lbf, kgf, N, Klb, kN, t, gf
- 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 and stability suitable to be used with laboratory reference load cells and field applications
- Front panel display and user-selectable functions such as unit conversion, tare, and hold

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Technical Specifications

Specifications	4215 Plus Load Cell Indicator
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	10 /sec
Maximum Count	Fully bipolar range ± 999,999
Engineering Units	Auto-convert mV/V to: lbf, kgf, N, Klb, kN, t, gf[1]
General I/O's	
Hardware Interfaces	USB, 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
Calibrations Types	
Polynomial Calibration	Up to 5th degree polynomial curve fit entry
Two Point mV/V Calibration	Linear curve fit entry
Five Point mV/V Calibration	Four segment linear curve fit entry
Two Point Data Cal	Linear curve fit based on load readings
Five Point Data Cal	Four segment linear curve fit based on load readings
Shunt Cal	Linear curve fit based on shunt reading
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

[1] Display must be in PolyA

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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[1]
3	Analog – GND
4	High Bandwidth – Out (Channel A)
5	4-20 mA – Out (Channel A)
6	2nd Analog – Out[1] (Optional)
7	4-20 mA – Out (Channel B)
8	High Bandwidth – Out (Channel B)
9	No Connect

1. The source and scaling of Analog-Out is selected through the menus.

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

1. 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 Baud rate entry on the System Options menu.
2. 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.
3. 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 Baud rate entry on the System Options menu.

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