

Technical Specifications

Power Requirements

Input Voltage	24 Vdc \pm 15%
Power Consumption	5 Watts
Isolation	Class II
Category	Category II

Environmental

Operating Temperature	+ 14 to + 122°F (-10 to +50°C)
Storage Temperature	- 4 to + 158°F (-20 to +70°C)
Relative Humidity	85% non-condensing

Display

Type	6-digit red LED, 7 segment 0.55" high
Status LED's	(4) Red LED's
Keyboard	(4) Keys (tactile feedback)

Performance

Excitation Voltage	5 volts fixed, short circuit proof
Load Current	85 mA (six 350 Ω load cells)
Conversion Rate	50 updates / second (no filtering)
Resolution	60,000 counts
Sensitivity	0.02 μ V / count
Linearity	< 0.01% of full scale
Temperature Creep	< 0.001% of FS / °C
A/D Converter	24 bits
Signal Input Range	- 0.5 mV/V to + 3.5 mV/V (- 3.9 mV/V to + 3.9 mV/V)
Filter	0.1 Hz to 25 Hz selectable
Increment Size	x1, x2, x5, x10, x20, x50
Decimal Point	0.0, 0.00, 0.000
Calibration Methods	Computer interface or via front panel

Analog Output (Isolated)

Type	16 bit D/A conversion
Voltage	0-10 Vdc (10K Ω min load)
Current	4-20 mA (300 Ω max load)
Linearity	< 0.012% of full scale
Temperature Creep	< 0.001% of FS / °C

Inputs & Outputs

(2) Logic Inputs	Opto-isolated, 24 Vdc PNP (requires ext. power supply)
(2) Logic Outputs	Solid-state relays, (maximum load 24 Vdc / 100 mA each)
Serial Output	RS-232, RS-422 or RS-485
Maximum Cable Length	50 feet RS-232, 3200 feet for RS-422 and RS-485
Standard Protocols	ASCII, Modbus RTU, Printer
Baud Rate	2400, 9600, 19200, 38400, or 115200 selectable

Enclosure

Overall Dimensions	3.75" x 1.88" x 5.88" (L x H x D)
Mounting	Panel mount (cutout = 3.50" x 1.69")
Enclosure	ABS Plastic
Protection (front)	IP20
Weight	9.5 Ounces
Wiring Connections	Terminal blocks (pitch = 0.196")

Specifications are subject to change without notice

Installation

Mounting

Install the instrument in a location where it will not be subjected to excessive heat, humidity or vibration. For best results, avoid direct sunlight on the front of the instrument. The unit should be installed at eye level so as to allow viewing the display and access to the front panel keys.

Cable Types and sizes

Use a 6 x 0.5 mm² shielded cable for the load cell/s connection. Use a 3 x 0.34 mm² shielded cable for the RS-232 connection, and a 2 x 0.34 mm² shielded cable for the RS-485 connection.

Power and Wiring Considerations

The instrument is powered from an external 24 Vdc source. The instrument can be operated from a computer, therefore, a "clean" power source is required for reliable operation.

The incoming power should come from a source that is isolated from other process equipment.

Cables carrying primary and switched power should be routed away from load cell and other signal cables to avoid electrical interference.

Relays, motor starters and other inductive devices connected to the equipment must have reliable and effective arc suppression.

Always connect the shield lead where indicated on the drawing, and on one end only.

High voltage devices such as megohmmeters, etc. should *never be used* to check the wiring connections.

Plastic insulating tape should not be used on load cell connections.

Environmental Considerations

Heavy electrical equipment should not be installed close to the weighing equipment.

Excessive vibration will affect the accuracy of the weigh system and depending on the severity can cause damage to electrical and electronic components.

The atmosphere should be dust free and not contain any corrosive gasses or materials which could adversely affect the equipment.

Hazardous areas

If the weighing system will be installed in a hazardous area, please refer to the drawing shown on page 48.

NOTES:

WELDING on or in the vicinity of the equipment is **strictly prohibited**.

STATIC loads, caused by thunderstorms, must be prevented from developing by using reliable lightning conductors.

ENSURE that the cooling of the equipment is not obstructed.

Introduction

This manual provides general information on the installation, configuration, calibration, and operation of the 500 Series Digital / Analog Transmitter. The unit features a four-button keyboard, 6-digit Red LED display, and four status LED's. The unit can be configured and calibrated with the front panel keys, or remotely via the serial port. The transmitter is packaged in a 1/8 DIN size ABS plastic panel mounted enclosure.

All units include the following features:

- Drives up to six 350 ohm load cells
- Supports 4 and 6 wire connections
- RS-232, RS-422, or RS-485 outputs
- (2) Logic inputs
- (2) Logic outputs (setpoints)
- Isolated analog output 4/20mA, 0-5 Vdc or 0-10Vdc output utilizing a 16 bit DAC

The 500 Series Digital / Analog Transmitter has three modes of operation:

Operating mode

In this mode the unit displays gross weight, net weight, or peak force readings as required.

Setup mode

This mode is used for configuration and calibration of the unit.

Test mode

The test mode enables you to test the inputs, outputs, and analog output.

Front panel key functions - Operating Mode

The "SET" key enables you to enter values for Setpoints 1 and 2. Press the "SET" key, Set 1 appears on the display. Press the "PRG" key to view the current value. To change the current value, press the "O" key to select a digit, then use the "UP" or "DOWN" keys to increment or decrement the value.

Repeat this procedure for the remaining digits, then press the "PRG" key to enter the new value. To change the value for Setpoint 2, press the "SET" key again and repeat the above procedure or press the "O" key to exit.

The "FUN" key is used to switch the unit from Gross mode to Net mode, or Peak Hold mode. To switch to Peak Hold mode, press and hold the "FUN" key until a 'P' appears on the display.

Operating Mode (cont'd)

The "O" key is used to zero the unit in Gross mode, tare the unit in Net mode, and reset the peak value in Peak Hold mode.

The "PRG" key is used to send the data to the RS-232 serial port for use with a computer.

Front panel key functions - Setup Mode

In setup mode three of the front panel keys are used as directional keys to scroll through the various menus. A label on the lower half of each key identifies the direction provided by the key.

The "SET" and "FUN" keys are used to navigate through the main menu and sub-menus. They are also used to increment or decrement the numerical value of a selected digit.

The "O" key is used to move through certain sub-menu parameters, or to select a specific digit when numerical values are displayed. It is also used to return to the main menu from any of the sub-menus.

The "PRG" key switches the unit to the "Basic Configuration" mode. It is also used to enter the sub-menus, and store parameter changes.

The "PRG" key when used in conjunction with the "SET" key switches the unit to the "Complete Configuration" mode. It is also used to enter the sub-menus, and store parameter changes.

Status LED's

There are four status LED's on the front of the unit, one for Motion, one for Net mode, and one for each of the outputs.

Enabling/Disabling front panel keys.

In order to prevent any access to the instrument by non-authorized personnel, a procedure to lock the front panel keys is also available.

Each key can be locked **individually**.

The 1/0 selection establish the lock/unlock condition for each single key.

See page 6 for more details.

Enabling the "blind" function

This function allows to disable the visualization of the display. A dash running counterclockwise on the display's perimeter is displayed instead of the weight value.

See page 6 for more details.

