

Plug & Play Smart PORTABLE HAND HELD LOAD CELL INDICATOR

MODEL SSI





USB 2.0 A/B 10ft Cable Included

The SSI is a Plug & Play Smart TEDS IEEE 1451.4 compliant portable handheld Load Cell Indicator. Just plug in a TEDS compatible Load Cell or Torque Sensor and the SSI will automatically self-calibrate. When used with a non-TEDS Load Cell or Torque Sensor, the SSI can be set up by simple front panel push buttons. The SSI can be scaled to a full 5 digit display from 0 to 99,999 counts to read directly in engineering units such as grams, ounces, pounds, inch pounds, etc. The SSI also has a Units key for automatic conversion of readings for load, torque and pressure. The SSI has an ultra-fast signal-sampling rate of 15,360 samples/second for true peak and/or valley testing capability. Auto-tare allows the meter to be set to zero for any input signal level. The SSI also features a USB port for data logging to a PC. You can also log data to the SSI's internal memory storing up to 16,000 time and date stamped readings. The SSI also features 2 built-in solid-state alarm relays with LED and audible indicators.

The SSI will operate up to 65 hours on a single charge or use the included battery charger for applications where the SSI is mounted permanently. Read additional article...

 SSI Manual  SSI Serial Communication Manual

 SSI Instrument Setup Software  USB Driver

-  Approved
- "Plug and Play" operation with automatic scaling at power-up with TEDS IEEE 1451.4 compliant load cells.
- Menu-driven scaling of non-TEDS-compliant load cells via keypad with a choice of two scaling methods: manually entered coordinates of two points, or reading coordinates of two points using input signals.
- PC-based scaling of non-TEDS-compliant load cells using Instrument Setup software, again with a choice of two scaling methods.
- Keypad selectable units of measure for load, torque or pressure, with automatic conversion of readings between units.
- Lockout feature to simplify meter operations and prevent inadvertent changes.
- Ultra-fast signal sampling rate of 15,360 samples/second (when set for 60 Hz noise rejection) or 12,800 samples/second (when set for 50 Hz noise rejection).
- Normal conversion rate of 60/second (when set for 60 Hz noise rejection) or 50/second (when set for 50 Hz noise rejection), with digital averaging of every 256 samples. Allows display of filtered or unfiltered readings, capture of Peak, First Peak or Valley.
- Selectable Fast conversion rates up to 7,680/second (when set for 60 Hz noise rejection) or 6,400/second (when set for 50 Hz noise rejection). Always unfiltered, allows capture of Peak or First Peak.
- Display update rate at 3.75/second (when set for 60 Hz noise rejection) or 3.125/second (when set for 50 Hz noise rejection). Display batch averages of 16 conversions or moving averages of conversions.
- USB port for direct connection to a PC at baud rates from 300/second to 38.4k/ second.
- Data logging to internal memory of up to 16,000 time and date stamped readings at up to 60 or 50 captures/second. Data logging may be single or continuous.
- Selectable memory protection to prevent overwriting previously stored data.
- Recall of internally stored readings to the meter display, a PC, or a printer with a USB interface. Recall may be single or continuous (standard capability).

- Recall of last meter calibration date.
- Data logging of time and date stamped values in real time via USB to a PC or printer. The values may be the current reading, Peak, Valley, or any combination thereof.
- Optional PC Data Logging Software, P/N SSI-DLS. Collects real-time or stored data via USB. Lists, plots or stores meter data in PC memory.
- Two built-in, solid state alarm relays, with LED and audible indications. Selectable relay latching or non-latching, setpoint hysteresis or band deviation modes.
- Two control inputs assignable to Meter Reset, Peak & Valley Reset, Peak & Valley Display, Tare, Tare Reset, and Log Trigger.
- Built-in load cell excitation voltage.
- Powered by a rechargeable 2400 mAh lithium-ion battery for up to 65 hours of operation. Battery charge monitor circuit with bar graph and audible indications.
- Selectable automatic meter shutoff after interval of inactivity (15, 30 or 60 minutes).
- Wall plug type, UL-rated AC adapter / battery charger unit with removable A-B USB cable.
- Carrying case (optional).

Specifications

Display

Type	Reflective LCD, 2.56" x 1.73" (65 x 44 mm) window
Main numeric display	6 seven-segment digits, 0.57" (14.5 mm) high
Other displayed items	4-digit recall number, 10-segment bar graph, choice of 18 units of measure, battery life indicator, operating mode indicator
Overload indication	Display flashes at 120% of HiRead

Response Rates

Normal data sampling rate	15,360 samples/second (setting for 60 Hz noise rejection) 12,800 samples/second (setting for 50 Hz noise rejection)
Normal conversion rate	Every 256 samples 60/second (setting for 60 Hz noise rejection) 50/second (setting for 50 Hz noise rejection)
Fast conversion rates	Every 2 to 128 samples (programmable)
Relay response rate	Same as Normal conversion rate
Display update rate	Every 16 conversions 3.750/second (setting for 60 Hz noise rejection) 3.125/second (setting for 50 Hz noise rejection)
Peak & valley capture rate (selectable)	Every 2, 4, 8, 16, 32, 64, 128 or 256 samples
Peak & valley display update rate	3.750/second (setting for 60 Hz noise rejection) 3.125/second (setting for 50 Hz noise rejection)

Analog-to-Digital Conversion

Recommended load	120-10K ohm bridge
Bridge excitation voltage	3.0V
Provision for variations in bridge excitation	Ratiometric operation
Signal span, max	15 mV
Transducer sensitivity range	1-5 mV / V
A-to-D converter resolution	16 bits (65,536 counts)
Signal resolution	0.5 μ V/count
Accuracy at 25°C	\pm 1.5 μ V
Span Tempco	0.0015% of reading/°C
Zero Tempco	0.2 μ V/°C
NMR with no filtering	90 dB
Signal filtering (selectable)	1) No filtering: 50 or 60 conversions/second 2) Batch average of 16 conversions 3) Moving average of conversions

Power Requirements

Internal battery	Rechargeable lithium ion
Battery capacity (nominal)	2400 mAh, 3.7V
RUN time on single battery charge	Up to 65 hours with 350 ohm bridge
Battery charger	Wall plug AC power unit
Battery charger input	100-240V ac, 50/60 Hz, 0.4A
Battery charger output	5.0V dc, 1.0A
Battery charging time, max	8 hours
Battery charge indication	Battery symbol with 4 bars to show percent of full charge 4 bars = 80% - 100%, 3 bars = 60% - 80%, 2 bars = 40% - 60%, 1 bar = 20% - 40%, flashing battery symbol = 0% - 20%

Relay Output

Relay types	Dual relays with single common, solid state
AC rating	120 mA @ 350Vac peak, 35 ohms series resistance
DC rating	120 mA @ 350Vdc, 35 ohms series resistance
Isolation to signal common	5300 Vac rms
Setpoint setup	Via keypad or PC
Response rate (selectable)	60/second or 50/second (each 1 conversion or 256 samples)
Response filtering (selectable)	Filtered or unfiltered
Active modes (selectable)	Above or below setpoint, latching or non-latching, disabled
Visual active Alarm Indication	AL1 LED (yellow), AL2 LED (red), Go (green)
Audible active alarm indication	Selectable
Activation time delay (selectable)	1 to 128 conversions
Setpoint / lockout modes (selectable)	1) Display and change setpoints 2) Display but do not change setpoints 3) Neither display nor change setpoints

Serial Interface to PC

Signal type	USB 2.0
Baud rates (selectable)	300, 600, 1200, 2400, 4800, 9600, 19200, 38400
Serial protocol	Point-to-point ASCII, PC compatible

Control Inputs

Number of inputs	2 (A & B)
Input activation	Short to ground
Control input action	Meter Reset, Function Reset, Display Peak or Valley, Tare, Tare Reset, Log

Mechanical

Dimensions	1.28" x 3.30" x 7.50" (32 x 84 x 185 mm)
Weight	10 oz (280 g)
Case material	ABS-94HB plastic
Provision for stand	3 inserts, 8-32 UNC threads, 3/8" deep 1.500" triangle base, 1.750 triangle height (see photo on page 6)
Keypad	Membrane type, 8-keys with tactile feedback
Display type	Reflective LCD
Displayed info	6 large digits, 4 small digits, two bar graphs, units of measure, indicators
Electrical connectors	DB9 male for TEDS and signal connection to load cell, 3-pin jack plus detachable connector for dual relay outputs 3-pin jack plus detachable connector for control inputs 10 foot (3 m) USB cable to charging unit or computer

Environmental

Operating temperature	0°C to 55°C
Storage temperature	-20°C to 60°C
Relative humidity	95% from 0°C to 40°C, non-condensing
Environmental sealing	Dust and humidity resistant

Peak-to-Peak Noise as a Percentage of Full Scale

Conversion type	Filter setting	Filter time constant	Load cell sensitivity			
			1 mV/V	2 mV/V	3 mV/V	4 mV/V
Normal	A	No filter	0.03	0.02	0.01	< 0.01
Normal	1	16 conv. batch avg.	< 0.01	< 0.01	< 0.01	< 0.01
Normal	2	0.08 sec	0.01	0.01	< 0.01	< 0.01
Normal	3	0.14 sec	0.01	< 0.01	< 0.01	< 0.01
Normal	4	0.3 sec	< 0.01	< 0.01	< 0.01	< 0.01
Normal	5	0.6 sec	< 0.01	< 0.01	< 0.01	< 0.01
Normal	6	1.2 sec	< 0.01	< 0.01	< 0.01	< 0.01
Normal	7	2.4 sec	< 0.01	< 0.01	< 0.01	< 0.01
Normal	8	4.8 sec	< 0.01	< 0.01	< 0.01	< 0.01
Normal	9	9.6 sec	< 0.01	< 0.01	< 0.01	< 0.01
Fast 1	No filter	120 conv./sec	0.06	0.03	0.02	0.01
Fast 2	No filter	240 conv./sec	0.08	0.04	0.03	0.02
Fast 3	No filter	480 conv./sec	0.11	0.06	0.04	0.03
Fast 4	No filter	960 conv./sec	0.16	0.08	0.05	0.04
Fast 5	No filter	1920 conv./sec	0.23	0.11	0.08	0.06
Fast 6	No filter	3840 conv./sec	0.32	0.16	0.11	0.08
Fast 7	No filter	7680 conv./sec	0.45	0.22	0.15	0.11

OPT-TEDS Plug & Play Option

AD9 (9 PIN "D" Series) Connector attached to the end of a Load Cell or Torque sensor cable with a TEDS (Transducer Electronic Data Sheet)

EEPROM. Used with a Smart Plug & Play IEEE 1451.4 Compliant instrument, (shown on right), the Load Cell and Instrument will self calibrate. This option is a real time saver. Read additional article...



USB-2.0A/B

USB-2.0A/B 10ft Cable



SSI-TRES

TEDS Reader Editor Software



SSI-AMB

Adjustable Mounting Bracket



SSI-DLS

Data Logging Software

