THAYER SCALE

CONTINUOUS WEIGHING & FEEDING OF BULK MATERIALS

FORCE MEASUREMENT FMSS SUSPENSION SYSTEM

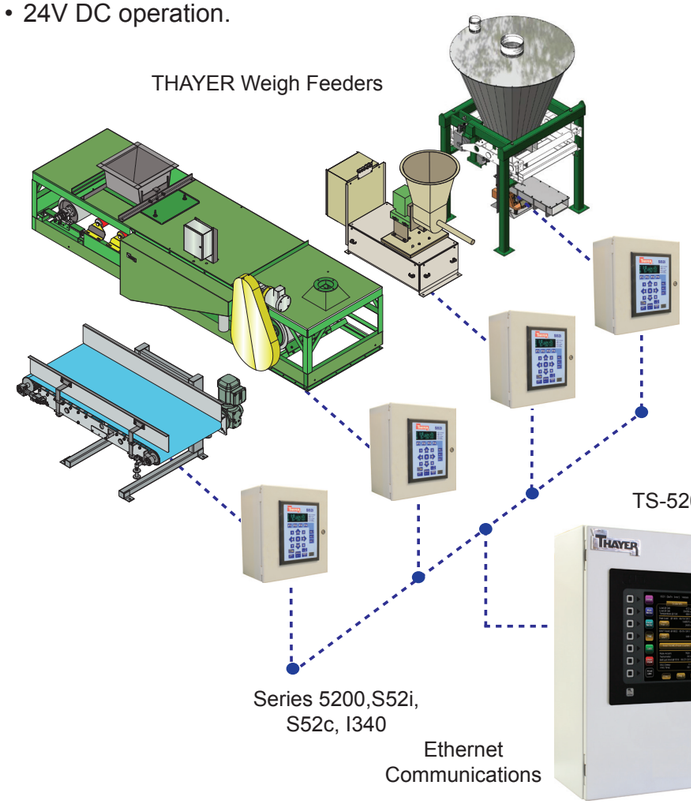
SINGLE and MULT-FEEDER OPERATOR INTERFACE TERMINAL

MODEL TS-520

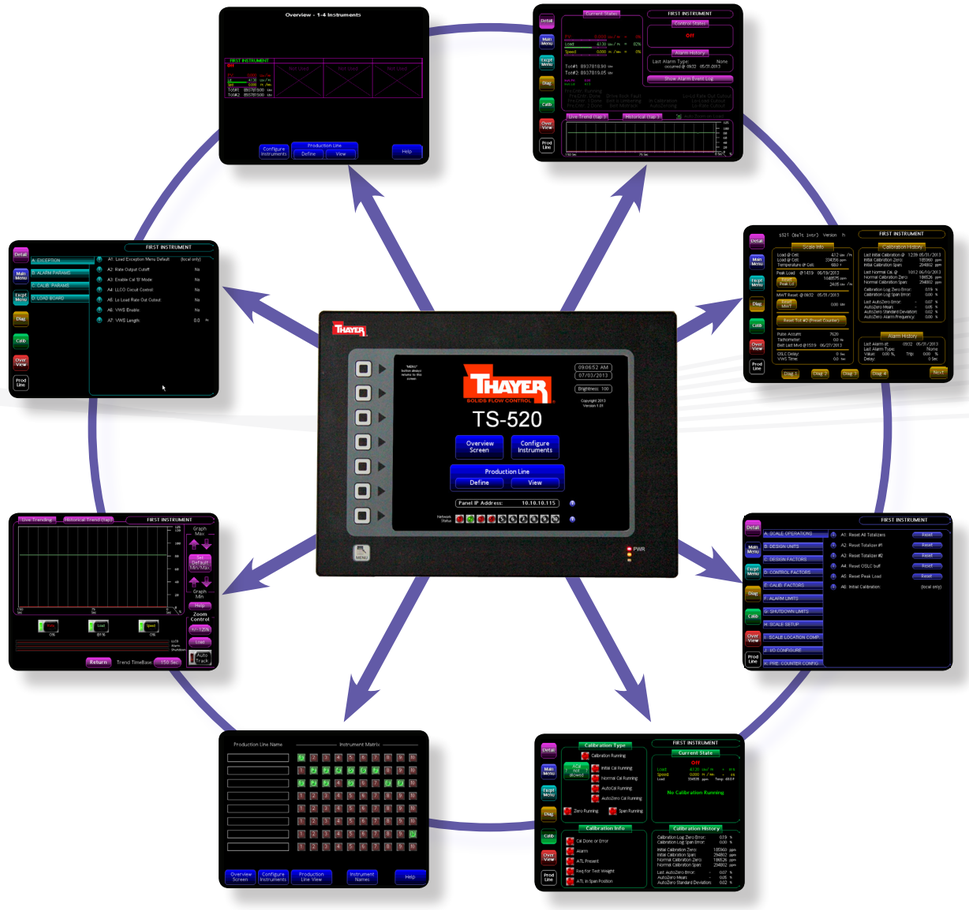
The **TS-520 Operator Interface Terminal** is a graphic touch screen panel that is capable of supporting up to twelve (12) THAYER weigh feeders. Feeder data is graphically displayed and includes historical trends, statistical control, diagnostics, help, and much more.

- Connects up to twelve (12) instruments (S52, Series 5200) over Ethernet Network.
- Configure and personalize up to eight (8) separate product lines.
- Multiple screen selection (production lines, individual instrumentation screens).
- Individually program each instrument over the network.
- One touch help descriptions for programming and setup.
- Full diagnostic capabilities for each instrument on network.
- User configurable trending display for each applications run time variable.

- Configuration and Firmware are Stored in Non-volatile FLASH Memory.
- 10.4” TFT 256 color VGA 640x480 pixel LCD.
- Resistive Analog Touchscreen.
- Remote web access and control capability.
- USB port for configuration download.
- Compact Flash socket
- Type-4X / IP66 aluminum front panel when correctly fitted with the gasket provided.
- 24V DC operation.



Web/FTP upload connectivity to your remote PC, data acquisition and transfer capabilities are available allowing remote access to diagnostic information or to the values recorded by the data logger.



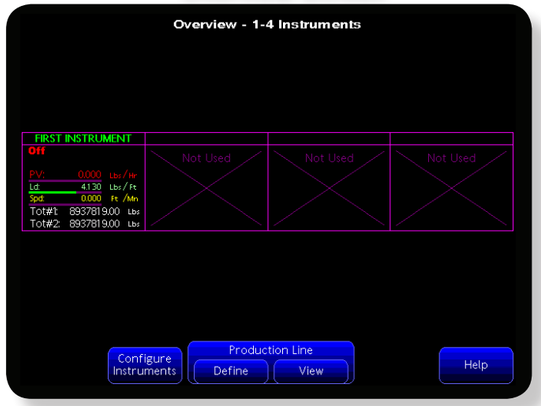
Instrument Configuration

When the IP address has been entered, the TS-520 will check for the existence of that instrument on the network.

Once found, the panel will automatically show the type of the instrument and the “Online” indicator will turn green.

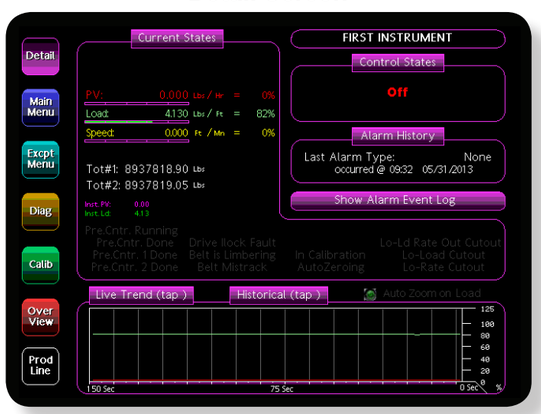
The “Instrument Name” button can be pressed to give that instrument an easily identified name. Up to 16 characters can be used for the name.

Overview Screen



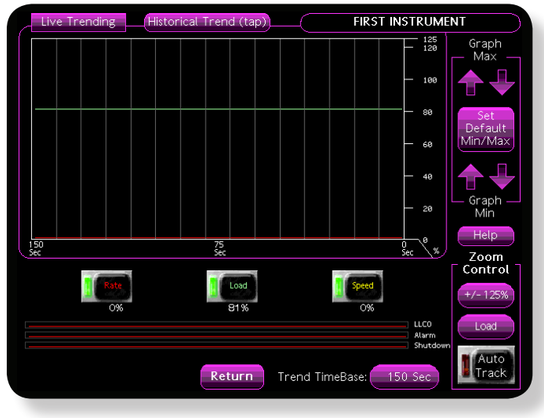
The Overview screen will show the basic information for all instruments currently being viewed by the panel. In the top of each instrument the Name will be shown. If that instrument is in an Alarm or Shutdown condition, the Name will change color from green to yellow (alarm) or red (shutdown). Instruments (specifically IP addresses) not used will show as “Not Used”. Tapping on the individual instrument will bring up the Detail Screen of that instrument.

Detail Screen



The Detail Screen show the most important information that the instrument provides. Specific information for Controllers (Belt and LWF) can be entered on this screen, such as RUN/OFF and Setpoint entry.
In the lower portion of the screen is a trending graph that shows information regarding the major variables for this instrument. Tapping on this graph will enlarge this graph on a new screen. Alternately, tapping on the Historical button on the top of this graph will open a graph that is capable of viewing historical data.

Live Trend Screen



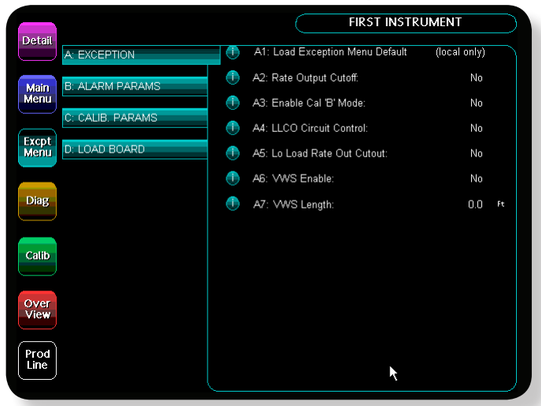
The Live Trend screen has advanced features that allow the user to zoom in and track a specific variable so it can be examined in finer detail. Controls for this are found on the right side of the screen.

“Graph Max” and “Graph Min” will adjust the upper and lower limits of the graphing area.
Below this is a Help button to provide this information as needed.

In the bottom right corner are the controls for Auto Tracking. This feature will keep a specific variable in the display area, regardless of how much the variable is changing.
Under the graph are buttons that can be turned on or off to determine which variables are shown on the graph. Only variables that are specific to the type of instrument are shown. These button also determine which variables are seen on the graph in the Detail Screen.

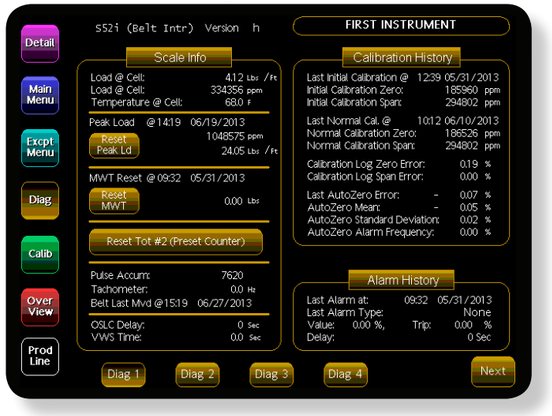
Menu Screen: Main

Menu Screen: Exception



Two menu areas are viewable on the TS-520: Main and Exception.
Tapping on any numeric entry will open a keyboard that allows the user to change the value. Tapping on any selection-type entry (engineering units, resolutions, yes/no, etc.) will pop-up a window that the user can scroll through to choose the proper selection. If no entry or selection is made, the pop-up window will disappear. Once an entry is changed, the color of that line will change to a RED color. This means that the information shown on the screen differs from that seen in the instrument. After a few seconds the line will turn back to WHITE, indicating the screen and what is in the instrument match. This time will vary as network traffic and response time from the instrument is not always constant.

Diagnostic Screen



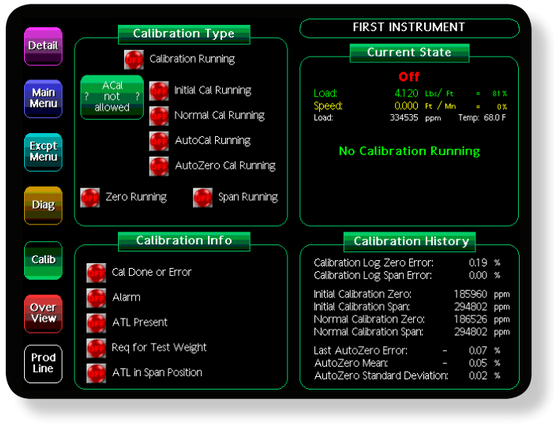
There are multiple diagnostic screens available for each instrument. The first shows the scale information as well as calibration and alarm histories.

The user is allowed to reset totals and peak load value from this screen.

The second and third diagnostic screens show information about the I/O and digital (on/off) status about the instrument.

The fourth screen will provide more specific historical information regarding calibrations and alarms

Calibration Screen



The user can follow calibrations preformed by the instrument here. Depending on the existence of an Automatic Test Weight Lifter (ATL or ATWL), and other menu entries, an Automatic calibration can be initiated here as well. If all conditions to run an AutoCal are not met, the button will show a “?”. Tapping on this button will present the reasons the calibration cannot be performed.

Statistical information regarding AutoZero calibrations can be found in the lower right corner of this screen

Production Lines

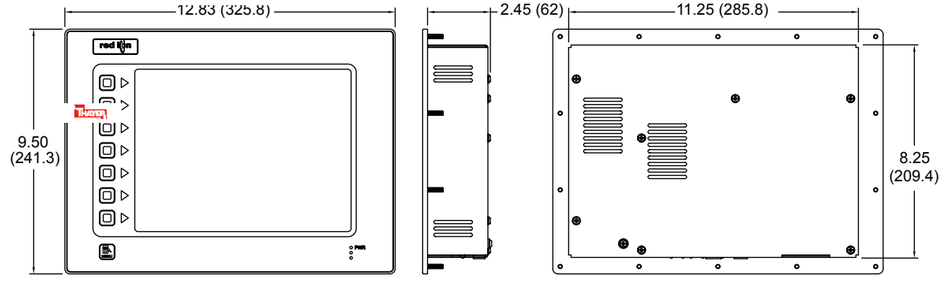
Production Lines allow the user to group certain instruments that pertain only to a specific product together. Any or all of the instruments can be please in any of the eight Production Lines.

The first step is to select which instruments are used in each line. Tapping on the button associated with the instrument in the particular Production Line until the button shows green will assign that feeder to that Production Line. Instruments that are not on-line can still be assigned. Instruments can exist on more than one Production Line. Tapping on the box for the Production Line Name allows

SPECIFICATIONS

- **POWER REQUIREMENTS:** +24 VDC ±20% @ 30 W maximum. Must use a Class 2 circuit according to National Electrical Code (NEC), NFPA-70 or Canadian Electrical Code (CEC), Part I, C22.1 or a Limited Power Supply (LPS) according to IEC 60950-1 or Limited-energy circuit according to IEC 61010-1. Power connection via removable three position terminal block.
- **BATTERY:** Lithium coin cell CR2025. Typical lifetime of 10 years.
- **8-KEY KEYPAD:** for on-screen menus.
- **TOUCHSCREEN:** Resistive analog
- **MEMORY:** On Board User Memory: 32 Mbyte of onboard non-volatile Flash memory.
- **Memory Card:** CompactFlash Type II slot for Type I and Type II CompactFlash cards.
- **COMMUNICATIONS:** USB Port: Adheres to USB 2.0 specification full speed only via Type B connection.
  Ethernet Port: 10 BASE-T/100 BASE-TX RJ45 jack is wired as an NIC (Network Interface Card).
- **Operating and Storage Humidity:** 80% maximum relative humidity (noncondensing) from 0 to 50°C. Vibration according to IEC 68-2-6: Operational 5 to 150 Hz, in X, Y, Z direction for 1.5 hours, 2 g. Shock according to IEC 68-2-27: Operational 35 g, 11 msec in 3 directions.
- **CERTIFICATIONS AND COMPLIANCES:**
  SAFETY: UL Listed, File #E245515, UL61010-1, ANSI/ ISA 12.12.01-2007, CAN/CSA C22.2 No. 61010.1, CSA C22.2 No. 213-M1987 and File #E179259, UL61010-1, CAN/CSA C22.2 No.61010-1
- LISTED by Und. Lab. Inc. to U.S. and Canadian safety standards.
- **Altitude:** Up to 2000 meters.
- Type 4X Enclosure rating (Face only), UL50
- IECEE CB Scheme Test Report #E179259-A1-CB-3
- Issued by Underwriters Laboratories Inc.
- IEC 61010-1, EN 61010-1: Safety requirements for electrical equipment for measurement, control, and laboratory use, Part 1.
- IP66 Enclosure rating (Face only), IEC 529
- **ELECTROMAGNETIC COMPATIBILITY:** Emissions and Immunity to EN 61326: 2006: Electrical Equipment for Measurement, Control and Laboratory use.
- **CONNECTIONS:** Compression cage-clamp terminal block. Wire Gage: 12-30 AWG copper wire Torque: 5-7 inch-pounds (56-79 N-cm)
- **CONSTRUCTION:** Steel rear metal enclosure with NEMA 4X/IP66 aluminum front plate when correctly fitted with the gasket provided. Installation Category II, Pollution Degree 2.
- **MOUNTING REQUIREMENTS:** Maximum panel thickness is 0.25” (6.3mm). For NEMA 4X/IP66 sealing, a steel panel with a minimum thickness of 0.125” (3.17 mm) is recommend. Maximum Mounting Stud Torque: 17 inch-pounds (1.92 N-m)
- **WEIGHT:** 5.44 lbs (2.47 Kg)

DIMENSIONS



TS-520 PORT LAYOUT