Thompson Scale Company
WEIGHING SYSTEMS & PACKAGING MACHINERY CONTROLS

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SPPC-Lite
User's Manual

Version 1.0
Printed November 18, 2013

SPPC-Lite is a software product designed to automatically monitor your production scale's serial or Ethernet port, capturing weight data as it is output by that device. Data is stored into logical files, based upon production runs and is available for reporting or exporting in an Excel® ".xlsx" format.

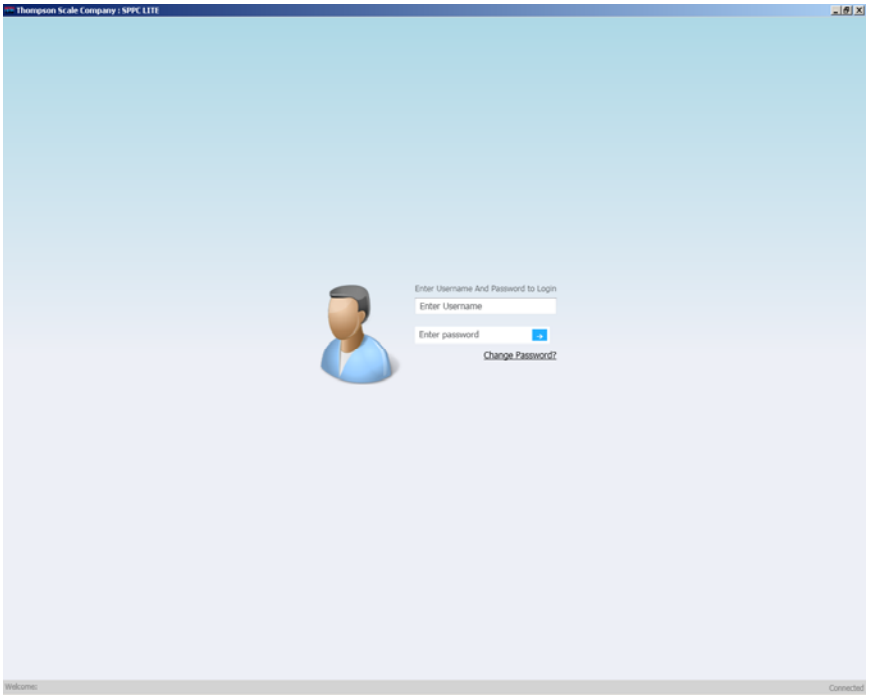
Upon installation of SPPC-Lite the product must be configured for use with the scale devices. Up to five (5) scale devices of different types may be connected simultaneously to SPPC-Lite. Information for each scale is stored in separate files.

Recognized scale types will automatically transmit sets of instructions to SPPC-Lite to close a current production run, storing the file as described later, and automatically open a new production run. Data transmitted along with the instructions from the scale will create a header for the new spreadsheet within SPPC-Lite. This header includes; Product Name, Target Weight, Low Reject Limit, High Reject Limit and TARE (container weight). While this set of data is relevant to checkweigher devices, it may not be for a filling application. However, SPPC-Lite requires the upper and lower reject limits to use in qualifying weight data on reports.

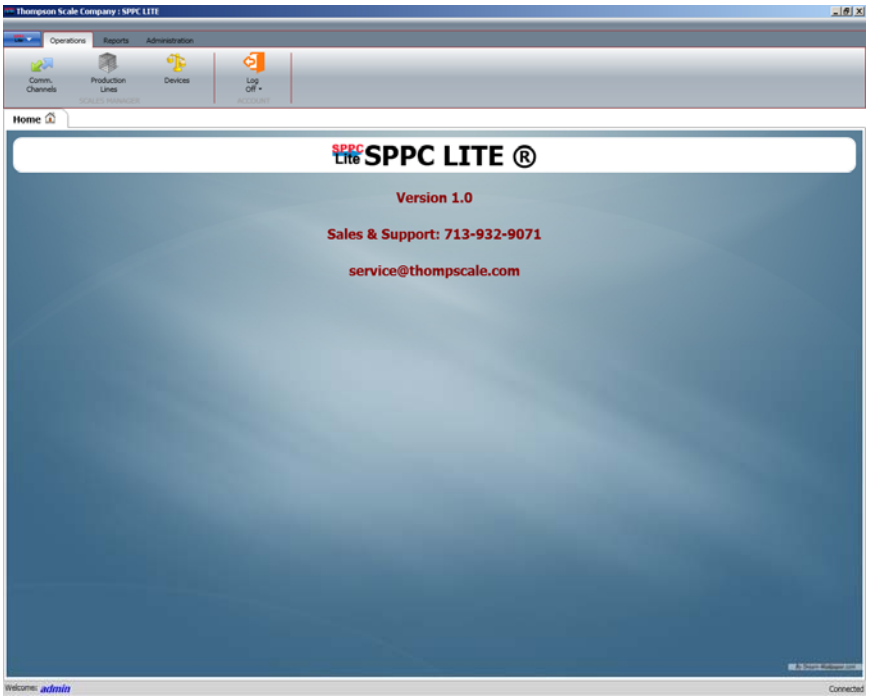
Scale types that are not recognized by SPPC-Lite may include other brands of scale controls on checkweighers, fillers and check stations. The user must manually start a new production run for these scale devices, entering Product Name, Target Weight, Low Reject and High Reject Limits and TARE. Once entered the current production run is closed and a new opened using these parameters.

Initial Set Up

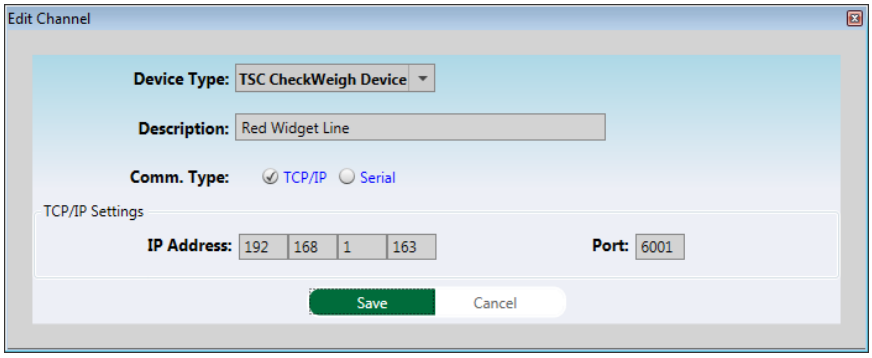
Upon installation of SPPC-Lite into your computer, it will automatically start the program and display the welcome screen. You are prompted to enter a user name and password to continue. The default is "admin" for both username and password. A prompt appears below the password block for modifying both username and password to different values.



Upon successful entry of username and password, the following screen appears:



Select the "Comm. Channels" in the upper left corner of the screen. The communications channel between the scales must be configured to be recognized by SPPC-Lite. The following screen will appear:



Starting in the upper left corner, click the Device Type box, and select the TSC Checkweigh Device. Currently this is the only defined device available. The other device type is "generic"

Next, click on the "Description" box, and enter a brief description of the connection, such as "Production Line #1" or "Red Widget Line"

Now Select "Comm. Type". This program can read multiple network addresses (TCP/IP) or multiple serial ports.

TCP/IP Ethernet Connection

Under "TCP/IP Settings" enter the IP address for the checkweigher controller. See the 4693 or 5511 Checkweigher User's Manual for information on configuring or finding the IP address for the scale device.

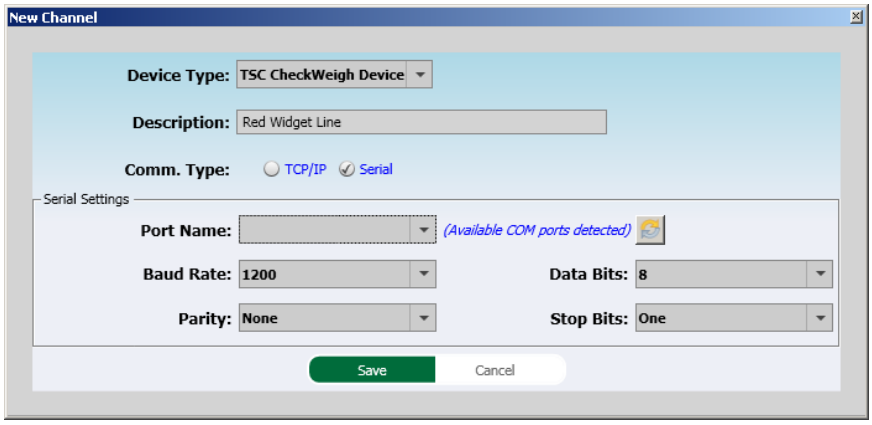
Select the "IP Address" box, and enter the address. If unknown, contact your IT personnel or administrator to select an address within your network's range

"Port", shown to the right of "IP Address" Enter the port number for the device – for Thompson Scale devices, use port 6001.

Click on "Save" to save this data and close the dialog box.

Serial Connection

A serial connection can be to your PC's serial port or through a serial to USB converter. Once devices are connected to these ports and they are active, use the following settings to configure the port:

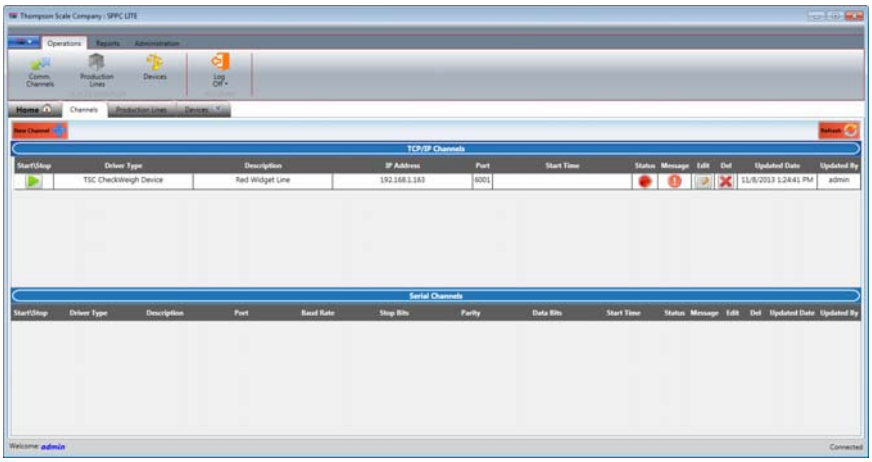


Port name may need to be refreshed, and should populate with all active serial/USB ports on your PC. Use the Refresh button to the right of "Port Name", if necessary.

Devices, such as the Model 4693 Checkweigher controller, have a Baud of 1200, 8 Data Bits, No Parity and 1 Stop Bit. The Model 5511 has an adjustable Baud, and other parameters are the same; 8, none and 1. Your scale device may have different settings and should be verified prior to configuration of this port.

Click on "Save" to save this data and close the dialog box.

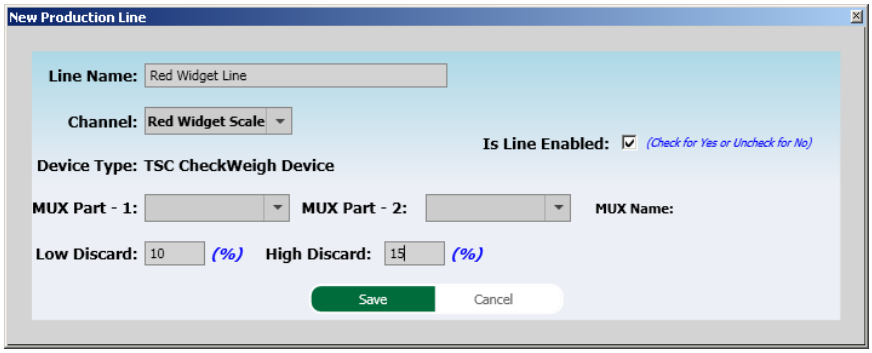
As each new device is added to the Comm Channels it will appear on-screen and can be accessed and modified by double-clicking on the Edit button for the channel of interest.



Production Lines

Now that the channels have been created, SPPC-Lite needs to have unique production lines to associate to each communications connection.

Click on "Production Lines" icon at the top of the main screen, and the screen will change to display items associated with production lines. Click on the "Add New Line" button to the left, and the following dialog box will appear:



Select the Line Name to associate with the new Production Line creation, then select the communications connection by clicking on the "Channel" box. A list of available communications connections will be displayed.

The default for "Is Line Enabled" is checked, or enabled. There are times when the user may wish to disable this line, in case the line itself goes down or is removed from production.

In applications where multiple scale devices are connected via serial communications and through an array of multiplexers the user can select from available serial channels under the "MUX Part 1" and MUX Part 2" boxes.

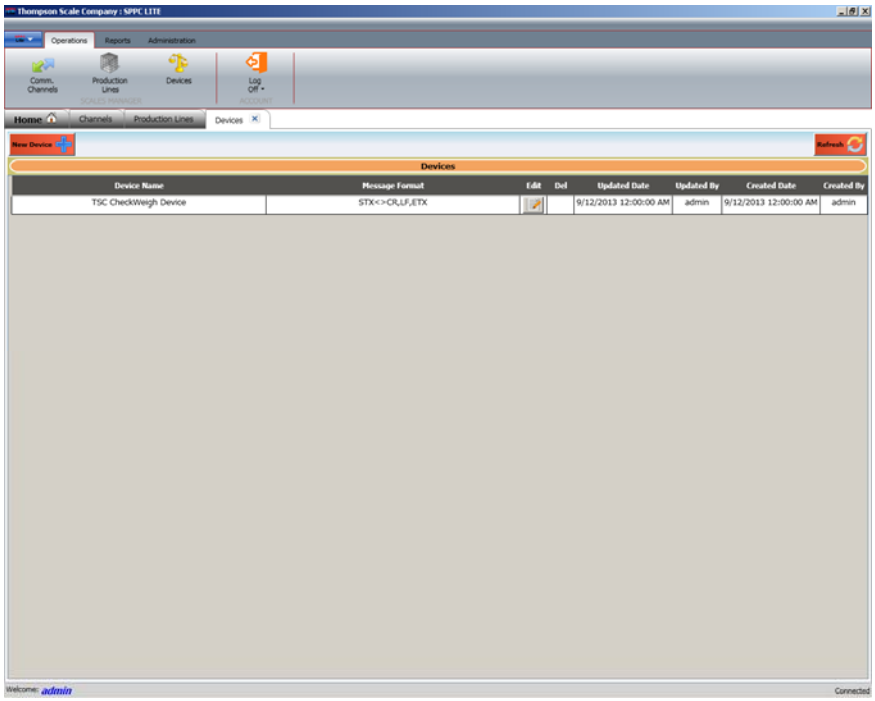
If, for example, there are 4 scales in one part of the plant, all residing close to one another. Instead of running for individual serial lines back to the PC, using TSC's 4-Port Multiplexer (MUX) allows for connection of all serial lines close to the equipment and then a single shared serial line run back to the PC. Programming within the MUX identifies each connected scale with a prefix letter; "A", "B", "C", etc. SPPC-Lite can then separate the incoming weight data by recognition of this prefix letter.

Low and High Discard Percentages are designed to build in a cut-off point for valid data. For example, if your Target weight is 10 lbs. most likely weight values of 1 lb will be an empty container or broken package. Package weights of 20 lbs. most likely represents 2 packages crossing the scale at one time.

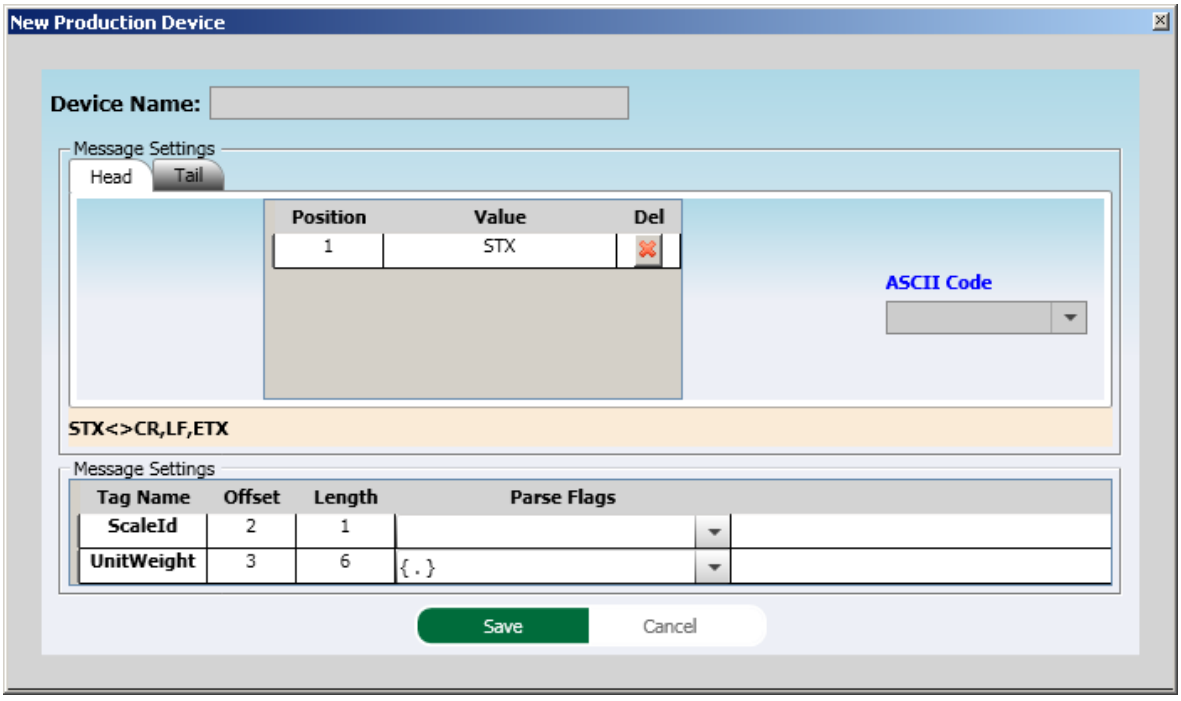
In either case these weight values will tend to skew the population of weight values of interest, causing reports to be distorted. By setting reasonable discard limits you can control collection of weight data of interest and eliminate outliers.

Configuring Devices

The final step in setting up SPPC-Lite is configuration of each device's data. Some scales, such as the Model 4693 and Model 5511 controllers from Thompson Scale Co., have simple data structures containing start bits, data bits and stop bits for each data transmission. Other scale types may include data not of interest for SPPC-Lite, and it is here that the user defines the weight data to monitor.



Click on "Devices" at the top of the screen. Click on "New Device" in the left corner. The following dialog box will appear:



Select the Device Name from the list of available devices connected to SPPC-Lite.

The tan bar, located about mid-point in the dialog box, shows the current configuration for the device's data. In this case it shows a start-of-text character "STX", followed by <> indicating the weight data, then "CR", "LF", "ETX". These are all control characters; carriage return, line feed and end-of-text This is the standard format for the Model 4693 and 5511 controllers from Thompson Scale Co.

To change these settings, use the table within the dialog box. Click on "ASCII Code" drop-down box to display a list of control characters to add to the HEAD or beginning of the text string sent by the scale.

Click on the TAIL tab, and add whatever "ASCII Code" control characters might be after the text string.

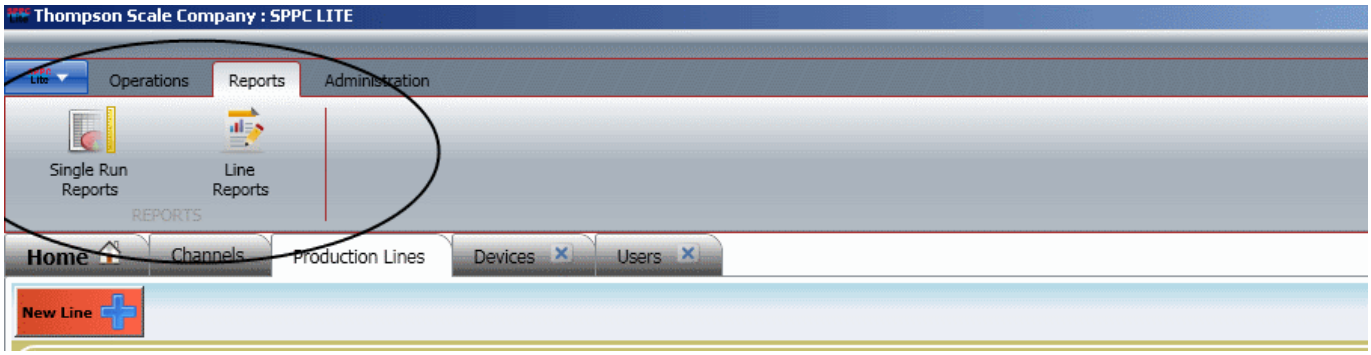
The "Message Settings" box, located below the tan bar are used for parsing the text string and selecting the actual weight data. These values are set to the default for the Model 4693 and 5511 controllers from Thompson Scale Co.

Now that SPPC-Lite has been configured, the scales can be operated and data receipt should be verified. Click on the "Production Lines" tab, and all active lines will be shown. One column shown is "Status". If the line is inactive and data is not being received the status shown will be a **RED** button. If data is being logged, the button will turn to **GREEN**

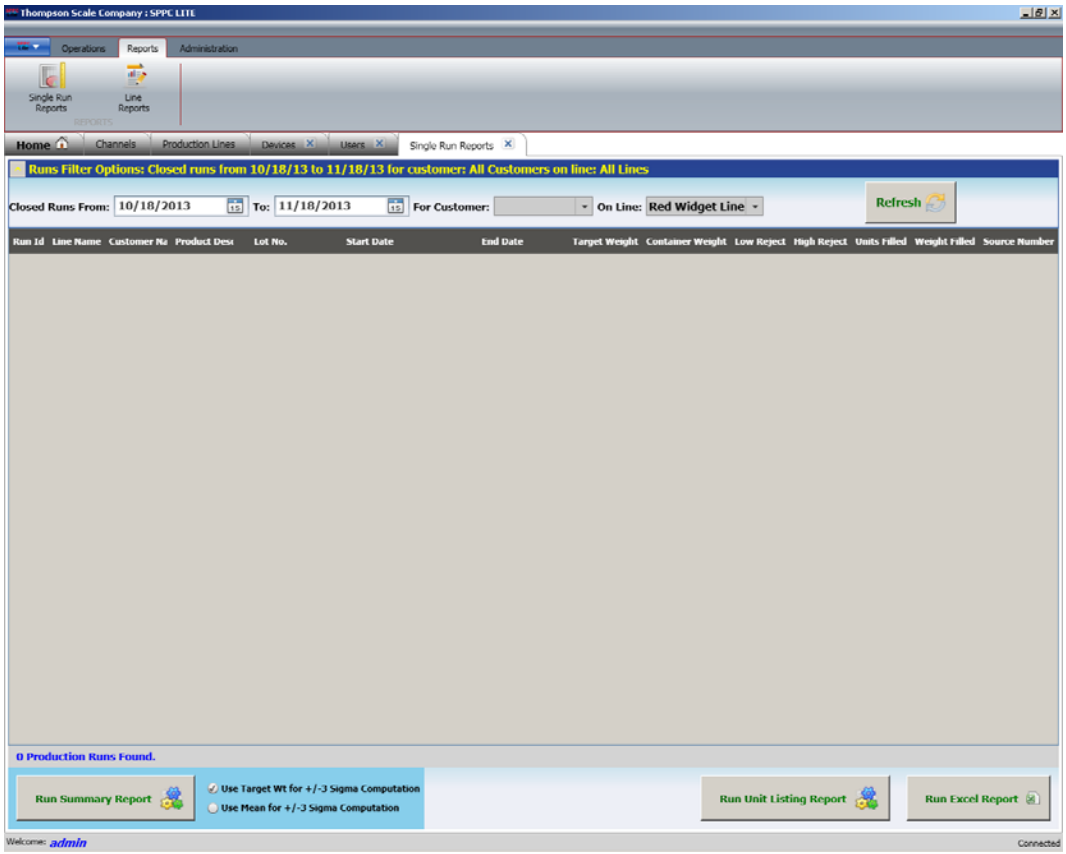
Reporting

Weight data from scales is collected and stored on your computer, and once a production run is closed, either manually or by starting a new run, the closed run becomes available for reporting.

Click on the "Report" tab, found in the upper left of the screen.



Clicking on "Single Run Reports" will present the following screen:



Enter dates for a range of closed runs, then qualify by selecting a particular customer and production line. A list of qualifying reports will be shown below (not shown in this screen shot)

The bottom of the screen show 3 types of output for the run selected:

Run Summary Report

Run Unit Listing Report

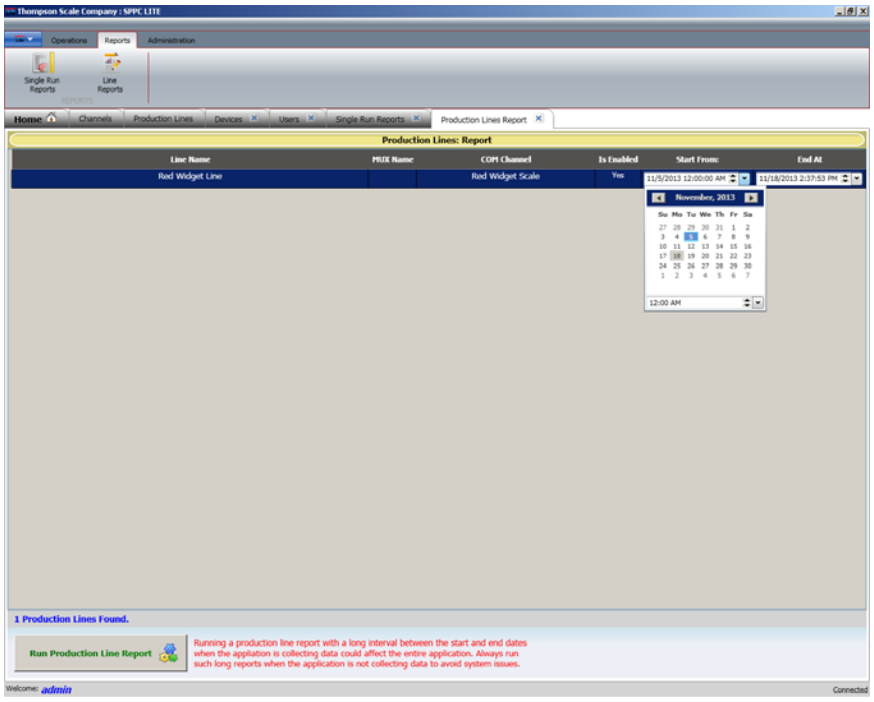
Run Excel Report

The Run Summary prints out a single-page report with totals and statistics for the production run, summarizing all weight data as to accept, reject, discard and total and presents a graph of distribution of weights around either +/- 3 Sigma from the Target weight or +/- 3 Sigma from the Mean. As you will see in your reports, the Target and the Mean are not always the same value, although using information from these reports to adjust weights and performance will move the Target and Mean closer to the same value.

The Unit Listing Report will produce pages filled with each package weight as received into the spreadsheet. Eight (8) values per line, with a subtotal and time. This report does not sum values, only presents individual weights and can be used for tracking variances or problem spots within production.

Run Excel is basically an output of the spreadsheet to a compatible file with a Microsoft© Excel® ".xlsx" extension. You will be provided with the opportunity to name and specify a location for this file, which can be used in many other applications or simply sent to regional or corporate QA for further processing.

Clicking on "Line Reports" will present the following screen:



Select a starting date and ending date for the selected production line and then click on "Run Production Line Report", in the bottom left corner.

PLEASE NOTE that selecting a large number of runs will consume most of your PC's resources to calculate and execute. If you are running such a report please do so when all of the connected scales are idle. **If you do not do so data may be lost.**

This report format creates a comparison and summary of each selected production run, showing them side-by-side with subsequent runs of the same materials on the same production line. Trends and behaviors can be derived from this report, used to improve on production metrics.