Wintriss Controls Group

Addendum – SMI 2 – R1 User Guide

ShopFloorConnect Machine Interface, Release 1

1146200 – Rev. A

August 2, 2019

Contents

ADDENDUM - SMI 2 Release 2 User Guide

This "Release 2" User Guide is intended to be used – on an interim basis - in conjunction with the SMI 2 user manual while the final Release 2 manual is completed. Included here are explanations of the modified SMI 2 R2 screens and new settings.

NOTE: There is a 20 character limit on all entry fields (with one exception – See below). Allowable characters include numbers, upper and lowercase letters, spaces, and the special characters:

. - _ [ ] { } \ = * # + ~ % $

Data can be entered into the fields manually, or by the use of a scanner connected to the SMI 2's USB port.

The one exception to the 20 character limit is the Primary when it is set to "Tool # (123)". This particular primary type is intended to match the Wintriss SmartPAC 1 and SmartPAC 2 controls, and is limited to 7 numeric characters only.

Note: Not all of the available data fields in the SMI 2 are applicable to all machine types. When a data field does not apply to an application, it can be hidden. This guide shows all the data entry fields. If your specific machine does not show a particular field, it is likely hidden because it is not needed. See "Miscellaneous Settings" below for more details.

Figure 1- SMI 2 R2 Main Menu

Main Menu

The Status Bar at the top of the main screen is color-coded for the five different SFC states: Green (Running), Blue (Idle), Red (Unplanned), Yellow (Changeover), Purple (Planned). The status bar also shows current status and duration as well as the current count info and production rate.

These are the main menu buttons and their functions (a * indicates that the button may be hidden via a selection in the "Miscellaneous Settings" screen):

Select REJECTS to manually enter the desired quantity of defective parts.

Select RETURN TO PRODUCTION when first powering up, to end a downtime event or if a count preset is reached. By selecting 'Return to Production' it will change the state to an idle state.

Select OPERATOR to enter the operator number or name (Optional Scan Field).

Select DASHBOARDS* to show MTBF (Mean Time Between Failures) and Analog Channel values.

Select DOWNTIME to pick an appropriate Dialog Reason code as to why the machine is down (Used when machine is not running and before or after a forced dialog reason is entered).

Select JOB MANAGER to enter job related information, start a new job or to end the current job.
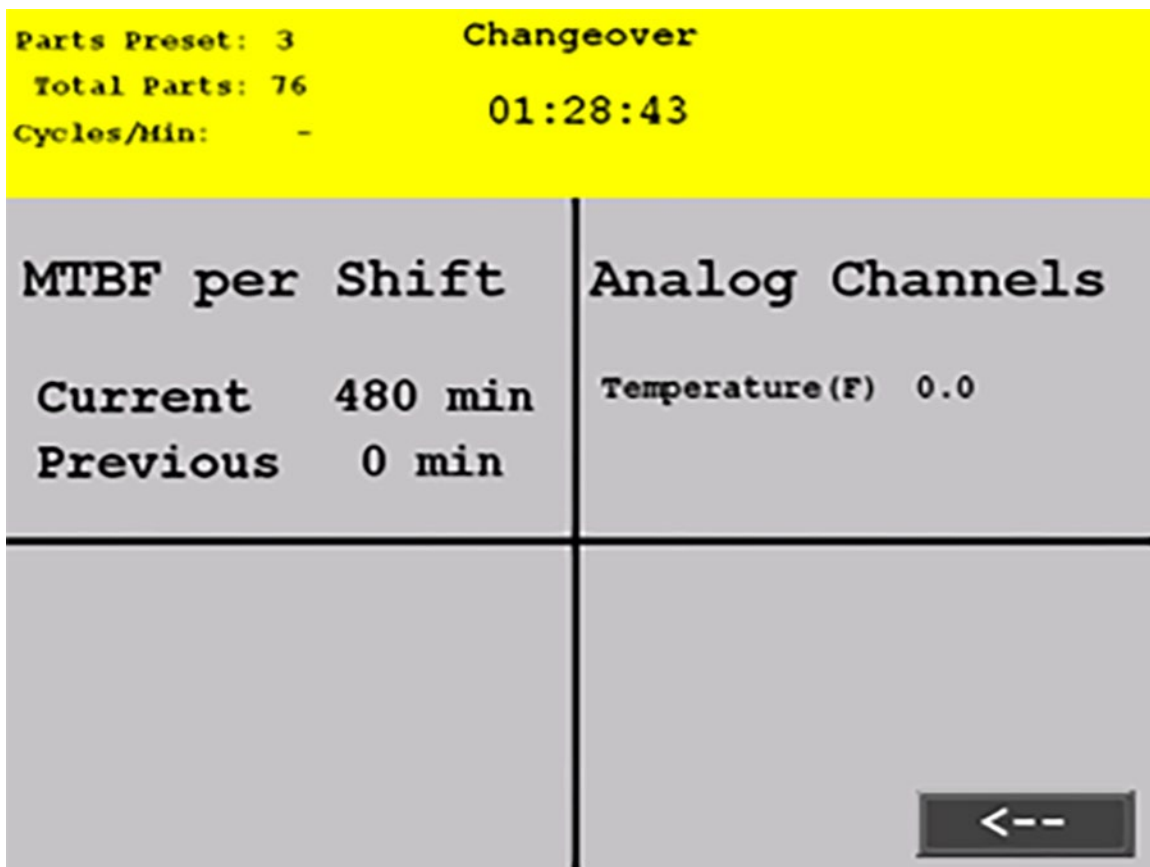

Figure 2 - Dashboard Screen

Select HOLD STATE* to hold the current planned/unplanned downtime and prevent the SMI from counting until it is selected again and Disabled. Hold State is often used when setting up the machine.

The gear icon (second from left on the bottom) brings you to the Admin Menu.

The question mark icon (bottom left) brings you to series of help topics related to the menu or menu item that is in view.

Dashboard

The DASHBOARD screen shows MTBF (Mean Time Between Failures) and the Analog values from any connected analog sensor (e.g. Temperature, Current, Pressure, etc.).

Mean time between failures (MTBF) refers to the average amount time between Unplanned Downtime occurrences.
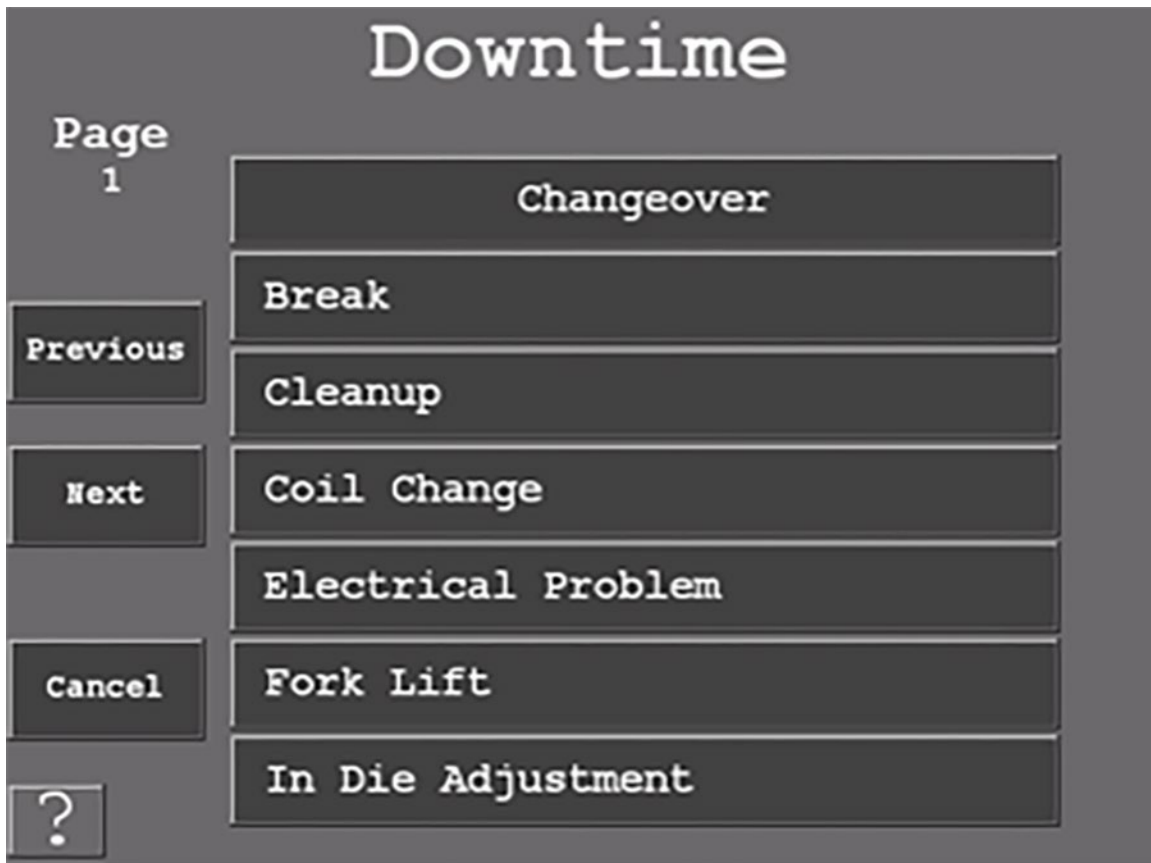

Figure 3- The Downtime Menu+

Downtime

Use this Menu to choose an applicable downtime reason.

Select Previous or Next to navigate to the next set of reasons (up to 32).

Changeover is shown by default but can be hidden if it doesn't apply or have usefulness to your operation (See Miscellaneous Settings - Figure 28 - Miscellaneous Settings on Page 23).

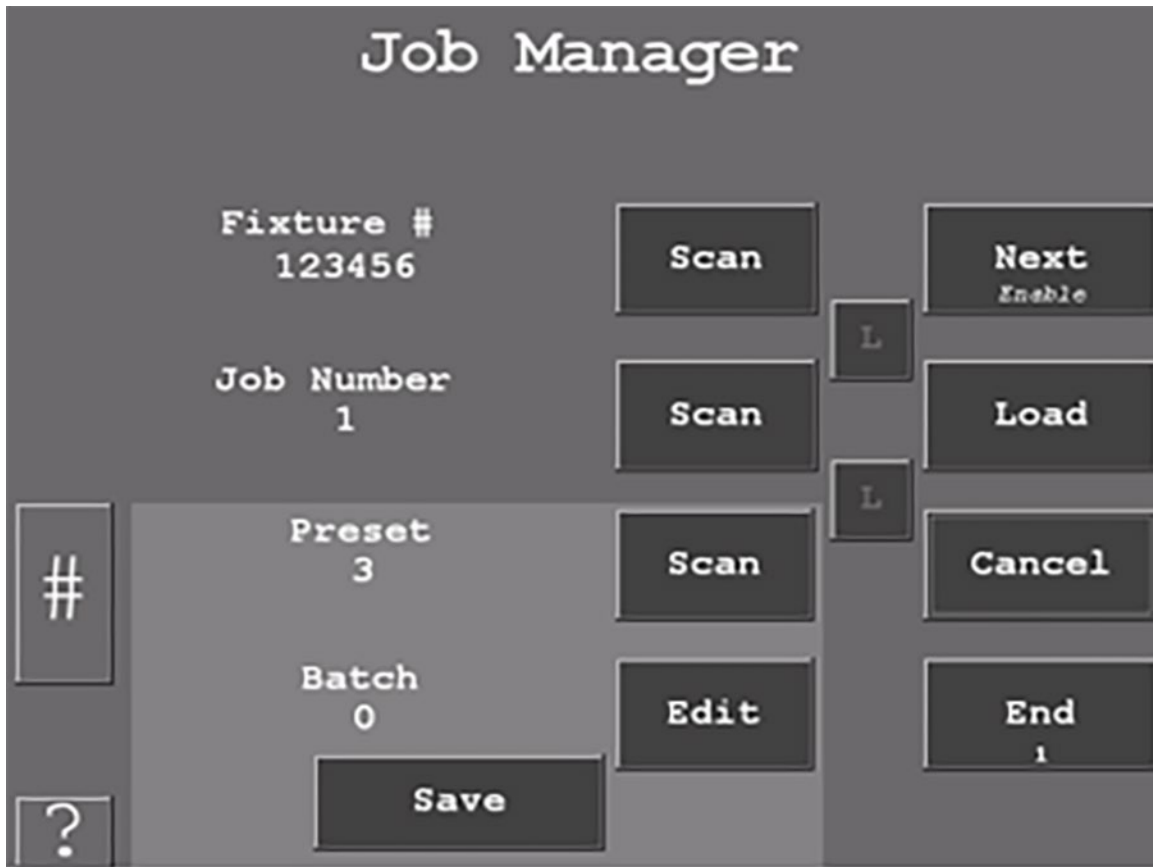Select Cancel to return to the Main Menu.

Figure 4 - The Job Manager Screen

Job Manager

Use this Menu to Scan/Enter Job information - Primary (e.g. Tool, Part, Mold, Fixture, SKU, Material, Item, etc.) is required.

Optionally Scan/Enter Job Number, Preset (qty. parts to be produced), and Batch.

The BATCH allows the operator to set the quantity of parts to make for this batch. When the quantity is reached, the inhibit relay is opened. Setting a preset to zero disables the preset. If 'Stop On Preset' is enabled, the inhibit relay will be opened when the preset is reached.

Select 'End Job' to terminate the current Job. Select 'Next Job' to consume the next job on the schedule. The 'Next Job' is enabled/disabled using the 'Scheduler' on the Production Setting menu. Select 'Load Job' to start a new job using the primary and secondary items displayed.

Select '#' to modify the counting parameters.

Select 'Save' to save the values you entered without loading a job.

'L' stands for Link. When 'L' is highlighted it will link the primary/job #, so when the operator enters or scans a primary it will bring them to the Job Number Menu. Highlighting both L's will link all 3 fields' primary, Job #, and Preset.
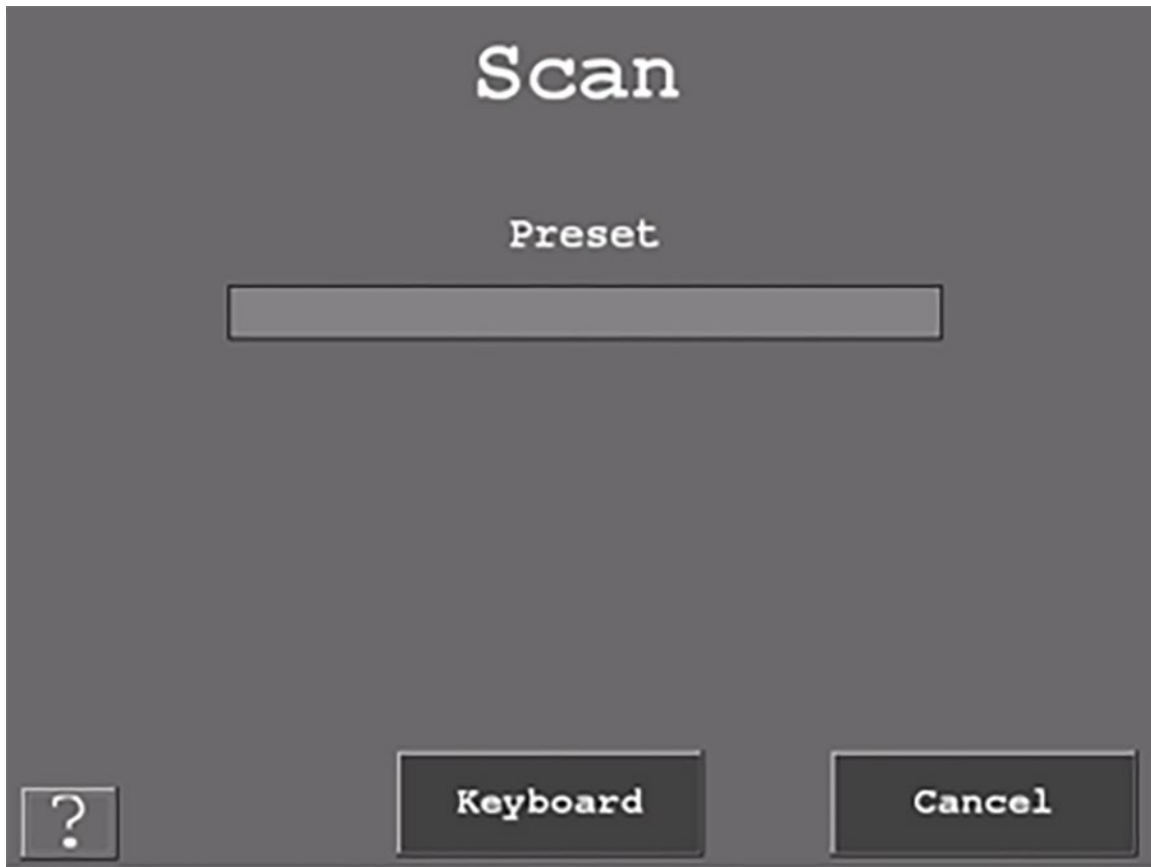
Figure 5 - Setting the Preset (set up for a scanner)

Preset

Selecting the scan/edit to the right of 'Preset' allows the operator to enter the total quantity of parts to be made. The screen shot above shows the field set up for scanning.

When the quantity is reached, the SMI's inhibit relay will open and stop the machine if 'Stop on Preset' is enabled and the machine's stop circuit is wired in series with the inhibit relay.

When 'Stop on Preset' is disabled the SMI's inhibit relay will not open and the operator can continue running and the message "Preset Reached Continuing Operation" will appear.

Setting a preset to zero disables the preset.

Note: To disable and/or enable your preset go to Admin > Preset menu.

Batch Segment Preset

The 'Batch Segment' menu allows the operator to enter a batch quantity. Often it's programmed to stop the machine when a certain quantity of parts is reached so a basket can be switched out or to QC a part after X number of cycles.

When 'Stop on Batch' is disabled, the SMI's inhibit relay will not open, the operator can continue running, and the message "Preset Reached Continuing Operation" will appear.

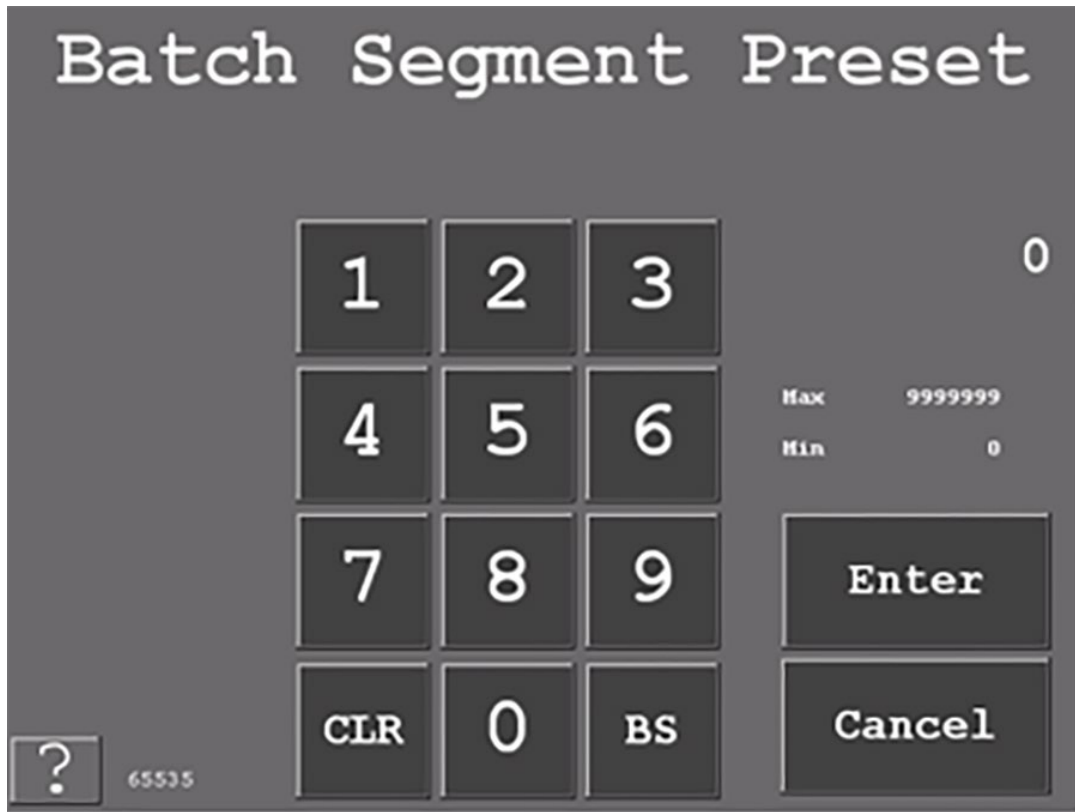Note: To disable and/or enable your preset please go to Admin > Preset.

Figure 6- Batch Segment Preset Screen

Figure 7- Load Next Job Screen

Multipliers

The Operations/Cycle should be used when one or more cycles of the machine are required to produce a completed part.

The Cycle Count Multiplier value is the number of parts created after a single cycle.

The Rejects Count Multiplier value is the number of Scrap/Rejects that will be tallied and deducted from the Good Parts Count when the Scrap/Rejects input is actuated.

Note: the Scrap input must be enabled to use this input. Often it is connected to an automated scrap handling system or a simple N/C momentary switch for manual entry.
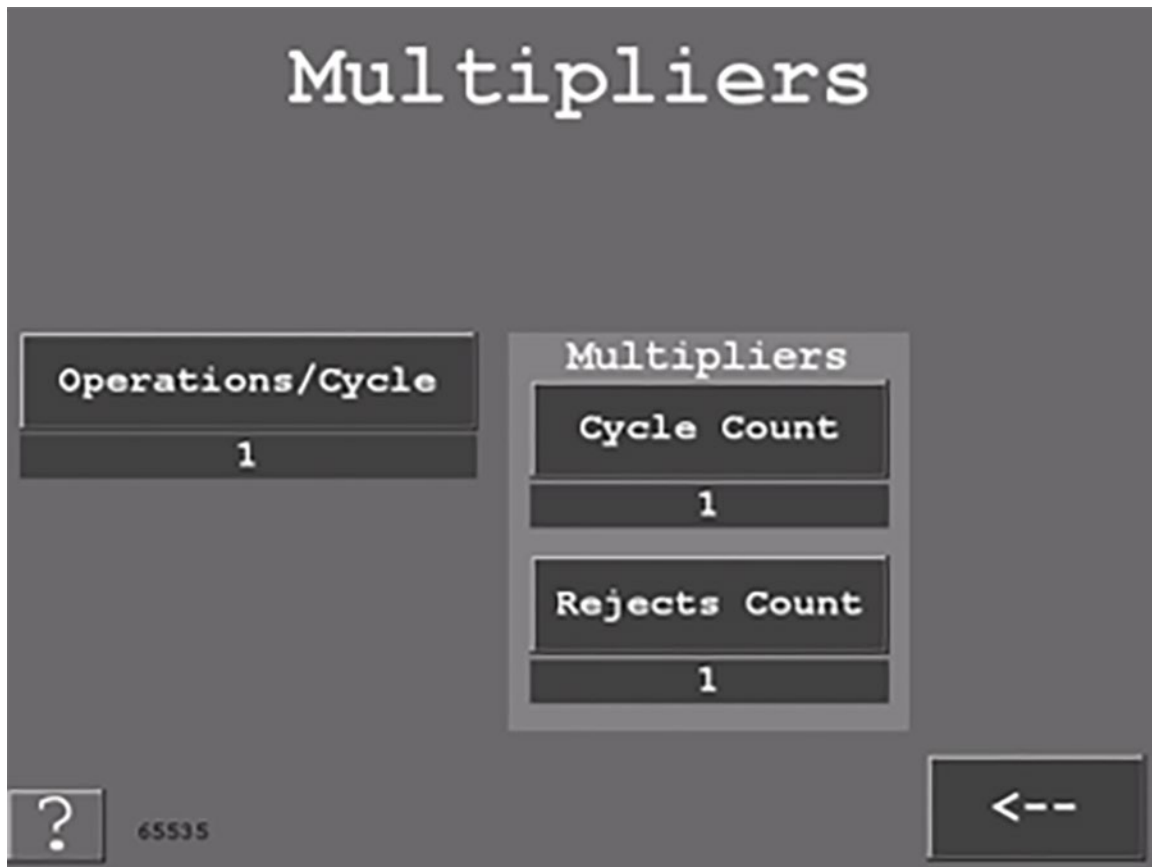

Figure 8 - Set the Multipliers

Admin Menu

The 'Forced Dialog' - When Enabled forces the operator to select a downtime reason before restarting the machine.

The 'Production Mode' - Sets the frequency the SMI calculates the speed of the machine and sets a production Idle Timer.

Use 'Security Settings' to set or change Admin and Adjust Scrap passwords. Also, to reset all settings to their Factory Defaults.
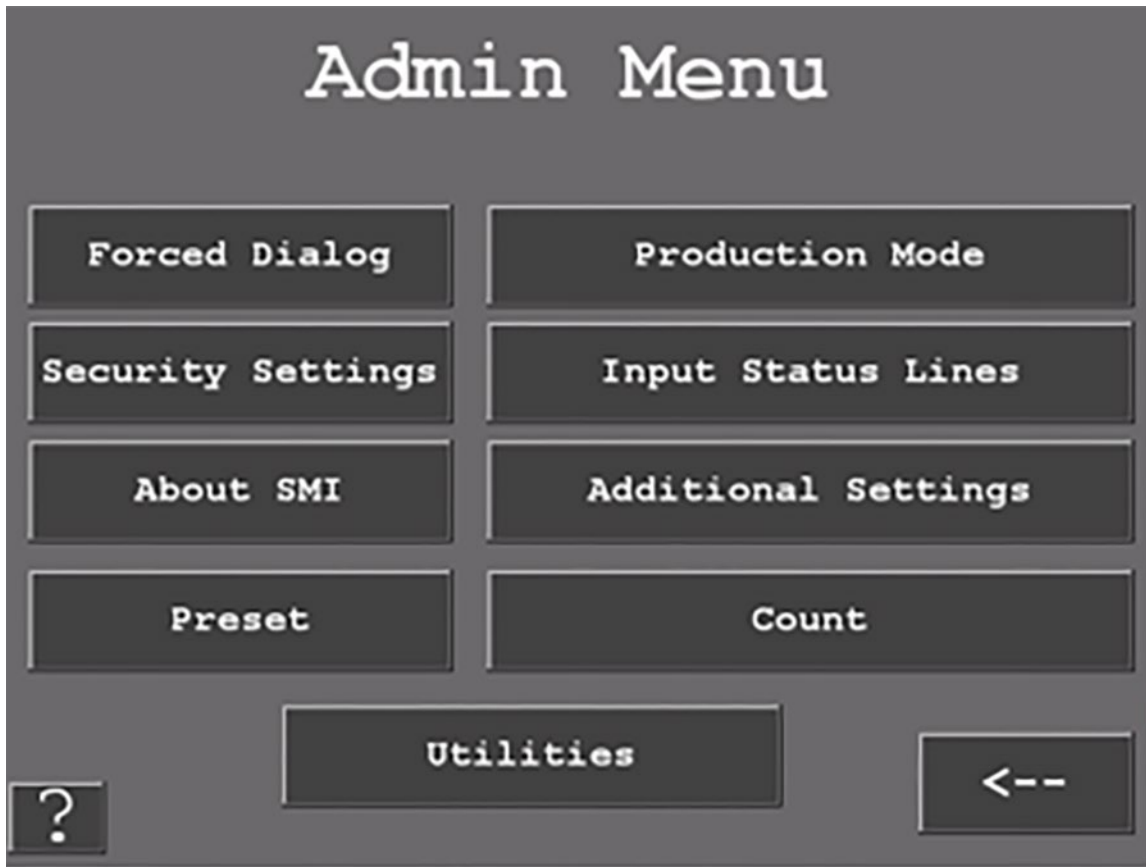
Figure 9- Admin Menu

Use 'Input Status Lines' to program input off delay timers, to enable Run/Idle, Scrap Sense and Analog Inputs. Also, to enable Decrement on Scrap setting.

Use 'About SMI' for Version info, password 5 digit code and contact info.

Use 'Additional Settings' to set various systems parameters like Screen and Scanner defaults, Network settings and Parameter Downloads.

Select 'Preset' to change the counter preset settings.

Select 'Count' to modify counting parameters.

Select 'Utilities' to perform miscellaneous tasks like Copying Log files and System Reboot.

Forced Dialog Settings

When enabled, the 'Forced Dialog' mode forces the operator to select a downtime reason before restarting the machine.

The 'AutoBackFill' mode automatically replaces the idle time with any selected downtime event.

The 'Manual Backfill' mode requires the user to specify whether to Keep or Change the previous reason.

The 'Forced Dialog Timer' sets a grace period, after which the operator will be forced to enter a downtime code in order to restart the machine.

Figure 10- Forced Dialog Settings

Production Settings

The 'Calculation Interval' sets the frequency at which the SMI calculates the speed (Production Rate) of the machine.

Set this to the time it takes to make 10 cycles, or 15 seconds, whichever is greater.

The 'Idle Timer' sets the time the SMI will wait between machine cycles before it switches the state from Running to Idle.

As a starting point, set this value to 1.5 times the expected normal time between cycles.

The 'Max Pulse Period' controls an optional setting to improve the rate calculation in some applications. Refer to the user manual or contact SFC support for more details.

Security Settings

When the 'Password Required to Access Admin' is set to 'Enabled', the user will be required to enter a password to access the admin Menus.

When the 'Password Required to Adjust Rejects' is set to 'Enabled', the user will need a password to change the reject count.

The 'Change Password' allows you to reset the system password (Note: default password is 0).

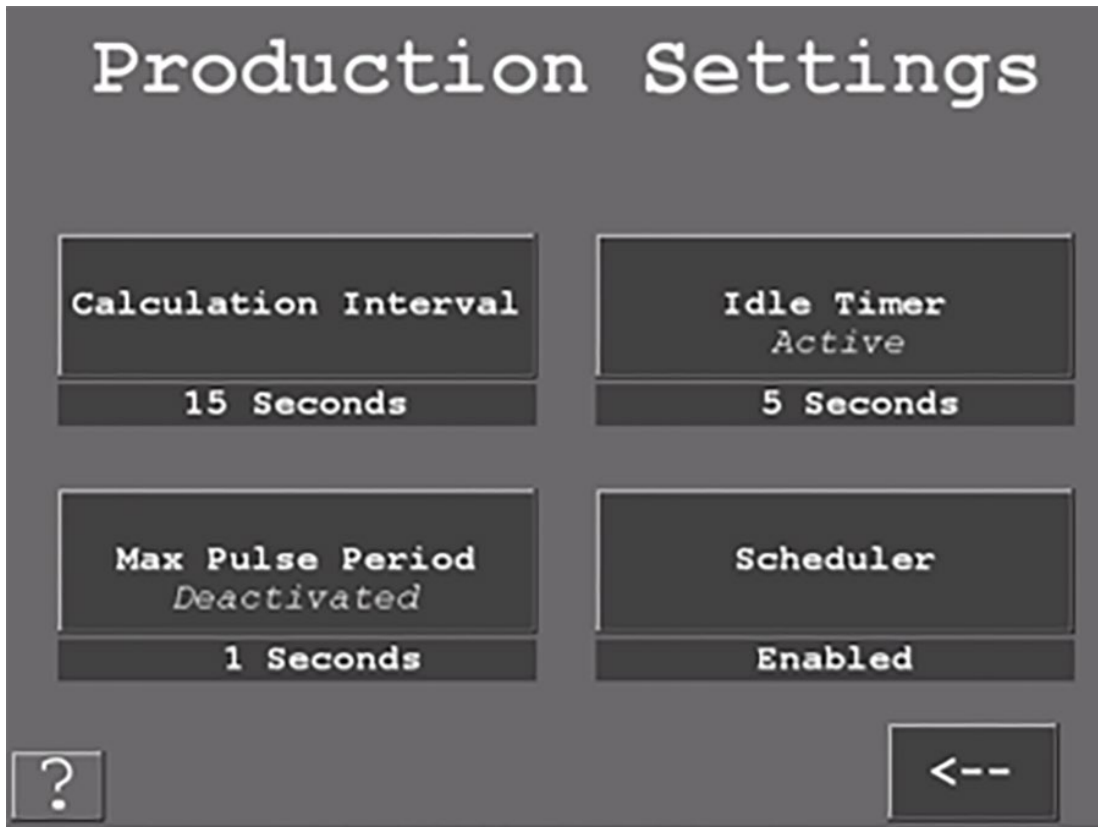The 'Reset to Factory Defaults' returns the SMI to its factory settings.
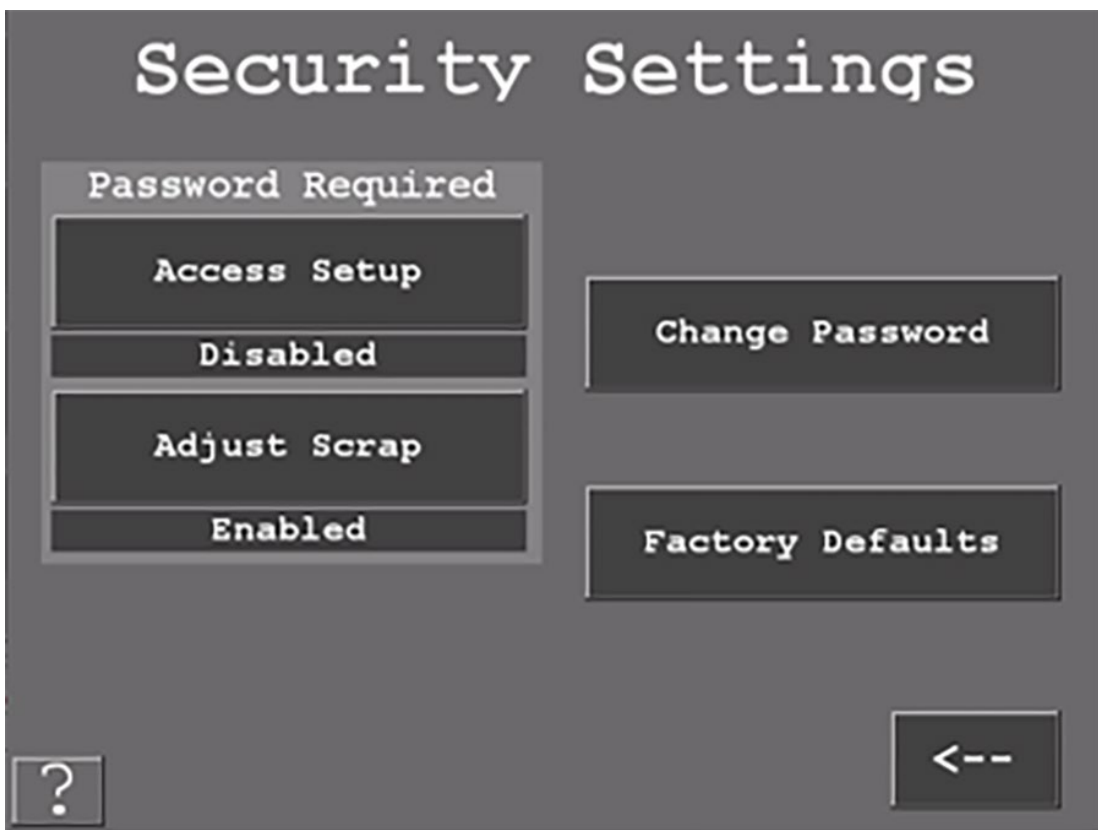
Figure 11 - Production Settings

Figure 12 - Security Settings

Confirm Reset to Factory Defaults

Pressing this will erase all settings you have made and return the SMI to its original factory settings.

Note: This includes all Downtime Reasons saved to the SMI. These will need to be resent from ShopFloorConnect.

Select the 'Cancel' button to keep your settings and return to the previous menu.

Figure 13- Restore to Factory Defaults Confirmation

Input Lines

The 'Input Setup' provides access to settings associated with the Cycle Input, Run/Idle inputs, Rate Calculation, and Analog Inputs.

The 'Enable Inputs' shows the current on/off state of the SMI's inputs. The 'Enable Inputs' gives access to the setting the way the SMI interprets state changes using the Cycle and Run/Idle inputs. Also, the 'Enable Inputs' is used to set the Scrap Sense Input, Decrement on Scrap, and the Analog Channels.
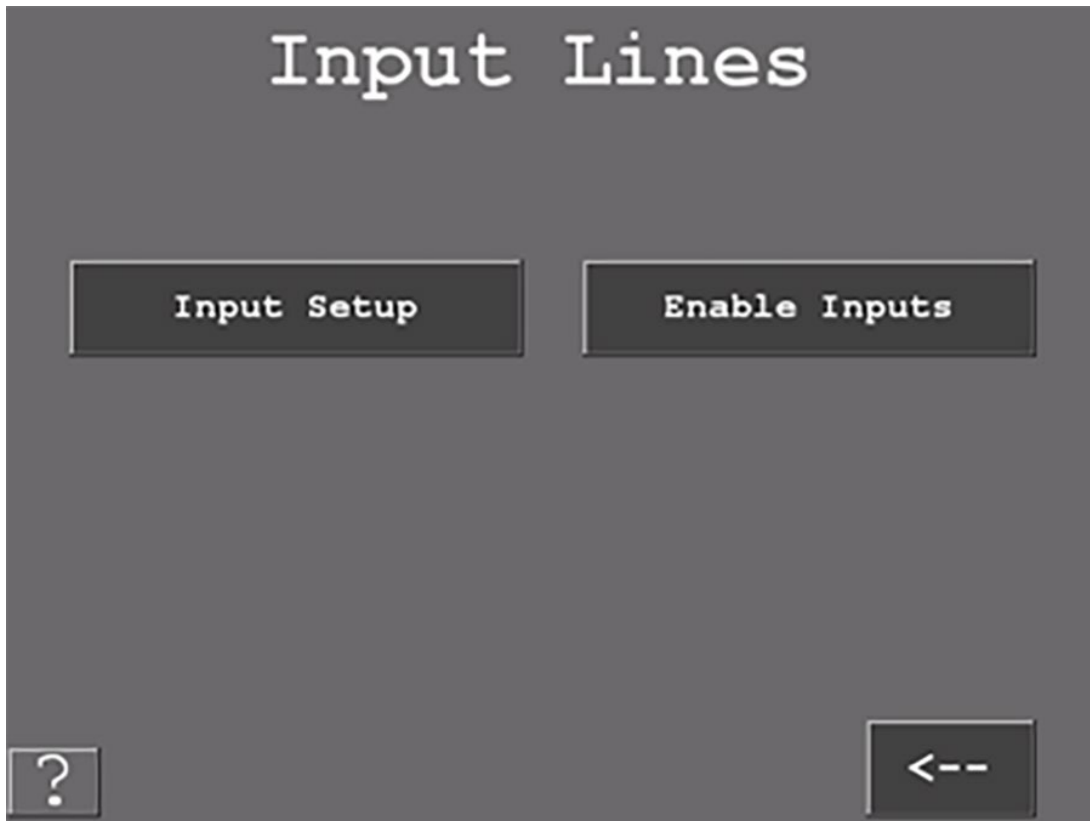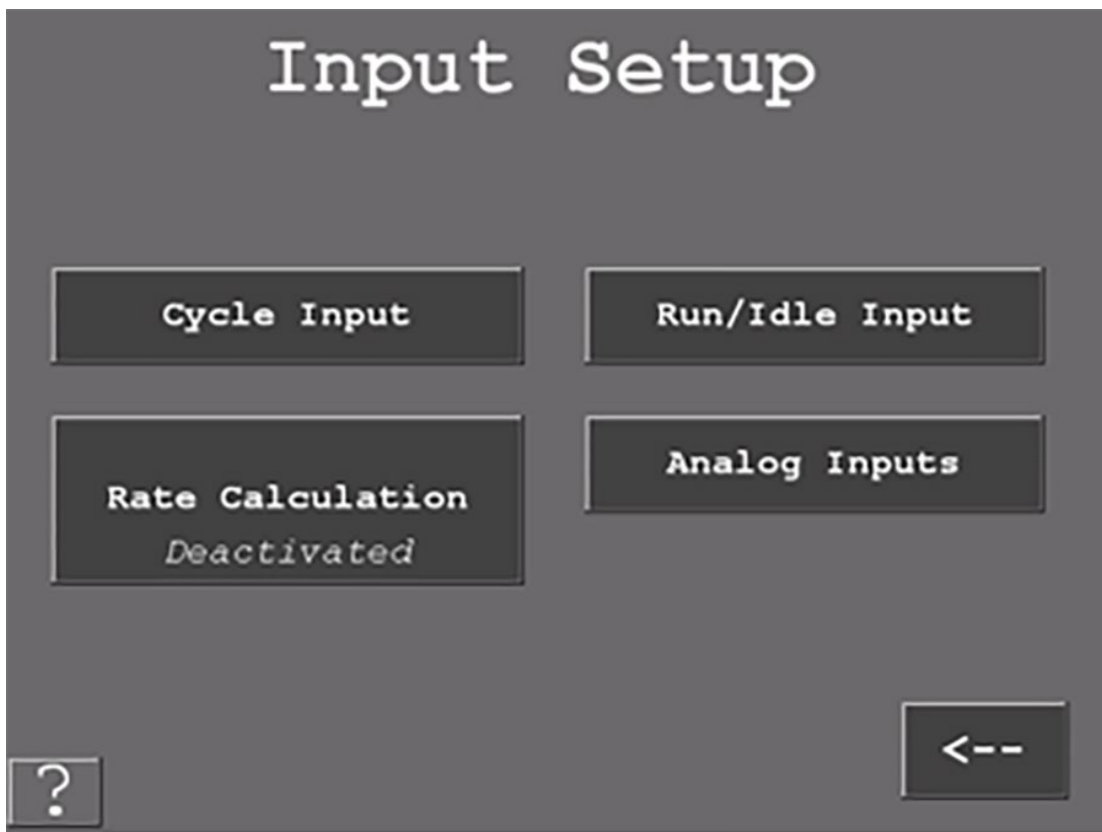
Figure 14- Inputs Lines Screen

Figure 15- Input Setup Screen

Input Setup

The 'Cycle Input', 'Run/Idle Input', and 'Analog Inputs' allows access to the settings associated with those inputs.

The 'Rate Calculation' provides access to the 'Pulses Per Units' setting which specifies the number of actuations of the cycle input that represents one increment of the speed units.

To activate the 'Rate Calculation', the Calculation Interval on the Production Settings menu must be set to Instantaneous.
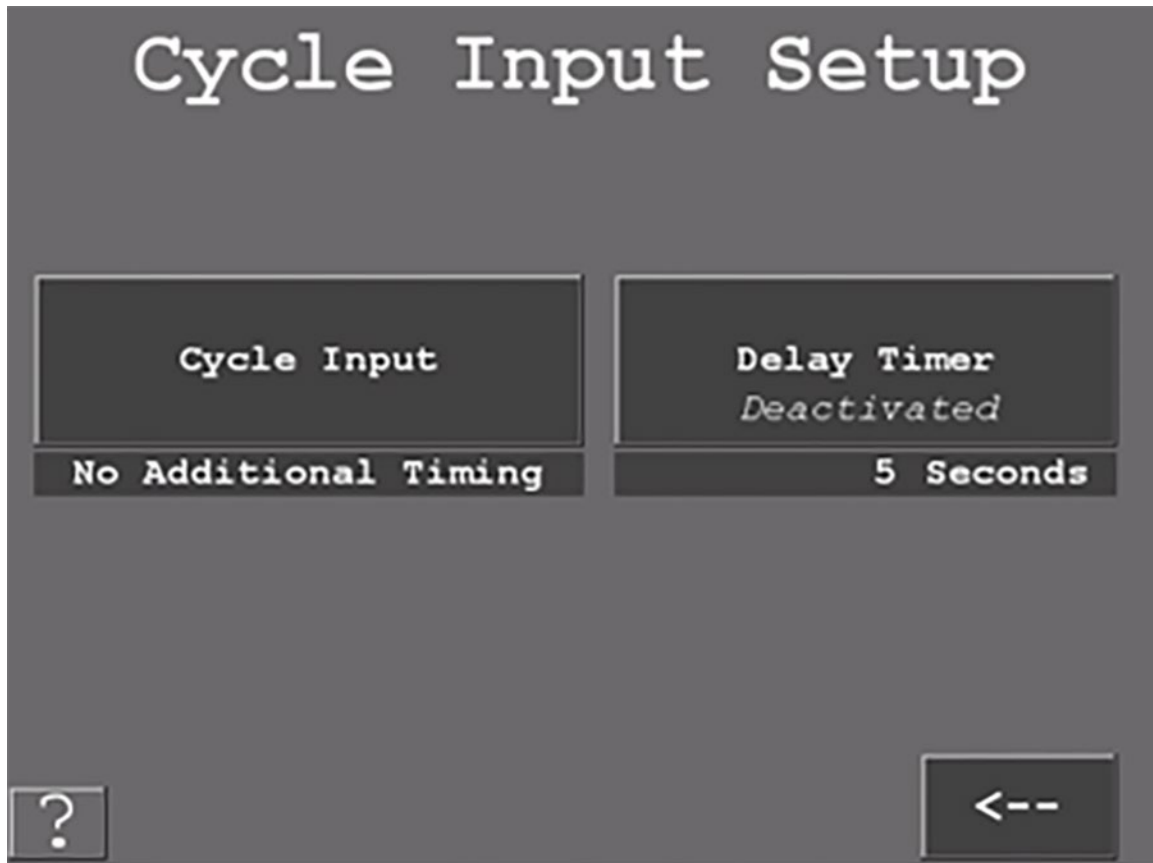

Figure 16- Cycle Input Settings

Cycle Input Setup

The 'Cycle Input' allows the operator to modify the cycle input signal to match the requirements of the SMI.

The choices are 'No additional Timing' and 'Off Delay'.

The 'No additional Timing' selection makes no modifications to the input signal.

The 'Off Delay' selection delays the change to off.

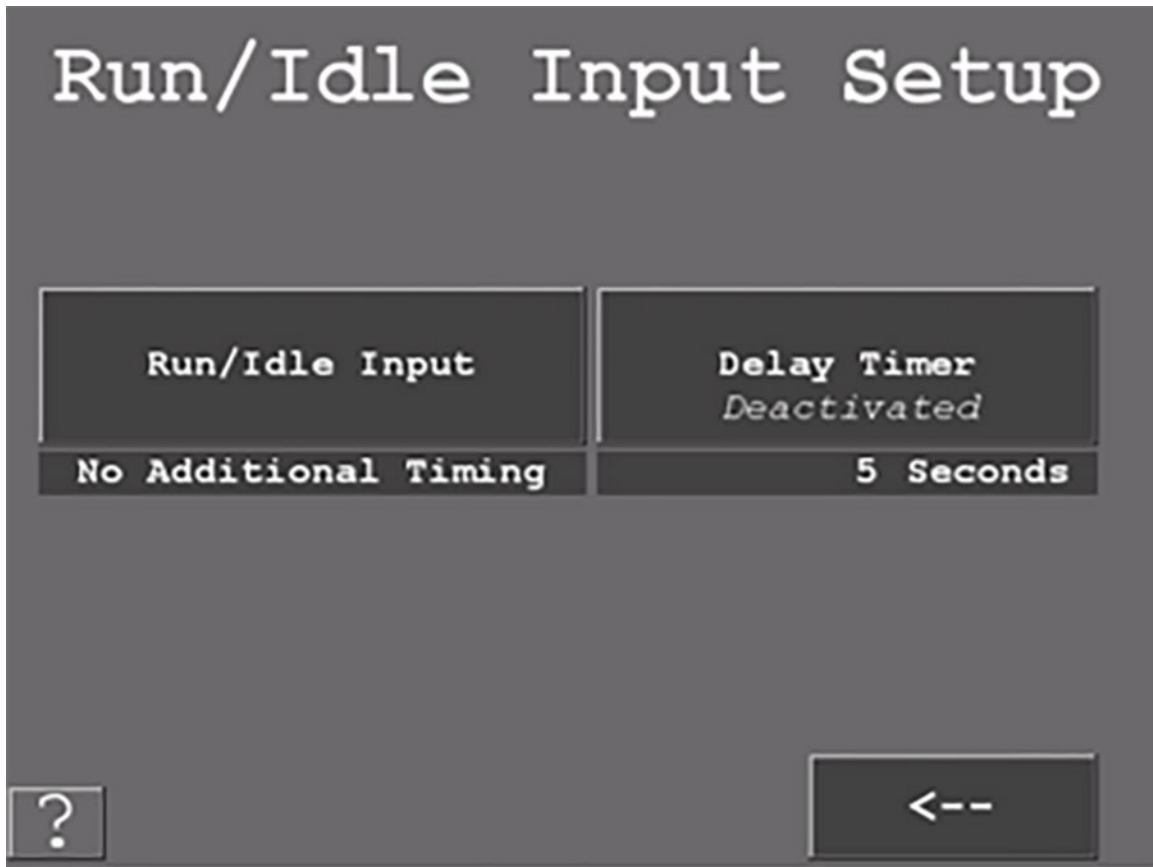This has the ability to count all the pulses that occur within the time window as one.

Figure 17 - Run/Idle Input Setup Screen

Run/Idle Input Setup

The 'Run/Idle Input' allows the operator to modify the run/idle input signal to match the requirements of the SMI. The choices are 'No additional Timing' and 'Off Delay'.

The 'No Additional timing' selection makes no modifications to the input signal.

The 'Off delay' selection, delays the change from Running to the Idle state until the delay timer has expired.

Rate Calculation

The 'Pulses per Unit' specifies the number of actuations of the cycle input that represents one increment of the speed units. This is typically set to 1.

Analog Setup Menu

Select the 'Channel 1 Alias Selection' to change to the right metric (Temperature (F), Temperature (C), Pressure, or Volts). Do the same for 'Channel 1 Alias Selection'.

Select the Max to set your channel max to (Range is 10-4095).

The max number is mapped to a percentage (0-100%) based on the 10 volt input the analog will receive.
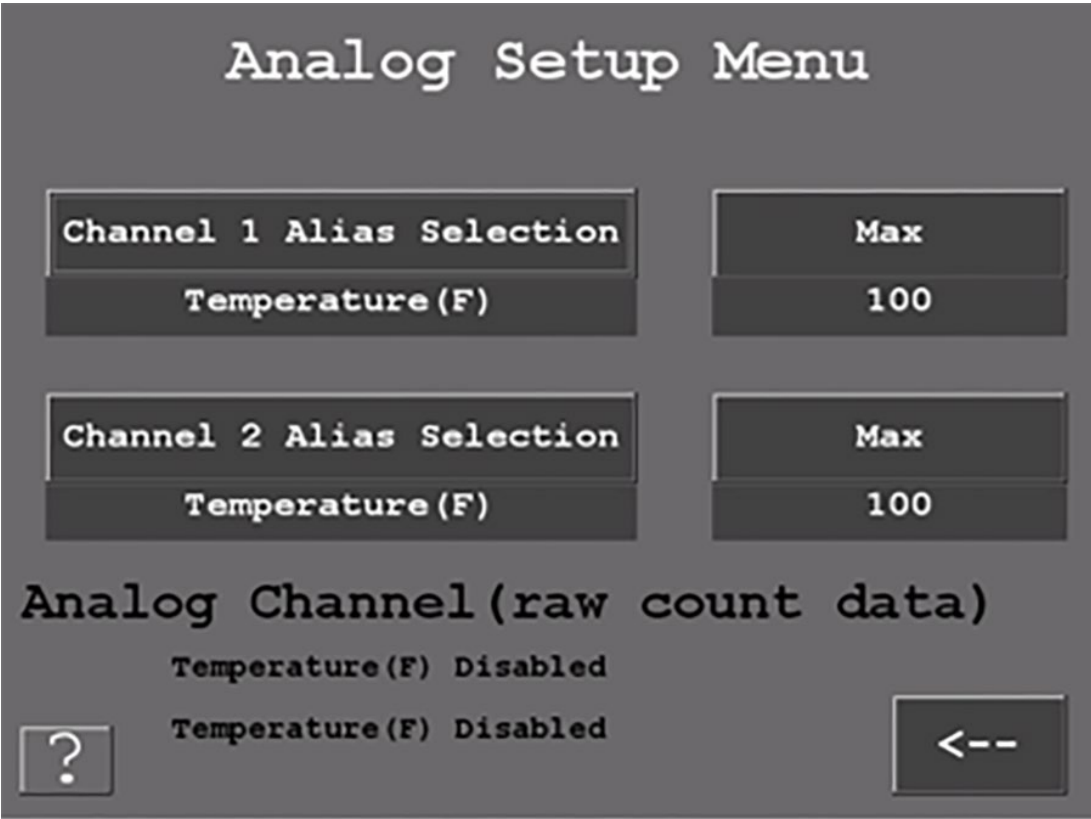
Figure 18 - Rate Calculation Setting

Figure 19- Analog Input Setup Menu

Enable Inputs

The 'Run/Idle Sense Input' is an optional signal the SMI can use to determine if the machine is running.

If this signal is not supplied, the SMI uses the Cycle Input and Production Idle Timer to determine the Run/Idle state.

If the 'Req Cycle for Running' is set to 'No', the SMI is able to operate with only the Run/Idle sense input.

This function is not active when the Run/Idle Sense input is disabled.

The 'Scrap Sense Input' is an optional signal that is activated when a bad part has been detected.

'Decrement on Scrap' is an optional setting that can be set to "Yes" or "No" and actuated when the scrap input is pulsed.

Select 'Analog Channels' to enable 1 or both channels.

Your choices are Disabled, Chan 1 Enabled, or Chan 1 and 2 Enabled.

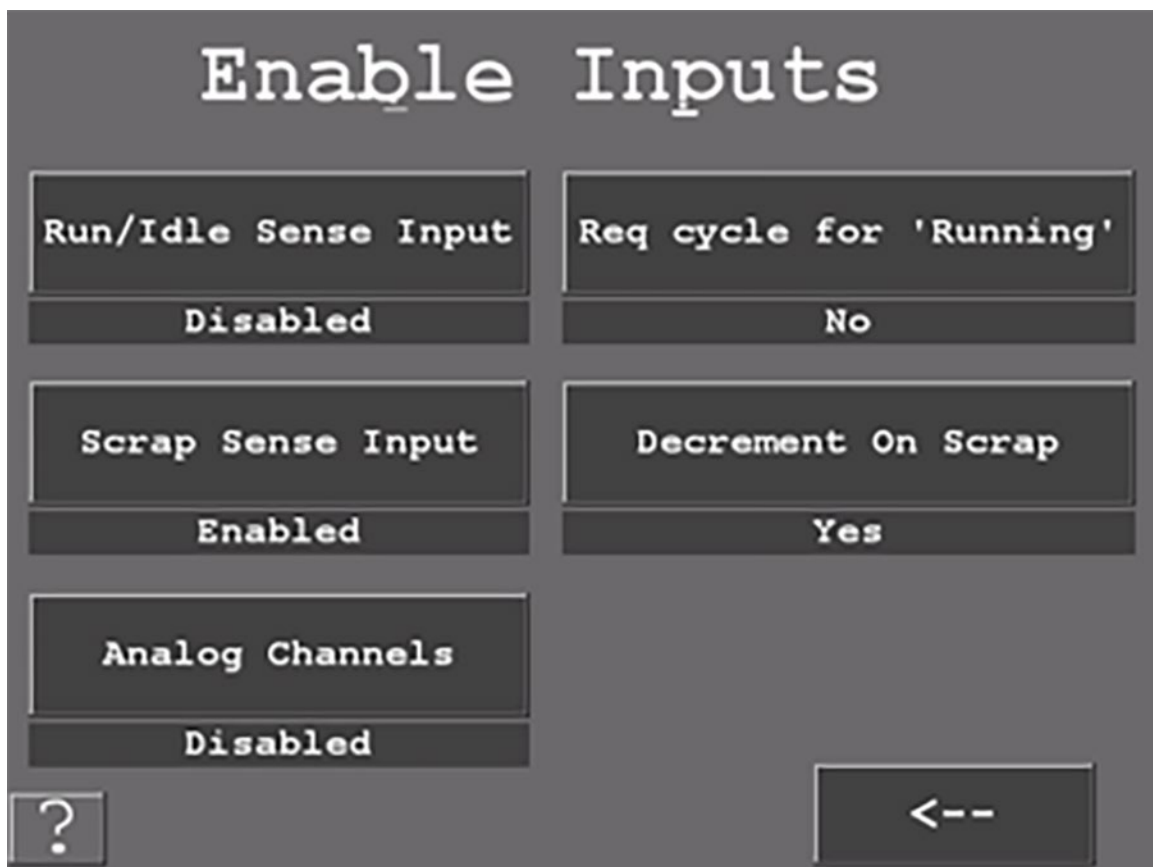Analog Channels can track Temperature F/C, volts, or Pressure.

Figure 20- The Enable Inputs Menu

Additional Settings

Use this Menu to set various system parameters.

Select 'Screen Defaults' to set the primary, job aliases, language, and production rate units.

Select 'Scanner defaults' to select the production fields you would like to scan in.

Select 'Network Settings' to setup to Network related parameters.

Select 'Production Parameter Download' to enable SFC to download the production parameters to the SMI when a new production segment is started (loading a new job).

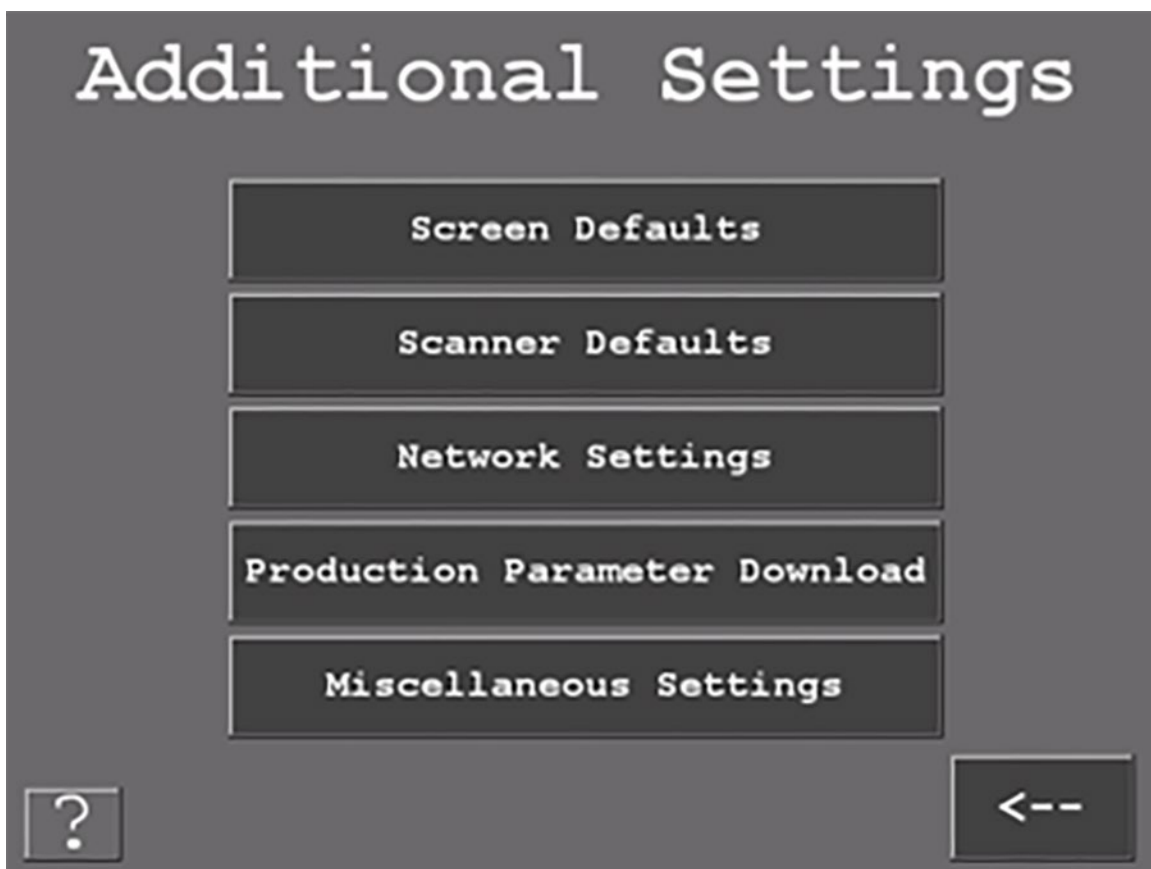Select 'Miscellaneous Settings' to get to various settings.

Figure 21 - The "Additional Setting" Menu

Screen Defaults

This Menu allows you to select names (aliases) for your Primary Item and Job Number.

Select 'Primary Name Selection' to scroll through the selections.

Choices for 'Primary Name Selection' are Tool # (123), Tool # (abc123), Part #, Mold #, Fixture #, SKU #, Material #, and Item Number.

Choices for 'Job Alias Selection' are Job Number, Work Order, MO, and Production Order.

Languages that SFC currently supports are English, Spanish, Italian, and German.

The 'Production Rate Units' specifies the speed units that the SMI will display (Cycles/Minute, Parts/Hour, etc.).

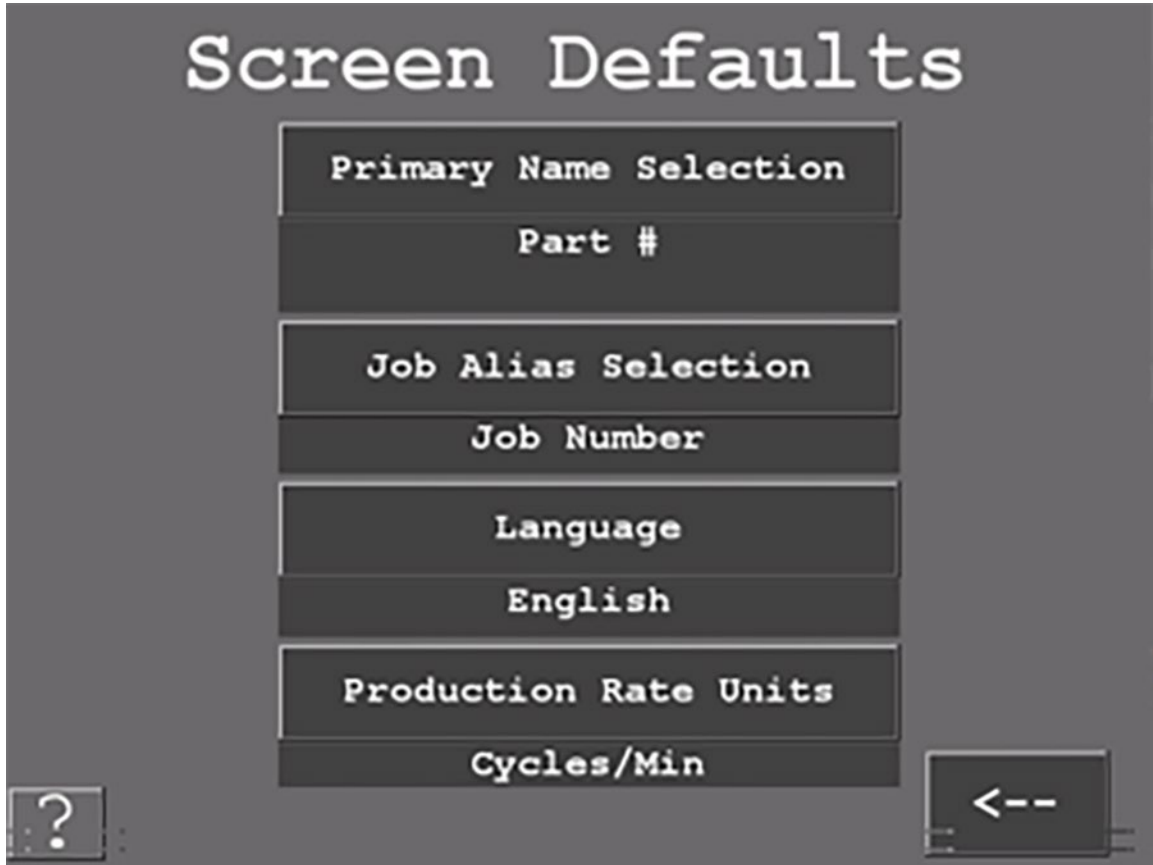Select 'Production Rate Units' to cycle through the available selections.

Figure 22 - Screen Default Settings

Scanner Defaults

Check any of the boxes for items you want the operator to scan.

USB Power Delay J7 (Left side) & J8 (Right Side) is the amount of time the SMI is going to disable these USB inputs when powering up or during a reboot. When connecting a scanner, it is recommended that you plug it into the SMI 2's J7 USB connector. It is also recommended that you program a Power Delay of 70 seconds to prevent the scanner from powering up and interfering with the SMI 2's boot cycle. The J8 USB connector should be reserved for firmware updates, copying log/setting files, mouse connections etc. and not be programmed with a power delay.

Contact technical support for more information on this feature.

Network Settings Menu

Select the Network IP Settings to input the Static IP address settings.

Select the Wireless Settings to configure the wireless settings, SSID, Passcode etc. (For more information on wireless specifications and setup, please consult the full manual or contact SFC Technical Support 800-586-8324 Option 3).

Note: The Optional Wireless Kit (802.11 B/N/B Incudes adapter board and antenna. Compatible with AC and 24 VDC models with enclosure. Must be Factory installed at time of initial order. (For more information on wireless specifications, setup and retrofit options, please consult the full manual or contact SFC Technical Support 800-586-8324 Option 3).
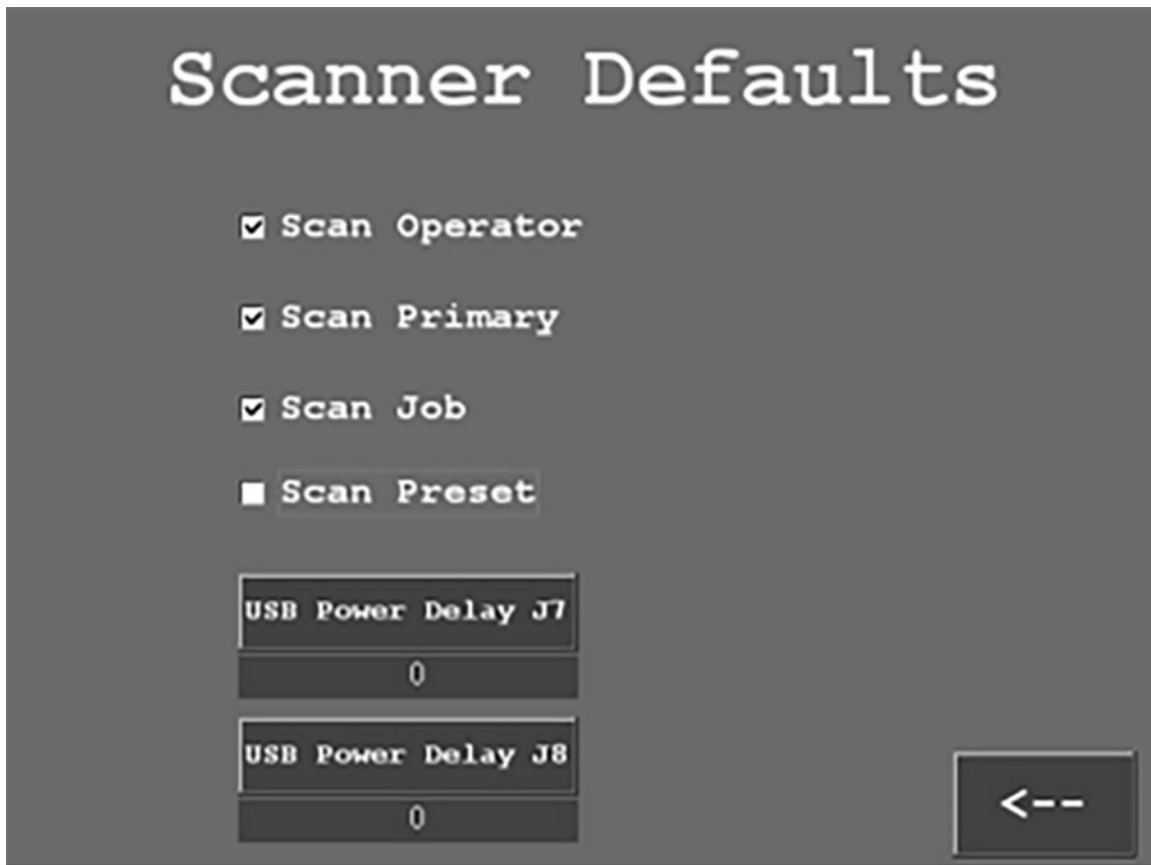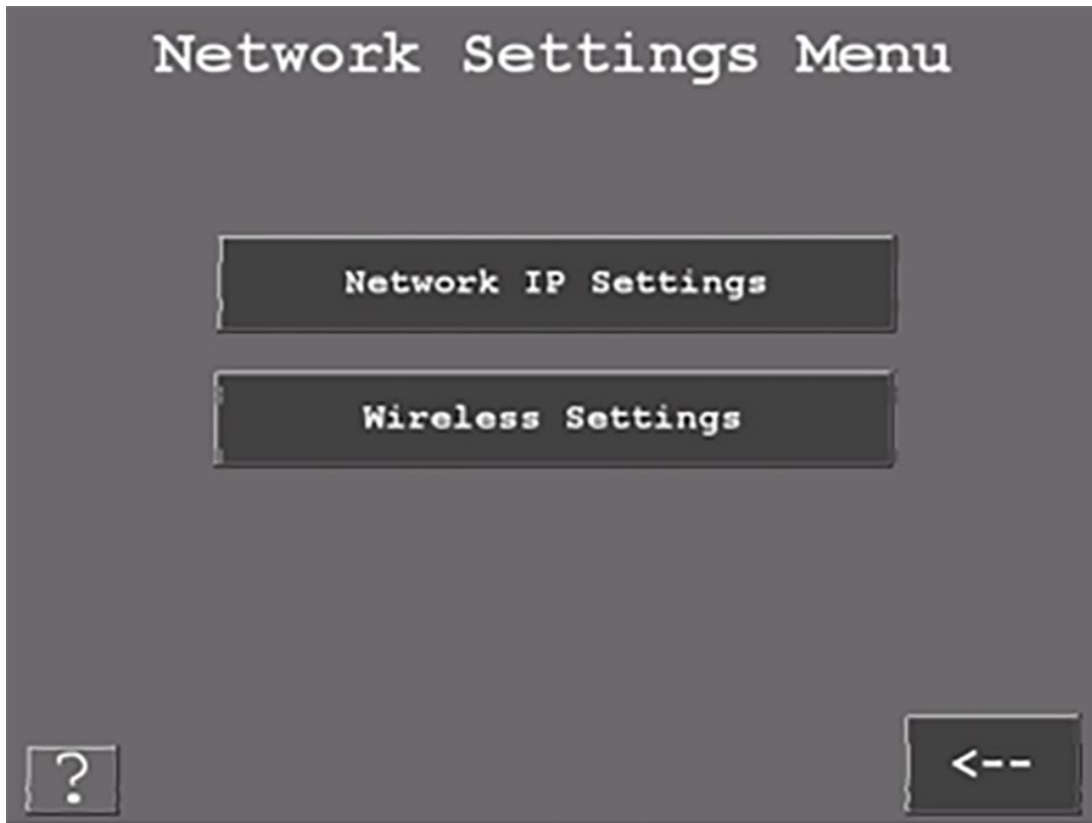

Figure 23- Scanner Default Settings
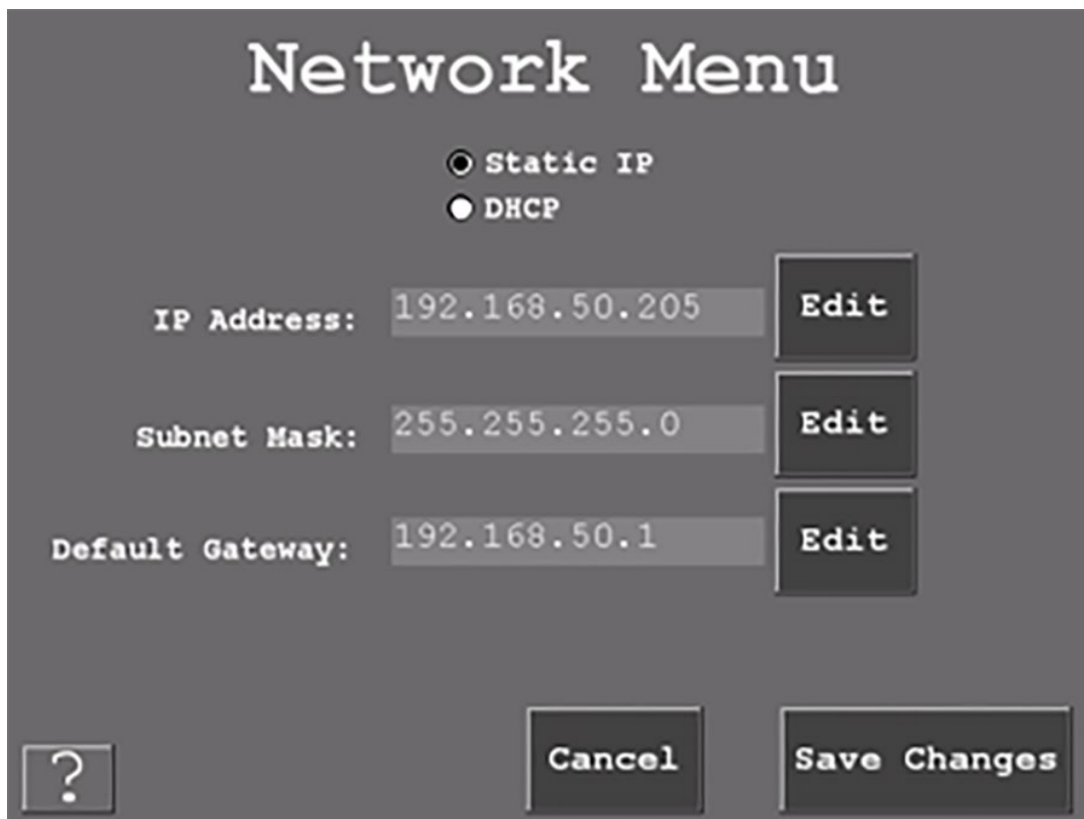
Figure 24- Network Settings Menu

Figure 25 - Network Menu

Network Menu

This Menu enables the user to set the network parameters and to set a static IP address or to allow a DHCP server to automatically obtain one.

Wireless Settings

To set the SMI-2 up to use a wireless access point, you must provide the following information: SSID, Pass Key (if necessary), Authentication and Encryption. Start by doing the following:

1. With the SMI 2 powered down, be sure the program switch on the wireless card is off (down).

2. Turn the power On and flip the program switch to on (up) after the SMI 2 has booted up.

3. Go to Admin ▯ Additional Settings ▯ Wireless Settings.

4. Select the KEYS to make the on Menu keyboard appear/disappear.

5. Select the white field next to the SSID label.

6. Enter the SSID from the on Menu keyboard.

7. Perform the same steps for setting the Pass Key.

8. Select the Authentication and Encryption.

9. Select the Initialize Module.

Figure 26 - Wireless Settings showing on-screen keyboard

SMI 2 will do a restart in about 1 minute. After the unit has rebooted, power the unit down, flip the program switch back to off (down) and then power the unit up.

Production Parameter Download

Check 'Get Count Factors' to download the Operations Per Cycle and Parts Per Cycle count modifier settings at the start of a new job.

Check 'Get Production Idle timer' to download the Production Idle timer setting at the start of a new job.

Check 'Get Forced Dialog Timer' to download the Forced Dialog Timer setting at the start of a new job.

Miscellaneous Settings

Check the 'Hold State' on New Job box if you need the state to be held while the machine is operated during a setup period.

Un-check the 'Hide Hold-State' to give the user the ability to hold the current planned/unplanned downtime for an extended period of time (sometimes used for setup).

Uncheck the 'Hide End-Job' to give the user the ability to terminate the current Job and put the SMI into planned downtime.

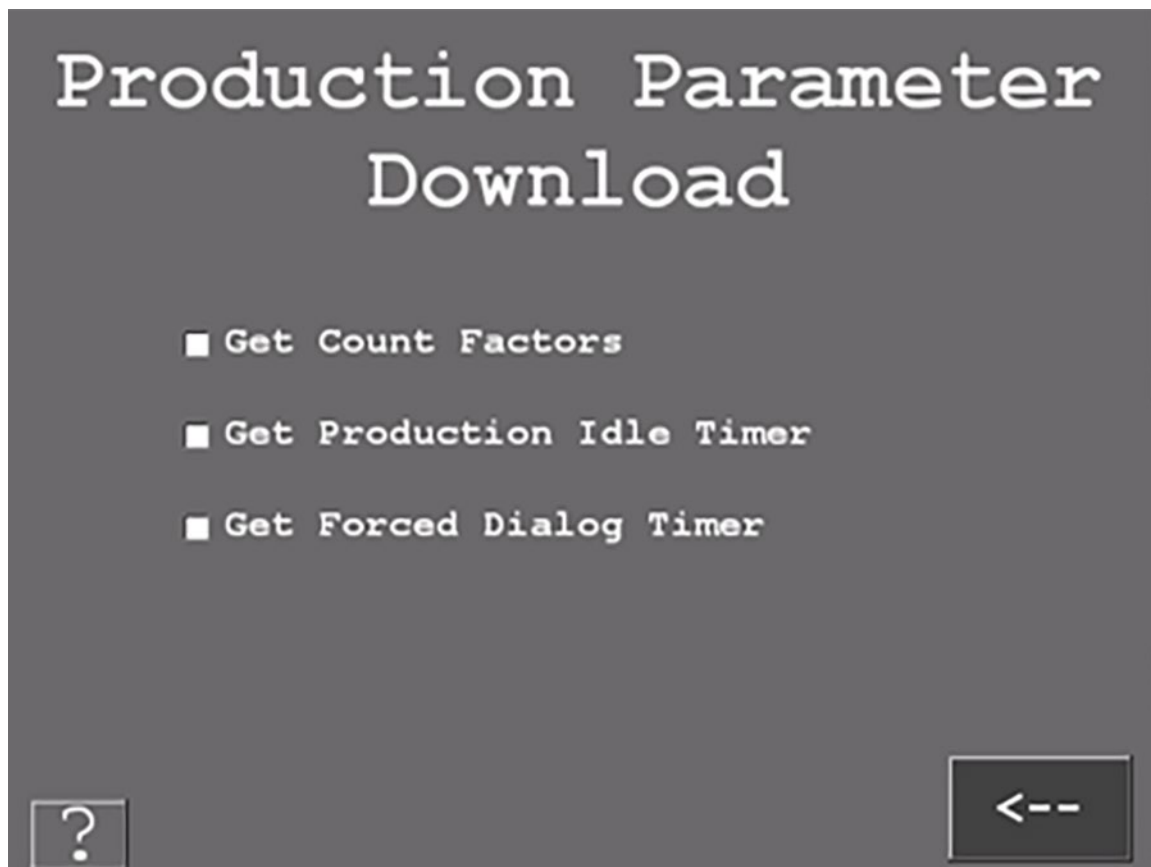Uncheck the 'Hide Changeover' to display canned downtime reason 1st.

Figure 27- Production Parameter Download screen

Uncheck Hide 'Adjust Multiplier' to give the operator the ability to modify the counting parameters in the job manager Menu.

Uncheck 'Hide Preset' to give the operator the ability to enter a preset in the job manager Menu.

Uncheck the 'Hide Preset' to give the operator the ability to enter a batch # in the job manager.

Un-check 'Hide Dashboards' if you are using analogs.

Check standard if you are not using the parent/child function. If the SMI is parent select the Parent radio button. If the SMI is Child to a Parent SMI select the Child radio button.

Preset Settings Menu

Enable 'Stop On Total Parts Preset' to open the SMI 2 Inhibit Relay and stop the machine when the total quantity of items/parts have been reached.

Enable 'Stop On Batch Preset' to open the SMI 2 Inhibit Relay and stop the machine when a batch quantity of items/parts have been reached.

Note: Provided the machine's stop circuit is wired in series the inhibit relay.

The 'Reset Batch Count' sets the Batch Segment Count to zero, not the Batch Segment Preset.
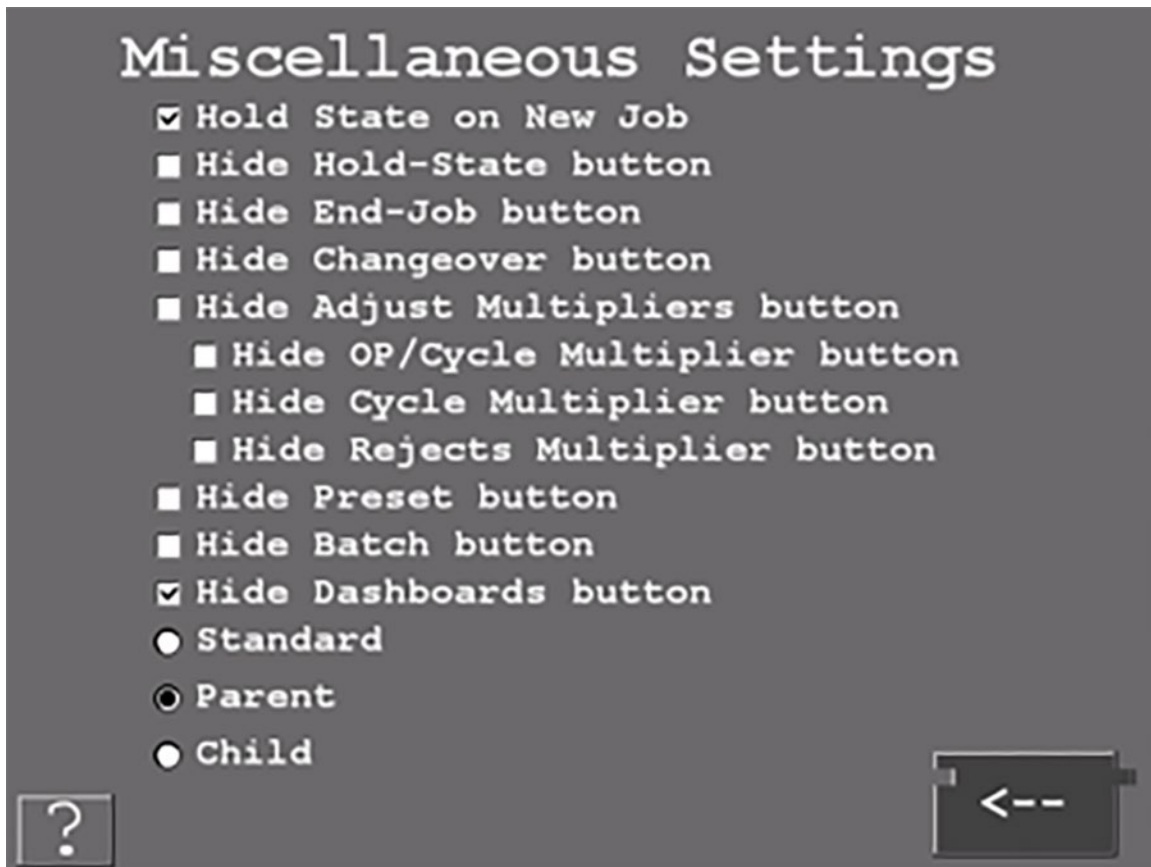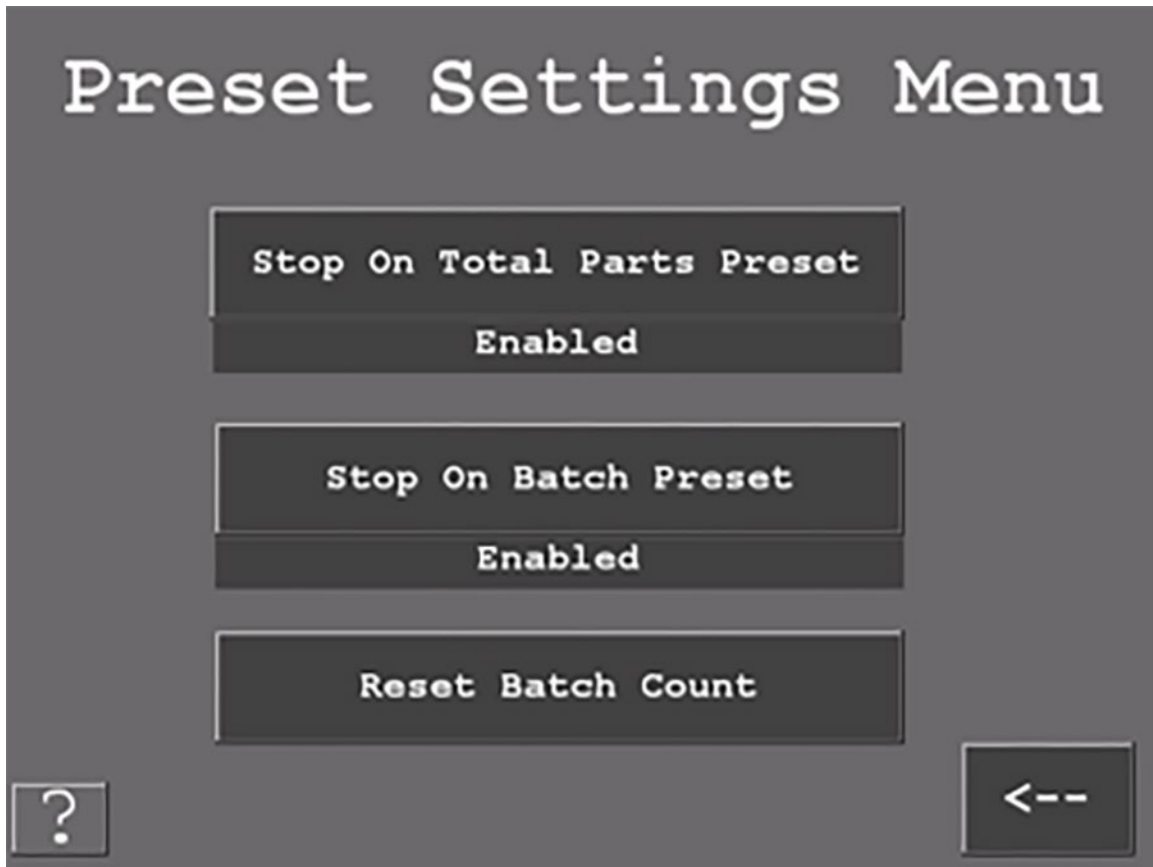

Figure 28 - Miscellaneous Settings

Figure 29- Preset Settings Menu

Multipliers

Select Parts and Rejects Count Multipliers to set the value by which each count will be incremented for every activation of the appropriate input.

The Operations/Cycle should be used when more than one cycle of the machine is required to produce a complete operation.

Note: When 'Adjust Multiplier' is unchecked in the 'Miscellaneous Settings Menu' the operator has the ability to set the multipliers from the Job Manager screen.
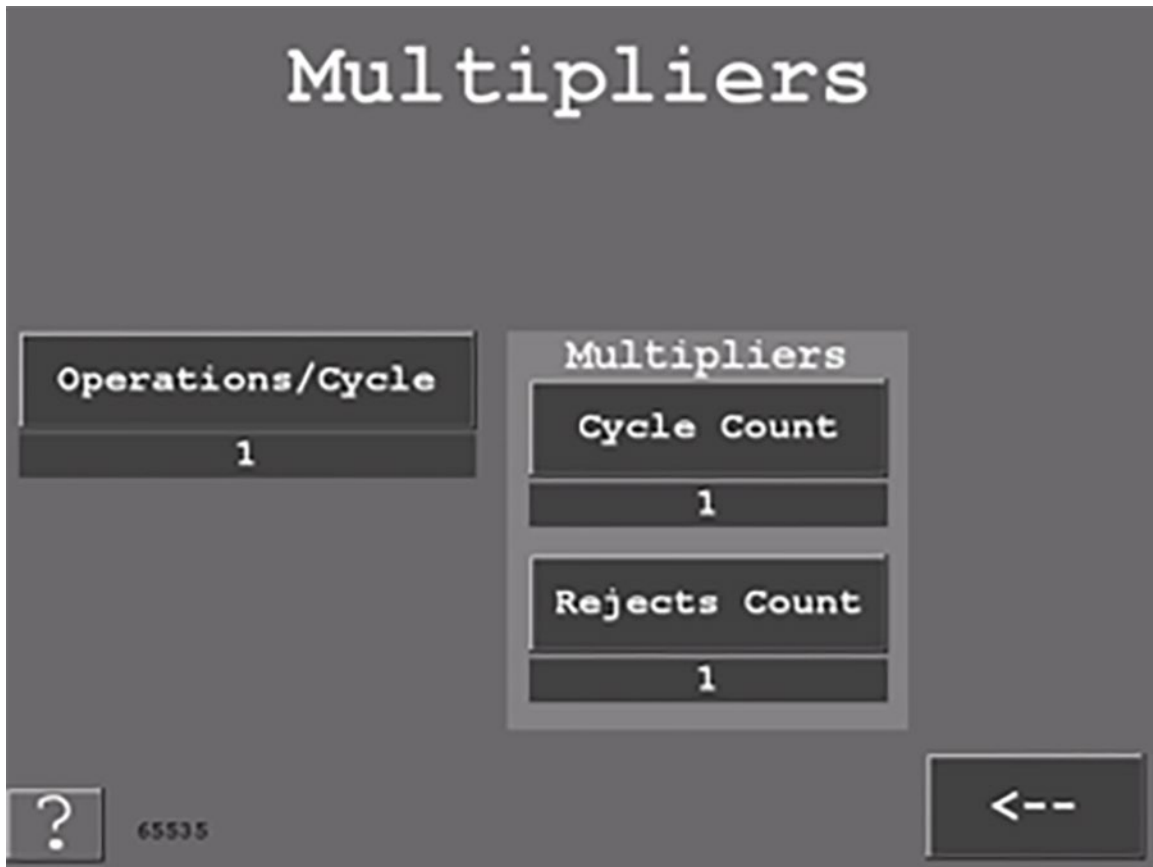
Figure 30- Multipliers Screen

Utilities

The 'Copy Log file to USB disk' allows the operator to copy the error log file to the USB disk.

The 'Copy Settings to USB Disk' allows the operator to copy critical settings to the USB disk.

The 'Force Code Download' forces the SMI to reboot and prompt the user to perform a Code Download.

The 'Reboot System' restarts the SMI 2.

The 'Start Cerdisp' starts the Cerdisp app which gives the user the ability to control the SMI from their computer (this is a support function and should be used with care).

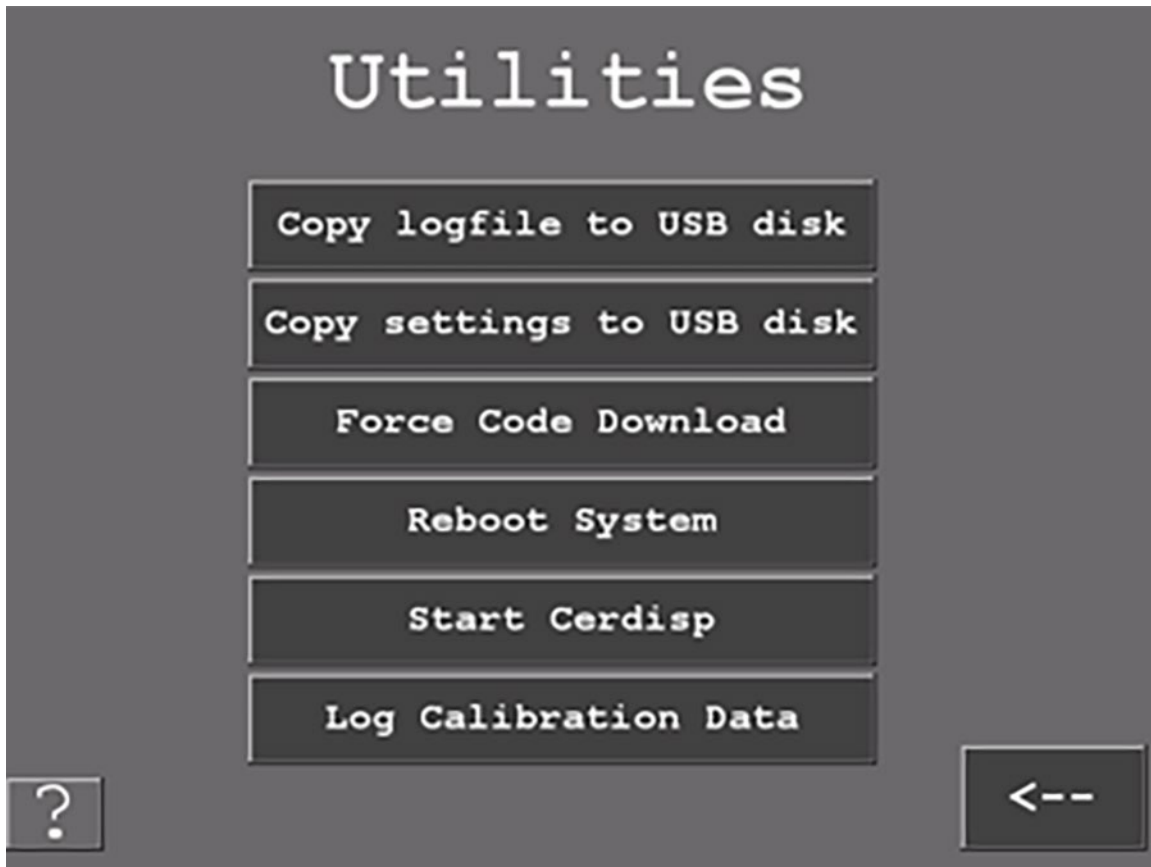The "Log Calibration Data" allows the operator to copy the calibration data to the USB disk.

Figure 31- Utilities Screen