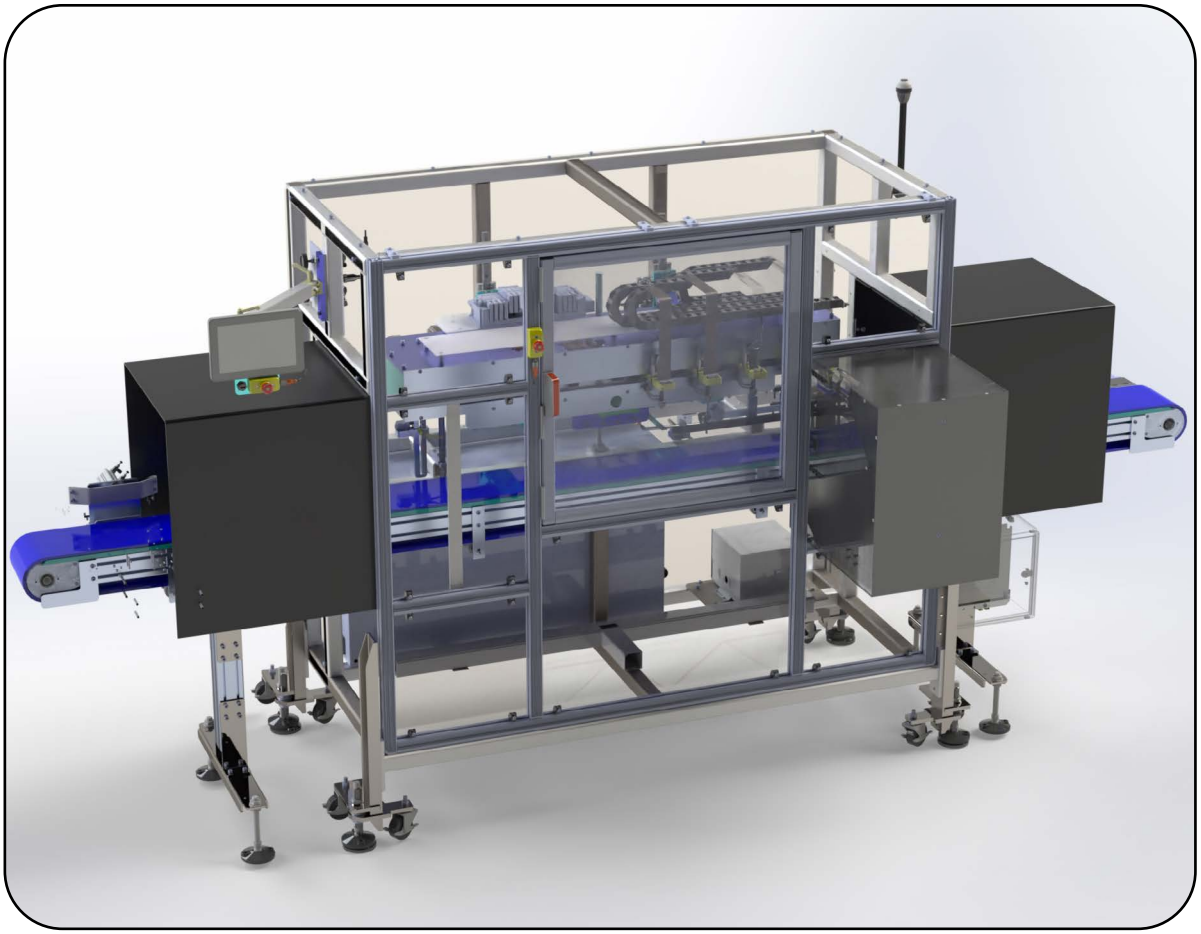
ALPS INSPECTION

Operator Manual

Flex Pitch Leak Tester



Contents


ALPS

1 Introduction

1.1 About This Manual

The ALPS Flex Pitch Multi-Moving head leak tester provides high speed leak testing of a wide range of container types including shingling, reverse-taper, and small containers which are traditionally difficult to test. The Flex Pitch has a smaller footprint to perform leak testing on an existing conveyor line, requiring no conveyor line modifications. The Flex Pitch has built in flexibility with 2-4 test heads for a variety of container sizes up to 350oz. This makes the Flex Pitch ideal to leak test difficult containers. The Flex Pitch Multi-Moving head leak tester provides tool-less adjustments and no formatted parts to change, making quick container changeovers. The Flex Pitch uses servo motors and linear slide combination coupled with an encoder (mounted to the top of the conveyor) to track the conveyor movement and speed. As molded containers enter the machine, the Multi-Moving test heads locate and leak test each container. After the test is completed, good containers pass through the machine, and defective containers are ejected from the conveyor line with a reason displayed on the HMI.

A single electrical cabinet is installed on the backside of the machine containing the AC power circuits, servo motor drives, DC power supplies, power contactors, and main disconnect. The control system features a multi-channel PLC and color touch screen interface with an intuitive, icon-based menu structure. Standard features include an integrated Self-Test feature for each station.

1.2 Software

Installation of any new or modification of existing software into the FlexPitch machine not approved by Air Logic Power Systems LLC may adversely affect the operation or performance of the machine and possibly void the warranty and or service agreements. Please consult Air Logic Power Systems Service Department prior to installing or modifying existing software on this machine.

1.3 System Modifications

Mechanical or electrical modifications not approved by Air Logic Power Systems LLC to the FlexPitch system may also void the warranty and/or service agreements. Please contact the Air Logic Power Systems Sales or Service Department 1-800-325-8717 for approval or assistance with any machine modifications.

1.4 Machine Designation and Serial Number Location

This individual machine is identified with an ID and Serial Number plaque affixed to the inside door surface of the control enclosure as shown below. Along with it are the 24-Hour service hotline phone number 1-800-325-8717 and the UL Panel Rating plate.

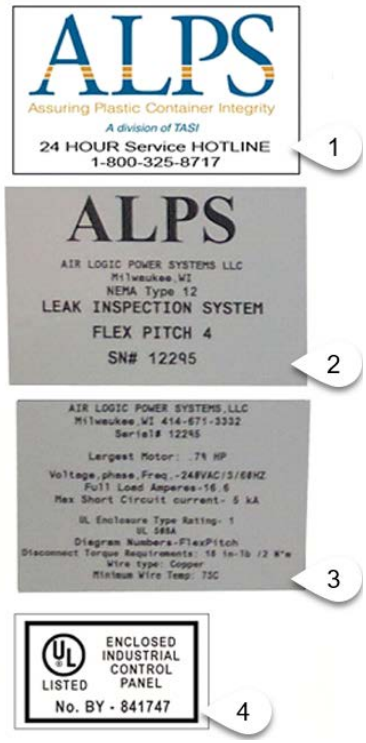


Table 1: Machine Label Locations

Label	
1	ALPS 24-hour service hotline phone number 1-800-325-8717
2	Identification and serial number plaque
3	ALPS rating label
4	UL Certification Sticker

2 Safety

2.1 Safety Labels

The symbols used on the machine were developed by the International Organization for Standardization (ISO) and are defined below. These symbols may include yellow warnings triangles, blue mandatory action circles, or red prohibited action circles.

Symbol	Definition
	High voltage warning
	Lockout Tagout required
	Pinch points, hand and finger hazards
	Do not operate without guards in place
	Notice that machine starts automatically
	Hot surface hazard

2.2 Cautions and Warnings

Please review the following cautions and warnings before operating or performing maintenance on the machine.

CAUTION	Read the instructions before using the machine. Only qualified personnel should operate the Flex Pitch.
WARNING	High pressure hoses, fittings and couplings are important for the safety of the machine. Use only hoses, fittings and couplings recommended by ALPS.
WARNING	To ensure machine safety, use only original spare parts from ALPS or approved by ALPS.
WARNING	Do not use the machine if a supply cord or important parts of the machine are damaged, e.g. safety devices, high pressure hoses, applicator.

2.2.1 Safety: Warning Labels and Descriptions

Safety is always critical. The ALPS FlexPitch machine is equipped with a full complement of warning decals and labels. A standard series of warning and caution labels are in place to inform the operator of certain hazards relative to the function of this machine. Please observe these warnings.

2.2.2 Danger! Arc, Shock, and Flash Hazard:

The potential for serious or fatal injury exists. Located on the outer door surface of the High-Voltage Control enclosure. Do not open to explore or attempt to affect repairs in this area. In case of breakdown, initiate Lock-Out Tag-Out procedures to secure the machine. Notify authorized personnel.

2.2.3 Risk of Hot Surfaces Hazard

This symbol can be found in areas where a potential burn hazard exists. FlexPitch servo motors have hot surfaces. Do not touch motor surfaces while in operation or after being recently shut down.

2.2.4 Lock Out Tag Out

This decal appears prominently next to the main power switch on the side of the High Voltage Control cabinet at the rear of the machine. Lock-out and tag-out procedures are covered in the service and maintenance manual.

2.2.5 Warning! Watch Your Hands and Fingers

This warning is seen on the front of the discharge chute. Do not thrust your hand up this chute while the machine is operating. Contact with moving container material poses a slight to moderate threat of injury.

2.2.6 Danger! Do not operate Without Guards in Place

This warning is located on the lower front portion and rear plexiglass guard of the machine. It cautions the operator not to attempt to operate this machine without a plexiglass guard panel in place. The potential for severe injury exists while the machine is operating. Please keep hands, long hair, low hanging jewelry, and loose clothing away from the moving parts.

2.2.7 Danger! Starts Automatically

This warning is displayed on all plexiglass doors as a warning that the machine starts and stops automatically as a function of its normal operating scheme.

2.3 Safety: Warning Messages

Note these Warnings and Cautions:

Cautions: Caution messages can appear before procedures. Messages of this type indicate possible damage to the machine or loss of data if a step or procedure is not properly observed.

Warnings: Warning messages imply that a potential health hazard exists in the performance of any random procedure.

⚠ **WARNING** Only trained and or certified personnel should operate or rig the Flex Pitch for shipment or movement.

3 Flex Pitch Specifications

Dimensions W-D-H	101" x 63" x 85" (2566 mm x 1600 mm x 2160 mm)
Weight	2000 lbs (9000 kg)
Medium (Min/Max container sizes)	up to 8" (203 mm) diameter & 5.5" to 14" (140 mm-355 mm) height.
Capacity	Up to 150 CPM and may vary depending on the size of the container
Power Requirement	480 VAC, 50/60 Hz, 15A
Air Supply	80-100 psi, 4 SCFM
Air Flow Line	¼" NPT connection, dry non-lubricated air
Operating Pressure	80 psi
AC Volts	480 VAC
Control/Display	7" or 10" HMI
Communication	Ethernet
Phase	3-Phase
Frequency	50/60Hz
AMPS	15 Amps

4 Safety-Operational Status/Conditional Status

4.1 Operational Status: Conditional status of the machine

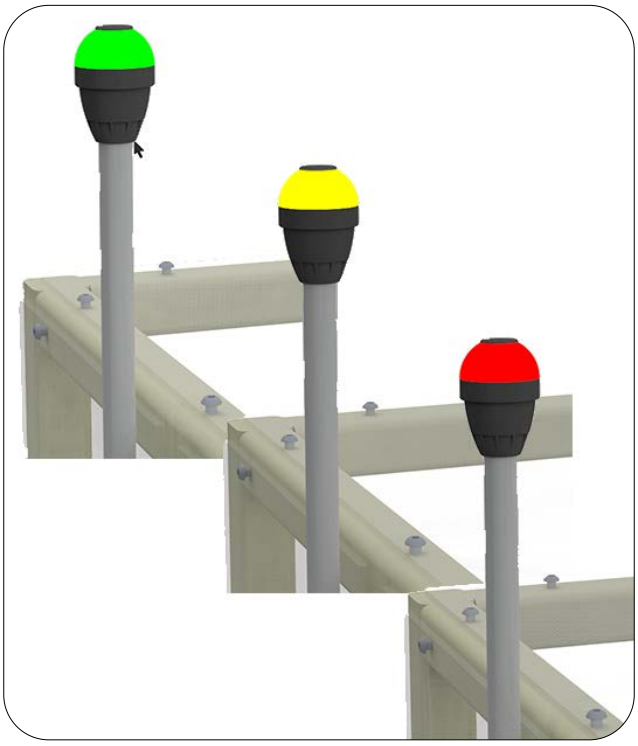


Figure 1: Operational Status Lights

Table 2: HMI Status LED: Color Code Indicates Running Status

Color	Status/Condition
Green	Normal operating status.
Yellow	Machine in bypass Mode or in Pause Condition.
Red	Machine stopped, door ajar or waiting for operator to press START. The circuit is open, interrupted, e-stop has been pressed or a fault has occurred.

5 Glossary of Common Terms

Table 3: Glossary of Terms

Term	Description
Encoder	Generates digital electronic pulses that represent the position, speed of the FlexPitch
Air Preparation Unit	Cleans and regulates the incoming air supply, indicates a lockout valve, primary particulate filter, coalescing filter, reject supply regulator, and an FlexPitch supply regulator.
Available Test Time	The calculated maximum amount of time to perform the leak test. This calculation is based on the following factors: Max Fill Time, Test 1, Test 2, Probe-Retract and CPM (containers per minute).
CPH/CPM//BPH/BPM	Containers Per Hour/ Containers Per Minute / Containers Per Hour / Containers Per Minute
Downstream Photo-Eye	Photo-eye that senses a backlog of containers at the exit
End of T1 Pressure	Test result displays the pressure in the container at the end of Test 1.

Term	Description
End of T2 Pressure	Test result displays the pressure in the container at the end of Test 2.
Fill Pressure	The pressure used to fill the container. This pressure is set in PSI.
Fill Valve	The Solenoid valve that controls the air used to pressurize the container.
HMI	An acronym meaning: Human Machine Interface. This is also referenced as the Operator Touch Screen.
IWC	Inches of water column. (One inch of water = 27.7 IWC = 1 PSI).
PE	Acronym for Photo-eye. An electronic sensor for container status communication to the PLC
PLC	An acronym for Programmable Logic Controller.
Recipe	A set of test setting values that can be saved and used for a particular container.
T1 Maximum	An acronym for Test 1 which refers to the maximum allowed pressure percent loss during test one (T1).
T1 Minimum	An acronym for Test 1 which refers to the minimum allowed pressure percent loss during Test one (T1). Note: This is normally set to “0” as any container with a loss lower than this is rejected.
T1 Pressure Loss	An acronym for Test results for Test 1 which refers to the total pressure loss during Test one (T1).
T2 Maximum	An acronym for Test results for Test 2 which refers to the maximum allowed pressure percent loss during test two (T2).
T2 Pressure Loss	An acronym for Test results for Test 2 which refers to the maximum during test two (T2).
Test 1 (T1) Time	Test 1 function where the applied pressure must reach the target pressure for the test to begin. If target pressure is reached, the pressure loss must not exceed the maximum percentage amount allowed during the allotted time or the container will be rejected
Test 2 (T2) Time	Test 2 function begins when test 1 is completed and no rejects have occurred. During Test 2, the pressure loss must not exceed the maximum percentage amount allowed during the allotted time or the container will be rejected.
Test Leak Orifice	When performing a self-test, a pressure path to a test orifice is opened. The orifice size can help determine the size of the leak that can be detected based on current test settings.

6 Introduction to Components

Table 4: Basic Components table

Ref #	Components	Function
1	Operator Display and Touch-screen (HMI).	The (HMI) touchscreen includes controls for starting and stopping the machine, guided or manual setup, and displays machine status, counter, alarms, and fault conditions. Contains the Start/Stop and e-stop palm buttons
2	Emergency Stop	E-Stop palm-button
3	Start/Stop Buttons	Controls Starting and Stopping of the machine

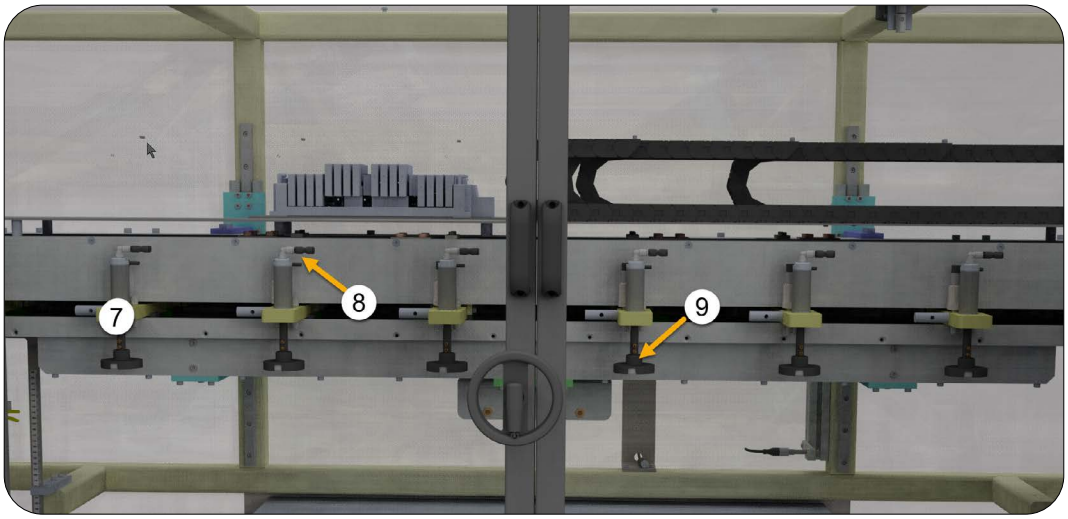
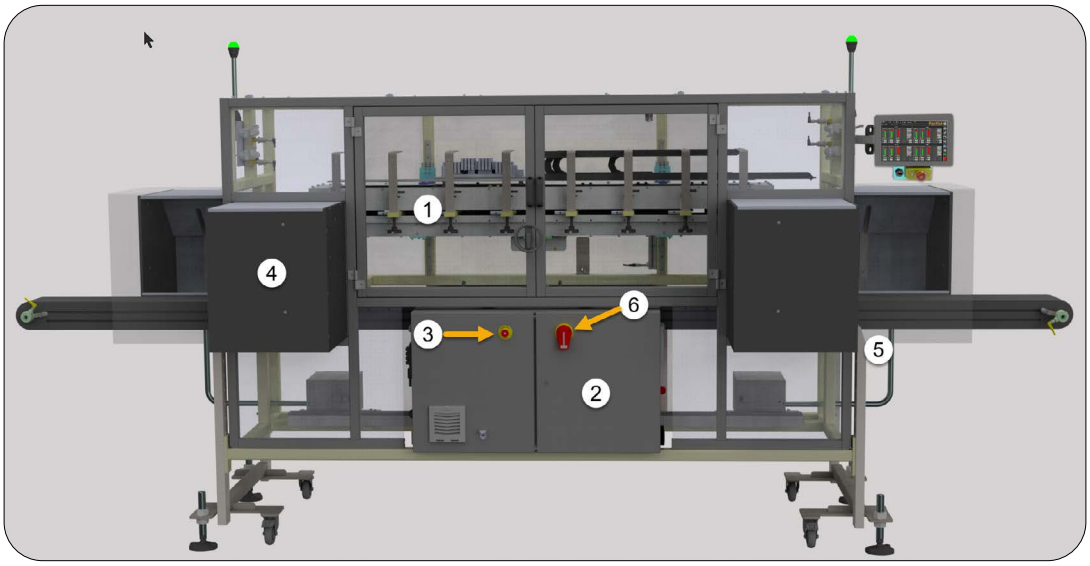


Table 5: Operational Components

Ref #	Components	Function
1	Carriage/Slide	Consists of a servo motor, that moves the Test Probe Head with the container
2	Electrical Enclosure	Contains essential electronics to run the machine
3	E-Stop	Flex Pitch Emergency Stop
4	Reject Chute	Containers that are rejected will be pushed into the reject chute
5	Airflow Preparation Unit (not shown, located on back of machine)	Airflow shut-off, pressure control and filtration 
6	Main Disconnect	Controls incoming power to the machine
7	Test Probe Assembly	Contains a probe cylinder, seal, and a transducer that performs pressure tests
8	Probe Line	Outgoing air line for pressure results
9	Fill Line	Incoming air line for pressurized inflation



7 Theory of Operations

7.1 Leak Test Operations

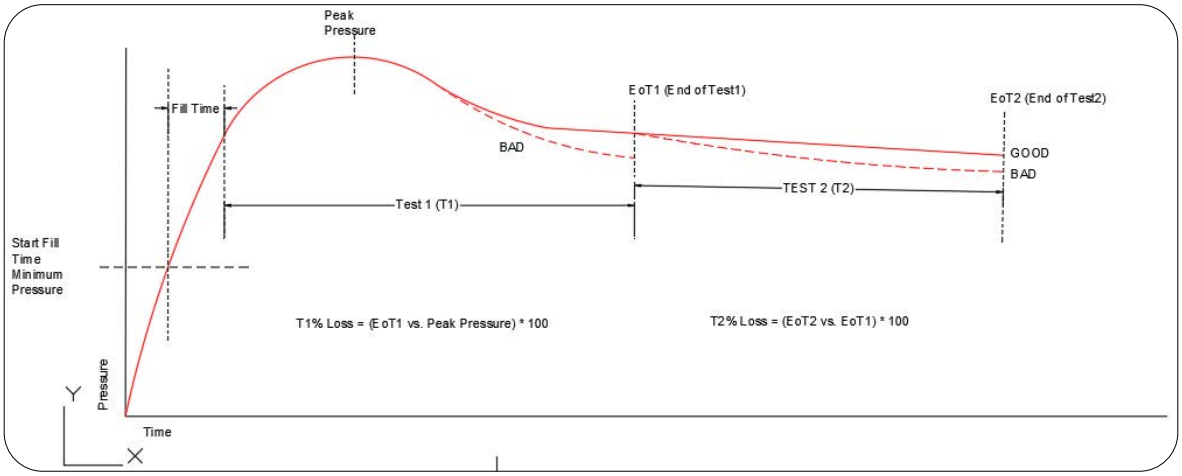


Figure 1: Peak Pressure Chart

7.2 Pressure Test

Untested containers are transferred from line conveyor to the FlexPitch. When the FlexPitch begins to detect containers the test-probes will extend to seal and pressurize the containers. The Pressure Test ensures the container reaches the specified Peak Pressure. If any one of the containers fails to reach Peak Pressure, that container will be rejected for a Fill Failure.

7.3 Test 1 (T1) (Stabilize Test)

T1 is considered a pressure stabilization period. T1 is the time allowed for pressure curve to flatten out. (See the graph above) Test 1 will reject the container if Maximum % percent value is exceeded. If Maximum % value is not exceeded, Test 2 is performed.

7.4 Test 2 (T2) (Leak Test)

Test 2 is performed for as much time as the conveyor speed and container travel will allow. This is done so the smallest possible leak can be detected. In Test 2 the container will be rejected if the T2 Maximum % percent value is exceeded. If the T2 Maximum % is not exceeded the container is considered good. At the end of this period, the probe is retracted and the test cycle is completed.

7.5 Pressure Decay Values

Unless otherwise specified the pressure units of measurement entered or displayed in the HMI are shown in Inches of Water Column (IWC).

8 Photo Eye Function and Position

8.1 Photo Eyes Introduction and Positions

Containers transition from the production line conveyor into the FlexPitch conveyor for leak testing. During this transition containers will be monitored and controlled by various photo eyes. The machine will reject failed or untested containers at the reject station.

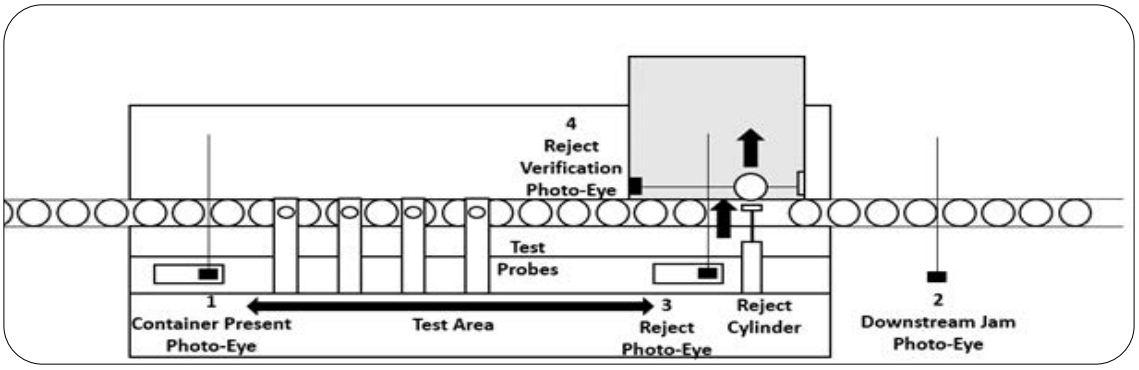


Figure 2: Reject Cylinder

Table 6: Photo eye Function Table

Ref #	Photo Eye	Function
1	Container Present Photo-Eye	Monitors the line of incoming containers to determine that a container is present to initiate the test cycle.
2	Downstream Jam Photo-Eye	Temporarily pauses the machine when the sensor field is broken. It automatically restarts the machine when the sensor field is clear
3	Reject Photo Eye	Detects a failed container and fires the reject cylinder at the appropriate time. It is also used to detect untested containers that may have been missed by the Container Present Photo-eye (issues an Unexpected Container Warning)

Ref #	Photo Eye	Function
4	Reject Verification/Chute Monitor Photo-Eye	Verifies that rejected containers have left production line. If the sensor fails to detect the container, or if the sensor field has not been broken after a reject occurs, the machine and conveyor will shut down and an alarm condition called a Reject Verification Fault is generated.

9 Emergency Door Sensors Positions

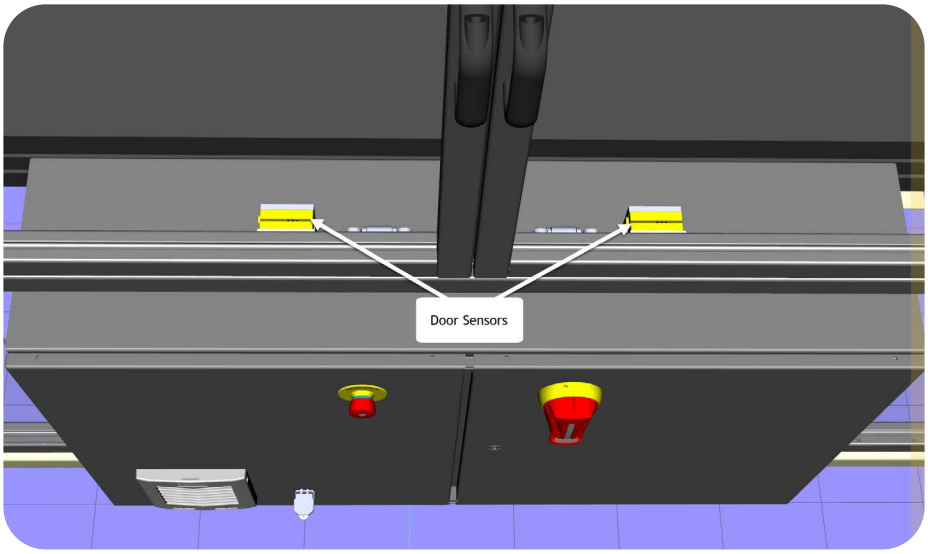


Figure 3: Door Mounted Safety Switch Locations

Table 7: Doors and Guard Assembly

Item	Component	Function
1	Emergency Door Switches	Category 4 rated-pulsed signal non-contact switch. These work the same as the one in the emergency stop on HMI touch screen panel.
2	Guard Assembly	Protects personnel during operation from moving components that are located inside the enclosure. Plexiglass doors and panels are designed to limit access to the machine during operation. The doors have safety interlocks which will stop the machine if a door is opened while the machine is running. Both doors must be closed before the machine can be restarted. The colored LED atop the HMI control box will return to steady green.

10 Advanced Operator HMI Use

For screen details and navigation see the HMI Screen Navigation in the back of this manual.

On-line HMI configuration and settings can also be viewed at www.alpsleak.com, or by clicking on the following QR code.

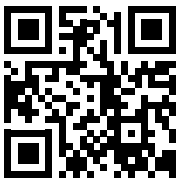


Figure 4: ALPS QR Link To HMI Manual

10.1 HMI Password Protection

The options and settings built into the FlexPitch are password-protected. A password is required for editing production values. If not previously logged in, when attempting to edit or change settings a password login pops up box and keyboard will appear. The FlexPitch ships with default passwords.

Table 8: ALPS default (shipped) password settings

Item #	Level	Password	Allowed
0	Guest	NA	No password is required. Viewing displays only is allowed.
1	Operator	111	Password is required. Same as level 0 except loading recipes is allowed
2	Maintenance	222	Password is required. Editing of all settings, system calibration and altering of recipes including deleting or creating new recipes
3	Supervisor	333	Password is required. Same as level 2 except turning options ON or OFF, resetting counters, and putting the system into bypass is allowe
4	Custom		Users with unique levels and passwords can be created

With no display activity the system will automatically log out to level 0 with factory default time of 15 minutes

10.2 How to Log In and Out

Log In is accessible through out FlexPitch Menu system. Typically, the screen visible when accessing the HMI will be the last screen displayed when last viewed or changed. However, access to login is available to all screens as illustrated in Figure 5&6. Pressing the lock icon provides access to obtain operator, supervisor, or technician user privileges. Press the Lock on the top of the menu bar to access keypads and enter user login information. Select the lock to log out when logging out.

10.3 How to Enter Passwords

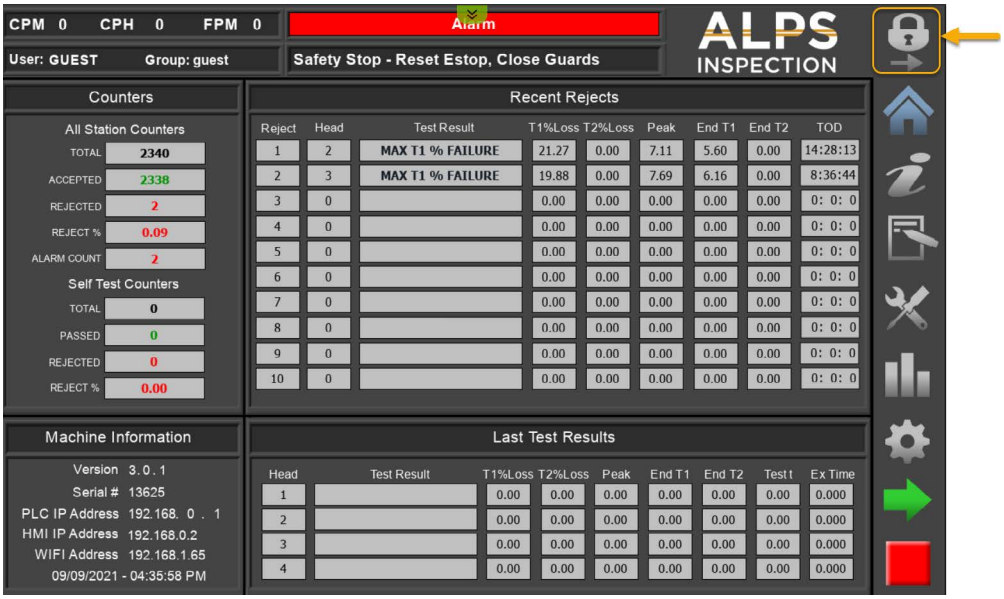


Figure 5: Login Lock for All Screens

1. From any screen, select the lock on the settings navigation menu on the right side of the screen.

Figure 6: Basic Password Screen

2. A password prompt screen appears. Touch the white input area.
3. A QWERTY keyboard appears.

Figure 7: QWERTY Keyboard

4. Enter User name and Password and touch Sign In or press enter on the keyboard.

Once logged in, the screen will display the user that is logged in in the upper left of the HMI screen.

Figure 8: User Group Information

There are three levels of permissions. Once signed in, the operator can press the lock button again to see the advanced login screen to make any necessary changes depending on the level of permissions given. Operator for day to day operations, Supervisor for day to day operations, reporting and overrides, and Technical for programming the HMI, troubleshooting, and machine installation.

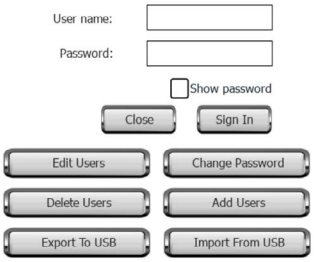


Figure 9: Advanced Password Screen

The advanced password screen will allow users to change settings and supervisors to enter new users. All password information can be exported to a usb drive for storage or reloading passwords.

11 How to Edit Settings with the HMI

Test setting values that were loaded from a recipe or entered randomly may need to be changed from time to time. To save any changes made refer to the Recipe Menu section.

11.1 Changing settings and values

Leak test production by the FlexPitch requires proper settings. The Settings Menu is where all the settings for production are viewed and edited. Boxes that are white can be selected and new values entered. All screens can be viewed and their respective functionality in the HMI Navigation guide in the back of this manual. To access a settings screen, press the settings icon.

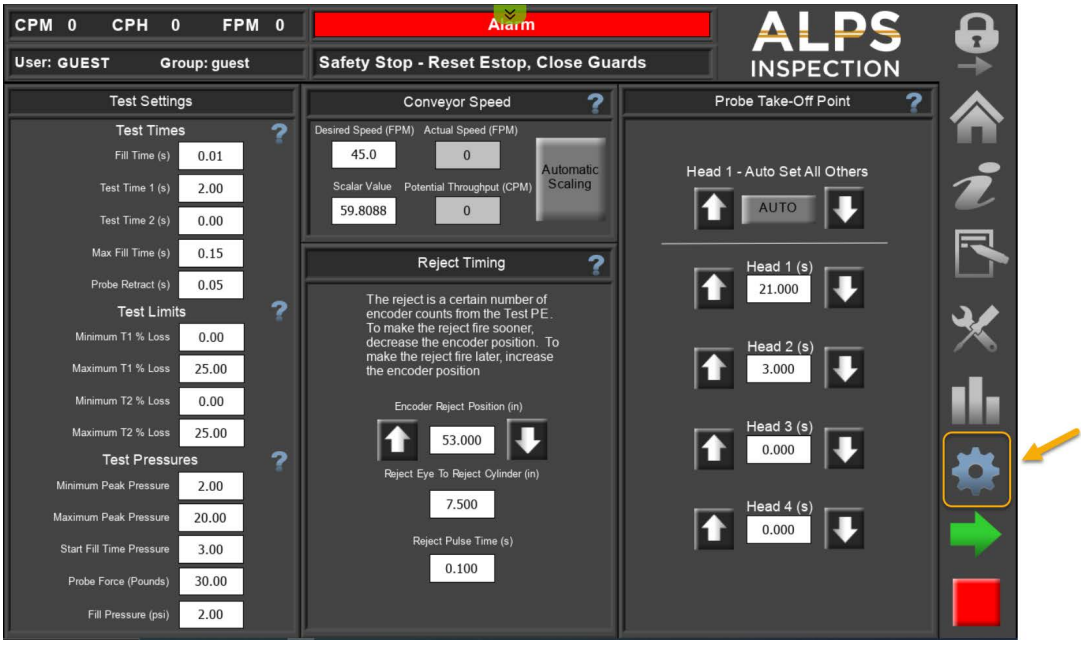


Figure 10: Settings Menu Icon

A popup screen will display the various screens the user can access.

Figure 11: Popup Navigation

Once a screen is selected changes can be made to the Flex Pitch operations. When a setting is selected, a numeric key pad will popup.

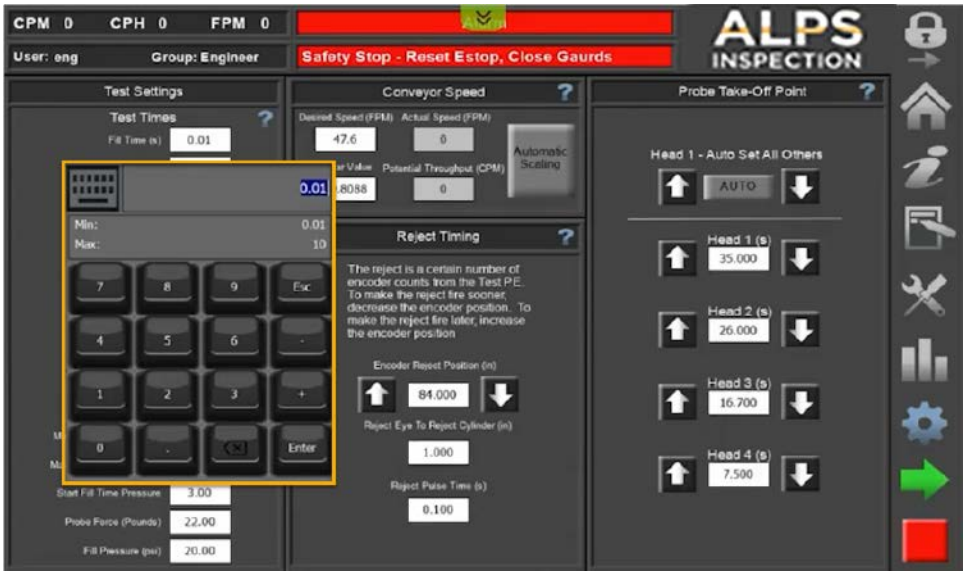


Figure 12: Numeric Key Pad

All screens will have a key in the HMI Navigation section that will describe the functionality of each screen. Below is an example of how each screen is defined in the HMI section (36 HMI Navigation and Information of this manual).

Table 9: Settings Screen Key Example

Label		
1	Test Settings	Title
2a	Test Times	Title
b	Fill Time(s)	Amount of time the Fill Valve will remain ON after the Start Fill Time Pressure is achieved
c	Test Time 1 (s)	Amount of time the TEST TIME #1 is active after the FILL TIME is achieved
d	Test Time 2 (s)	Amount of time the TEST TIME 2 is active after the TEST Time#1 is achieved
e	Max Fill Time(s)	Maximum time allowed for the START FILL TIME PRESSURE to be achieved
f	Probe Retract(s)	A fixed time for the PROBE RETRACT
3a	Test Limits	Title
b	Minimum T1% Loss	Actual T1% must exceed this limit
c	Maximum T1% Loss	Actual T1% must not exceed this limit
d	Minimum T2% Loss	Actual T2% must exceed this limit
e	Maximum T2% Loss	Actual T2% must not exceed this limit
4a	Test Pressures	Title
b	Minimum Peak Pressure	Actual Peak Pressure must exceed this limit
c	Maximum Peak Pressure	Actual Peak Pressure must not exceed this limit
d	Start Fill Time Pressure	The point of when a good seal is reached and the FILL TIME begins
e	Probe Force (Pounds) (Reference Only)	FOR ELECTRONIC REGULATORS ONLY. Setting for the amount of force applied to the container

Label		
f	Fill Pressure (psi) (Reference Only)	FOR ELECTRONIC REGULATORS ONLY. Setting for the amount of Air Pressure applied to the container
5	Conveyor Speed	Title
6a	Desired Speed (FPM)	Desired Conveyor Speed (Feet per minute)
b	Actual Speed(FPM)	Actual Conveyor Speed (Feet per minute)
c	Scalar Value	Scalar Value for proper conveyor speed
d	Potential Throughput (CPM)	Container per Minute based on Actual conveyor speed
7	Reject Timing	Title
8	Encoder Reject Position (inches)	Distance from the Entrance Photo-Eye at which the Reject will occur, in INCHES
9	Reject Eye To Reject Cylinder (inches)	Distance from the Reject (Exit) Photo-Eye to the Reject Cylinder in INCHES
10	Reject Pulse Time(s)	Amount of time the Reject Cylinder will be active
11	Probe Take-off Point	Title
12	Head 1- Auto Set All Others	Auto Set all Head 1 Take-Off (Start) Position
13	Head 1	Head 1 Take-Off (Start) Position. Manual adjustment
14	Head 2	Head 2 Take-Off (Start) Position. Manual adjustment
15	Head 3	Head 3 Take-Off (Start) Position. Manual adjustment
16	Head 4	Head 4 Take-Off (Start) Position. Manual adjustment

Steps to change values:

1. Press on any white value box and the appropriate keyboard will appear.
2. Enter the new value and press ENTER.

If a user does not have access, a red lock icon will popup.

Figure 13: Permission Denied Lock Popup

If a user does not have access to a setting, a red lock will appear and no changes can be entered

The allowable minimum and maximum values are displayed in the following tables. Exceeding MAX and MIN limits is not permissible. Use the popup keyboard to make any changes

11.2 Test Pressures & Reject Limits Overview

These Setting Screen contains the time settings, and pressures, and pressure limits required to perform leak tests on the FlexPitch. Navigation between each section is accomplished by touching the section or box that you want to change. Boxes with a white background can be selected to change the value. Boxes with a grey background are for reference only and cannot be altered on the present screen.

Table 10: Test Pressure and Reject Limits

Setting	Range	Description
Fill Time	0.01 to 10 seconds	Time specified for the fill valve will remain on to fill the container
Test 1 Time	0.005 to 10 seconds	Time specified for pressure stabilization
Test 2 Time	0 to 20 seconds	Time allowed for monitoring pressure loss.
Maximum fill time	0.02 to 15 seconds	Time permitted to reach "START FILL TIME PRESSURE". Fill Time will begin when this pressure is achieved.
Probe retract Time	0.01 to 5 seconds	Time allowed for test probe to clear container

Table 11: Time Limit Setting Description 1

Setting	Range	Description
Minimum test 1 percent	-50 to 10 %	The pressure percentage loss must be above the range value selected to be considered good
Maximum test 1 percent	min T1 to 75 %	The pressure percentage loss must be below the range value selected to be considered good
Minimum test 2 percent	-75 to 10 %	The pressure percentage loss must be above the range value selected to be considered good
Maximum test 2 percent	min T2 to 75 %	The pressure percentage loss must be below the range value selected to be considered good

Table 12: Time Limit Setting Description 2

Setting	Range	Description
Minimum peak pressure	0.5 to 25 InH2O	Container pressure must reach the value entered or it will be rejected
Maximum peak pressure	1 to 25 InH2O	Container pressure must not exceed the value entered or it will be rejected
Start fill time pressure	1 to 10 InH2O	Required pressure for "Fill time" to start counting.
Probe force	POUNDS	Probe force on the container (option maybe viewable only)

Setting	Range	Description
Fill Pressure	PSI	Available pressure fill pressure (option maybe viewable only)

11.3 Test Pressures & Reject Limits Helpful Hints

Refer to Container Change Over Section for further assistance with test settings not mentioned here

Table 13: Helpful Hint Chart

Function	Hint	Action
Fill Time and Fill Pressure	Increasing fill pressure will help pressurize the container faster which can allow for faster fill times. The Fill Time and Fill Pressure are related to container shape and volume. Too much Fill Time or Fill Pressure will cause over pressure.	Keep fill times to a minimum
Test 1 Time	T1 use is relative to container shape and size. More flex in the container may mean longer settle times and vice versa. Sometimes with a small container T1 time is sufficient to do the entire leak test	Keep T1 time to a minimum. With smaller containers T1 time can perform the entire test. T2 can be 0
Test 2 Time	T2 should be set for as long as possible. Review Quick View display menu Cycle Timers Last test time versus last cycle time. Last test time should be slightly shorter then cycle time. Any additional time may be added to T2	Set T2 time as long as possible. Check Quick View Cycle timers for assistance.
Maximum Fill Time & Start Fill Time Pressure	Fill Time will not exceed the Max Fill Time. However, the fill time will use only the necessary time to reach the Start Fill Time Pressure.	Set Maximum Fill Time Pressure to as fast as possible. Set Fill time pressure high enough to ensure container is sealed but low enough to allow for faster Maximum Fill Time.
Probe Retract Time	Clear the container unless it's a choke neck probe.	Set to minimum time unless using a choke neck probe
Probe Force	Probe Force is relative to a good seal to allow for pressurization	Apply only enough force to ensure the container can be sealed and pressurized

11.4 Container Size and Stroke Overview

Typically, all parameters should be established at the beginning of a shift unless maintenance has been performed or a container change out is needed for a different size container.

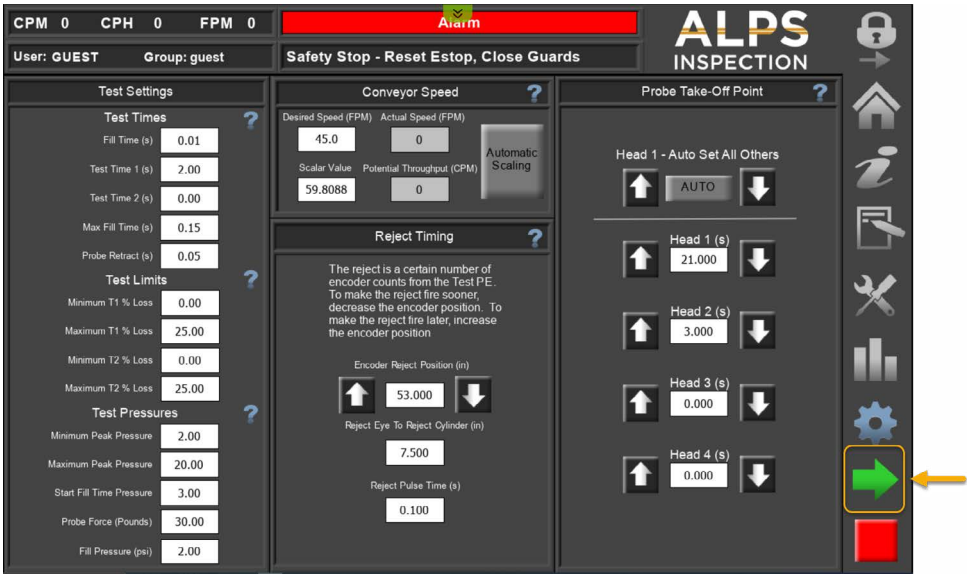


Figure 14: Start Production Icon

11.5 How to Use Container Size and Stroke

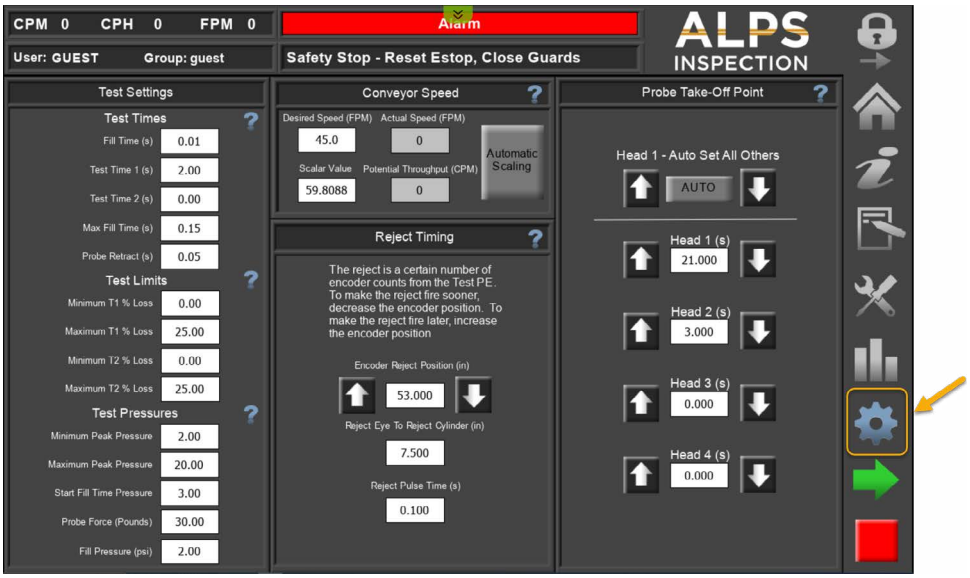


Figure 15: Settings Navigation

Figure 16: Change Container Navigation Menu

"Container Size" contains the container width and stroke settings that allow the FlexPitch to move the test probes accordingly.

Open the change container screen as seen in figure 17-19. For more screen information please refer to the HMI Navigation section of this manual. There are three sections, Change 1, Change 2, and Change 3. All three steps need to be accessed before finalizing.

1. Select the change container screen from the Settings Menu.
2. Measure the diameter of the container and enter the dimensions.

> *Attempting to change just stroke without understanding suggested limits as described in Initial Stroke Settings menu may result in servo alarms*

3. Select Container Size Change 1 and enter the appropriate data and press the Change Container Size button.

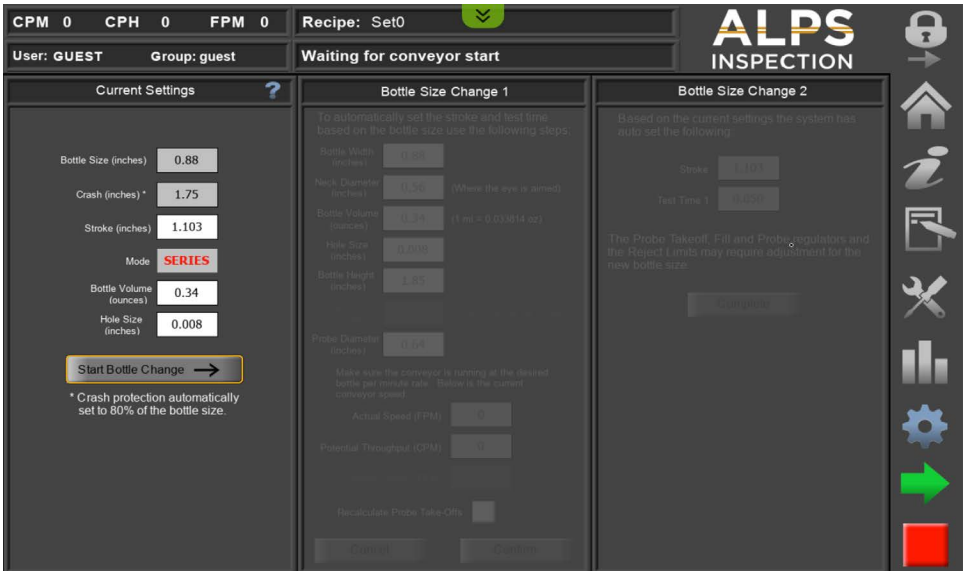


Figure 17: Bottle Change Step 1 Screen

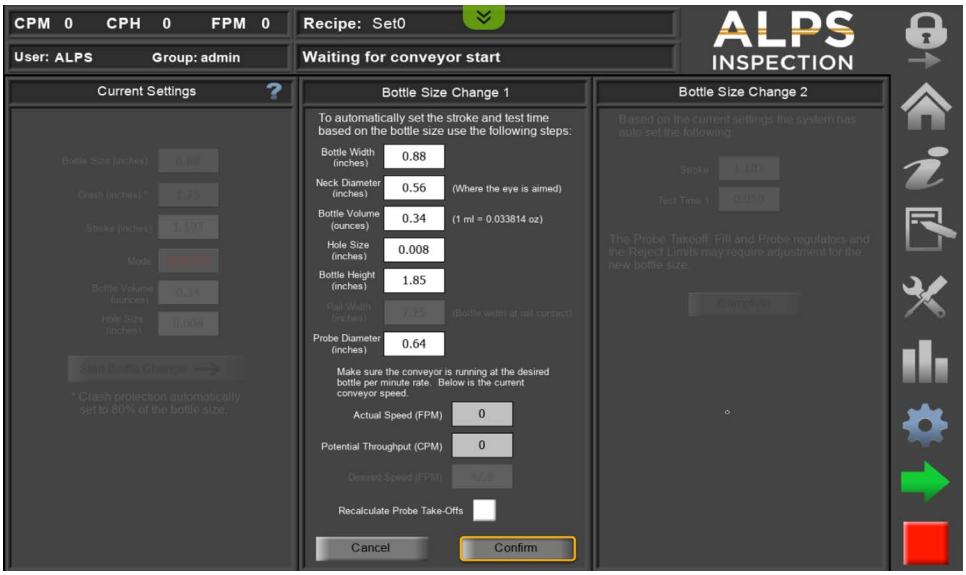


Figure 18: Bottle Change Step 2 Screen

4. Enter the appropriate data and press the Confirm button.

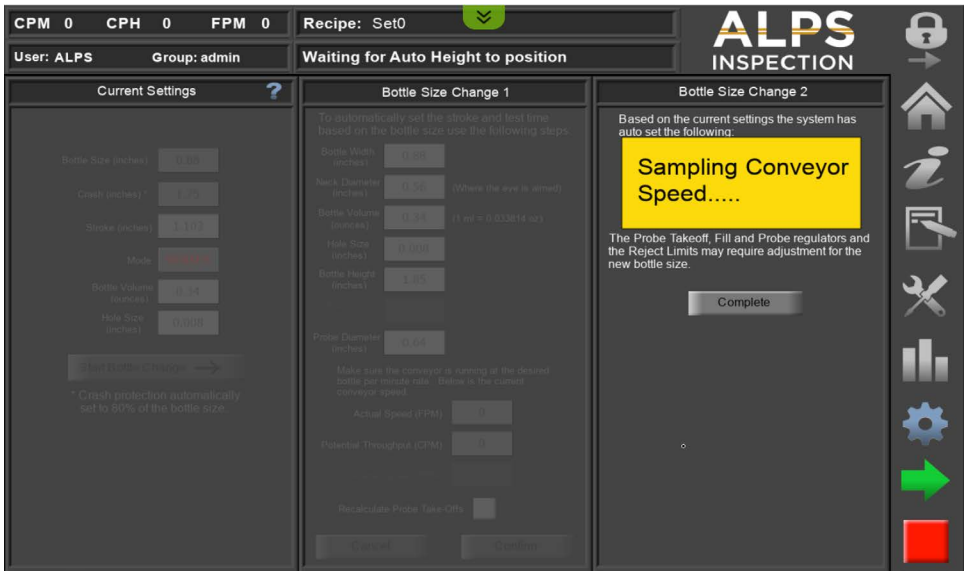


Figure 19: Bottle Change Step 3

5. Once the appropriate data is entered and step 2 is confirmed, then press the Complete button in step 3.

> *Step 2 is primarily for setting up a new container and can be skipped as necessary*

11.6 Probe Take Off Overview

The Probe Take-Off adjustment is a setup aid for centering the test probes on the container. This process is used to fine tune the test probes or for a container change over to accommodate a different size container. The Probe Take-Off values are encoder counts where each count represents 0.054 mm or 0.001 inch of movement over the container's centerline.

11.7 How to Use Probe Take Off

If the Test Probe extends late onto the container, decrease the encoder counts on the Probe Take-Off. This allows the test probe to extend earlier. If the Test Probe extends early onto the container, increase the encoder counts on the Probe Take-Off. This allows the test probe to extend later. If Test Probe does not extend onto the center opening of the bottle, and the Probe Take-Off is incorrect, use the HEAD 1 Probe Take-Off Arrows Up or Down to position and align the test probes onto the bottle.

To access the Probe Take Off screen, press the settings icon and press Main. Whenever a container is changed, the test times and the probe take off will automatically be populated and can be adjusted from this screen for optimum performance.

Figure 20: Settings Option Main

Test Limits, Reject Timing, and Test Pressures can be entered on this screen. The conveyor speed should already be set prior to accessing this screen.

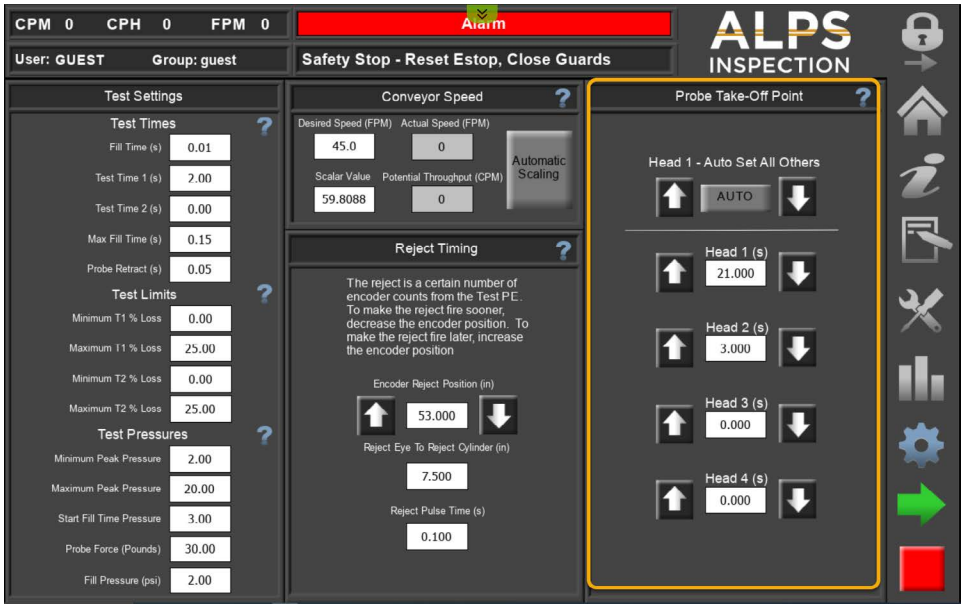


Figure 21: Test Settings, Test Limits, and Test Pressure Section

The auto set button on the Probe Take-Off Point will auto set heads 2, 3, and 4 once head one is set and the auto button is pressed.

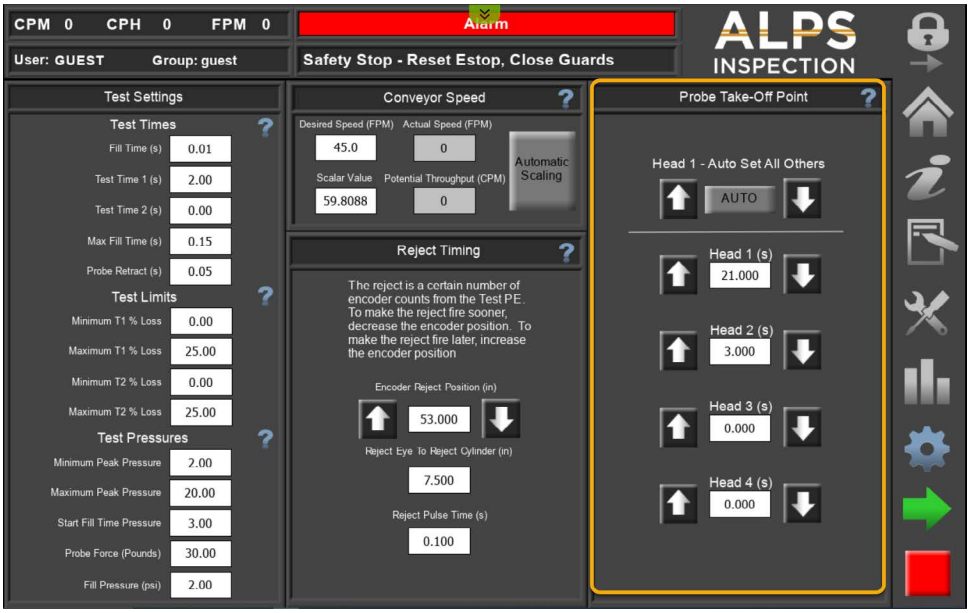


Figure 22: Probe Take-Off Point

11.8 Reject Timing

Reject timing can be adjusted from this screen. Reject timing contains the encoder positions that tells the FlexPitch when to reject a defective container. When making changes to this setting it is very important to test and verify that only the failed leak test container(s) are indeed being rejected.

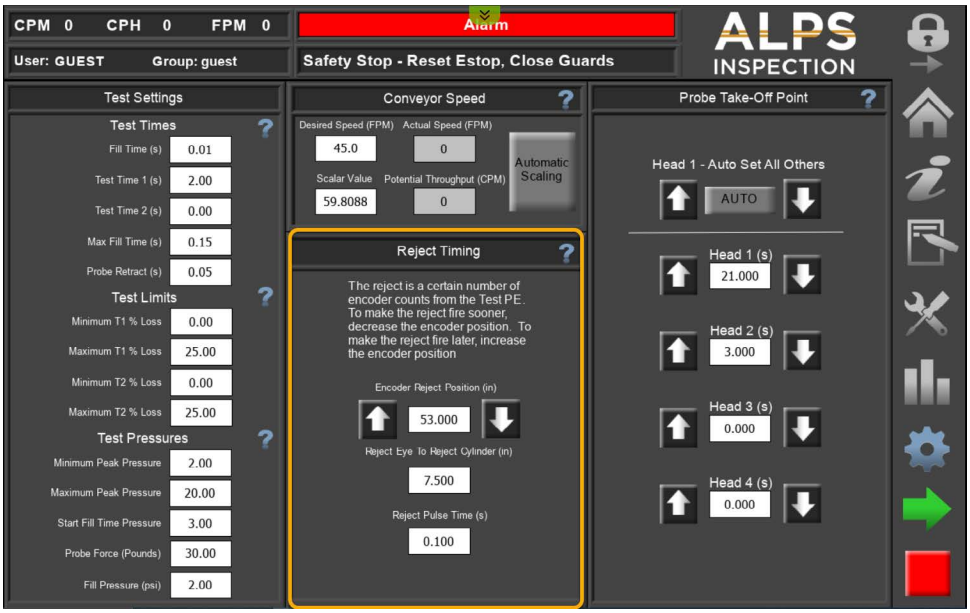


Figure 23: Reject Timer Settings

To use the reject timing functions use the following procedure:

1. Intermittently place bad and good containers on conveyor.
    a. Ensure only the bad containers are rejected
    b. If necessary, adjust reject position up or down until only bad containers are rejected
2. If necessary, enter Reject Eye to Reject Cylinder position

a. This position is factory set and should not be adjusted unless reject device was moved

3. If necessary, adjust reject pulse time
   a. Increase or decrease time as necessary based on speed of machine and reject window. Again, insuring only the bad container is rejected.

11.9 Conveyor Speed Setting

NOTE: The up and down arrow buttons will make changes @ fifty thousandths of an inch each time pressed

The Conveyor Speed Settings for the FlexPitch provide an indication of the Feet Per Minute (FPM) rate and the Container Per Minute (CPM) rate. If the option for "Analog Output for Conveyer" is turned ON then PLC scaling and desired FPM selection will be visible and can be adjusted from this section. Conveyors are optional equipment and the Flex Pitch may or may not be equipped with a conveyor..

12 Optional Functions Overview & Use

To access optional settings, press the settings icon and select Settings Option 1 and this will take you to the first options setting screen.

Figure 24: Settings Option 1 Screen

12.1 Spacing Wheel (Optional)

Figure 25: Options 1 Settings Screen

The optional Spacing wheel will keep the infeed of containers to the FlexPitch at a fixed distance. This can help with container control and help increase test times allowing the leak test to detect smaller holes.

1. Enter FPM Rate. This value can be found in the Conveyor Speed Settings when machine is running.
2. Enter Wheel Dial Indicator information located on the dial display.
3. Spacing Wheel Output Indicates analog output is on.

12.2 Automatic Rail Guide (Optional)

Adjust infeed rails automatically based on container size. Values are saved into recipes. The rails will adjust to width of the new container.

Figure 26: Automatic Rail Guides Screen

12.3 Automatic Carriage Height (Optional)

The automatic height is recipe based and also settable on this screen. This will automatically adjust the probe height according to the product. The machine must be stopped and the jog feature allows the operator to adjust the height while visually inspecting the results. The Goto Position button will set the height once dimensions have been entered or when a recipe is loaded.

Figure 27: Automatic Carriage Height Screen

12.4 Reject Verification (Optional)

When a container is rejected from the Flex Pitch, it will pass through the optional Reject Verification photo-eye. The Reject Verification Time is the allowable time for the Reject Verification Photo-eye to see the rejected container. The Last Reject Elapsed Time indicates the elapsed time of the last rejected container. If the Reject Verification Time expires, this could be due to a full hopper or a jam in the reject chute.

Figure 28: Reject Verification Screen

12.5 Down Stream Jam Timer (Optional)

The down stream jam timer is a photo eye that will watch the flow of containers. Should the photo eye be fixed on a single container, a timer is set to stop and alarm the Flex Pitch indicating that there is a jam or that product has stopped.

Figure 29: Down Stream Jam Timer Screen

13 Recipes Overview

A Recipe is a saved data file that contains all the settings for a specific container. A recipe can be saved, created, deleted, and loaded. To access the recipe screen, press the settings icon and select Recipes on the menu bar.

Figure 30: Recipes Menu

Table 14: Recipe Overview

Function	Description
LOAD EXISTING RECIPE	An existing recipe is selected and loaded into the machine PLC
CREATE NEW RECIPE	A new recipe is named and the parameters are saved into the HMI memory
SAVE TO MEMORY CARD	A recipe is selected and saved to the long-term memory card and/or HMI memory
LOAD FROM MEMORY CARD	A recipe is selected and loaded into the machine PLC from the long-term memory card and/ or HMI memory.
DELETE EXISTING RECIPES	A recipe is selected and deleted from the HMI memory.

13.1 How to Use Recipes

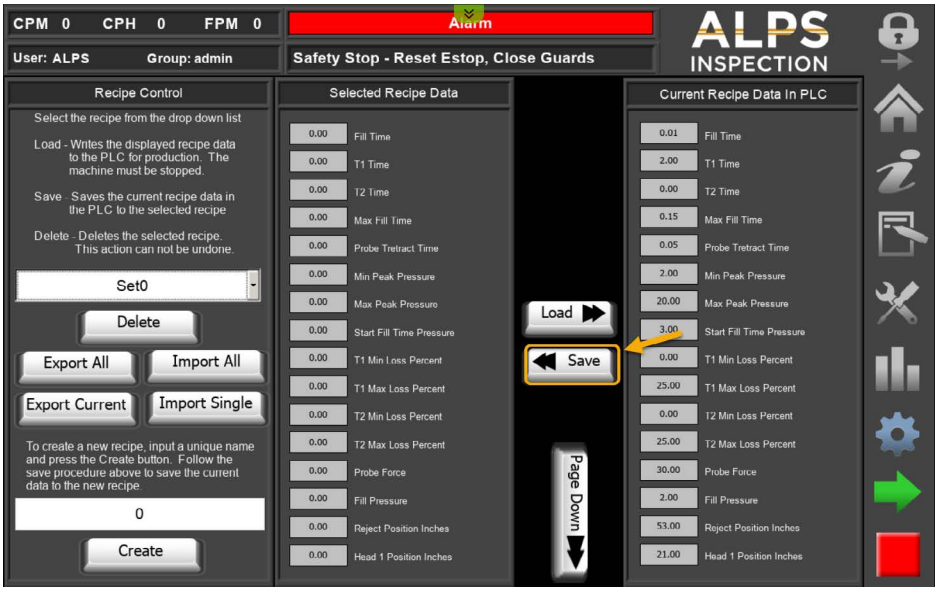


Figure 31: Recipes Screen

13.1.1 Create New Recipe

> *NOTE: When opening the Recipe Screen, all information displayed is the current settings and test results if a new container has been set up or an existing recipe is loaded.*

A new recipe is created for a new installation, new product, or from an existing recipe during a changeover that has been saved on an external source.

Figure 32: Save New Recipe Screen

If a new container has been loaded and set up on the Flex Pitch and when the recipe screen is opened, all the set up and operating parameters are automatically populated. Press the save button to save the current settings. A popup with existing data will be displayed with the default name of "Set0". If the save button is pressed, the name of the product will be saved as Set0. Values can be changed on the save popup screen if necessary. Select the parameter on the popup screen and enter the new value.

NOTE: The values on the save popup are for mechanical settings. The entered values will have to be manually set when loading a recipe, or the new values from manual settings must be entered for a new recipe.

To save the current data in a different name.

Figure 33: Recipe Name Change

To create a new name, or change the name of an existing recipe, press the create button prior to pressing the save button as illustrated in the prior steps. Enter the new name with the keyboard and then press the create button. The new recipe will be saved in the drop down menu.

13.1.2 Load Existing Recipe

To load an existing recipe, press the drop down menu and select the recipe name. Once selected, press the load button and the new loaded recipe will populate all the necessary run data.

Figure 34: Current Recipes Drop Down Menu

Figure 35: Loading a New Recipe Screen

Additional settings can be viewed by pressing the page down button and pressing the page up button to return to the recipe screen.

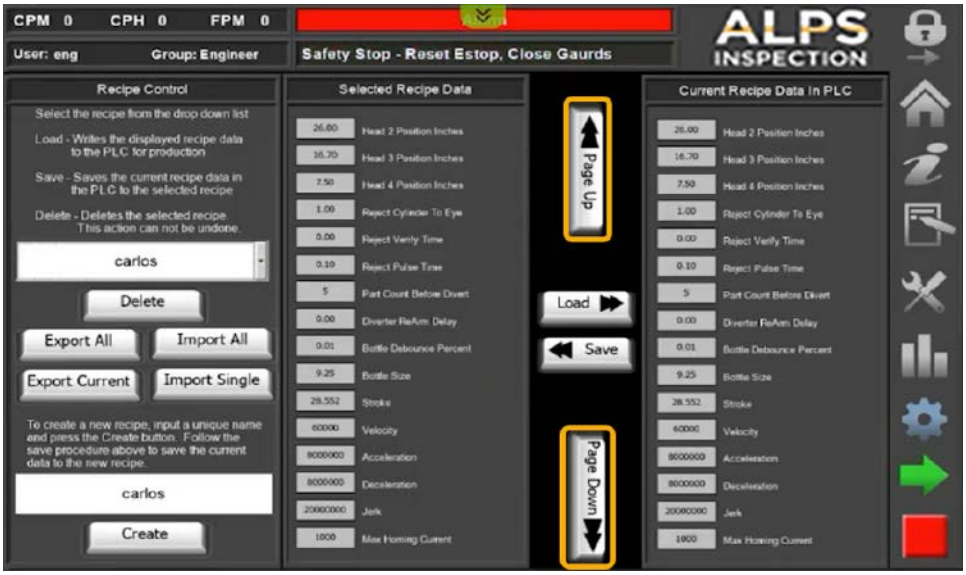


Figure 36: Additional Recipe Screens

13.1.3 Load Recipe from Memory Card to HMI

To load a recipe from an external source, such as a thumb drive or wifi, use the import single or all button and follow the screen prompts. To save the recipes from the HMI select the export button and follow the onscreen prompts. This allows the operator/supervisor to restore recipes saved onto a memory card, or move recipes from one machine to another.

NOTE: The file format for import and export is proprietary and the format cannot be edited externally.

13.1.4 Delete Existing Recipes

To delete an existing recipe from the HMI memory, select the name of the recipe and press the delete button. A confirmation popup will appear. Select yes or no.

13.2 Test Results Menu

The test results screen is used for collecting diagnostic values or troubleshooting as needed. Parameters cannot be changed within the test result screens.

Figure 37: Test Results Screen

To access the test results screen, press the home button. The last test results will be displayed on the test results screen.

Figure 38: Last Test Results Screen 1

There are three windows associated with the test results screen. Each can be accessed by touching in the test results area of the screen.

Figure 39: Last Test Results Screen 2

Figure 40: Last Test Results Screen 3

Test results is where comparative data on leak test results is viewable. This information can help an operator or supervisor make quality control decisions on current production runs.

14 All Results, Individual Results, Timer Details and Recent Rejects Overview

The Test Results menus are designed to view real time for leak testing, and machine performance. For instance, "All Results" provides a queue of leak test information as it is happening and then shifts this information down in the list as testing proceeds. The Test Results Menu also provides specific cycle time information indicating if there is any available test time.

Table 15: Description Table

Function	Description
All Results	Provides the real-time test results from all the heads and the capability to perform self-tests
Individual Results	The detailed leak test from each test head is selected. The user enters a test head station number, and the leak test results are displayed.
Timers Details	The user enters a test head station number, and the cycle time, servo times, and test times are displayed for each test head selected. CYCLE Times: The "Last Test Time" is measured from servo "Go" signal to test head 1 probe retract time expires. The Last Cycle Time is from the servo Go to the Servo returned to zero. These perimeters can help determine available leak test time. Servo Times: These times are used to help determine servo Alarms the key is to have "Spare Time at Start and End" to avoid Servo Timing Alarms. See information help screens on FlexPitch HMI on how to use spare time. Servo Position: The user selects a test head station number. During a leak test, the servo position is provided on the screen. Test Times: The Cycle Extend, Fill Time, Test 1, Test 2, and Cycle Retract Time shows the current time settings for easy comparison to the cycle time. These times combined should not exceed the cycle time, however in keeping with the theory of using all available test time, it should be close
Recent Reject	The latest reject type, the peak pressure value, the pressure decay % at the end of Test 1 and Test 2, and on what head it occurred on.

14.1 How to Use All Results

To access the test results, press the results icon and select Station Overview from the drop down menu (Station Overview Screen shown).

Figure 41: All Results Screen

The All Results screens provides the real-time test results and test details from all the heads. The Station Results button navigates to the Test Results, which provides detailed station results.

Table 16: All Results Description Table

All Results Display	Description
All Test Results	• Head Number, Test Result, Test 1 % Loss, and Test 2 % Loss is displayed for each test head station on the machine. • Test Details button to navigate to All Test Results Details screen. • Self-Test All button to activate the Self-Test Function for all the test heads. • Station Results button navigates to Test Result screen.

14.2 How to Use Individual Results

The Individual Results provide test results for the selected station. The user selects a station number, and the leak test details are displayed on the screen.

This menu also allows for changing of settings by touching the applicable settings box. Implemented changes done are not automatically saved to the recipe and must be saved in Recipes Menu if desired.

Table 17: Individual Results Description Table

Individual Results Display	Description
Part Pressure (IWC)	Real time display of part pressure with Minimum and Maximum limits displayed
Peak Pressure (IWC)	Real time display of peak pressure with Minimum and Maximum limits displayed
Station Number	User selects the test probe station number to be viewed
Probe Force (POUNDS)	Shows the actual probe force on the container.
Fill Pressure (PSI)	Shows the available air pressure used to fill the container.
T1 % Loss Min Max	Test percent values create an acceptable pressure loss range for the container being leak tested
T2 % Loss Min Max	Test percent values create an acceptable pressure loss range for the container being leak tested
Manual Test button	To use this function, stop production, and place a container under the proper test probe and push the manual test button. The leak test results will be displayed on the screen.

14.3 How to Use The Cycle Time Statistics

From the navigation menu, select the Cycle Time Statistics screen.

Figure 42: Navigation to the Cycle Time Statistics Screen

Figure 43: Cycle Time Statistics Screen

Timer details provide test cycle times, servo times, and test times for each test probe station number. The Cycle Time Statistics looks at the last one hundred cycle times and displays the last readings, minimal, average and maximum data points. The times can be analyzed by an advanced user to optimize the leak test recipe settings. The data points can be changed from one hundred if necessary. To change the cycles, press the results icon and select Test Statistics Graph. For more detail of the test statistics graph screen refer to the HMI section in the back of this manual.

Figure 44: Navigation to the Test Statistics Graph Screen

Figure 45: Test Statistics Graph Screen

The number of samples for calculations can be manual entered from this screen.

NOTE: The minimal number of cycles that can be calculated is ten

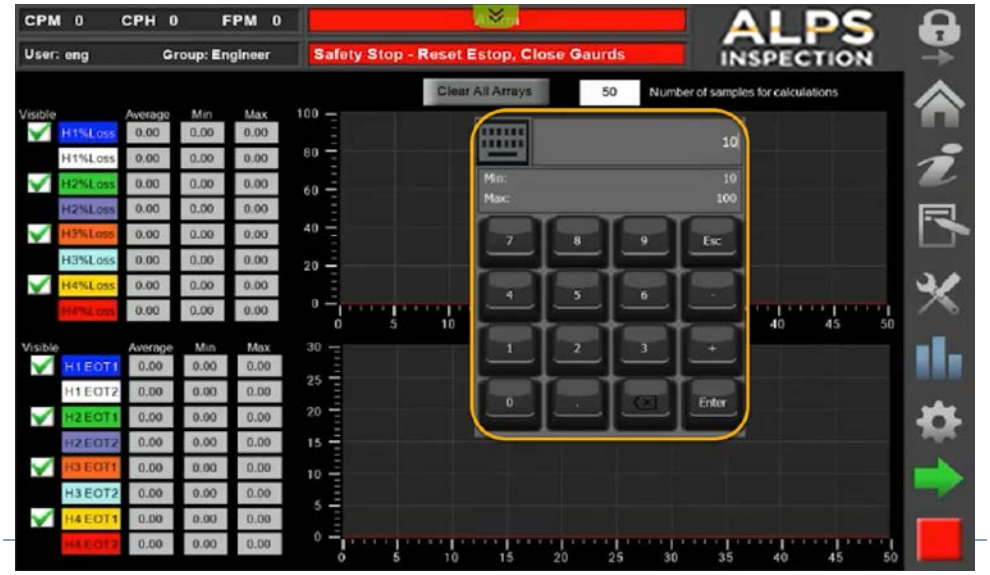


Figure 46: Number of Samples for Calculation

As with all screens, when a data box is white, press on the white box and the appropriate key pad will pop up to enter values.

Note: that the keypad displays the Min Max values that can be entered.

Table 18: Timer Details Description Table

Test Results Display	Description
Timers Details	• CYCLE Times: The "Last Test Time" is measured from servo "Go" signal to test head 1 probe retract time expires. The Last Cycle Time is from the servo Go to the Servo returned to zero. These perimeters can help determine available leak test time. • Servo Times: These times are used to help determine Servo Alarms the key is to have "Spare Time at Start and End" to avoid Servo Timing Alarms. • Servo Position: The user selects a test head station number. During a leak test, the servo position is provided on the screen. • Test Times: The Cycle Extend, Fill Time, Test 1, Test 2, and Cycle Retract Time shows the current time settings for easy comparison to the cycle time. These times added together should not exceed the cycle time. However, in order to use all available test time it should be close.

NOTE: For more detail of each screen refer to the HMI section in the back of this manual

Recent Rejects provide a list of rejected containers. The head number, reject type, peak pressure, T1 % loss, and T2 % loss is displayed for each rejected container.

15 Alarm Log & Counters Overview

The Alarm Counter will keep track of how many times the various alarms may have occurred. The Alarm Log will keep a record of all alarms that occurred and include time and date stamp. From any screen press the results icon and select Alarm Counters to access the alarm screen.

Figure 47: Alarm Counters Menu Navigation

Figure 48: Alarm Counters Screen

Table 19: Alarm Counter Descriptions

Function	Description
Alarm Counters	Total counts (how many times they occurred) for every possible alarm.
Alarm Log	Alarm tracking time stamp details
Log In	The user can Log-In as an Operator, Supervisor, or ALPS Technician. The user can Log Out of the machine.
Close	The Test Results Menu is closed.

15.1 How to Use Alarm Counters

Alarm Counters provide a total count of all the alarms in the machine.

- The alarm count totals for the following:
- Total alarm count
- Loss of air
- Servo hardware (HW)
- Auto self-test
- Test too long
- Minimum pressure exceeded at start

Select RESET ALARM COUNTERS if resetting alarm count totals to zero is desired.

15.2 How to Use Alarm Log

Alarm Log provide a detailed list real time machine alarms. To access the alarm log that will display each event, press the information icon and choose Alarms.

Figure 49: Information Drop Down Menu Access

Figure 50: Alarms Screen Access

Figure 51: Alarms Screen

There are four options icons use:

1. Alarm reset can be pressed when the cause of the alarm has been corrected.
2. Warning can be reset by may reactivate if there is an impending issue.
3. Duration can be changed from 1 minute to 4 weeks.
4. Clear buffer will remove all the alarm history.
5. Forward and backward will navigate to additional alarms over the course of time that they are saved in the buffer.

16 Manual Test Overview

Manual Test and Manual Self-Test are essential tools for checking test settings accuracy. To access the Manual Test and Self Test screen which is the Station Overview as described earlier in the manual, press the results icon and select Station Overview from the dropdown menu.

The Manual Test, allows for leak test settings verification and settings may be adjusted from this screen. Production must be stopped to use this function. Manual Test works like the leak test does in production. When performed the container would be expected to PASS on a good container and FAIL on a bad container. Thus, verifying the Test setting are working properly.

The Manual Self-Test, functions just like a Manual Test except the FlexPitch activates a leak path to an orifice. In this case the container is always expected to FAIL. Again, verifying the test settings are correct and able to detect the required hole size. The installed orifice, in terms of leak size, is always directly associated with the loaded Recipe and test settings.

⚠ CAUTION Installing the incorrect orifice size could lead to the entry of improper test settings and thereby allowing bad container to pass as good containers or vice versa.

Installing the incorrect orifice size could lead to the entry of improper test settings and thereby allowing bad container to pass as good containers or vice versa.

Orifice Installation

Available Orifices
.004 Inches
.005 Inches
.006 Inches
.007 Inches
.008 Inches
.010 Inches
.012 Inches
.016 Inches
.020 Inches

Unless specified otherwise, standard orifice sizes available to be installed on the FlexPitch range from .004 to 020. Please contact the sales rep for more information.

The orifices installed on the FlexPitch are always directly associated with a recipe. What this mean is the orifices may or will have to be changed out with a container change over.

Table 20: Manual Test Description

Part	Description
1: Manual Test Result	Indicates leak test PASS or reason for failure.
2: Probe and Fill regulator gauge readings	Indicates what the probe and fill regulators are set at.
3: Part Pressure Gauge	The Part Pressure gauge can be a very helpful tool for setting proper fill pressure. The gauge shows the actual pressure in the container. In addition, it shows if the container pressure was in the appropriate range of .5 and 25 IWC. If the pressure is not in this range it is a simple matter of making proper adjustments to the regulator until it does. The Part (container) pressure value is hard coded at 0.5 and 25. The analog to digital read out reflects the pressure in the container at the time of the test. Since this is a real time display the pressure value is only visible for as long as the leak test takes. When testing the MIN and MAX indicators will remain green if the regulator is set for the proper fill pressure. If the container is out range one of the indicators will turn red and stay red until adjustments are made and a successful in range test is accomplished. The manual test result on top of the menu will indicate the reason.

Part	Description
Peak Pressure Gauge	The Peak Pressure gauge is an essential tool for setting proper peak pressure. The Peak Pressure gauge indicates the container pressure at its highest moment for the performed test. The Peak Pressure must fall between the MIN MAX values entered to be considered good. Selecting one of the gray boxes allows the values to be changed or updated by. The analog to digital read out reflects the last manual test performed and is updated after each test. When testing the MIN and MAX indicators will remain green if regulator is set for the proper pressure. The MIN and MAX indicators will turn if the container pressure is not within the ranges entered. A red light indicates out of range. To change a MIN or MAX value select the associated gray box
T1 and T2 % Loss	The T1 and T2 Loss gauge indicate % loss of pressure in the container, and can help verify pressures losses are in acceptable ranges. For example, if a peak pressure of 10.0 IWC drops to 9.50 IWC the Test % loss indicated would 5.0. The T1 and T2 % Loss must fall between the MIN MAX values entered to be considered good. Selecting one of the gray boxes allows the values to be changed or updated by. The analog to digital read out reflects the last manual test performed and will be updated after each test. When testing the MIN and MAX indicators will remain green if pressure loss falls within the entered values The MIN and MAX indicators will turn red if the container pressure is not within the range. A red light indicates out of range. To change a MIN or MAX value select the associated gray box.

16.1 How to Use Manual Test

From the Station Overview screen, follow the steps below.

1. If necessary, stop production flow of containers into the FlexPitch.
2. To ensure the FlexPitch is not in production push the stop.
3. Status should say: System Stopped: Waiting for Run Button.
4. Place a container under test probe for station selected
5. Select the Manual Test.

16.1.1 Manual Test Results

After a Manual Test, the container should PASS. If not consider one or all the following possibilities:

- Test Probe is misaligned with container
- The container is bad. If possible, try a known good container
- The test settings need to be adjusted
- The wrong recipe is loaded
- There is a leak in the air supply lines
- The pressure transducer failed and needs to be replaced
- The pressure valve has failed

17 Inputs and Outputs Overview

I/O Diagnostics provide real-time analog inputs, analog outputs, digital inputs, and digital outputs on the FlexPitch machine. These screens are useful to verify the functionality of the devices on the FlexPitch machine. To access the I/O Status screen, press the Maintenance icon and select I/O Status from the drop-down menu.

17.1 Analog Inputs

Figure 52: Menu to Access I/O Status Screen

Figure 53: I/O Status Screen

17.2 Digital Inputs

Figure 54: Digital Inputs

The Digital Inputs provide real time status of the digital inputs to the FlexPitch. These screens are useful to verify the correct functionality of the devices on the FlexPitch machine

17.3 Analog Inputs

The Analog Inputs use an electronic device called a transducer to examine and contrast air pressures used to leak test each container. The transducers are monitored by the PLC, which in turn provides viewable real time raw values and scaled values viewable on the HMI.

Figure 55: Analog Inputs

17.4 Digital Outputs

Figure 56: Digital Outputs

17.5 I/O Forcing, and Maintenance

To access the digital outputs I/O Forcing Screen, press the Maintenance icon and select I/O Forcing from the dropdown menu.

Figure 57: Navigation to I/O Forcing Screen

The maintenance menu contains the I/O diagnostics, system information, and analog calibration

screens. The manual test function is useful for investigating potential issues with test settings. The I/O diagnostics is useful for checking if key devices are working properly. The analog calibration screens is where ALPS technicians will perform the calibration of pressure transducers. Transducer calibration is factory set. To access the calibration screen, press the maintenance icon and select calibration.

Figure 58: I/O Forcing Screen

For Maintenance or troubleshooting stop the machine and select any item that needs changed

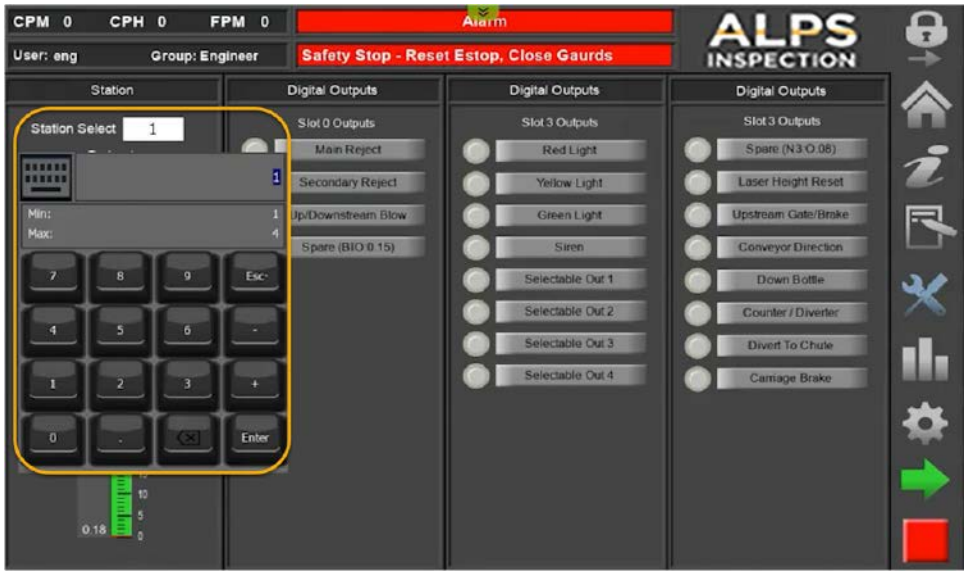


Figure 59: I/O Forcing Station Select

Each station can be accessed by entering the station number into the station select box.

17.5.1 Analog Outputs

The Analog Outputs provide a view of the raw values of the analog outputs of the FlexPitch.

Figure 60: Digital Analog Outputs

17.6 Interface I/O Screen

Additional information can be accessed. To navigation to the Interface I/O screen press the supervisor icon. Select Interface I/O from the dropdown menu.

Figure 61: Navigation to Interface I/O Screen

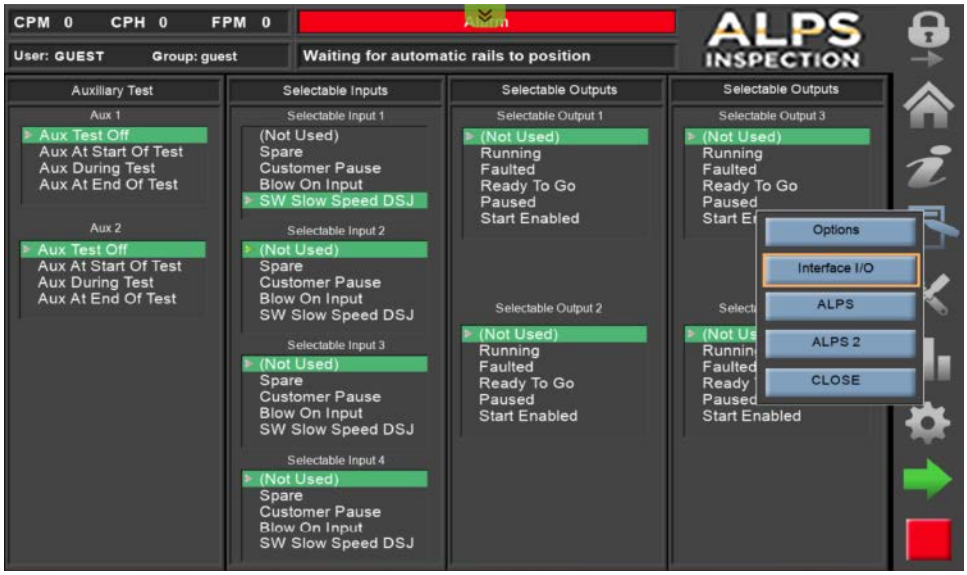


Figure 62: Interface I/O Selection

Using the dropdown menu return to the digital output screen.

Figure 63: Digital Outputs

The Digital Outputs screens provide access to manually test the digital outputs of the FlexPitch. While the machine is stopped, individual outputs may be turned on to diagnose problems. See the FlexPitch Maintenance Manual for more information.

18 How to Use Inputs and Outputs

Figure 64: I/O Forcing Screen

For Maintenance or troubleshooting stop the machine and select any item that needs changed

⚠ **CAUTION** Attempting to calibrate analog inputs without proper knowledge will adversely affect leak test results.

18.1 How to Use Analog Inputs

Viewing Analog Inputs and scaled values during production can be useful to determine if the transducers are functioning properly. The values should increase with test probe down on container, and conversely the value should decrease rapidly as pressure drops and the probe is going up.

Scaled values are factory set within the operating range of each device. Therefore, calibration should only become necessary if a transducer is replaced. Calibration of transducers is described in detail the maintenance manual.

18.2 How to Use Digital Inputs

Use the digital inputs to see if key devices, such as the encoder count or container photo eye are working, and the PLC can detect their signals.

18.3 How to Use Analog Outputs

The Analog Output values should vary nomically when the optional devices listed are present on the FlexPitch. For instance, if the FlexPitch option for electronic regulators are present this output would change in accordance to how the Fill Pressure is set. Likewise, for the, spacing wheel, conveyor, and probe force.

18.4 How to Use Digital Outputs

Individual Outputs will turn on and off accordingly while the system is operating.

19 Station Diagnostic overview

19.1 Station Diagnostics

Ideally Station Diagnostic is a great tool to check if the test probe is sealing the container properly. In addition to this, it can help in determining if test probe valves are functioning properly.

20 How to use Station Diagnostic

Figure 65: I/O Forcing Screen

1. If necessary, stop production flow of containers into the FlexPitch.
2. To ensure the FlexPitch is not in production push the stop.
3. Status should say: System Stopped: Waiting for Run Button.
4. Place container under test probe for desired station to test.
5. Stop the conveyor.
6. If applicable for insight view reject and reject % production.
7. Select Probe Valve Output and hold.
8. Probe Valve should extent.
9. If available AUX 1 and 2 should toggle.

The Probe will actuate appropriate per Station. The Fill Valve will actuate appropriate per Station. The Self-Test will actuate appropriate per Station. Manual Test operates better when a container is hand placed into position.

20.1 Station Diagnostics Results

The container pressure should stabilize and remain constant. When the Self-Test is administered the container should lose pressure, assuming all test valves and air pressure is functioning properly. However, if the container does not maintain pressure consider the following:

1. Probe pressure is not high enough to seal container
2. The durometer of the seal is not sufficient for the container consider changing it to softer or harder durometer
3. Container is misaligned with test probe

21 Analog Calibration Overview and Use

⚠ **CAUTION** Attempting to calibrate analog inputs without proper knowledge will adversely affect leak test results.

The calibration screen is used for general maintenance and when a transducer or item that needs calibrated is replaced. Press the maintenance icon and select calibration from the dropdown menu to enter the calibration screen. For further information refer to the Maintenance Manual.

Figure 66: Calibration Screen

22 About Overview and Use

To access the information screen, press the information icon and select diagnostics from the dropdown menu. System reports are generated from the diagnostics. Reports can be viewed on screen or saved to an external memory device or file. To generate a report, press the generate report icon. A generating report popup will appear.

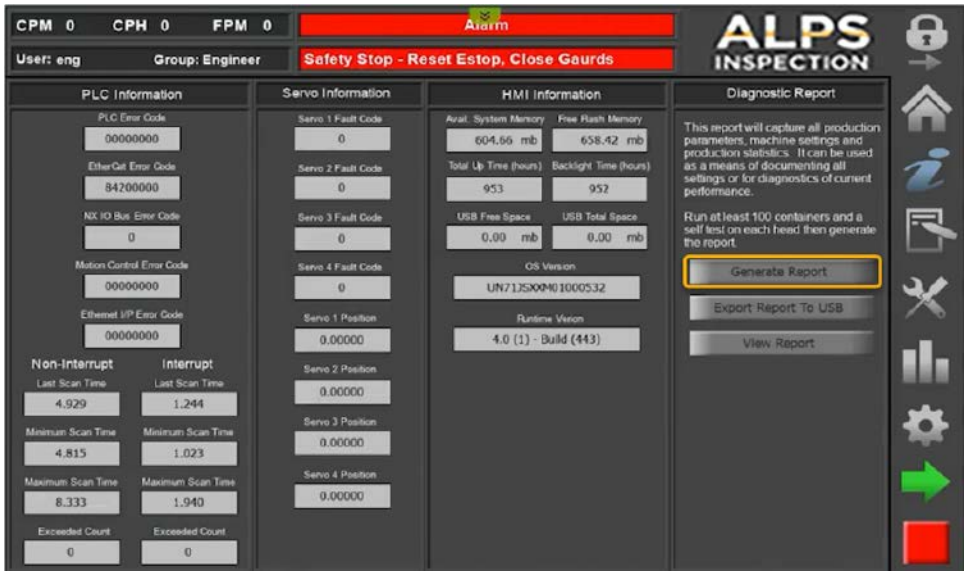


Figure 67: Diagnostics Screen

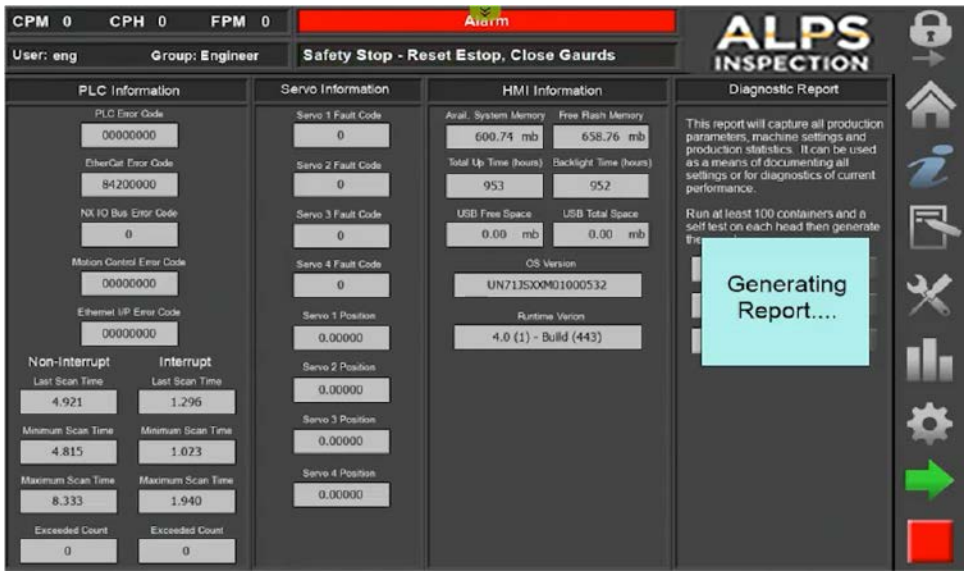


Figure 68: Diagnostics Screen Generate Report

To save externally, select either export to usb or view report and save.

Figure 69: Generate Report

The following is a sample diagnostics report.

Figure 70: Diagnostic Report

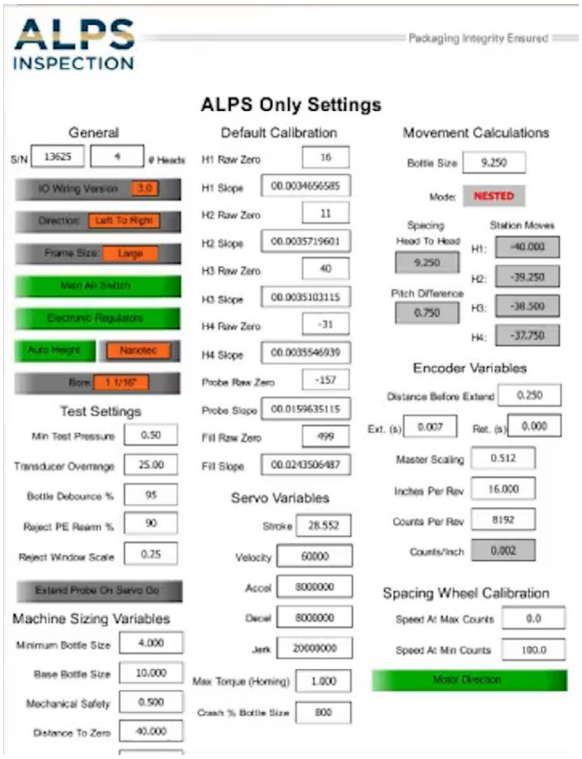


Figure 71: Diagnostics Report Page Sample

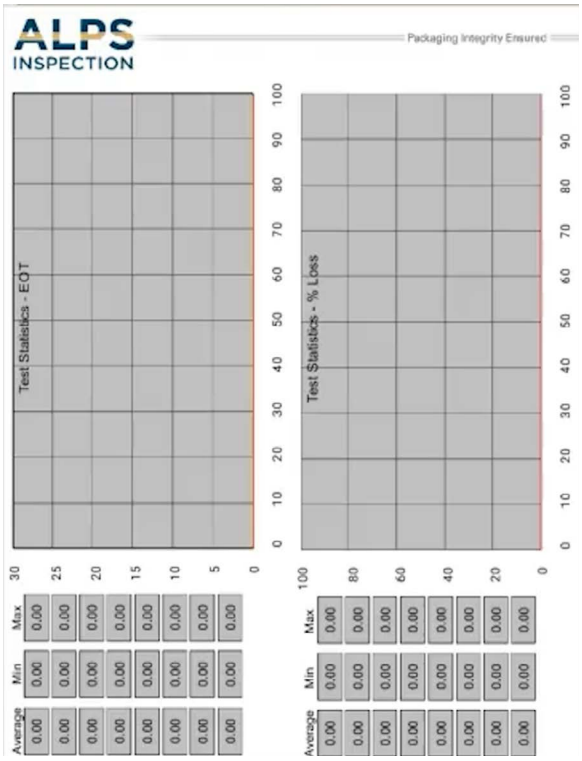


Figure 72: Diagnostics Report Page Sample 2

23 Supervisor Menu Introduction

The supervisor settings allow for turning on and off various functions and options.

23.1 System Options Overview and Interface I/O

To access the system options overview screen press the supervisor icon. From the drop down menu select options.

Figure 73: Options Overview Screen Access

Figure 74: System Overview Screen Dropdown

Table 21: Options Overview

Option	Description
Reject Verification	Alarm will occur stopping machine if defective container was not diverted into the reject chute
Secondary Reject	Used to reject a container for purposes other than leak testing
Analog Conveyor Output	Enables PLC analog (speed following) output to conveyor drive
Alarm Siren	Siren will sound off in the event of an Alarm stopping production.
Blow Off Downstream Jam	When upstream production cannot be stopped blow off valve will eject all containers until jam is cleared. Function is automatically controlled by photo eye queue

Option	Description
Blow Off on alarm Stops	When upstream production cannot be stopped blow off valve will eject all container when an Alarm condition occurs
Diverter	Used with specific count of containers. When specified count is reached solenoid will fire to divert stream of containers form one section to another.
Stop Gate Brake	Prevents container log jamming into infeed rails. Function is automatically controlled by photo eye queue
Reject Bin Full Eye	If reject bin has to many containers in it an alarm will occur
Spacing Wheel	Keeps containers at set distances for travel into leak testing area
Automatic Rail Guides	Infeed rails will move according to container size with Recipe being loaded
Down Container	Eject container from conveyor if it falls on the conveyor
Laser Height	Checks container for a specific height and ejects if it's over or under.

24 Auxiliary Test Overview

Auxiliary test is an option used with a choke neck sensing probe or for gross height detection. The gross height detection uses proximity sensor(s) to monitor how far the test probe travels or does not travel depending on the situation. The idea is if the test probe travels to far the container is most likely to small, not far enough to tall, and just right the container is good.

Figure 75: Interface I/O Screen

The choke neck sensing probe monitors the probe with a proximity switch(s) in the event the probe moves upward the container is assumed to have and obstruction in the neck. There are two possible inputs per station for use of to allow for varying combination of use.

Table 22: Aux Test Overview

Function	Description
Aux Test OFF/ON	Turn ON or OFF
Aux at Start of Test	Checks probe position at start of leak test
Aux During Test	Checks probe position during leak test
Aux at End of Test	Checks probe position at end of leak test

25 How to use Auxiliary Test

To turn on function select where test should occur. Only one selection is possible for each Auxiliary. The function that is ON will be highlighted in yellow.

26 Reject Alarms Overview

Table 23: Reject Alarm Overview

Function	Description
Consecutive Reject Alarm ON	Turns function ON/OFF where alarm will occur when consecutive rejects occur
Alarm Mode Warning	Turns function ON/OFF where consecutive reject to warning versus an alarm and production will not stop
Consecutive Reject Limit	Consecutive Reject Alarm occurs at value entered
Reject Percent Setting	Selecting this navigates to secondary settings menu
Reject Percent Alarm OFF/ON	Turns function ON/OFF where alarm will occur when percentage is exceeded
Alarm Mode Warning	Turns function ON/OFF where reject percentage is exceeded a warning versus an alarm occurs and production will not stop
Machine and Individual Reject % Limit	Alarm occurs at value entered
Consecutive Reject Setting	Selection will navigate back to primary settings menu

27 How to Use Reject Alarm

Figure 76: Options Overview Screen Reject Alarm

Follow Step Below:

1. Turn ON Consecutive Reject alarm turns Yellow
2. Turn OFF Consecutive Reject alarm turns Gray
3. Alarm Mode: Warning Turns Yellow
4. Alarm Mode: Alarm turns Red
5. Enter desired value for Consecutive Reject Limit
6. Select to navigate to secondary setting menu
7. Turn ON Reject Percent Alarm turns Yellow
8. Turn OFF Reject Percent Alarm turns Gray
9. Alarm Mode: Warning turns Yellow
10. Alarm Mode: Alarm turns Red
11. Enter desired machine percentage for Reject % Limit
12. Enter desired head percentage for Reject % Limit

28 System Bypass Overview and Use

Figure 77: Options Overview Screen System Bypass

System Bypass allows containers to pass through FlexPitch without testing or rejecting them.

Select System Bypass

Sub menus will appear

To activate select System Bypass.

Once activated it can be deactivated in the same manor

29 Set Up New Bottle

Use the following procedure to set up a new bottle:

1. Ensure that the Flex Pitch is not operational.
2. Ensure that the conveyor remains running.
3. Navigate to the “Change Bottle Size” screen on the HMI.

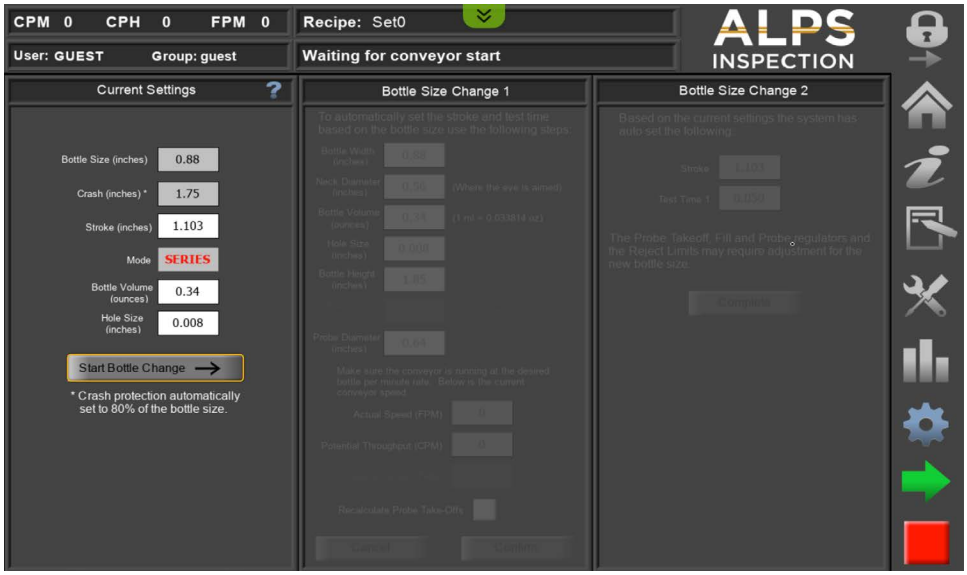


Figure 78: Bottle Size Change 1

4. Press the Change Bottle Size button “6”.

Figure 79: Bottle Parameters

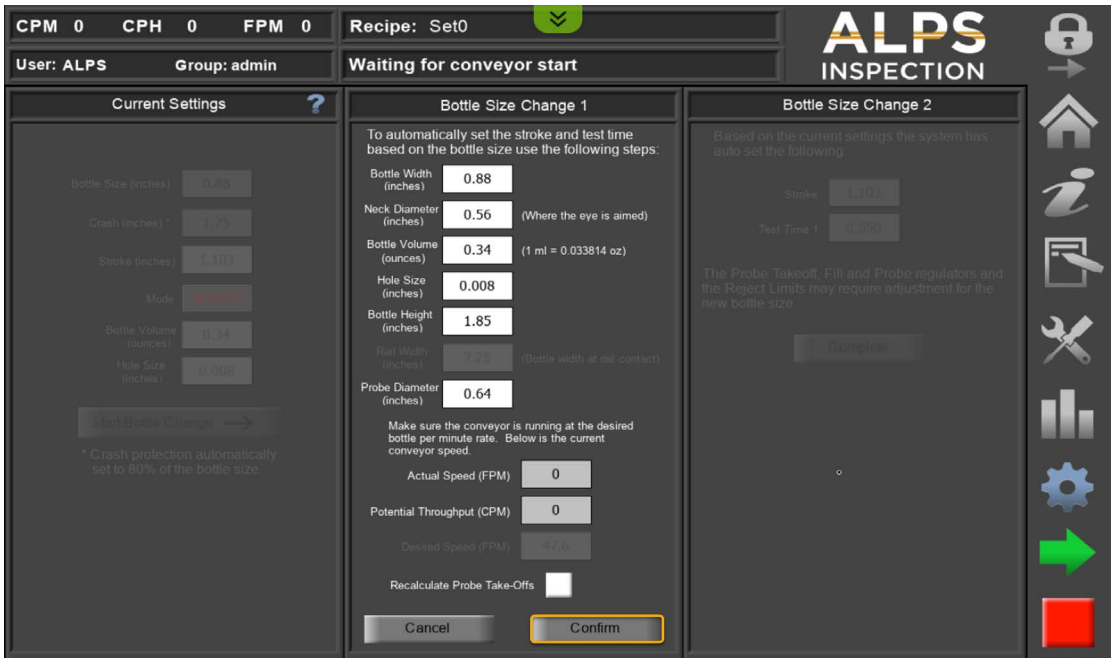


Figure 80: Bottle Size Change 2

5. Enter the bottle width in inches “C” in box “8”.
6. Enter the Neck Diameter “A” in box “9”.
7. Enter the bottle volume “B” in box “10”.
8. Enter the hole size into box “11”. (the maximum hole size of a possible leak)
9. Enter the machine probe diameter in box “14”.
10. Press the recalculate probe take-offs in box “18”.
11. Press the confirm button which samples the conveyor speed.

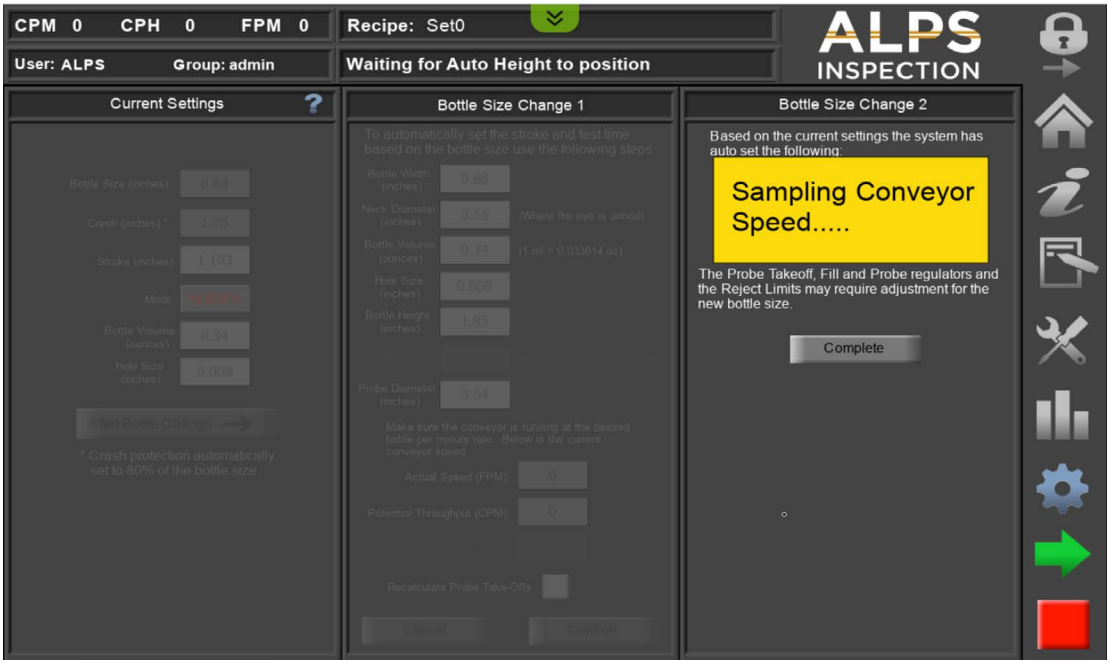


Figure 81: Bottle Size Change 3

12. The stroke and test time will auto populate in section “20”.
13. Once the stroke and test time are populated press the complete button “21”.

NOTE: For more detail of the Bottle Setup screens on the HMI, visit the “HMI Navigation and Information” section in the back of this manual

NOTE: All values entered into the HMI are in inches

30 Auto Self-Test Overview

Figure 82: Options Overview Screen Auto Self Test Section

Auto Self-Test allows the FlexPitch to automatically perform a Self-Test during production. How often it’s performed is programmed by the number of containers transitioning through the FlexPitch. The Auto Self-Test can help ensure the test settings and recipe used for production are indeed detecting defective containers in accordance with the required hole size.

Function	Description
Auto Self-Test ON/OFF	Turns function ON or OFF
Alarm Mode	Select Alarm or Warning. Warning will not stop machine if a container Passes. Alarm will stop the machine
Auto Self-Test Interval	Number of containers required to transition though before Self-Test is performed
Count to Auto Self-Test	Counts containers up to Self-Test interval and then re-sets

30.1 How to Use Auto Self-Test

Follow the Steps below:

1. Select Auto Self-Test ON/OFF:
    a. Turns green and indicates ON
    b. Turns gray and indicated OFF
2. Select Alarm Mode
    a. Alarm Mode: Warning Turns Yellow; In Warning Mode, the machine will continue to run on a PASS container
    b. Alarm Mode: Alarm Turns Red; In Alarm Mode, the machine will Stop on a PASS container
3. Select Self-Test interval
    a. Number of containers per Self-Test
4. This counter counts down.
5. Warning has occurred indicating which head PASSED a container.
6. PASSED, means a leak was integrated into the container but it PASSED, when the container should have FAILED and been rejected.
7. The Warning must be re-set before it can be cleared
    a. A warning or an alarm may be an indication of a problem
        i. Check test settings
        ii. Check station probe alignment
        iii. Check correct orifice is installed
8. Alarm must be re-set before machine can run. Same as above except Alarm Mode will stop machine.

31 Laser Height Quick Reference Procedure (IB-1500)

Focus: Keyence IB-1500 Laser Height Sensor Quick-Start Setup procedure.

Part 1: Changeover/Setup New Container

Part 2: Flex Pitch Container Height Calibration

Part 3: To Access Initial Setup Screens

Part 4: Laser Controller – Initial Setup

Table 24: Keyence IB-1500 Laser Sensor

Item	Description	Item	Description
1	Main Display	10	LOW Tolerance Indicator LED
2	Laser Emission Warning Indicator	11	Zero-shift Indicator
3	Judgement Indicator	12	Set Button
4	Auto-Adjust Indicator	13	Mode Button
5	Bank Indicator	14	Jog Arrow buttons: Left, Right, Up, Down-Set Tolerances
6	Zero-Shift Button	15	Hold Indicator
7	Sub-Display Id Indicators	16	Percentage Indicator
8	Sub-Display	17	Check Indicator
9	HIGH Tolerance Indicator LED	18	Timing Input Indicator

32 Part One Changeover/Setup New Container:

Left: Zeros will appear in the sub-display. Press the Zero-shift button.

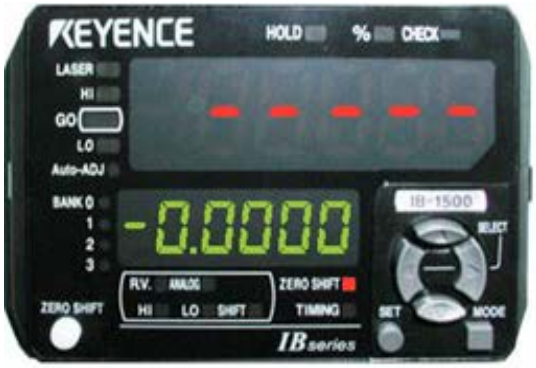
32.1 Part 1: Setting the Display High/Low

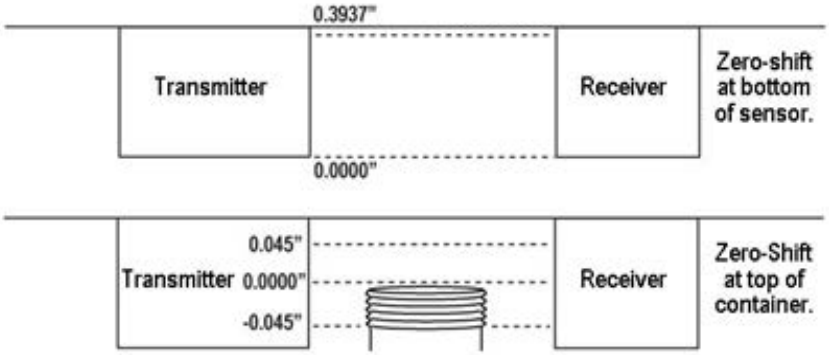
NOTE: The FlexPitch uses the raw analog value for comparison. The HI/GO/LO lights are to be used for informational purposes only.

32.1.1 Set new tolerance settings: (High, Low, Shift-(R.V. Display).

Steps:

1. Press the right arrow (▶) button until the HIGH setting value is displayed (HI is displayed in sub-display).
2. Press the UP or DOWN arrow button (▼▲) until the value needed is reached (example: 0.045″)
3. Press the RIGHT arrow button (▶) for LOW setting value: (LO is displayed in sub-display).
4. Press the UP or DOWN arrow button (▼▲) until the negative value is reached (example: -0.045″).
5. Press the RIGHT arrow button (▶) for SHIFT setting value (SHIFT is displayed in sub-display).
6. Press the UP or DOWN arrow button (▼▲) until the shift or offset number on the calibration container is reached. This can be a positive or a negative number.
7. Press the RIGHT arrow button (▶) and the display will revert back to (R.V.).





32.1.2 Steps for Zeroing the Container

1. Press the (◀▶) button several times on the main screen.
2. Press the (▼▲) button to set the shift target value.
3. Press the (◀▶) button to return to the sub-display to the original screen.

32.2 Part two Zero-Shift Function: Adjusting vertical position of the laser sensor mount:

Adjust the designated calibration container inside the sensor field. Have the neck portion centered directly in the path of the laser.

Steps:

1. Press once the ZERO-SHIFT button (lower left). This will set the zero point for the sensor without container being present.
2. Move the container to obstruct the laser sensor field at the Laser Sensor's highest reading.
3. Loosen the slide locking screw.
4. Turn the crank (at the top of the pedestal) to adjust the sensor field (up or down) over the container.
5. Adjust until the display value exceeds "0.200".
6. Tighten the slide locking screw.
7. Press ZERO-SHIFT function button at lower left. The display will now read ZERO POINT AT TOP OF Container.
8. Manually advance the container forward, through and out of the sensor field.

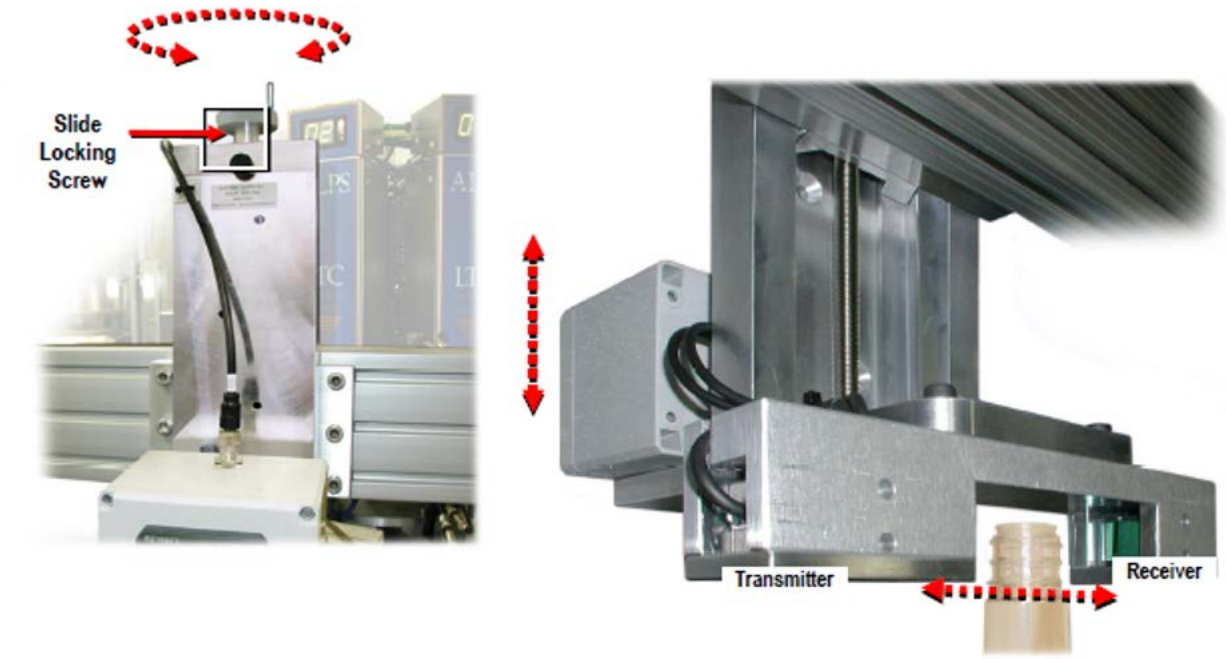


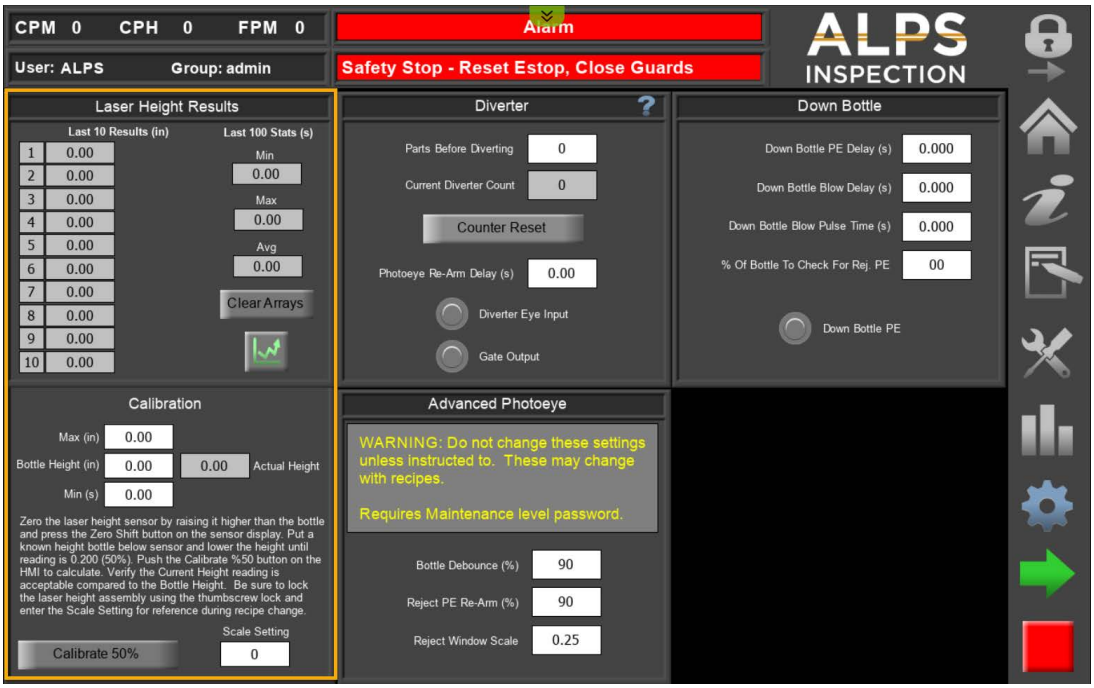
Figure 83: Raise and lower the laser sensor over the container

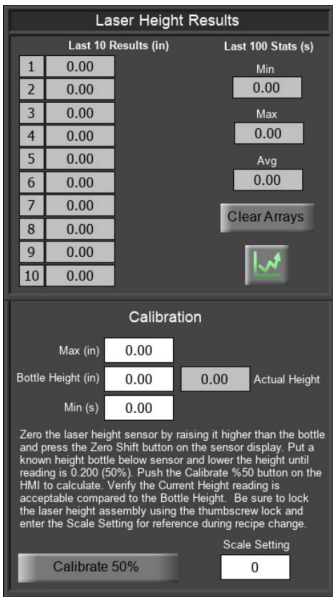
32.3 Part three FlexPitch Container Height Calibration

32.3.1 Calibrate the analog value to the container height

Steps:

1. On the HMI, navigate to the Laser Height Results Screen.





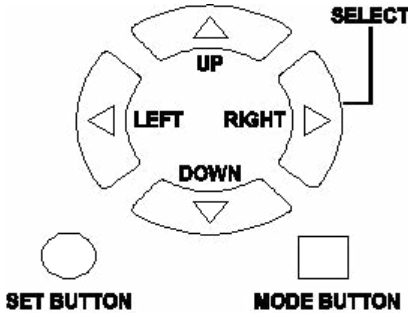
2. Navigate to the Laser Height Calibration Screen. NOTE: This will require at least Maintenance level log-in.
3. Take a container of known good height and insert it through the Laser Height detector. Enter this known height into the “KNOWN HEIGHT Container” field.

4. Using the knob on the Laser Height assembly, adjust the height until the Keyence displays a reading of 0.2000 (50%). With the container still blocking 50% of the laser, push the “CALIBRATE 50%” button. Verify the “CURRENT HEIGHT” matches the known height.
5. Record the scale setting in the “LASER HEIGHT SCALE” field. For reference only, saved in recipe.
6. Return to the Laser Height Results screen. Enter in the Min and Max height for the container. These are the reject limits for the Laser Height. Anything shorter than the minimum, or taller than the maximum, will be rejected.

32.4 Part 4: Access Initial Setup Screens:

32.4.1 Keypad Layout:

Press the MODE button for (2) seconds to access the settings level command. Continue pressing MODE to scroll through options. Press UP or DOWN arrows to adjust the appropriate settings command.



32.5 Part 5: Laser Controller - Initial Setup:

Initial setting to inches for display value:

32.5.1 Auto-Scaling: (Inches to Millimeters)

Steps:

1. Hold the MODE button and rapidly press the SET button (5) times until the word “RESET” displays.

2. Press the DOWN arrow button (▼) until YES appears in the sub-display.
3. Press Zero-Shift and Mode again in unison.

4. Hold ZERO-SHIFT button (lower left) and the MODE button (lower right) in unison.
5. UNITS will be displayed in the main digital display area above.
6. Press the UP/DOWN buttons (▼▲) until (inch) is displayed in the sub-menu.
7. Press the MODE button. Confirm (NPN) being displayed.
8. Press the MODE button again. Press the UP/DOWN buttons (▼▲)until (1-5V) is displayed in the sub-menu.
9. Press the MODE button a third time and wait until you see (-----) displayed and the word (END) is displayed. This indicates that the sensor is done with the reset procedure.

32.6 Reference Light Registration-Gain Adjust

Auto-Gain

The amount of received light when the sensor head is mounted for the first time is registered as the reference light. If the incoming state of the laser beam changes during use because the front of the sensor head is dirty, the adjust function can be used to calibrate the light to the “reference light” registered at the start of use.

1. Perform the auto-gain adjustment when using the sensor for the first time or each time the sensor head mounting position has been changed.
2. Press MODE and SET buttons simultaneously for (2) seconds. The command: “Gain” will display on the main digital display (upper display) and the reference light will be registered.
3. When the registration is completed, the ok (OK) message will flash a few more times on the sub-display (lower digital display) and then the main screen reading will display near “100”.
4. Registration is completed.

The reference light (LED) cannot be registered with external inputs. Always use the buttons on the main unit.

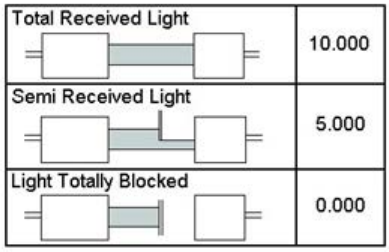
Gain will be displayed around 100 at both displays.

32.7 Perform basic settings in this order:

The Dimensional Mode has been selected. Right: This table shows dimension mode for IB10 models.

32.7.1 Basic Settings (1.Fnc)

1. Press the MODE button (at lower right) and hold for (2) seconds.
2. The first function to be displayed is (**1.Fnc**). This is a percentage / dimension mode.
3. Initially, the (**Pct**) parameter is shown in the sub-display. This is not used.
4. Press the DOWN arrow button (▼) until (**LEn**) (dimension mode) is shows in the sub-display.
5. Press the RIGHT arrow button (▶) to confirm.
6. On the initial startup of the sensor, a confirmation with "**YES**" is required.
7. Press the DOWN arrow button (▼) until **YES** is displayed in the sub-display area.
8. Press the RIGHT arrow button (▶) to advance to the next setting.



32.8 Receiving/Blocked Light Mode (2.L-d)

This function sets whether to display according to the light transmitted into the receiver or according to the blocked light.

32.8.1 Light/Dark Mode: (l-d)

1. Initially, the sub-display will read "**LiGht**".
2. Press the DOWN arrow button (▼) to "**dArK**".
3. Press the RIGHT arrow button (▶) to accept and move to the next setting.

32.9 Averaging/High-Pass Filter

32.9.1 Auto-Adjust function enabled: (3. AvE)

Set the average or high-pass filter for the data retrieved at the sampling rate.

32.10 Averaging: (AvE)

For ALPS purposes alone:

1. The default setting is "64". Leave this setting alone.
2. Press the RIGHT arrow button (▶)to advance to the next setting.

32.11 Output Mode (4.out)

According to the judgment value (P.V.), set the output mode (NO/NC) (Normally Open/Normally Closed), of the judgment output ON/OFF and edge check the output. Let remain in Normally Open (**no**).

1. Press the right arrow key (▶) to advance to the next setting or exit
2. Initially, you must press the DOWN arrow key (▼), when the **End** is displayed, to go to the advanced settings for the first time.

32.12 Output Mode

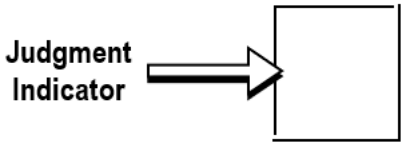
32.12.1 Advanced Settings Mode (PRO)

This is a gateway to the advanced settings levels: (settings 5-20)

Press the RIGHT arrow key (▶) to advance to (**Pro**) settings.

Hold Setting: (5.hld)- (For Auto-Peak Hold)

32.13 Set for judgment value (P.V.)



Left: Sample hold. Right: Auto-Peak hold

Steps:

1. Press the down arrow key (▼) until (**Auto.P**) displays.
2. Press RIGHT arrow key (▶) to accept Auto.P mode.
3. Press the UP/DOWN arrow keys (▼▲) until (**TG.Lu**) is equal to (0.0050)
4. (Press the RIGHT arrow key (▶) to accept.
5. Press the RIGHT arrow key (▶) multiple times until (**END**) to exit this setting mode.

33 Maintenance Menu

The maintenance menu contains the manual test function, I/O diagnostics, and analog calibration screens. The manual test function is useful for investigating potential issues with test settings. The I/O diagnostics is useful for checking if key devices are working properly. The analog calibration screens is where ALPS technicians will perform the calibration of pressure transducers. Transducer calibration is factory set. To access the calibration screen, press the maintenance icon and select calibration.

Figure 84: Calibration Screen

33.1 Flex Pitch Routine Maintenance Schedule

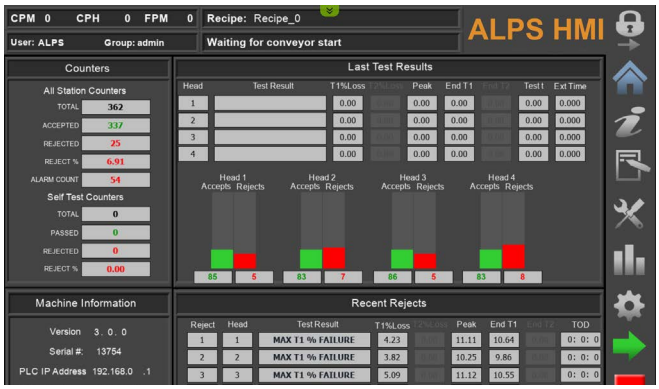
NOTE: The Flex Pitch bearing blocks are "Perma Lubed" and will not need additional lubrication

Table 25: Flex Pitch Maintenance Schedule

System Component	Service Required
Weekly Maintenance	
Air Filters	Drain filters by pressing manual petcocks.
Container Sensors/PE's	Use clean, filtered shop air (50psi max) to remove dust.
Probe Seals	Check seals for wear or leak path. Clean seals with mild soap and water only. Do not use solvents.
Conveyor	Use clean, filtered shop air to remove dust. Wipe down the conveyor.
Monthly Maintenance	
Slide Mechanism	After every 5 million container (test cycles), whichever comes first: check for excessive wear, slop or wobble in its travel, and any audible noise due to friction build-up . Lubricate with a generic lubricant, (e.g. 3 in 1 brand0, slowly adding 10 drops or until the system stops taking oil.
Jack Assembly Grease Fittings	Grease the jack fittings monthly with a multi purpose grease (NLGI Grade 1)
Conveyor	Clean surface using a mild cleaner (e.g. Windex) or soap and water, followed by a clean rinse. Remove conveyor belt and vacuum debris out of the conveyor track.
Periodic Maintenance	
Air Filters	Wash or replace as necessary. Use mild soap and water.
Height Adjustment worm-gear track.	Lubricate as necessary with light oil such as a 3-in-1 brand type of oil.
PLC and HMI Batteries (*Omron PLC and HMI units)	Every five years from date of replacement or from date-code on the battery.
Annual Maintenance	
Vacuum Motor (Option)	Dayton ball bearing motors do not require lubrication. Re-lubricate any and all other types of motors-following specifications on the identification plate or use 30-35 drops of SAE# 20 non-detergent or electric motor oil.

Notice: The conveyor motor does not need lubrication.

34 HMI Reference Tables



The ALPS HMI universal control system is designed for maximum efficiency and simplified integration features that can be added to a variety of existing and new systems small and large. With many built-in customizable features, the ALPS HMI can reduce downtime by decreasing startup and shut down times. With easy to change recipes, the HMI can speed up product change out much faster than having to start from the beginning. Product labels can be assigned to each recipe making change-out features easy to find and assign. This manual will walk through each screen and define the interfaces available for a Flex Pitch machine but may be applied to various ALPS products.

34.1 Software

Installation of any new or modification of existing software into the HMI not approved by Air Logic Power Systems LLC may adversely affect the operation or performance of the HMI and possibly void the warranty and or service agreements. Please consult Air Logic Power Systems Service Department prior to installing or modifying existing software on this HMI.

35 HMI Navigation and Information

35.1 HMI Serial Number Location

This manual will use an existing machine setup to illustrate typical machine HMI navigation. Each screen illustrated may or may not be applicable to each installation. Each HMI is identified with an ID and Serial Number that can be accessed on the home screen along with the current firmware version. The below illustration identifies the location of the HMI information including the IP addresses.

35.2 Screen Navigation

On the right side of the HMI screen are the navigation icons. Touching each icon will execute a popup screen to aid in navigating through the system. Each popup will have a screen menu. Press on any of the menu items to access that screen.

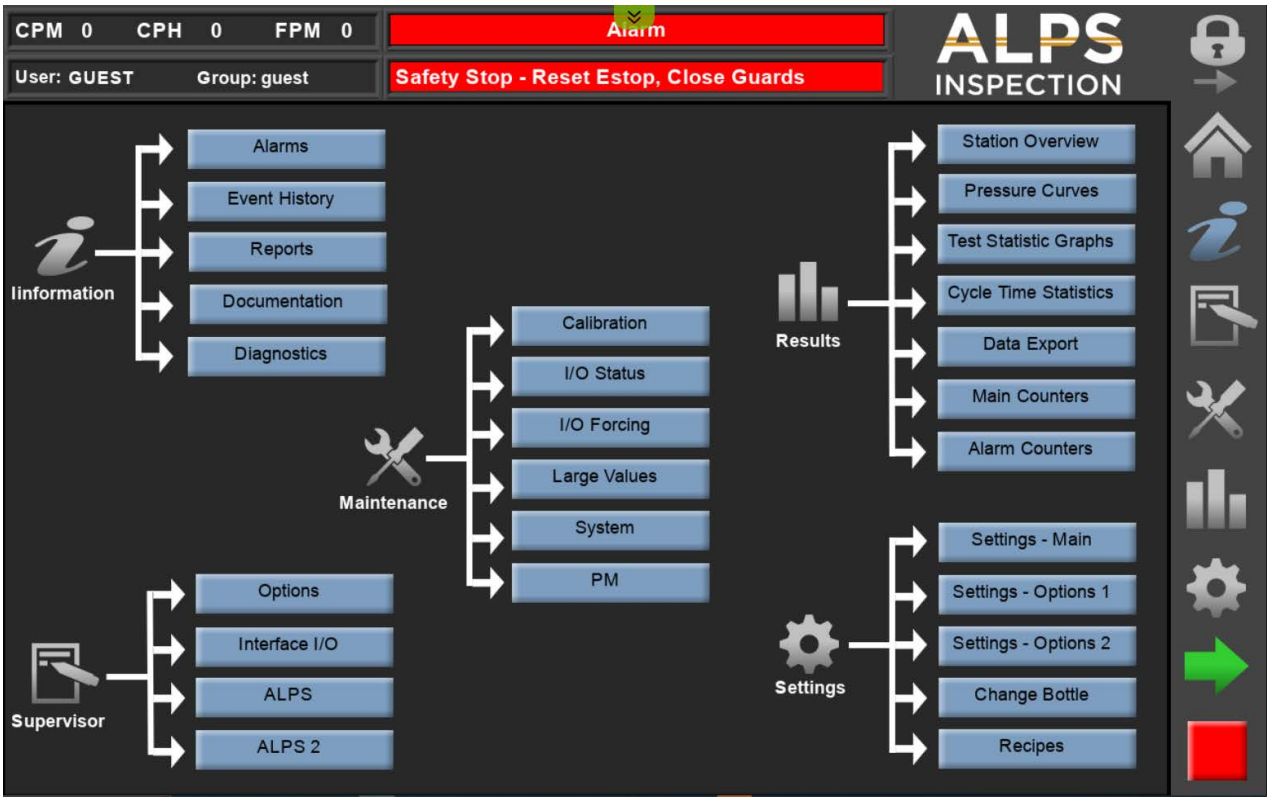


Figure 85: HMI Navigation Flowchart

35.3 Home Screen

Figure 86: Home Screen

Label		
1	CPM	Containers Per Minute
2	CPH	Containers Per Hour
3	FPM	Feet Per Minute
4	Recipe	Current recipe that is loaded
5	User	This is a person logged into the system.
6	Group	The current authority level
7	Waiting for Conveyor Start	Active message board
8	Counters	This is just a header or title for that block.
9	All Station Counters	This is just a header or title for that block.
a	Total	Total containers tested on machine, does not include the self test
b	Accepted	Total containers accepted on machine, does not include the self test
c	Rejected	Total containers rejected on machine, does not include the self test
d	Reject %	Total containers rejected percentage on machine, does not include the self test
e	Alarm Count	Total alarm count since the last reset
10	Self Test Counters	This is just a header or title for that block.
a	Total	Total self tests performed.
b	Passed	Total self tests passed.
c	Rejected	Total self tests rejected
d	Reject %	Total self test reject percentage. should be 100%.
11	Machine Information	This is just a header or title for that block
12	Version	Current software version.
13	Serial Number	Leak tester serial number
14	PLC IP Address	Current PLC's IP address
15	HMI IP Address	Current HMI's IP address
16	WIFI Address	Wifi Network Address
17	Date	Current Date
18	Last Test Results	This is just a header or title for that block
19a	Head	Current head number for previous test
b	Test Result	Current test results for previous test; pass or 'reason for failure'.
c	T1% Loss	Current value of T1% Loss for the previous test
d	T2% Loss	Current value of T2 % Loss for the previous test
e	Peak	Current value of Peak Pressure (inches of H20) for the previous test
f	End T1	Current value of T1 End Pressure for the previous test.
g	End T2	Current value of T2 End Pressure for the previous test.
h	Test t	Current value of test time for the previous test.

Label		
i	Ext Time	Current value of cylinder extend time for the previous test.
20	Head Accept Rejects	Total accept or reject per head
21a	Reject	Display of the last (4) rejects
b	Head	Display of the last (4) rejects in perspective of which head
c	Test Result	Test result display of the last (4) rejects in perspective of which head; pass or ‘ reason for failure’.
d	T1% Loss	T1% Loss display of the last (4) rejects in perspective of which head
e	T2% Loss	T2% Loss display of the last (4) rejects in perspective of which head.
f	End T1	End T1 Pressure display of the last (4) rejects in perspective of which head.
g	End T2	End T2 Pressure display of the last (4) rejects in perspective of which head.
h	TOD	Time of display
23a	Lock	Login
b	Home	Loads home page; as seen on Page 2.
c	Information	Brings up Options for page change; alarms, event history, reports, documentation, diagnostics.
d	Supervisor Set	Brings up Options for page change; Options, Interface I/O, ALPS
e	Maintenance	Brings up Options for page change; calibration, I/O Status, I/O Forcing, Large Values, System
f	Results	Bring up Options for page change; station overview, pressure curves, test stat, results details, trend data export, main counters, alarm counters
g	Start	Start the tester
h	Stop	Stop the tester

35.4 Information (Alarm Screens and Event History)

The alarms screen will display current alarms /warnings and inactive alarms/warnings along with an alarm history.

35.4.1 Alarm Screen

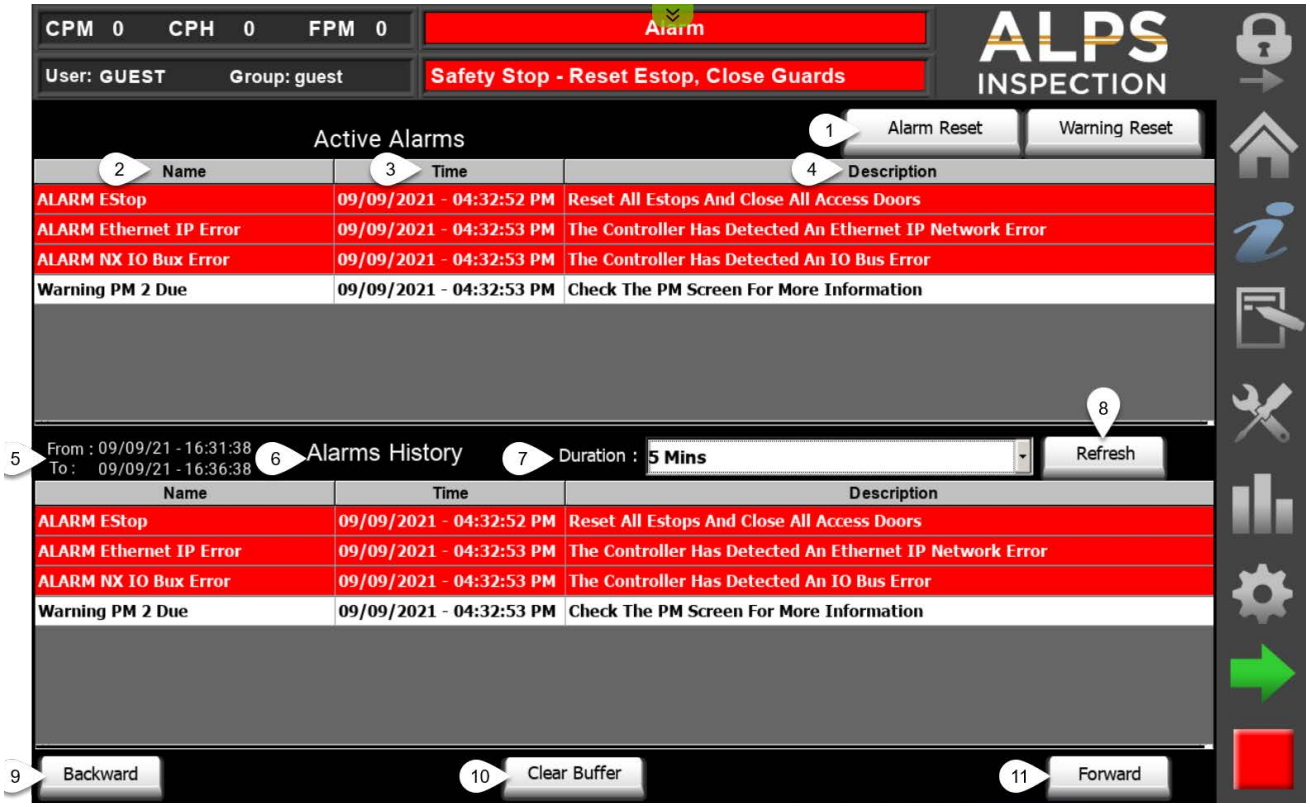


Figure 87: Alarms Screen

Label		
1	Alarm Reset	Home Screen / Reset the active alarms
2	Name	Alarm name
3	Time	Time the alarm occurred
4	Description	Description of posted alarm
5	From: - To:	Time period of alarm history
6	Alarms History	Title of this block
7	Duration	Time period alarm history
8	Refresh	To refresh the alarm history
9	Backward	Alarm history page scroll; backwards
10	Clear Buffer	Clear alarm history
11	Forward	Alarm history page scroll; forward

The next screen will display events that are recorded whenever a change is made or login or logout occurs.

35.4.2 Event History

Figure 88: Event History

1	From: - To:	Time period of event history
2	Event History	Title of this block
3	Duration	Time period of the search
4	Refresh	Refresh the search
5	Column Filter	Select a filter to near the search
6a	Record ID	Record number
b	Time Stamp	Time stamp of event
c	User Name	Operator or technician that is logged in
d	Operation	Event performed by the operator or technician
e	Information	Which tag was changed
7	Event Information	Record ID
8	Backward	Which tag was changed
9	Clear Buffer	Clear event log
10	Forward	Event page scroll; forward

35.5 Reports

Figure 89: Reports

Label		
1	Shift Setup	Title
2	Shift Enable	Select to enable shift report
3	End Time	Time period of when the report will end
4	Report Duration	Time period of report
5	Production Report	Title
6	Days	Select which day to generate a report
7	Custom Report Duration	Custom report based on this time period
8a	Generate Report	Using the custom report duration, a report will be generated
b	Export Report to USB	The generated report will be exported to USB device.
c	Email Report	The generated report will be emailed
d	View Report	The generated report can be viewed
9	Alarm Reports	Title
10	Events Report	Title

35.6 Documentation

Figure 90: Documentation

Label		
1	Hardware Manuals	List of pertinent PDF hardware information.
2	User Manuals	List of pertinent PDF user manuals
3	Drawings	List of pertinent PDF drawings
4	Tutorials	Coming Soon!

35.7 Diagnostics

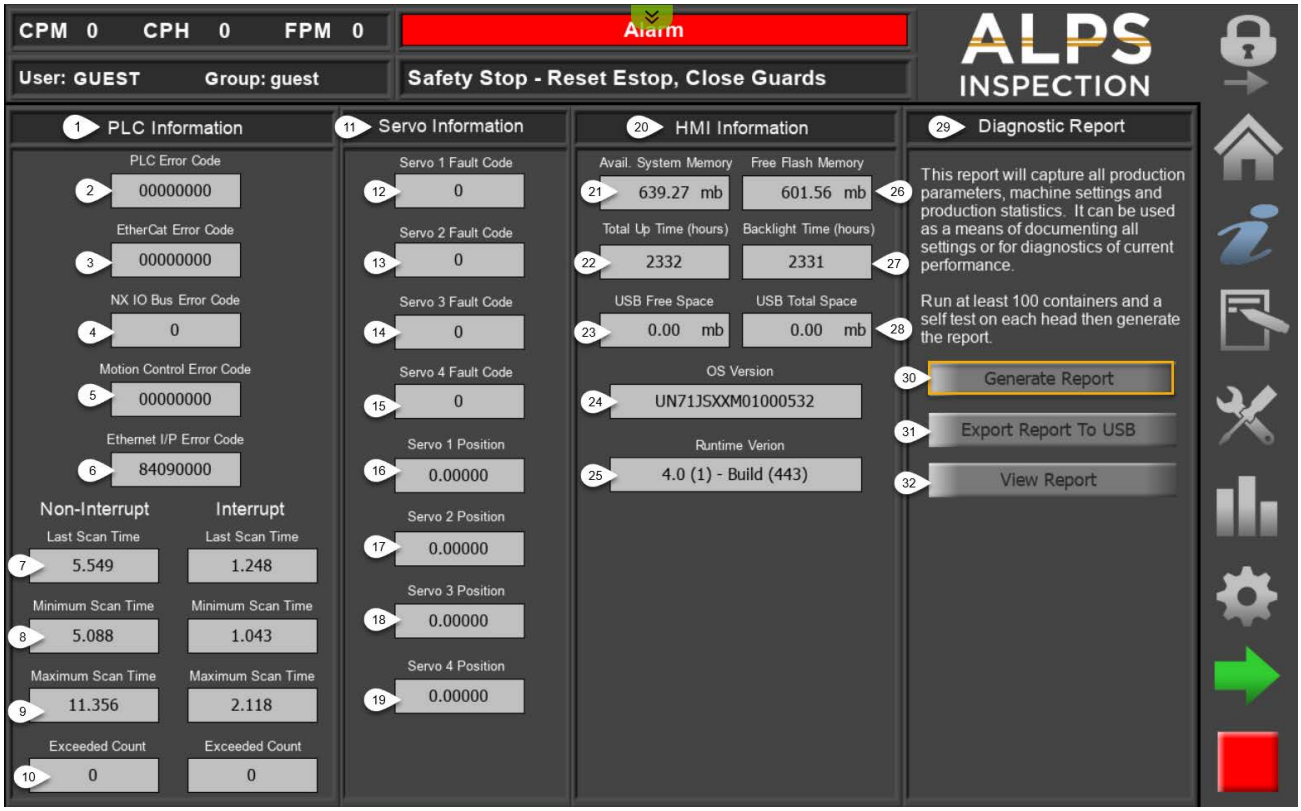


Figure 91: Diagnostics Generate Report

Label		
1	PLC Information	Title
2	PLC Error Code	Error code produced by the PLC
3	Ether Cat Error Code	Error code produced by ethercat network
4	NX IO Bus	Error code produced by NX I/O BUS
5	Motion Control Error Code	Error code produced by motion control
6	Ethernet I/P Error Code	Error code produced by ethernet IP
7	Last Scan Time	Previous PLC scan time
8	Minimum Scan Time	PLC's minimum scan time
9	Maximum Scan Time	PLC's maximum scan time
10	Exceeded Count	How many times the PLC scan time exceeded the maximum scan time
11	Servo Information	Title
12	Servo 1 Fault Code	Fault code produced by servo #1
13	Servo 2 Fault Code	Fault code produced by servo #2
14	Servo 3 Fault Code	Fault code produced by servo #3
15	Servo 4 Fault Code	Fault code produced by servo #4
16	Servo 1 Position	Current position of servo #1

Label		
17	Servo 2 Position	Current position of servo #2
18	Servo 3 Position	Current position of servo #3
19	Servo 4 Position	Current position of servo #4
20	HMI Information	Title
21	Available System Memory	Available HMI Memory
22	Total Up Time Hours	Total HMI run time hours
23	USB Free Space	Free space of USB drive
24	OS Version	Operating system version
25	Run Time Version	Exit firmware version
26	Free Flash Memory	Total free flash memory of HMI
27	Backlight Time Hours	Total backlight hours of HMI
28	USB Total Space	Total space of USB device
29	Diagnostic Report	Title
30	Generate Report	Selecting this tab will generate a report. This may take several minutes to complete
31	Export Report to USB	Export report to USB device
32	View Report	View generated report on HMI screen

35.8 Options

Figure 92: Options

NOTE: All options, Green is ON and Gray is OFF

Label		
1	Reject Verification	Turns ON/OFF the Reject Verification Option
2	Secondary Reject	Turns ON/OFF the Secondary Reject Option
3	Conveyor Analog Out	Turns ON/OFF the Conveyor Analog Out Option; This is for control of an alternate conveyor
4	Alarm Siren	Turns ON/OFF the Alarm Siren Option
5	Blow On Down-stream Jam	Turns ON/OFF the Blow On Downstream Jam Option
6	Blow On Alarm Stop	Turns ON/OFF the Blow On Alarm Stop Option
7	Diverter/Counter	Turns ON/OFF the Diverter /Counter Option
8	Stop Gate/Brake	Turns ON/OFF the Stop Gate / Brake Option.
9	Reject Bin Full Eye	Turns ON/OFF the Reject Bin Full Eye Option
10	Divert to Chute	Turns ON/OFF Divert To Chute Option
11	Automatic Rail Guides	Turns ON/OFF the Automatic Rail Guide Option
12	Down Bottle	Turns ON/OFF the Down Bottle detection Option
13	Laser Height	Turns ON/OFF the Laser Height measurement Option

Label		
14	Active Test 2	Turns ON/OFF Test 2 Option
15	Downstream Jam Delay	Turns ON/OFF Downstream Jam Delay Option
16	Reject Verify Alarm Bypass	Turns ON/OFF Reject Verify Alarm Bypass Option
17	Spacing Wheel	Turns ON/OFF the Spacing Wheel Option
18	Auto Height	
19	Reject Percent Alarm	Turns ON/OFF Reject Percent Alarm Option
29	Reject Percent Alarm Mode	Reject Percent Alarm Mode toggles between Alarm and Warning
21	Machine Reject Percent Limit	Alterable limit for Machine Reject (%) percent Limit
22	Head Reject Percent Limit	Alterable limit per Head Reject (%) percent Limit
23	Consecutive Reject Alarm	Turns ON/OFF Consecutive Reject Alarm Option
24	Consecutive Reject Alarm Mode	Consecutive Reject Alarm Mode toggles between Alarm and Warning
25	Consecutive Reject Limit	Alterable limit for Consecutive Reject Limit
26	Active System Bypass	Turns ON/OFF the System Bypass
27	Auto Self Test	Turns ON/OFF Auto Self Test Option
28	Auto Self Test Mode	Auto Self Test Alarm Mode toggles between Alarm and Warning
29	Auto Self Test Interval	Alterable setting to define the when the Auto Self Test will actuate
30	Counts to Auto Self Test	Remaining leak tests before an Auto Self Test is actuated

35.9 Interface I/O

Figure 93: Interface I/O

Label		
1	AUX 1	Title
2	AUX 2	Title
3	Selectable Input 1	Various selectable inputs, Customer Pause, Blow On Input, SW Slow Speed Down Stream Jam
4	Selectable Input 2	Various selectable inputs, Customer Pause, Blow On Input, SW Slow Speed Down Stream Jam
5	Selectable Input 3	Various selectable inputs, Customer Pause, Blow On Input, SW Slow Speed Down Stream Jam
6	Selectable Input 4	Various selectable inputs, Customer Pause, Blow On Input, SW Slow Speed Down Stream Jam
7	Selectable Output 1	Various selectable outputs, Running, Faulted, ReadyToGo, Paused, and Start Enabled for machine interface
8	Selectable Output 2	Various selectable outputs, Running, Faulted, ReadyToGo, Paused, and Start Enabled for machine interface
9	Selectable Output 3	Various selectable outputs, Running, Faulted, ReadyToGo, Paused, and Start Enabled for machine interface
10	Selectable Output 4	Various selectable outputs, Running, Faulted, ReadyToGo, Paused, and Start Enabled for machine interface

35.10 Calibration

Figure 94: Calibration

Label		
1	Analog Calibration - Container Pressure	Title
2	Station Select	Selection between head 1-4
a	Raw Value	Container pressure in engineering units
b	Scaled Value	Scaled value of the container pressure in inches of H20
3	Calibration Values	Title
a	Raw Zero	Container pressure at zero pressure in engineering units
b	Slope	Conversion factor when converting engineering units to scaled units
4	Analog Calibration Probe Pressure	Title
4a	Force (lbf)	Reference only; applied force by the probe, pounds of force
b	Force (psi)	Reference only; target value of applied pressure to the probe; pound per inch ^2
c	Raw Value	Reference only; applied pressure in engineering units
d	Scaled Value	Reference only; actual value of applied pressure to the probe; pound per inch ^2
5	Calibration Values	Title
a	Raw Zero	Reference only; electronic regulator feedback signal at 0 psi
b	Slope	Reference only; Multiplication factor for converting engineering unit scaled united
6	Analog Calibration - Fill Pressure	Title
6a	Raw Value	Reference only; applied pressure in engineering units

Label		
b	Pressure (psi)	Reference only; target value of applied fill pressure; pound per inch ^2
7	Calibration Values	Title
c	Raw Zero	Reference only; Electronic regulator feedback signal at 0 psi
d	Slope	Reference only; Multiplication factor for converting engineering units to scaled units
8	Analog Calibration - Limits	Title
9a	Station_ Min ADC Low	Input; Minimum Analog/ DC Low limit for all head container pressure transducer
b	Station_ Min ADC Hi	Input; Minimum Analog/ DC High limit for all head container pressure transducer
c	Station_ Max ADC Low	Input; Maximum Analog/ DC Low limit for all head container pressure transducer
d	Station_ Max ADC Hi	Input; Maximum Analog/ DC High limit for all head container pressure transducer
10a	Probe_ Min ADC Low	Input; Minimum Analog/ DC Low limit for all probe pressure transducer
b	Probe_ Min ADC Hi	Input; Minimum Analog/ DC High limit for all probe pressure transducer
c	Probe_ Max ADC Low	Input; Maximum Analog/ DC Low limit for all probe pressure transducer
d	Probe_ Max ADC Hi	Input; Maximum Analog/ DC High limit for all probe pressure transducer
11a	Fill_ Min ADC Low	Input; Minimum Analog/ DC Low limit for all fill pressure transducer
b	Fill_ Min ADC Hi	Input; Minimum Analog/ DC High limit for all fill pressure transducer
c	Fill_ Max ADC Low	Input; Maximum Analog/ DC Low limit for all fill pressure transducer
d	Fill_ Max ADC Hi	Input; Maximum Analog/ DC High limit for all fill pressure transducer
12	Analog Calibration - Factory Defaults	Title
13	CPM Calculation	Title
14	Number of Containers	Minimum containers to calculate the cpm and cph

35.11 I/O Status

Figure 95: I/O Status

Label		
1	Digital Inputs	Title
2a	Safety OK	Safety circuit is working
b	Start PB	Start push button
c	Stop PB	Stop push button
d	Reject Verify Photoeye	Detect a rejected container
e	Downstream Jam Photoeye	Detect a conveyor jam after the tester.
f	Down Bottle Photoeye	Detects a down container
g	Reject Bin Full Photoeye	Detect when the reject bin is full.
h	Conveyor VFD Fault	Conveyor VFD fault
J	Counter/Diverter Photoeye	Counter/Diverter Photo-eye; Photo-eye to count containers for diverting
k	Spare	
l	Spare	
m	Spare	
n	Selectable Input 1	Option: Customer pause, blow on input, spacing wheel slow speed downstream jam
o	Selectable Input 2	Option: Customer pause, blow on input, spacing wheel slow speed downstream jam
p	Selectable Input 3	Option: Customer pause, blow on input, spacing wheel slow speed downstream jam
q	Selectable Input 4	Option: Customer pause, blow on input, spacing wheel slow speed downstream jam

Label		
r	Head 1 Aux 1	Options: At start of test, during test, at end of test
s	Head 2 Aux 1	Options: At Start Of Test, During Test, At End of test
t	Head 3 Aux 1	Options: At Start Of Test, During Test, At End of test
u	Head 4 Aux 1	Options: At Start Of Test, During Test, At End of Test
v	Head 1 Aux 2	Options: At Start Of Test, During Test, At End of Test
w	Head 2 Aux 2	Options: At Start Of Test, During Test, At End of Test
x	Head 3 Aux 2	Options: At Start Of Test, During Test, At End of Test
y	Head 4 Aux 2	Options: At Start Of Test, During Test, At End of Test
3	Digital Analog Inputs	Digital / Analog Input
4	Container Present Photoeye	Detect Container At Entrance For Positioning.
5	Reject Photoeye	Detect and Un-Expected Container At Exit.
6a	Encoder Count	Reference Only; Displays The Encoder Counter
b	Spare	
c	Spare	
d	Head 1 Pressure	Reference Only; Displays The Head 1 Container Pressure
e	Head 2 Pressure	Reference Only; Displays The Head 2 Container Pressure
f	Head 3 Pressure	Reference Only; Displays The Head 3 Container Pressure
g	Head 4 Pressure	Reference Only; Displays The Head 4 Container Pressure
h	Laser Height	Detects The Container Height
i	Spare	
j	Probe Pressure	Reference Only; Displays The Probe Pressure
k	Fill Pressure	Reference only; Displays the fill pressure
l	Spare	
m	Spare	
7	Digital Outputs	Title
8a	Head 1 Probe Valve	Displays Head 1 Probe Valve Status
b	Head 1 Fill Valve	Displays Head 1 Fill Valve Status
c	Head 1 Self Test Valve	Displays Head 1 Self Test Valve Status
d	Head 2 Probe Valve	Displays Head 2 Probe Valve Status
e	Head 2 Fill Valve	Displays Head 2 Fill Valve Status
f	Head 2 Self Test Valve	Displays Head 2 Self Test Valve Status
g	Head 3 Probe Valve	Displays Head 3 Probe Valve Status
h	Head 3 Fill Valve	Displays Head 3 Fill Valve Status
i	Head 3 Self Test Valve	Displays Head 3 Self Test Valve Status
J	Head 4 Probe Valve	Displays Head 4 Probe Valve Status
k	Head 4 Fill Valve	Displays Head 4 Fill Valve Status

Label		
l	Head 4 Self Test Valve	Displays Head 4 Self Test Valve Status
m	Primary Reject	Display Primary Reject Valve Status
n	Secondary Reject	Display Secondary Reject Valve Status
o	Upstream Downstream Blow	Displays Upstream / Downstream blowoff valve status
p	Spare	
q	Status Light Red	Displays red light status
r	Status Light Yellow	Displays yellow light status
s	Status Light Green	Displays green light status
t	Alarm Horn	Displays alarm horn status
u	Selectable Output 1	Options: running, faulted, ready, paused start enabled, down container, divert to chute
v	Selectable Output 2	Options: running, faulted, ready, paused start enabled, down container, divert to chute
w	Selectable Output 3	Options: running, faulted, ready, paused start enabled, down container, divert to chute
x	Selectable Output 4	Options: running, faulted, ready, paused start enabled, down container, divert to chute
9	Digital/Analog Outputs	Outputs: Digital / Analog
10a	Spare	
b	Laser Height Reset	Digital Output: resetting the laser height reading
c	Upstream Gate	Digital Output: command for upstream gate
d	Conveyor Direction	Digital Output: command for conveyor direction
e	Down Bottle Solenoid	Digital Output: command for down container (fallen container) solenoid
f	Counter Diverter Solenoid	Digital Output: command for counter diverter solenoid
g	Divert to Chute Solenoid	Digital Output: command for divert to chute solenoid
h	Probe Carriage Brake	Digital Output: command for probe carriage brake solenoid
11a	Probe Pressure	Reference Only: Probe Pressure showing PLC Engineering Units on a scale of 0-8000
b	Fill Pressure	Reference Only: Fill Pressure showing PLC Engineering Units on a scale of 0-8000
c	Conveyor Setpoint	Reference only: display the engineering units of the conveyor speed
d	Spare	

35.13 I/O Forcing

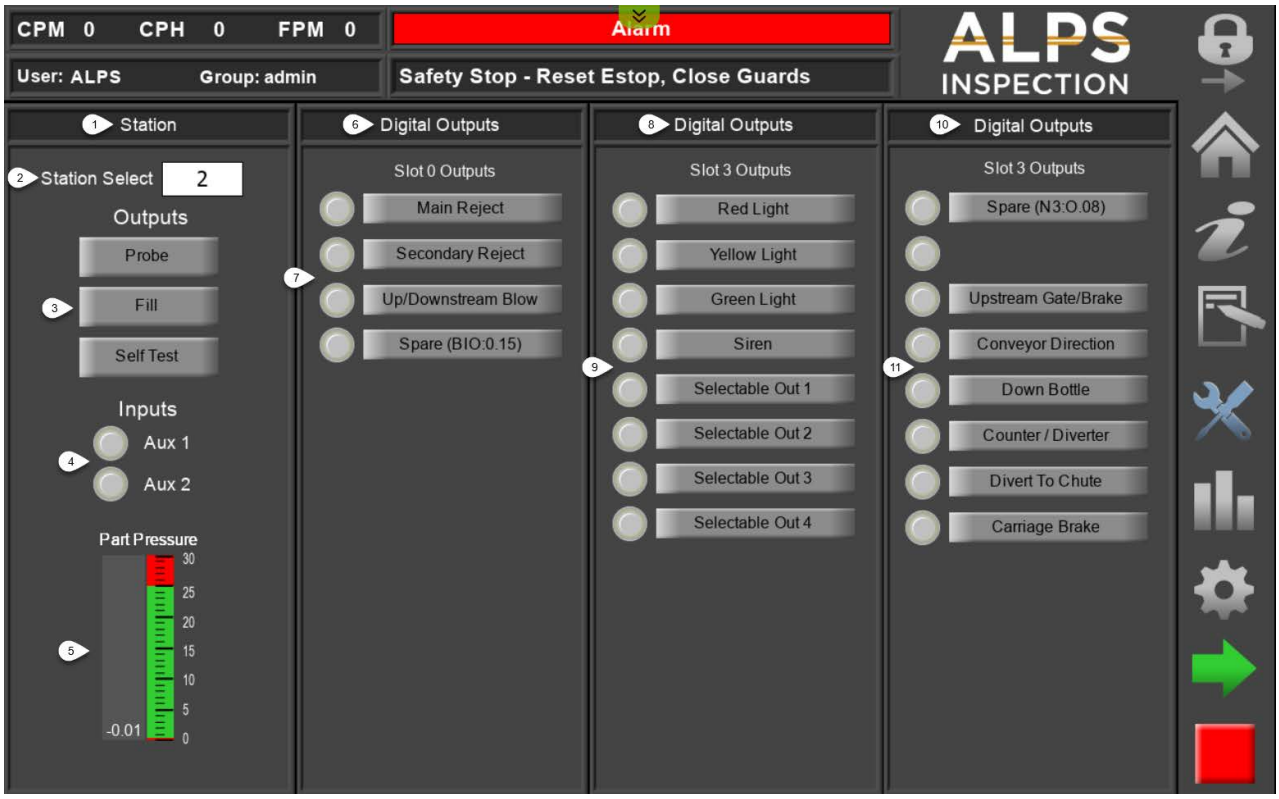


Figure 96: I/O Forcing

Label		
1	Station	Title
2	Station Select	Selection between head 1-4
3a	Outputs _ Probe	Force probe output per designated station
b	Outputs _ Fill	Force fill output per designated station
c	Outputs _ Self Test	Force self test output designated station
4a	Inputs_ Aux 1	Indicators for Aux #1
b	Inputs_Aux 2	Indicators for Aux #2
5	Part Pressure	Indicators of container pressure
6	Digital Outputs	Title
7a	Main Reject	Force main reject output
b	Secondary Reject	Force secondary reject output
c	Up/Downstream Blow	Force Up/Downstream blow output
d	Spare (BIO :0.15)	Force output BIO: 0.15
8	Digital Outputs	Title
9a	Red Light	Force red light output
b	Yellow Light	Force yellow light output

Label		
c	Green Light	Force green light output
d	Siren	Force siren output
e	Selectable Out 1	Force selectable out #1 output
f	Selectable Out 2	Force selectable out #2 output
g	Selectable Out 3	Force selectable out #3 output
h	Selectable Out 4	Force selectable out #4 output
10	Digital Outputs	Title
11a	Spare (N3:O.08)	Force output N3:O.08
b	Upstream Gate/ Break	Force upstream gate/ break output
c	Conveyor Direction	Force conveyor direction output
d	Down Bottle	Force down container output
e	Counter / Diverter	Force counter/diverter output
f	Divert To Chute	Force divert to chute output
g	Carriage Brake	Force carriage brake output

35.14 Large Values

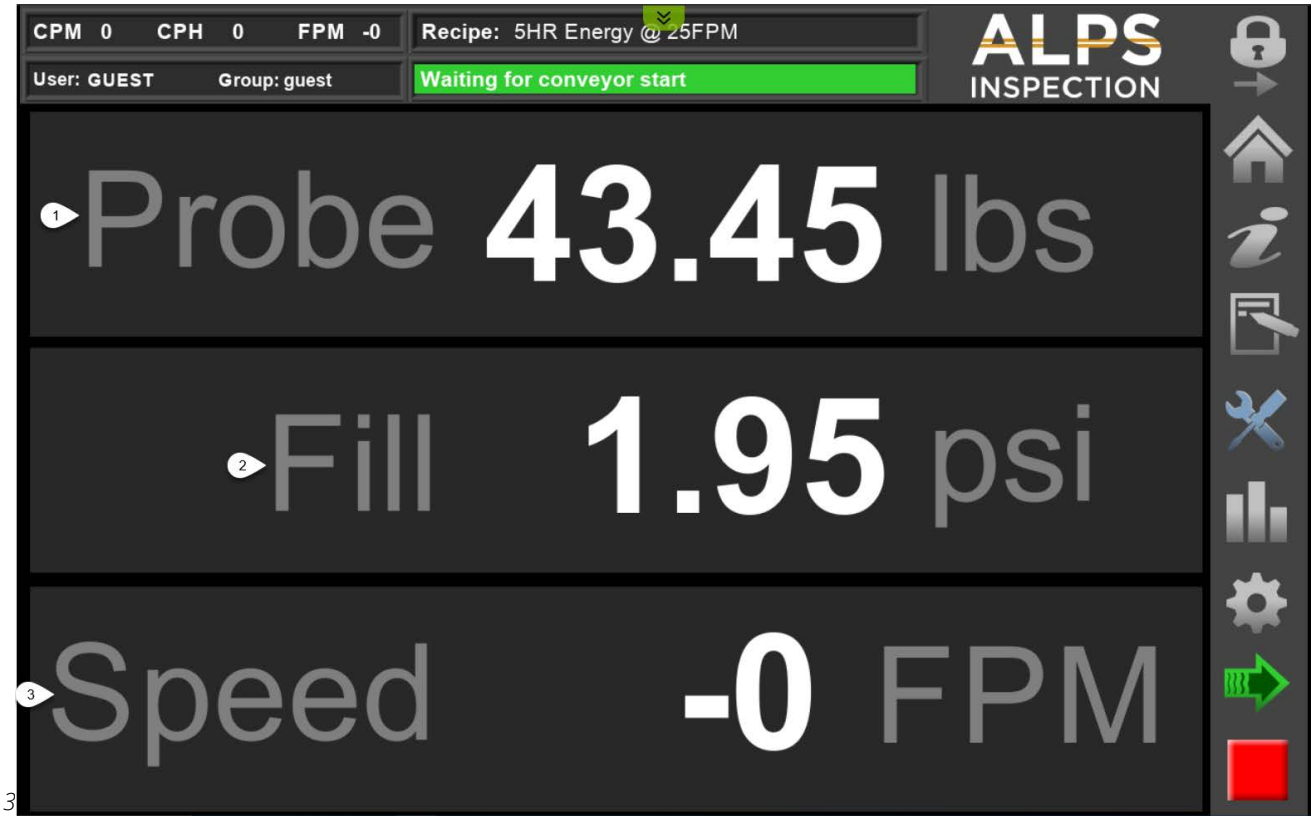


Figure 97: Large Values

Label		
1	Probe (psi)	Probe Pressure Indicator
2	Fill (psi)	Fill Pressure Indicator
3	Speed (FPM)	Conveyor Speed Indicator

35.16 Systems

Figure 98: Systems

Label		
1	Network Setup	Title
2a	WIFI Enable	Step 1: Enable Wifi button
b	Update List	Step 2: Update available SSID's
3	Select SSID	Step 3: Select network names or Wifi names
4	Password	Step 4: Network Password
5a	Join	Step 5: Join the network
b	Cancel	Cancel the network connection
6	Not Connected	Indicator for network connector
7	Signal	Display the name of the connected network
8	Signal	Network signal strength

Label		
9	Network Adapter Parameters _ Mac ID	Network Mac ID
10	Use DHCP:	Allowing the server to automatically assign the IP address
11	IP Address:	Assigning the internet protocol number
12	Subnet Mask:	Assigning the internet subnet mask number
13	Gateway:	Assigning the gateway number
14a	Cancel	Erases the network settings
b	Apply	Applies the network settings
15	Email Setup	Title
16	SMTP Server	Setting the SMTP Server
17	Server Port	Setting the server port
18	Authentication / SSL	Enable Authentication
19	Username	Enter user name
20	Password	Enter password
21	“From”	Enter Machine name or number
22a	Recipient 1	Email Recipient #1
b	Recipient 2	Email Recipient #2
c	Recipient 3	Email Recipient #3
d	Recipient 4	Email Recipient #4
e	Recipient 5	Email Recipient #5
f	Recipient 6	Email Recipient #6
g	Recipient 7	Email Recipient #7
h	Recipient 8	Email Recipient #8
i	Recipient 9	Email Recipient #9
j	Recipient 10	Email Recipient #10
23	General	Title
24	Display Brightness	Adjust display brightness
25	Clean Screen	Disables the touch screen for cleaning for 15 seconds
26	Opacity Control	Opacity control setting
27	Set TOD	TOD; Time of day
28a	Year	Current Year
b	Month	Current Month
c	Day	Current Day
d	Hour	Current Hour
e	Minute	Current Minute
29	Launch Updater	Updates software from USB file

Label		
30	Restart HMI	Re-boots HMI

35.18 Station Overview

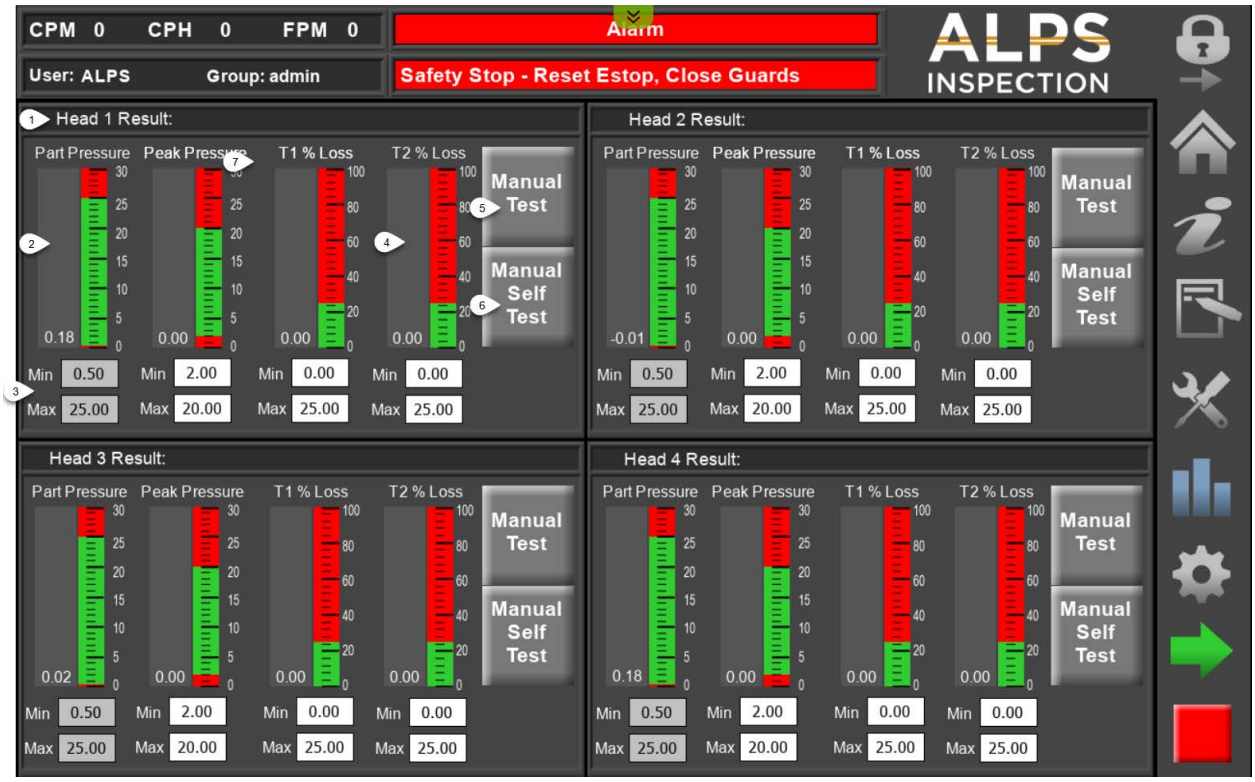


Figure 99: Station Overview

Label		
1	Head #	Selected Station
2a	Part Pressure	Part pressure results of latest test
b	Peak Pressure	Peak pressure results of latest test
c	T1 % Loss	T1% loss results of latest test
3a	Part Pressure Min #	Reference only; Part pressure minimum setting
b	Part Pressure Max #	Reference only; Part pressure maximum setting
c	Peak Pressure Min #	Reference only; Peak pressure minimum setting
d	Peak Pressure Max #	Reference only; Peak pressure maximum setting
e	T1 % Loss Min #	Reference only; T1% Loss minimum setting
f	T1 % Loss Max #	Reference only; T1% Loss maximum setting
4a	T2 % Loss	T2% Loss results of latest test
b	T2 % Loss Min #	Reference only; T2% Loss minimum setting
c	T2 % Loss Max #	Reference only; T2% Loss maximum setting
5	Manual Test	Actuate a manual test
6	Manual Self Test	Actuate a manual self test

Note: T2 percent will display data when used.

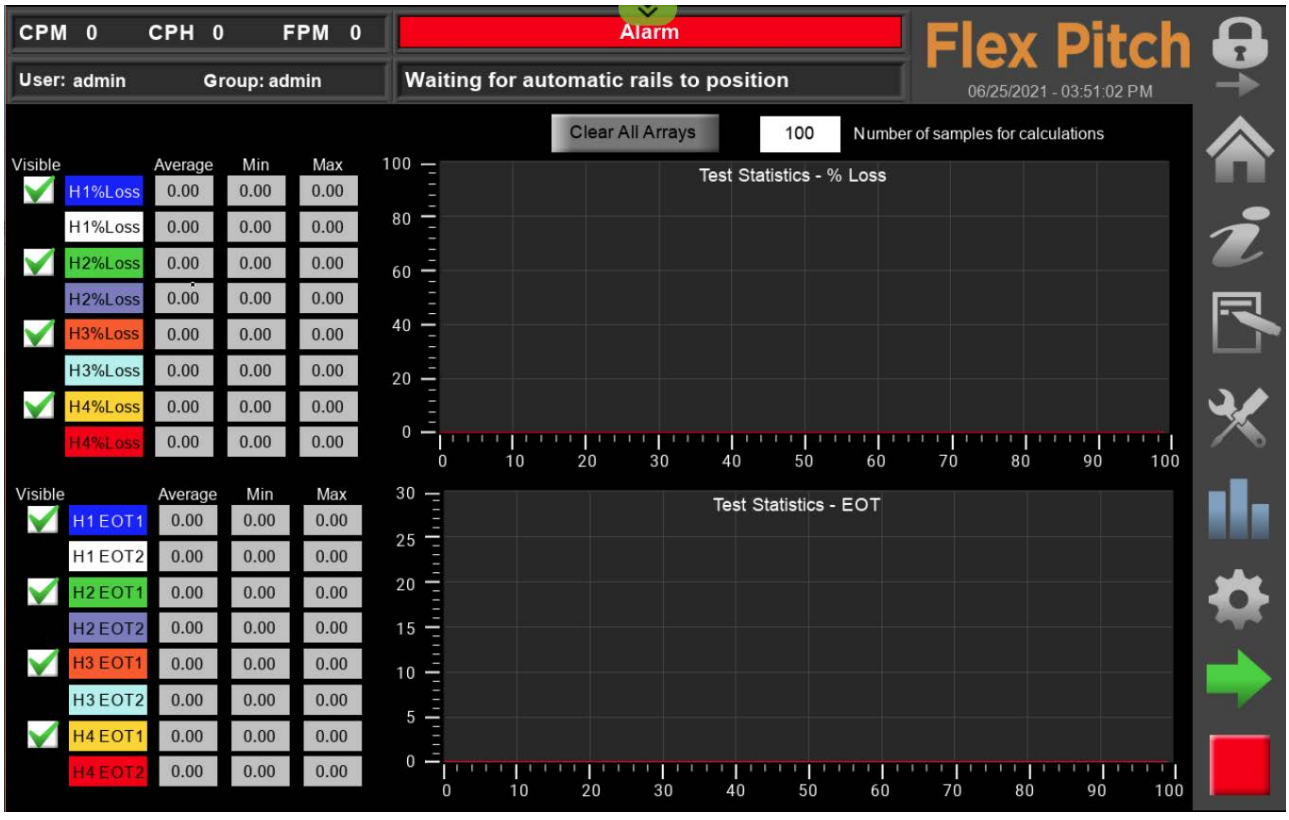
35.19 Pressure Curves

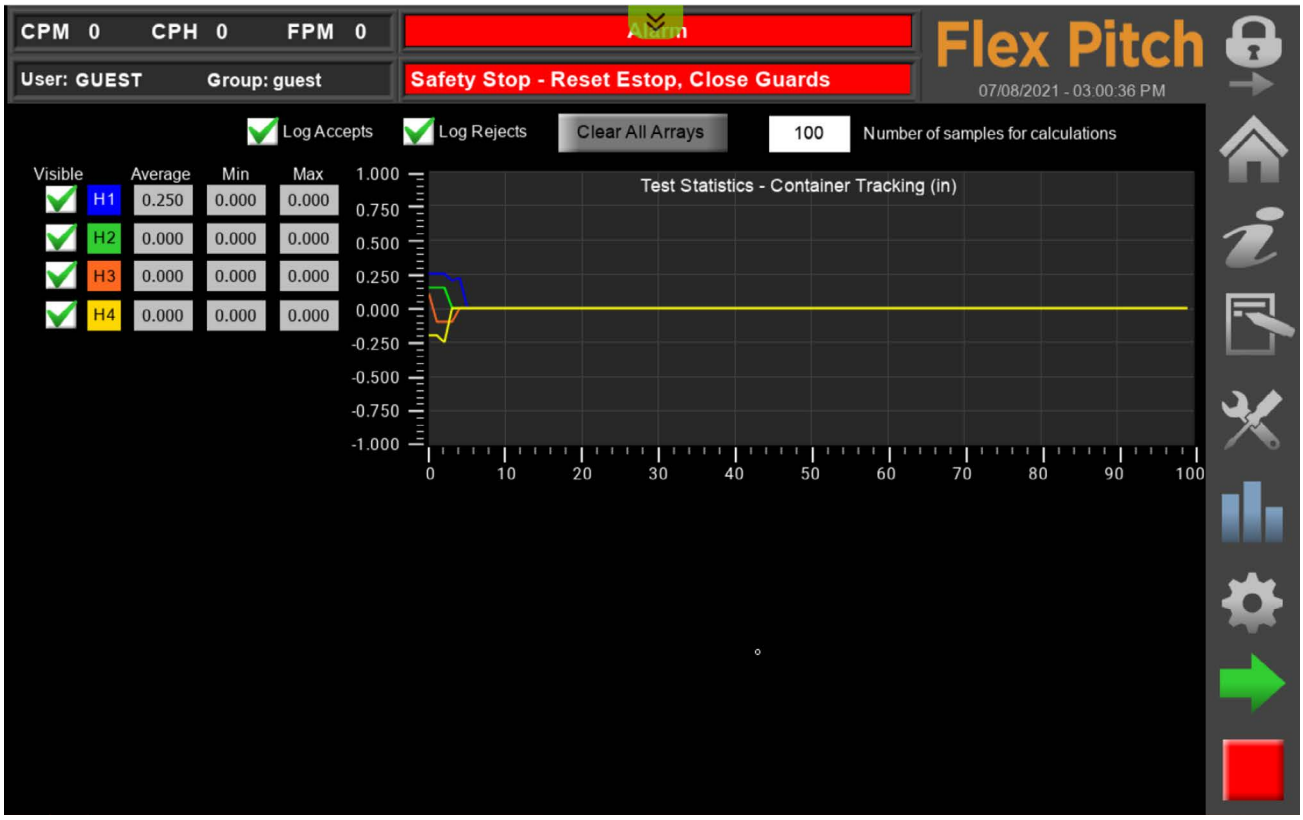
Figure 100: Pressure Curves

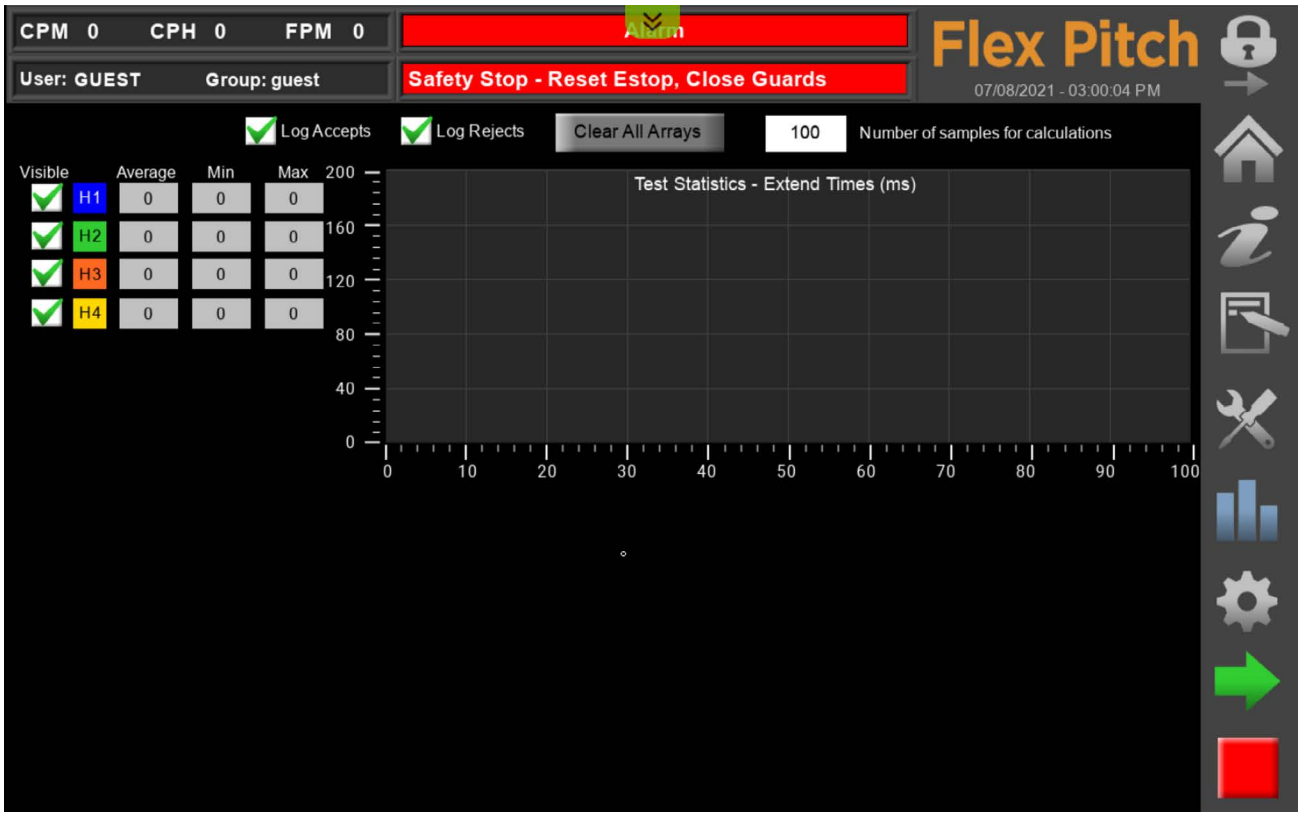
Label		
1a	Visible	Enable button
b	Graph Selection	Options: Head accept, rejects, and self tests
c	Color Code	Color associated with specific graph
d	Test Result	Test result code
e	T1% Loss	Test Result
f	T2% Loss	Test Result
g	Peak	Test Result
h	End T1	Test Result
i	End T2	Test Result
j	Test t	Test Result
k	Ext Time	Test Result
l	TOD	Test Result
2	Update Live	Show live graphs
3	History #	Viewing historical part tests
4	Refresh	Refresh historical graphs

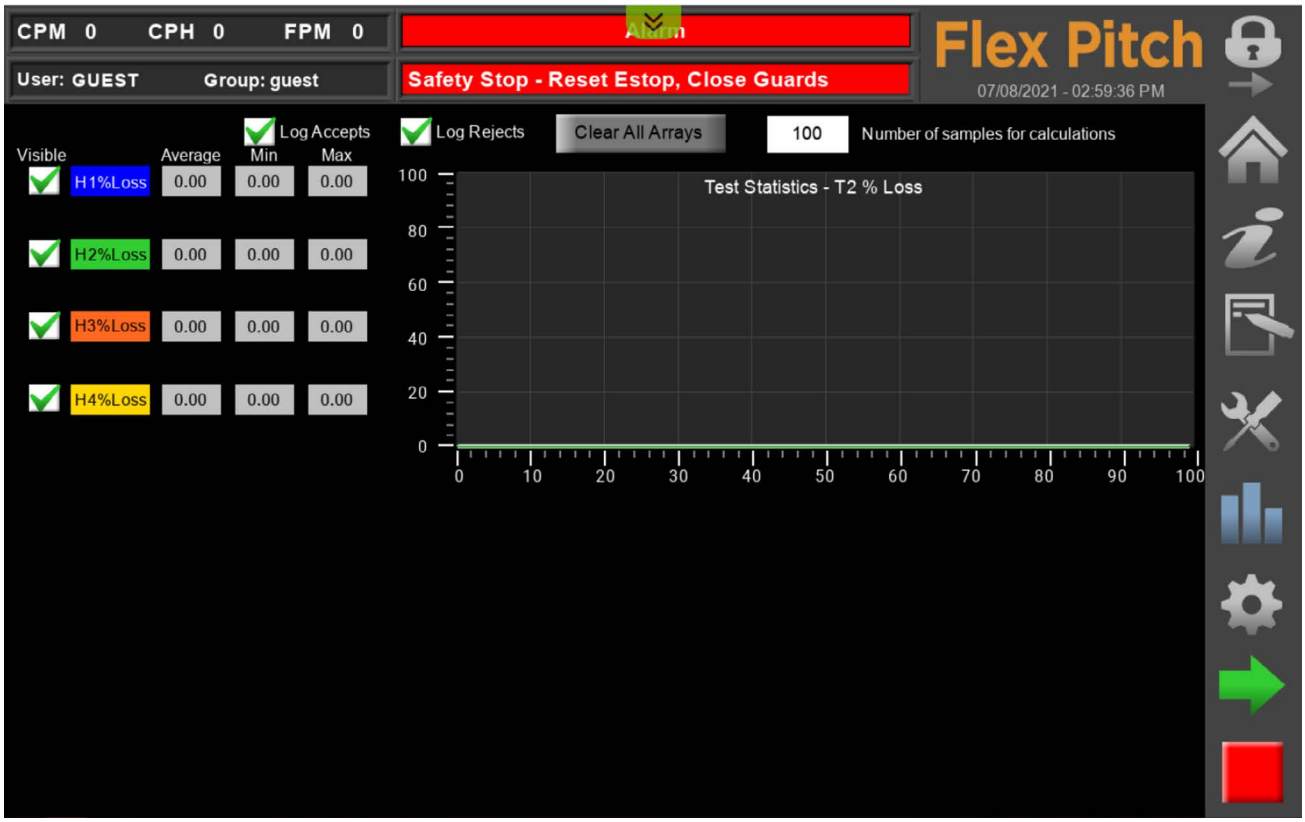
35.20 Test Statistics

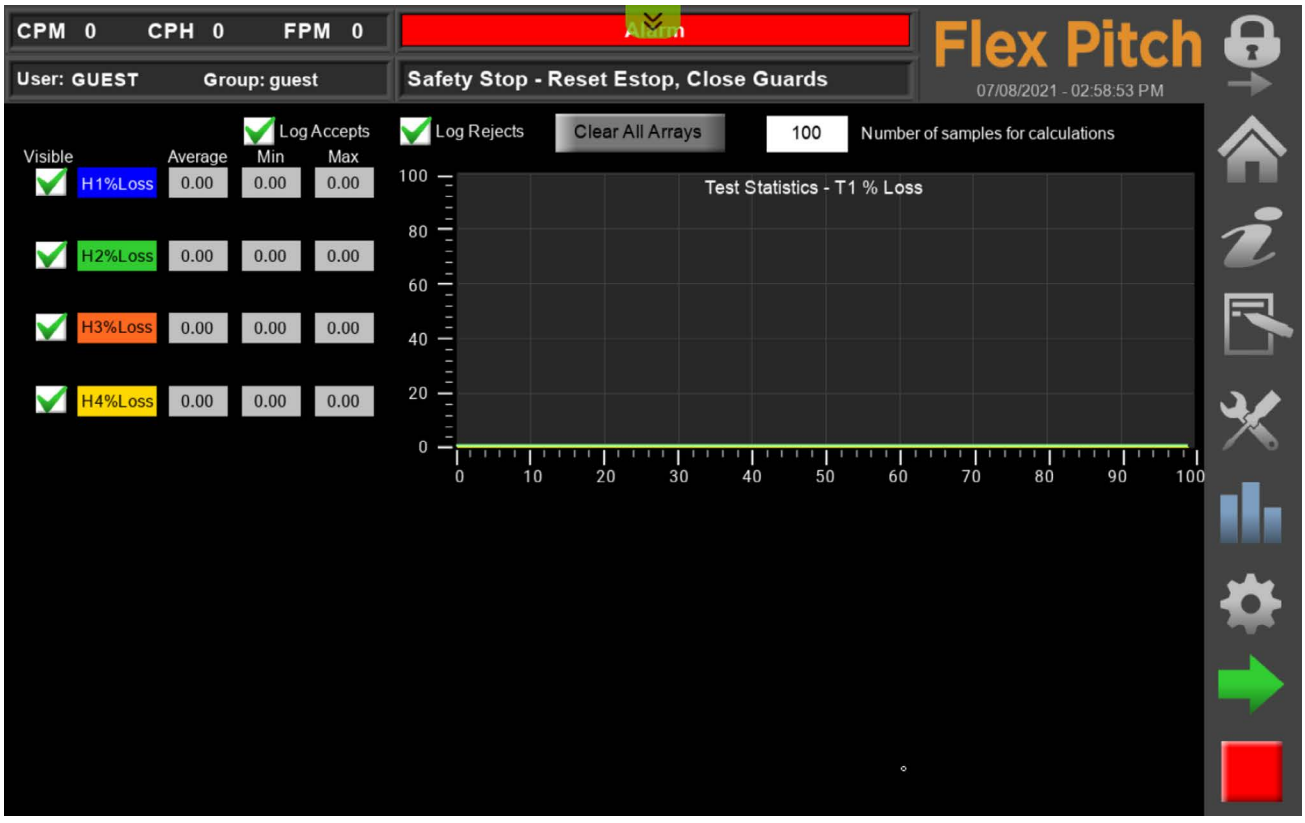
Figure 101: Test Statistics

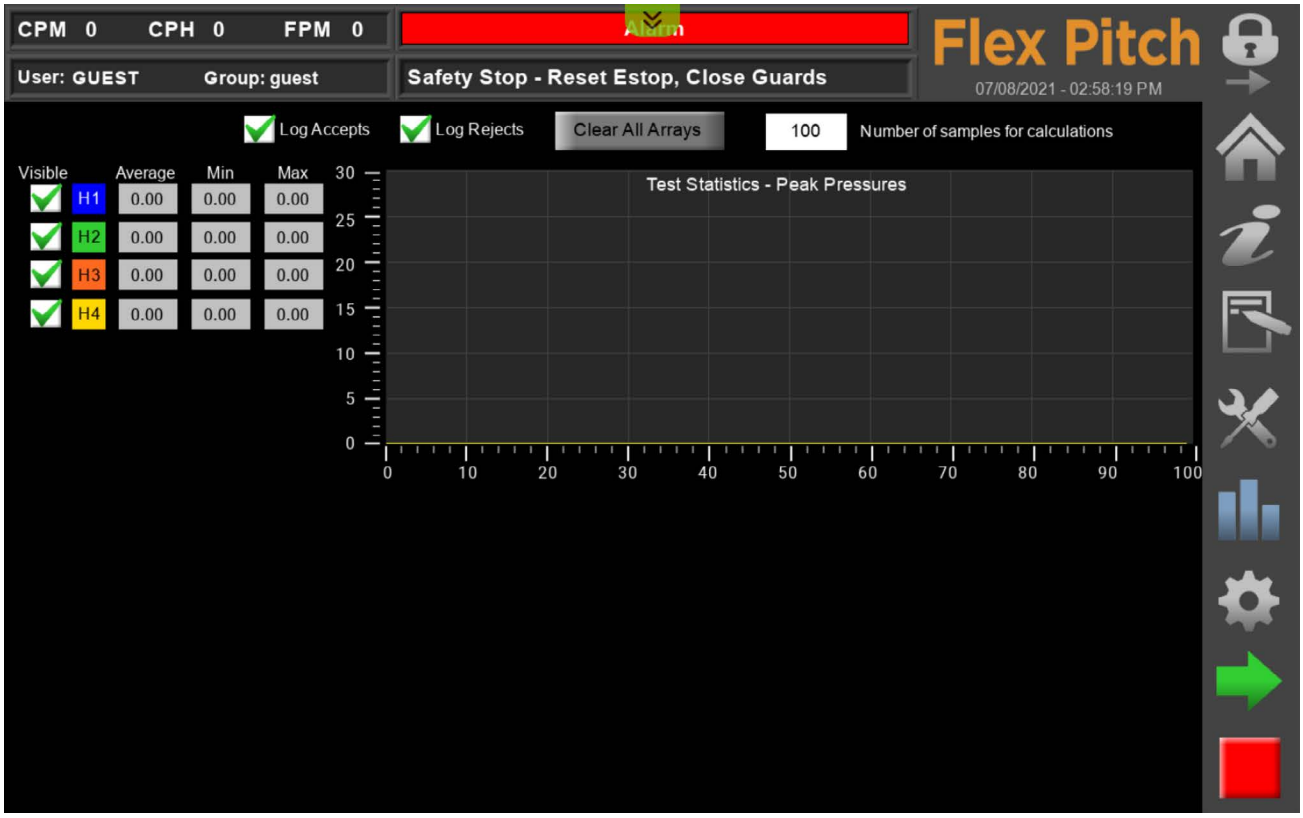


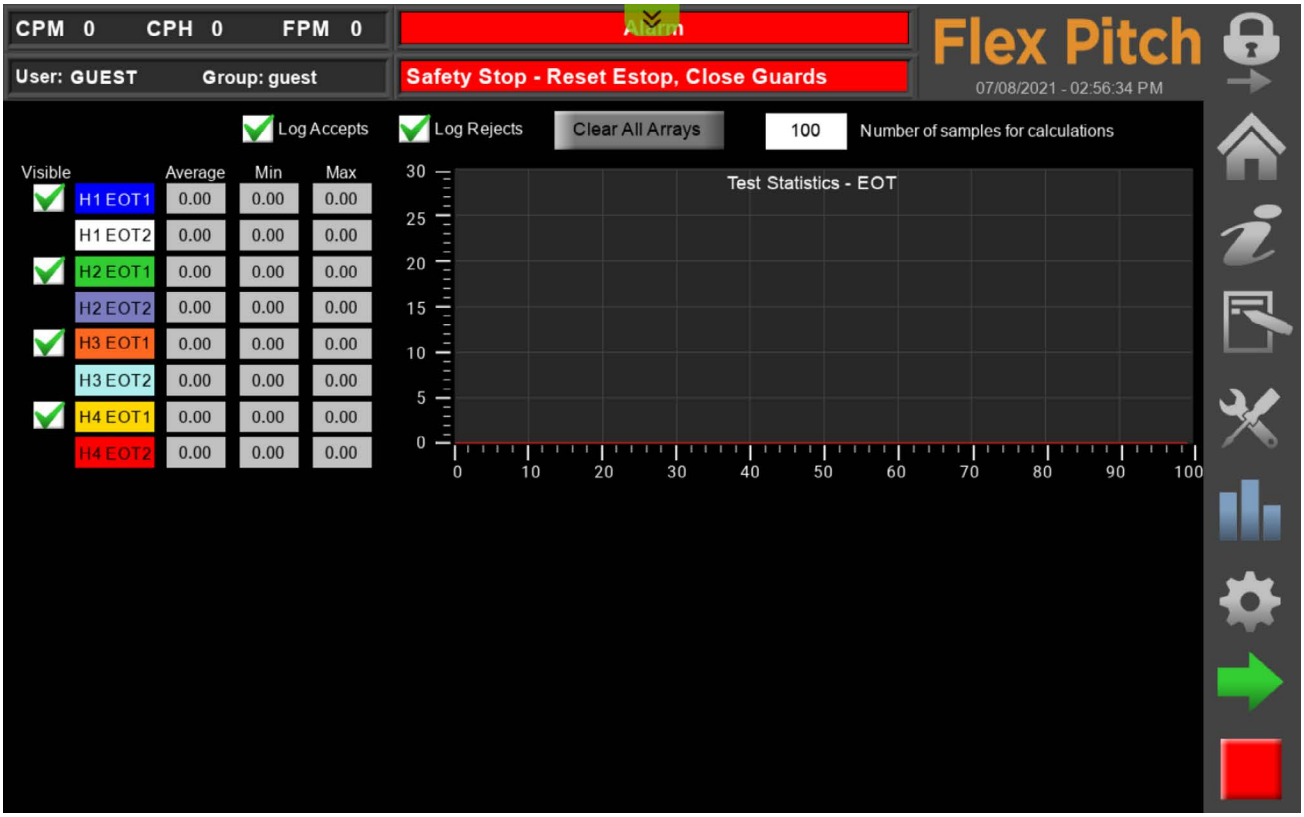

CPM 0
CPH 0
FPM 0
Alarm
User: GUEST
Group: guest
Safety Stop - Reset Estop, Close Guards
Flex Pitch
07/08/2021 - 03:00:36 PM
Log Accepts
Log Rejects
Clear All Arrays
100
Number of samples for calculations
Visible
Average
Min
Max
H1 0.250 0.000 0.000
H2 0.000 0.000 0.000
H3 0.000 0.000 0.000
H4 0.000 0.000 0.000
Test Statistics - Container Tracking (in)
1.000
0.750
0.500
0.250
0.000
-0.250
-0.500
-0.750
-1.000
0 10 20 30 40 50 60 70 80 90 100


CPM 0
CPH 0
FPM 0
Alarm
User: GUEST
Group: guest
Safety Stop - Reset Estop, Close Guards
Flex Pitch
07/08/2021 - 03:00:04 PM
Log Accepts
Log Rejects
Clear All Arrays
100
Number of samples for calculations
Visible
Average
Min
Max
H1 0 0 0
H2 0 0 0
H3 0 0 0
H4 0 0 0
Test Statistics - Extend Times (ms)
200
160
120
80
40
0
0 10 20 30 40 50 60 70 80 90 100


CPM 0
CPH 0
FPM 0
User: GUEST
Group: guest
Safety Stop - Reset Estop, Close Guards
Flex Pitch
07/08/2021 - 02:59:36 PM
Log Accepts
Log Rejects
Clear All Arrays
100
Number of samples for calculations
Visible
Average
Min
Max
H1%Loss 0.00 0.00 0.00
H2%Loss 0.00 0.00 0.00
H3%Loss 0.00 0.00 0.00
H4%Loss 0.00 0.00 0.00
Test Statistics - T2 % Loss
100
80
60
40
20
0
0 10 20 30 40 50 60 70 80 90 100


CPM 0
CPH 0
FPM 0
User: GUEST
Group: guest
Safety Stop - Reset Estop, Close Guards
Flex Pitch
07/08/2021 - 02:58:53 PM
Log Accepts
Log Rejects
Clear All Arrays
100
Number of samples for calculations
Visible
Average
Min
Max
H1%Loss 0.00 0.00 0.00
H2%Loss 0.00 0.00 0.00
H3%Loss 0.00 0.00 0.00
H4%Loss 0.00 0.00 0.00
Test Statistics - T1 % Loss
100
80
60
40
20
0
0 10 20 30 40 50 60 70 80 90 100


CPM 0
CPH 0
FPM 0
Alarm
User: GUEST
Group: guest
Safety Stop - Reset Estop, Close Guards
Flex Pitch
07/08/2021 - 02:58:19 PM
Log Accepts
Log Rejects
Clear All Arrays
100
Number of samples for calculations
Visible
Average
Min
Max
H1
H2
H3
H4
0.00
Test Statistics - Peak Pressures
0
5
10
15
20
25
30
0
10
20
30
40
50
60
70
80
90
100


CPM 0
CPH 0
FPM 0
Alarm
User: GUEST
Group: guest
Safety Stop - Reset Estop, Close Guards
Flex Pitch
07/08/2021 - 02:56:34 PM
Log Accepts
Log Rejects
Clear All Arrays
100
Number of samples for calculations
Visible
Average
Min
Max
H1 EOT1
H1 EOT2
H2 EOT1
H2 EOT2
H3 EOT1
H3 EOT2
H4 EOT1
H4 EOT2
0.00
Test Statistics - EOT
0
5
10
15
20
25
30
0
10
20
30
40
50
60
70
80
90
100

Label		
1	Clear All Arrays	Clear all arrays
2	Number of Samples for Calculations	Number of sample containers tested per head
3a	Visible	Enable button
b	Average	Extend time average
c	Minimum	Extend time minimum
d	Maximum	Extend time maximum
4	Test Statistics - Extend Times (ms)_Chart	Extend time chart
5a	Visible	Enable button
b	Average	Peak pressure average
c	Minimum	Peak pressure minimum
d	Maximum	Peak pressure maximum
6	Test Statistics - Peak Pressures	Peak pressure chart
7	Y-Axis	Range of Y-Axis
8	X-Axis	Range of sample tested containers

35.21 Main Counters

Figure 102: Main Counters

Label		
1	Main Counters	Title
2a	Total Tested	Total containers tested
b	Total Accepted	Total containers accepted
c	Total Rejected	Total containers rejected
d	Reject Percentage	Total containers rejected percentage
e	Cycle Count	Total containers tested, not resettable
f	Head 1 Total	Total containers test on head #1
g	Head 1 Rejects	Total containers rejected on head #1
h	Head 1 Rejects %	Total containers rejected percentage on head #1
i	Head 2 Total	Total containers test on head #2
j	Head 2 Rejects	Total containers rejected on head #2
k	Head 2 Rejects %	Total containers rejected percentage on head #2
l	Head 3 Total	Total containers test on head #3
m	Head 3 Rejects	Total containers rejected on head #3
n	Head 3 Rejects %	Total containers rejected percentage on head #3
o	Head 4 Total	Total containers test on head #4
p	Head 4 Rejects	Total containers rejected on head #4
q	Head 4 Rejects %	Total containers rejected percentage on head #4
3	Station Detailed Counters	Title
4a	Select Station	Select of specific station
b	Maximum Fill Timeout	Maximum fill timeout error counter for specific station
c	Minimum Peak Pressure	Minimum peak pressure error counter for specific station
d	Maximum Peak Pressure	Maximum peak pressure error counter for specific station
e	T1 Min Pressure Drop	T1 Minimum peak pressure drop error counter for specific station
f	T1 Max Pressure Drop	T1 Maximum peak pressure drop error counter for specific station
g	T2 Min Pressure Drop	T2 Minimum peak pressure drop error counter for specific station
h	T2 Max Pressure Drop	T2 Minimum peak pressure drop error counter for specific station
i	Over Pressure Failure	Over pressure failure error counter for specific station
j	Minimum Test Pressure	Minimum test pressure error counter for specific station
k	Aborted Tests	Aborted tests error counter for specific station
l	Test Too Long Failure	Test too long failure error counter for specific station
m	Station Not At Zero	Station not at zero error counter for specific station
n	Untested Due To Alarm	Untested due to alarm error counter for specific station
o	Aux 1 Failure	Aux 1 failure error counter for specific station
p	Aux 2 Failure	Aux 2 failure error counter for specific station
5	Detailed Counters	Title

Label		
6a	Maximum Fill Timeout	Maximum fill timeout error counter for entire tester
b	Minimum Peak Pressure	Minimum peak pressure error counter for entire tester
c	Maximum Peak Pressure	Maximum peak Pressure error counter for entire tester
d	T1 Min Pressure Drop	T1 Minimum peak pressure drop error counter for entire tester
e	T1 Max Pressure Drop	T1 Maximum peak pressure drop error counter for entire tester
f	T2 Min Pressure Drop	T2 Minimum peak pressure drop error counter for entire tester
g	T2 Max Pressure Drop	T2 Minimum peak pressure drop error counter for entire tester
h	Over Pressure Failure	Over pressure failure error counter for entire tester
i	Minimum Test Pressure	Minimum test pressure error counter for entire tester
j	Aborted Tests	Aborted tests error counter for entire tester
k	Test Too Long Failure	Test too long failure error counter for entire tester
l	Station Not At Zero	Station not at zero error counter for entire tester
m	Untested Due To Alarm	Untested due to alarm error counter for entire tester
n	Unexpected Container	Untested due to alarm error counter for entire tester
o	Aux 1 Failure	Aux 1 failure error counter for entire tester
p	Aux 2 Failure	Aux 2 failure error counter for entire tester
q	Down Bottle	Down container error counter for entire tester
7	Self Test Counters	Self test counter for entire tester
8a	Total Self Tests	Title
b	Self Tests Passed	Self tests passed for entire tester
c	Self Tests Rejected	Self tests rejected for entire tester
d	Self Tests Reject %	Self tests rejected percentage for entire tester
9	Reset Counters	Reset all counters pushbutton

35.22 Alarm Counters

Figure 103: Alarm Counters

Label		
1	Alarm Counters	Title
2a	Total Alarm Count	Total alarm counter
b	Loss of Air	Air loss counter
c	Servo HW Alarm	Servo Hardware alarm counter
d	Auto Self-Test Alarm	Auto self-test alarm counter
e	Min Pres Exceeded	Minimum pressure exceeded counter
f	Reject Verification	Reject verification alarm counter
g	Chute Intrusion	Chute intrusion alarm counter
h	Reject Bin Full	Reject bin full alarm counter
i	End of Stroke	End of stroke alarm counter
j	Encoder Backwards	Encoder backwards alarm counter
k	Entry PE Stuck ON	Entry Photo-Eye stuck on a alarm counter
l	Entry PE Stuck OFF	Entry Photo-Eye stuck off a alarm counter
m	Controller Error	Controller error alarm counter
n	Heads Too Close	Heads too close alarm counter
o	Exit PE Stuck ON	Exit Photo-Eye stuck on a alarm counter

Label		
p	Exit PE Stuck OFF	Exit Photo-Eye stuck off a alarm counter
3	Alarm Counters	Title
4a	Conveyor VFD	Conveyor VFD alarm counter
b	Total Percent Reject	Total percent reject alarm counter
c	Head 1 Percent Reject	Head 1 percent reject alarm counter
d	Head 2 Percent Reject	Head 2 percent reject alarm counter
e	Head 3 Percent Reject	Head 3 percent reject alarm counter
f	Head 4 Percent Reject	Head 4 percent reject alarm counter
g	Head 1 Consecutive Reject	Head 1 consecutive reject alarm counter
h	Head 2 Consecutive Reject	Head 2 consecutive reject alarm counter
i	Head 3 Consecutive Reject	Head 3 consecutive reject alarm counter
j	Head 4 Consecutive Reject	Head 4 consecutive reject alarm counter
5	Reset Counters	Reset all counters push button

35.23 Setting Options Main

Label		
1	Test Settings	Title
2a	Test Times	Title
b	Fill Time(s)	Amount of time the Fill Valve will remain ON after the Start Fill Time Pressure is achieved
c	Test Time 1 (s)	Amount of time the TEST TIME #1 is active after the FILL TIME is achieved
d	Test Time 2 (s)	Amount of time the TEST TIME 2 is active after the TEST Time#1 is achieved
e	Max Fill Time(s)	Maximum time allowed for the START FILL TIME PRESSURE to be achieved
f	Probe Retract(s)	A fixed time for the PROBE RETRACT
3a	Test Limits	Title
b	Minimum T1% Loss	Actual T1% must exceed this limit
c	Maximum T1% Loss	Actual T1% must not exceed this limit
d	Minimum T2% Loss	Actual T2% must exceed this limit
e	Maximum T2% Loss	Actual T2% must not exceed this limit
4a	Test Pressures	Title
b	Minimum Peak Pressure	Actual Peak Pressure must exceed this limit
c	Maximum Peak Pressure	Actual Peak Pressure must not exceed this limit
d	Start Fill Time Pressure	The point of when a good seal is reached and the FILL TIME begins
e	Probe Force (Pounds) (Reference Only)	FOR ELECTRONIC REGULATORS ONLY. Setting for the amount of force applied to the container
f	Fill Pressure (psi) (Reference Only)	FOR ELECTRONIC REGULATORS ONLY. Setting for the amount of Air Pressure applied to the container
5	Conveyor Speed	Title
6a	Desired Speed (FPM)	Desired Conveyor Speed (Feet per minute)
b	Actual Speed(FPM)	Actual Conveyor Speed (Feet per minute)
c	Scalar Value	Scalar Value for proper conveyor speed
d	Potential Throughput (CPM)	Container per Minute based on Actual conveyor speed
7	Reject Timing	Title
8	Encoder Reject Position (inches)	Distance from the Entrance Photo-Eye at which the Reject will occur, in INCHES
9	Reject Eye To Reject Cylinder (inches)	Distance from the Reject (Exit) Photo-Eye to the Reject Cylinder in INCHES
10	Reject Pulse Time(s)	Amount of time the Reject Cylinder will be active
11	Probe Take-off Point	Title
12	Head 1- Auto Set All Others	Auto Set all Head 1 Take-Off (Start) Position
13	Head 1	Head 1 Take-Off (Start) Position. Manual adjustment
14	Head 2	Head 2 Take-Off (Start) Position. Manual adjustment
15	Head 3	Head 3 Take-Off (Start) Position. Manual adjustment
16	Head 4	Head 4 Take-Off (Start) Position. Manual adjustment

35.24 Settings Options 1

Figure 104: Settings - Options 1

Label		
1	Downstream Jam Timer	Title
2	Downstream Jam PE Delay	The amount of time (seconds) before the tester goes to pause
3	Downstream Jam PE Off Delay	The amount of time (seconds) before the tester goes to pause
4	Downstream Jam PE Input	Reference Only; Downstream Jam Photo Eye indicator
5	Spacing Wheel Slow Speed Delays	Title
6	Downstream Jam Delay Slow Speed	Alterable, Time Delay, when Conveyor Slow Speed occurs for a Downstream Jam
7	Downstream Jam Off Delay Slow Speed	Alterable, Time OFF Delay, when Conveyor Speed Returns to normal speed after Downstream Jam
8	Slow Speed PE Input	Reference Only; Slow Speed Photo-eye Indicator
9	Spacing Wheel	Title
10	Spacing Wheel Speed (FPM)	Alterable, Spacing Wheel Speed (Feet per Minute)
11	Spacing Wheel Speed Slow(FPM)	Alterable, Spacing Wheel Speed at Slow Speed (Feet per Minute)
12	Dial Indicator Reading	Alterable, Spacing Wheel Reading
13	Servo Enable	Reference Only: Servo Enable indicator
14	Servo Alarm	Reference Only: Servo Alarm indicator
15	Reject Verification	Title
16	Reject Verification Time	Alterable, allowable time for Reject Verification sensor to be triggered

Label		
17	Last Reject Verification Time	Reference Only; Time lapse of the Last Reject Verification
18	Chute Intrusion Alarm	Selectable Option for Chute Intrusion Alarm.
19	Secondary Blow Length	Secondary Blow Off Length define in Inches
20	Automatic Rail Guides	Title
21	Rail Guide Position	Alterable, defining the width of the container in Inches.
22	Raw Output To Valve	Reference Only: Engineering units of Analog Output
23	Pressure Feedback (psi)	Reference Only: Feedback status of the Rail Guide Pressure Regulator
24	Calibration	Rail Guide Calibration
25	Automatic Height	Title
26	Container Height	Alterable, Container Height in Inches
27	Probe Offset	Alterable, Probe Offset distance in Inches - The distance the Probe is away from the Container
28	Target Probe Height from Conveyor	Reference Only; Desired distance the Probe is offset from the conveyor
29	Actual Probe Height from Conveyor	Reference Only; Actual distance the Probe is offset from the conveyor
30	Up / Down Arrow	Manual Jog buttons for Probe Carriage height adjustments
31	Go to Position	Push Button to operate Probe Carriage Height to Target Position
32	N/A	N/A
33	Servo Alarm	Reference Only; Probe Carriage Servo Alarm indicator
34	Servo Enabled	Reference Only; Probe Carriage Servo Enabled indicator
35	Home Prox	Reference Only; Probe Carriage Home Proximity sensor indicator
36	Brake Released	Reference Only; Probe Carriage Brake Released indicator
37	Carriage Home Position	Alterable, Defines the Probe Carriage home position
38	Home Axis	Push Button, to command Probe Carriage to go to Home Position
39	Alarm Reset	Push Button, to Reset Probe Carriage Alarms

35.25 Settings Option 2

Figure 105: Settings- Option 2

Label		
1	Laser Height Results	Title
2	Last 10 Results	Laser height last 10 results
3a	Last 100 Stats Min	Laser height last 100 statistics, Minimum reading
b	Last 100 Stats Max	Laser height last 100 statistics, Maximum reading
c	Last 100 Stats Avg	Laser height last 100 statistics, Average reading
4	Clear Arrays	Clear laser height statistics array
5	? Chart Button	Laser height graph
6	Diverter	Title
7a	Parts Before Diverting	Parts prior to diverting; Counts up to target
b	Current Diverter Count	Reference only: Current diverter counter
8	Counter Reset	Reset the diverter counter pushbutton
9a	Photoeye Re-Arm Delay	Time before the Photo-Eye is active again
b	Diverter Eye Input	Diverter Photo-Eye input indicator
c	Gate Output	Gate output indicator
10	Down Container	Title
11a	Down Container PE Delay	Down container photo-eye time delay before activating
b	Down Container Blow Delay	Down container blow time delay before activating

Label		
c	Down Container Blow Pulse Time	Down container blow pulse activation time
d	% Of Container To Check For Reject PE	Percent of container to be seen at exit photo-eye
e	Down Container PE	Down container photo-eye indicator
12	Laser Height Calibration	Title
13a	Laser Height Calibra-tion_ Max	Laser height calibration maximum reading
b	Laser Height Calibra-tion_ Container Height	Laser height calibration actual reading
c	Laser Height Calibra-tion_ Min	Laser height calibration minimum reading
14	Actual Height	Laser height calibration container height target
15	Calibrate 50%	Laser height calibration at 50% push button
16	Scale Setting	Laser height scale setting
17	Advanced Photoeye	Title
18a	Container Debounce (%)	Container debounce %; Percentage of container passed to allow new trigger of entrance Photo-eye
b	Reject PE Re-Arm (%)	Container photo-eye re-arm %; percentage of container passed to allow new trigger of reject pho-to-eye
c	Reject Window Scale	Scale the reject window

35.26 Change Container

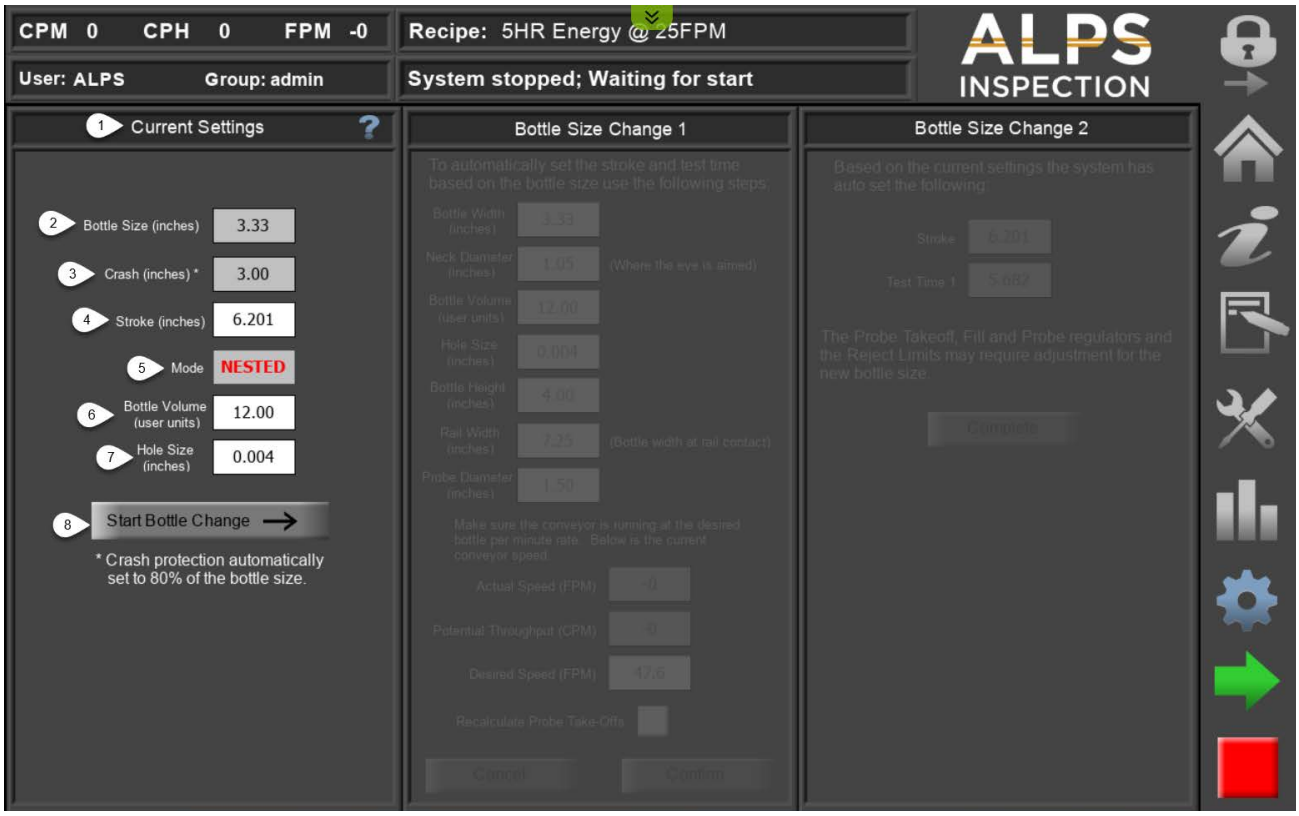


Figure 106: Change Bottle 1

Figure 107: Change Bottle 2

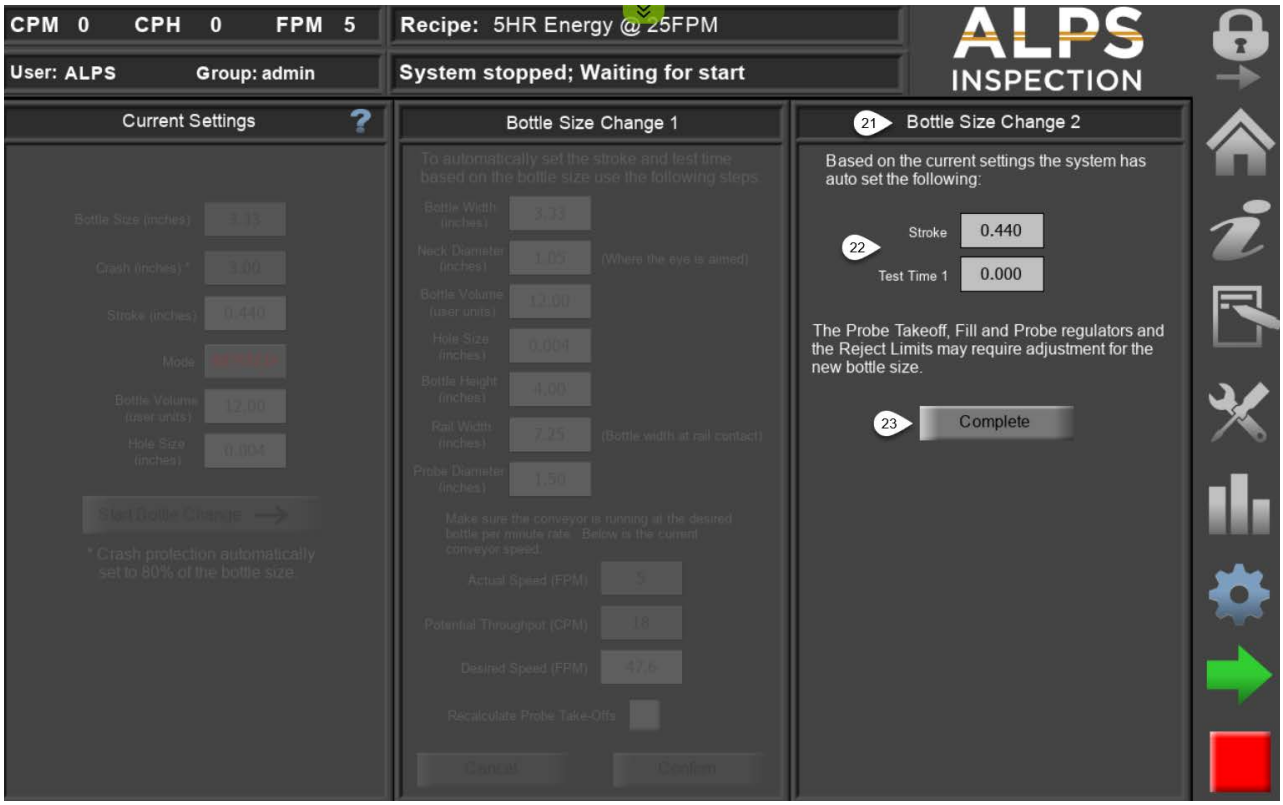


Figure 108: Change Bottle 3

Label		
1	Current Settings	Title
2	Bottle Size (inches)	Reference ONLY: Displays the current container's physical size
3	Crash (inches)	Reference ONLY: Crash protection is automatically set to 80% of the Bottle Size
4	Stroke (inches)	Total Head Stroke length
5	Mode	Depending on container (Bottle) size, the Mode will automatically change to Reduced, Series, or Nested. Reduced 0<Bottle Size < 3"; Nested 3" < Bottle Size <6"; Series 6" < Bottle Size
6	Bottle Volume (user units)	Customer information, of bottle size. Units not relevant to the program.
7	Hole Size (inches)	Customer information, of bottle size. Units not relevant to the program.
8	Start Bottle Change	Push button; confirms the Stroke setting and jumps to Bottle Size Change 1
9	Bottle Size Change 1	Title
10	Bottle Width (inches)	Enter Bottle Size dimension. The dimension which corresponds to the stroke length
11	Neck Diameter (inches)	Enter the Neck Diameter
12	Bottle Volume (user units)	Enter the bottle volume
13	Hole Size (inches)	Enter the desirable hole size to be found (optional)
14	Bottle Height (inches)	Enter the containers height
15	Rail Width (inches)	Enter the container width
16	Probe Diameter (inches)	Enter the probe diameter
17	Actual Speed (FPM)	Current conveyor speed (feet per minute)
18	Potential Throughput (CPM)	Calculated value of the maximum containers per minute
19	Desired Speed (FPM)	Desired conveyor speed feet per minute
20	Recalculate Probe Takeoff	Check box to recalculate the probe take off points
21	Bottle Size Change 3	Title
22	Sampling Conveyor Speed	The controller is tracking the speed of the conveyor and will display the new stroke and test time #1 (need new screen)
23	Complete	Pushbutton. Complete the bottle size change process

35.27 Recipes

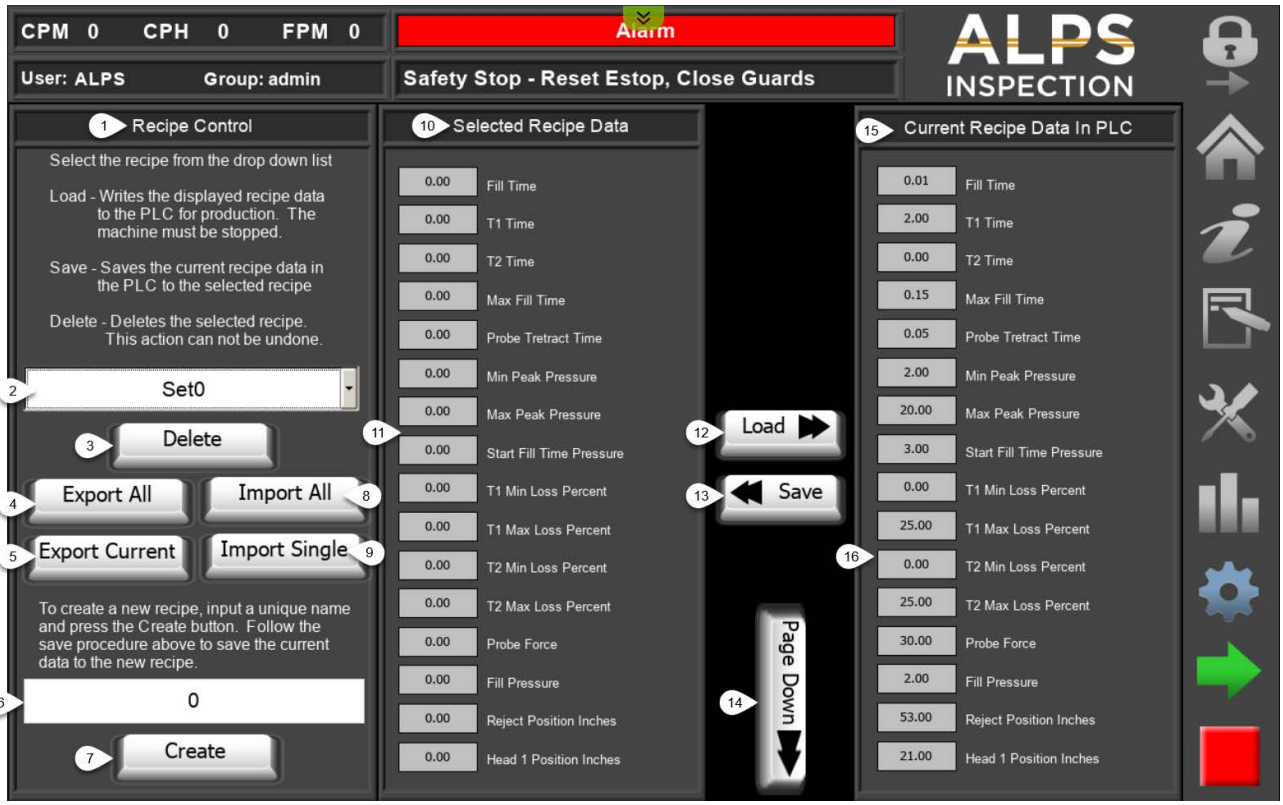


Figure 109: Recipes

Label		
1	Recipe Control	Title
2	Select a Recipe	Selection of recipe
3	Delete	Deletes the selected recipe
4	Export All	Exports all recipe
5	Export Current	Export selected recipe
6	Create New Recipe	Name entry for new recipe
7	Create	Create new recipe with the above name
8	Import All	Import from USB thumb drive all recipes
9	Import Single	Import from USB thumb drive single recipe
10	Selected Recipe Data	Title
11a	Fill Time	Selected recipe fill time
b	T1 Time	Selected recipe T1 time
c	T2 Time	Selected recipe T2 time
d	Max Fill Time	Selected recipe max fill time
e	Probe Retract Time	Selected recipe probe retract time
f	Min Peak Pressure	Selected recipe Minimum peak pressure time
g	Max Peak Pressure	Selected recipe Maximum peak pressure time

Label		
h	Start Fill Time Pressure	Selected recipe start fill pressure time
i	T1 Min Loss Percent	Selected recipe T1 minimum loss percentage
j	T1 Max Loss Percent	Selected recipe T1 maximum loss percentage
k	T2 Min Loss Percent	Selected recipe T2 minimum loss percentage
l	T2 Max Loss Percent	Selected recipe T2 maximum loss percentage
m	Probe Force	Selected recipe probe force
n	Fill Pressure	Selected recipe fill pressure
o	Reject Position inches	Selected recipe reject position (inches)
p	Head 1 Position Inches	Selected recipe Head 1 position (inches)
12	Load	Load selected recipe to current recipe command
13	Save	Save current recipe to selected recipe command
14	Page Down	Scroll down to new recipe command
15	Current Recipe Data in PLC	Title
16a	Fill Time	Current recipe fill time setting
b	T1 Time	Current recipe T1 time setting
c	T2 Time	Current recipe T2 time setting
d	Max Fill Time	Current recipe maximum fill time setting
e	Probe Retract Time	Current recipe probe retract time setting
f	Min Peak Pressure	Current recipe minimum peak pressure setting
g	Max Peak Pressure	Current recipe maximum peak pressure setting
h	Start Fill Time Pressure	Current recipe start fill pressure setting
i	T1 Min Loss Percent	Current recipe T1 minimum loss percentage setting
j	T1 Max Loss Percent	Current recipe T1 maximum loss percentage setting
k	T2 Min Loss Percent	Current recipe T2 minimum loss percentage setting
l	T2 Max Loss Percent	Current recipe T2 maximum loss percentage setting
m	Probe Force	Current recipe probe force setting
n	Fill Pressure	Current recipe fill pressure setting
o	Reject Position inches	Current recipe reject position setting
p	Head 1 Position Inches	Current recipe Head 1 position setting

35.28 Counters

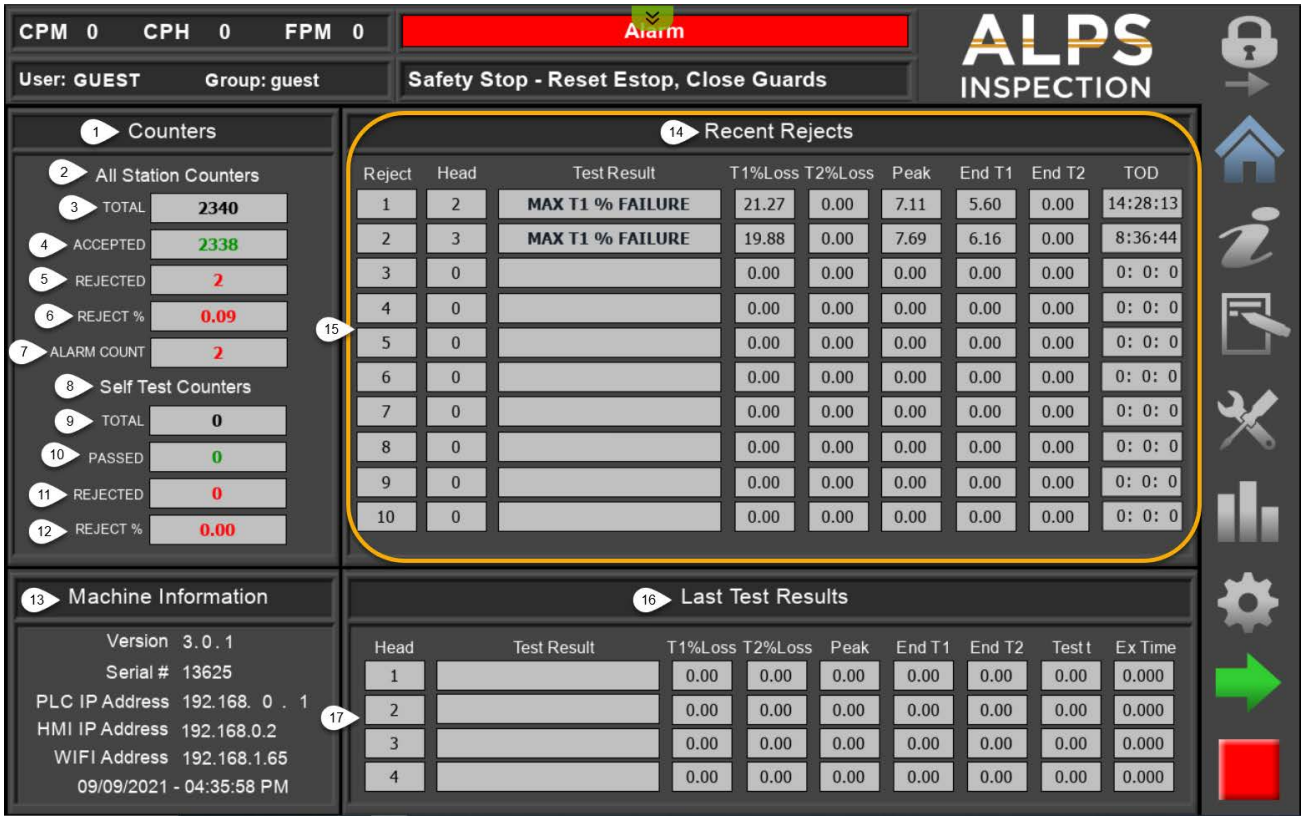
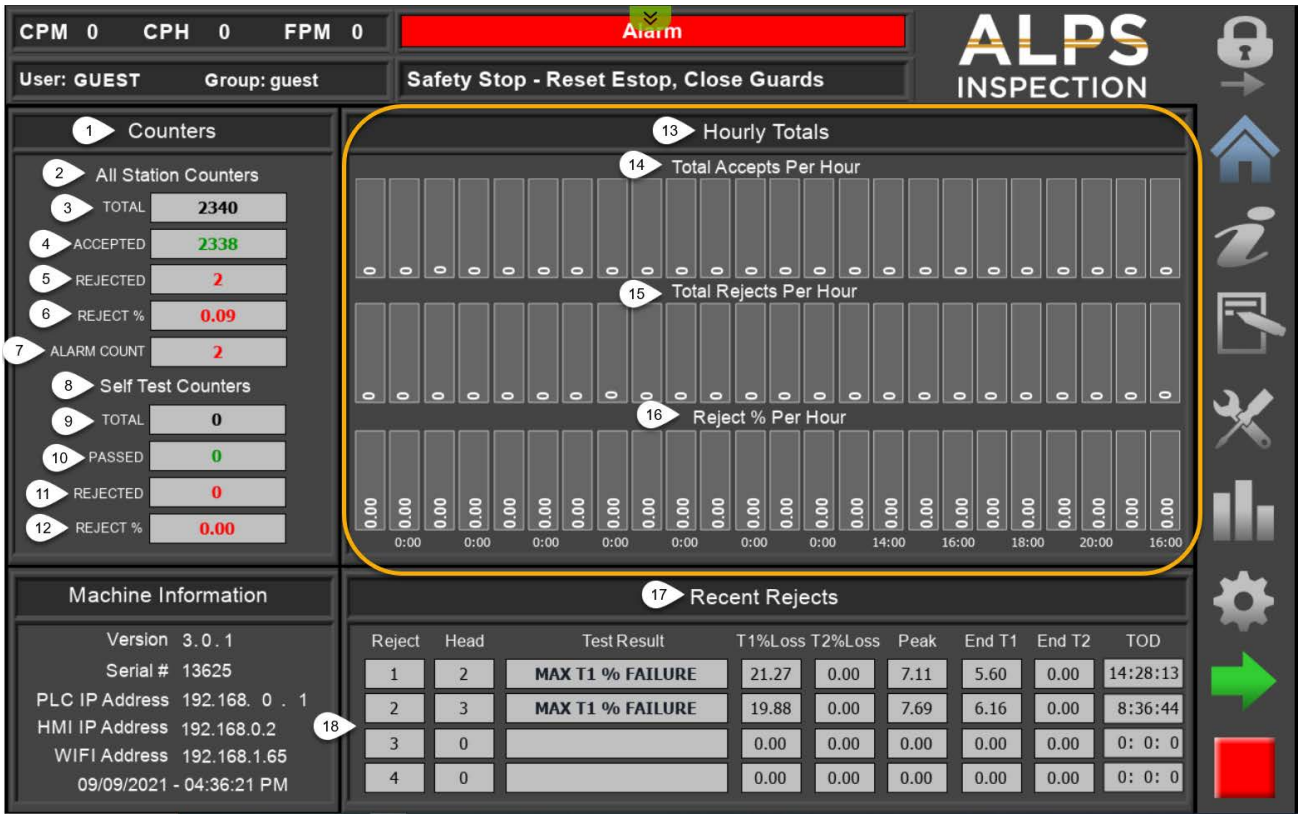


Figure 110: Counters

Label		
1	Counters	Title
2	All Station Counter	Title
3	Total	Total number of containers seen by the Part Present Photo-eye.
4	Accepted	Total number of containers that Passed the Leak Test.
5	Rejected	Total number of containers that Failed the Leak Test.
6	Reject %	Total percentage of Rejected containers. (Rejected / Total) *100
7	Alarm Count	Total number of occurred alarms.
8	Self Test Counters	Title
9	Total	Total number of attempted Self Tests
10	Passed	Total number of Passed Self Tests. i.e. this number should be '0'.
11	Rejected	Total number of Rejected Self Tests. i.e. This number should be equal to 'Total Self Test'.
12	Reject %	Reject Self Test percentage. (Rejected Self Test / Total Self Test) * 100
13	Machine Information	Title
14	Recent Reject	Title
15	Recent Reject Information	This information give the last 10 Rejects, including Head number, Result, and test details.
16	Last Test Results	Title
17	Last Test Results Information	This information gives the last 4 Test Results, including Head number, Result, and test details.



Label		
1	Counters	Title
2	All Station Counters	Title
3	Total	Total number of containers seen by the Part Present Photo-eye.
4	Accepted	Total number of containers that Passed the Leak Test.
5	Rejected	Total number of containers that Failed the Leak Test.
6	Reject %	Total percentage of Rejected containers. (Rejected / Total) *100
7	Alarm Count	Total number of occurred alarms.
8	Self Test Counters	Title
9	Total	Total number of attempted self tests
10	Passed	Total number of Passed Self Tests. i.e. this number should be '0'.
11	Rejected	Total number of Rejected Self Tests. i.e. This number should be equal to 'Total Self Test'.
12	Reject %	Reject Self Test percentage. (Rejected Self Test / Total Self Test) * 100
13	Hourly Totals	Title
14	Total Accepts per Hour	The graph fills in from right to left starting at hour zero, then after 60 minutes, increments to the next hour of Accepted Parts
15	Total Rejects Per Hour	The graph fills in from right to left starting at hour zero, then after 60 minutes, increments to the next hour of Rejected Parts
16	Total Rejects % Per Hour	The graph fills in from right to left starting at hour zero, then after 60 minutes, increments to the next hour of Rejected Percentage
17	Rejects	Title
18a	Reject	Listing of the last (4) rejects.

Label		
b	Head	Listing of the last (4) rejects and the head to which it is associated with the reject.
c	Test Result	List of the reason for the individual reject.
d	T1% Loss	Percentage loss of an individual bottle at the end of T1.
e	T2% Loss	Percentage loss of an individual bottle at the end of T2.
f	Peak	Peak Pressure of an individual bottle. Units (inches of H2O)
g	End T1	Recorded pressure at the end of T1. Units (inches of H2O)
h	End T2	Recorded pressure at the end of T2. Units (inches of H2O)
i	TOD	Recorded Time of Day when the reject occurred.

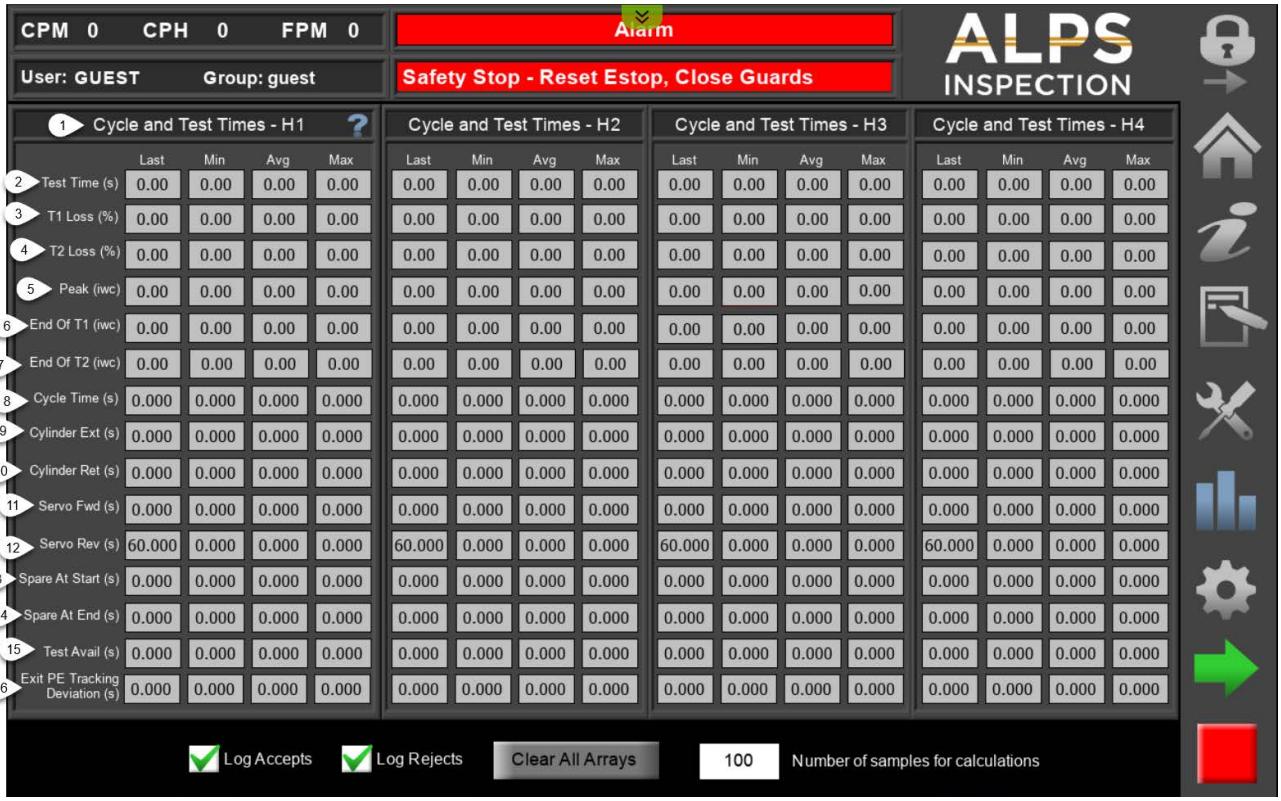


Figure 111: Cycle and Test Times

Label		
1	Cycle and Test Times H1-H4	Title
2	Test Time (s)	The Test Times are given as “LAST, MIN, AVG, and MAX” for each head or station number.
3	T1 Loss (%)	The T1 Loss Percentages are given as “LAST, MIN, AVG, and MAX” for each head or station number.
4	T2 Loss (%)	The T2 Loss Percentages are given as “LAST, MIN, AVG, and MAX” for each head or station number.
5	Peak (InH20)	The Peak pressures (inch of water column) are given as “LAST, MIN, AVG, and MAX” for each head or station number.
6	End of T1 (InH20) {EoT1}	The EoT1 pressures are given as “LAST, MIN, AVG, and MAX” for each head or station number.
7	End of T2 (InH20) {EoT2}	The EoT2 pressures are given as “LAST, MIN, AVG, and MAX” for each head or station number.
8	Cycle Time (s)	The Cycle Times are given as “LAST, MIN, AVG, and MAX” for each head or station number.

Label		
9	Cylinder Ext (s)	The Cylinder Extend Times are given as “LAST, MIN, AVG, and MAX” for each head or station number.
10	Cylinder Ret (s)	The Cylinder Retract Times are given as “LAST, MIN, AVG, and MAX” for each head or station number.
11	Servo Fwd (s)	The Servo Forward Times are given as “LAST, MIN, AVG, and MAX” for each head or station number.
12	Servo Rev (s)	The Servo Reverse Times are given as “LAST, MIN, AVG, and MAX” for each head or station number.
13	Spare At Start (s)	The Spare At Start of cycle times are given as “LAST, MIN, AVG, and MAX” for each head or station number. This number should be approaching ‘0.1’.
14	Spare At End (s)	The Spare At End of cycle times are given as “LAST, MIN, AVG, and MAX” for each head or station number. This number should be approaching ‘0.1’.
15	Test Avail (s)	The Test Available times are given in as “LAST, MIN, AVG, and MAX” for each head or station number. This number should be approaching ‘0’.
16	Exit PE Tracking Deviation(s)	Tracks the deviation from when a container is expected and when it arrives at the Exit PE. the measurement is in INCHes. (Carlos, the units is a typo, it should be INCHes).

Label		
1	Description _ALPS Defined	Title
2	Check List	List of Alps Defined PM Schedule.
3	Description User Defined	List of Customer Defined PM Schedule.
4	Service Conveyor	Example of Customer Defined PM Schedule.
5	Change Probe Seals	Example of Customer Defined PM Schedule.
6		Blank; Example of Customer Defined PM Schedule.

Label		
7	Enable PM	Enable the particular PM Schedule.
8	Send Email	Enable the Email Option for a particular PM Schedule.
9	Interval In Days	How often a PM Scheduler should be performed.
10	Days Remaining	How many days remain until the PM Schedule needs to be performed.
11	Days Overdue	How many days are over due for the PM Schedule to be performed.
12	Reset PM	Reset the PM Schedule to restart.

Label		
1	Trend Data USB Export	Title
2	Export Production Log	Export Production Log to the USB port.
3	Export Head 1-4 Accepts Log	Export Heads 1-4 Accept Log to the USB port.
4	Export Head 1-4 Rejects Log	Export Heads 1-4 Reject Log to the USB port.
5	Trend Data Local Export	Title
6	Export Production Log	Export Production Log to the Local memory.
7	Export Head 1- 4 Accepts Log	Export Heads 1-4 Accept Log to the Local memory.

Label		
8	Export Head 1-4 Rejects Log	Export Heads 1-4 Reject Log to the Local memory.
9	Clear Trend Data	Export Production Log to the USB port.
10	Clear Production Log	Clear Production Log from local memory
11	Clear Head 1- 4 Accepts Lo	Clear Heads 1-4 Accept Log from local memory.
12	Clear Head 1-4 Rejects Log	Clear Heads 1-4 Reject Log from local memory.

Label		
1a	Log Accepts	Operator selectable; graphs will show the containers that were Acceptable.
b	Log Rejects	Operator selectable; graphs will show the containers that were Rejected.
2	Clear All Arrays	Clears the history tracking arrays.
3	Number of Samples	The allotted size of the Array.
4	Visible	Operator Selectable; Displays the desired Heads
5		H1:Head 1, H2:Head 2, H3:Head 3, H4:Head 4
6	Average	Average rating for the desired graph.
7	Min	Minimum rating for the desired graph.
8	Max	Maximum rating for the desired graph.

Label		
9	Y Axis Zoom	Zoom on the graph based on the Y-Axis.
10	Test Statistics-Extend Times (ms)	Title
11	Graph	Area for the graph
12	Test Statistics-Expected Container at Exit PE Deviation (in)	Title
13	Graph	Area for the graph

Label		
1a	Log Accepts	Operator selectable; graphs will show the containers that were Acceptable.
b	Log Rejects	Operator selectable; graphs will show the containers that were Rejected.
2	Clear All Arrays	Clears the history tracking arrays.
3	Number of Samples	The allotted size of the Array.
4	Visible	Operator Selectable; Displays the desired Heads

Label		
5		H1:Head 1, H2:Head 2, H3:Head 3, H4:Head 4
6	Average	Average rating for the desired graph.
7	Min	Minimum rating for the desired graph.
8	Max	Maximum rating for the desired graph.
9	Y Axis Zoom	Zoom on the graph based on the Y-Axis.
10	Test Statustics-EOT1	Title
11	Graph	Area for the graph
12	Test Statistics-Peak Pres-sures	Title
13	Graph	Area for the graph

Label		
1a	Log Accepts	Operator selectable; graphs will show the containers that were Acceptable.
b	Log Rejects	Operator selectable; graphs will show the containers that were Rejected.
2	Clear All Arrays	Clears the history tracking arrays.
3	Number of Samples	The allotted size of the Array.
4	Visible	Operator Selectable; Displays the desired Heads
5		H1:Head 1, H2:Head 2, H3:Head 3, H4:Head 4

Label		
6	Average	Average rating for the desired graph.
7	Min	Minimum rating for the desired graph.
8	Max	Maximum rating for the desired graph.
9	Y Axis Zoom	Zoom on the graph based on the Y-Axis.
10	Test Statustics- T2% Loss	Title
11	Graph	Area for the graph
12	Test Statistics- T1% Loss	Title
13	Graph	Area for the graph

NOTES: