



MVP **ICON**®

USER GUIDE

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BIOCONTROL

Results. Right now.

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Introduction

The LIGHTNING MVP ICON® is a multi-parameter HACCP monitoring system to monitor key quality indicators such as ATP, pH, temperature, conductivity, and concentration. The included MVP ICON Dashboard software allows for easy trending and analysis of results. The software's dashboard provides an overview of key control metrics at a glance.

Below is a description of each of the parameters measured by the MVP ICON.

ATP

Adenosine triphosphate (ATP) is present in all living cells including food residues, bacteria, yeast and molds. Testing for ATP is highly useful as an indicator of cleaning verification within a food manufacturing facility. Detecting its presence indicates a surface or liquid contains organic matter. If ATP is present, the potential exists for contamination of food or beverages coming into contact with the surface or liquid containing ATP. Surfaces contaminated with ATP lead to issues with product quality and pose a threat to public health.

pH

Monitoring the pH of foods is a vital step in producing a safe, quality product. Maintaining the appropriate pH level is an important factor in food manufacturing as pH is often related to the physical and chemical reactions that take place during production.

Temperature

Certain manufacturers produce foods that require the product to maintain a specific temperature during the production process. Monitoring temperature prevents products from allowing certain organisms to grow and thrive, therefore contaminating the product and leading to public health and product quality issues.

Conductivity

Conductivity, measured in microSiemens (μS), is a material's ability to conduct an electrical current.

Concentration

Accurately measuring cleaner and sanitizer concentrations is a crucial element to protecting food quality. Excessively high concentrations of chemicals are costly and can lead to the damage of equipment, product, and potentially harm operators in contact with the solution. If a chemical's concentration is too low, it can allow for the potential growth of pathogenic organisms leading to public health and product quality issues.

Materials and Equipment

The MVP ICON is a multi-parameter HACCP monitoring system. The MVP ICON utilizes accessory probes and sampling devices to measure and record key HACCP parameters including ATP, pH, temperature, conductivity, and concentration. The included MVP ICON Dashboard software allows for easy trending and analysis of results. The software's dashboard provides an overview of key control metrics at a glance.

Included in the Box

- MVP ICON instrument
- USB cable
- AC adapter (US)
- International adapters
- Shoulder strap
- Quick Reference Guide

ATP Supplies (Purchased Separately)

- ICON Surface Sampling Device - for detection of ATP on surfaces
- ICON Liquid Sampling Device - for detection of ATP in Clean in Place (CIP) rinse water and other liquid samples
- ICON ATP Calibrator Set – for calibration and verification of the ICON instrument for accurate detection of ATP
- ICON ATP Positive Control – a lyophilized, stable preparation of a known concentration of ATP for routine verification of the ICON system's performance

Conductivity and Concentration Supplies

- ICON Conductivity Probe - for measuring conductivity of liquids and determining chemical concentration of sanitizers and cleaners
- Conductivity Standard (500 μ s) – for calibration of ICON Conductivity Probe

pH Supplies

- ICON pH Probe – for measuring pH and temperature of solutions
- pH Calibration Standards (pH 4.00, pH 7.00, and pH 10.00) – for calibration of ICON pH Probe

Temperature Supplies

- ICON Temperature Probe – for measuring product temperatures

Charging the MVP ICON

To charge the MVP ICON battery, use the provided AC Adapter and ICON mini-USB cable to plug into a wall outlet. The battery will take approximately 2 – 4 hours to fully charge to 100%. When connected to AC power, the "% Battery Charge" field in the Home screen will show "-". Upon disconnecting from AC power, the field will update to display the correct battery charge level.

Charging Best Practices

- Utilize the ICON until the instrument displays Code 11 – Low Battery, then charge to 100% via the wall outlet.
- It is safe to leave the MVP ICON plugged into AC outlet overnight. The MVP ICON system utilizes a charging circuit to ensure proper charging.

Note: Only charge the MVP ICON using the supplied AC adapter and USB cable. Do NOT charge ICON via a PC USB port and disconnect ICON from PC USB port immediately after syncing.

MVP ICON at a Glance

Instrument Overview



Home Screen and Navigation

The MVP ICON features a pressure-sensitive color touch screen display that can be operated while wearing gloves and is suitable for use under all lighting conditions.

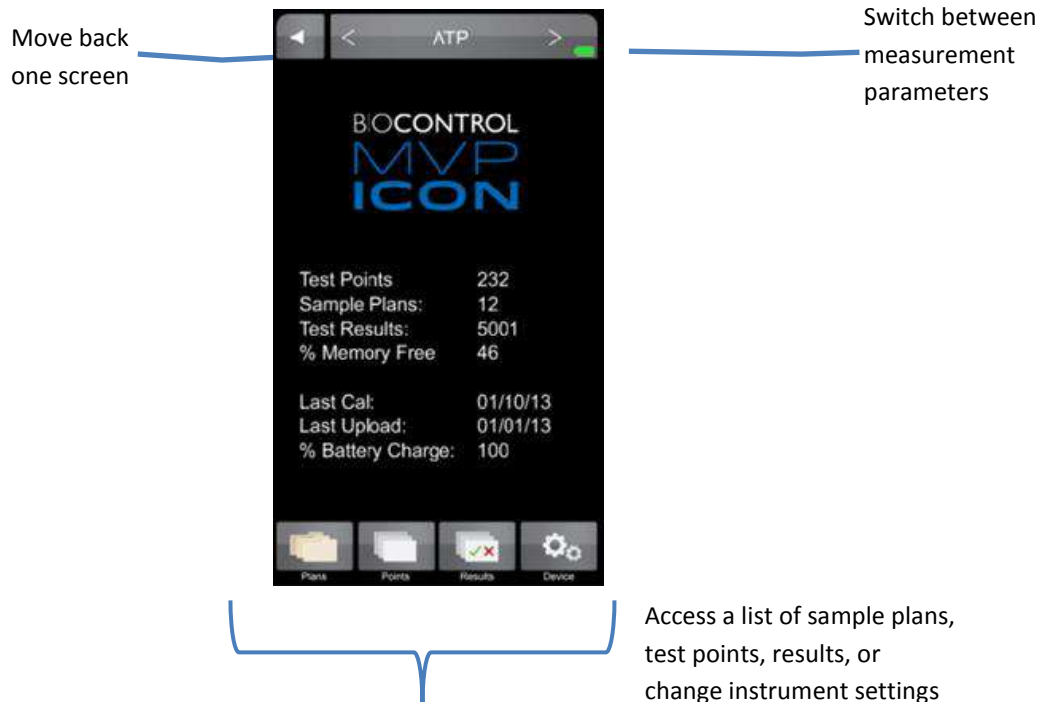
The home screen of the ICON lists pertinent statistics about the unit based on the parameter selected, including:

- Number of test points, sample plans, and results stored on the instrument
- Available memory
- Serial number
- Date of last ATP calibration
- Last date of upload to ICON software
- Available battery charge

The parameter selection bar at the top of the screen is used to select the desired parameter (ATP, pH, Temperature, Concentration, or Conductivity) for taking new readings or viewing stored results.

The buttons on the bottom of the screen are used to access the following functions:

- Plans – allows the user to select a specific sample plan
- Points – allows the user to select a specific test point
- Results – provides a list of recorded results for each test point
- Device – provides access to the instrument specific settings including screen brightness, volume, language, date and time, deleting results, and calibration



To preserve battery life, the ICON screen will automatically dim after (1) minute of inactivity and turn dark after (2) minutes. To awaken the instrument, simply touch the screen or power button. After (3) minutes of inactivity the ICON will completely shut down (See *Chapter 25* for customizing these settings).

Calibrating the Touch Screen

It is recommended to calibrate the touch screen, should it freeze or become difficult to navigate. To initiate calibration:

- Connect the MVP ICON to the ICON Dashboard software
- Select "ICON Setup" from the top toolbar menu
- Select "Calibrate Display"
- The ICON instrument will then enter its screen calibration mode
- Follow the prompts on the screen, ensuring to touch the tip of each red arrow for the most precise and accurate calibration.

Note: *Calibrating the touch screen requires precisely touching specific areas of the screen. This procedure should be performed using a non-marking fine tipped instrument such as a stylus. Do NOT use any instruments that could scratch, stain, or dent the touchscreen surface.*

Self-Diagnostic

When the ICON is powered on, the instrument will perform a 45-second self-diagnostic and record a baseline reading. The chamber must be empty during the initial start-up procedure.

Points

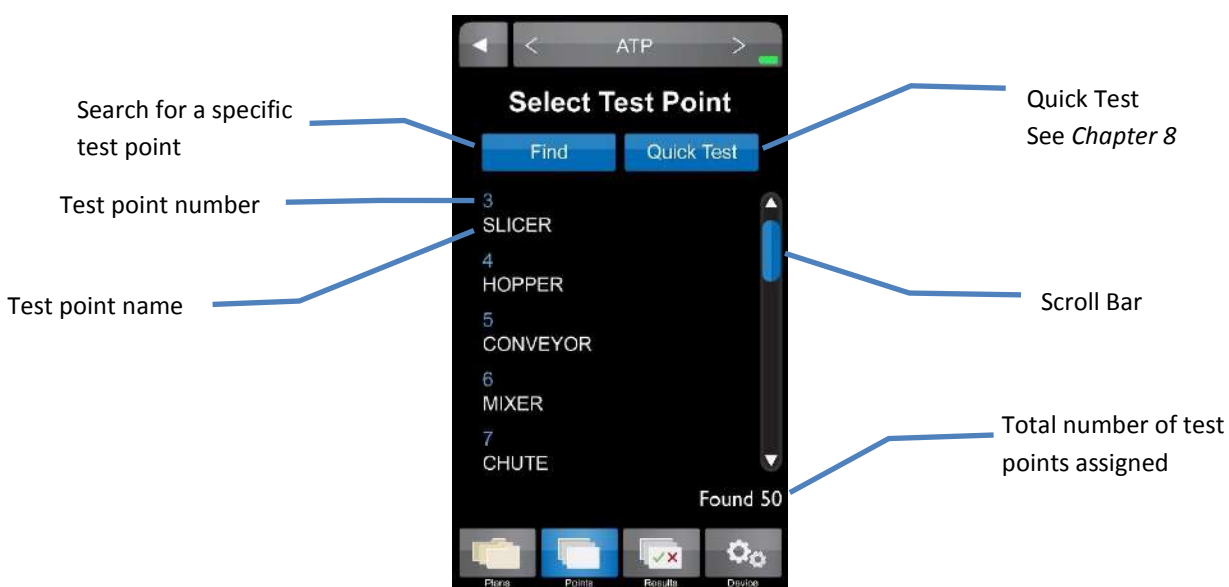


Points

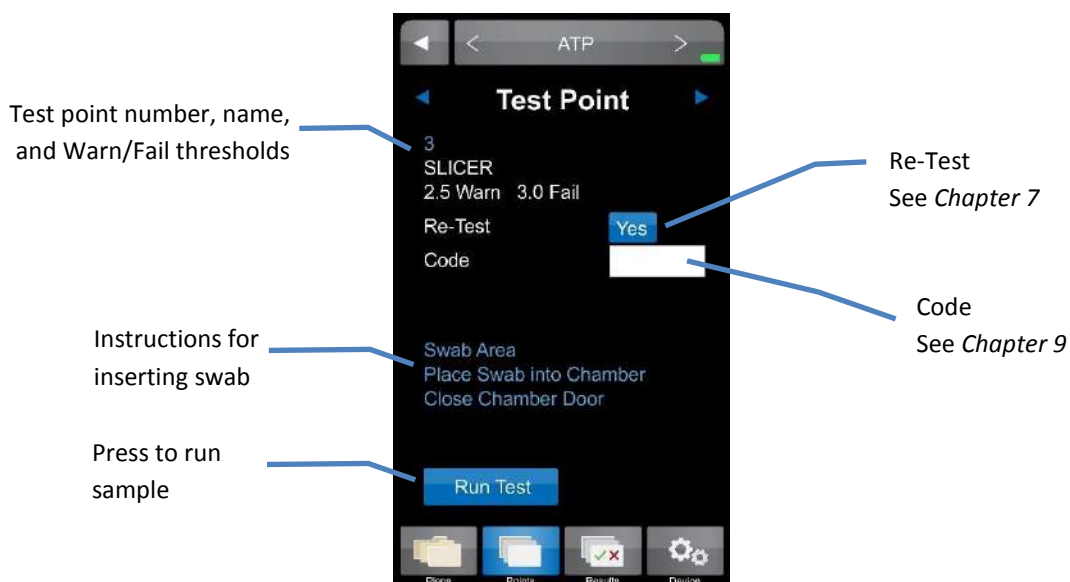
The “Points” tab on the bottom menu of the ICON contains a list of all created test points in numerical order, independent of sample plan assignment.

Selecting a Test Point

- Scroll through a list of test points in numeric order using the scroll bar on the right side of the screen.



Further details for each test point can be found by selecting the desired test point.



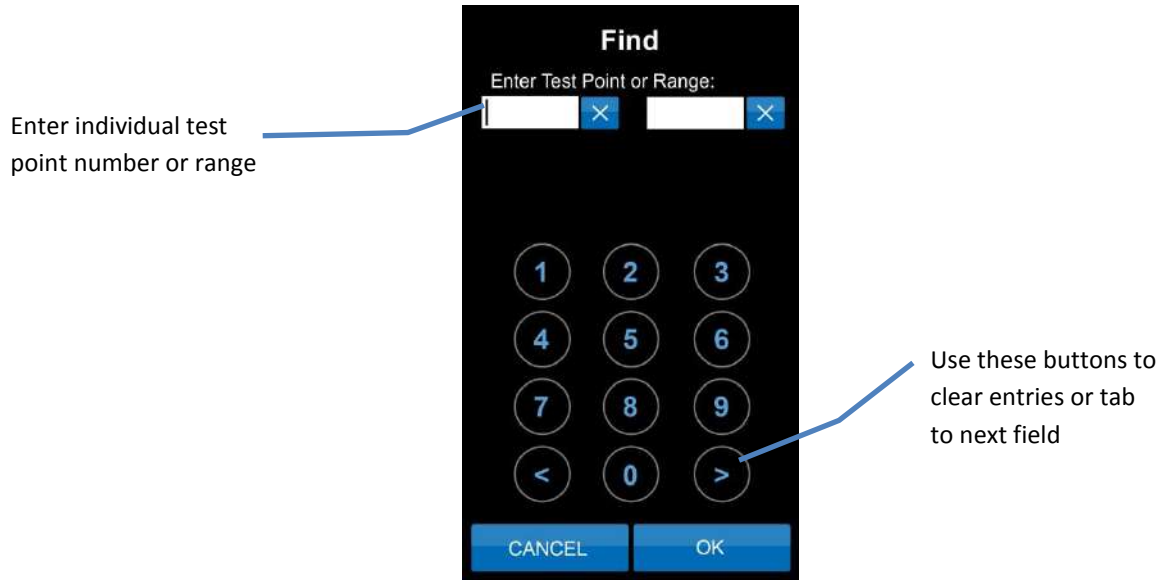
Finding a Test Point

If a test point (or range of test points) is not readily available on the instrument screen, the “Find” feature within “Points” can be used to search for specific test points.

- To search for a range of test points enter the first and last test point number in the range.
- To search for a single test point enter the test point number as the beginning of the range and leave the end of the range blank.

Note: To clear a field entry, press the “X” next to the associated field.

- The < and > buttons on the bottom of the key pad will clear entries or tab to the next field.

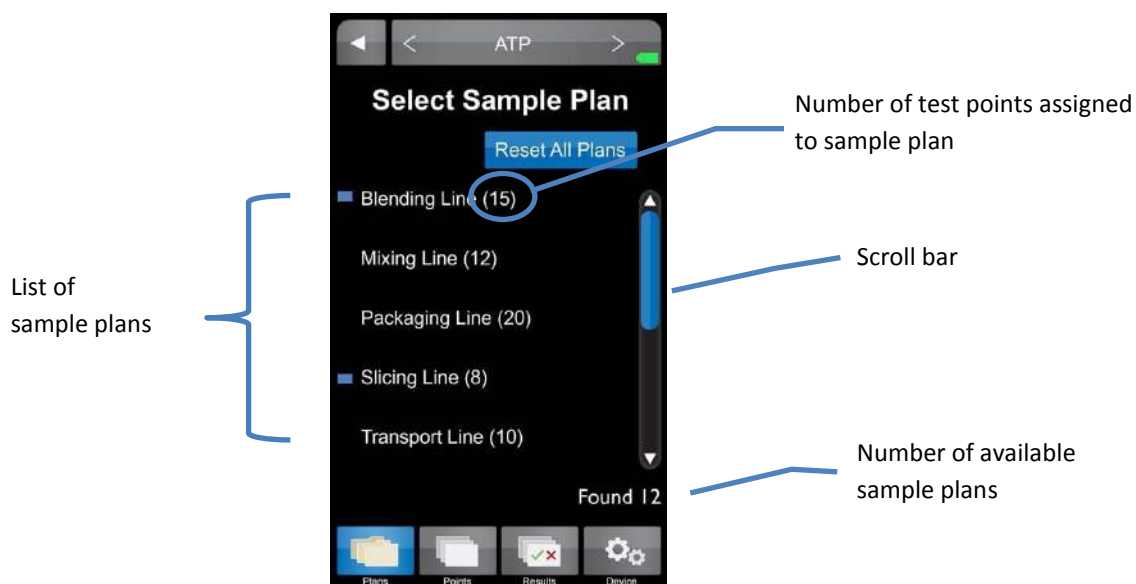


Plans



Plans

To view a list of available sample plans for a desired parameter, select the “Plans” tab on the bottom menu of the ICON instrument. Sample plans are a customized grouping of test points. A sample plan can represent a group of test points in a particular production area, direct versus indirect locations, or even a work shift or day of the week. Sample plans are listed by name and include the number of assigned test points in each plan.



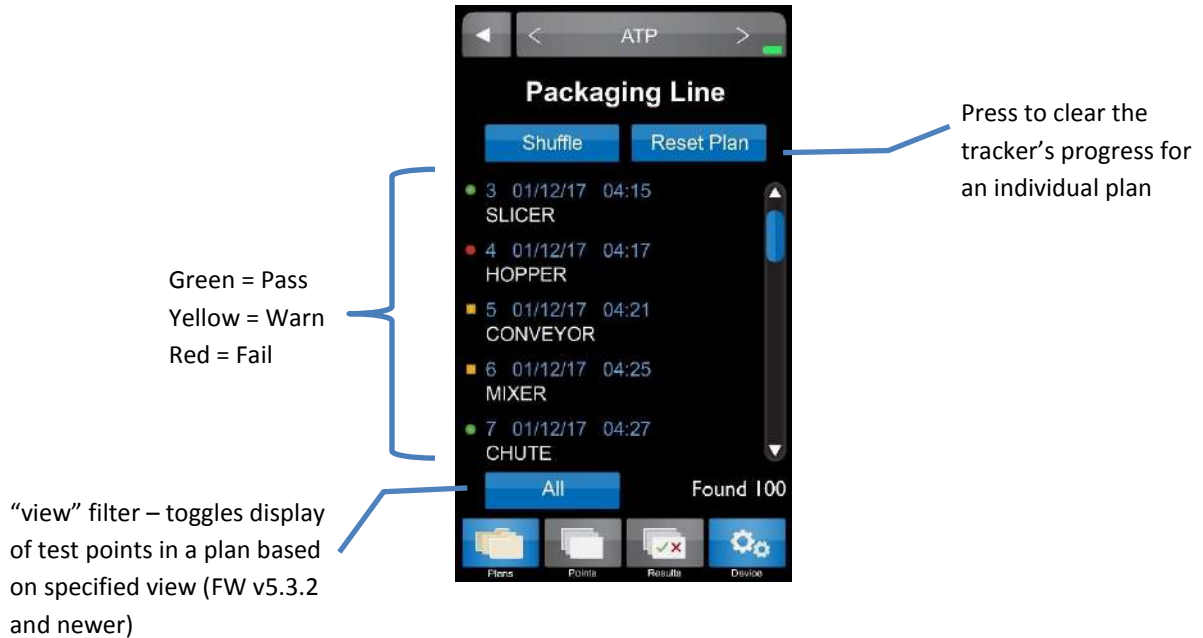
Selecting a Sample Plan

- To select a particular sample plan, lightly press on the desired sample plan name.
- Once selected, a list of test points will be displayed in numeric order. Select desired test point and proceed with taking a reading.

Sample Plan Tracker

The progress of testing within a sample plan is automatically tracked on the MVP ICON display. Each time a test point is sampled within a plan, a correlating colored result appears next to the test point. This visual indicator not only identifies which test point has been tested within the plan, it also serves as identification for which test points require re-cleaning and re-testing (warns and/or failed results). Once a point has been tested within an individual sample plan, a blue rectangle appears next to the sample plan name on the main “Plans” menu.

The progress of multiple sample plans is automatically and simultaneously tracked. To clear the progress of an individual sample plan, simply press “Reset Plan” from within the individual plan’s display. To clear the progress of all tracked plans, press “Reset All Plans” from the main “Plans” menu.



Shuffle

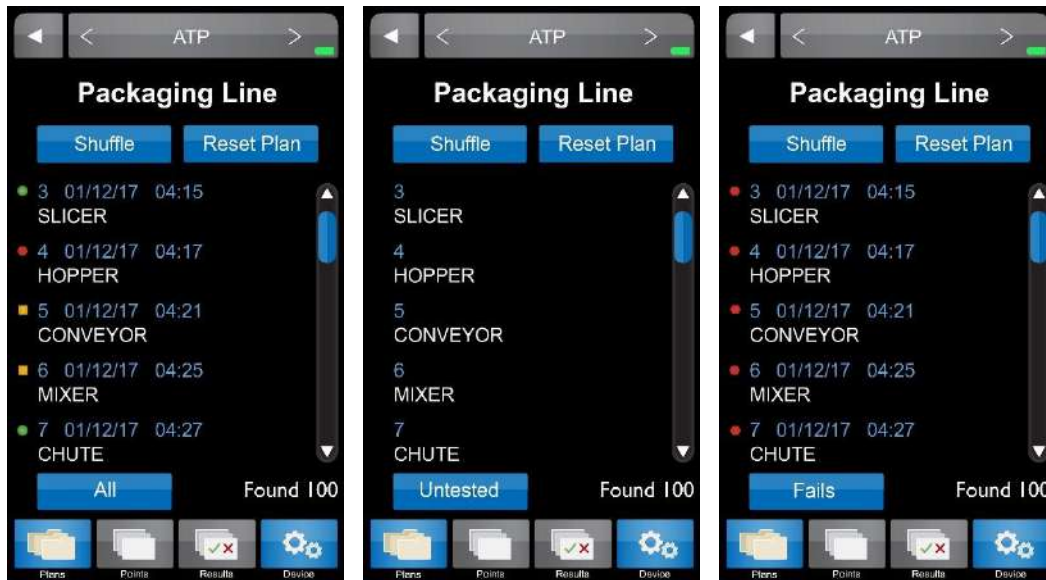
The order of test points within a sample plan can be randomized or “shuffled.” This feature can be used to ensure that all test points have an equal probability of being tested. To shuffle test points:

- Select the desired sample plan (as described above).
- Press the blue “Shuffle” button located above the test point list.
- Select first test point in newly shuffled list and proceed to taking test.
- To reset the test points in the plan back to numeric order, press the “Reset Plan” button located next to “Shuffle”.



View Filter Feature – Firmware Version 5.3.2 or Newer

The View Filter button provides the ability to more clearly find certain test points for testing based on the specified view state displayed in the button. Each press of the button causes the list of test points to change based on the specified view state:



- **All:** Displays all test points in the current plan in chronologic test point order unless the test point list has been shuffled. (This was the only view state in firmware versions 5.2.0 or older).
- **Untested:** Displays all test points in the current plan that have not yet been tested. Test points are automatically removed from this view as a reading is completed.
- **Fails:** Displays all test points in the current plan that have previously failed and require re-testing. When re-testing, test points are automaticall coded as Re-Test = Yes. Test points are automatically removed from this view if the re-test reading is a Pass or a Warn.
- **Warns:** Displays all test points in the current plan that have previously resulted in a Warn. Depending on your SSOP, Warn results may require re-testing. When re-tested, test points are automaticall coded as Re-Test = Yes but can still be changed to “No” before test start or after test completion. Test points are automatically removed from this view if the re-test reading is a Pass or a Fail.
- **Passes:** Displays all test points in the current plan that have previously resulted in a Pass. A subsequent test of a Pass test point will be indicated as Re-Test = No.

Note: The view state in the last sample plan you were in will be the displayed view state in all plans regardless of whether or not you have gone into those plans and changed the view state.

Note: Pressing “Reset Plan” within a sample plan or pressing “Reset All Plans” within the main “Plans” menu will cause all test tracking to be cleared. This will result in test points only showing in the “All” view state until test points have been tested again.

Note: It is good practice to keep the number of test points in each sample plan to under 50 ideally, and under 100 generally. Sample plans with higher numbers of test points may result in screen refresh delays when toggling between view states.

Results



Results

To view a list of stored results for the desired parameter select the “Results” tab on the bottom menu of the ICON instrument. Results are listed in numeric order by test point number and the most recent result for each test point is displayed.

Select Result

Find

- 3 01/12/13 04:15 SLICER
- 4 01/12/13 04:17 HOPPER
- 5 01/12/13 04:21 CONVEYOR
- 6 01/12/13 04:25 MIXER
- 7 01/12/13 04:27 CHUTE

Found 100

Plans Points Results Device

Callouts:

- Test point name
- Visual indicator of result:
 - Pass (Green circle)
 - Warn (Yellow square)
 - Fail (Red circle)
- Test point number, date and time of result
- Use scroll bar to move through list of results
- Total number of results found

Further details for each result can be found by selecting the desired test point.

Test Results

PASS

2.3

3 01/12/13 04:15 SLICER

2.5 Warn 3.5 Fail

Re-Test Yes

Code

Plans Points Results Device

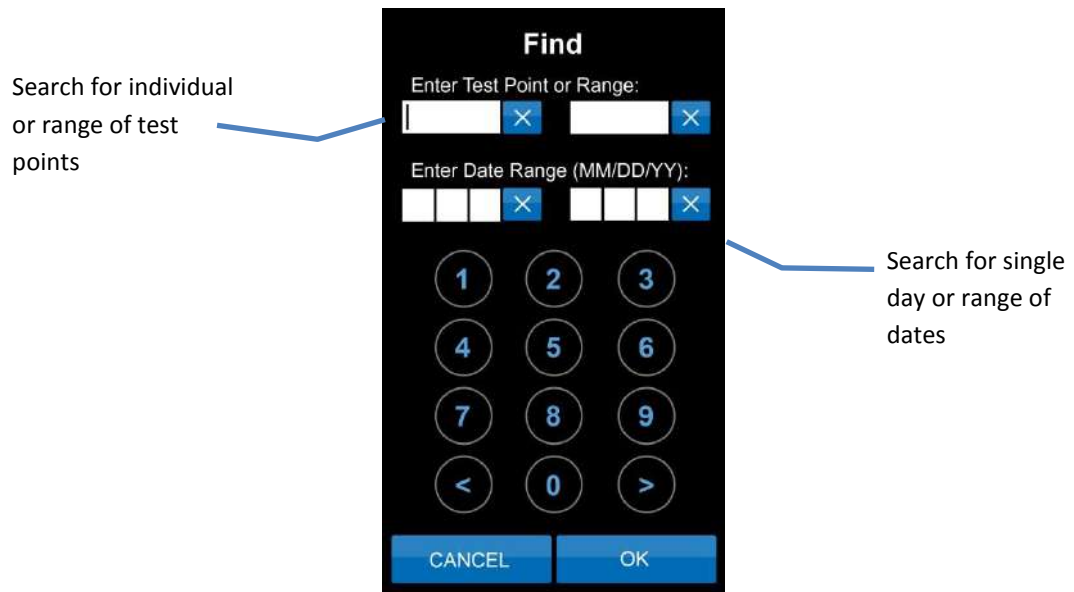
Callouts:

- Go to previous result
- Go to next result
- MVP ICON reading
- Result
- Test point number, date, and time of result
- Test point name
- Test point thresholds
- Indicates reading was a re-test


Finding Results

To search for a specific result or range of results touch the “Find” button at the top of the “Results” screen.

- To search for a range of test points enter the first and last test point number in the range.
- To search for a single test point enter the test point number as the beginning of the range and leave the end of the range blank.
- To search for results from a specific date range enter the beginning and ending dates for the range.
- To search for results from a specific day enter the desired date as the beginning of the range and leave the ending date blank.



Deleting Results

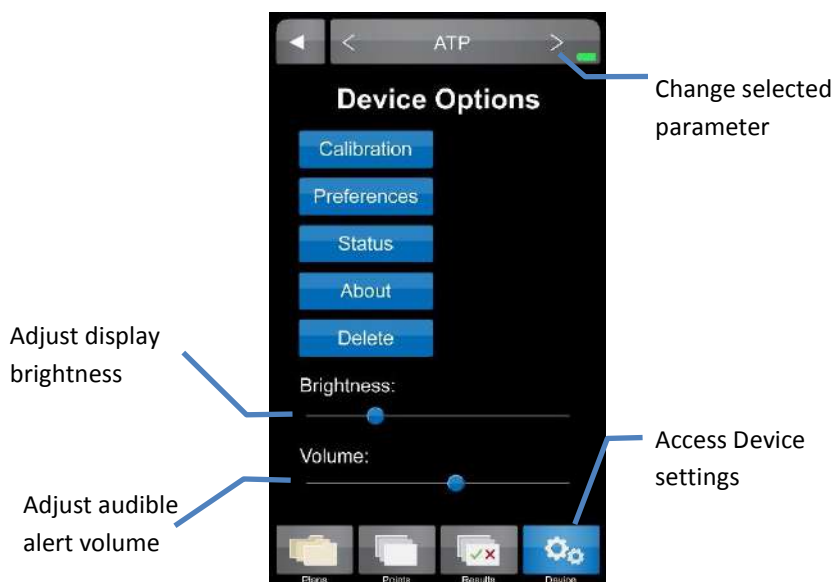
Results can be deleted directly from the MVP ICON instrument using the delete function found in the “Device” tab.  (See Chapter 5 for more details)

Device



Device

Device settings for the ICON can be accessed by selecting the “Device” tab at the bottom of the ICON screen.



Calibration

Allows for calibration of the MVP ICON for the specific parameter selected (ATP, pH, Temperature, Conductivity, or Concentration). ATP parameter also includes procedures for performance verifications using MVP ICON ATP Positive Control and MVP ICON Calibrator Set. See *Chapter 11 – Instrument Calibration and Performance Verifications* for more information.

Preferences

Allows user to customize the language, date, time, temperature and RLU display

- **Time** – Time can be displayed in either a 12-hour (2:00 PM) or 24-hour format (14:00).
- **Date** – Date can be displayed as either Month/Day/Year or Day/Month/Year.
- **Language** – The following languages are available for the MVP ICON: English, French, Spanish, German, and Portuguese.
- **Show RLU** – ATP results are displayed as Zones of Cleanliness; results can also be displayed as Relative Light Units or RLU's.
- **Temperature** – Temperature can be displayed as either °F or °C.

Status

Includes diagnostic information used to troubleshoot the instrument such as:

- Sample Chamber door status (open/closed)
- Charger status (battery/AC)
- Battery voltage

About

Displays instrument specific information:

- Serial number
- Hardware version
- Firmware version

Delete

Allows user to delete result for the selected parameter (optional password protection)

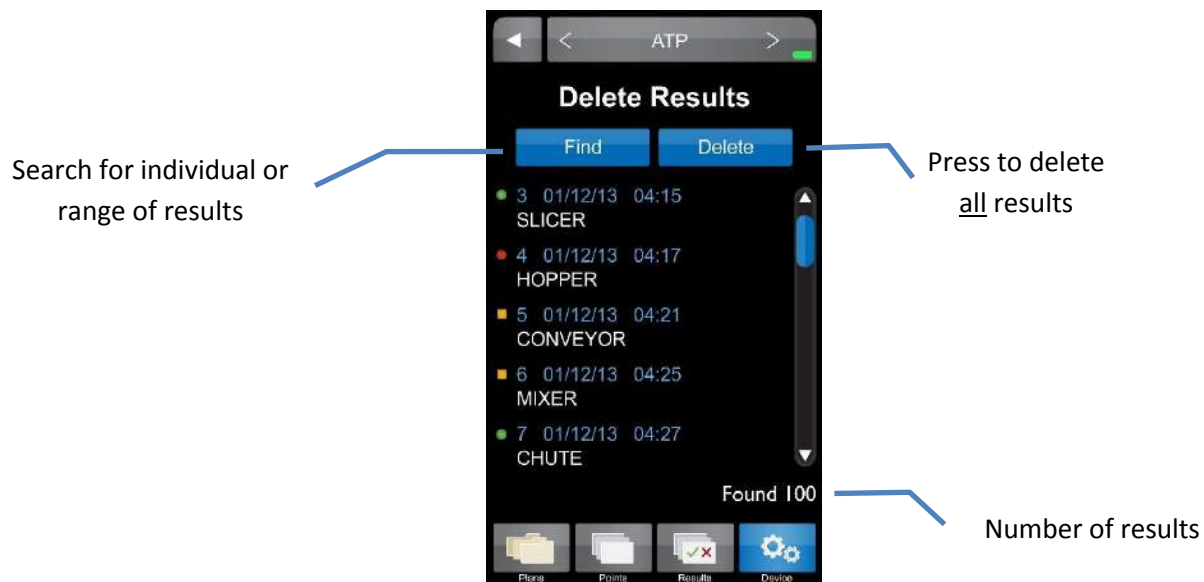
Results can be deleted:

- Individually (one at a time by selecting the result)
- As a group/range of specific test point numbers
- As a group/range from a specific date range
- All at once by pressing “Delete”

To Delete a Result

- From the “Device” menu, select “Delete”. Ensure the device displays the desired parameter.
- Search for result or range of results to delete in same manner as “Results” menu (see *Chapter 4*).
- When individual or range of results has been selected, press “Delete”.
- A warning will appear to ensure user wishes to proceed.
- Select “Yes” to continue or “No” to return to previous screen.
- If “Yes” is selected the optional password screen will appear (if enabled).
- Enter correct password to delete results (if enabled)
- The screen will indicate when results have been deleted.

Note: The ICON screen will freeze until results are deleted. A confirmation screen will indicate the desired results were deleted.



Taking a Reading

ATP

- Select “ATP” mode in the top menu bar from any screen. Use < or > arrows to toggle through modes.
- Select “Points” from the bottom icon menu
- Select desired test point or use the scroll bar to scroll through the list of available test points.
Note: To locate a test point not currently displayed, please reference Chapter 2 – “Finding a Test Point”.
- At the “Test Point” screen, designate if sample is a “Re-Test” (see Chapter 7).
- Enter an optional customized code (see Chapter 9)
- Follow the directions in blue to swab the area and insert the sampling device.
Note: When inserting a sampling device into the MVP ICON, ensure the flat sides of the swab chamber face left to right. Do not force the sampling device into the MVP ICON (see Figure 6.1).
- Press “Run Test”
- Screen will show “Test in Progress” with a countdown to completion.
Note: Please reference the Directions for Use included with the MVP ICON Surface or Liquid Sampling Devices for additional information.

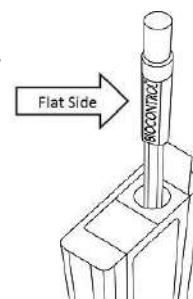
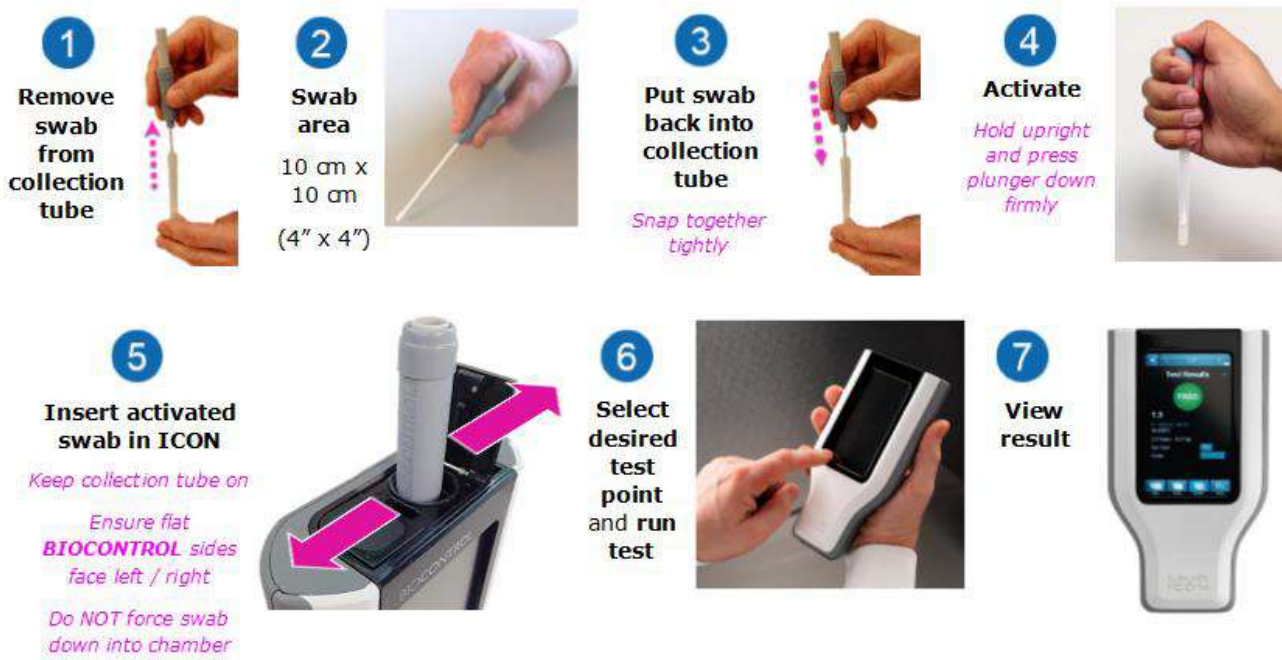


Figure 6.1

Figure 6.2: Taking an ATP Reading



pH

Please reference the Directions for Use included with the ICON pH Probe for preparation of the probe prior to use.

- Ensure the ICON pH Probe is properly connected to the side of the device (probe adapter surface with arrows should face the back of ICON).
- Select “pH” mode in the top menu bar from any screen. Use < or > arrows to toggle through modes.
- Select “Points” from the bottom icon menu.
- Select desired test point or use the scroll bar to scroll through the list of available test points.
- Designate if the sample is a “Re-Test” (see *Chapter 7*).
- Enter an optional customized code (see *Chapter 9*).
- Follow the directions in blue for inserting probe into sample.
- Press “Run Test”.

Note: *Squeeze sides of probe adapter to release and disconnect from ICON.*

Temperature

Please reference the Directions for Use included with the ICON Temperature Probe for proper technique and cleaning of the probe prior to use.

- Ensure the ICON Temperature Probe is properly connected to the side of the device (probe adapter surface with arrows should face the back of ICON).
- Select “Temperature” mode in the top menu bar from any screen. Use < or > arrows to toggle through modes.
- Select “Points” from the bottom icon menu.
- Select desired test point or use the scroll bar to scroll through the list of available test points.
- Designate if the sample is a “Re-Test” (see *Chapter 7*).
- Enter an optional customized code (see *Chapter 9*).
- Follow the directions in blue for inserting probe into sample
- Press “Run Test”.

Note: *Squeeze sides of probe adapter to release and disconnect from ICON.*

Conductivity

Please reference the Directions for Use included with the ICON Conductivity Probe for preparation of the probe prior to use.

- Ensure the ICON Conductivity Probe is properly connected to the side of the device (probe adapter surface with arrows should face the back of ICON).
- Select “Conductivity” mode in the top menu bar from any screen. Use < or > arrows to toggle through modes.
- Select “Points” from the bottom icon menu.
- Select desired test point or use the scroll bar to scroll through the list of available test points.
- Designate if the sample is a “Re-Test” (see *Chapter 7*).
- Enter an optional customized code (see *Chapter 9*).
- Follow the directions in blue for inserting probe into sample.
- Press “Run Test”.

Note: *Squeeze sides of probe adapter to release and disconnect from ICON.*

Concentration

Please reference the Directions for Use included with the ICON Conductivity Probe for preparation of the probe prior to use.

Before Taking a Concentration (ppm) Reading

Prior to taking a Concentration reading (ppm), it is important to ensure the chemical standard assigned to each test point has been properly calibrated. Please see *Chapter 11 – Calibration* for instructions on calibrating the chemical standard.

Note: *A Concentration test point cannot be tested unless the chemical standard has been calibrated and saved prior to taking the reading.*

Taking a Concentration Reading

- Ensure the ICON Conductivity probe is properly connected to the side of the device (probe adapter surface with arrows should face the back of ICON).
- Select “Concentration” mode in the top menu bar from any screen. Use < or > arrows to toggle through modes.
- Select “Points” from the bottom menu.
- Select desired test point or use the scroll bar to scroll through the list of available test points.
- Designate if the sample is a “Re-Test” (see *Chapter 7*).
- Enter an optional customized code (see *Chapter 9*).
- Follow the directions in blue for inserting probe into sample.
- Press “Run Test”.

Note: *Squeeze sides of probe adapter to release and disconnect from ICON.*

Note: *The “Test Source Water” button, located next to “Run Test,” allows for source water to be tested with each sample, should it vary from the source water used to prepare the calibrated chemical standard. If the source water is similar to the chemical standard, it is not necessary to test the source water with each sample.*

Re-Test Function

Re-Tests

A test result for any of the MVP ICON parameters can be coded as a “re-test.” When testing for ATP, areas that show high ATP readings should be re-cleaned and re-tested to verify adequate cleaning. A test point can be coded as a re-test either at the time the sample was taken or at the results screen.

How to Re-Test a Sample

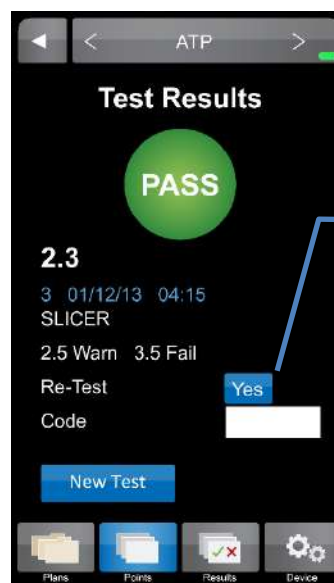
- Select the desired test point through the “Points” or “Plans” menu options. Please refer to *Chapter 6* for taking an initial reading.
- To designate the test point is a re-test before the sample is measured, press the blue button next to “Re-Test” until “Yes” appears.
- To indicate a re-test after the sample was taken, press the button next to “Re-Test” at the “Test Results” screen.

Prior to Reading Sample



Press to mark re-test as “Yes” or “No”

After Sample is Measured



Press to mark re-test as “Yes” or “No”

Note: in FW v5.3.2 and newer, Re-Test defaults to “Yes” when re-testing a Fail or Warn result


Quick Test Function

Quick Tests

The Quick Test function on the ICON allows a measurement to be taken without saving the result to an established test point. This can be useful for training or other instances where saving test results is not needed, or where the test point has not yet been created in the test plan. However, users have the option of saving the result and then converting it to an assigned test point once the data is uploaded to the ICON Dashboard software.

See *Chapter 25 – ICON Instrument Setup* for instructions on how to enable password protection to restrict use of the Quick Test feature, and how to convert a Quick Test reading into an assigned test point.

Take a Quick Test

- Select “Points” from the lower ICON menu.
Note: *Quick Test can only be taken from the “Points” menu and is applicable for all parameters.*
- At the “Select Test Point” screen, press the “Quick Test” button at top in blue. 
- Enter Quick Test password, if applicable.
Note: *If a Quick Test password was not enforced via the ICON Software, user will be guided directly to “Test Point” screen.*
- At the “Test Point” screen, the Quick Test can be coded as a “Re-Test” with optional customized code (see *Chapters 7 and 9*, respectively).
Note: *Quick Test can also be labeled as a re-test after the sample has been measured.*
- Follow screen directions to swab area and insert swab in chamber.
- Press “Run Test”.
- Press “Save” to save Quick Test results onto the unit or “Discard” to return to the prior screen.

Locate a Quick Test Result on the ICON

The newly saved Quick Test result can now be located under “Results” from the lower ICON menu in three different ways:

- Scroll to the bottom of the results menu.
- Select “Find” and enter test point or test point range.
- Select “Find” and enter date or date range.

Code Field



Code Field

The “Code” field on the ICON is a place to enter additional identifying information about an assigned test point into the instrument at the time of testing. For example, a numeric code could be entered prior to taking a sample to identify a particular sanitation worker, product, or location within the facility not previously identified during test point setup in the software. The code field on the ICON is a numeric value only. Any meaning correlating to this code should be documented separately for reference.

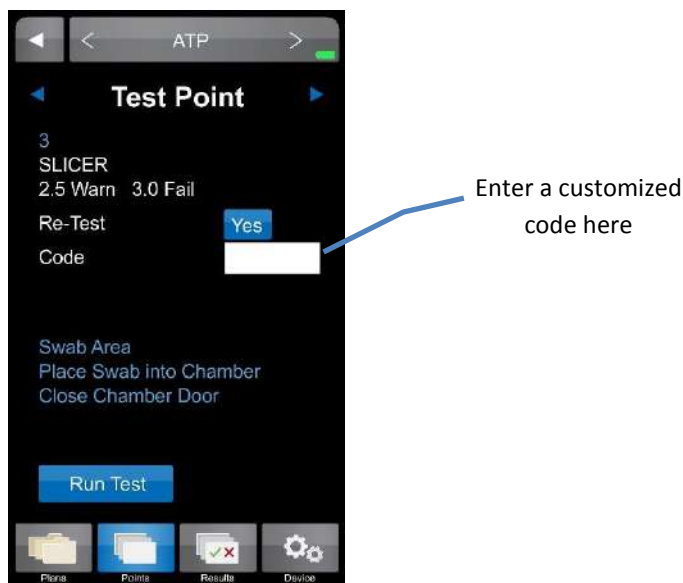
Entering a Code

Codes are entered after a test point has been selected, either through “Points” or “Plans” and must be entered prior to measuring the sample.

- Select desired test point via “Points” or “Plans”.
- At the “Test Point” screen, locate the “Code” field and lightly press the white box .
- Enter the desired code, up to 4 digits.

Note: *This field is not password protected. Any 1 – 4 digit code can be entered on this screen.*

- The code will now be populated in the “Code” field and will be associated with that particular result.



Viewing a Coded Result

- Any test point with an assigned code can be viewed in the “Results” section of the ICON menu.
- Coded results are also available in “Raw Data” within the ICON Software, once uploaded (see *Chapter 22 – Raw Data* for more information).

Custom Fields

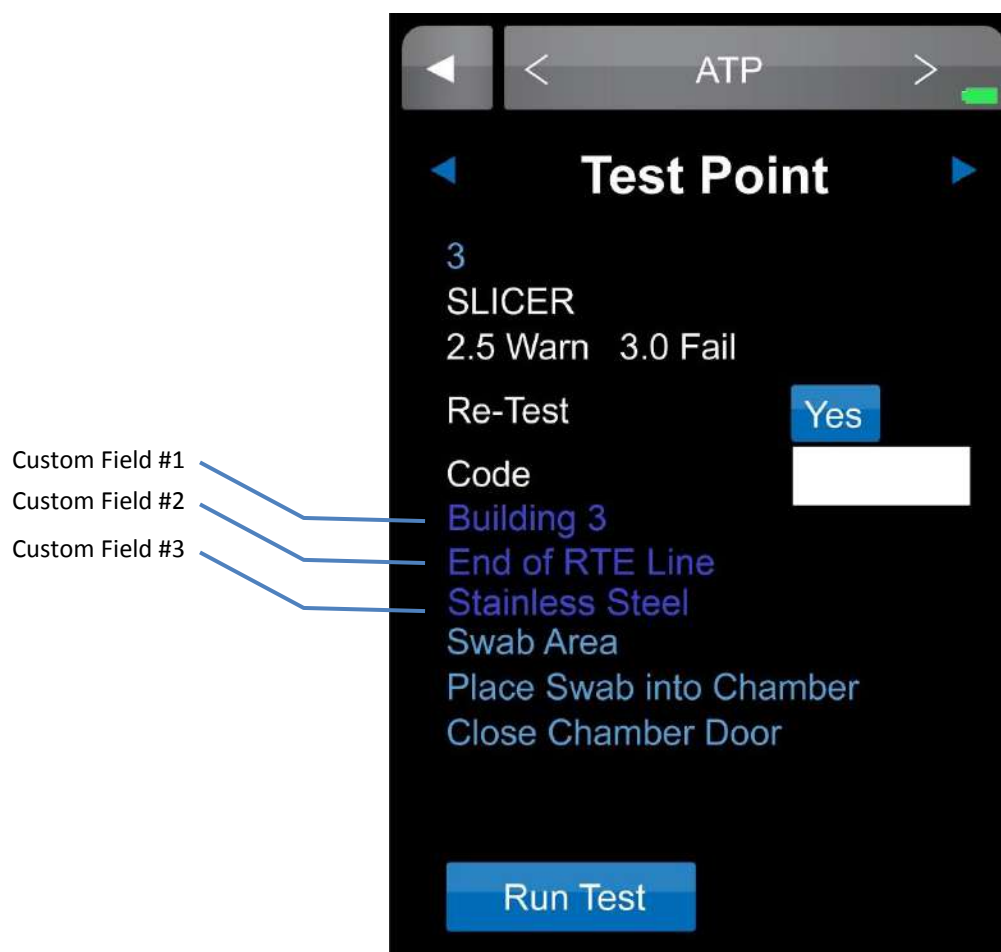
Custom Fields

“Custom Fields” present another opportunity to enter customized information about test points and are established within the ICON Dashboard Software. The (3) custom fields can be populated with information such as a test point’s associated product, location within the facility (ex. Room 3), and the type of surface being sampled (ex. Stainless Steel).

Please see *Chapter 15 – Creating Test Points* for more information on setting up “Custom Fields” within the ICON Dashboard Software.

Viewing Custom Fields on the ICON

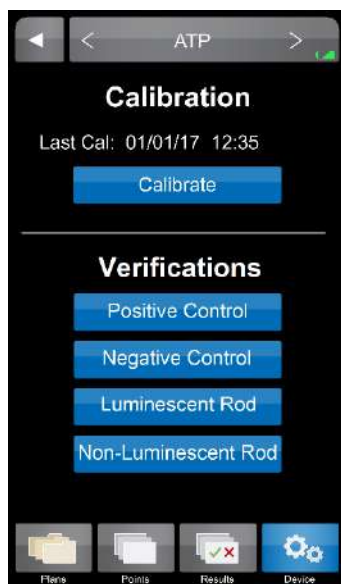
- Select desired test point via “Points” or “Plans”.
- All custom field entries for the assigned test point will be displayed directly below the “Code” field prior to measuring the sample.
- Custom field designations are also available in “Raw Data” within the ICON Dashboard Software, once uploaded.



Instrument Calibration and Performance Verifications

Instrument Calibration

The MVP ICON's parameters can be manually calibrated on-site to ensure the instrument is working at its optimal performance. In addition, the ATP "Calibration" menu also provides four performance verification tests which record and store the Positive and Negative Control readings for ATP sampling devices and Luminescent and Non-Luminescent Rod control readings for the ATP calibrator rods.



ATP

The MVP ICON is calibrated at the factory; however, users should also calibrate the ICON prior to first use. It is also recommended to run positive control verifications every other day and calibrate when necessary. The calibration rods last for five years. The ICON is calibrated for ATP using a standardized two-point calibration procedure. This function requires the MVP ICON Calibrator Set which includes the necessary luminescent and non-luminescent calibrators to perform the operation.

To insert the calibration rod into the MVP ICON, hold the calibrator by the wider end with two flat sides and insert the opposite end into the ICON. Ensure the flat sides of the calibrator's base chamber are facing left to right.

Calibration

- Ensure the device is in ATP mode.
- Select "Device" from the ICON's lower menu.
- From the "Device Options" screen select "Calibration"; press "Calibrate".
- Enter the Reference Value (found on the luminescent calibrator's label).
- "Insert Luminescent Calibrator" and close the chamber door; press "Calibrate".
- Remove luminescent calibrator, insert non-luminescent calibrator, close door and press "Calibrate".

An error message will be displayed if results are not within the ICON's specification. Typical causes for failed calibration include: readings too high or low for the luminescent or non-luminescent calibrators, light leaks within the chamber, or a build-up of static. Refer to the

calibrator's Directions for Use for additional information. For assistance, contact BioControl Technical Support at 800.245.0113.

If successful, the date of calibration will appear on the ICON's home screen and the record will upload into the software database upon the next synchronization between the instrument and software.

System or Swab Performance Verification

Verification is designed to ensure the instrument and swabs are working correctly. The MVP ICON ATP Positive Control provides a sample which produces a positive ATP result when assayed with the MVP ICON system. It is recommended to run ATP Positive Controls every other day and incorporate results into an overall Quality Control program.

Positive Control Procedure

Requires ATP Positive Controls

- Ensure instrument is in ATP mode.
- Select "Device" from the ICON's lower menu.
- From "Device" screen select "Calibration".
- Press the "Positive Control" button under the "Verification" menu in ATP Calibration mode.
- Open the ATP Positive Control vial.
- Insert a LIGHTNING MVP ICON Surface Sampling Device and completely dissolve the positive control pellet onto the tip of the swab.
Note: Take care to ensure the swab tip does not touch any surface other than the inside of the vial.
- Activate the swab, insert into the chamber with swab chamber facing left to right, and close the chamber door.
- Press "Verify" to run the verification.

The result for a positive control should read between 3.1 – 4.3 Zones.

- Results greater than 4.3 indicate a potential contamination of either the swab or positive control. Re-test in duplicate and average the two results.
- Between 2.6 – 3.0 Zones, more thorough swabbing of the vial may be required.
- Below 2.6 Zones, ensure the device was properly activated. If device was activated properly, it may indicate a problem with the instrument, device, or positive controls. Repeat the test with a new vial of positive control and new sampling device.
- If verification fails again, calibrate the instrument and repeat verification with a new vial of positive control and sampling device.
- If still out of range, contact BioControl Technical Support at 800.245.0113.

Negative Control Procedure

A negative control is an unused but activated swab.

- Press the "Negative Control" button under the Verification menu in ATP Calibration.
- Activate the swab, insert into the chamber with the swab chamber facing left to right, and close the chamber door.
- Press "Verify" to run the verification.

The result for a negative swab should read between 1.0 – 2.5 Zones.

MVP ICON Instrument Verification

To verify if the instrument is reading correctly, the luminescent and non-luminescent calibrators are used.

The luminescent calibrator consists of a ^{14}C radioactive source which emits a very low level (5×10^5 d.p.m. or 0.225 microcuries) of low-energy β radiation in a plastic scintillating matrix. This matrix is configured to provide a constant light output at a sufficiently high level in order to perform consistent verification and calibration over the shelf-life of the calibrator.

The non-luminescent calibrator provides a reliable low-end or “dark” source reading.

Luminescent Calibrator Procedure

- Under the “Verification” menu in ATP Calibration, select “Luminescent Calibrator”.
- Insert the luminescent calibrator and close the chamber door.
- Press “Verify”.

In a properly calibrated MVP ICON, the calibrator should read within 0.1 Zones of the zone value displayed on the calibrator’s label.

Non-Luminescent Calibrator Procedure

- Under the “Verification” menu in ATP Calibration, select “Non-Luminescent Calibrator”.
- Insert the non-luminescent calibrator and close the chamber door.
- Press “Verify”.

The non-luminescent calibrator should read 1.0 – 1.5 Zones. Readings outside this range can indicate problems with the instrument. If the verification fails, calibrate the ICON. If the calibration fails, contact BioControl technical Support.

pH

The pH calibration process uses three standard buffers (pH 4.00, 7.00, and 10.00). This three-point calibration allows for the probe to be used across the entire pH range. For optimal accuracy, the ICON pH probe should be calibrated before first use, at the beginning of each day and when changing test materials.

Calibration Procedure

Prior to performing calibration, rinse the pH probe with deionized or distilled water. Soak in pH 7.00 buffer for at least 10 minutes prior to calibration and ensure the standard is mixed well.

- Connect the pH probe to the instrument, ensuring arrows on the adaptor face the back of the instrument.
- Verify the ICON is in pH mode.
- Select “Device” from the ICON’s lower menu.
- Insert the probe into the 7.00 standard solution and press “Calibrate”.
- When prompted, insert the probe into the 10.00 standard solution and press “Calibrate”.
- When prompted, insert the probe into the 4.00 standard solution and press “Calibrate”.

Note: *If the probe will not calibrate, it usually indicates a failing probe or contaminated buffers. Be sure to keep buffers sealed when not in use. Do not use expired buffers.*

Temperature

The ICON Temperature probe is calibrated using a single-point calibration process. Any known temperature within operating range may be selected for calibration. Calibration is most accurate when a temperature point close to the sample temperature is selected.

Calibration Procedure

- Connect the Temperature probe to the instrument, ensuring arrows on the adaptor face the back of the instrument.
- Verify the ICON is in Temperature mode.
- Select “Device” from the ICON’s lower menu.
- Select “Calibration”.
- Enter the Reference Value (instrument will indicate either °F or °C based on settings).
- Insert probe into the reference sample of a known temperature entered above.
- Press “Calibrate”.

Conductivity

The ICON Conductivity probe reads in microSiemens (μS) for conductivity and requires the use of a conductivity standard close to the target reading. The average conductivity standard in North America is 500 μS . Rinse the Conductivity probe with deionized (DI) or distilled water and soak the probe in the conductivity standard for at least (2) minutes prior to calibration.

Calibration Procedure

- Connect the Conductivity probe to the instrument, ensuring arrows on the adaptor face the back of the instrument.
- Verify the ICON is in Conductivity mode.
- Select “Device” from the ICON’s lower menu.
- Enter the Reference Value in microSiemens (μS).
- Insert the probe into the sample.
- Press “Calibrate”.

If the ICON is unable to calibrate the Conductivity probe, it is usually due to contamination or otherwise incorrect standards or buffers. Ensure the standard is well-mixed and try the calibration again. If unable to calibrate, contact BioControl Technical Support at 800.245.0113.

Concentration

To calibrate the Conductivity probe for measuring the concentration of specific cleaning/sanitizing chemicals the probe must first be calibrated for conductivity as directed in *Chapter 11 – Instrument Calibration*.

Next, a chemical standard must be prepared for each specific cleaning/sanitizing chemical to be tested. The chemical standard is prepared by carefully mixing the chemical with the available source water at the precise concentration for its intended use, per the manufacturer's directions (i.e. 200 ppm).

A corresponding chemical standard must also be created in the MVP ICON Dashboard software and transferred to the ICON before the calibration procedure can be performed (See *Chapter 15 – Creating Test Points*).

Calibration Procedure

- Connect the Conductivity probe to the instrument, ensuring arrows face the back of the instrument.
- Verify the ICON is in Concentration mode.
- Select "Device" from the ICON's lower menu.
- Select the desired standard.
- Insert the probe into the source water and press "Calibrate".
- Insert the probe into the chemical standard and press "Calibrate".

Note: *The probe should be rinsed with deionized water between reading the source water and chemical standard.*

If the calibration is unsuccessful, remix the sanitizer or cleaner and try to calibrate again. If unable to calibrate, please contact BioControl Technical Support at 800.245.0113.

The calibration procedure should be repeated whenever

- A new lot of sanitizer is to be used.
- A new vendor of sanitizer is used.
- The same sanitizer is used at a different ppm concentration.

MVP ICON Dashboard Software at a Glance

Introduction

The ICON Dashboard Software's innovative dashboard home screen provides a quick overview of key metrics and allows for immediate, corrective action. Detailed analysis reports provide comprehensive data to identify hot-spots within the facility, track and trend data, and generate audit-ready HACCP reports.

System Requirements - For ICON Dashboard Software v1.7.04

COMPONENT	MINIMUM REQUIREMENTS
PC OPERATING SYSTEM:	Windows 7 / Windows 10
MEMORY:	Min 512MB RAM (1GB or more recommended)
STORAGE:	16GB HD or more
SCREEN RESOLUTION:	1280 x 800 (WXGA) or higher
ADDITIONAL SW TO INSTALL:	Adobe Acrobat Reader (for printing PDF reports) Microsoft Excel 2010 or newer (for exporting data)
PHYSICAL PORTS:	USB connection (for ICON instrument synchronization)
PERIPHERALS:	Mouse, Touchpad, or Touchscreen (for user interface) Keyboard (for misc. data input)

Installing the ICON Dashboard SW

Installing the MVP ICON Dashboard Software

The most current version of ICON Dashboard Software is available for download from the BioControl website Portal at www.biocontrolsys.com.

To download the installation file package (.zip):

- Select the appropriate login link from the website home page
- Enter your login credentials and select “Login”.
- In the Search box, type in “Dashboard” and select “Search”.
- Select the displayed search result link to begin the download process.

Contact BioControl Technical Support for more information on downloading software or for assistance with your login credentials.

Note: *Ensure the computer is assigned administrative rights prior to installation.*

To install the ICON Dashboard Software:

- Extract the installation file package (.zip) to a local or network drive location.
- Select the “Setup.exe” file to initiate the installation.
- Follow the Install Wizard prompts to progress the installation.
- When prompted for driver installation, connect the ICON to PC before proceeding.
- Select “Finish” to complete installation.
- On the PC’s Desktop, verify the ICON Dashboard desktop shortcut icon (Fig. 13.1) has been added.
- Launch program from the desktop icon.
- Turn on ICON instrument and connect it to ICON Dashboard Software using supplied USB cable.
- Verify ICON instrument is auto-detected by:
 - Confirming ICON Dashboard Software shows “Sync” button in blue.
 - ICON instrument screen shows “Connected” screen status.



Figure 13.1: *ICON Dashboard Desktop Shortcut Icon*

Note: *When installing virtually on multiple user PCs, be sure to copy and paste the installation folder onto each desktop and perform installation from here by double-clicking the “setup.exe” file.*

For additional assistance, please contact BioControl Technical Support at 800.2456.0113.

ICON Dashboard Software

What is the ICON Dashboard?



The MVP ICON Dashboard software's home screen displays a dashboard which provides an overview of key program control metrics at-a-glance. This unique feature provides quality assurance managers with an overall picture of the behavior and health of their HACCP and hygiene program by highlighting where potential problems reside within the facility, or with the execution of the program, to guide corrective action for immediate resolution.


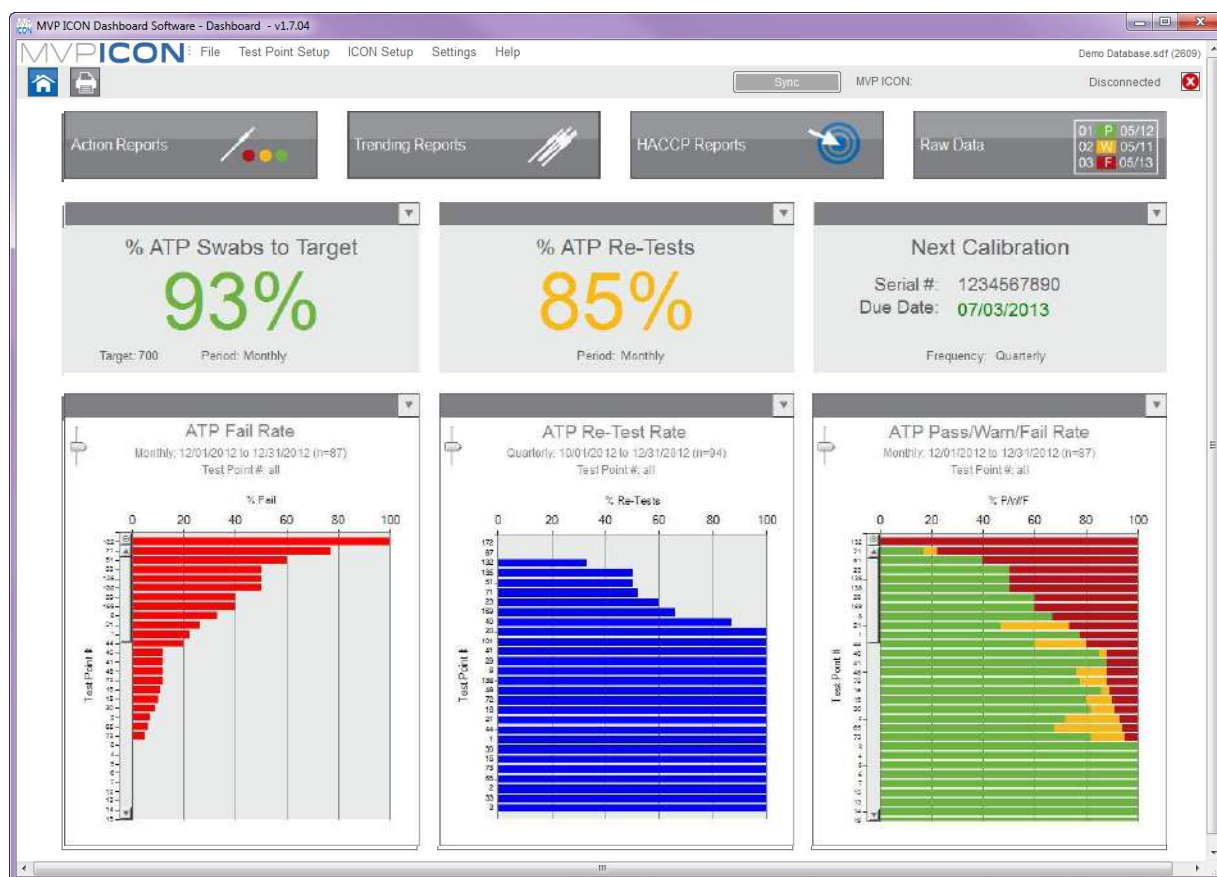
The dashboard can be accessed from any screen in the program by clicking  at the top left corner of the screen (Fig. 14.1).

Figure 14.1: ICON Dashboard Home Screen



ATP Swabs to Target Widget



Allows users to set a target for the number of ATP swabs used and measure active usage against this target. This data provides a quick assessment if the correct amount of swabs are being used, indicating sufficient testing is taking place, or if testing needs to increase to ensure the plan is on track.

The reading is based on the total amount of ATP test results uploaded to the ICON software compared to the defined target quality goal for a given period.

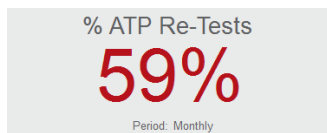
- For example, if the target number of swabs is 200 per month and the ICON software contains 50 test results for that time period, the ATP Swabs to Target percentage is 25%.
- Quick-test results are not included in the total ATP test results unless they are subsequently saved and converted.

Setting ATP Swab Target

- Select the dropdown arrow at the top corner of the “% ATP Swabs to Target” widget.
- Select target frequency (Weekly, Monthly, Quarterly, Annually).
- Enter the target number of swabs based on the time period (ex. 300 per month, 75 per week, etc.).
- Select “OK”.

When the target and frequency are indicated, the percentage of swabs used will automatically update based on the total amount of results uploaded to the software.

ATP Re-Tests Widget



Defines how many test points have been coded as a re-test over a period of time. Re-tests are commonly performed if a test point has produced a warn and/or fail result, therefore, the higher the percentage of re-tests, the more often a test point has been re-cleaned and re-tested. Results can be viewed Weekly, Monthly, Quarterly, or Annually.

Setting ATP Re-Test Target

- Select the dropdown arrow at the top corner of the “% ATP Re-Test” widget.
- Select the desired frequency (Weekly, Monthly, Quarterly, Annually).
- Check “Warnings Included” if your program requires all “warn” results to be re-cleaned and re-tested.
- Select “OK”.

Note: It is critical before testing with the MVP ICON to determine if only failed results will be re-tested or if results with both a fail and warn reading will be re-tested, per your standard operating procedures. This impacts how the re-test data is displayed in the graph.

Next Calibration Widget



The “Next Calibration” feature alerts the user to the next required date of calibration for the ICON instrument, based on their HACCP and hygiene monitoring program. Each time an instrument is connected to the software, the “Next Calibration” feature will identify the unit by its serial number and will reflect the next required date of calibration. If multiple units are synced to a database, the software will reflect the unit that is due next for calibration.

This application helps comply with HACCP programs to ensure all instruments are calibrated on a timely basis and is a useful tool for audits.

The due date is color-coded to reflect calibration urgency.

- Green indicates the instrument is within 80 percent of its next calibration due date.
- Yellow warns the user they are within 90 percent of their due date.
- Red indicates the unit is beyond its calibration due date.

Setting the Calibration Frequency Target

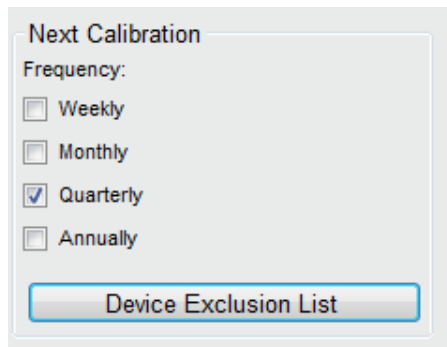
- Select the dropdown arrow at the top corner of the “Next Calibration” widget.
- Select the desired calibration frequency (Weekly, Monthly, Quarterly, Annually).
- Select “OK”.

Device Exclusion List

To exclude an inactive ICON from appearing in the Next Calibration widget:

- Select the dropdown arrow at the top corner of the “Next Calibration” widget.
- Press the “Device Exclusion List” button.
- Check the box next to the serial number of the desired ICON. The excluded serial number no longer factors into the Next Calibration rotation.

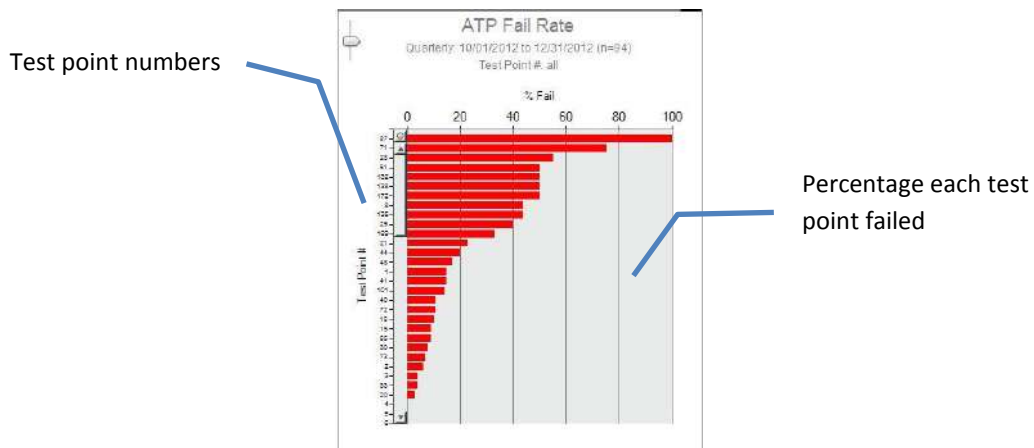
Note: To allow the ICON to be placed back into rotation, simply uncheck the box next to the desired serial number.



ATP Fail Rate Graph

The first of the three graphs at the bottom of the dashboard is “ATP Fail Rate.” This graph guides the quality team to problematic areas in the facility requiring prompt attention for immediate resolution.

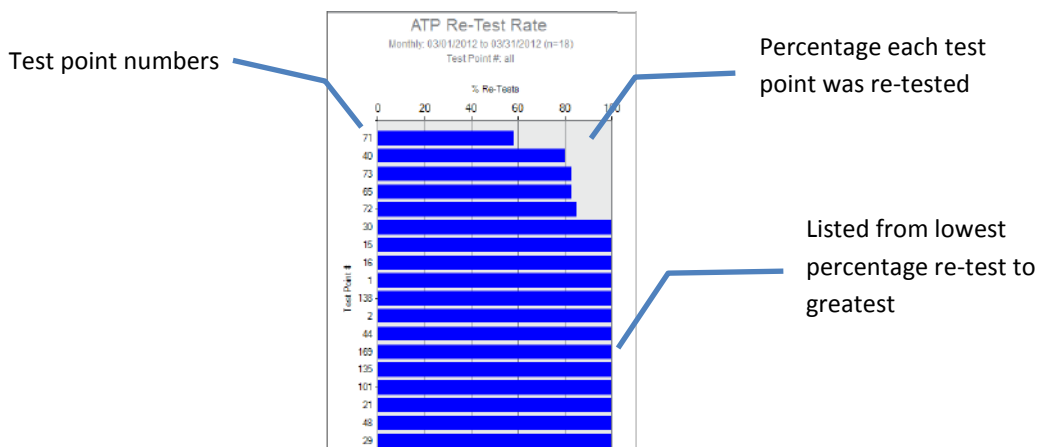
Results are ordered from test points with the highest percentage of failed ATP results to lowest.



ATP Re-Test Rate Graph

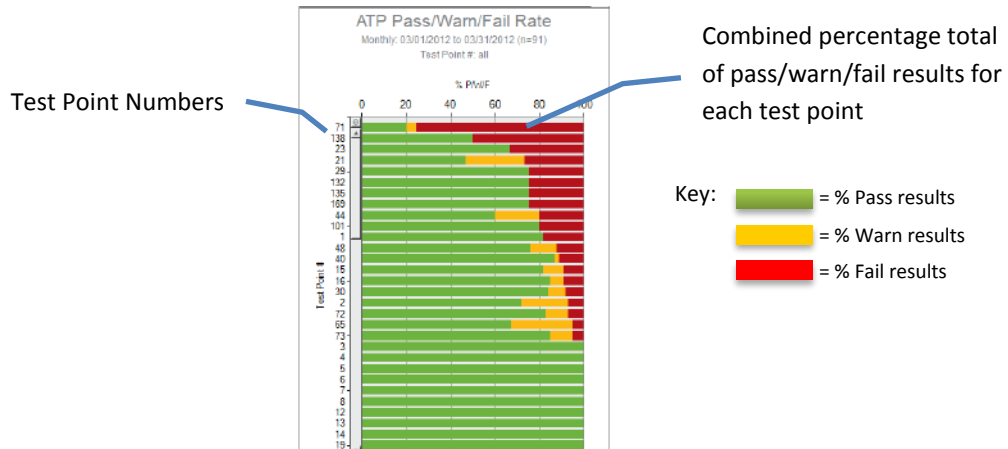
The middle graph on the dashboard displays the “ATP Re-Test Rate” by test point. This graph illustrates the percentage of times a test point was re-cleaned and re-tested over a designated period to highlight potential problem areas needing more thorough cleaning. In addition, QA Managers can verify if the sanitation protocol for re-cleaning failed test points is adequately followed.

Note: It is critical before testing with the MVP ICON to determine if only failed results will be re-tested or if results with both a fail and warn reading will be re-tested, per your standard operating procedures. This impacts how the re-test data is displayed in the graph.



ATP Pass/Warn/Fail Rate Graph

This stacked column graph presents the percentage of pass, warn, and fail results for all selected test points over a period of time. This graph directs the sanitation crew to areas in the facility requiring special attention identifying those test points that have higher warn and fail rates.



Customizing Dashboard Graphs

- Select the dropdown arrow at the top corner of the appropriate graph.
- Select by test point (individual, range, or all) or by all test points assigned to a particular sample plan.
- Select time period by Daily, Weekly, Monthly, Quarterly or Annually by max date range.
- Select "OK" to run the report.

Creating Test Points


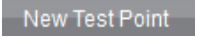
About Creating Test Points

The MVP ICON Dashboard software allows for a wide range of test point setup and customization options to ensure each unique area in the facility is identified by all necessary and applicable information.

The ICON software also provides the ability to create sample plans to which a test point (or multiple test points) can be assigned. Sample plans are a helpful way to organize a subset of test points within a facility for better identification and to guide the sanitation crew during testing.

The MVP Collection feature allows for test points from multiple parameters (ATP, pH, Conductivity, etc.) to be grouped together in order to analyze and view data as an interrelated set to establish trends not previously identified.

ATP Test Points

- From the software’s top menu, select “Test Point Setup”.
- From the table menu, ensure the ATP Test Point tab is highlighted in blue. 
- From the left-hand column menu, select “New Test Point”. 
Test points will be created in numerical order.
- Click on the “Name” column cell for the applicable test point to assign a name.

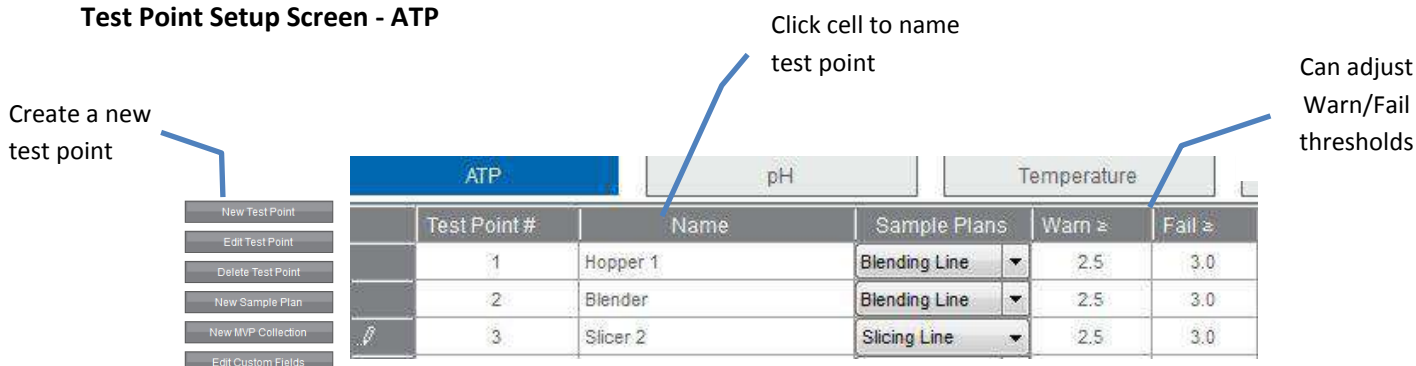
Note: Test point assignments are alphanumeric and can be up to (25) characters long, however, the ICON instrument will only display up to (15) characters of the name.

Note: The Warn/Fail threshold limits will automatically populate 2.5 for Warn and 3.0 for Fail, based on the Zones of Cleanliness. Thresholds can be customized to any zone value between 1.3 and 5.0.

To change the threshold, simply click on the desired cell and change to the applicable correlating threshold.

- If the reading is less than the Warn limit, the test point result will be reported as a pass.
- If the limit is greater than or equal to the Warn limit but less than the Fail threshold, the result is a warn.
- If the reading is greater than or equal to the Fail limit, the test point result will be reported as a fail.

Test Point Setup Screen - ATP



Annotations:

- Create a new test point (points to 'New Test Point' button)
- Click cell to name test point (points to 'Name' column header)
- Can adjust Warn/Fail thresholds (points to 'Warn' and 'Fail' columns)

Test Point #	Name	Sample Plans	Warn \approx	Fail \approx
1	Hopper 1	Blending Line	2.5	3.0
2	Blender	Blending Line	2.5	3.0
3	Slicer 2	Slicing Line	2.5	3.0

pH Test Points

- Select “pH” from table menu. pH
- Select “New Test Point”.
- Click on the “Name” column cell for the applicable test point to assign a name.
Note: Test point assignments are alphanumeric and can be up to (25) characters long, however, the ICON instrument will only display up to (15) characters of the name.
- Establish Low and High threshold limits for the test point (ex. Low = 3.80, High = 12.70).
- If a coinciding temperature measurement is desired, check the “Temp” box and set Temp Low and Temp High limits.

Note: If the reading is below the Low limit or above the High limit, the test point will be reported as a fail.

pH Low/High thresholds Check “Temp” box if correlating temperature reading desired Temperature Low/High thresholds

ATP		pH			Temperature		Conductivity	
Test Point #	Name	Sample Plans	Low ≤	High ≥	Temp (F)	Temp Low ≤	Temp High ≥	
1	DOUGH BLENDER	Mixing Line	3.70	12.20	<input type="checkbox"/>	32.0	32.0	
3	MISC - STROM	Mixing Line	3.90	11.60	<input type="checkbox"/>			
5	INLINE WIRE	Mixing Line	3.30	13.00	<input type="checkbox"/>			

Temperature Test Points

- Select “Temperature” from the table menu. Temperature
- Select “New Test Point”.
- Click on the “Name” column cell for the applicable test point to assign a name.
Note: Test point assignments are alphanumeric and can be up to (25) characters long, however, the ICON instrument will only display up to (15) characters of the name.
- Set Low and High threshold limits.

Note: Readings below the Low limit or above the High limit will result as a fail.

Conductivity Test Points

- Select “Conductivity” from the table menu. Conductivity
- Click “New Test Point” to create a new Conductivity (µS) test point.
- Click on the “Name” column cell for the applicable test point to assign a name.
Note: Test point assignments are alphanumeric and can be up to (25) characters long, however, the ICON instrument will only display up to (15) characters of the name.
- Establish Low and High threshold limits for the test point (ex. Low = 190, High = 401).
- If a coinciding temperature measurement is desired, check the “Temp” box and set Temp Low and Temp High limits.

Note: If the reading falls below the Low limit or above the High limit, the test point result is reported as a fail.

Chemical Standards

Concentration test points require an associated chemical standard at a designated working concentration (ex. Quat 200 ppm). In order to assign a chemical standard to a Concentration test point, one must first be created under the “Chemical Standards” tab.

- Select “Chemical Standard” from the table menu. Chemical Standard
- Click “New Test Point” to create a new chemical standard.
- Assign a chemical standard name under the “Name” column (i.e. brand name of the chemical).
- Under “PPM” enter the designated working strength of the chemical (ex. 200).
- The newly created chemical standard will now be an available drop-down selection under “Standards” in Concentration Test Points.

Chemical Standards

	Test Point #	Name	PPM
▶	1	Quat Contact	200
	2	Chlorine 175	175
	3	Iodine 175 ppm	175
	4	Peracetic 375	375
	5	Quat Non-Contact	350

Strength in part-per-million

Concentration Test Points

- Select “Concentration” from the table menu. Concentration
- Click “New Test Point” to create a new Concentration (PPM) test point.
- Click on the “Name” column cell for the applicable test point to assign a name.
Note: Test point assignments are alphanumeric and can be up to (25) characters long, however, the ICON instrument will only display up to (15) characters of the name.
- Establish Low and High threshold limits for the test point (ex. Low = 190 ppm, High = 401 ppm).
- If a coinciding temperature measurement is desired, check the “Temp” box and set Temp Low and Temp High limits.
Note: If the reading falls below the Low limit or above the High limit, the test point will result in a fail.
- Under “Standard” click the drop-down box to select from a list of pre-assigned chemical standards (See Chemical Standards for more information).

Note: A standard must be assigned to each Concentration test point before proceeding to the next test point.

	Test Point #	Name	Sample Plans	Low ≤	High ≥	Temp (F)	Temp Low ≤	Temp High ≥	Conc Custom Field 1	Conc Custom Field 2	Conc Custom Field 3	Standard
▶	1	Test 1		180	210	<input checked="" type="checkbox"/>	32.0	85.0				Quat 200PPM

Low/High PPM thresholds

Low/High Temperature thresholds

Select Standard from drop-down list

Editing a Test Point

A test point can be edited at any time by simply clicking on the desired cell and making the changes. Examples of editing a test point include changing the Warn/Fail thresholds, custom field designations, or sample plan assignment. The changes will be reflected on the ICON instrument when synced.

Note: *It is very important to note changing the name of a test point will also change the name of the test point's result on the instrument. This should be avoided. Instead, it is recommended to create a new test point.*

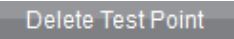
To Edit a Test Point

- Click on the test point to be edited – entire row will be highlighted.
- Double-click on the desired cell and make edits.

Note: *Changes can be undone by pressing Ctrl-Z on your keyboard from any Windows-based operating system.*

Deleting a Test Point

Note: *It is important to note that deleting a test point will impact any historical data associated with the test point in the software database and the ICON instrument once communication between instrument and software is established. See Chapter 24 – Database Management for further detail.*

- Select the desired test point by clicking any cell on the test point row.
- Select “Delete Test Point”  from the left-hand column or highlight test point and press delete on keyboard.
- A warning message will appear instructing user to archive any historical data associated with the test point prior to deletion.

Note: *Once test point has been deleted, the information cannot be retrieved from the database.*

Creating Custom Fields

As mentioned in *Chapter 10 – Custom Fields*, these optional fields allow users to provide additional customized levels of information for a test point.

Examples of common Custom Field assignments include: Surface Type (stainless steel, rubber, etc.), Plant Location (Plant 04, Tulsa, etc.), or Room (Dairy Room, Dough Room, etc.).

Note: Custom Fields are designated per parameter, not per test point.

Assigning Custom Fields

- Select “Test Point Setup” from software’s top menu.
- Select “Custom Fields” from the left-hand column menu. Custom Fields
- A pop-up box will appear to customize the three fields for each parameter.
- Enter desired custom field designations and press “OK”.
- The Custom Field columns for the parameter’s test points will now reflect the newly designated assignments.

The image shows a 'Custom Fields' pop-up box for parameter 'ATP'. It contains three input fields: 'Plant Location', 'Room', and 'Surface Type'. A blue arrow points from the text 'Pop-up box to enter custom fields' to the 'Plant Location' field. Below the pop-up box, a table shows the result of these assignments. A blue arrow points from the text 'Columns now populated with Custom Fields designations' to the 'Plant Location', 'Room', and 'Surface Type' columns in the table.

Name	Warn ≥	Fail ≥	Plant Location	Room	Surface Type
Slicer	2.5	3.0			
Hopper	2.5	3.0			
Conveyor	2.5	3.0			

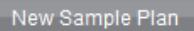
Creating Sample Plans

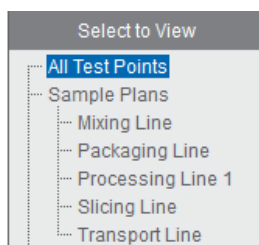
About Sample Plans

Sample plans allow users to organize a group of related test points. For example, all test points associated with a blending line in a facility can be grouped under a sample plan titled “Blending Line.”

A single test point can be assigned to multiple sample plans. For instance, test point #4 can be assigned to the “Blending Line” and the “Processing Line.”

Creating a Sample Plan

- Select “Test Point Setup” from software’s top menu.
- Select “New Sample Plan” from left-hand column. 
- A pop-up box will appear and instruct user to enter a sample plan name.
- Enter the name of the new sample plan and press “Save”.
- All sample plans will be listed on the left-hand side of the screen under “Select to View” in alphabetical order.



Assigning Test Points to a Sample Plan

- Select desired parameter from which to assign test points (ATP, pH, etc.).
- Highlight desired test point.
- Holding down the right mouse button, drag and drop test point into desired sample plan on the left-hand side of the screen.

Viewing Assigned Test Points in a Sample Plan

- Select the sample plan name and all associated test points will be listed.
- The assigned sample plan will now also appear in the test point’s drop-down menu selection.
- Select “All Test Points” to return to list of test points.

Test Point #	Sample Plans	Name
3	Mixing Line	Slicer
4	Processing Line 1	Hopper
5	Processing Line 1	Conveyor

Click drop-down arrow to see full list of sample plan assignments for test point in alphabetical order

Editing or Deleting a Sample Plan

Once an initial sample plan has been created, additional sample plans can be created, deleted or re-named by right-clicking on any sample plan name.

- Select “Add” to add another sample plan.
- “Re-name” to change the name of selected plan.
- “Delete” to delete the sample plan.

Even though a sample plan has been deleted, it will not delete the associated test point or historical results. It will simply remove the listed sample plan from the dropdown menu on the main Test Point Setup screen.

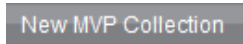
Note: See Chapter 24 – Database Management for information on impact of deleted historical data.

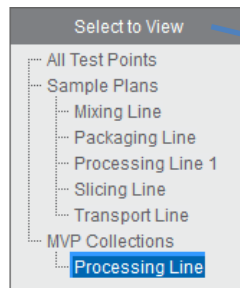
MVP Collections

MVP Collections analyzes data from multiple parameters to help identify trends as an interrelated set. For example, test points for ATP and pH can be assigned to the same MVP Collection plan. When analyzed, results will be compiled into the same report to illustrate the relationship (if any) between the two parameters. MVP collections are created in test point setup and analyzed in Raw Data.

Note: See Chapter 22 – Raw Data for instructions on analyzing MVP collections.

Creating an MVP Collection

- Select “Test Point Setup” from software’s top menu.
- Click “New MVP Collection” from the left-hand column menu. 
- Enter name of MVP Collection in pop-up box.
- Once saved, the new collection will appear in MVP Collections listed below Sample Plans.



In the “Select to View” menu, users can toggle between viewing All Test Points, Sample Plans, and MVP Collections

Editing or Deleting an MVP Collection

Once an initial MVP Collection has been created, additional collections can be created, deleted or re-named by right-clicking on any collection name.

Even though an MVP Collection has been deleted, it will not delete the associated test points. It will simply remove the listed collection from the dropdown menu on the main Test Point Setup screen.

Note: See Chapter 24 – Database Management for information on impact of historical data once delete.

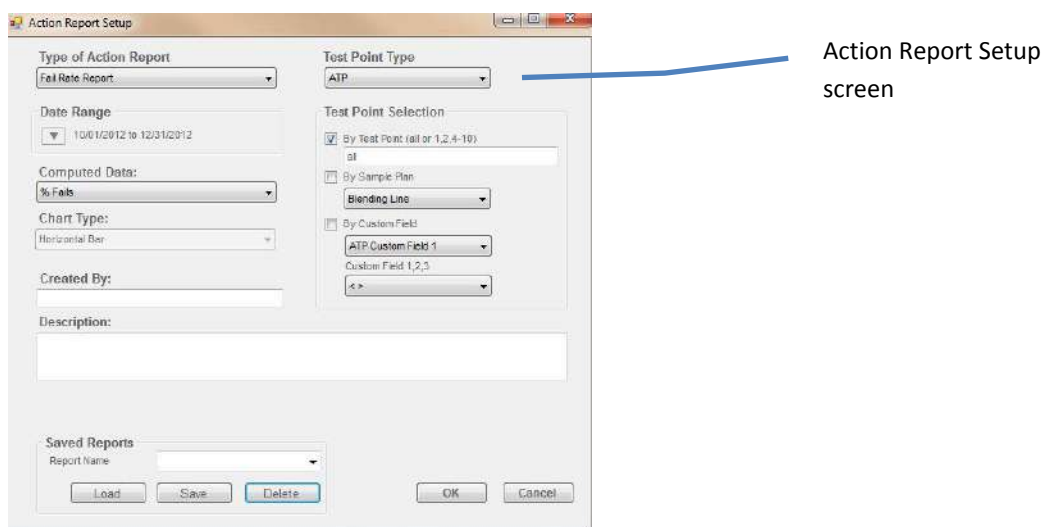
ICON Software Report Setup

The MVP ICON Dashboard software features three categories of reports: Action Reports, Trending Reports, and HACCP Reports. These reports are designed to identify areas requiring immediate and corrective action, track and trend data, and provide audit-ready reports with a click of a button.

The report categories can be selected by clicking on the category button. A set-up screen appears for customization of the report setting, including report type, date range, test point range, etc. A general overview of the report settings follows.

Report Setup Menu

The report setup screen features a number of sorting and filtering capabilities, allowing the user to narrow and highlight the most pertinent information, per report.



Report Type

The top-left drop-down menu features a list of available reports available within each category (Action, Trending, or HACCP).

Date Range

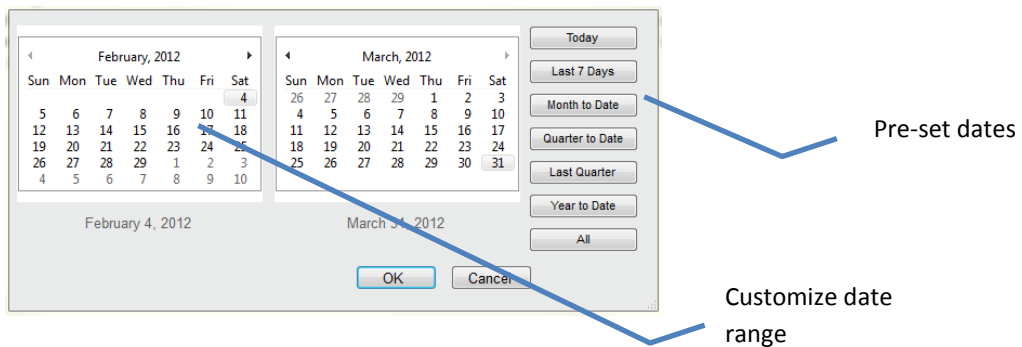
Click the arrow next to “Date Range” for a pop-up calendar to select appropriate dates. The date range can be customized or determined by pre-set dates on the right side of the calendar (Today, Last 7 Days, Month to Date, etc.).

To customize the date range, navigate through the calendars to select a date range.

- Click the month and the calendar will zoom out to display all available months in the database.
- Click the year to see the full list of available years.

To select from pre-set date ranges, choose from the options to the right of the calendar (i.e. Month to Date, Last Quarter, etc.).

- The calendar will automatically populate with the selected pre-set date.



Computed Data

Computed data allows users to change the way the data is calculated. For example, users can select between the percentage of Pass/Warn/Fail results or the number of Pass/Warn/Fail results, based on how they wish to view the information.

Chart Type

If multiple charts are available for a report, click “Chart Type” for a display of applicable options. Examples include: Stacked Column, Horizontal Bar Graph, Pie Chart, etc.

Created By

If desired, enter the user’s name to appear on the report.

Description

This optional feature allows for a report description to appear on the printed report.

Test Point Type

Choose from ATP, pH, Temperature, Conductivity, or Concentration.

Test Point Set Selection

This area allows users to select data by individual or range of test points, Sample Plan, or Custom Fields.

The 'Test Point Selection' dialog box has three radio button options. The first option, 'By Test Point (all or 1,2,4-10)', is selected and has a text input field containing '1-10'. The second option, 'By Sample Plan', has a dropdown menu showing 'Mixing Line'. The third option, 'By Custom Field', has a dropdown menu showing 'Plant Location' and a text input field containing 'Custom Field 1,2,3' with a dropdown arrow below it.

By Test Point Range

- For an individual test point, enter the test point number.
- For a range, enter the starting and ending range as such: 1 – 5 or list by commas in the same fashion as a printer: 1, 2, 4 – 10.
- For all test points, type “ALL” in the “By Test Point” field.

By Sample Plan

- Use the drop-down arrow to select the desired sample plan.

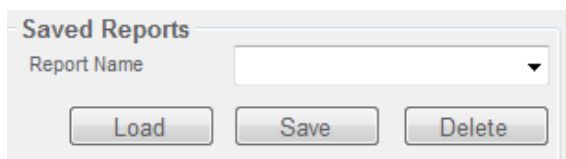
By Custom Field

- First choose the Custom Field title (ex. Surface Type).
- In the field below (Custom Field 1,2,3) use the drop-down arrow to select the custom designation (ex. Stainless Steel).

Saved Report

Once all report criteria has been selected, the report template can be saved for future use.

- **Create a Saved Report** – Enter desired name in the “Report Name” field. Click “Save” to have report in drop-down box for future use.
- **Load a Saved Report** - To load a saved report, select appropriate report from the Report Name drop-down. Select “Load” and criteria will auto-populate.
- **Delete a Saved Report** - Select desired report from drop-down menu and click delete.



The screenshot shows a user interface for managing saved reports. At the top, there is a section titled "Saved Reports". Below this title is a label "Report Name" followed by a text input field and a small downward-pointing arrow indicating a dropdown menu. Below the input field are three buttons: "Load", "Save", and "Delete", each with a light gray background and a thin border.

Company Logo

The user’s company logo can also be inserted into the top right corner of any report and will display once the report has been generated. Please see *Chapter 26 – ICON Dashboard Software Settings* for complete instructions.

Print Function



The printer icon, located at the top-left corner of the screen, will display any chart and accompanying data table in PDF format. Reports can be printed or saved as a PDF file.

Note: To print only the graph and exclude the data table, choose the “Pages” option from the print menu and enter 1 to print only the first page.



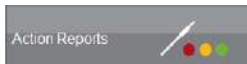
The screenshot shows a dialog box titled "Pages to Print". It contains three radio button options: "All", "Current page", and "Pages". The "Pages" option is selected, indicated by a filled radio button. To the right of the "Pages" option is a text input field containing the number "1".

Action Reports

What are Action Reports?

Action Reports are designed to help identify and direct QA managers to problematic areas in the facility requiring attention for immediate and corrective action.

Action Reports can be accessed from anywhere within the software by clicking the “Action Reports” button at the top left screen.



Once selected, the Action Report Setup screen will open. See *Chapter 18 – ICON Software Report Setup* for more information on the setup menu.

Type of Action Reports

Choose “Type of Action Report” for a dropdown list of all available Action Reports.

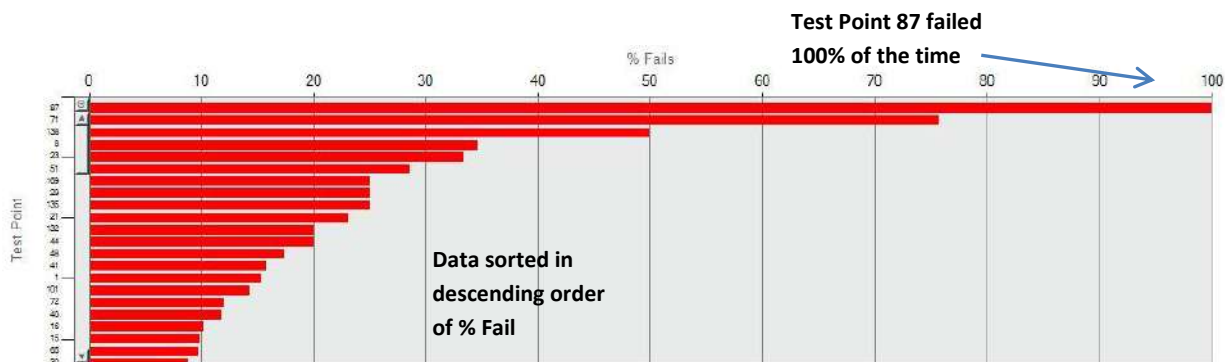
- Fail Rate Report
- Pass/Warn/Fail Report
- Re-Test Report
- Test Point Min/Max/Avg

Fail Rate Report

Shows all failed test point results for selected parameter. This report will show the incidence of failure for each selected test point to direct the QA Manager to areas in the plant requiring the most attention.

Available Chart Type

- Horizontal bar



Example of Fail Rate Report

Fail Rate Computed Data

There are four different options of computed data for this report.

- **# Fails** – Calculates data by the number of failed test points; sorting defaults to # Fails in descending order
- **% Fails** – Calculates data by percentage of failed test points; sorting defaults to % Fails in descending order
- **# Warn/Fails** - Calculates data by the number of combined warn and failed test points; sorting defaults to # Warn/Fails in descending order (ATP only)
- **% Warn/Fails** – Calculates data by a percentage of combined warn and failed test points; sorting defaults to % Warn/Fails in descending order (ATP only)

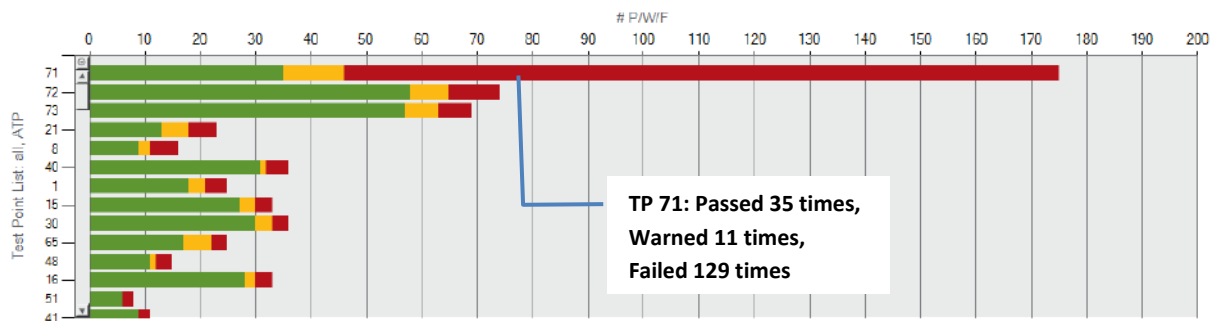
Pass/Warn/Fail Report

Shows the pass, warn, and fail totals for each test point as a number or percentage. This graph gives an overall view of the health of a sanitation program, as well as highlights emerging problems in the facility.

Available Chart Types

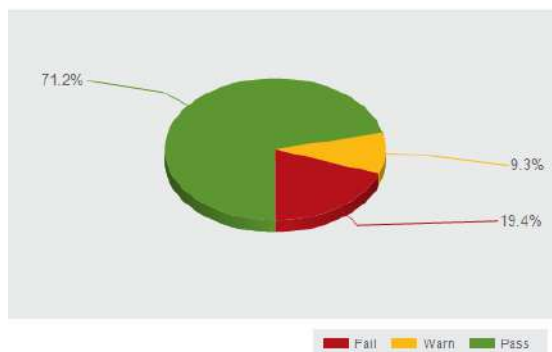
- Stacked Horizontal Bar
- Pie

Stacked Horizontal Bar



Data sorted in descending order by # P/W/F

Pie Chart



In one month, selected test points passed 71.2%, warned 9.3%, and failed 19.4% of the time

Examples of Pass/Warn/Fail Report

Pass/Warn/Fail Computed Data

There are two different options of computed data for both chart types in this report.

- **% P/W/F** – Calculates the percentage of pass, warn, and fail results for selected amount of test points over a period of time; Stacked Horizontal Bar Chart sorting defaults by % Fails
- **# P/W/F** – Calculates the number of pass, warn, and fail results for selected amount of test points over a period of time; Stacked Horizontal Bar Chart sorting defaults by # Fails

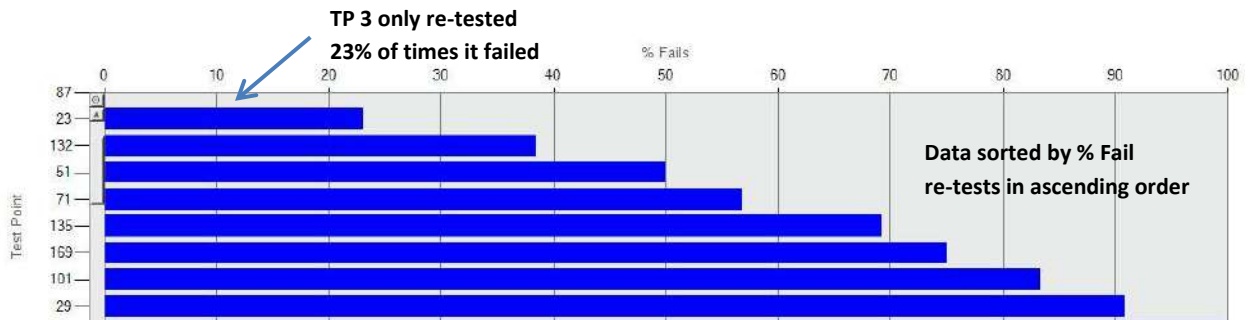
Re-Test Report

The ICON has the ability to re-test a failed point to verify if it was re-cleaned properly. This data is coded in the instrument and uploaded to the software for analysis. The Re-Test report indicates how many of the failed test points were re-tested to ensure standard operating procedures are followed per the facilities HACCP program. Ideally, 100 percent of failed tests will be re-tested.

Note: It is critical before testing with the MVP ICON to determine if only failed results will be re-tested or if results with both a fail and warn reading will be re-tested, per your standard operating procedures. This impacts how the re-test data is displayed in the graph.

Available Chart Type

- Horizontal Bar



Example of Re-Test Report

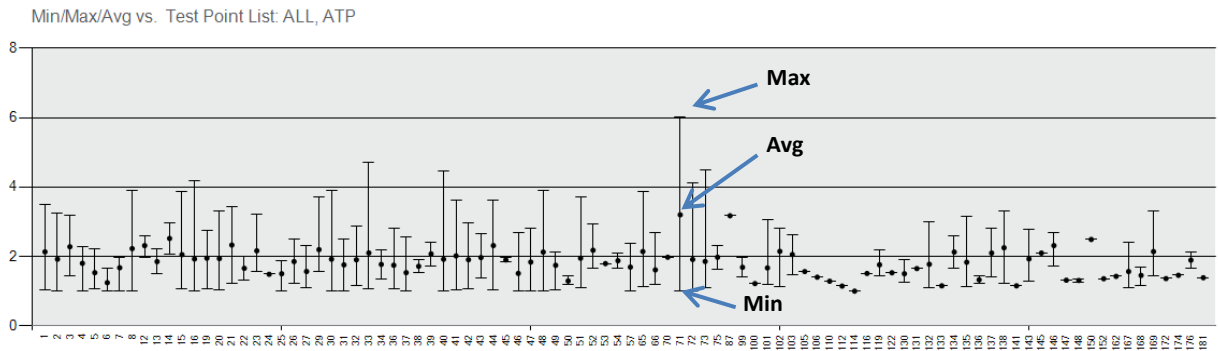
Re-Test Report Computed Data

There are four different options of computed data for this report.

- **# Fails** – Lists number of times a failed test was re-tested; sorted in ascending order
- **% Fails** – Finds percentage of re-tests by calculating number of times a test point failed and number of times failed test point was re-tested; listed as a percentage in ascending order
- **# Warn/Fails** – Lists number of times a warn or failed test point was re-tested; sorted in ascending order
- **% Warn/Fails** – Finds percentage of re-tests by calculating number of times a test point warned/failed and number of times warned/failed test point was re-tested; listed as a percentage in ascending order

Min/Max/Average Report

Shows the minimum, maximum, and average result for each selected test point. Any outlying result in the fail range provides direction to potentially problematic areas in the facility requiring immediate attention.



Example of Min/Max/Avg

Test Point Min/Max/Avg Computed Data

There is one type of computed data for this report.

- **Min/Max/Avg** – Lists the minimum, maximum, and average result of selected test points over a period of time

Sorting Graphs and Data Tables

The data table included in most reports list all pertinent information such as date, created by, description, and computed data parameters. The default view of each graph highlights the most applicable information, specific to that report.

For example, the default view for Fail Rate Report is percentage or number failed in descending order, reflecting the most failed results to the least.

Each data table can be sorted according to user preference. Click the desired column header to change the sorting order (i.e. from low to high). A Δ will appear on the column header noting the sort order (/low high and \high to low). The sort order changes the order of data in the table and in the graph.



Zoom Function

Each graph features a slider bar with zoom in/out buttons to increase or decrease the amount of data displayed on the graph. Hold and drag the slider or click the plus or minus buttons to zoom in/out on data.

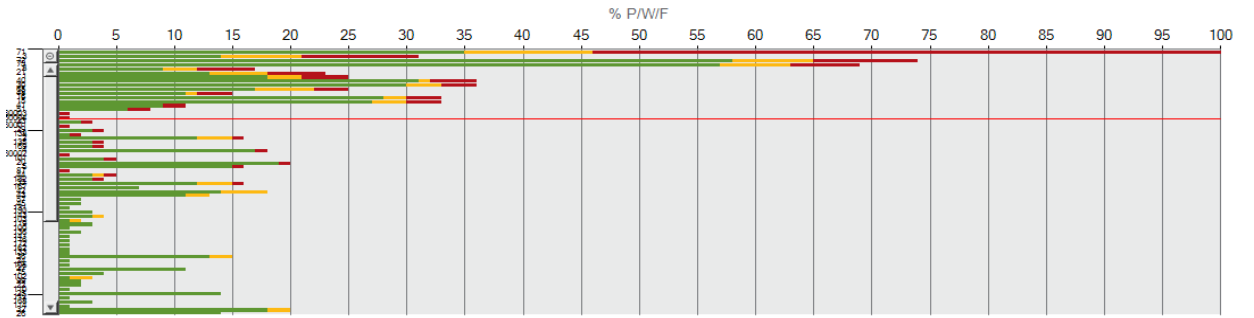


Portions of data within a graph can be expanded by utilizing the drag zoom function.

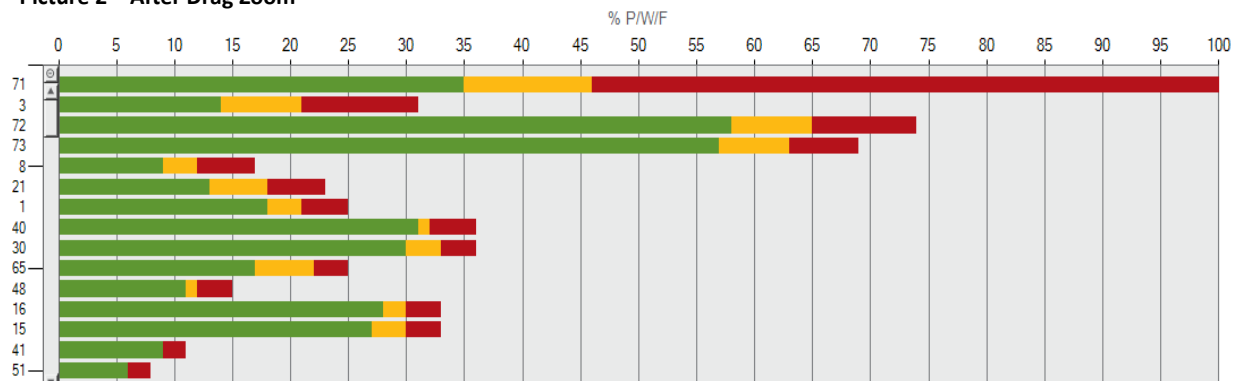
- Click on the graph and a red line will appear.
- While holding down the left mouse button, drag zoom red line over portion of data to be expanded.

See pictures 1 and 2 for examples

Picture 1 – Before Drag Zoom



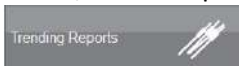
Picture 2 – After Drag Zoom



Trending Reports

What are Trending Reports?

Trending Reports track and trend data over extended periods of time. The reports available in this category help to identify test point behavior, establish patterns, and determine the overall health of a facility's sanitation program.



Trending Reports can be accessed from anywhere within the software by clicking the “Trending Reports” button at the top, middle screen.

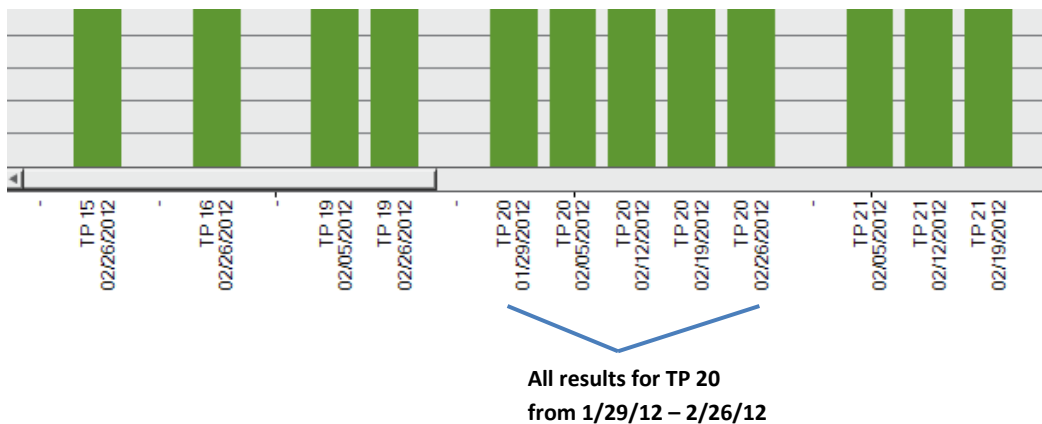
Once selected, the Trending Report Setup screen will open. See *Chapter 18 – ICON Software Report Setup* for more information on the setup menu.

Sorting Options

Trending Reports include specialized sorting options, relative to the report selected.

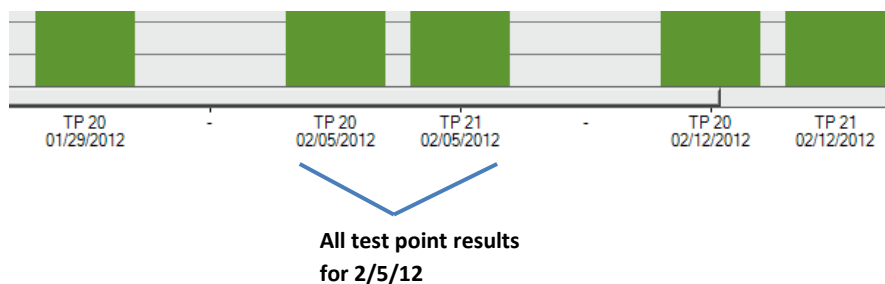
- **By Test Point** – When sorting by Test Point, data on the X-axis will list all available results in a particular time frame for each individual test point.

Picture 1



- **By Period** – If sorting by time period, data on the X-axis will list all test point results for each period of time in a selected date range.

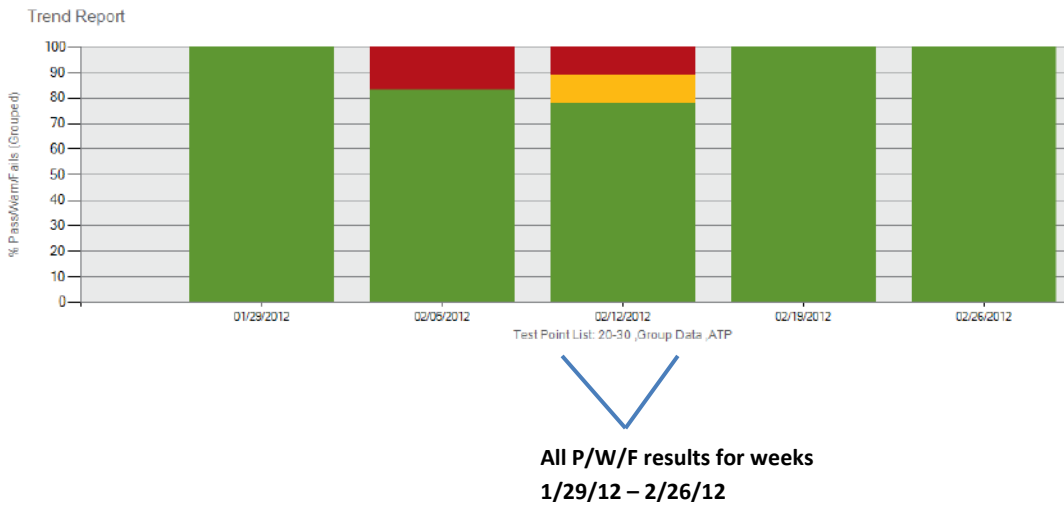
Picture 2



Grouped Data

In addition to sorting options for Trending Reports, Computed Data features the ability to group data. This function is useful when wanting to review all results for a specified period of time (see Picture 3).

Picture 3



Type of Trending Reports

Choose “Type of Trending Report” for a dropdown list of all available Trending Reports.

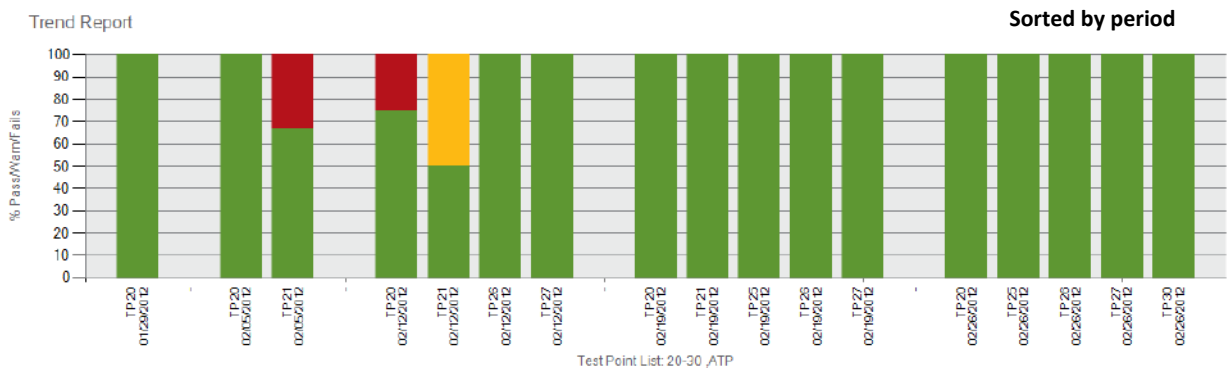
- Pass/Warn/Fail Summary
- Average Test Point Summary
- Test Point Trend
- Re-Test Trend

REPORT TYPE = Pass/Warn/Fail Summary

The **Pass/Warn/Fail Summary** report shows all pass, warn, and fail results for selected test points over a specified period of time. Calculated as a number or percentage, this report demonstrates whether improvements made to a sanitation program are successful or highlights where a concentrated effort of improvement is needed.

Available Chart Type

- Stacked Column



Example of Pass/Warn/Fail Summary

Pass/Warn/Fail Computed Data

There are four different options of computed data for this report.

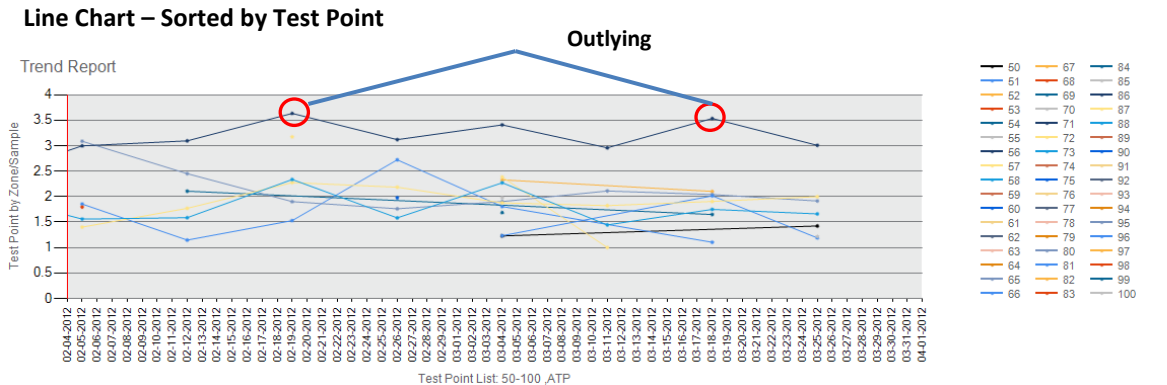
- **% P/W/F** – Calculates data by percentage of passed, warned, and failed test points; sort by test point or by period, graph view defaults to test point number in numerical order
- **% P/W/F (Grouped)** – Groups all pass, warn, and fail results for a specified period of time; sorting by test point/period not an option
- **# P/W/F** – Calculates data by number of passed, warned, and failed test points; sort by test point or by period, graph view defaults to test point number in numerical order
- **# P/W/F (Grouped)** – Groups all pass, warn, and fail results for a specified period of time; sorting by test point/period not an option

REPORT TYPE = Average Test Point Summary

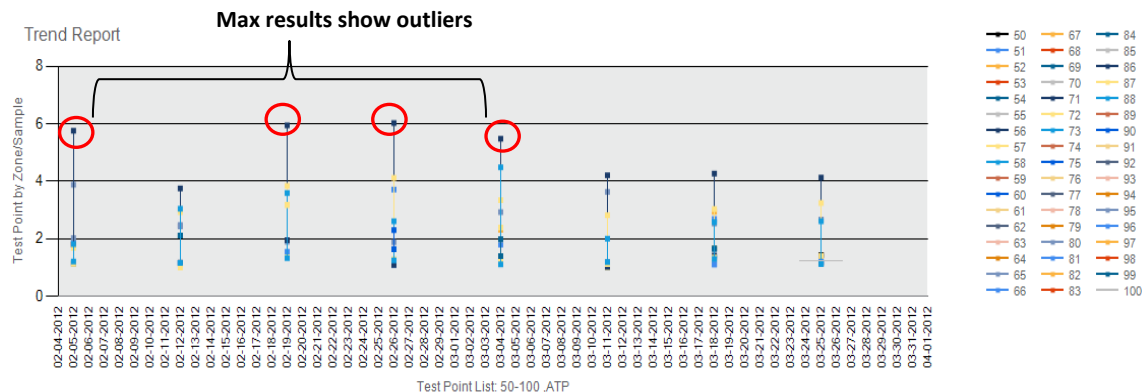
The **Average Test Point Summary** report shows the average result for selected test points over a specified period of time. By looking at the average result for each test point, the user is given a quick overview of test point behavior to determine where, if any, problems reside. There are three types of charting options for this report:

Available Chart Types

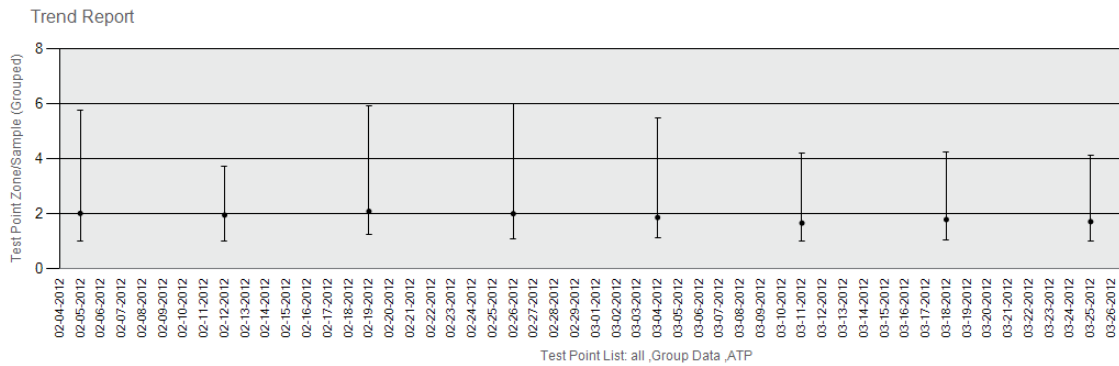
- Column
- Line
- Min/Max/Avg



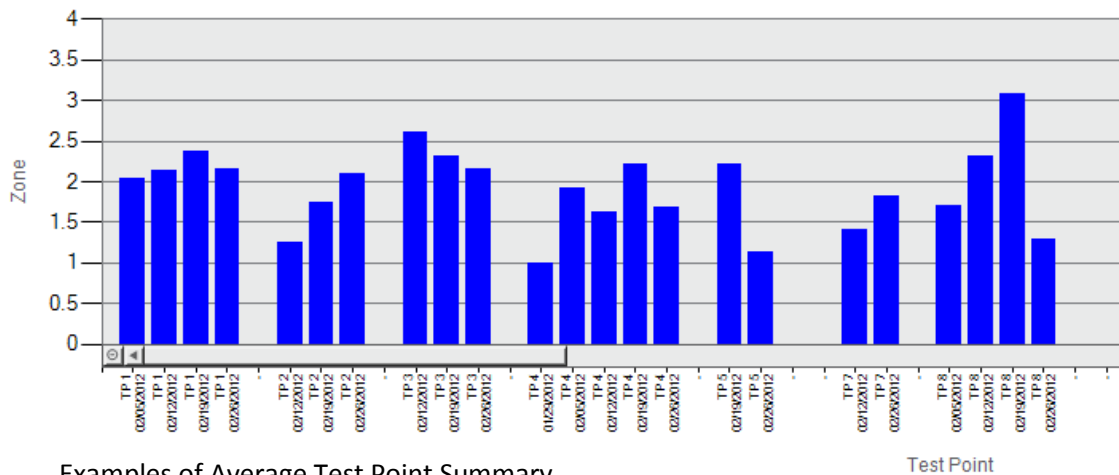
Min/Max/Avg Chart – Sorted by Test Point



Min/Max/Avg – Sorted by Grouped Data



Column Chart – Sorted by Test Point



Examples of Average Test Point Summary

Average Test Point Computed Data

There are two different options of computed data for each chart type in this report.

- **Test Point by Zone/Sample** – Displays the average result for each test point sorted by test point only; default view by period in ascending order
- **Test Point by Zone/Sample (Grouped)** – Displays the average result for all selected test points as one line; default view by period in ascending order

REPORT TYPE = Test Point Trend

The **Test Point Trend** report shows results for each individually selected test point, providing further detail to the **Average Test Point Summary** report. While the Average Test Point Summary shows an overall view of outlying results, the Test Point Trend provides additional in-depth analysis into each test point's behavior.

The "Results by Hour" option allows users to narrow down results by hour to determine if discrepancies exist between cleaning shifts. This information allows for a review in the cleaning process or a need for additional staff training.

Note: To select by this chart, choose "Hour" in Date Type under Date Range.

Choose whether to include an optional legend in the Test Point Trend report by checking the “Show Legend” box in the Trending Report Setup screen.

Type of Trending Report
 Test Point Trend

Date Range
 Date Type: Year
 06/01/2013 to 12/31/2014

Computed Data:
 Results

Show Zero Data
 Show Legend

Chart Type:
 Scatter

Created By:

Test Point Type
 ATP

Test Point Selection
 By Test Point (all or 1,2,4-10)
 all
 By Sample Plan
 Blending Line
 By Custom Field
 ATP Custom Field 1
 Custom Field 1,2,3
 <>

Sorting
 By Period
 By Test Point

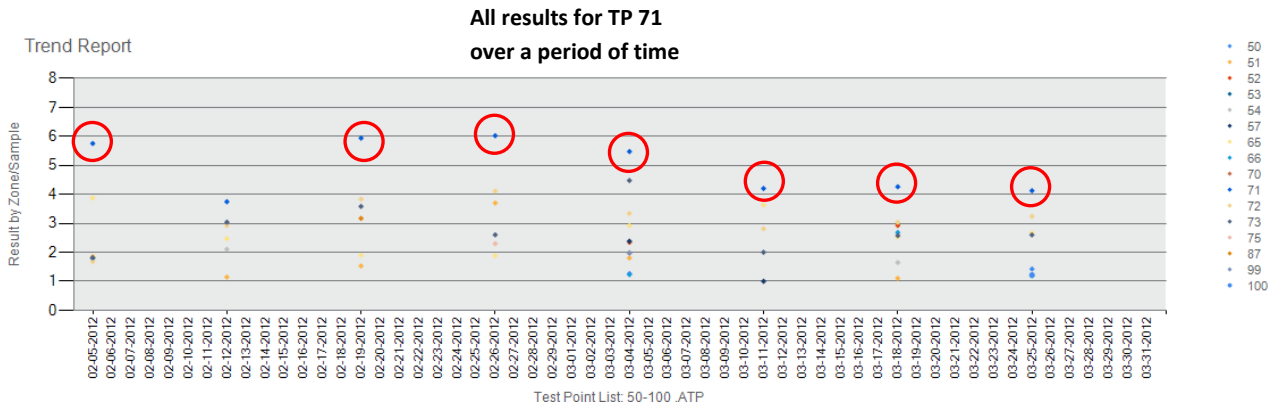
Check box for optional legend to display in Test Point Trend report

Available Chart Type

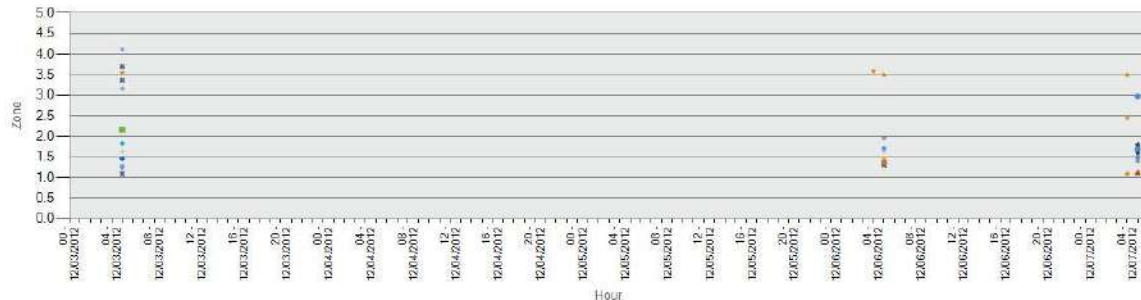
- Scatter

Example of Test Point Trend

Test Point Trend



Example of Test Point Trend by Hour



Lists time of day each test point was taken during a specified range

Test Point Trend Computed Data

There is one option of computed data for this report.

- **Results** – Plots each test point result (as scatter plot) over a period of time; sorting defaults by test point number in ascending order; Grouped Data not an option

Note: To view results by hour select “Hour” under Date Type.

REPORT TYPE = Re-Test Trend

The **Re-Test Trend** report provides a historical view of test points that have been re-tested after having previously failed over a period of time. Ideally, a test point will have been re-cleaned and re-tested every time it has produced a fail result. And depending on a facility’s SSOP, a warn result may also necessitate re-cleaning and re-testing. By sorting data by percentage or number of re-tests in ascending order, the chart will highlight areas needing improvement with re-test compliance.

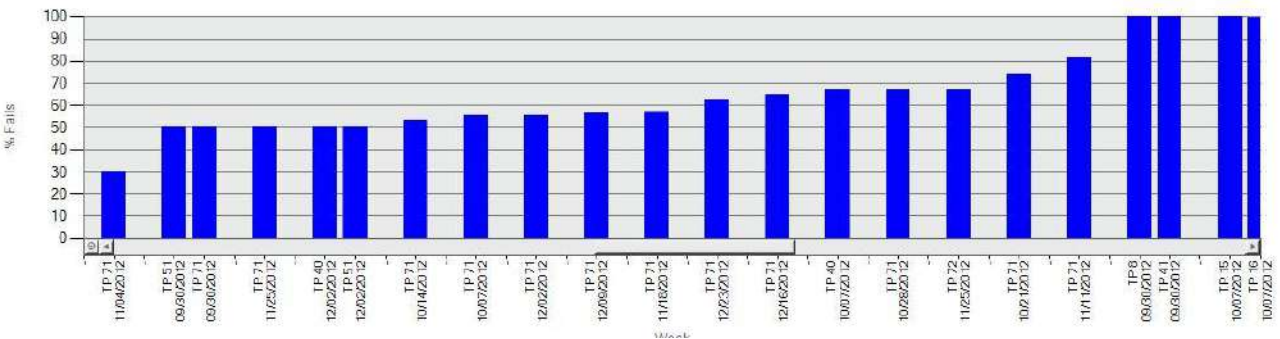
This information helps direct action thereby improving the cleaning process and the program’s health over a period of time.

Note: It is critical before testing with the ICON to determine if only Fail results must be re-tested or if Warn results must also be re-tested. This information is typically indicated in a facility’s Sanitation standard operating procedures (SSOP). This impacts how the re-test data is displayed in the graph.

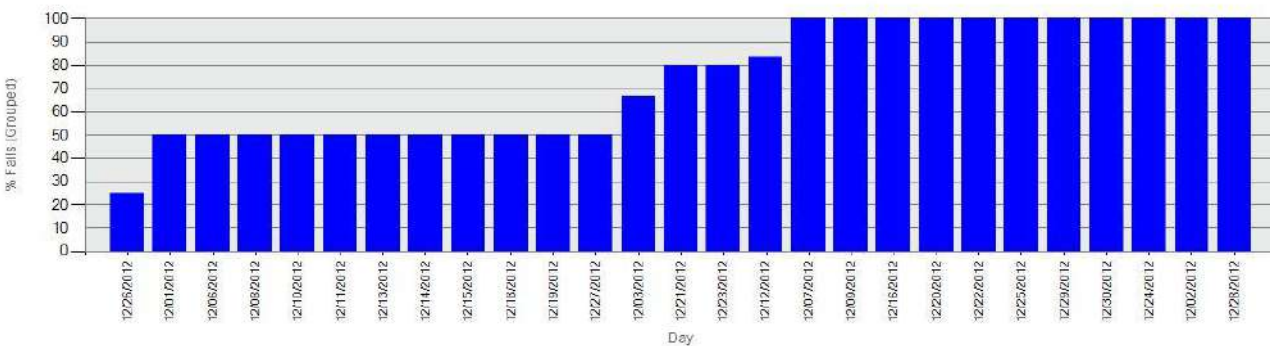
Available Chart Types

- Column
- Line

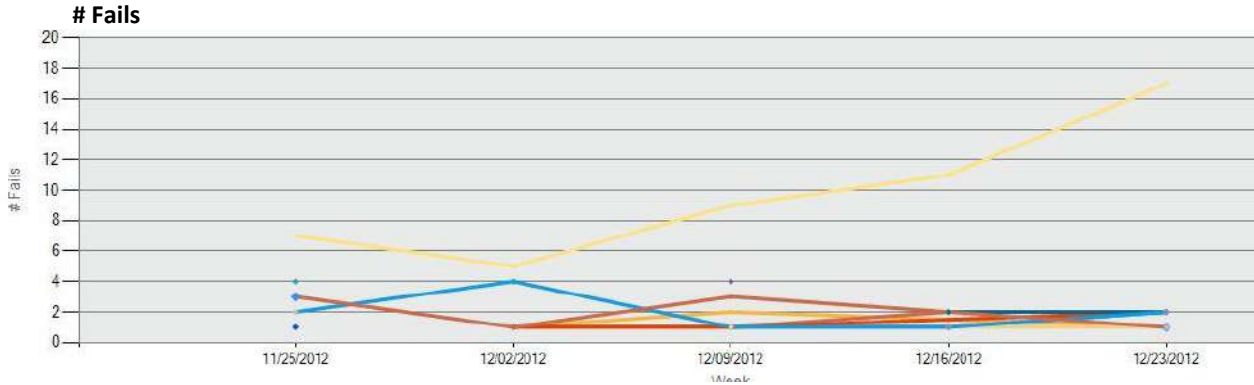
Re-Test Trend Column (% Fails) – Sorted by % Fails in ascending order



Re-Test Trend Column (% Fails - Grouped) – Sorted by % Fails (Grouped) in ascending order



Re-Test Trend Line



Re-Test Trend Line



Re-Test Trend Computed Data

There are eight types of computed data for each of the charts in this report.

- **# Fails** – List number of re-tests in relationship to number of failed results in ascending order sorting available test points in a period
- **# Fails (Grouped)** – Shows total number of re-tested test points in relation to failed results
- **# Warn/Fails** – Lists number of re-tests in relation to number of warn or failed results; sorting available by test point or period in ascending order
- **# Warn/Fails (Grouped)** – Shows total number of re-tested test points in relation to warn or failed results
- **% Fails** – Calculates percentage of re-tests for a failed result over a period of time; sorting available by test point or period in ascending order
- **% Fails (Grouped)** – Shows total percentage of re-tests in relation to failed results in a given period of time
- **% Warn/Fails** – Calculates percentage of re-tests for warn or failed results over a period of time; sorting available by test point or period in ascending order
- **% Warn/Fails (Grouped)** – Shows total percentage of re-tests in relation to warn or failed results in a given period of time

HACCP Reports

What are HACCP Reports?

HACCP reports are audit-ready reports designed to help busy QA professionals demonstrate their sanitation program is on track and in compliance with their HACCP plan. Simply print and present.

HACCP reports can be accessed from anywhere within the software by clicking the “HACCP Reports” button at the top mid-right screen.



HACCP Report Setup Menu

The screenshot shows the HACCP Report Setup Menu with the following fields and annotations:

- Type of HACCP Report:** Calibration / Verification
- Test Point Type:** ATP
- Date Range:** Date Type: Year, 01/01/2000 to 12/31/2014
- Computed Data:** Results
- Settings:**
 - Target # Swabs: 100
 - Group Data:
 - Include Warns:
- Test Point Selection:**
 - By Test Point (all or 1,2,4-10): all
 - By Sample Plan: Blending Line
 - By Custom Field: ATP Custom Field 1
 - Custom Field 1,2,3: < >
 - By Device: 1234567890
- Created By:** (empty text field)
- Description:** (empty text area)
- Saved Reports:** Report Name: PPM Blending SPS, Load, Save, Delete buttons
- Buttons:** OK, Cancel

Annotations:

- Set target number of swabs for ATP Swab Usage Report (points to Target # Swabs)
- Include “Warn” results in re-test calculation for Test Point Overview report (points to Include Warns)
- Select “By Device” to view Calibration / Verification by particular device ID (points to By Device)

Type of HACCP Reports

Choose “Type of HACCP Report” for a drop-down list of all available HACCP Reports.

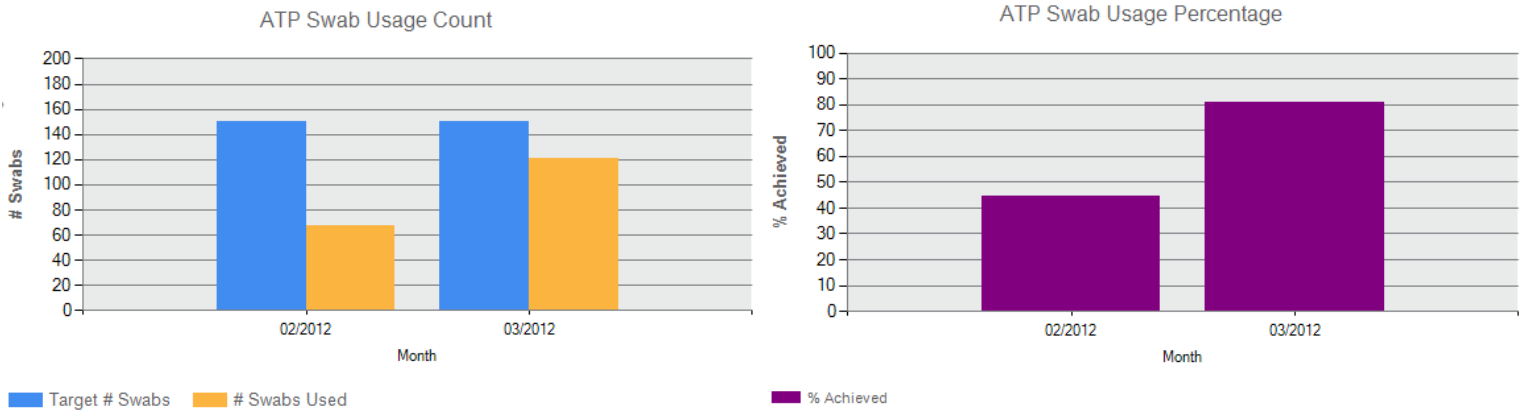
- ATP Swab Usage
- Calibration / Verification
- Test Point Frequency
- Sample Plan Summary

REPORT TYPE = ATP Swab Usage

Demonstrates the required swab target in a given period is being met in accordance with the facility's HACCP plan. The report shows both the number of swabs used and usage percentage on the same page.

The target number of swabs is established in the HACCP Report Setup menu. (See previous page)

Example of ATP Swab Usage Report



ATP Swab Usage Computed Data

There is one computed data option for this report.

- **% Swabs Used** – Calculates percentage for number of used swabs compared to the set target

REPORT TYPE = Calibration / Verification

Provides both calibration and verification on one page for selected dates. Verification includes both positive and negative controls (swabs) and luminescent and non-luminescent (instrument) results. This information demonstrates to an auditor the ICON system is calibrated on a routine basis, per the HACCP plan's specification.



Calibration / Verification Computed Data

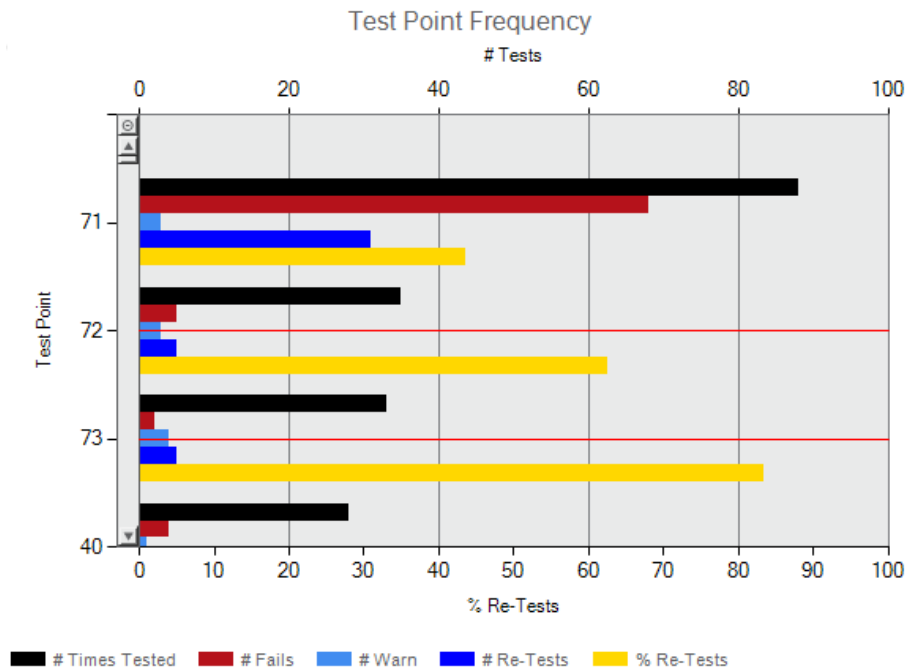
There is one data option for this report.

- **Results** – Displays historical record of parameter’s calibration and verification results for a given period of time; select by individual serial ID or by all available devices

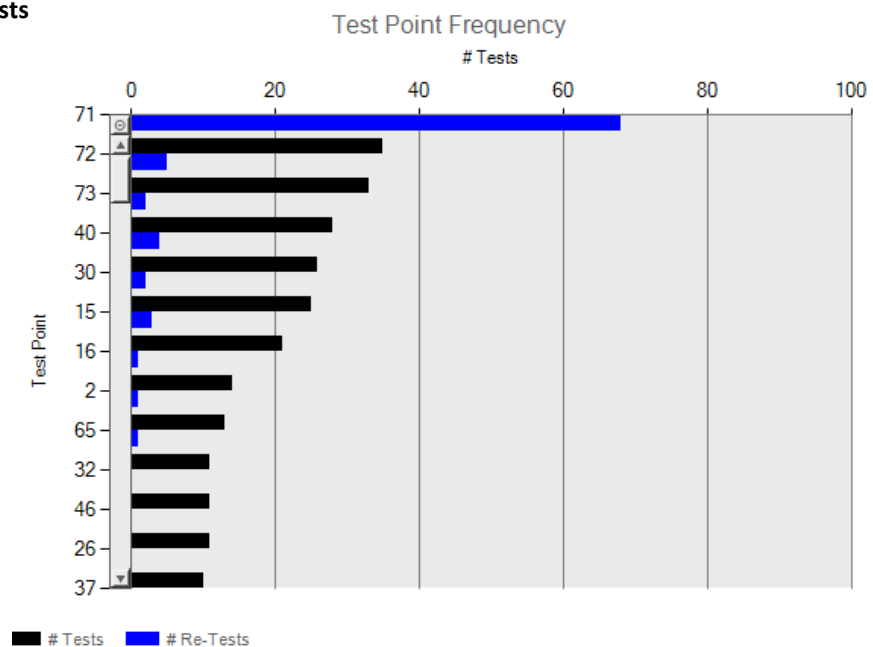
REPORT TYPE = Test Point Frequency

Identifies how many times a particular test point has been sampled during a range or period of time, ensuring any identified problem areas are being tested equally and uniformly. This report includes re-test data to show the number of times a test point needed to be re-cleaned.

Test Point Overview



of Tests + Re-Tests



Test Point Frequency Computed Data

There are two different options of computed data for this report.

- **Test Point Overview** – Includes the following information for each test point: number of times tested, number times failed, number times re-tested, and the re-test percentage. Graph displays as double-axis to incorporate # and %
- **# Tests + Re-Tests** – Plots the total number of times test point was sampled during a given period; includes # of re-tests for each test point

REPORT TYPE = Sample Plan Summary

A collective summary of essential reports for an individual sample plan included on one page; contains Action, Trending, and HACCP reports. This report allows busy QA Managers to provide a comprehensive overview for a particular sample plan with a click of a button, eliminating manual report generation.

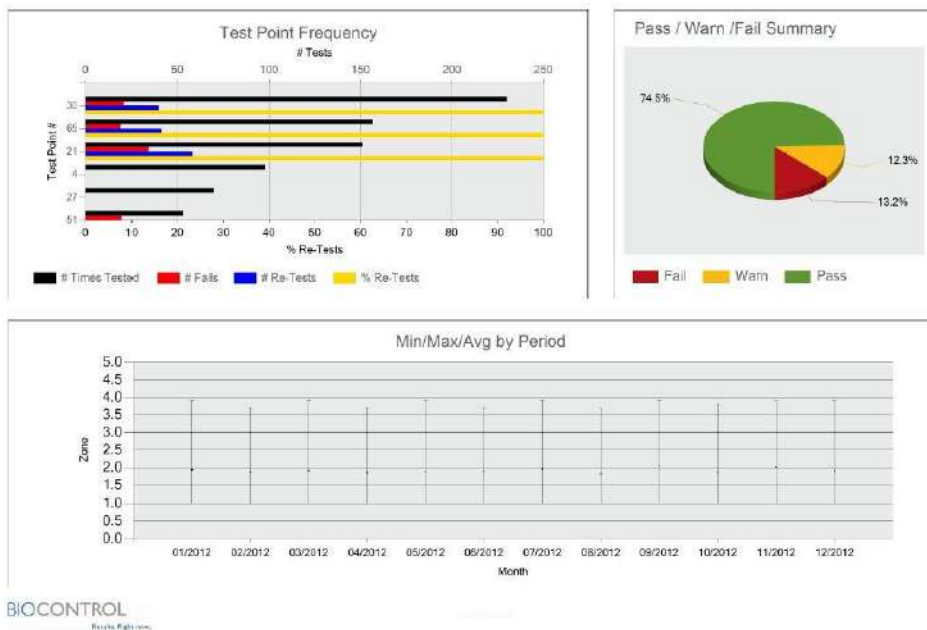
Included Reports

- Test Point Frequency (HACCP)
- Pass/Warn/Fail (Action)
- Min/Max/Avg by Period (Trending)

Example of Sample Plan Summary

HACCP Report: Sample Plan Summary, Results

Test Points: Sample Plan: Packaging Line,ATP
Date Range: Month:2012.01-2012.12
Created By:
Description:



Sample Plan Summary Computed Data

There is one type of computed data for this report.

- **Results** – Includes reports for Pass/Warn/Fail (pie chart), Average Test Point Summary (Min/Max/Average Grouped), and Test Point Frequency (Test Point Overview)

Raw Data

Results collected on the ICON and transferred to the software are located in “Raw Data.” Raw Data is a categorical list of pertinent result information including the test point name, number, date and time taken, sample plan assignment (if any), thresholds, re-test data, and optional customized fields. The type of information included in Raw Data is dependent on the selected parameter.

Sorting

Data can be sorted by each of the result columns (ex. Test Point #, Name, Date, Zone, etc.).

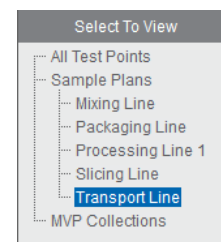
- To sort, click on the desired column and data will be listed in ascending order.
- Click again to list in descending order.

Note: Codes entered into the “Code” field on the ICON will transfer to Raw Data and can also be sorted. See Chapter 9 – Code Field for more information.

Result data can also be narrowed down by the assigned sample plan if the user is only interested in viewing results for a particular line.

Viewing Results by Sample Plan

- Click the name of the desired sample plan on the left-side column under Select to View.
- Only results belonging to the assigned sample plan will be displayed.



Printing Data

As with report charts and data tables, Raw Data results can be printed or saved as a PDF file.

- Click the printer icon located next to the home button on the icon toolbar.
- Select File – Print to print all pages.
- Select File – Save/Save As to save the data as an electronic file.



Note: Results for all measurement parameters will populate into the PDF file. To generate a paper printout for only one parameter (ex. ATP), enter the page number range corresponding to the parameter in the PDF printing menu.



Exporting Data to Excel or LIPS Program

See Chapter 24 – Database Management for instructions on exporting data to Excel or the LIGHTNING Index Proficiency (LIPS) program.

Converting Quick Tests into a New Test Point

As mentioned in *Chapter 8 – Quick Test Function*, the Quick Test function allows unassigned areas in the facility to be tested even before a test point has been created for it. Quick Tests also provide the ability to convert a saved Quick Test result into an existing or newly created test point once uploaded into an ICON Dashboard database (.sdf).

Each Quick Test result that is saved in the ICON is automatically assigned a new, incremental test point number starting at test point number 50,000. When results are uploaded to an ICON Dashboard database (.sdf), all results are recorded in Raw Data. In addition to being identified by its unique test point number (starting at 50,000), each Quick Test result shows a white rectangle to the left of the test point number in Raw Data. There are three ways to re-assign a Quick Test result to an actual test point:

Converting in Test Point Setup

When a Quick Test result is uploaded to an ICON Dashboard database (.sdf), the Test Point Setup menu creates a test point in the 50,000 number range. To modify this test point definition:

- Click on the Quick Test number (ex. 50,001) and change to a new, unused test point number (ex. test point 182). The Quick Test number (ex. 50,001) in Raw Data will then reflect the newly assigned test point number (ex. 182).
- Complete the test point definition by assigning a name and Warn/Fail thresholds in Test Point Setup.

Converting in Raw Data

Quick Test results can also be re-assigned to a new test point number from the Raw Data menu.

- Create a new test point in the Test Point Setup menu (ex. 182).
- From Raw Data, locate the desired Quick Test result (ex. 50,001) and double-click the test point number.
- A drop-down menu of all available test point numbers and names will appear.
- Select the newly created test point (182) from the drop-down menu and select “OK”.
- Quick Test result (50,001) in Raw Data will now be re-assigned as test point 182.

Note: As Quick Test result numbers start in the 50,000 range, it is easiest to locate the results by sorting the Test Point # column in descending order. This will list all Quick Test results in order.

Converting a Quick Test Result to a Pre-Existing Test Point

Should a Quick Test be taken for an existing test point in the test plan, the result can be saved, uploaded to the ICON Dashboard, and re-assigned to the existing test point. For example, if a Quick Test was taken for test point 43, the Quick Test can be located in Raw Data and re-assigned to test point 43. The result will then be listed as test point 43’s result for that date and time.

- Locate the desired Quick Test result in Raw Data.
- Double-click the number to activate the drop-down menu.
- Click on desired assigned test point number (ex. 43).
- Quick Test result for that date and time will now be assigned to test point 43.

Test Point Setup Example

Test Point #	Name	Sample Plans	Warn ≥	Fail ≥	ATP Custom Field 1	ATP Custom Field 2	ATP Custom Field 3
50000			2.5	3.0			
50001			2.5	3.0			
50002			2.5	3.0			

Change Quick Test Number to new, unused test point number

Raw Data Example

ATP		pH			Temperature			Conductivity			Concentration			
Test Point #	Name	Sample Plan	Date	Time	Zone	PWF	Re-Test	User Code	ATP Custom Field 1	ATP Custom Field 2	ATP Custom Field 3	Warn SetPt	Fail SetPt	Memo
▶ 50000			04/05/2013	07:55 AM	3.8	-						0.0	0.0	
▬ 50001			04/05/2013	07:55 AM	4.0	-						0.0	0.0	
▬ 50002			04/05/2013	07:56 AM	3.9	-						0.0	0.0	

Quick Test Symbol

Quick Test Number

Drop-down to Select Test Point Number

Select Quick Test replacement test point number:

Num	Name
▶ 1	Hopper 1
2	Blender
3	Slicer 2
4	Conveyor
5	Tuber
6	Slitter
7	Roller

OK Cancel

Analyzing MVP Collection Data

As mentioned in *Chapter 17 – Creating Sample Plans*, test point results from multiple parameters can be combined to view data as an inter-related set. This helps to identify any potential trends that exist between the individual parameters. Please see Chapter 17 for setting up MVP Collection.

How to Analyze Data MVP Collections in Raw Data

Data Range:

06/01/2011

12/31/2012

Apply Date Range

Select to View

- All data
- Sample Plans
- Blending Line
- Mixing Line
- Packaging Line
- Slicing Line
- Transport Line
- MVP Collections
 - D40413**

ATP			pH			Temperature			Conductivity			Concentration		
Type	Test Point #	Name	Sample Plan	Date	Time	Zone	PWF	Warn SetPt	Fail SetPt	pH	PWF	pH Low SetPt	pH High SetPt	Temp
ATP	4	Conveyor	Packaging Line	36/01/2011	05:42 AM	1.0	Pass	2.5	3.0	-	-	-	-	-
ATP	4	Conveyor	Packaging Line	36/02/2011	06:10 AM	2.3	Pass	2.5	3.0	-	-	-	-	-
ATP	4	Conveyor	Packaging Line	36/03/2011	05:09 AM	2.1	Pass	2.5	3.0	-	-	-	-	-
ATP	4	Conveyor	Packaging Line	36/04/2011	05:27 AM	1.4	Pass	2.5	3.0	-	-	-	-	-
ATP	4	Conveyor	Packaging Line	36/06/2011	05:17 AM	1.9	Pass	2.5	3.0	-	-	-	-	-
ATP	4	Conveyor	Packaging Line	36/10/2011	05:17 AM	1.1	Pass	2.5	3.0	-	-	-	-	-
ATP	2	Combo Dumper	Blending Line	36/11/2011	05:19 AM	1.3	Pass	2.5	3.0	-	-	-	-	-
ATP	4	Conveyor	Packaging Line	36/14/2011	05:10 AM	2.2	Pass	2.5	3.0	-	-	-	-	-
ATP	7	Baler		36/15/2011	05:13 AM	1.4	Pass	2.5	3.0	-	-	-	-	-
ATP	4	Conveyor	Packaging Line	36/17/2011	05:21 AM	2.2	Pass	2.5	3.0	-	-	-	-	-
ATP	4	Conveyor	Packaging Line	36/18/2011	05:12 AM	2.2	Pass	2.5	3.0	-	-	-	-	-

- Click on the desired MVP collection under the “Select to View” section to the far left of the screen.
- Columns are first sorted by test point number, then by date to group all related parameters for a particular test point together. Data for each parameter is sorted in the appropriate column.
- Each column can be sorted by the desired column order; either ascending or descending.
- The first six columns in MVP Collections will be frozen to allow users to view other parameters for data analysis.

Printing MVP Collections

Due to the size and format of MVP Collection data, it cannot be printed as a PDF file from the software. Instead, copy and paste all data into an Excel file by highlighting the data and pressing “Ctrl + C” from your keyboard, then pasting into an Excel file.

Device Communication

When an ICON instrument is first sync'd with the ICON Dashboard Software, an association is made whereby the ICON instrument (by Serial Number) becomes paired with the currently open Dashboard database (.sdf) file. The file name of the database is displayed in the upper right corner of the ICON Dashboard home screen.

On subsequent sync attempts, the ICON Dashboard Software first checks to see if the serial number of the ICON instrument being sync'd is already associated with the currently open Dashboard database (.sdf). If an existing association is confirmed, then test points, sample plans, and collected results can be transferred between the ICON instrument and ICON Dashboard software.

Below are the following ways in which the instrument and software communicate:

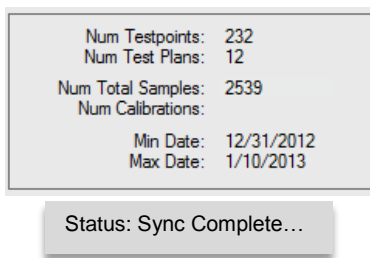
- Transfer test points and sample plans to the device.
- Transfer results from the instrument to software.
- Transfer test point and sample plan information from instrument into the software to create a new database.

Syncing the ICON to an ICON Dashboard Database (.sdf)

- Launch software and choose existing database or create a new one.
- Connect ICON to computer – the unit will turn on automatically.
- Software will display a green “Connected” button in top right of the screen when the instrument and software are communicating.
- Press “Sync” located next to the “MVP ICON” serial ID on the dashboard toolbar.

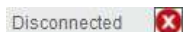


- A pop-up box will indicate when the sync process begins and completes.



Results, if any, will now be transferred from the instrument to the database and any newly created test points or sample plans will be transferred onto the device.

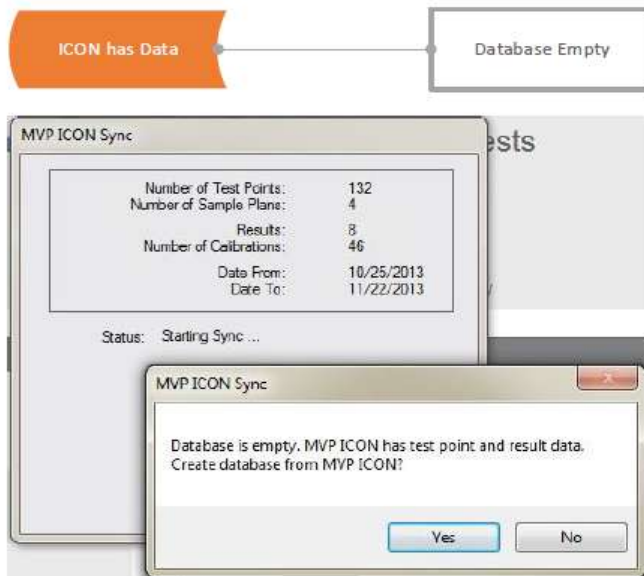
When the instrument is unplugged from the computer, the software will display the “Disconnected” status.



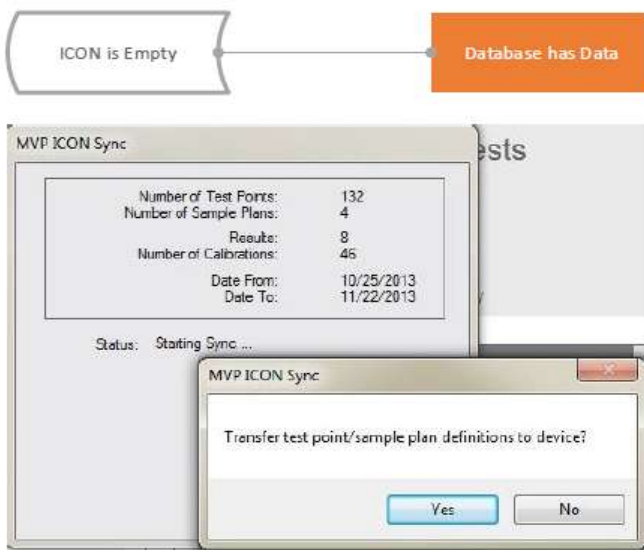
Communication Scenarios

Once an ICON instrument has been paired with a database, the two are used congruously. Multiple ICON devices can be paired to the same database (.sdf); however, each ICON instrument can only contain one test plan database at a time.

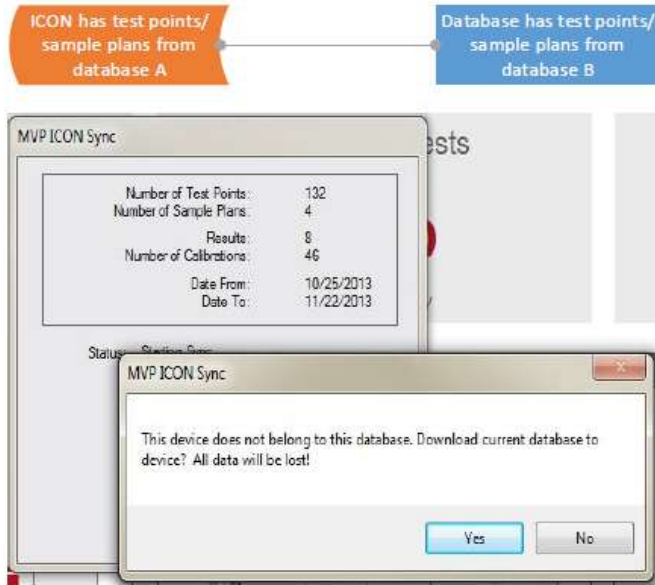
The following describes various database and ICON instrument Sync scenarios.



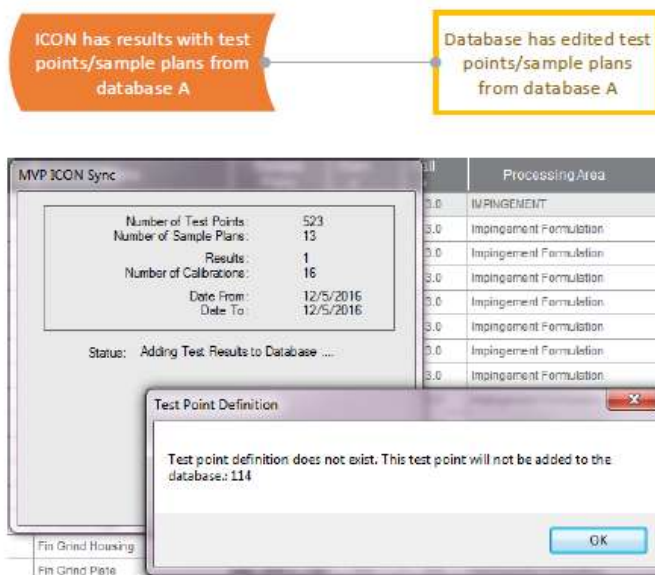
- Start a new, blank database.
- Connect MVP ICON that has existing data.
- Click Yes to create a database from ICON.



- Open existing database.
- Connect MVP ICON that is empty.
- Click Yes to transfer sample plans and test points to ICON.



- If the user wishes to use database B going forward, say Yes.
- The results on the ICON must be archived prior to syncing, and old results should be erased from the ICON manually.
- If the user did not intend to convert to database b, then they should say No
- Go to File → Open and browse to open database A again.



- User should sync and archive the previous version of the database before editing test points and sample plans in Dashboard.
- If they haven't done that, start by opening a new blank database, create database from ICON, and archive.
- Delete results from ICON instrument
- Re-open the newly edited database and sync to ICON

Deleting Test Points from Database

Deleting a test point will remove all associated data from the database. To save this data, results must first be archived prior to deleting the test point. The following warning message will appear before a test point is deleted:

- “Deleting this test point will remove all associated data from the database. To save this data, results must first be archived prior to deleting test point. Do you wish to delete the test point(s) at this time?” Yes / No.

After the test point has been deleted, any remaining results on the instrument can only be deleted manually on the device.

When an instrument containing results for a deleted test point is synced to the database, the following message will appear:

- “Results from test point(s) ‘x’ cannot be downloaded as these test points do not exist in this database. They may have been previously deleted. Do you wish to delete the associated data from the ICON instrument at this time?” Yes / No.
- To download these results, the archived database with historical test point information must first be restored into the software.

Note: Archived database must be from a time prior to test point deletion.

Re-Using a Deleted Test Point

Once a test point has been deleted, it can be re-used for another assignment. It is recommended the deleted test point’s historical data be archived prior to deletion. Results for the deleted test point must be manually deleted from the ICON instrument prior to syncing.

- Click “New Test Point” from the Test Point Setup menu in the software.
- The test point number will be assigned the maximum value in the list (ex. if last test point in list is 500, 501 will be the new test point number).
- Click the “Test Point #” cell to highlight the test point number.
- Change to the desired test point number of any deleted test point.

Note: Test point numbers must be unique. There cannot be (2) test points with the same number. A warning will appear if attempting to assign an in-use test point number.

Please see *Chapter 24 – Database Management* for more information on database management.

Database Management

Creating an ICON Dashboard Database (.sdf)

Multiple database (.sdf) files can be created in the ICON Dashboard Software but only one can be open at any one time. Upon installation of the ICON Dashboard software, a prompt will require creating a new ICON database.

- Select “New” from the prompt.
- Database will automatically assign to a directory. Change directory to a different desired location, if necessary.
- Input desired name of database file.
- Select “Save”.

Importing an ICON Database

To load an existing ICON database:

- File
- Open
- Browse for database (.sdf file)
- Select “Open” in the browser to retrieve

The selected database will now be imported into the software. The database name and number of associated results is located above the “Connected/Disconnected” graphic on the top right screen.



Importing Data from MVP TRAX

Historical data from BioControl’s LIGHTNING MVP TRAX software can be transferred to the ICON software for a seamless system conversion. Results from the ICON software cannot be transferred into TRAX.

Note:

- Importing historical TRAX data **must be the first action** prior to creating any new test points or sample plans in order for data to import properly.*
- The minimum threshold must be greater than or equal to 1.3 zones and the maximum threshold must be less than or equal to 5.0 Zones.*

Create a new database

- File
- New

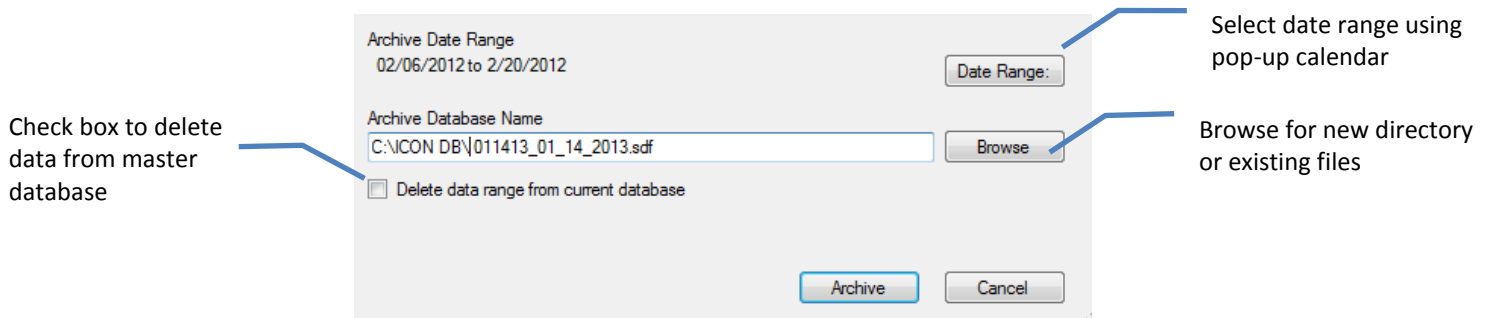
Import historical TRAX data

- File
- Open
- Import Data from Excel
- Browse for TRAX file and press “Open”

Archiving a Database

Archiving a database allows a sub-set of information to be saved as its own database. Data from the master file can then be kept or deleted from the archived date range.

- File.
- Archive Database.
- Select date range.
- Archive will automatically direct to the computer’s C: drive unless otherwise directed (click Browse to change directory).
- Select the check box to delete data from master database once archived.
- Press “Archive”.





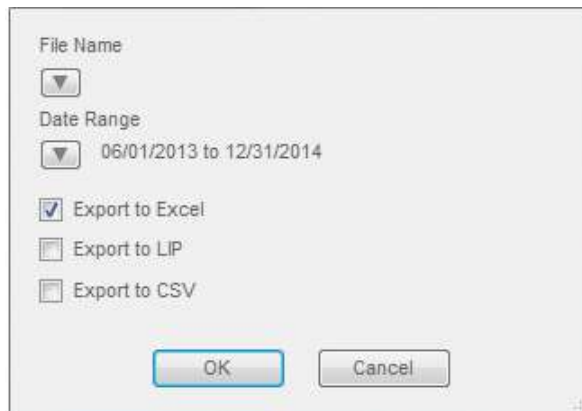
To load an archived database, follow the instructions “Importing an ICON database” above.

Exporting to Excel

Raw data results can be exported to Excel for several reasons, including to view in a standardized format, reformat into a new report layout, perform additional data analysis, or import into a company-standard data management or reporting program such as Microsoft Access, Oracle, SAP, Tableau, etc.

To export raw data from an open Sql database (.sdf) file:

- Select “File” then “Export Data” from ICON Dashboard menu.
- Under File Name, select .
- In Export Data File window, type in desired name of output file, then select “Save”.
- Under Date Range, select .
- In Select Date Range window, select desired date range of data to export, then select “OK”.
- Select “Export to Excel” check box.
- Select “OK”.



The screenshot shows a dialog box titled "Export Data". It contains the following elements:

- File Name:** A dropdown menu with a downward arrow.
- Date Range:** A dropdown menu showing the selected range "06/01/2013 to 12/31/2014".
- Export Options:** Three checkboxes:
 - Export to Excel
 - Export to LIP
 - Export to CSV
- Buttons:** "OK" and "Cancel" buttons at the bottom.

Exporting to CSV

Comma-separated values (CSV) is a common file format widely supported by business and scientific applications. Exporting data as a CSV file allows for the uniform and consistent integration into a wide array of management information applications, particularly Laboratory Information Management Systems (LIMS).

- File
- Export Data
- Select dropdown arrow next to “File Name” to name file and choose directory
- Select dropdown arrow next to “Date Range” to customize date range of data to export.
- Check box next to “Export to CSV”
- Select “OK”

Exporting to LIP Program

The Lightning Index Proficiency (LIP) program is a service offering from BioControl Systems for facilities wishing to see how their results compare to an industry or corporate-level standard.

- Follow the export directions above through selecting a date range.
- Check box next to “Export to LIPS”
- Send file as an attachment to LProgram@biocontrolsys.com to receive a formatted report.

Importing from Excel

The Import function is primarily to import historical TRAX data from a Microsoft Excel file into a new ICON Dashboard database (.sdf) file which, as mentioned above, must be done prior to creating any new test points or sample plans. The new database must be empty to import data from a TRAX Excel file.

To create a new, empty database:

- Select “File” - “New”.
- Enter a desired file name and choose a desired file storage location.
- Select “Save” when done.
- In the ICON Dashboard SW, verify that the new database (.sdf) file name is displayed in the upper right corner.

To import TRAX data from an Excel file into a new, empty Sql database (.sdf) file:

- Select “File” - “Open”.
- Browse for Sql file (.sdf) of the desired new, empty database, then select “Open”.
- In the ICON Dashboard SW, verify that the new database (.sdf) file name is displayed in the upper right corner.
- Select “File” - “Import Data From Excel”.
- Browse for desired Excel file, then select “Open”.
- In the ICON Dashboard SW:
 - Select “Test Point Setup” menu and confirm that the TRAX test plan data is displayed.
 - Select “Raw Data” report and confirm that TRAX test result data is displayed.

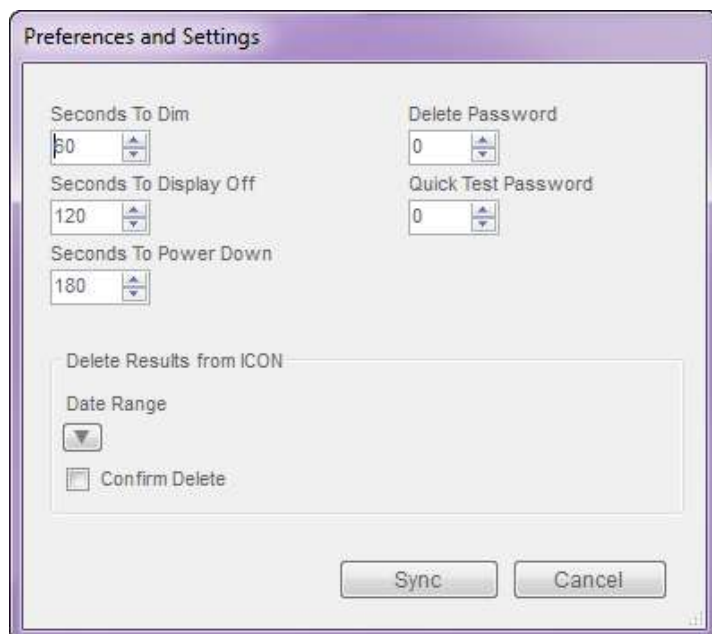


Raw Data		
01	P	05/12
02	W	05/11
03	F	05/13

ICON Setup

Preferences

ICON Setup allows for the customization of certain screen items on the ICON instrument such as, timing for the screen's dimmer and setting the Delete and Quick Test passwords.



Changing Screen / Power Save Settings

The ICON instrument arrives with preset timing for the screen's power save settings which can help to preserve battery life. These settings can be customized to the user's preference within the ICON Dashboard Software when the ICON instrument is connected.

Power Save Settings

Setting	Description	Default Setting	Settings Range
Seconds To Dim	If the screen is not touched for specified time, the screen brightness will be lowered automatically	60 sec (1 min)	0 – 1275 sec (Off – 21 min)
Seconds To Display Off	If the screen is not touched for specified time, the LCD backlight will turn off and the screen will look black. If the screen is touched afterward, and before Power Down time is reached, LCD backlight will turn back on.	120 sec (2 min)	0 – 1275 sec (Off – 21 min)
Seconds To Power Down	If the screen is not touched for specified time, the ICON instrument will shut off automatically. The power button must be pressed to turn unit on again.	180 sec (3 min)	0 – 1275 sec (Off – 21 min)

Please note that changing these settings will impact the battery life of the instrument.

- Connect ICON instrument to ICON Dashboard Software.
- In ICON Dashboard Software, select "ICON Setup" then "Preferences".

- Click the up/down arrows to change the default time for any of the three power save settings. You can also double-click the value and manually type in the desired time (in seconds).
- Press “Sync” to transfer new settings to ICON instrument.

Passwords

Optional passwords can be enabled for both the Delete and Quick Test functions in the ICON instrument.

- Connect ICON instrument to ICON Dashboard Software.
- In ICON Dashboard Software, select “ICON Setup” then “Preferences”.
- Click the up/down arrows to set password protection for either setting.
- Press “Sync” to transfer new settings to ICON instrument.

Password-Protected Functions

Function	Description	Default Setting	Settings Range
Delete	If enabled, users are required to enter the correct code in order to delete readings from the Results menu.	0 (Disabled)	1 - 4 digit
Quick Test	If enabled, users are required to enter the correct code in order to initiate a Quick Test reading in the Points menu.	0 (Disabled)	1 – 4 digit

Delete Results from ICON via ICON Dashboard Software

Results on the ICON instrument can either be deleted manually from the instrument or via the ICON Dashboard Software. To delete results from the instrument via the ICON Dashboard Software:

- Connect ICON instrument to ICON Dashboard Software.
- In ICON Dashboard Software, select “ICON setup” then “Preferences”.
- Click down arrow to specify date range of results to be deleted from ICON.
- Click “Confirm Delete” check box.
- Click “Sync”.
- Disconnect ICON instrument from USB cable.
- In ICON screen, press “Results” and verify no results are listed.

ICON Dashboard Software Settings

Preferences

Choose language, date/time format, and result scale (Zones/RLU) from the software's "Preferences" menu.

- Select "Settings" from the software's top toolbar
- Select "Preferences"

Note: Changing Preferences only affects the display of information in the ICON Dashboard Software. These settings do NOT affect the display of information on the ICON instrument screen.

Languages

Choose from the following languages:

- English
- Spanish
- Portuguese
- German
- French

Temperature Scale

Choose from the following temperature scales:

- Celsius
- Fahrenheit

Date Format

Choose from the following date formats:

- MM/DD/YYYY
- YYYY/MM/DD
- DD/MM/YYYY

Time Format

Time is available in 12-hour or 24-hour format.

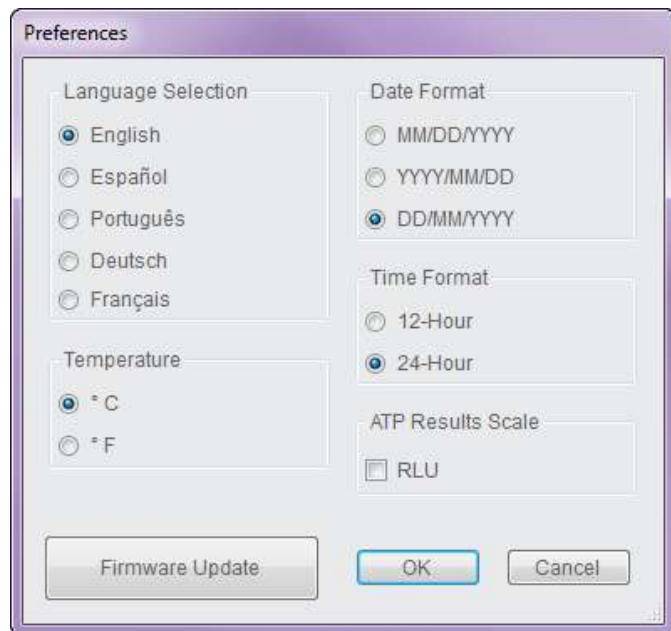
ATP Results Scale

ATP results are always displayed in Zones (Zones of Cleanliness) under Raw Data. To enable the display of results in RLU (Relative Light Units) in addition to Zones, click the "RLU" check box and press "OK".

Firmware Update

With the release of any new version of ICON instrument firmware, the MVP ICON will require an update to ensure system performance and compatibility.

- Select the "Firmware Update" button under the "Preferences" menu.
- Follow the steps outlined in *Appendix A*.



User Info

These optional fields allow for customization of company information for reporting purposes. The three fields of customization are Company Name, Database Description, and Company Logo.

Company Name

Enter your company's name in this field to appear in the header of all generated reports.

Database Description

Entering a description for the database helps identify it from other saved databases and provides a brief summary or description as to what types of test point or sample plan information may be included.

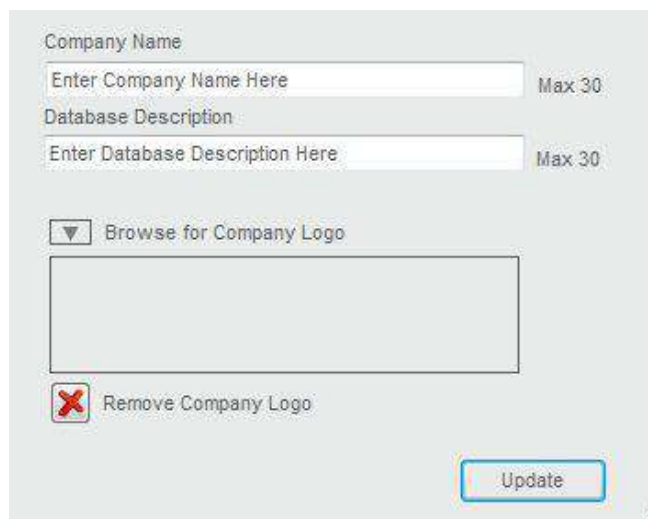
Company Logo

A company's logo can be inserted onto all graphs to further personalize reports.

- Select "User Info" from the "Settings" menu.
- Click the drop-down arrow next to "Browse for Company Logo".
- Select image from computer or network drive.
- Once "Update" is selected, the company's logo will be inserted onto all graphs.
- To remove image, click the red "X" in located next to "Remove Company Logo".

Note: ICON Software supports the following image extensions for company logos:

*.bmp, *.jpg, *.jpeg, *.gif, *.tiff, *.tif



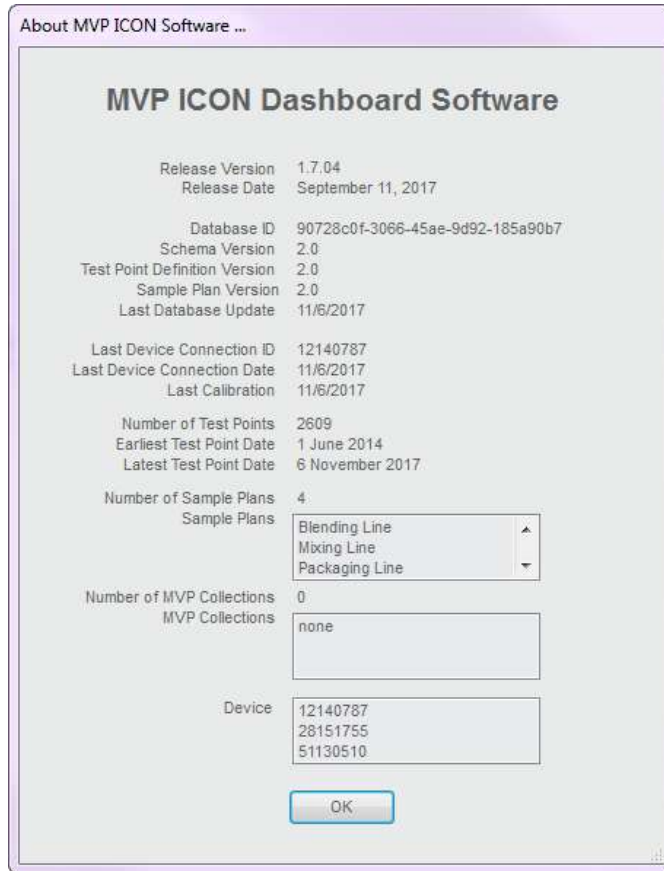
The screenshot shows a settings dialog box with the following elements:

- Company Name:** A text input field with the placeholder text "Enter Company Name Here" and a "Max 30" character limit indicator.
- Database Description:** A text input field with the placeholder text "Enter Database Description Here" and a "Max 30" character limit indicator.
- Browse for Company Logo:** A button with a downward-pointing triangle icon and the text "Browse for Company Logo". Below this button is a large, empty rectangular area for displaying the selected logo.
- Remove Company Logo:** A button with a red "X" icon and the text "Remove Company Logo".
- Update:** A button with the text "Update" located at the bottom right of the dialog.

Help

Displays software version number and provides a link to BioControl contact Information.

About MVP ICON Software...



About MVP ICON Software ...

MVP ICON Dashboard Software

Release Version	1.7.04
Release Date	September 11, 2017
Database ID	90728c0f-3066-45ae-9d92-185a90b7
Schema Version	2.0
Test Point Definition Version	2.0
Sample Plan Version	2.0
Last Database Update	11/6/2017
Last Device Connection ID	12140787
Last Device Connection Date	11/6/2017
Last Calibration	11/6/2017
Number of Test Points	2609
Earliest Test Point Date	1 June 2014
Latest Test Point Date	6 November 2017
Number of Sample Plans	4
Sample Plans	Blending Line Mixing Line Packaging Line
Number of MVP Collections	0
MVP Collections	none
Device	12140787 28151755 51130510

OK

Provides relevant data about the software, such as software version and database ID, last database update, etc.



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Troubleshooting

Please refer to the guidelines below for resolving system issues. If the proposed solutions do not correct the issue, please contact BioControl Technical Service at 800.245.0113 or your local authorized BioControl distributor.

MVP ICON Instrument Error Messages

Please refer to *Appendix B* for a list of error messages and suggested corrective action(s) if applicable.

MVP ICON Instrument

Issue: ICON will not charge. The screen remains blank even when connected to a battery charger.

Resolution: 1) Verify the connections are secure and a power source is active.
2) If the power source is not active, unscrew the battery cover on back of instrument, disconnect and reconnect the battery, ensuring the cover is properly tightened. If the instrument still does not turn on, the lithium ion battery may need replacement. Contact BioControl Technical Support.

Note: *The ICON can only be charged via the wall adaptor. The ICON will not charge when plugged into a computer's USB port.*

Issue: A small amount of liquid has been spilled on or into the ICON instrument.

Resolution: Turn the ICON off and keep it vertical in a dry, low-dust environment, with the sample chamber door open. Allow sufficient time for the internal liquid to evaporate.

Issue: Background readings are too high, ATP sensitivity is too low, or these parameters have changed suddenly.

Resolution: First, ensure liquid was not spilled inside the ICON instrument. If liquid was spilled, allow it to dry completely. Next, it is recommended to run the ICON instrument calibrators (sold separately) and compare the results with those obtained previously to confirm if the issue can be narrowed down to the ICON instrument.

Issue: Calibrator results vary widely from read to read.

Resolution: This can indicate an MVP ICON instrument malfunction. However, make sure this issue is not a result of static electricity accumulated on the luminescent calibrator. Touch the luminescent calibrator to a metal object then slowly reinsert it into the reading chamber and give any remaining static time to dissipate before initiating a reading, approximately 2 minutes.

MVP ICON Sampling Devices

Issue: There is moisture in the pouch when first opened.

Resolution: The moisture in the pouch is wetting agent from the sampling devices. It is intended to keep the sampling devices from dehydrating. It will not change the light output nor cause contamination of the sampling devices. Do make sure that the outside of the sampling device is wiped dry with a clean cloth before inserting it into the MVP ICON instrument to read.

MVP ICON pH/Temperature Probe

Issue: The pH/Temperature probe will not calibrate.

Resolution: It is recommended to calibrate the pH probe daily, prior to use. Occasionally probes can get plugged or dirty from sample testing which can impact the probe's accuracy. If this happens, clean the probe with liberal amounts of warm water and gently scrub with a soft bristled brush and soap. Rinse thoroughly, blot dry and recalibrate.

If the probe has not been used in a while, it may be plugged with residual sample or crystalized KCl. Submerge the probe in a beaker of warm water (~ 50 °C) until the water cools to room temperature - approximately 30 minutes. Then, soak the probe in saturated KCl solution for 15 to 30 minutes and recalibrate. Alternately, if buffers become contaminated the probe will not calibrate. In addition, ensure the pH 10.00 buffer is borate-based.

Issue: The pH takes a long time to stabilize during calibration.

Resolution: In general, it should only take about 25 seconds per calibration point. If the time to stabilize is much longer, ensure the probe is clean and has been presoaked in pH 7.00 or 4.00 buffer for a minimum of 10 minutes. It may also take longer for pH readings to stabilize in relatively clean water samples.

Issue: Can I use the MVP ICON pH/Temperature probe to test Tris buffers?

Resolution: Yes. The main issue encountered when testing Tris buffers with standard pH electrodes is that the Tris can react with a Silver/Silver Chloride (Ag/AgCl) reference liquid and cause the silver to precipitate out of the reference solution and plug the reference junction. Although the MVP ICON pH/Temperature Probe uses a traditional reference, it offers a few major advantages over glass electrodes when testing Tris:

1. The MVP ICON pH/Temperature Probe reads very quickly (approximately 10 seconds). There is little time for the sample to react with the reference. A recommended best practice is to insert the probe, take the reading and remove the probe quickly rinse with DI water to minimize contact time.
2. The MVP ICON pH/Temperature Probe has a large surface area reference junction of porous PTFE (Teflon). This junction provides great sample contact and is very easy to clean.

MVP ICON Temperature Probe

Issue: The MVP ICON Temperature Probe will not calibrate.

Resolution: Probes get dirty which will influence the ability to be calibrated and/or make accurate readings. Avoid highly corrosive or abrasive materials as well as strong organic solvents.

Issue: The probe tip comes off.

Resolution: You must replace the probe. Contact BioControl Technical Support for information.

MVP ICON Conductivity Probe

Issue: The ICON display reads “Probe not connected.”

Resolution:

- 1) Try reinserting the connector for better contact.
- 2) Verify the ICON is in “Conductivity” mode.
- 3) Inspect the probe body for signs of connection breakage. If the connectors are damaged, then a replacement is required.

Issue: The ICON displays “Calibration failed.”

Resolution: Refer to *APPENDIX B* to establish the error number and corresponding corrective action. In addition, the calibration may fail when the sanitizer possesses insufficient conductivity for quantitation, over that of the background water. The conductivity feature of the MVP ICON may measure most, but not all, sanitizers in most backgrounds. The instrument will produce Error 12 if there is an insufficient difference.

Issue: The conductivity readings drift or are unstable.

Resolution: Stir the sample to equilibrate. If the readings continue to drift, re-calibrate the probe.

Issue: The conductivity readings are drastically different from what is expected.

Resolution:

- 1) Verify the correct keypad entry of the calibration solution and re-calibrate.
- 2) Clean the probe and recalibrate if 1) does not resolve the problem.

Issue: Temperature readings are not as expected.

Resolution:

- 1) Stir the sample to achieve uniformity and re-measure.
- 2) Recalibrate the temperature sensor in “Temperature” mode, if necessary.

APPENDIX A

ICON Firmware / Software Update Procedures

With the release of any new version of MVP ICON firmware or MVP ICON Dashboard software, the following update procedures will need to be followed to ensure system performance and compatibility. Please follow the steps below to update the MVP ICON firmware and Dashboard software.

Updating the ICON Dashboard Software

Note: *It is important to ensure the MVP ICON Dashboard software has been updated to its most recent version prior to updating firmware. Your PC may require Administrator rights to the computer in order to successfully uninstall and/or install software programs. Contact your company's IT department if necessary.*

- The current version of software must be uninstalled before a new version of ICON Dashboard Software can be installed.
- The new version of software must be downloaded from the BioControl website portal and the contents of the downloaded .zip file must be extracted.
- Before proceeding to uninstall the current version of the ICON Dashboard software, open the program. Write down the database (.sdf) file name shown in the upper right corner and ensure its file storage location.
- Uninstall the current version of software from computer (Control Panel – Programs – Uninstall or Add/Remove Programs – locate MVP ICON Dashboard software in program list and select “Uninstall”).
- Install the new version of ICON Dashboard Software by locating the extracted .zip file contents and double-clicking the “Setup.exe” file.
- Follow the Install Wizard prompts to complete the ICON Dashboard software installation.

Updating the ICON Instrument Firmware

- Ensure the most recent version of Dashboard software is installed on the computer.
- The latest version of ICON instrument firmware must be downloaded from the BioControl website portal and the contents of the downloaded .zip file must be extracted.
- Connect the ICON instrument to the ICON Dashboard Software and sync the instrument.
- Disconnect ICON from the ICON Dashboard Software.
- In the ICON Dashboard Software, select Settings – Preferences – Firmware Update from the software toolbar.
- Follow the prompts in the ICON Dashboard Software.

Note: *The firmware update file will be named “MVP ICON Firmware x.x.hex” where “x.x” denotes the specific firmware version number. When prompted for the .hex file location, navigate to the folder where the downloaded .zip file contents were extracted to.*

- Continue to follow the prompts on the ICON Dashboard software screen until the “Firmware Update Successful” message appears then disconnect the ICON.
- To verify the firmware update, select “Device” from the ICON instrument menu, then select “About.” The updated firmware version should be displayed.

For assistance, please contact BioControl Technical Support at 800.245.0113.

APPENDIX B

ICON System Error Codes

Error #	Error Message	Description & Suggested Action
1	Contact Tech Service	Unspecified error; note info displayed on screen and contact Tech Service.
2	Contact Tech Service	Internal memory has been corrupted. Contact Tech Service.
3	Contact Tech Service	Unable to communicate with internal memory. Try syncing to ICON Dashboard Software if possible.
5	Contact Tech Service	Error while writing to database.
6	Contact Tech Service	Possible firmware or hardware error. Power-cycle instrument.
7	Please connect probe.	Ensure probe is correctly and securely connected to ICON instrument.
8	Unstable Readings. Repeat Test. Contact Tech Service if problem persists.	Difficulty acquiring data in allotted time. Repeat test.
9	Memory Full; Sync Device and Delete Results.	New room in internal memory. Sync instrument and delete results. In Home screen, check "% Memory Free" field.
10	Contact Tech Service	Possible firmware error. Note full message and contact Tech Service.
11	Low Battery	Critically low battery. Recharge immediately.
12	Calibration Failed. Retry. Contact Technical Support if problem persists.	Invalid calibration data. Repeat ensuring luminescent rod is inserted first before non-lumi rod. If failure persists, try again but with hand cupped over top of door. If calibration is successful, instrument may have a light leak. Contact Tech Service.
13	Calibration is Required Before Testing	Calibrate ICON for ATP.
14	Calibration is Required Before Testing	Calibrate ICON for pH.
15	Calibration is Required Before Testing	Calibrate ICON for Temperature.
16	Calibration is Required Before Testing	Calibrate ICON for Conductivity.
17	Calibrate Chemical Standard	Calibrate Concentration Chemical Standard.
18	No Chemical Standard Assigned	Cannot run PPM test. Assign a chemical standard in Test Point Setup of ICON Dashboard software and sync to ICON.
19	Chemical Standard Does Not Exist in Database	Cannot run PPM test. Assign a chemical standard in Test Point Setup of ICON Dashboard software and sync to ICON.

20	Chemical Standard Does Not Exist in Database	Cannot run PPM test. Assign a chemical standard in Test Point Setup of ICON Dashboard software and sync to ICON.
22	This Plan is Too Large To Shuffle	The Shuffle feature only supports up to 120 individual test points in a sample plan. Reduce total number.
23	Incorrect Password	Enter correct password to allow either Quick Test or deletion of test results. Contact your manager if unsuccessful.
24	Please Close Chamber Door	Chamber door opened during test. Keep door closed during test.
25	Contact Technical Support if problem persists.	High voltage out of limits during test.
26	Hold ICON upright and steady.	Excessive motion detected during testing. Keep instrument upright and steady during readings.
27	Baseline Reading Required. Remove swab. Close chamber door. Acquiring Baseline	This is an advisory message requiring user action. After following steps, repeat test. If message persists constantly, contact Tech Service.
29	Please Use MVP ICON Sampling Device.	Unapproved ATP sampling device detected. Use only approved BioControl ATP sampling devices.
32	Verify Chamber is Empty and Close Door. Contact Technical Support if problem persists.	Empty chamber reading is out of spec. Reboot instrument. Contact Tech Service if error persists.
33	Please Close Chamber Door	Chamber door left open too long. Ensure door is always closed immediately.
34	Please Remove Sampling Device	Swab or cal rod left in the chamber for an extended period of time and no test is in progress. Can also occur if swab or cal rod is left in chamber when powering down the ICON. Ensure swab or rod is removed after completion of test.
35	Maximum number of shuffled plans is 25. Please reset 1 or more shuffled plans.	The Shuffle feature in "Plans" menu can only be used for up to 25 sample plans. Reduce number of shuffled plans to 25 or less using the "Reset Plan" or "Reset Plans" button.
36	Power Failure. Check Date and Time.	Power failure detected. Loss of date/time setting caused by complete loss of power (ex. Dead battery, hardware fault, severe mechanical shock).

37	Contact Tech Service if problem persists.	Corrupt databased on ICON. Caused in the past by incorrect downgrade of instrument firmware, or if ICON is left connected to ICON Dashboard Software long enough for instrument to turn off automatically (3 min default) and user then clicks "Sync". Update instrument firmware to v5.3.2 or newer.
39	Contact Tech Service if problem persists.	Photodetector fault code specific to the TE value in the "Device" – "Status" menu. Indicates TE is out of specified limits and shows as TE = 20000 or TE = -20000. Discontinue use and contact Tech Service.
40	Contact Tech Service if problem persists.	Photodetector fault code specific to the DC value in the "Device" – "Status" menu. Indicates DC value is out of specified limits and shows as DC = 0 or DC = -. Discontinue use and contact Tech Service.

BIOCONTROL
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Results. Right Now.

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EP Patent No. 1455177
EP Patent No. 1455178

55221.R005.022018