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USER GUIDE

ApexZ particle counters

Lighthouse

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Operators Manual

ApexZ

Airborne Particle Counters (ApexZ3, ApexZ50)





LIGHTHOUSE® WORLDWIDE SOLUTIONS

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Lighthouse Worldwide Solutions®

ApexZ3 and ApexZ50

Airborne Particle Counter





Operators Manual

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Safety

About this Manual

This manual describes the setup, operation and use of the Lighthouse Worldwide Solutions® ApexZ family of Portable Airborne Particle Counters. The word “ApexZ”, “unit”, or “instrument” may be used in place of a specific model in this ApexZ Operators Manual.

WARNING: There are no user serviceable components inside the particle counter. The use of controls, adjustments, or procedures other than those specified within this manual may result in personal injury and/or damage to this instrument.

NOTE: Additional information is presented within a note box relative to the instructions at hand.

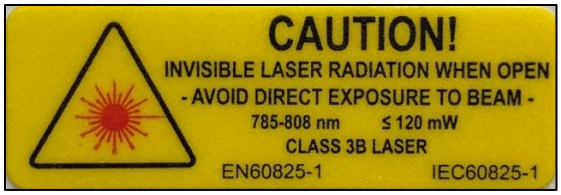
General Safety

Warnings and Notes are used throughout this manual and the reader should become familiar with the meaning of a warning before operating the particle counter. Most warnings will appear next to the subject or step to which it applies. Take care when performing any procedures preceded by or containing a warning. The classifications of warning are defined as follows:

- Laser – pertaining to exposure to visible or invisible LASER radiation.
- Electrostatic – pertaining to electrostatic discharge.
- Network Connection – pertaining to communication ports and instrument damage.

Laser Safety

This product is a Class 1 LASER product (as defined by FDA 21 CFR, §1040.10 and IEC 60825-1:2014) when used under normal operation and maintenance. Performing service on the internal sensor can, however, result in exposure to invisible radiation. The particle counter has been evaluated and tested in accordance with EN 61010-1:2012, “Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use” and IEC 60825-1:2014, “Safety of LASER Products”. For further technical assistance, contact our Technical Support Team at 1-800-945-5905 (USA Toll Free), or 1-541-770-5905.



Laser Warning Label

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Battery Safety

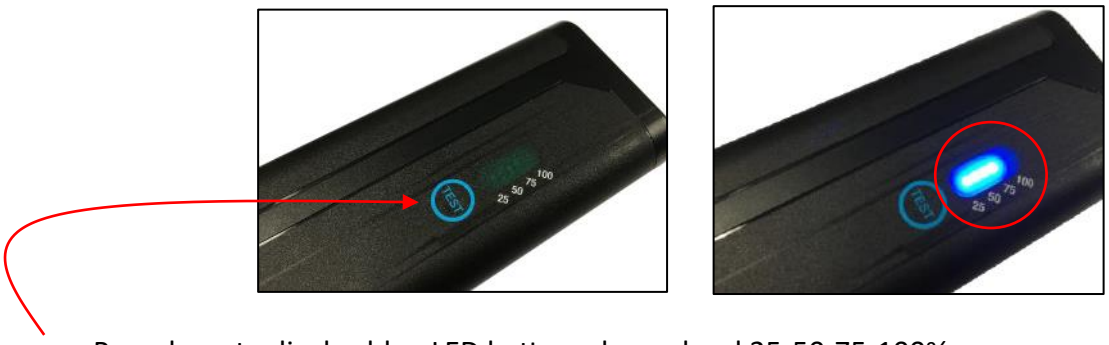
Battery Type:

National Power Sm-Energy®

Model: SM221

Lithium-Ion Rechargeable Battery, 14.4V, 6.45Ah, 93Wh

Battery Level Indicator Button



- Press here to display blue LED battery charge level 25-50-75-100%

Installing the batteries



- Insert battery 1 into the lower battery slot.
- Insert battery 2 into the upper battery slot. *(You will feel a slight pressure and clicking as the battery seats down fully in the battery slot.)*
- Close the battery door. Tighten down the battery door screw.



NOTE: ApexZ has dual battery slots and can operate with either one or two batteries installed. With two batteries installed both batteries will self-adjust and drain their charge evenly together.

NOTE: The ApexZ Smart Batteries have a power-saving function where they will go into hibernation mode after not being used for a period of a few weeks. While in this mode pressing the Test button will not show any charge present on the battery, and the battery will not power the unit. To “wake” the battery, power must be applied to it, such as being inserted into an ApexZ unit that has DC power applied.

Hot swapping the batteries

If there are two batteries installed in the unit, the ApexZ will allow the user to remove one battery while the instrument is powered on and sampling. This allows the user to continue to sample with one battery while recharging the second battery. A charged second battery may then be reinstalled into the instrument while ApexZ is still sampling.

Hot swapping allows the user to install a newly charged battery and then remove a low charge battery while the instrument is sampling under battery power.

Use the optional battery charger (PN 017789753: Dual Battery Charger) to charge batteries outside of the ApexZ instrument.

Batteries inserted into ApexZ will always charge while ApexZ is plugged into the AC power with the AC power adapter and power cord.

WARNING: DO NOT disconnect the power cord or remove the battery while the instrument is powering down. These actions will cause corruption of the firmware.

WARNING: Only use batteries provided with the ApexZ by Lighthouse Worldwide Solutions® . Use of unauthorized batteries may cause damage to equipment, void warranty, and pose a threat to safety.

Charging the batteries outside of ApexZ

Optional Dual Bay Desktop Charger for charging up to 2 ApexZ batteries at the same time.



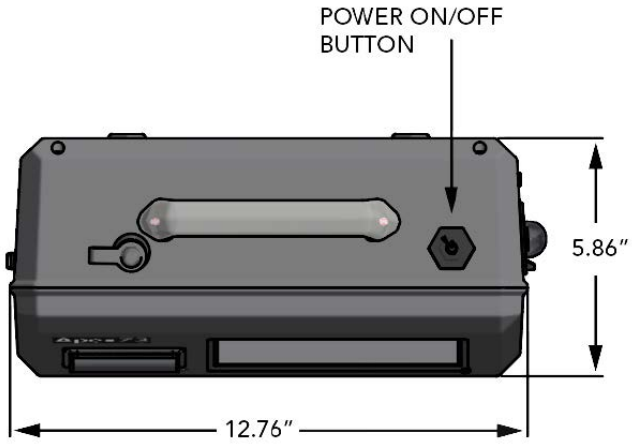
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Power Safety

Start Up



- Press the power button once to turn on the ApexZ particle counter.
- **DO NOT HOLD** the power button down to turn it on.



ApexZ Top View

Shut Down Safety

- Press the power button once to shut down.
- **DO NOT HOLD** the power button down to shut down.

NOTE: Users are not required to logout before ApexZ is shut down. If Users are enabled, shutting down the ApexZ will logout the current user and will require a user to login when the ApexZ is next started. It is permissible to shut down the ApexZ particle counter from any one of the user interface screens.

WARNING: DO NOT disconnect the power cord or remove the battery while the instrument is powering down. These actions will cause corruption of firmware.

WARNING: Do not press and hold the Power button to shut down. This will cause a hard reset and can damage the unit; it is not recommended.

Sampling Safety

WARNING: While the flow path components will not be adversely affected, sampling reactive gasses such as hydrogen and oxygen can be dangerous. Appropriate precautions should be taken. Sampling of any pressurized gasses without the use of properly designed diffuser can cause damage to the instrument and void the warranty. DO NOT allow water, solvents, or other liquids to enter the instrument, as they can damage the instrument and void the warranty.

Operating Safety

WARNING: The use of controls, adjustments, or procedures other than those specified within this manual may result in personal injury and/or damage to this instrument. Attempts by untrained personnel to disassemble, alter, modify, or adjust the electronics or optics may result in personal injury and damage to the instrument and will void its warranty. There are no user-serviceable components inside the particle counter. Only factory authorized service personnel should repair or service this instrument and its optical system. Only use the power supply provided by Lighthouse with the ApexZ instrument. Failure to meet this requirement will void the CE certification, void the instrument warranty, and can result in serious personal injury.

Electrostatic Safety Information

WARNING: Electrostatic discharge (ESD) can damage or destroy electronic components. Therefore, any service or maintenance work should be done at a static-free workstation. A static-free workstation requires an ESD consultant to evaluate the work environment and propose the equipment and apparel needed for a workstation to be successful.

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Compliance

FCC Notice

Electrostatic discharge (ESD) can damage or destroy electronic components. Therefore, any service or maintenance work should be done at a static-free workstation. A static-free workstation requires an ESD consultant to evaluate the work environment and propose the equipment and apparel needed for a workstation to be successful.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his expense.

NOTE: Any changes or modifications not expressly approved by Lighthouse Worldwide Solutions® could void your authority to operate this equipment.

FCC RF Exposure Statement

This equipment complies with FCC RF exposure limits set forth for an uncontrolled environment. This equipment was verified for RF exposure and found to comply with FCC OET-65 RF exposure requirements.

WARNING: Making changes to the antenna or the equipment is not permitted. Doing so may result in the equipment exceeding the FCC RF exposure guidelines. This equipment must not be co-located or operated in conjunction with any other antenna or radio transmitter.

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Introduction

Overview

This operating manual introduces the Lighthouse ApexZ portable particle counters ApexZ3 and ApexZ50 and includes instructions for inspecting, installing, using, and maintaining the instrument. Retain the original box that the Apex unit shipped in, to facilitate returns for calibration or service. Lighthouse also offers a custom ApexZ shipping case to ensure shipping does not impact on the calibration of the unit.



ApexZ3



ApexZ50

Description

The ApexZ portable particle counter comes standard with 6 particle-size channels (ApexZ3: 0.3, 0.5, 1.0, 3.0, 5.0, 10.0 microns), (ApexZ50: 0.5, 0.7, 1.0, 3.0, 5.0, 10.0 microns) and a flow rate of (ApexZ3: 1.0 CFM), (ApexZ50: 100LPM). The instrument uses a LASER diode light source and LASER beam shaping optics to illuminate a cross section of the air flow path. As particles move along this path, they cross the LASER beam and scatter light. The scattered light rays from particles cutting through the beam are steered to a photodiode using a system of collection optics. The photodiode converts the image into a current which is converted to a voltage and amplified by an electronic circuit. The amplitude of the voltage pulse is proportional to the light scattered, which in turn is proportional to the size of the particle. The voltage pulses created by the particle are then processed by additional electronics that analyze the height of each pulse and therefore, the size of each corresponding particle. The result is that the number of particles of various sizes is determined. The ApexZ is effective in both ultra-clean areas (such as ISO Class 2 or Grade A) and in more traditional clean zones rated as ISO Class 3 or higher. Refer to Specifications in this manual for additional instrument information.

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Accessories Included

ApexZ Includes: USB flash drive with lanyard (includes ApexZ3/ApexZ50 Read Me First and Operators Manual), ISO probe (ApexZ3: 1 CFM, ApexZ50 100 LPM), Zero-Count filter (ApexZ3 1 CFM fittings, ApexZ50 100 LPM fittings), USB to Micro-B cable, Exhaust Barb, Printed Instrument Read-Me-First, 10ft Bev-A-Line sample tubing, 24 VDC 5.0 amp power adapter and power cord, 1 Li-Ion Smart battery (2 battery slot capacity), 2x rolls of printer paper (units with printers only), Calibration certificate, Software Download Instructions.

Sampling Techniques and Best Practices

Lighthouse recommends following the guidelines of ISO 14644-21.

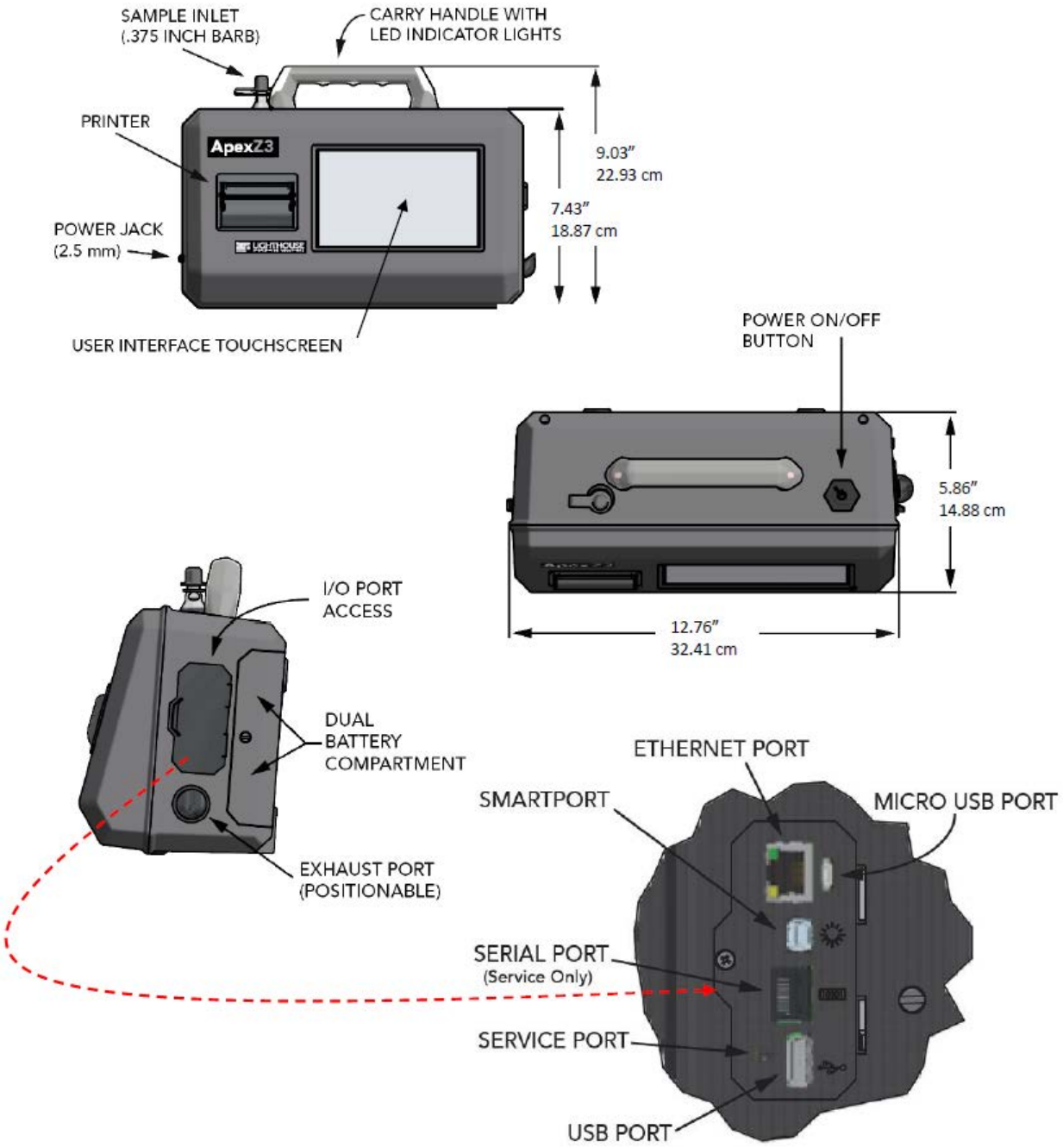
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Specifications

Size Range	ApexZ3: 0.3 - 10.0 µm. ApexZ50: 0.5 – 10.0 µm
Standard 6 Channels	ApexZ3: 0.3, 0.5, 1.0, 3.0, 5.0, 10.0 µm. ApexZ50: 0.5, 0.7, 1.0, 3.0, 5.0, 10.0 µm.
Flow Rate	ApexZ3: 1.0 CFM (28.3 LPM). ApexZ50: 100 LPM.
Laser Source	Laser Diode
Zero-Count Level	< 1 count / 5 minutes *(Meets specifications of JIS B 9921 and reporting requirements of ISO 21501-4 Annex C).*
Concentration Limits	ApexZ3: 1,000,000 particles/ft^3@ 10% coincidence loss, suitable for ISO Class 1-8 cleanrooms. ApexZ50: 300,000 particles/ft^3@ 10% coincidence loss, suitable for ISO Class 1-8 cleanrooms.
Counting Efficiency	ApexZ3: 50% @ 0.3 µm, 100% for particles > 1.5x - 2x first channel particle size. ApexZ50: 50% @ 0.5 µm, 100% for particles > 1.5x – 2x first channel particle size.
Calibration	ISO 21501-4 compliant and accredited ISO 17025.
Self-Diagnostics	Laser power/current/supply, flow out-of-range, no flow, PA background/supply/health.
Count Modes	Sample, Concentration, Beep, Custom Recipes, and Certification Modes.
Data Storage	10,000 sample records, 20,000 Audit Trail records, 2500 locations, 250 Groups, 500 Presets, 500 Sample Plans, 500 Certifications, 10 Permission levels, 100 reports, and 1000 users.
Communication	Ethernet, USB standard, Wi-Fi (802.11 b/g/n).
Supporting Software	LMS XChange 2.x; LMS Express RT, LMS Pharma; LMS Professional
Environmental Sensors	Temperature/Relative Humidity probe: 0-150 °F (-17.8- to 65.6 °C) ± 1.8 °F (0.5 °C); 0%-100% ± 2% RH.
Touch Screen Display	7.0 inch (8.89 cm), 1200 x 800 IPS color touch screen.
Speakers	2x adjustable speakers up to 70 dB to indicate status and alerts.
Carry Handle	With RGB LEDs for status and alarms.
Print	Optional embedded panel-mount printer; IPP (Internet Printing Protocol)
Reports	FED 209E, ISO-14644-1: 1999, ISO-14644-1: 2015, EU GMP: 2008, and EU GMP: 2022 regulatory pass/fail reports displayed on screen or printed.
Alert	User configurable warnings and alarms.
Sample Inlet	ApexZ3: 3/8-inch Inlet nozzle. ApexZ50: 1/2-inch inlet nozzle.
Sample Output	Internally filtered to HEPA standard (>99.97% @ 0.3 µm); with rotatable exhaust fitting for directed flow.
Vacuum Source	Internal blower, automatic flow control.
Enclosure	Chemically Resistant Polycarbonate blend, conductive lining, VHP compatible.
Power	External power supply input: 100-240 VAC, 50/60Hz, 1.4A Output: 24 VDC, 5A, 120W MAX
Battery Battery Run Time	2x Li-Ion battery capacity, removable and rechargeable. ApexZ3: 2 batteries 11 hours nominal use, 50% duty cycle no printing. ApexZ50: 2 batteries 8 hours nominal use, 50% duty cycle no printing.
Dimensions	12.76“(l) x 6.23” (w) x 8.88” (h), [32.41 x 15.82 x 22.55 cm].
Temperature Range	(50°F - 104°F) (10°C - 40°C), 20% - 95% relative humidity, non-condensing.
Weight	7.05 lbs. (3.19 kg) without batteries, battery weight 1.35 lbs. (0.61 kg).
Languages	English, Spanish, Portuguese, German, French, Italian, Russian, Chinese, Korean, Japanese, Turkish, Thai

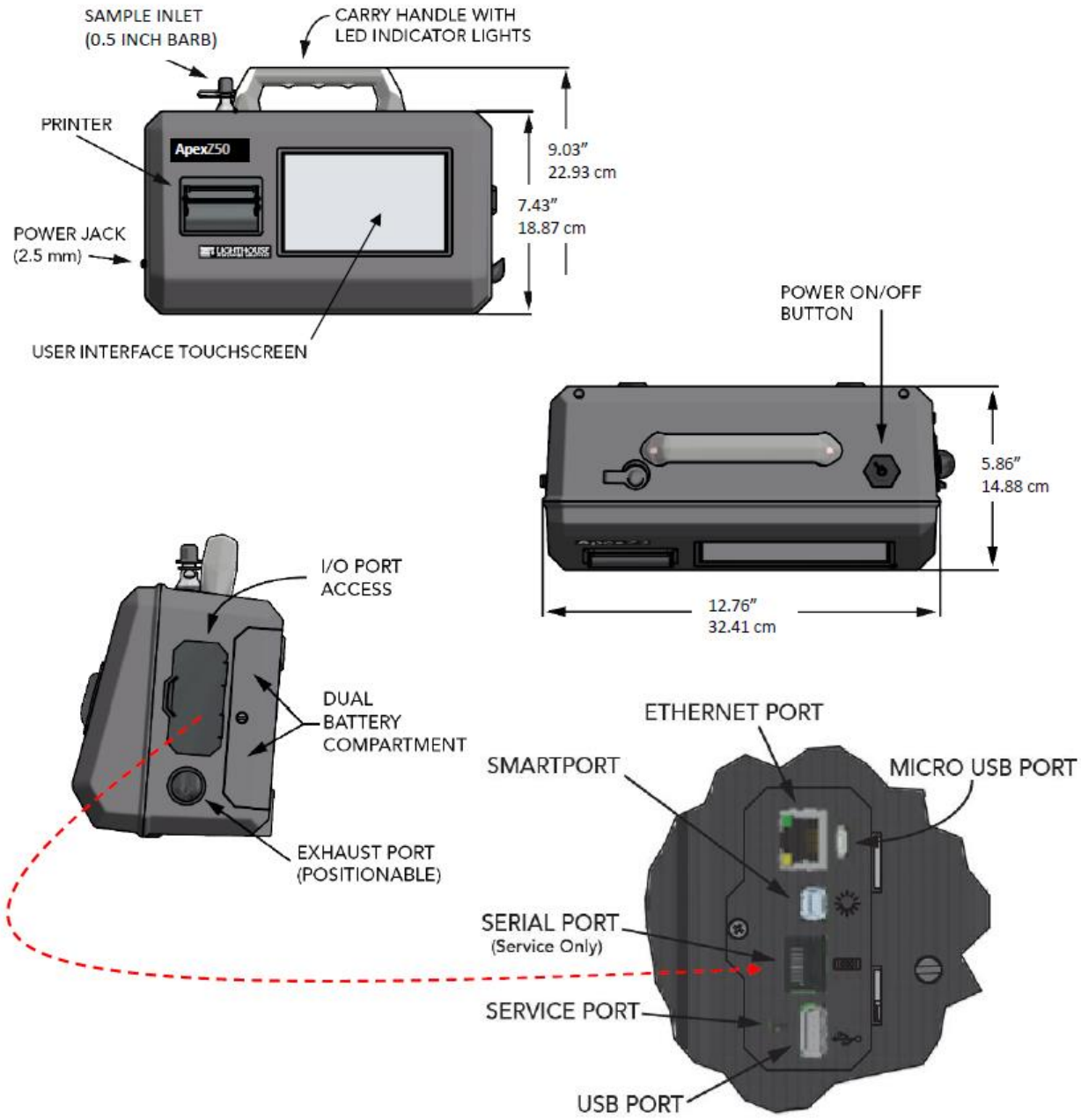
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Enclosure and Ports – ApexZ3



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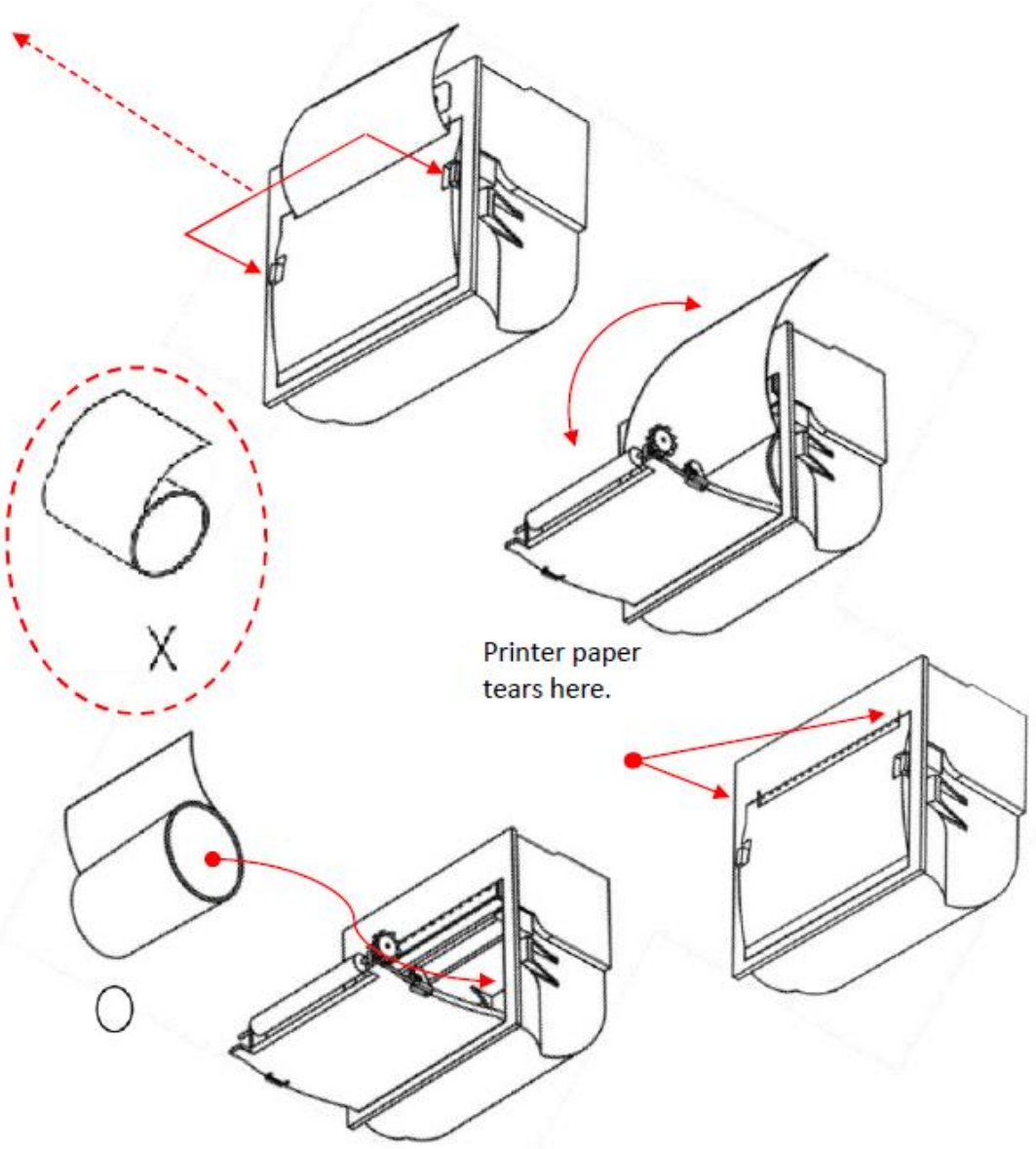
Enclosure and Ports – ApexZ50



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Optional Printer

Open Printer Door - Pinch left and right printer door tabs and gently pull open the printer door.



Load Printer Paper
Insert the printer paper roll with the paper feeding from the back of the roll.

Close Printer Door
Close the printer door so that the left and right printer tabs snap shut.

WARNING: **Changing the instrument language will update the instrument firmware and the printer.** It will take 1-2 minutes for the update to complete. During this time make sure the ApexZ instrument has at least 50% battery life remaining or is connected to the AC adapter and do not turn off the instrument while updating. Failure to follow these instructions could cause the printer to become damaged and unusable.

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Paper Feed

The Paper-Feed button is available on the ApexZ Home Screen, Data Screen and Report Screen.

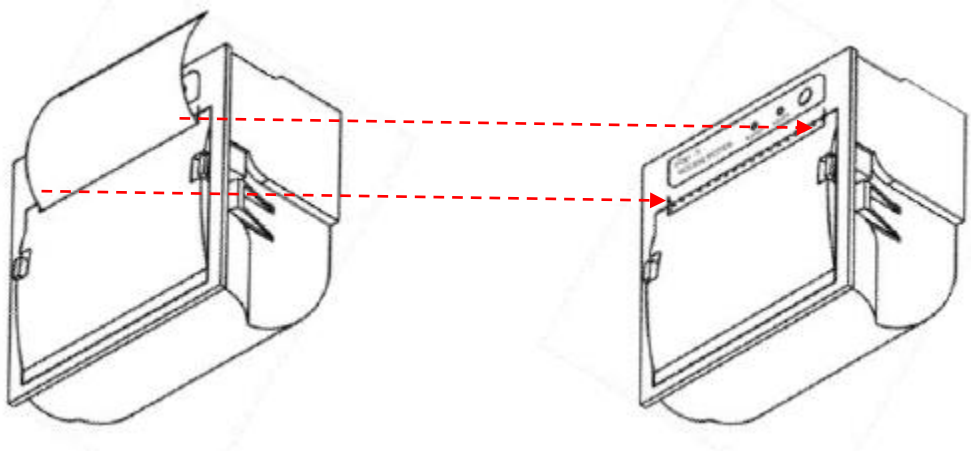


Advance the printer paper

Press the Paper-Feed button to advance the paper from the ApexZ embedded printer.

Tear off the printed paper report

Tear the printed report along the serrated edge of the printer paper opening.



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LED Handle

B-L-I-N-K-I-N-G LED	Sampling	Instrument Faults	Warnings	Alarms
B-L-U-E	Yes	None	Disabled	Disabled
G-R-E-E-N	Yes	None	None	None
O-R-A-N-G-E	Yes	None	Limit Exceeded	None
R-E-D	Yes	Faults Detected	-	Limit Exceeded

SOLID LED	Sample Completed	Instrument Faults	Warnings	Alarms
GREEN	Yes	None	None	None
ORANGE	Yes	None	Limit Exceeded	None
RED	Yes	Faults Detected	-	Limit Exceeded

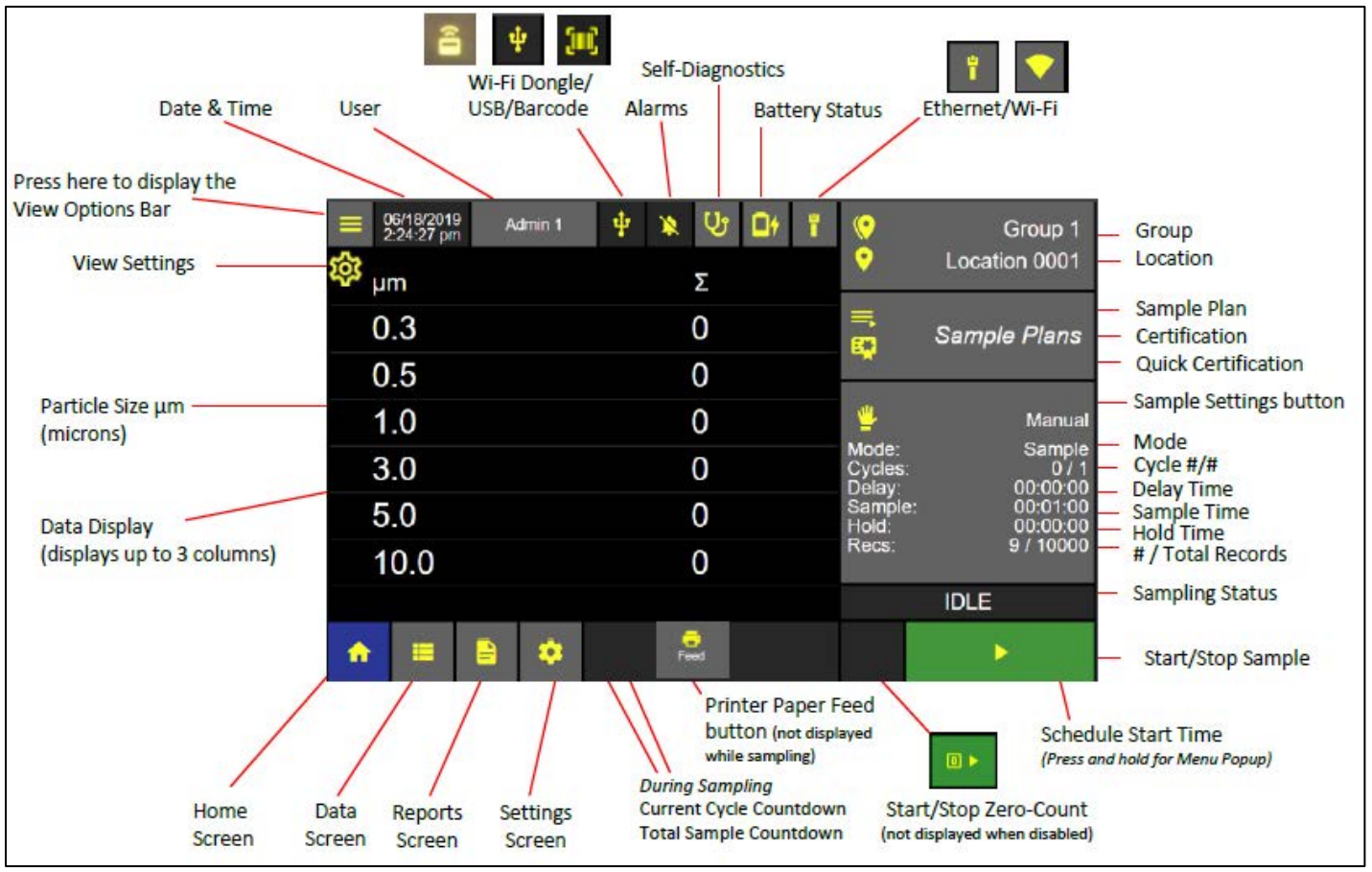


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Operating the ApexZ

This is the Home Screen on the ApexZ airborne particle counter.

- Create manual or preset sample plans and certifications for up to 2500 unique locations.



Home Screen



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Sample Settings Dashboard

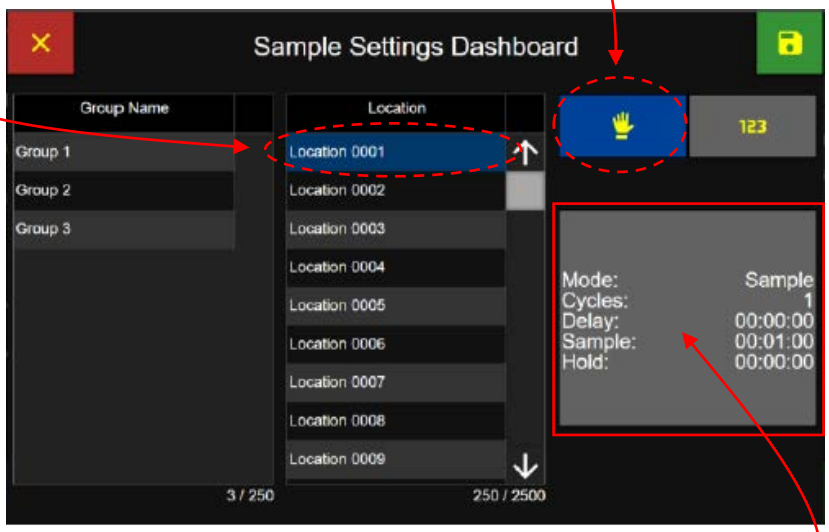
- Press the Group/Location button to display the Sample Settings Dashboard.



Home Screen

NOTE: If no groups have been created, none will show on the Main Screen.

- Select the manual sample button.
- Select the location to be sampled.



Sample Settings Dashboard

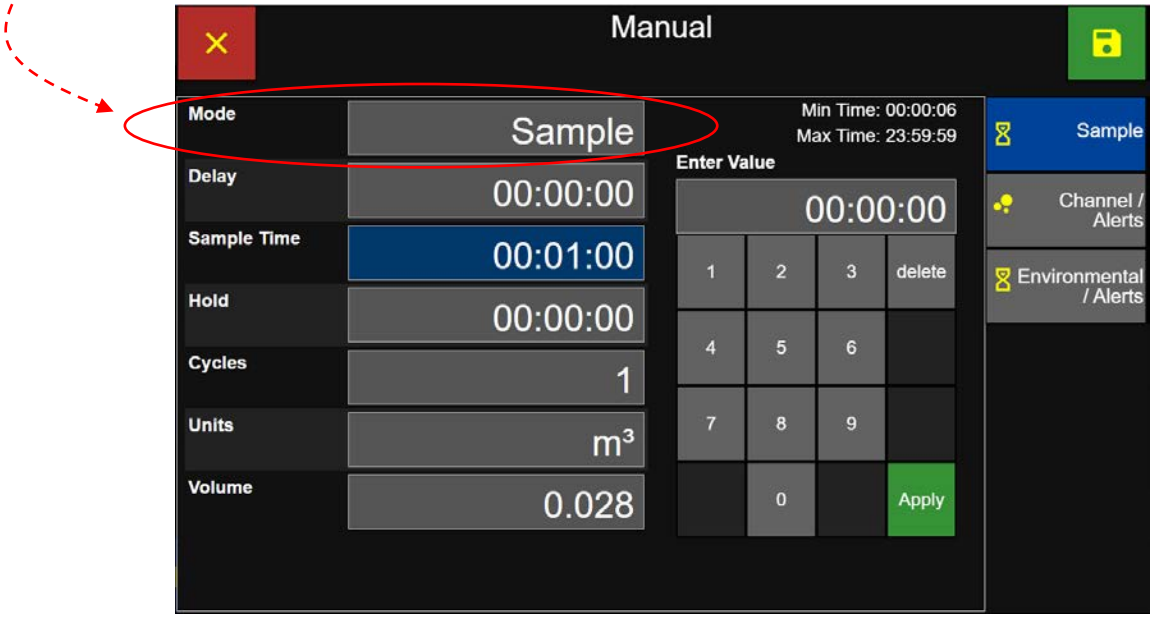
Edit the Sample Settings

- Press the Manual Sample button to edit the sample mode, cycles, delay, sample time and hold time. The Manual Sample Setting Screen will display.

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Manual Sample

Mode: The mode button displays three different modes: **Sample**, **Beep** and **Concentration.**

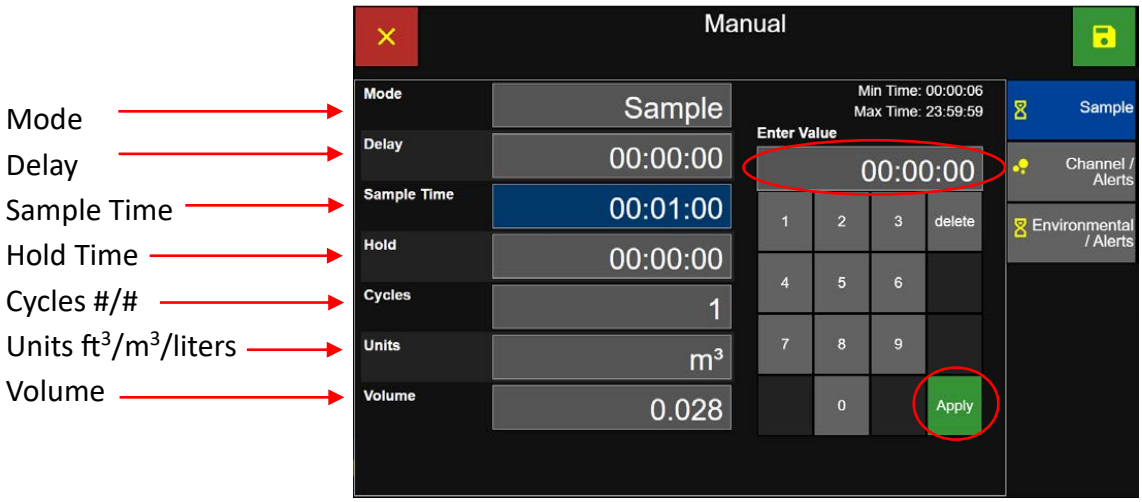


Manual Sample – Sample Mode

- **Sample** mode is preset to 1 cycle, 1 minute sample time and no alerts.
- **Beep** mode is preset to 1 cycle, 1 minute sample time and enabled Channel 1 Alert = 0.
- **Concentration** mode is preset to sample continuously, no sample time limit, no preset alerts.

Sample Mode

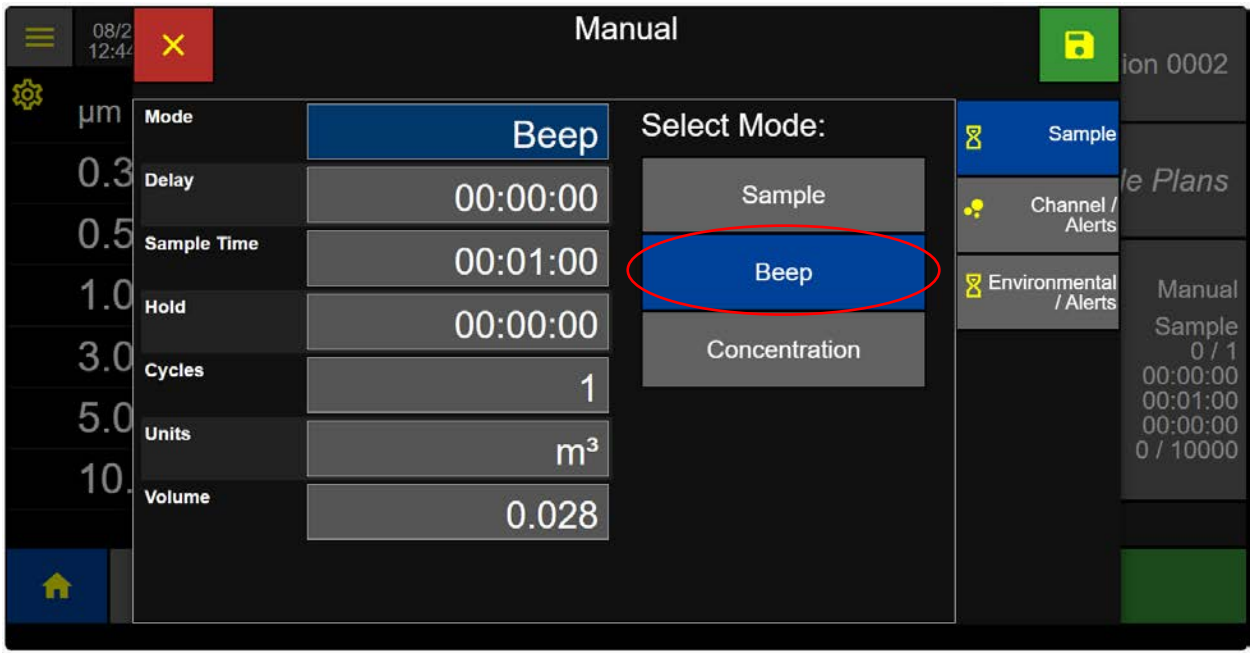
- Press any sample settings button to edit.



Manual Sample Settings

- Touch a manual sample setting and it will highlight blue meaning it is selected.
- The Enter Value keypad will display.
- Enter a value and press Apply.
- The value will be applied to the sample setting selected.

Beep Mode

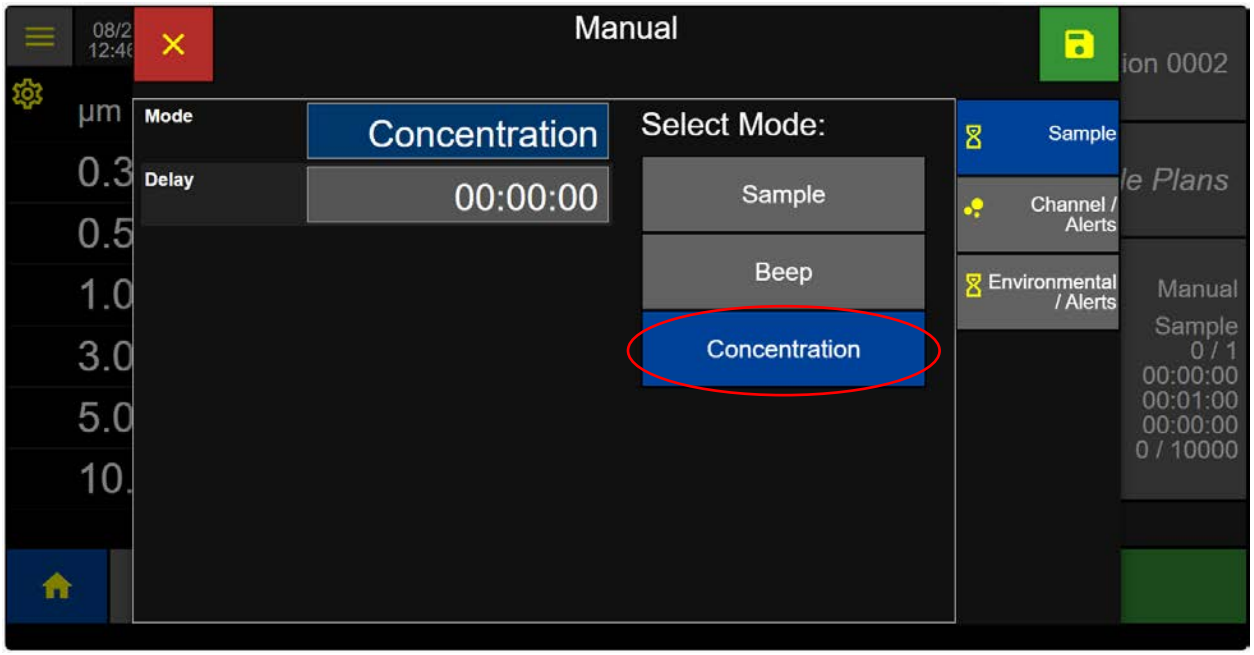


Beep Mode Screen

- To select Beep mode, click on the Beep button.
- Beep mode is preset to 1 cycle, 1 minute sample time and enabled Channel 1 Alert = 0.
- Beep mode settings may be changed for:
  - Delay
  - Sample Time
  - Hold
  - Cycles
  - Units
  - Volume

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Concentration Mode



Concentration Mode Screen

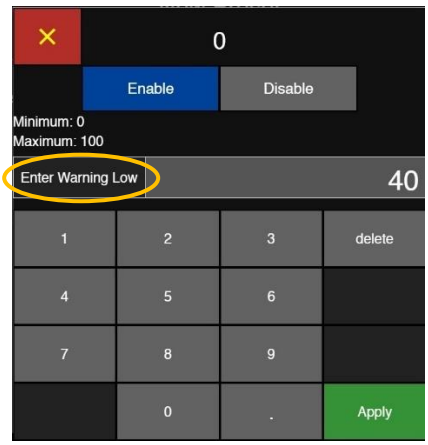
- To select Concentration mode, press the Concentration button.
- Concentration mode is preset to sample continuously, no sample time limit, no preset alerts.
- Select a Delay time if desired.

Channel Alert Settings

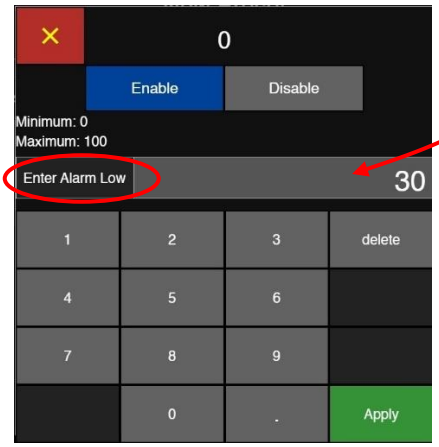


NOTE: If Global Channels are locked (Setting, Instrument, Options, Channel) then channels cannot be disabled in manual samples.

Manual Sample – Channel/Alerts



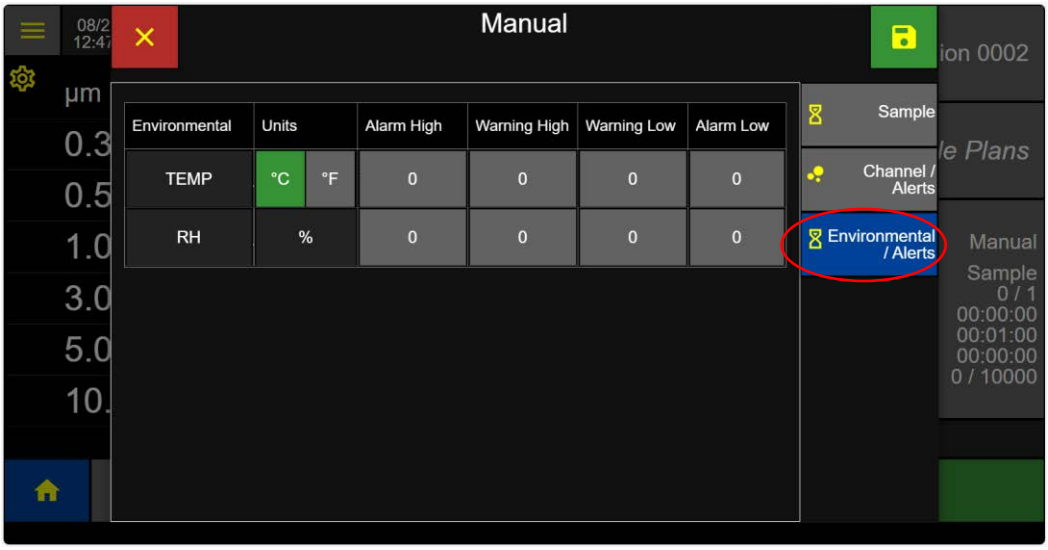
Warning Limit



Alarm Limit

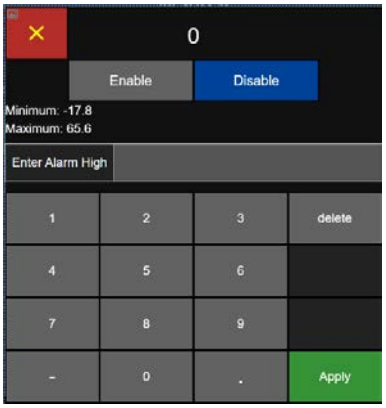
- Press the Channel/Alerts button to display the Manual Sample Channel Alert settings.
- Press any green channel size button to disable that channel and it will highlight grey and strike through indicating it has been disabled.
- Press again to enable that channel.
- Press any Channel Warning or Alarm button to set threshold.
- Select Enable or Disable alarm limit.
- Senter Channel/Alert threshold limits for Warning (orange) or Alarm (red) alerts.
- Press Apply.

Environmental Alerts



Environmental Alerts Screen

- Press the Environmental/Alerts button for the environmental sensor settings screen.
- Select units °C or °F.
- Select the button for Alarm High, Warning High, Warning Low, Alarm Low to edit the warning/alarm values desired.
- The Enter Alarm value window will pop up.



Enter Value Screen

- Select Enable or Disable the Alarm setting.
- Enter the Alarm value and press Apply.

Save - Manual Sample

- Press the green Save button to display the Home screen with the manual sample settings.



Manual Sample – Channel/Alerts

Start - Manual Sample

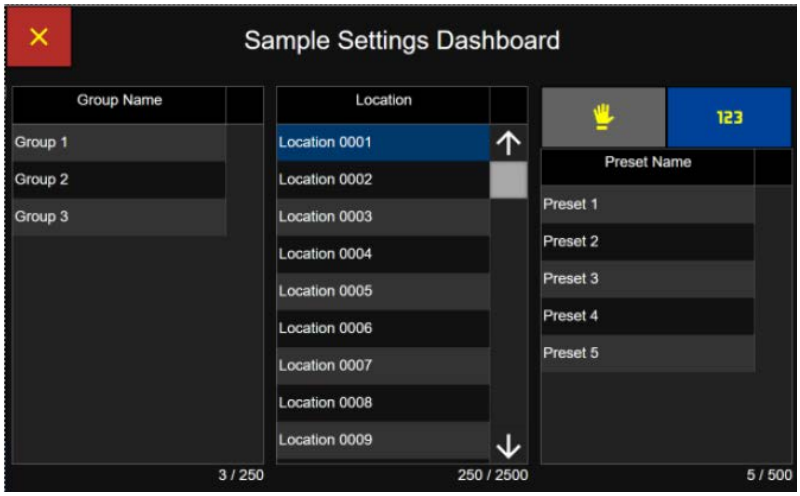
- Press the green Start button to start manual sampling at the selected location.



Home Screen – Manual Sample Loaded

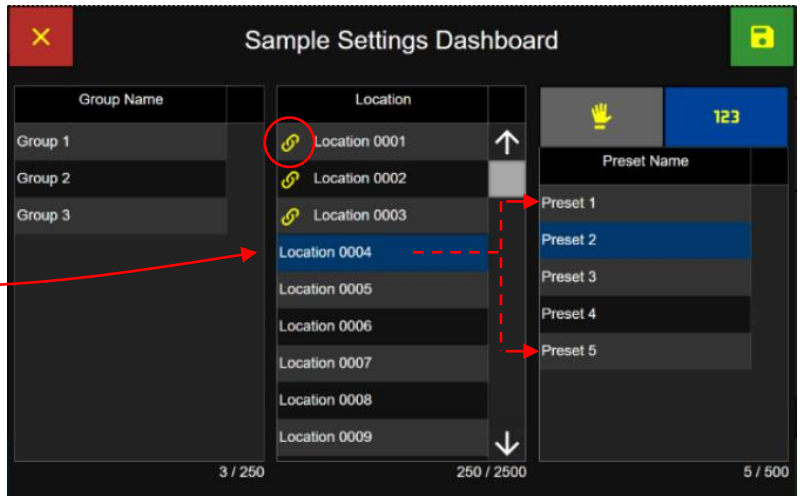
Preset Samples

- Press the Group/Location button to display the Sample Settings Dashboard.
- Press the Preset button and it will highlight blue indicating that it has been selected.
- If no groups are selected, then all locations will be displayed. If a Group Name is selected then only those locations assigned to that group will display on the location list.



Sample Settings Dashboard with Presets selected

- Select a location with no linked preset and all presets will be displayed.



NOTE: Locations assigned to a preset will appear with link icon indicating that a preset is currently assigned to that location.

Selecting Locations

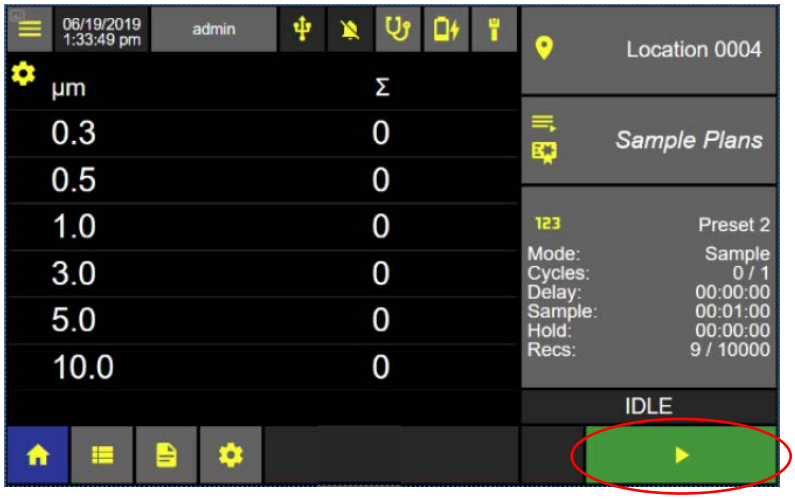
Assign and Save Preset to Location:

- Select a Preset button and it will highlight blue indicating it has been selected.
- Press the green Save button to assign the highlighted preset to the highlighted location.

Start Preset Sampling

The selected Preset Sample Settings will be loaded on the Home screen for the selected location.

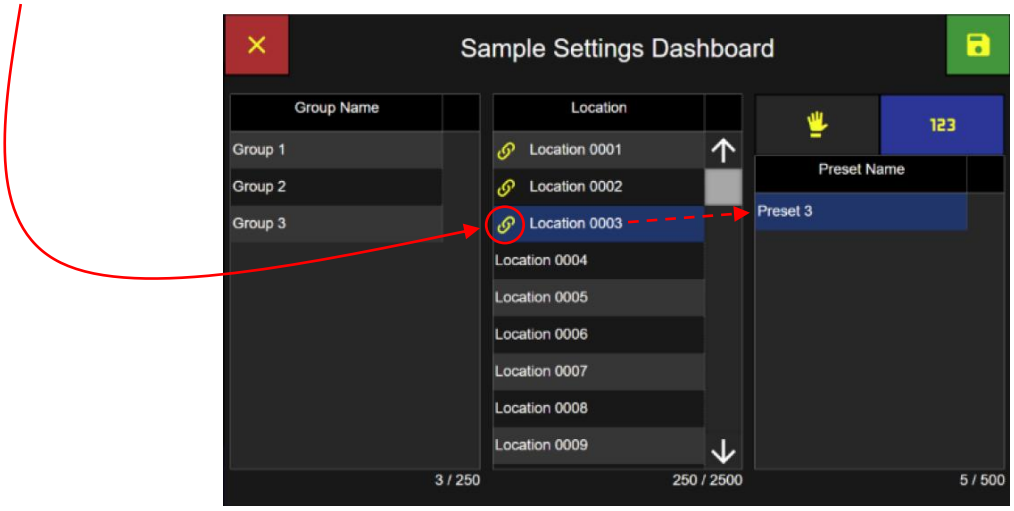
- Press the Start button to start the sampling preset at the selected location.



Home Screen Ready to Sample Preset

Linked Preset

If a location linked to a preset is selected, then only that preset name will be displayed on the preset name list. A location with a linked preset cannot be modified from the Sample Settings dashboard.



Location linked to Preset

Unlink a preset to a location

To unlink a preset from a location, return to the Settings then Location screen and edit the preset section.

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Sample Plans

To run a Sample Plan from the Home Screen:

- Press the Sample Plans/Certifications button to display the Sample Plan/Certification dashboard.



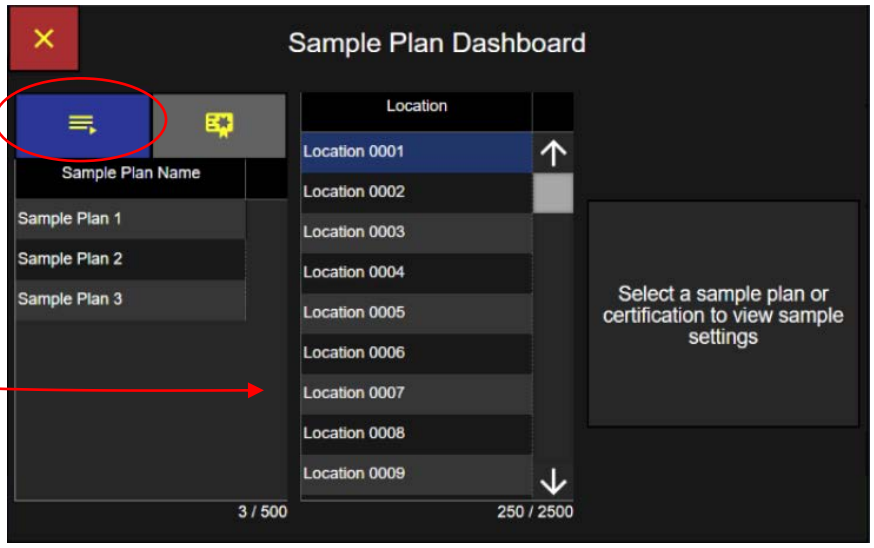
Home Screen

- Press the Sample Plan button and it will highlight blue indicating that it has been selected.

The Sample Plan name will display all saved sample plans.

When no Sample Plan is selected then all locations will display and be selectable.

After a Sample Plan is selected then only those locations assigned to that Sample Plan will be displayed and selectable.



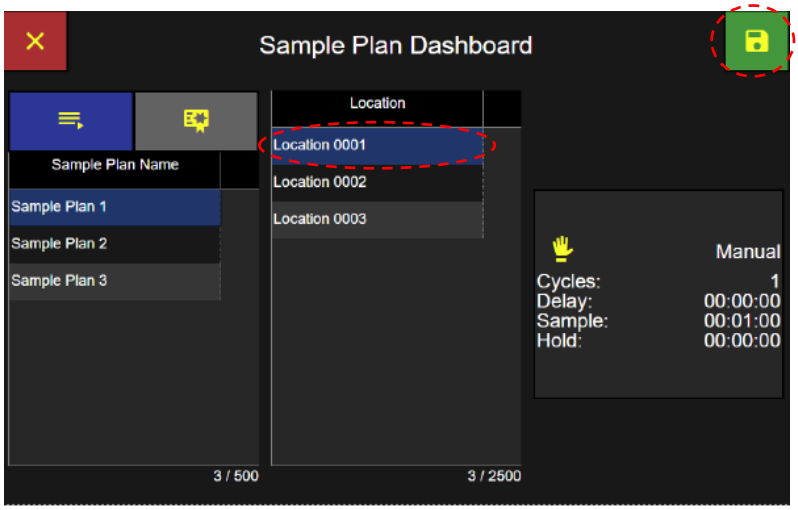
Sample Plan Dashboard

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Select a Sample Plan

- Select a Sample Plan and it will highlight blue indicating that Sample Plan has been selected.

- Locations assigned to that Sample Plan name will be displayed on the Location list.



Selecting a Sample Plan and Location

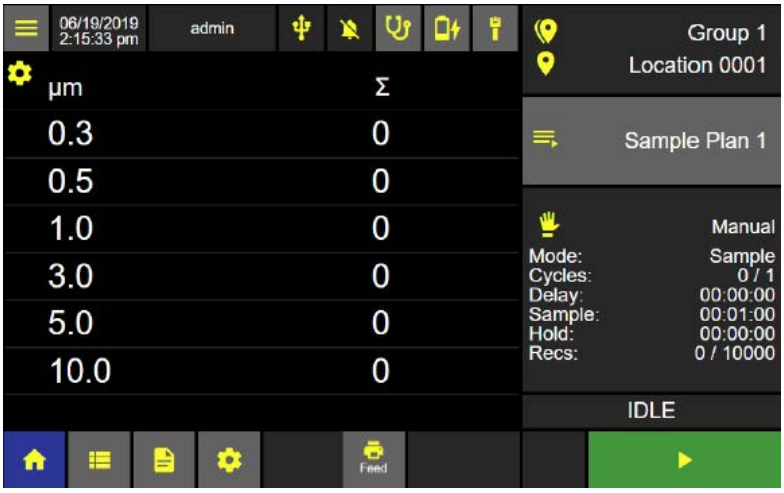
Select a Location

- Select the desired location to be sampled from the Location list and that location will highlight blue indicating it has been selected.

Save Sample Plan



- Press the Save button to load the selected Sample Plan and current Location and return to the Home screen ready to start the Sample Plan.

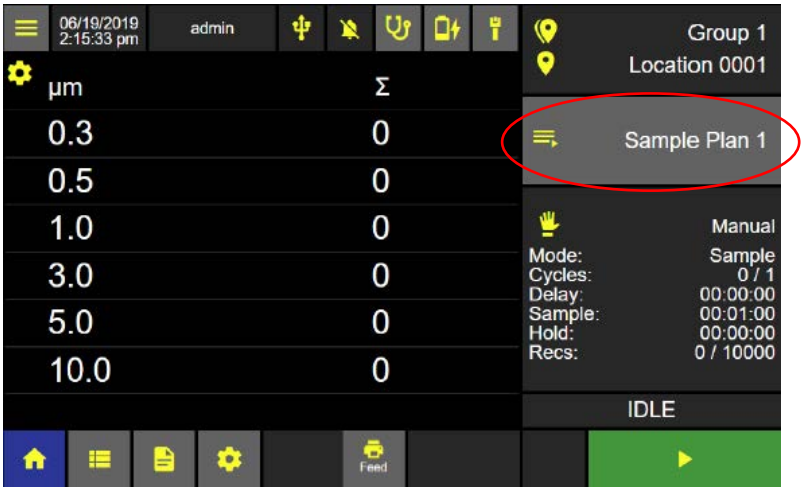


Sample Plan 1 loaded on the Home Screen

Certification Sample

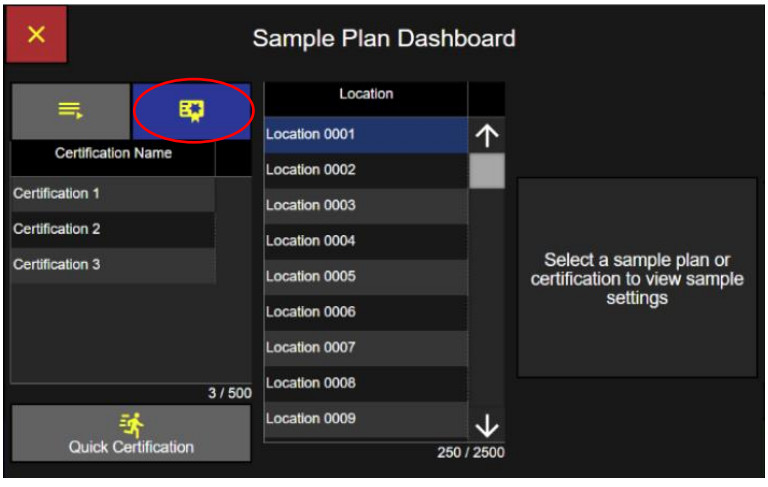
To run a Certification Sample from the Home screen.

- Press Sample Plans/Certifications button to display the Sample Plan/Certification Dashboard.



Home Screen

- Press the Certification button and it will highlight blue indicating it has been selected.

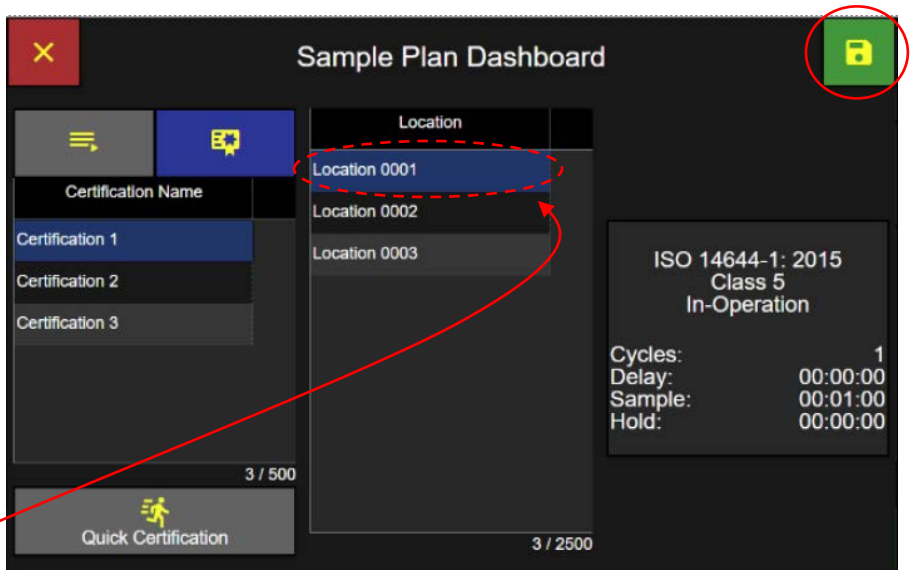


Certification Dashboard

The Certification Name list will display all saved certifications. When no certification is selected all locations will be displayed and selectable.

Select a Certification

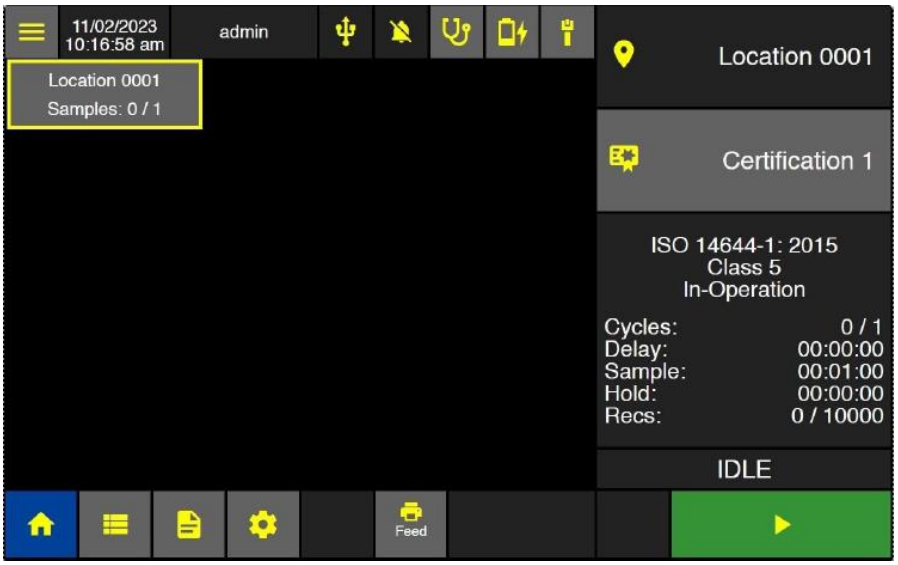
- Select a Certification Name and it will highlight blue indicating that it has been selected. Locations assigned to that certification name will be displayed on the Locations List.



Selecting a Certification and Location

Select a Location

- Select the location to be sampled from the locations list and that location will highlight blue indicating that it has been selected.
- Press the green Save button to load the selected certification and location and return to the Home screen ready to start the certification sample.



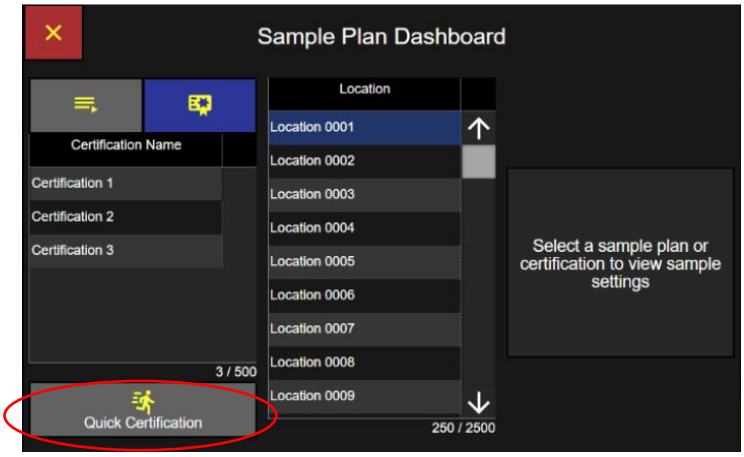
Certification Loaded on Home Screen

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Quick Certification

Quick Certification is a single input screen for selecting all the required sample parameters for a certification report.

- Press the Quick Certification button to display the Quick Cert input screen.



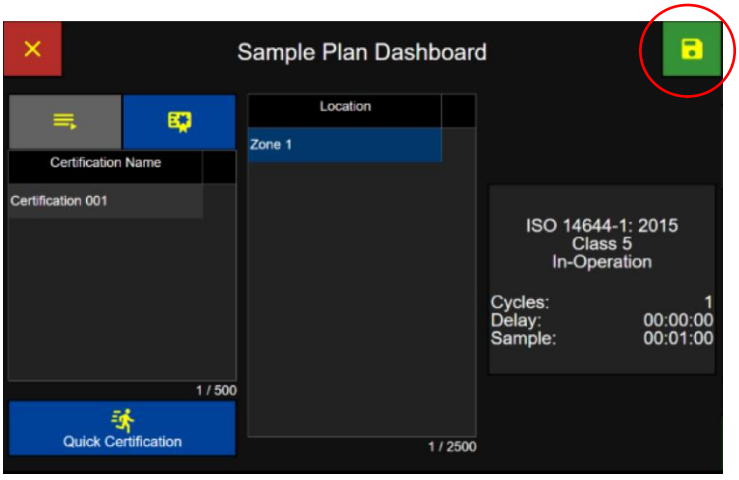
Sample Plan Dashboard

- Press an input button to edit
  - Certification Type
  - Area
  - Class/Room Status
  - Channels
  - Cycles/Zones
  - Delay
  - Sample Time



Quick Certification Input Screen

- Press the green Save button to save the Quick Certification Sample Plan and return to the Home Screen.



Sample Plan Dashboard

View Options

While sampling, particle count data may be viewed through multiple view options: Data Table View, Sample Grid View, Histogram View, Graph View and Environmental View.

- From the Home screen press the View Options button to display the View Options Menu.
- Press a view option button and the home screen will change to that view option and settings.

Select View Option

Data Table View

Sample Grid View

Histogram View

Graph View

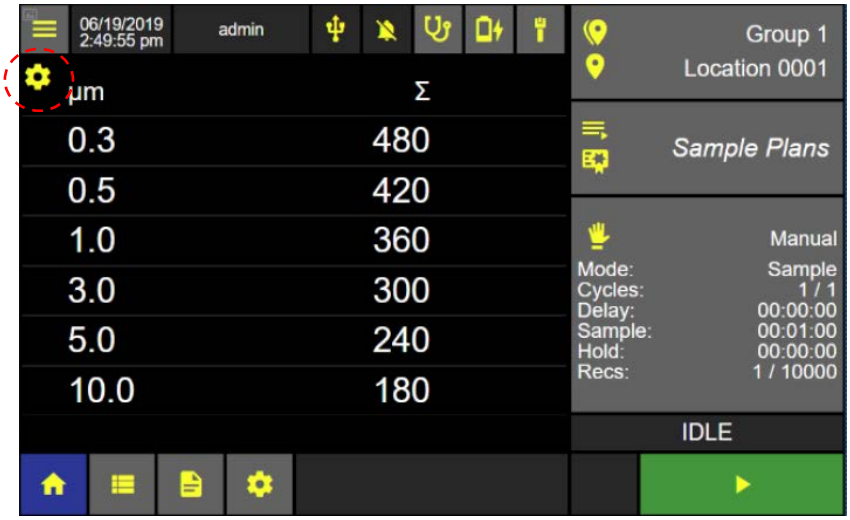
Environmental View



Home Screen: View Options Bar Displayed

Data Table View

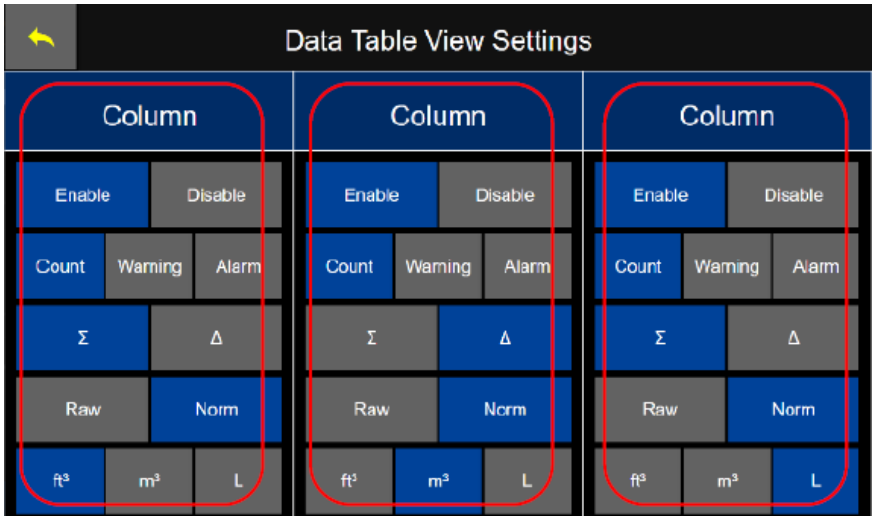
- Press the view options gear icon to select data table view.
- The data table view settings can provide up to three columns of data that can be displayed while sampling.



Home Screen: Data Table View

Data Table View Settings – Enable Columns

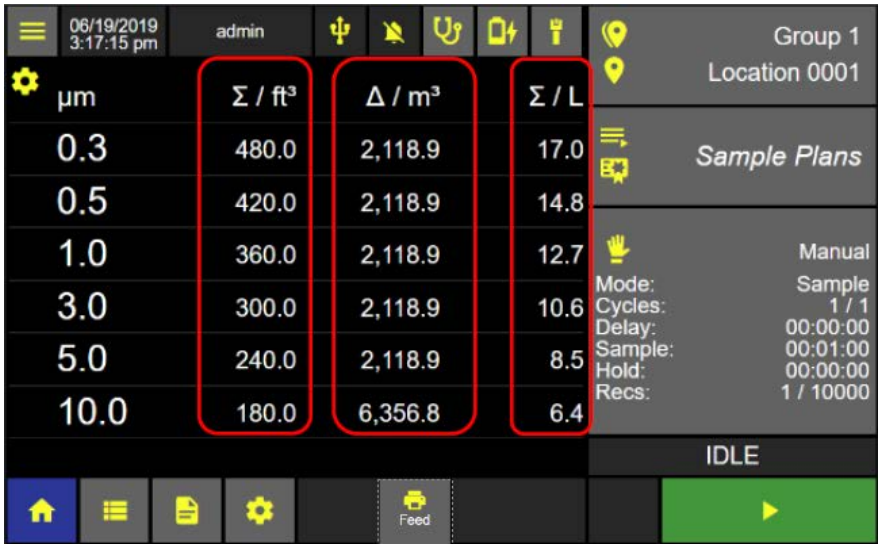
- Select Enable to display column or Disable not to display column in the data table view.
- Select to display the Count, Warning or Alarm for each column.
- Select to display Cumulative or Differential.
- Select to display Raw or Normalized.
- Select to display volume units (ft^3, m^3, L).



Data Table View Settings



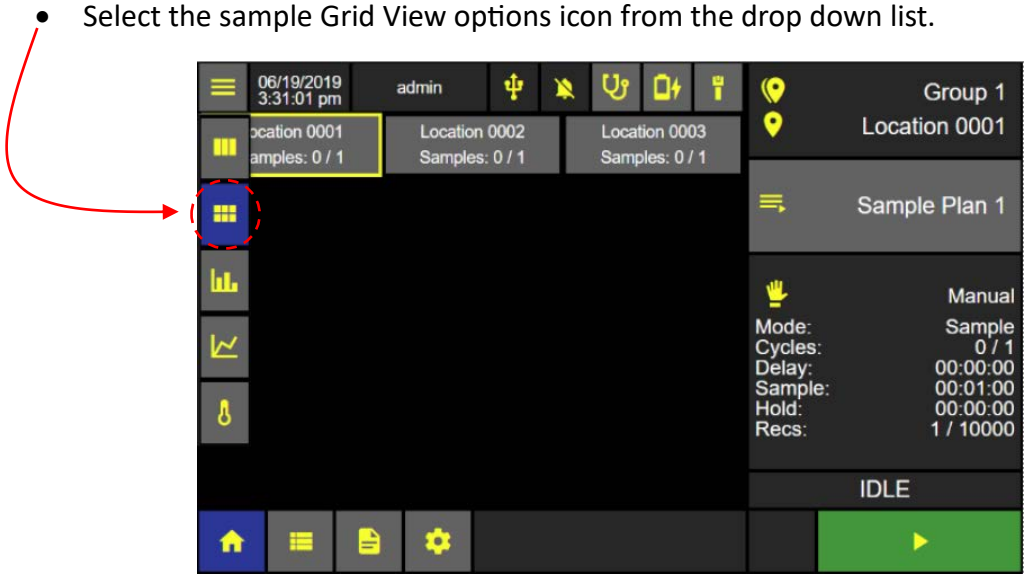
- Press the return icon to save the data table view settings.
- The ApexZ Home Screen Data Table View will display data specified in 3 columns.



Home Screen, Data Table View with 3 columns enabled

Sample Grid View

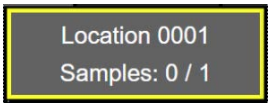
- Select the sample Grid View options icon from the drop down list.



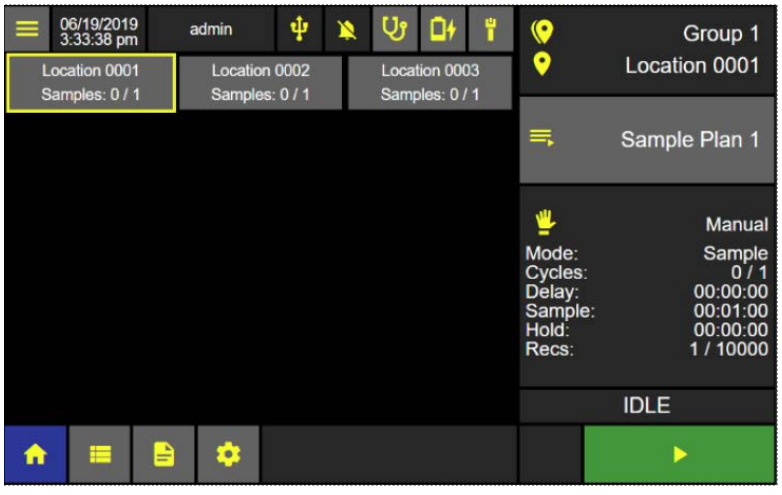
Select View Options Sample Grid View

- Grid View will display locations assigned to a Sample Plan or a certification with a colored background indicating the sampling status for that location.
- There will be no gear settings icon displayed on the Sample Grid View screen.

<u>Each location button will display two lines of text:</u>
Location Name
Number of samples taken/total number of sample cycles.



- Sample Grid View allows the user to easily select the current sampling location by pressing the matching location name button on the Sample Grid View screen.
- When Selected, the location button will highlight with a yellow border color indicating it is the current location to be sampled.
- Press the green start button to start sampling at the current location.



Sample Grid View Screen

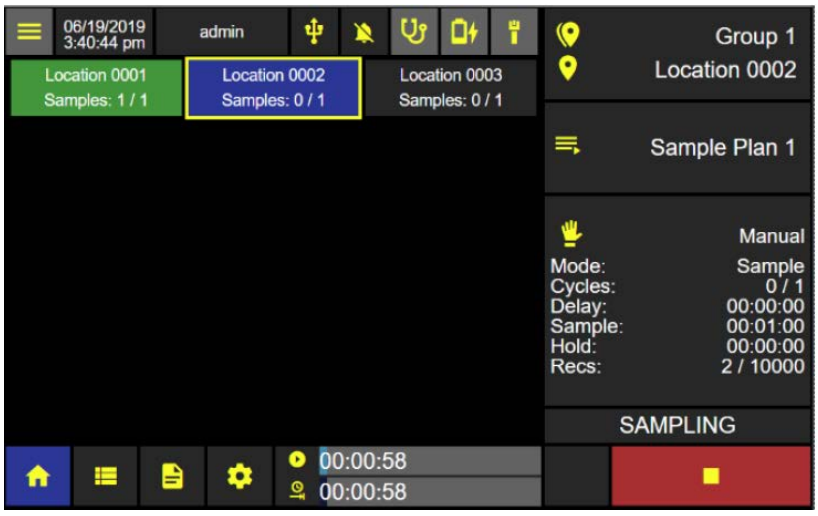
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After the sampling completes then move the ApexZ to the next monitoring point. Make sure your sample tube and probe are in place at the new location and then select the matching current location on the Sample Grid View screen.

- Press the green start button start sampling at the new location.

Location Color Status

Yellow border = Current location
Green background = Sample completed, no alarms
Blue Background = Currently sampling
Grey background = Location not sampled
Red background = Sample complete and the alarm threshold particle count was exceeded at that location. Note a red background color will also display if the instrument was in fault for its laser, flow, or calibration due date.

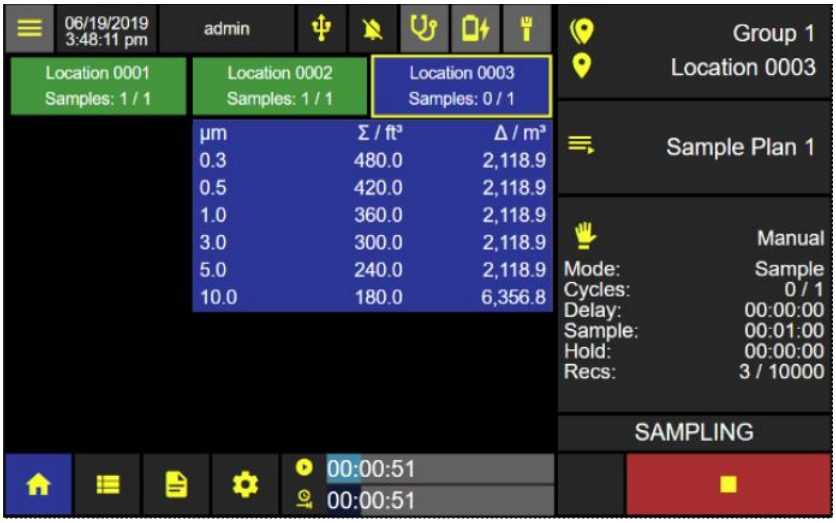


Home Screen – Sample Grid View

Note if a sample has multiple cycles, then the background color will change after the first cycle is completed if the particle count exceeds the alarm thresholds or the sensor goes into fault.

Sample Grid View Sample Data Display

- To view data counts while sampling from Sample Grid View, press the location button that is currently sampling and highlight blue.
- Data counts (from the first two columns of the Data View Settings) will display in a pop-up window with white text against a blue background.



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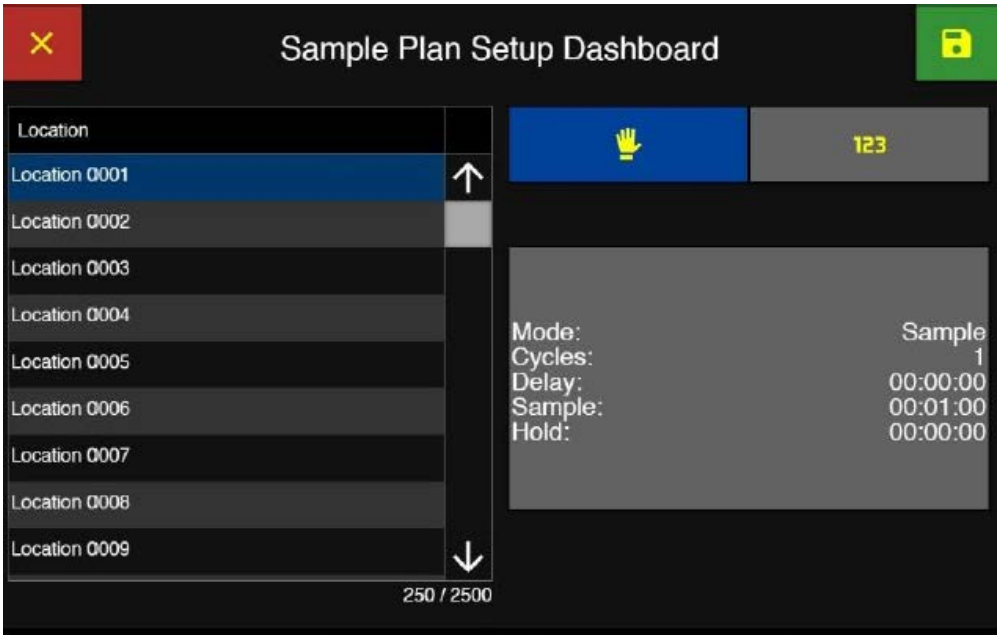
Adding locations to the Sample Grid View

If no Sample Plan or Certification is loaded, the Main Screen will display the Add Location icon.



Add Location Icon

- Press Add Location icon to open Sample Plan Setup Dashboard.
- Select the desired location.
- Select manual or preset settings.
- Press the green Save button to add the location to the Home Screen.
- The selected location will be added to the Home Screen.
- Repeat to add all desired locations to the Home Screen.

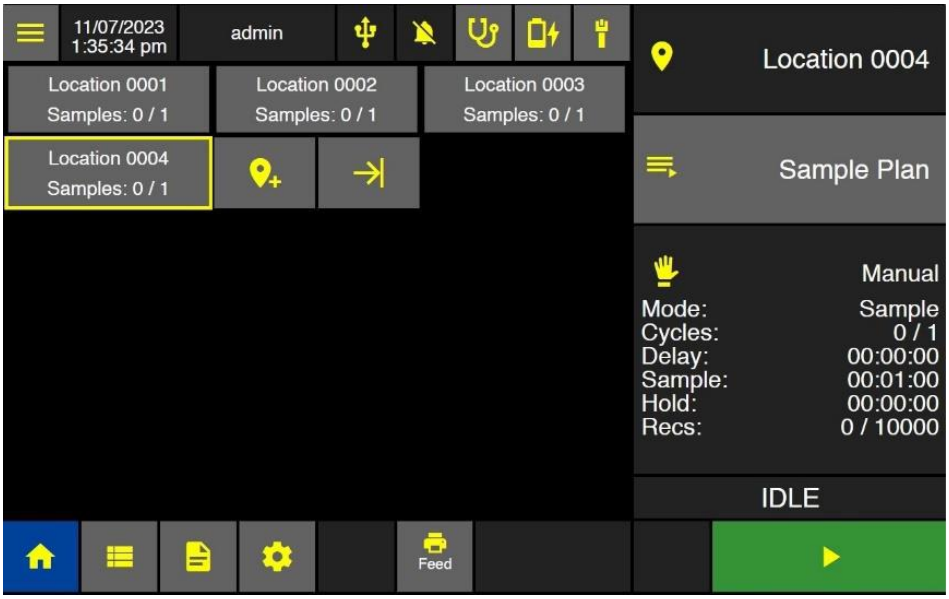


Sample Plan Setup Dashboard

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To run the impromptu Sample Plan, after entering all the sample locations needed:

- Press the green Start button.



Home Screen – Grid View

To Save the Sample Plan

- Press the Save Sample Plan button.
- Select “Save as Sample Plan” in the window that pops up or select “End” to end the sample plan.



Sample Plan Popup Window



Re-sample/End Sample

- Reselecting the Sample Plan will pop up a window to re-sample or end the sample plan.

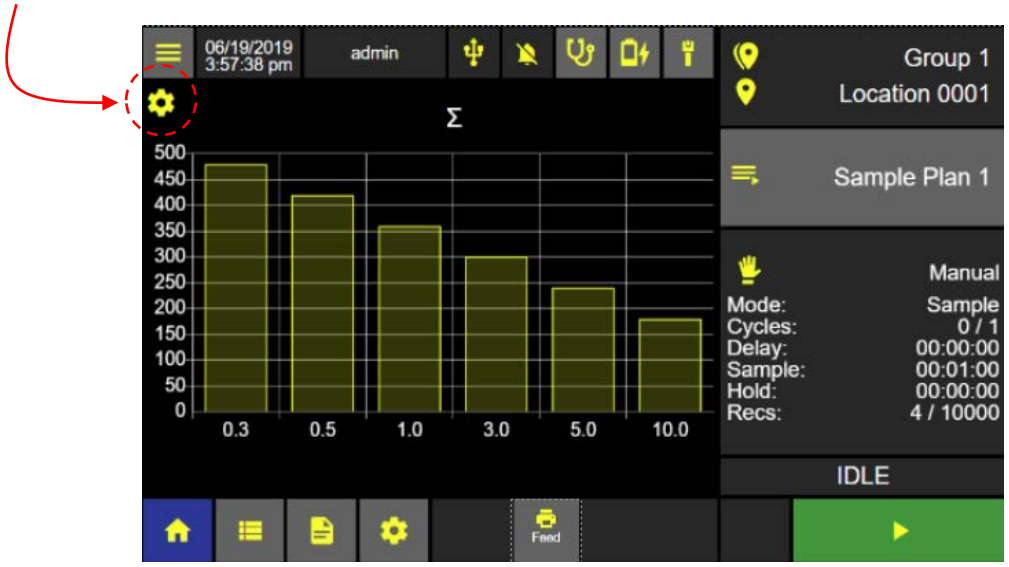
Histogram View

- From the Home Screen press the View Options button
- Press the Histogram View button.



Histogram View

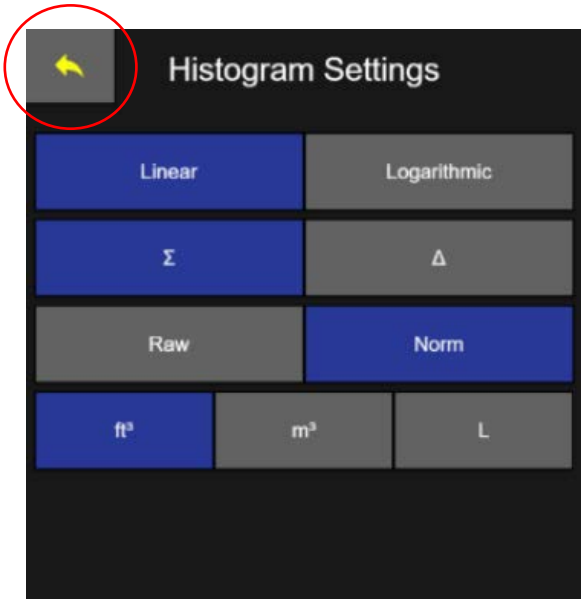
- Press the gear icon to display the Histogram View Settings.



Histogram View

Histogram View Settings

- Select Linear or Logarithmic.
- Select Cumulative or Differential
- If Normalized is selected then select units, cubic feet, cubic meters, or liters.



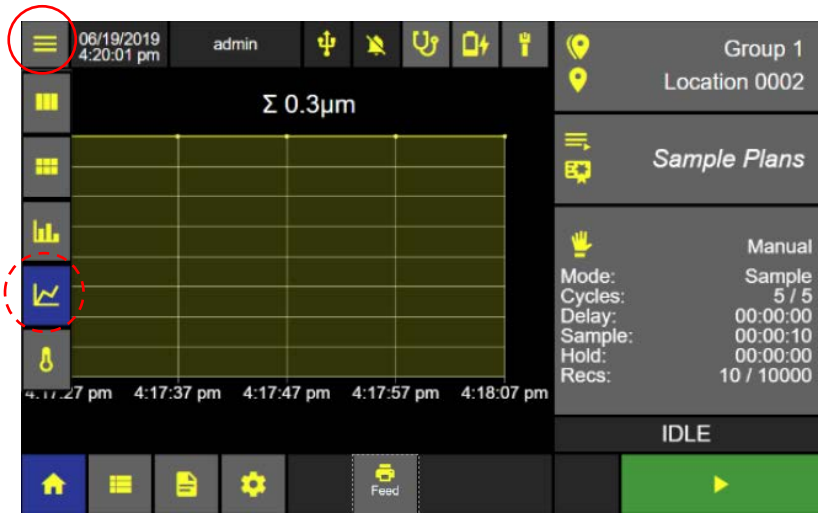


Histogram View Settings

- Press the back arrow button to apply the settings and return to the Histogram View.

Graph View

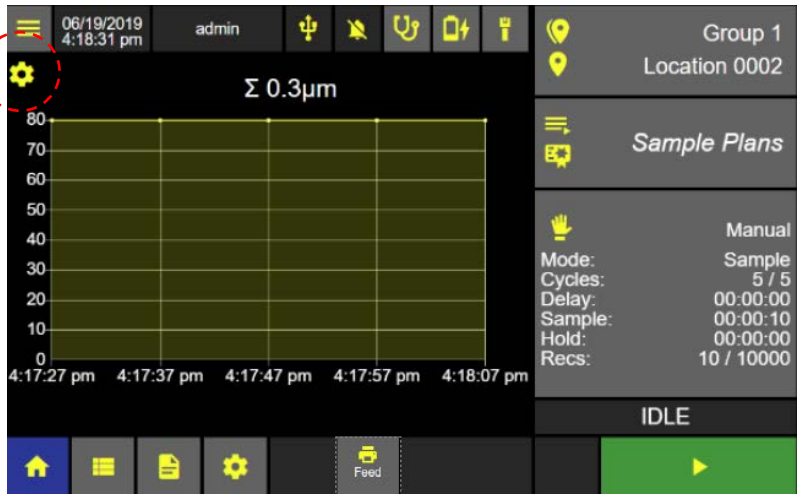
- Press the View Options button.
- Press the Graph View button.

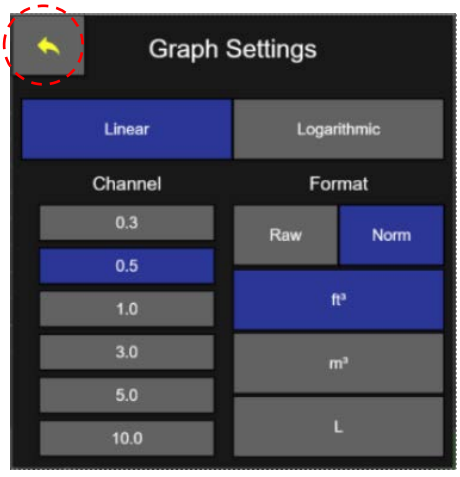


Graph View displays sampled data points continuously in real time on a line graph. A new line graph will begin when sampling is stopped and restarted.

Graph View Screen

Press the gear icon to display the Graph View Settings.





Graph View Settings

Graph Settings

- Select Linear or Logarithmic
- Select Channel Size
- Select Format Raw/Normalized with units ft^3, m^3, L.
-  Press Back button to return to Graph View.

Environmental View

ApexZ can sample and collect temperature and humidity data readings while counting particles during a sample session. Connect an ApexZ Temperature / Humidity probe and view temperature and humidity data while sampling in real time from the Environmental View Option screen.

- From the Home Screen press the View Options button.
- Then press the Environmental View button.

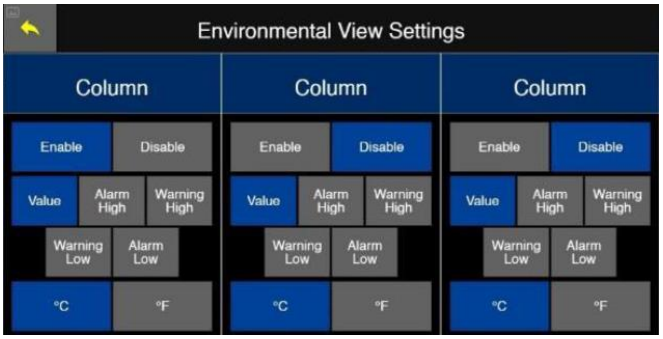


- Press the gear button to display the Environmental View settings.



Environmental View screen

- Press the Enable button and it will highlight blue indicating the sensor type has been enabled.
- Press Value to enable selection °F or °C.
- Select Warning and Alarms buttons to enable display of those values.
- Press the Back button to return to Home.

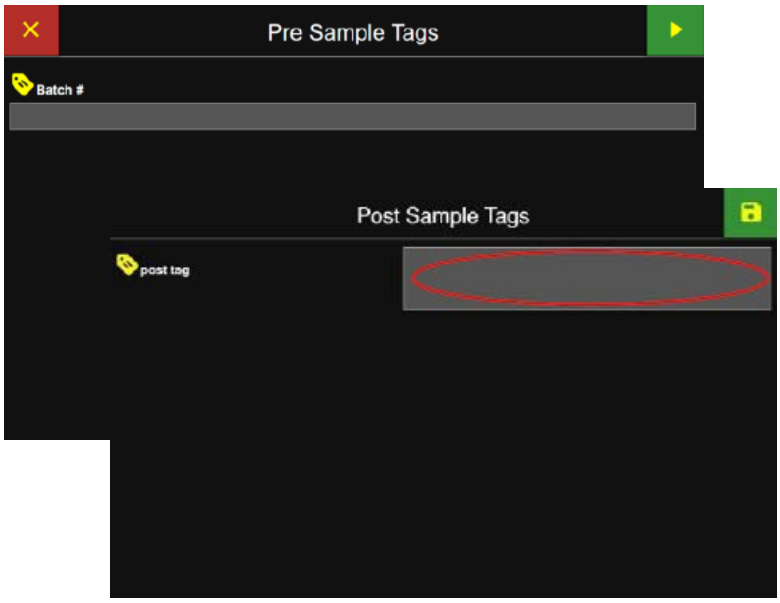


Environmental View Settings

Sampling with Data Tags

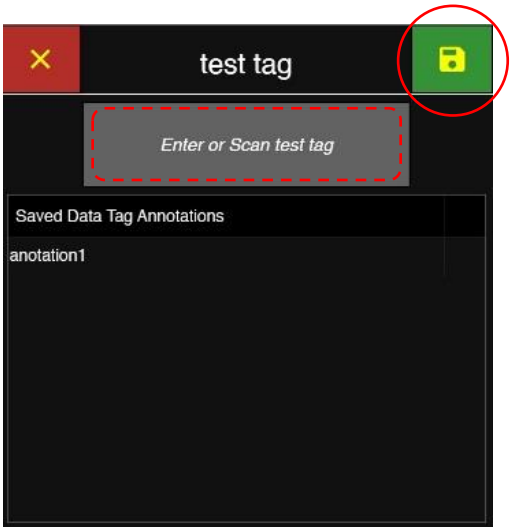
- See Settings-Instrument-Options-Data Tags to create and enable data tag prompts pre-sample or post-sample.

- When pre-sample Data Tags are enabled, after starting a sample, a window will pop up and request Pre-Sample-Tags to be input.
- Select, Enter or Scan data tag name.



If the user selects a Saved Data Tag Annotation, then ApexZ will display that Annotation text. Alternatively, the user can touch the input button to enter or scan the Data Tag name and press the green apply button.

- Once scanned or manually input, press the Save button then the green Start button to begin the sample.





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Blank Page

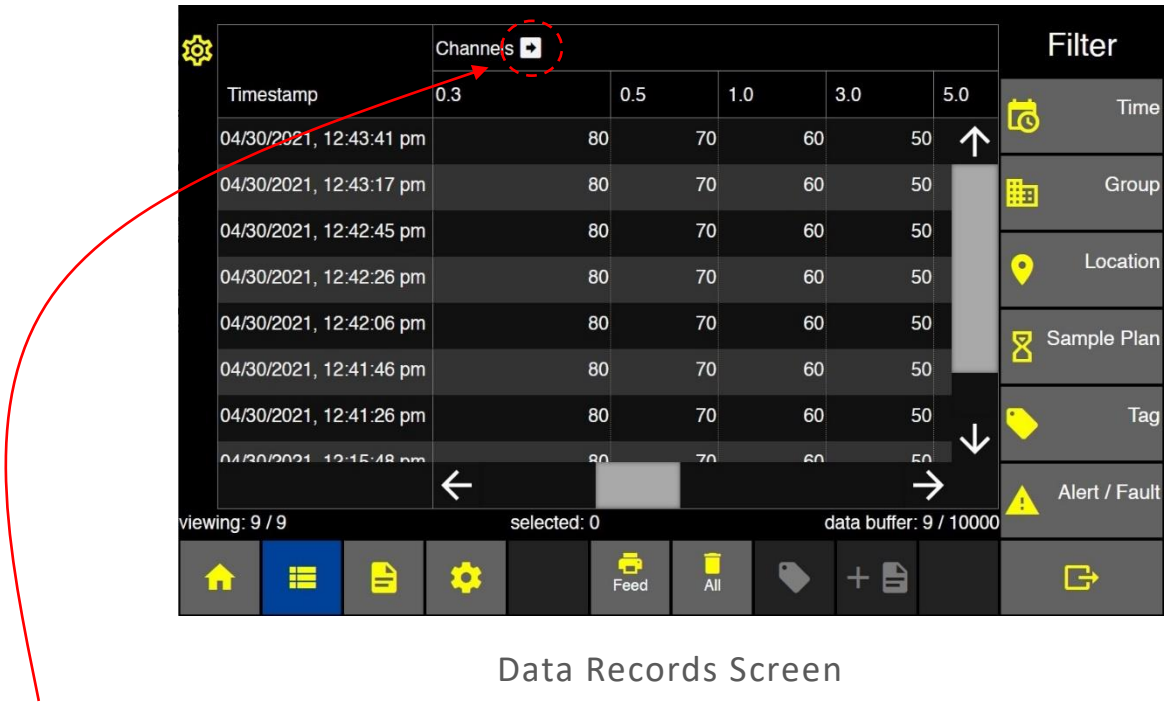
Data Records Screen

View Data Records

The ApexZ can store up to 10,000 sample data records and display them on the data screen. The user can scroll up and down, left, and right and view all saved data records. Individual or multiple data records can be selected, and a Data Tag can be entered and saved in the data record. Data records with a strikethrough indicate the unit had a flow-fault, laser-fault, service-fault or the instrument was out of calibration when the sample was taken.

Data Record – Displayed data columns on screen.**

Date and Time stamp (1 hidden Date Start column), Sample Name (3 hidden columns)
Sample Time, Group, Location, Channels (up to 6 hidden columns displaying particle counts by Channel Size) Environmental (Analog Temp and RH) Alerts (Alarm and Warning conditions)
Faults (Flow, Laser, and Service)
User
Data Tag(s)



Data Records Screen

Note: Hidden columns can be viewed by clicking on the column expansion arrow buttons to the right of each column heading.

**: See Addendum to ApexZ Data Records Screen.

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Data Record Screen Column Display

The user can select which data fields to display on the Records screen and what order the columns are displayed on the screen. Press the gear icon in the upper left corner of the Data screen to open the Show Record Columns screen.

- Select the desired columns to display on the left side to add them to the “selected” list. Active columns will be highlighted blue.

- Once columns are added to the “selected” list, the user can adjust the display order by doing a “press-and-hold” on the at the beginning of the line, then dragging the column into the desired placement.

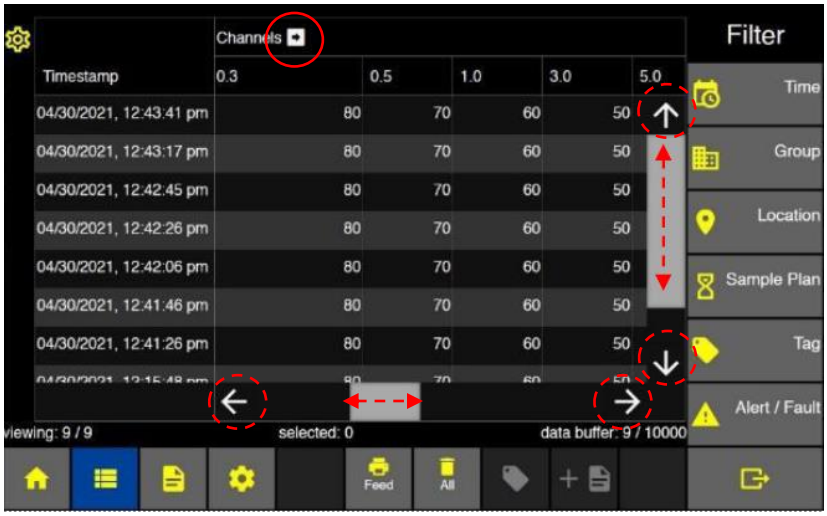
- Once all columns in the list are ordered properly, press the green Save button to save and return to the Data Records screen.



Show Record Columns

Expanding the Channels column

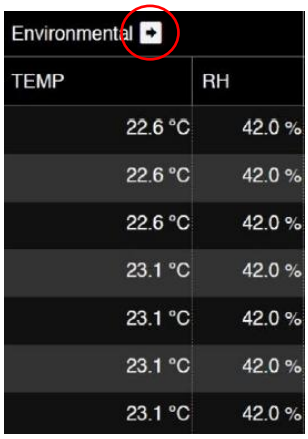
- Press the right arrow button to expand and the left arrow button to collapse the channel columns.
- Slide the horizontal scroll bar or press the right and left arrows to view additional data columns.
- Slide the vertical scroll bar or click on the arrows up and down to scroll through data records saved on the ApexZ.



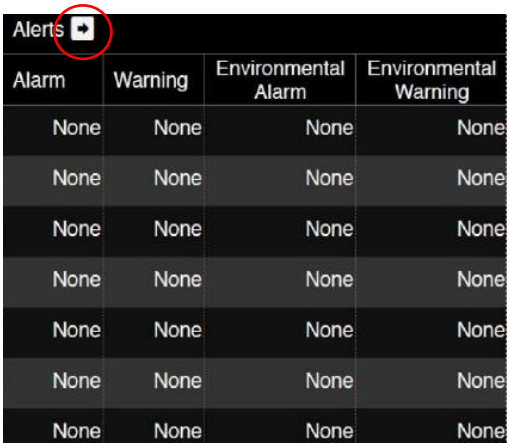
Data screen, Channel columns expanded

Expanding the Environmental, Alerts and Faults columns

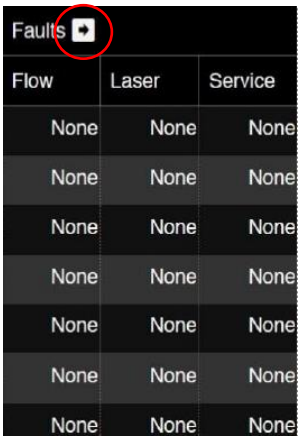
- Press the right arrow button to expand and left arrow button to collapse the data columns.
- Use the horizontal scroll bar to view additional data columns to the right or swipe your finger on screen to scroll up or across and display additional rows and columns.



Environmental Columns



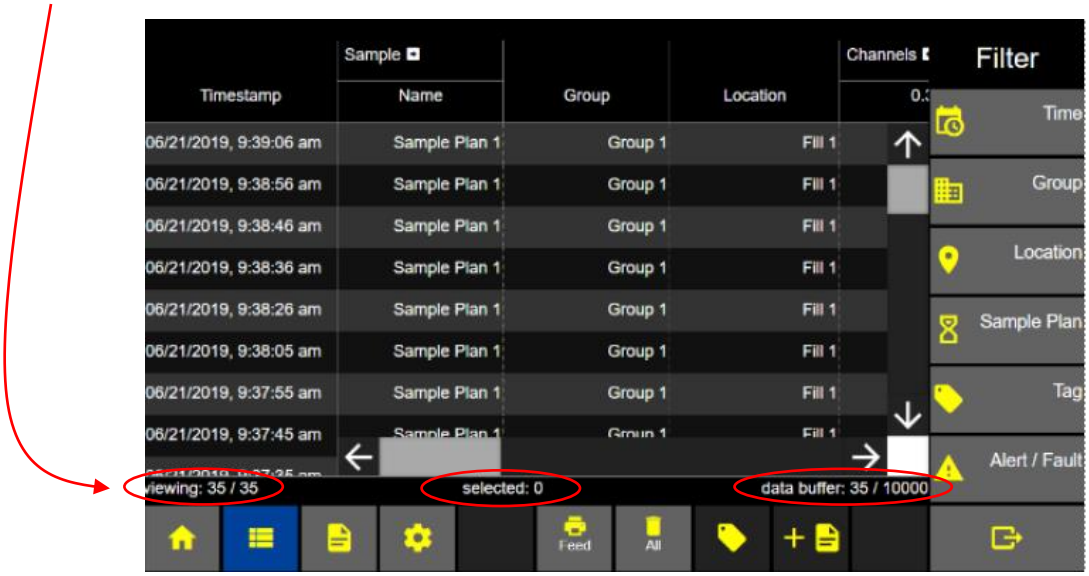
Alerts Columns



Faults Columns

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Status Bar



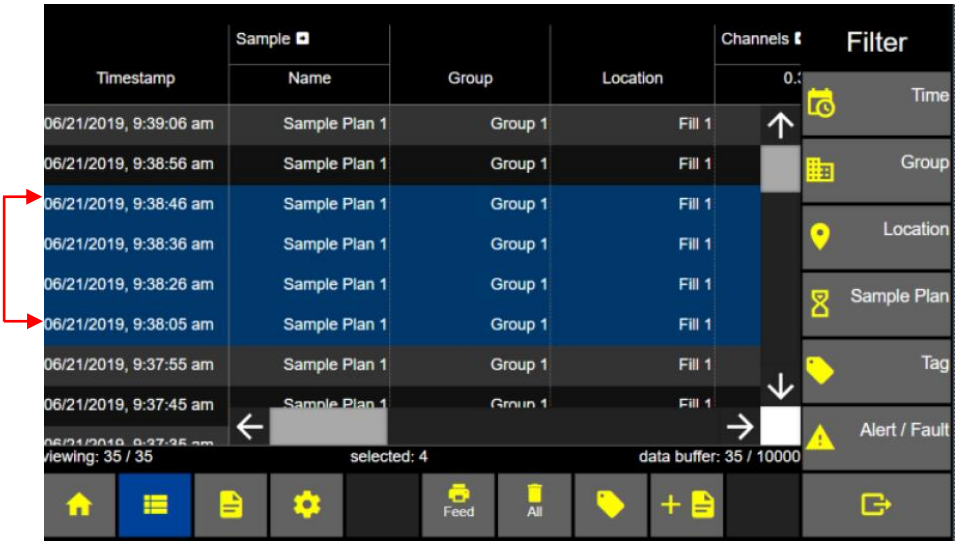
Data Screen



Viewing:	**#/#**	Filtered data records / total data records.
Selected:	**#**	Represents total data records currently selected/highlighted blue.
Data buffer:	**#/10,000**	Represents total # of saved data records / total capacity records.

Select Data Records

- Press anywhere on a data record row and that data record will highlight blue indicating it is currently selected.
- Select additional rows and they will highlight blue, indicating they are also selected now as a group.
- To unselect press again and the data record will return to grey/dark grey indicating the data record is no longer selected.



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Data Tags

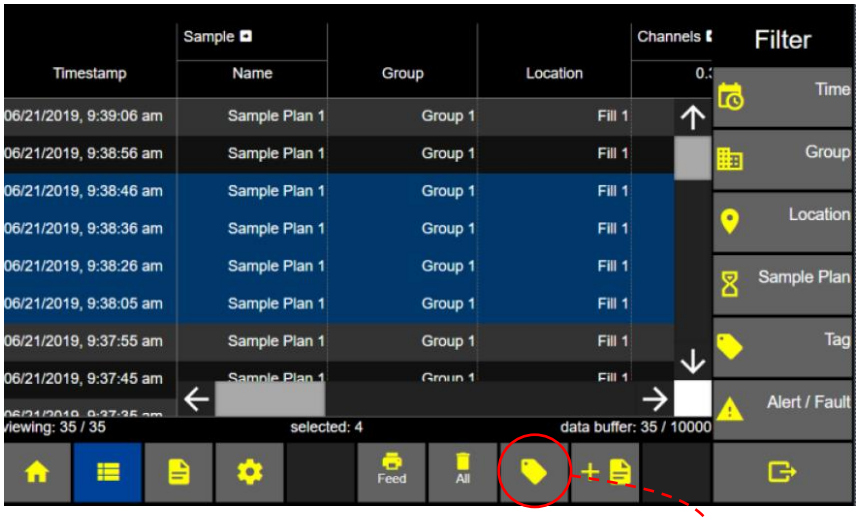
Data Tags can be used to add process references to your sample data record. For example, data tags “Batch #” and “Lot #” can be created and prompted for either Pre-Sample or Post-Sample. Data Tags can be entered by a standard USB barcode reader, input via the use of Annotations, or input from the ApexZ touch screen keyboard. Data Tag input is saved with the data record and displayed in columns on the ApexZ Data Records Screen (if the individual Data Tag column(s) are selected to be shown). Data Tags can also be added to records on the Data Records screen.

Select Data Records

- Select a single data record or a group of data records and they will highlight blue indicating these records are currently selected.



- Press the Tag button to display the Data Tags screen. Note Tag Button will be inactive if no Data Tags have been defined.



Data Records Screen

Add Data Tags to Data Records

- Select the data tag to input.
- Scan or touch to input the data tag

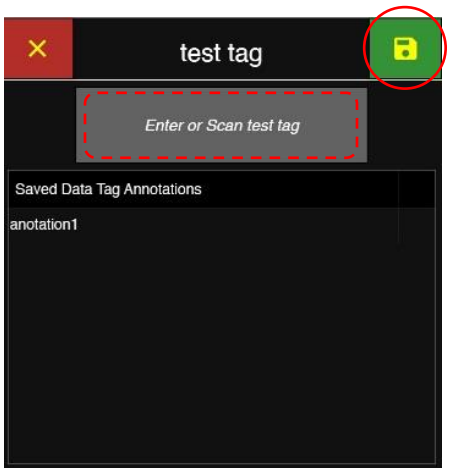
If the user selects a saved data tag annotation the ApexZ will display the annotation text in the display area. Alternately, the user can touch the input button for the Enter Value input screen and the user can input the data tag value manually and press the green Apply button to apply the data tag value.

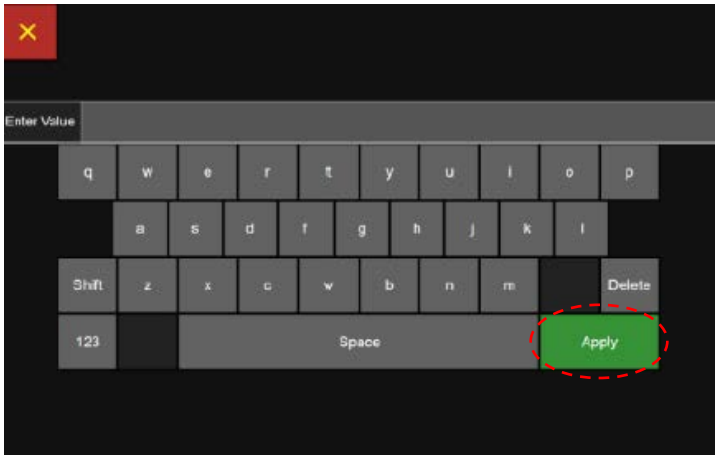


Data Tags Screen

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- Once scanned or manually input, press the Save button then the green Start button to begin the sample.



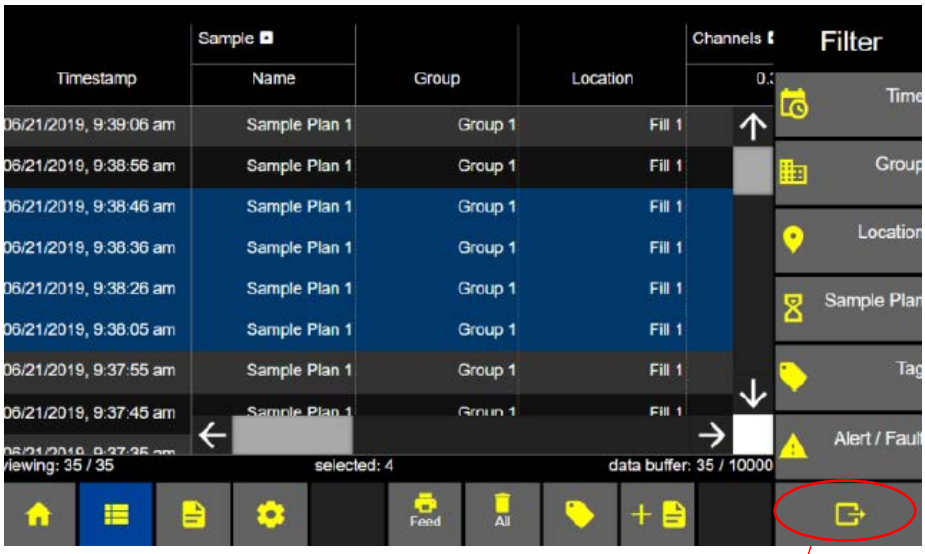


Export Data Records

Data records on the ApexZ can be output to the onboard printer (on units with the optional embedded printer), a network-connected printer, a USB key or a CIFS (Common Internet File System). Data exported to a USB or CIFS can be saved as a .csv, .xlsx, .lsdx, or .pdf file, dependent on the settings in the Settings-Instrument → Output screens.

Select Data Records

- Select a single data record or a group of data records.
- To export ALL data records, press the export button without selecting any record(s).
- Press the Export button to display the Export Screen.



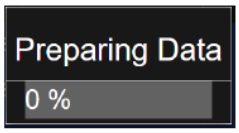
Data Records Screen

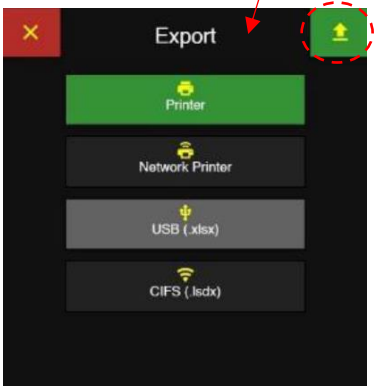
Select Export Type

- Select the export type: **Printer,** Network Printer, USB, or CIFS. Formatting for all out put types is set up in the Settings – Instrument – Output screen. The selected output type button will highlight green.
- Press the export button to start the Export.



- "Preparing Data" message will display while exporting.



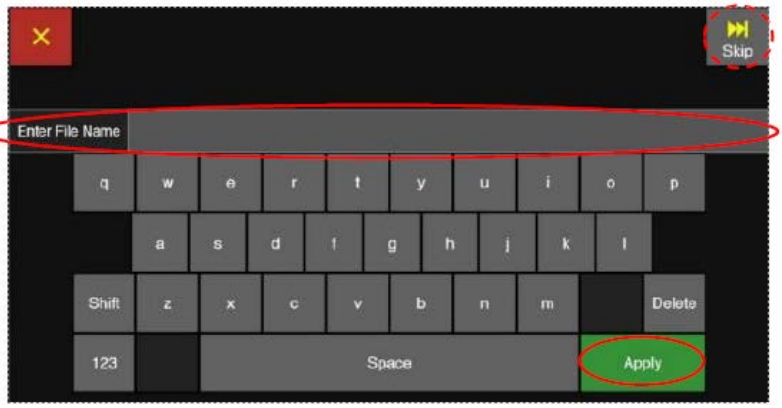


- Note: 100 records are the maximum export to the Printer/Network Printer at a time.

Name Export File

When exporting data files to a USB or to CIFS, the user has the option to give the file a name. For those output destinations, after pressing the export button the Enter File Name screen will appear.

- Use this screen to enter a desired file name for the data to be exported then press the Apply button.
- Alternatively, press the Skip button to title the file with the default system name.

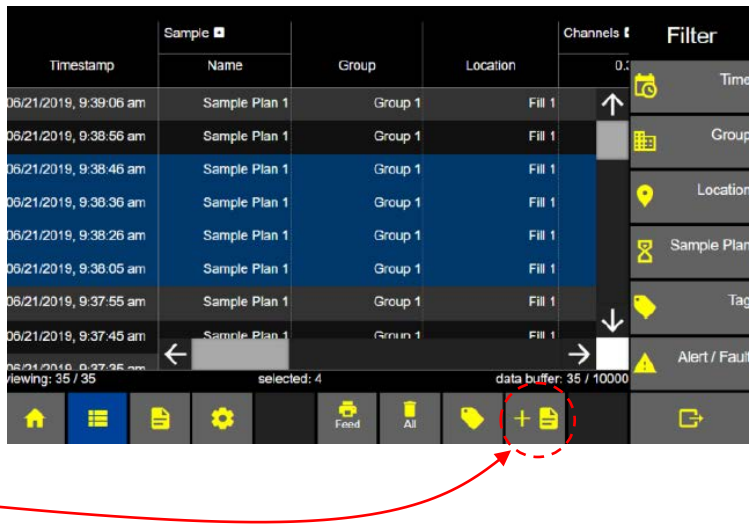


Make Report from Data Records

Reports may be created from selecting a continuous set of data records from the Data Screen and then pressing the + Report button. After the + Report has been pressed, the user will be asked to set report sample parameters and create a new Report based on the selected data record samples collected. Follow these steps to select the data records, report type, channels, enter a new report name, and save the report.

Select Data Records for Report

- Press and highlight the desired data records to make a Report.
- Press the +Report button to display the New Report screen.





Report Type

- Press the Type button

Select a Report Type:
ISO 14644-1: 2015
EU GMP: 2022
EU GMP: 2008
ISO 14644-1: 1999
FED 209E (Federal Standard 209E)



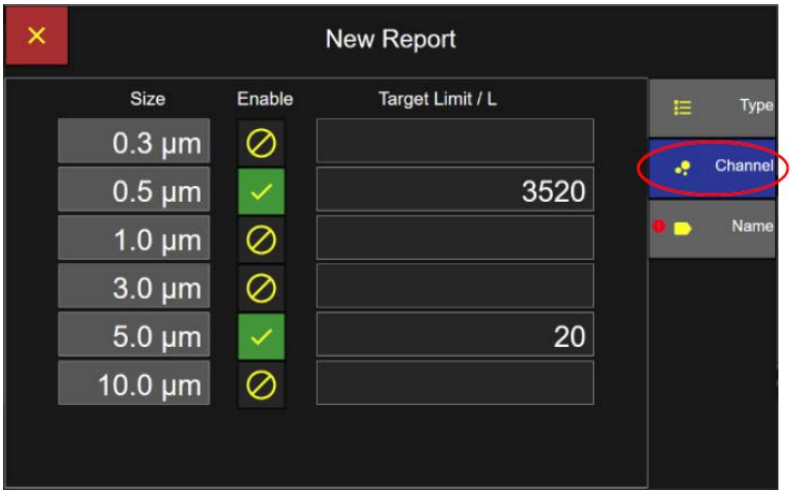
New Report Type

Report Channels

- Press the Channel button to display the Report Channels screen.

ApexZ will enable the required channels and will set the target limits for the chosen report type standard. Enabled channels will display with a green check box.

Disabled channels will be displayed with the null symbol, a circle with a line through it. These particle channel sizes are not within the certification standard and may not be enabled.



New Report - Channels

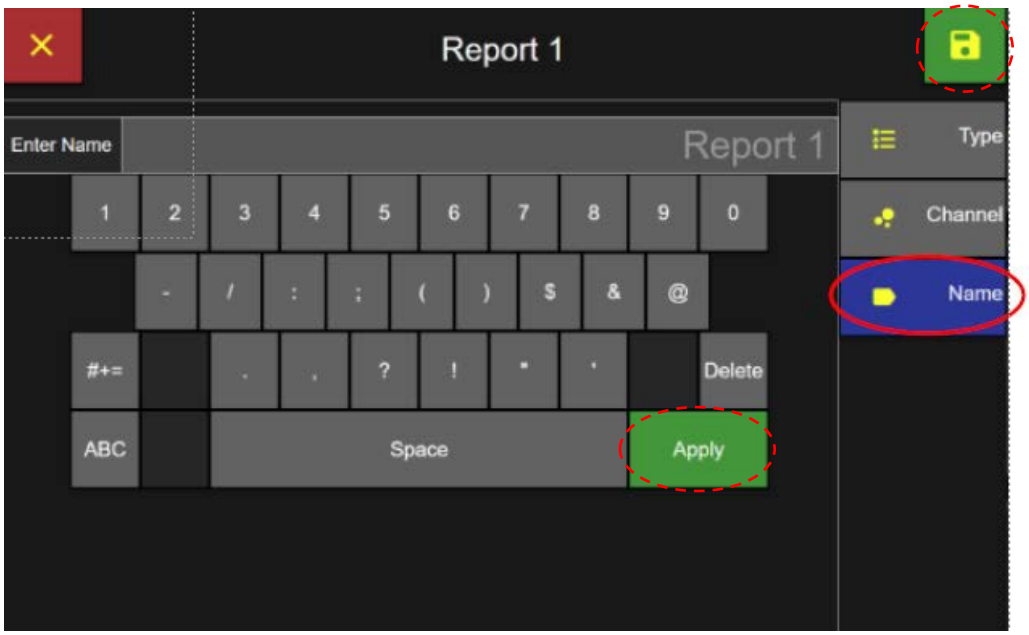
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The EU GMP:2022 standard allows the user to choose whether to include the 5.0µm channel, and what Target Limit that channel will have, when set up for Grade A (in-operation and at-rest) and Grade B (at-rest only).

Editable lines are shown with a light gray background.

Report Name

- Press the name button to display the report name screen.
- Enter the report name from the keyboard.
- Press the green Apply button to apply report name.
- Press the green Save button to save the report and return to the Data Screen.
- The new report will be saved on the Report Screen.



Report Name Screen

Fiter Data Records

From Data Screen

- Press the Time button to display the Data & Time Screen Filter.

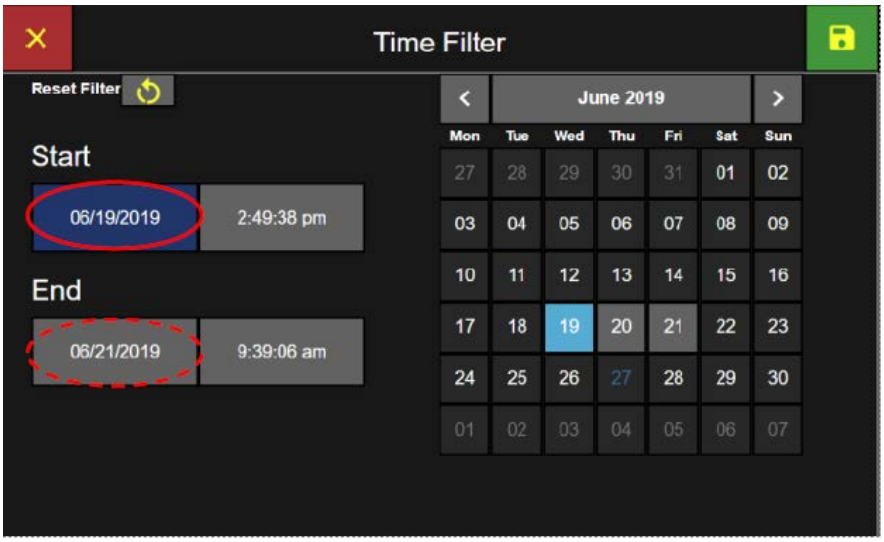


Data Screen

Filter Start / End Date

- Press the Start Date button and select the starting day, month, and year for the filter period using the keypad.

- Press the End Date button and enter the end date on the keypad.



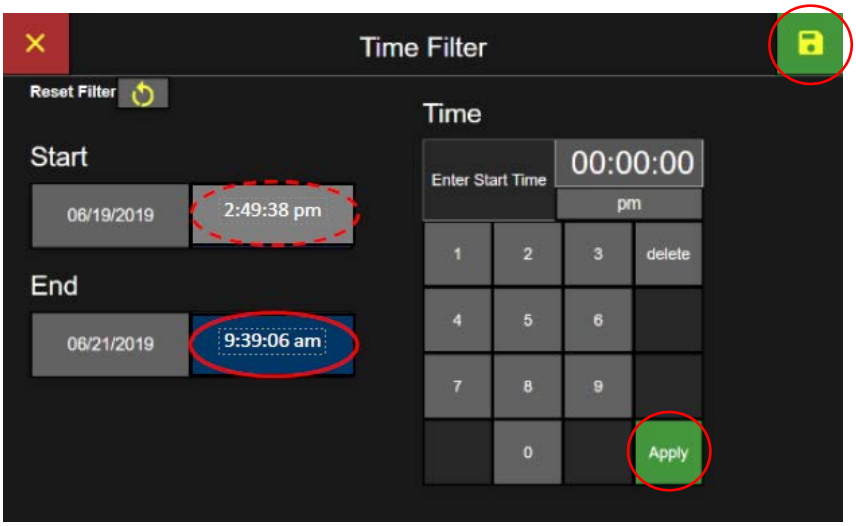
Filter Data – Date Keypad

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Filter Start and End Time

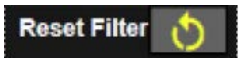
- Press the Start Time button and enter the start time on the keypad

- Press the End Time button and enter the end time on the keypad. If the End Time is prior to the Start Time, the "Invalid Start Time" error will display.



Filter Data – Time Keypad

- Pressing the Reset Filter button will reset the dates and times to encompass all available records.



- Press the green Apply button and then press the green Save button to set the date and time filter on Data Screen data displayed.

Filter Groups

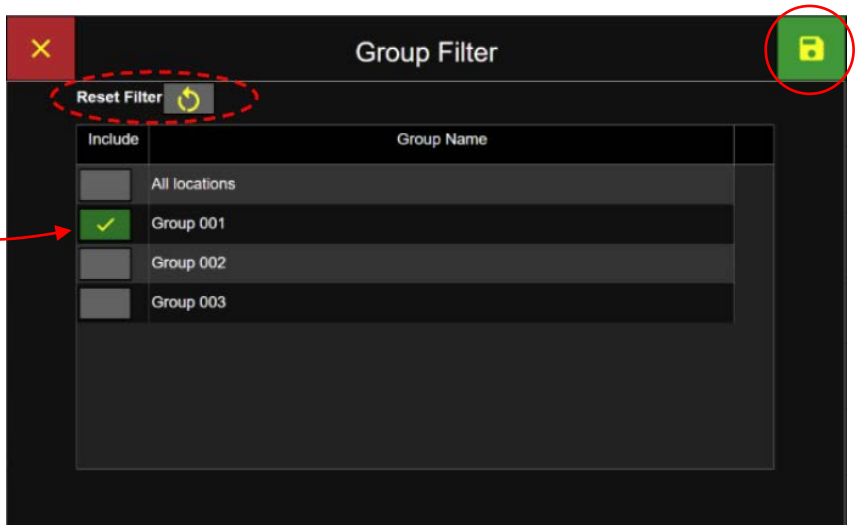
- Press the Group button to display the Filter Group screen.



Data Screen – Group Filter

Select Group to Filter

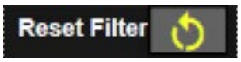
- Select Group name(s) to be included in the data records filter and press the adjacent include button. The button will highlight green with a check mark indicating the group name has been included in the filter.
- Press the include button a second time to remove selection. A grey background color indicates no filter on this parameter.



Group Filter

Group Filter

- Press the Reset Filter button to deselect all options on the screen.



- Press the green Save button to save the filter settings and return to the Data Screen.

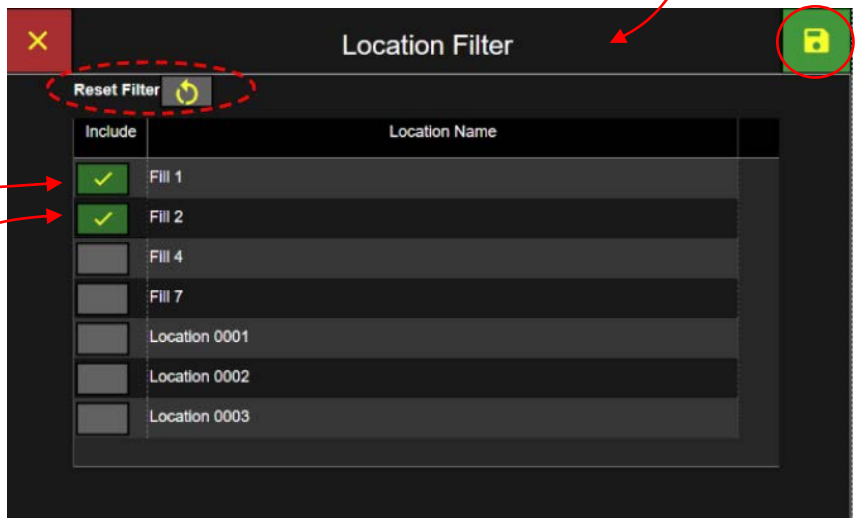
Filter Locations

- Press the Location button to display the Filter Location screen.



Data Screen

- Select the Include button next to the Location names(s) to be included in the data records filter.
- The button will highlight green with a check mark indicating it will be included in the data record filter.



- To clear all selected location names from the filter, press the Reset Filter button and all location names will be deselected. 



- Press the green Save button to save the filter settings and return to the Data Screen.

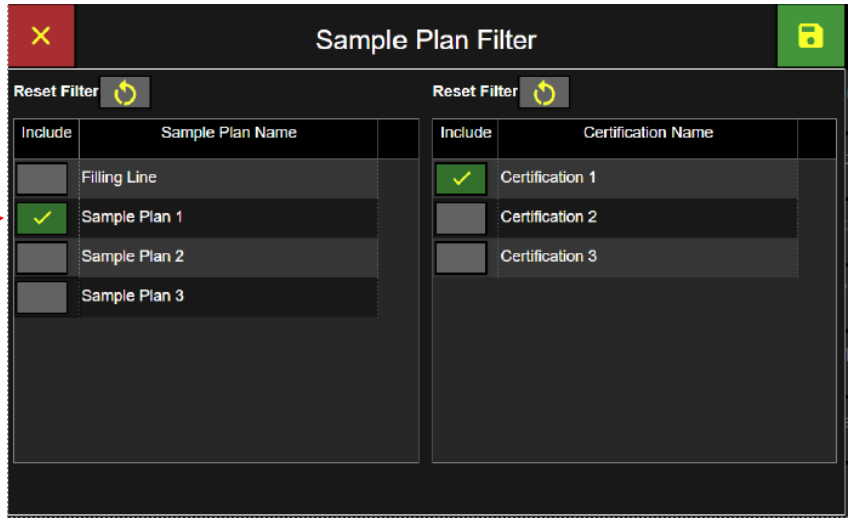
Filter Sample Plans and Certifications

- Press the Sample Plan button to display the Filter Sample Plans screen.

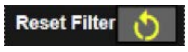


Data Screen

- Press the Include button next to the Sample Plan/Certifications to be included in the data records filter.
- The button will highlight green with a check mark indicating it will be included in the data record filter.



Sample Plan and Certification Filters





- To clear all selected location names from the filter, press the Reset Filter button and all location names will be deselected.
- Press the green Save button to save the filter settings and return to the Data Screen.

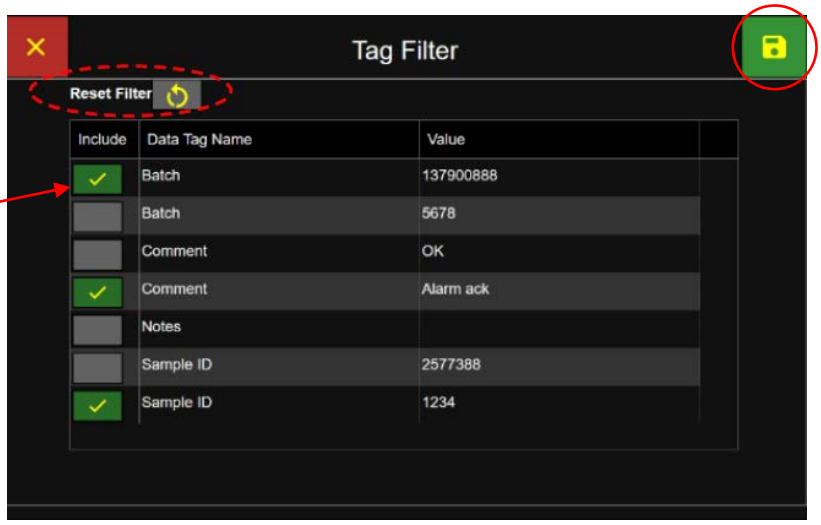
Filter Tags

- Press the Tag button to display the Tag Filter screen.



Data Screen select Tag button

- Select the Include button next to the Tag names(s) to be included in the data records filter.
- The button will highlight green with a check mark indicating it will be included in the data record filter.



Tag Filter Screen





- To clear all selected location names from the filter, press the Reset Filter button and all location names will be deselected.
- Press the green Save button to save the filter settings and return to the Data Screen.

Filter Alert/Fault

- Press the Alert/Fault button to display the Alert/Fault screen.

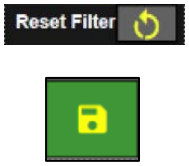


Data Screen – Select Alert/Fault Filter

- Select the Include button next to the Alert/Fault(s) to be included in the data records filter.
- The button will highlight green with a check mark indicating it will be included in the data record filter.



Filter Alert/Fault screen



- To clear all selected location names from the filter, press the Reset Filter button and all location names will be deselected.

- Press the green Save button to save the filter settings and return to the Data Screen.

Delete all data records

ApexZ will store up to 10,000 sample data records and after the database is full then the newest data records will copy over the oldest data records, wrapping the database.

- To delete ALL data records, press the trash can button to display the Delete All Data Records screen.

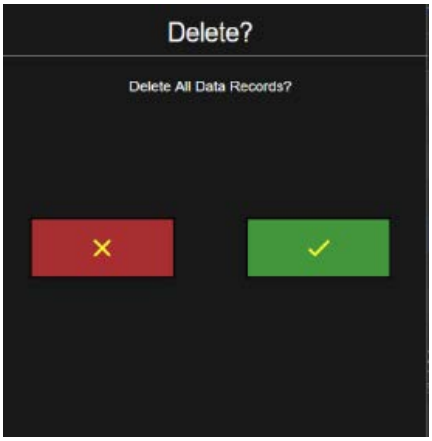




Data Screen Select Delete All Data Records

- Press green check mark button to delete ALL Data Records. (Note: There is no option to delete individual records.)

- Or press the red X button to cancel and NO data records will be deleted.



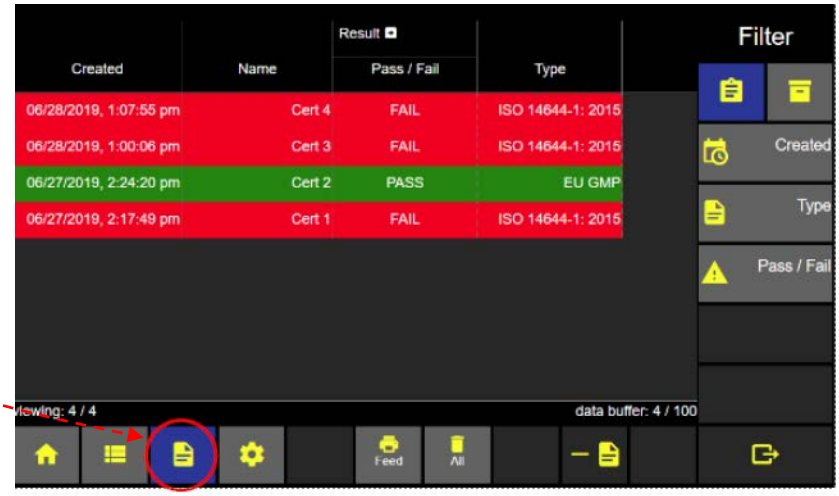
Delete All Data Records Screen

Reports

Report Screen

The Reports screen displays a list of all saved certification reports. Reports that have Passed their certification conditions will be highlighted green and display “PASS” in the Results column. Reports that have failed their certification conditions will be highlighted red and display “FAIL”, indicating they have failed.

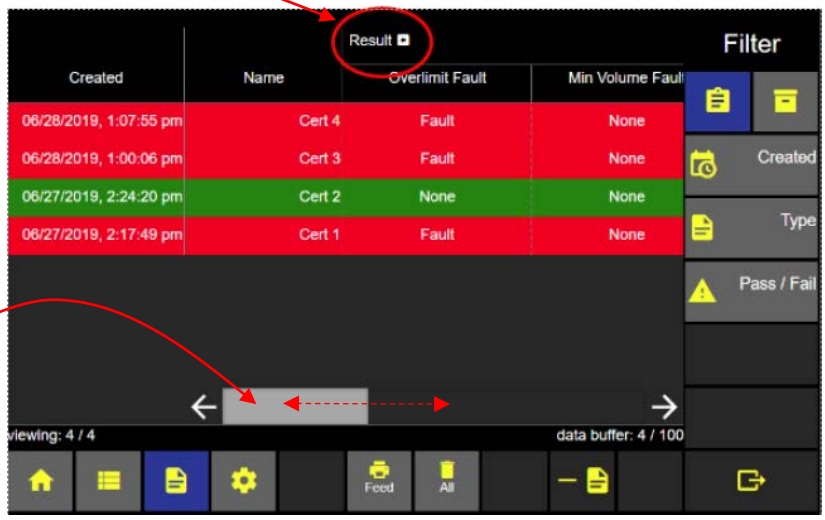
- From the Home Screen select the Report icon button to display the Report Screen.



Reports Screen

Expand Result Columns

- Press the arrow button to expand the Result columns.
- Use the horizontal slider button or arrow buttons to display columns to the right or left.



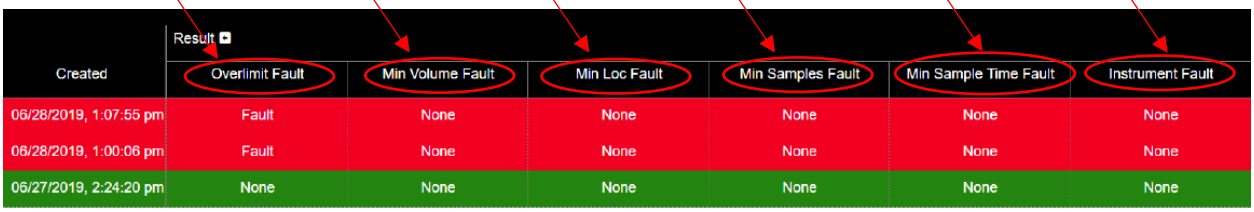
Result Columns Expanded

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Report data columns displayed include date created, report name, and fault results for over limit data counts, minimum sample volume not met, minimum samples not taken, minimum sample time not sampled, and instrument fault.

Report Result Column Expanded

Over limit fault, Min. Volume fault, Min. Locations fault, Min. Samples Fault, Min. Sample Time Fault, Instrument Fault



Created	Result					
	Overlimit Fault	Min Volume Fault	Min Loc Fault	Min Samples Fault	Min Sample Time Fault	Instrument Fault
06/28/2019, 1:07:55 pm	Fault	None	None	None	None	None
06/28/2019, 1:00:06 pm	Fault	None	None	None	None	None
06/27/2019, 2:24:20 pm	None	None	None	None	None	None

Results Columns Expanded

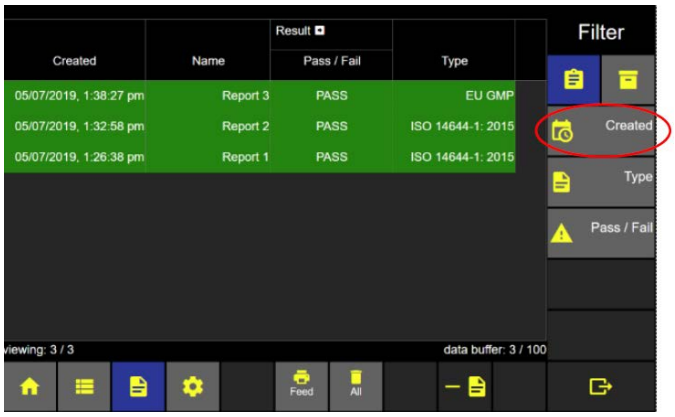
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Filter Report List

The list of reports displayed on the Reports screen can be filtered by the date the report was created, the report type or the report pass/fail status.

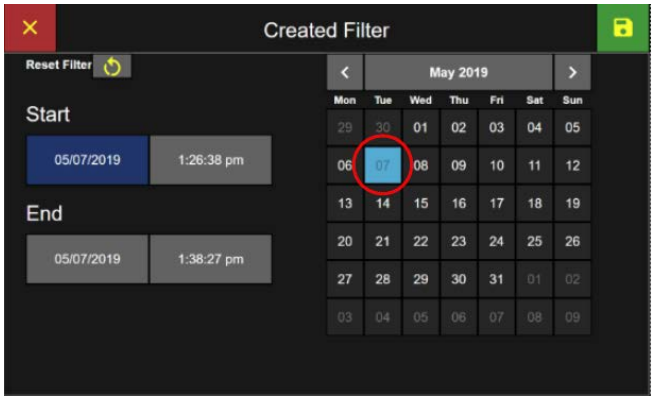
Filter report date and time

- From the Reports screen press the Created button to go to the Filter Created Screen.



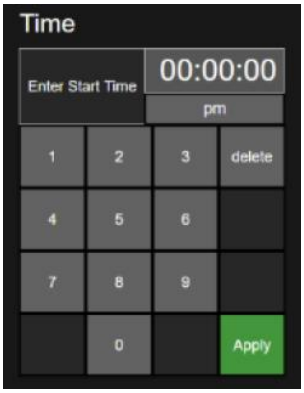
Reports Screen

- Select the Start/End date button and the date keypad will be available to enter the start/end dates for the desired data records filter.



Select date, month and year

- Select the Start time and End time buttons and use the Time keypad to enter the report filter start and end times.
- Select am/pm.
- Press the Apply button
- Press the Save button to return to the Reports screen.



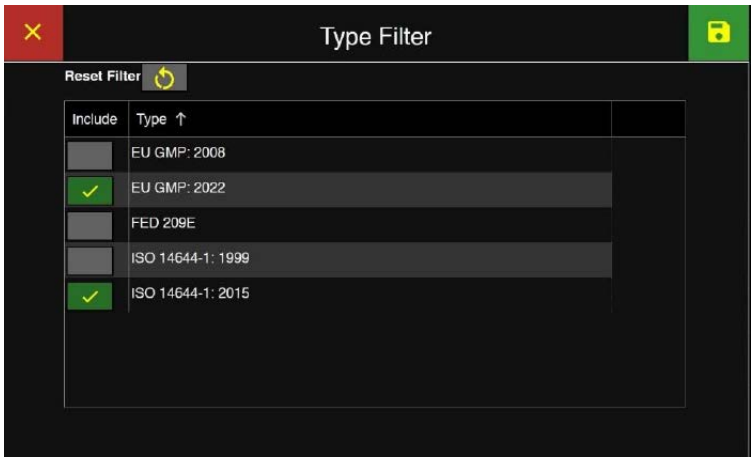
Select Time

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Filter Certification Type

Click to Enable the certification type(s) to be included in the filter. The button will highlight green with a yellow check mark indicating that certification Type is included in the data records filter.

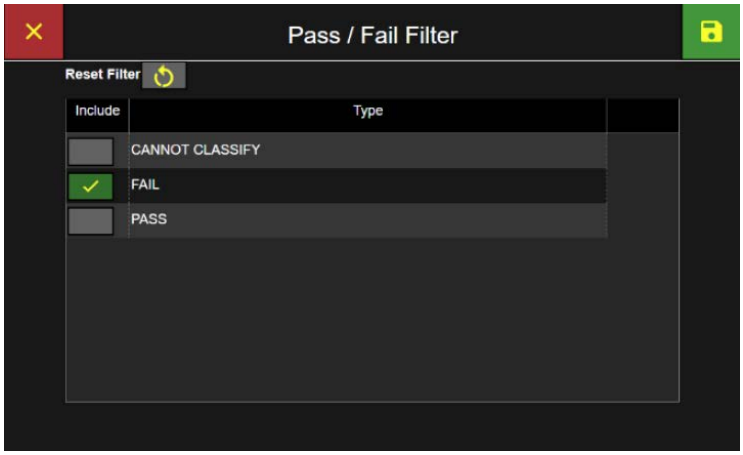
- Press the Save Button to apply the filter and return to the Reports screen.



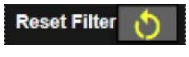
Select Certification Type Filter

Filter Pass/Fail

- Click to Enable the Pass/Fail Types(s) to be included in the filter: Cannot Classify, Fail or Pass.



The button will highlight green with a yellow check mark indicating that type is included in the Report list filter.

- Press the button a second time and the button will change to a grey color indicating it is not included in the data records filter.
- Press the green Save Button to apply the filters and return to the Reports Screen.
- If you do not press the Save button, then no new filters will be applied.
- If you press the red X button to cancel, then no filters will be applied.
- If no Types are included, then no filters will be applied, and all reports will be displayed on the Reports screen.
- To disable all included filters, Press the Reset Filter button. 

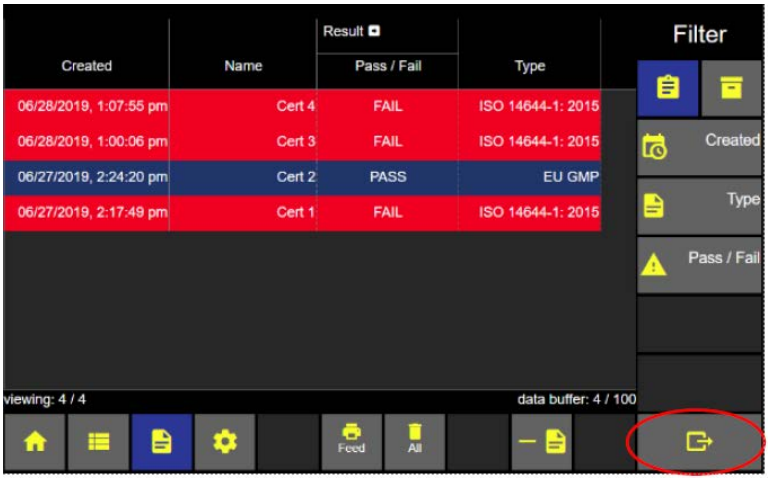
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Export Report

- Select a report to export and it will highlight blue indicating it has been selected. Only 1 report may be exported at a time.

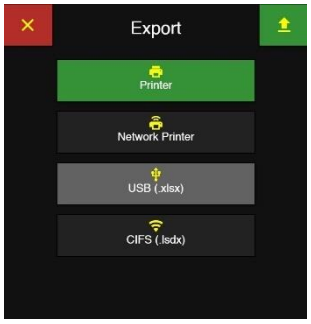
- Press the Export Report button.





Select Report to Export

- Select the Export Type: Printer, Network Printer, USB or CIFS. *(File format and set up for the USB and CIFS options are set in Settings -> Instrument -> Output screens)*
- Press the Confirm Export button to start the export.



Name Export File

When exporting data files to a USB or to CIFS, the user has the option to give the file a name. For those output destinations, after pressing the export button the Enter File Name screen will appear.

- Use this screen to enter a desired file name for the data to be exported then press the Apply button. Alternatively, press the Skip button to title the file with the default system name.



Enter File Name Screen

- Preparing Data popup screen count from 0 to 100%
- USB Export will count from 0 to 100%



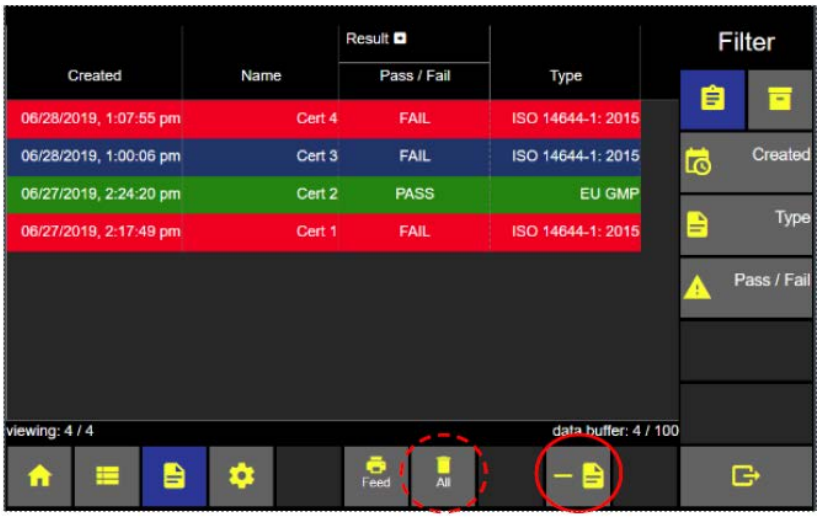
Preparing Data and USB Export

Delete a Report

Reports can either be deleted one at a time using the Delete Report button, or all at once using the Delete All button. If no reports are selected, thenthe delete report button will be disabled.

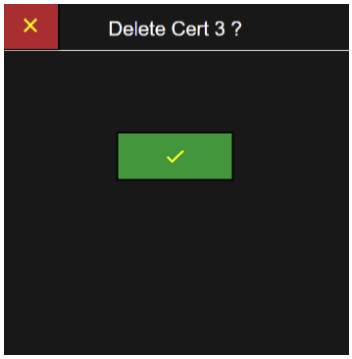
- Select a report to delete and it will highlight blue indicating the Report has been selected.
- Press the Delete Report button and the Delete Report confirmation screen will display.





Select a Report to Delete

- Press the green check box to delete the selected report or press the red X box to cancel with no report deleted.

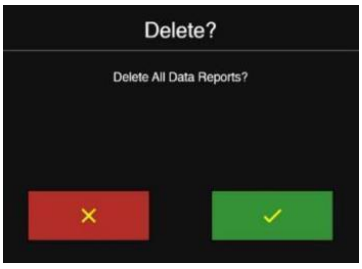


Delete Selected Report

- Press the Delete All button to delete all reports listed in the Reports Screen.



- Press the green check box to delete all reports or the red X button to cancel Delete All.

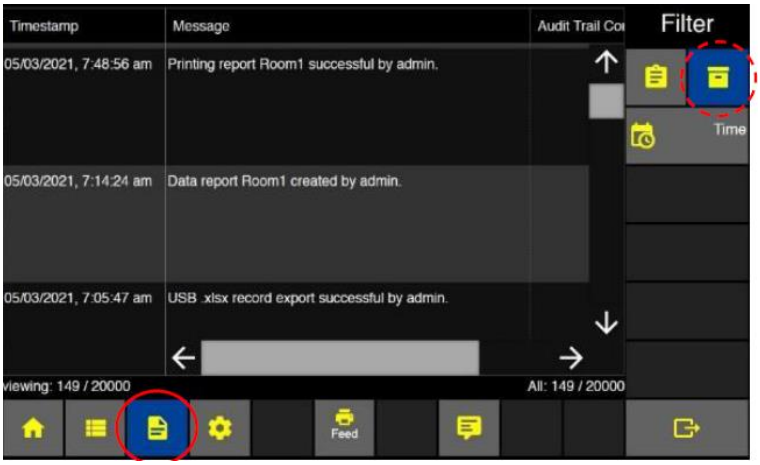


Delete All Reports

Audit Trail

The Audit Trail Screen creates a timestamp and message for every user action and data record recorded on the ApexZ instrument. Every time a sample is recorded, or a user changes a current setting or modifies a configuration parameter; a timestamped message will be recorded in the Audit Trail. After 20,000 records have been recorded in the audit trail the next record will replace the oldest record.

The user can add comments to audit trail messages, filter the displayed messages based on Time parameters, and output the displayed Audit Trail to a USB or CIFS.



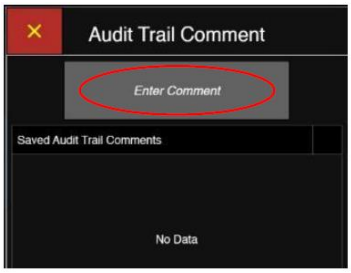
- From the Home screen press the Reports button and then press the Audit Trial button to display the Audit Trail Screen.

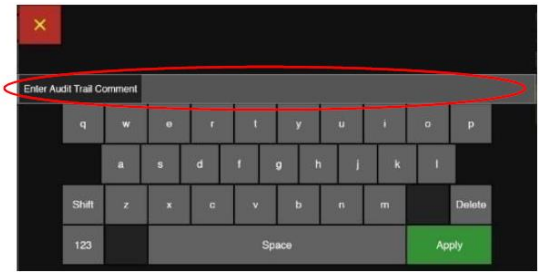


- Press the side arrows or slide the scroll bar up and down to view the audit trail history.
- Use the bottom arrows or slide bar to completely view the audit trail comment column.

Adding Comments to Audit Trail messages

- Highlight a message in the Audit Trail by selecting it.
- Press the comment button to bring up the Audit Trail Comment input box.
- Press the Enter Comment button to bring up the Enter Audit Trail Comment key





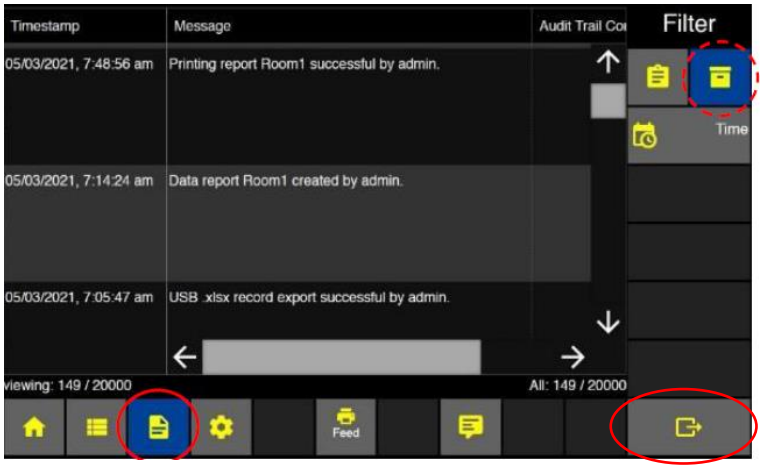
Enter the text desired for the Comment, then press Apply to add the Comment to the Audit message. Adding Comments to Audit Trail messages also generates another entry in the Audit Trail, which indicates timestamp of the Commented message, the text of the Comment, and the user who created the Comment.

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Export Audit Trail to USB or CIFS.

- Press the Export button to export the Audit Trail. All messages currently listed in the Audit Trail are exported each time (see Audit Trail time filtering on the following page).





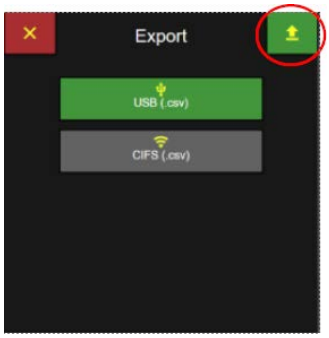
Audit Trail Screen

- Select export to USB or CIFS.

The format of the exported file will depend on the file format options as set in the Settings -> Instrument -> Output screens.

- Press the Export button.



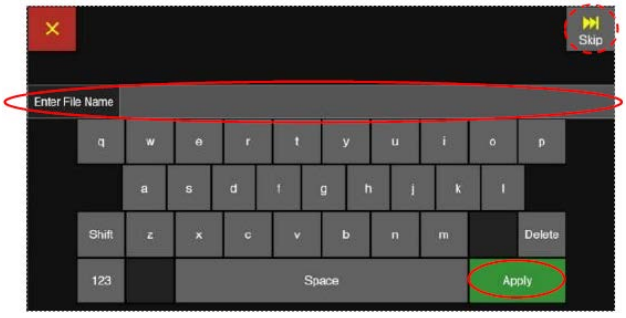


Export Audit Trail

Name Export File

After pressing the export button, the Enter File Name screen will appear.

- Use this screen to enter file name for the data to be exported.
- Then Press the Apply button. Alternatively, press the Skip button to title the file with the default system name or press the red X button to cancel.



Enter File Name Screen

- If a USB key is inserted, then pop-up messages will display saying “Preparing Date” and “USB Export” and will count from 0 to 100% for each.



Preparing Data / USB Export

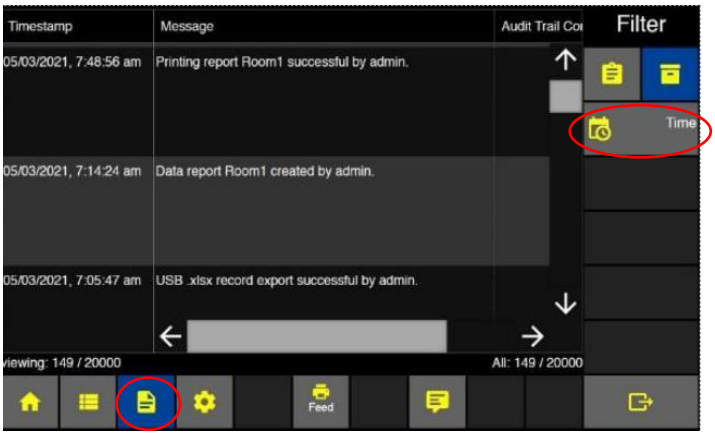
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Audit Trail Time Filtering

The user can filter the Audit Trail messages with by Time stamp.

- Press the Time button in the Audit Trail screen.

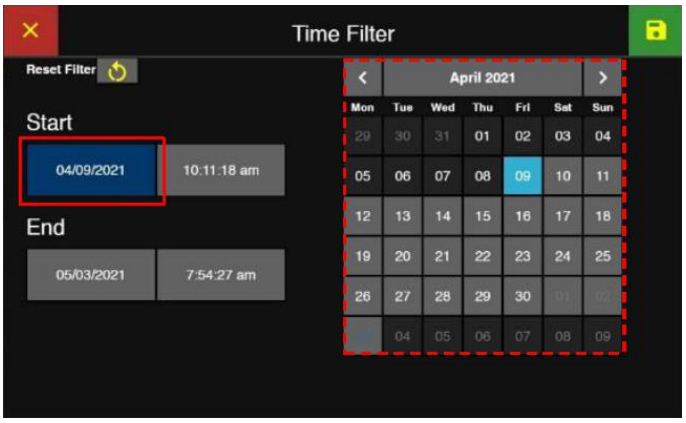
The Time Filter screen will appear.



Audit Trail Screen

Select Start and End Date and Time to filter the Audit Trail messages.

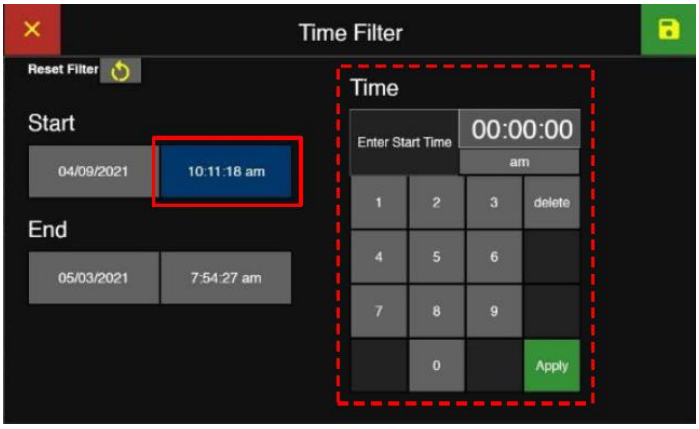
- With the Date button selected, use the calendar shown to select a date.
- Select both Start and End dates.



Date Filter Audit Trail

- With the Time button selected the user can use the keypad to enter the time and toggle the am/pm button.
- If the 24 HR time format is selected, then the am/pm button will not appear. Input time using 24 HR format.
- Select both Start and End Times
- Press the green Save button to save selected Date/Time ranges.

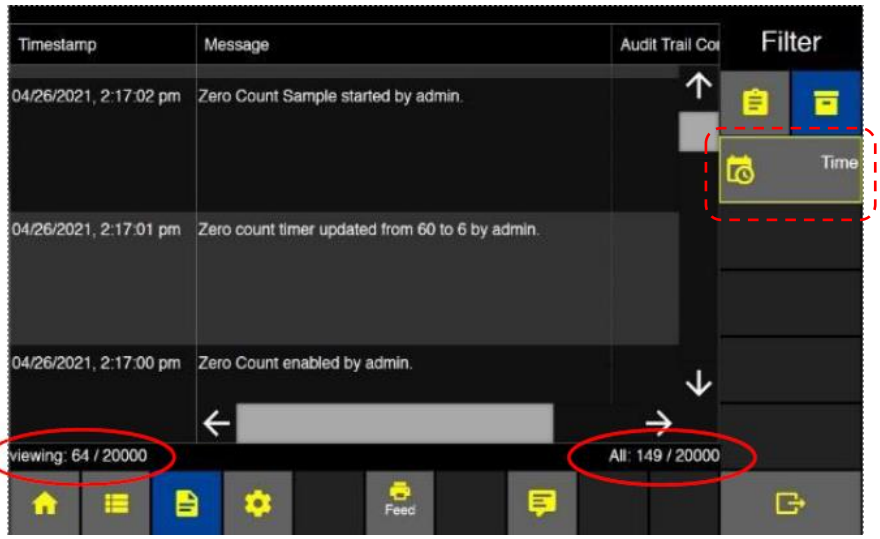




Time Filter Audit Trail

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- The Audit Trail screen will then display only messages generated during that Date and Time range.
- The screen will show the Time filter button with a yellow highlighted to indicate it is in effect.



The screen will display the number of records being shown along with the total number of records contained in the Audit Trail. Audit Trail records cannot be deleted.



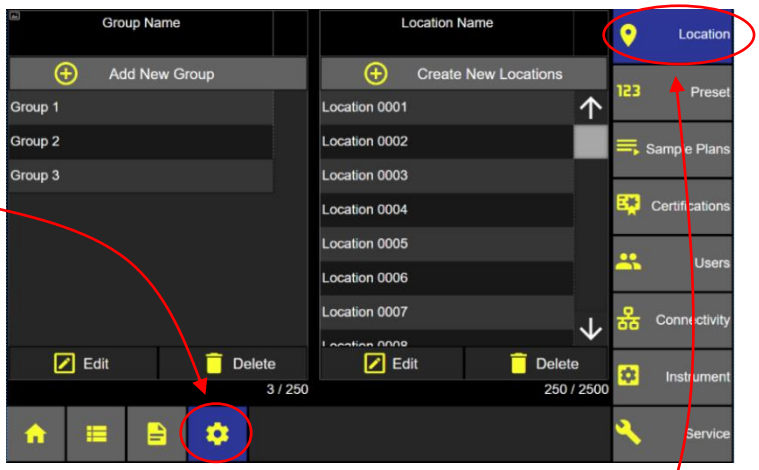
Settings

Settings are used to create locations, groups, presets, sample plans and certifications. In addition, instrument settings, connectivity, and users are managed from the Settings screens.

When Users are enabled, the Settings gear button is only available to “Admin” and “Power User” level User logins by default, while default “Operator” level users will not have access. Access settings can be changed in the User Permission Level settings. If Users are disabled, then the Settings button and screens will be active and accessible to any user.

- From the Home screen press the Settings gear icon to display the Settings screen button list for Location, Preset, Sample Plans, Certifications, Users, Connectivity, Instrument, and Service.

- Select the Location settings button from the right column and the Locations and Groups Settings screen will highlight blue to indicate it has been selected and is being displayed.



Locations and Groups Screen

Blank Page

Instrument Settings

The Instrument Settings screen allows the user to view and edit options and settings for date/time, audio/visual, global channels, warning/alarm data count format and units, sample and Zero-Count settings, data output and formatting, and saving and loading configurations files.

Access the Settings Screen

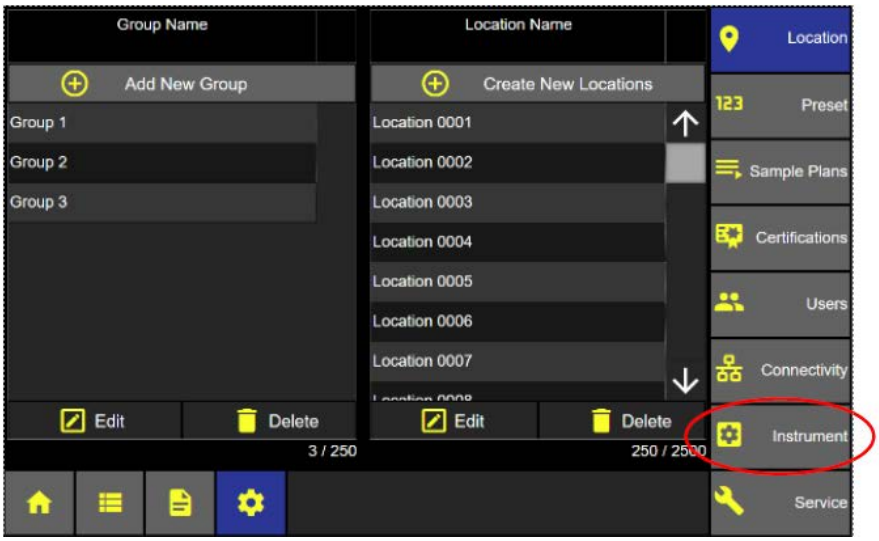
- From the Home screen press the gear icon to display the Settings screen.



Home Screen

Access Instrument Settings

- From the Settings screen press the Instrument button for the Instrument Settings screen.



Settings: Groups and Locations

Network Time Protocol

The ApexZ supports a network protocol for clock synchronization called NTP, Network Time Protocol. This service can synchronize the time subsystem in the unit based off a NTP server input by the user. When a network connection to that server is available? ApexZ will then query that server for the correct date and time and maintain itself accordingly.

- Enable the use of NTP (Network Time Protocol) by checking the checkbox in the Time tab.
- Press in the empty box to bring up the Enter NTP Server keyboard. Enter a viable NTP server name and press Apply.
- Set the NTP Poll interval to a value between 64 and 9999. This will be how often in seconds that the unit will query the input NTP server to maintain proper timekeeping.
- After entering the NTP information, cycle power

If the NTP option is checked, the Date and Time fields in the Time screen will be non-interactable. The user will still be able to change the Date Format, Time Zone, and Time Format. If the checkbox on the Network Time Protocol line is checked, the user will be unable to select the Date button.

Set Current Date

- Press the Date button to display the Pick Date input screen.
- Select today's year, month, and day. Then select the Save button or red X button to cancel.



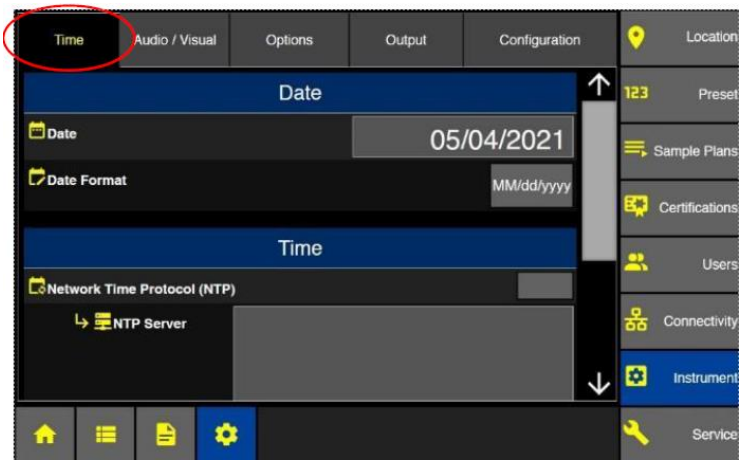
Pick Date Year/Month



Pick Date Day

Date & Time

- Press the Time tab to edit the date, date format, time zone, time and time format.

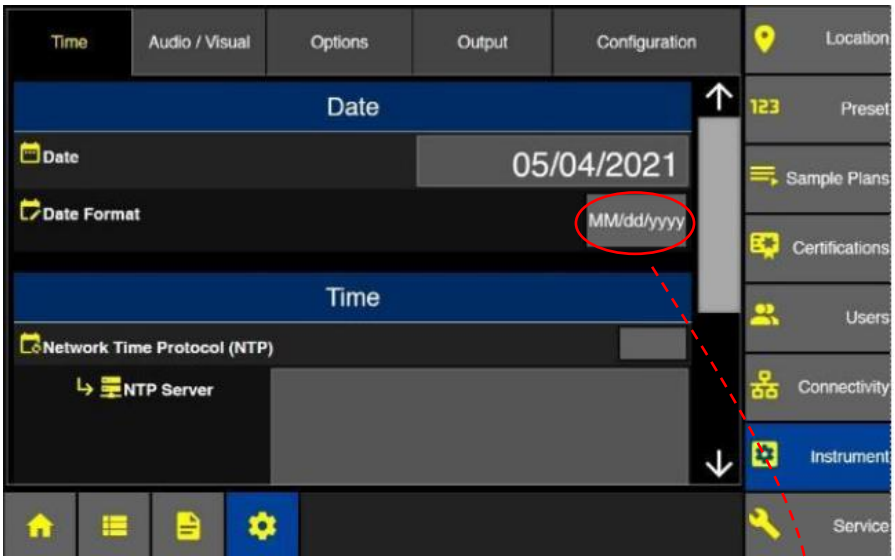


Instrument Settings Screen

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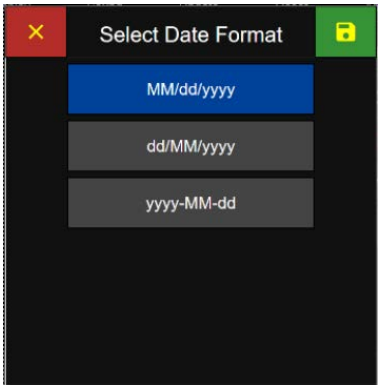
Set Date Format

- Select the Date Format button to display the Select Date Format screen.



Instrument Settings: Date and Time

- Select Date Format
  MM/dd/yyyy
  DD/MM/yyyy
  Yyyy-MM-dd



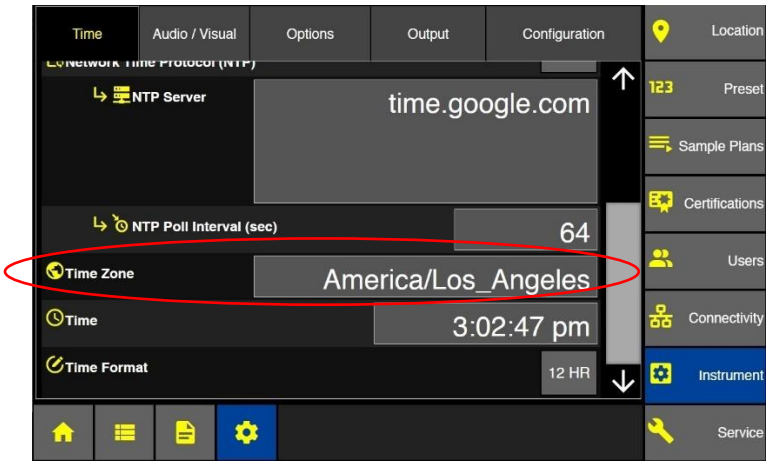
Select Date Format



- Press the green Save button to save the date format setting.

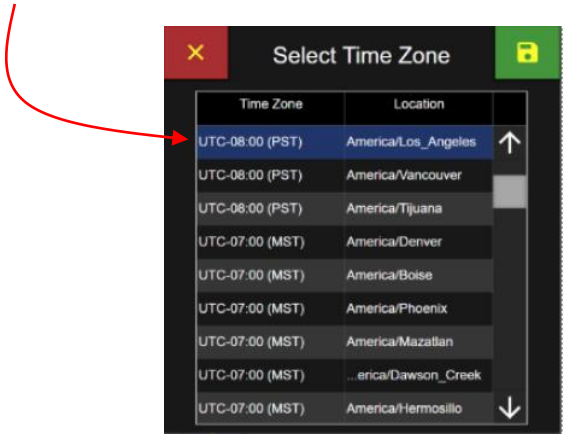
Set Time Zone

- Scroll down in the Time screen and press the Time Zone button to display the Select Time Zone screen.



Instrument Settings: Time Screen

- Press and select your UTC-Time Zone.



Select Time Zone screen

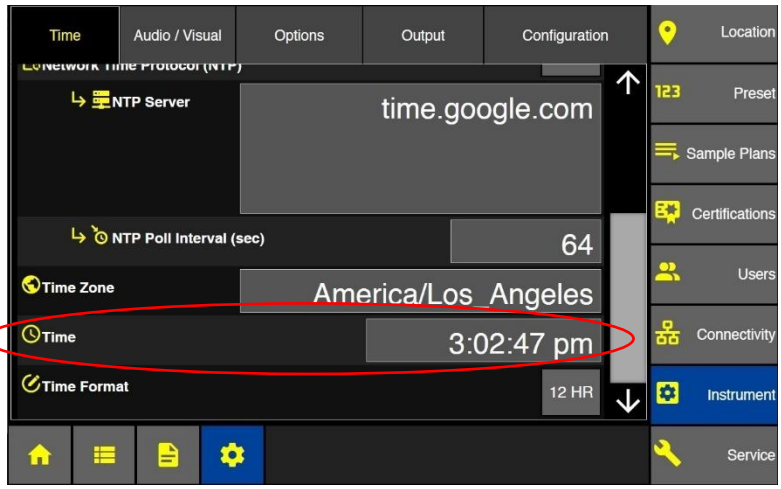


- Press the green Save button to save the UTC-Time Zone.

Set Current Time

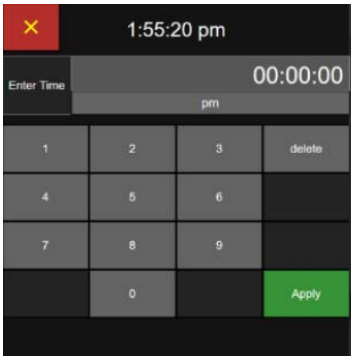
If the checkbox on the Network Time Protocol line is checked, the user will be unable to select the Time button.

- Press the Time input button to display the Enter Time keypad.



Instrument Settings: Data and Time

- Enter the current time from the numeric keypad as HH:MM:SS
- Select am or pm from the toggle button.
- Press the green Apply button to save the current time entered.

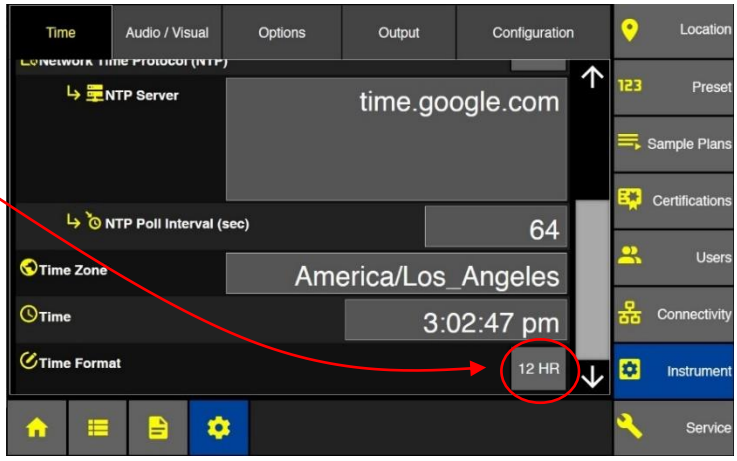


Enter Time Keypad

Set Time Format

- Press the Time Format button to toggle between 12-hour or 24-hour time format.

- If 24 HR time format is selected, then “am/pm” will not be displayed.



Instrument Settings: Select Time Format

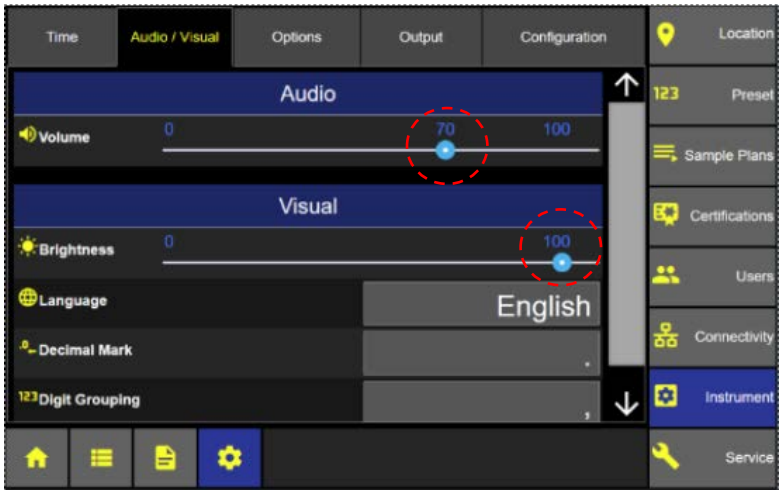
Audio/Visual

Volume

- Touch and slide the volume button from 0-100%. (Enabled Alarms will always sound at 100%)

Brightness

- Touch and slide the brightness button 0-100%.

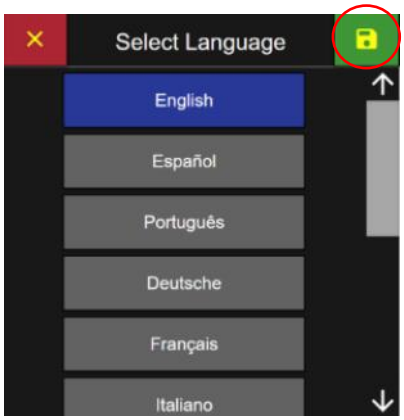


Instrument Audio/Visual

Language

- Press Language button for Select Language Input Screen.
- Select desired language.
- Press the green Save button.

Warning: *Changing the instrument language will update the instrument firmware and the printer. It will take 1-2 minutes for the update to be completed. During this time make sure the ApexZ instrument has at least 50% battery life remaining or connected to the AC adapter and do not turn off the instrument while updating. Failure to follow these instructions could cause the printer to become damaged and unusable.*



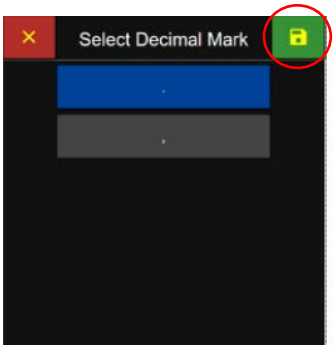
Select Language

Decimal Mark

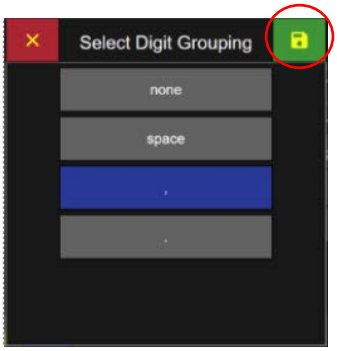
- Press the Decimal Mark button to display the Select Decimal Mark screen.
- Select the period or comma.
- Press the green Save button.

Digit Grouping

- Press the Digit Grouping button to display the Select Digit Grouping screen.
- Select none, space, comma, or period.
- Press the green Save button.
- Changes to the Decimal Mark or Digit Grouping will prompt a required unit restart.



Decimal Mark



Digit Grouping

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Options

Channel Options

Lock Global Channels

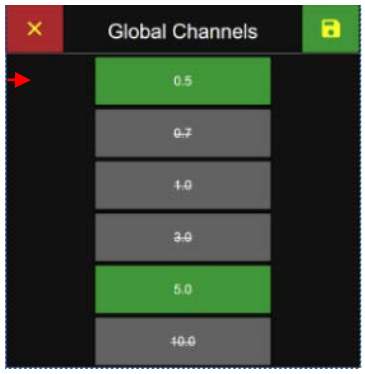
ApexZ can lock specific particle size channels globally for all manual samples, preset samples, and sample plans. For example, the user can lock channels globally for the 0.5µm and 5.0µm channels and then for all new samples (manual, sample plan, or presets) only 0.5µm and 5.0µm channels will be sampled and those particle size channels counted. Certification Samples are not affected by Locked Global Channels being enabled. Certifications will always use the channel sizes required from the certification standard.

How to Lock Global Channels

- From Instrument Options click on a Global Channels button to display the edit Global Channels screen.

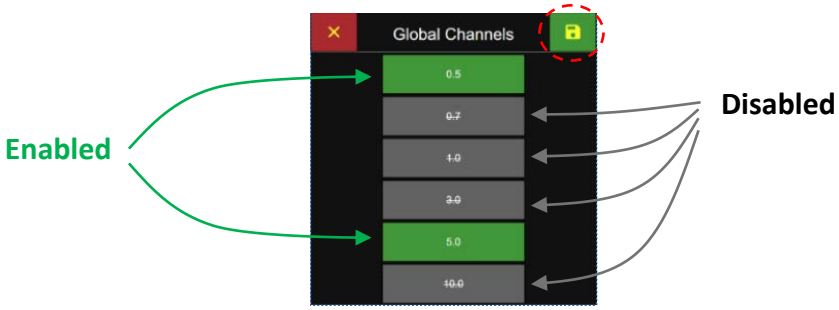


Instrument Options



Global Channels

Global channels highlighted in green are ENABLED. Global channels highlighted in grey with strike through text are DISABLED. Press any green channel button and it will highlight grey with strike through text to indicate this channel has been disabled. Press any grey button and it will highlight green indicating it has been enabled.

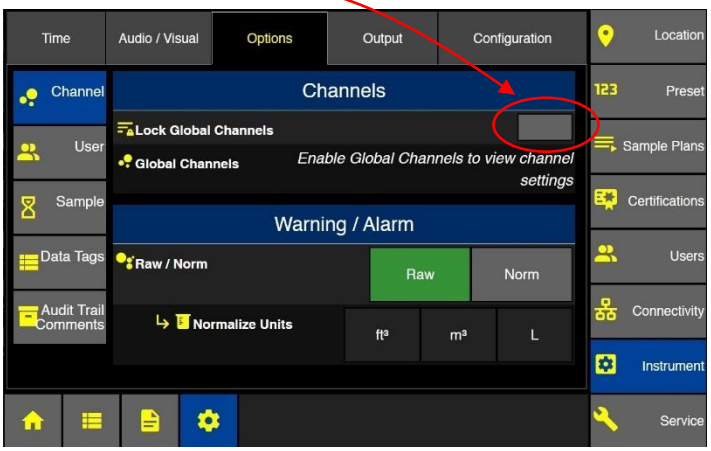




- Press the green Save button to save the Global Settings.

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- If **Lock Global Channels** is disabled then all particle channels will be counted, recorded and displayed.

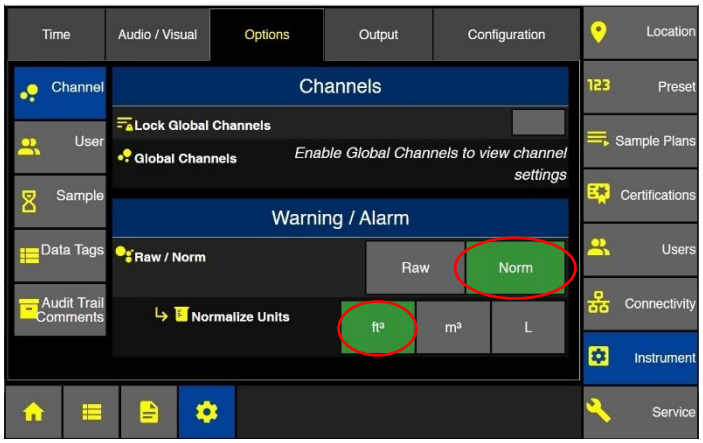


Global Channels

Warning/Alarm

- Select either Raw or Norm (Normalized) particle counts for the Warning and Alarm limits. Raw displays total particles counted over time. Norm displays normalized counts per unit of measure.

- If Normalized is selected, then select units: ft^3/m^3/L. Warning and Alarm values will be extrapolated into the selected volume.

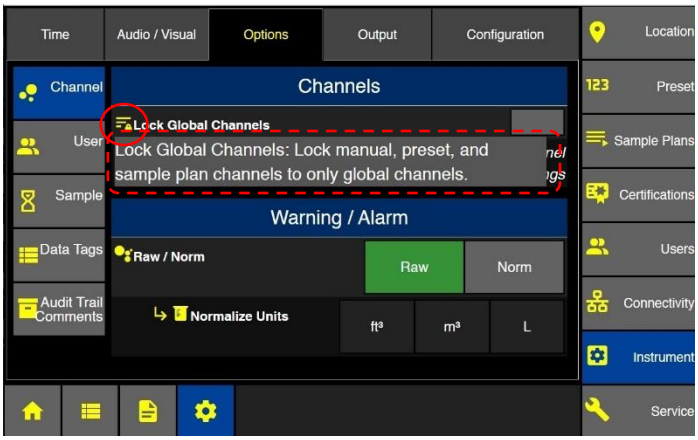


Global Channels

Tool Tips

- Click on the icon/label “Lock Global Channels” and a brief description of that feature will appear.

- Tool Tips are present for icon/labels included in Instrument (Options, Output, Configuration) and Connectivity (AD/LADP, and CIFS input screens).



Tool Tips: Lock Global Channels

User Options

Enable Users

- Press the Enable Users button and go directly to the login screen and require a User Login. Note to login to ApexZ at least one local Administrator level user must have been created prior.

Ad Groups

- Enable AD Groups to assign active directory groups to ApexZ permission levels.

Local Password Cache

- Enable local password cache to save password locally on ApexZ when Active Directory Server is unavailable.

Enable Guest Account

- Press to enable guest account and then a guest user will be permitted to login without a password and will be assigned the default “Operator” level read only access. Only an Admin level user can enable the guest account feature.

Auto Lock

- Press to enable Auto Lock and automatically lock the screen after the timeout period.

Timeout

- Enter the timeout period to lock the screen when auto lock is enabled.

Include Sample Time

- If Include Sample Time is enabled, then the timeout timer will countdown during idle screen time or while sampling. If “Include Sample Time” is disabled, then the timeout timer will not count down during a sampling session.

Login Retry (enter login retry limit)

- Set the number of times ApexZ will allow a user to retry failed login attempts. After the login retry limit has been exceeded ApexZ will lock out further login attempts and start the Account Lock Duration countdown time. During the Account Lock Duration time-period ApexZ will not allow user login. After the Account Lock Duration. time-period has been exceeded, ApexZ will allow user login again.

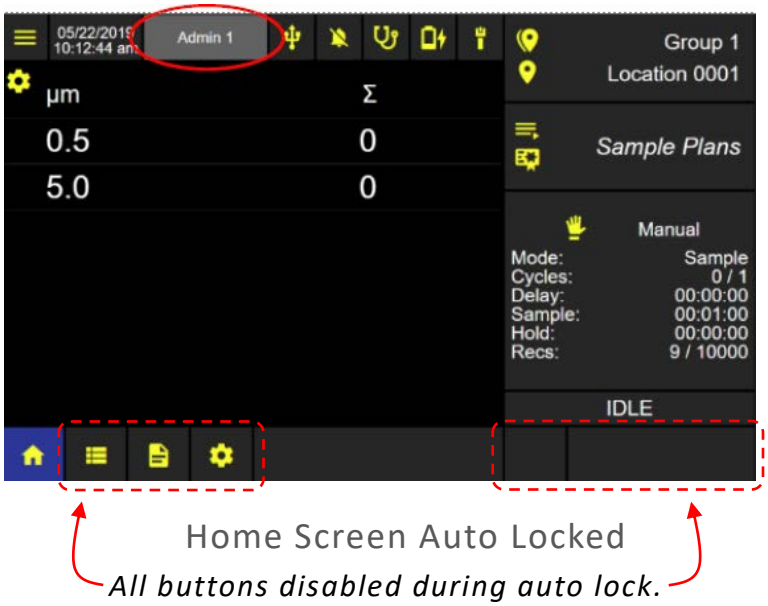
Account Lock Duration (enter account lock time duration period)

- After login-retry is exceeded, ApexZ user login will be locked for the Account Lock Duration time-period set here.

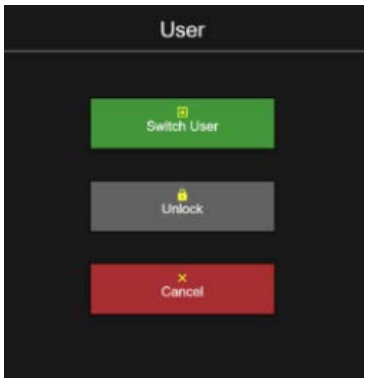
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Unlock screen from Auto Lock

- The example here shows the Home Screen in Auto Lock mode. All home screen buttons are disabled.
- Press User Button to unlock.



- Then select
  - Switch User (login required)
  - Unlock (password required)
  - Cancel (remain locked)



Sample Options

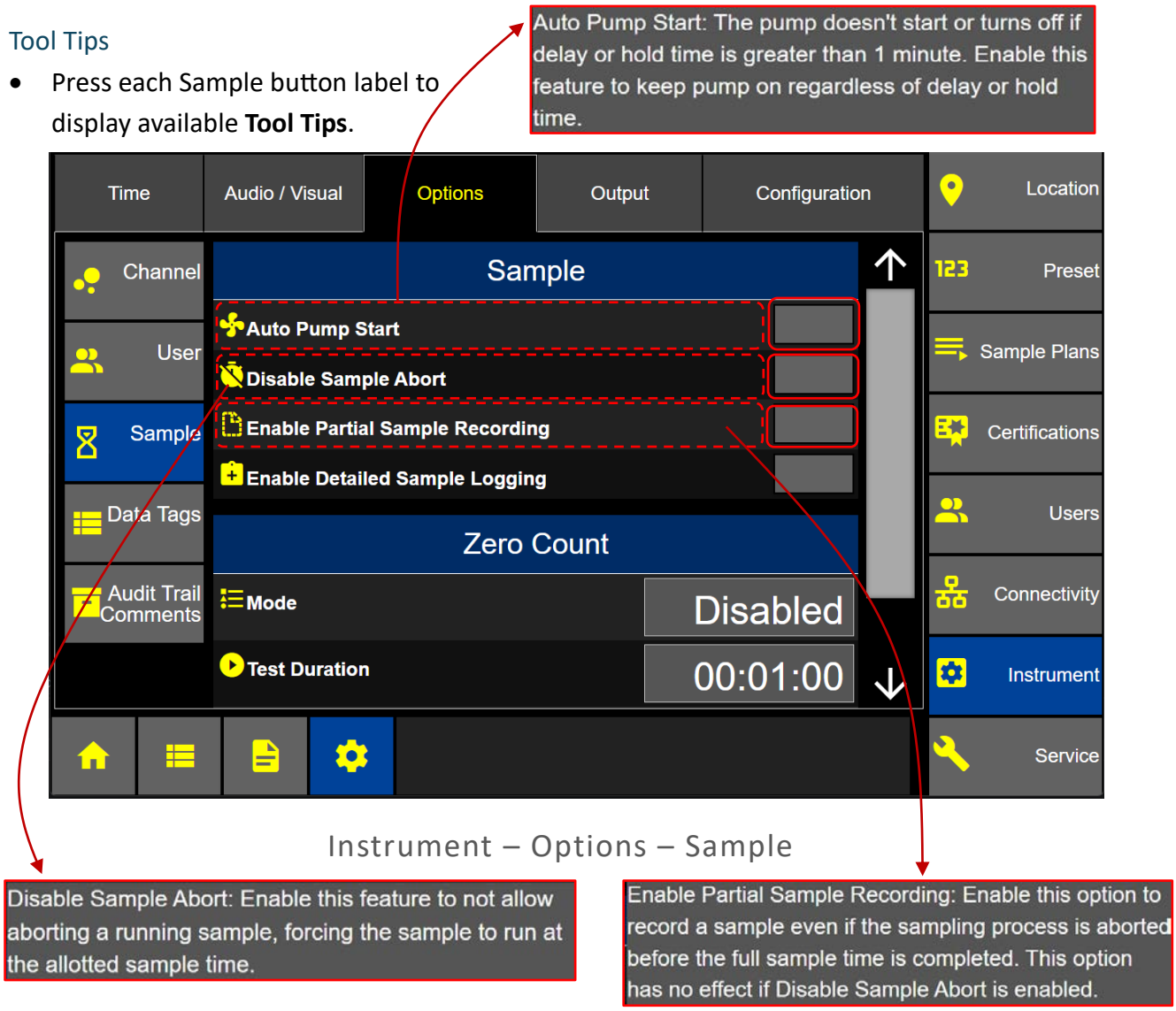
Auto Pump Start

Enabled: ApexZ pump will start immediately after pressing sample Start button.

Disabled**:** ApexZ pump will turn off if Delay or Hold time is greater than 1 minute.

Tool Tips

- Press each Sample button label to display available **Tool Tips**.



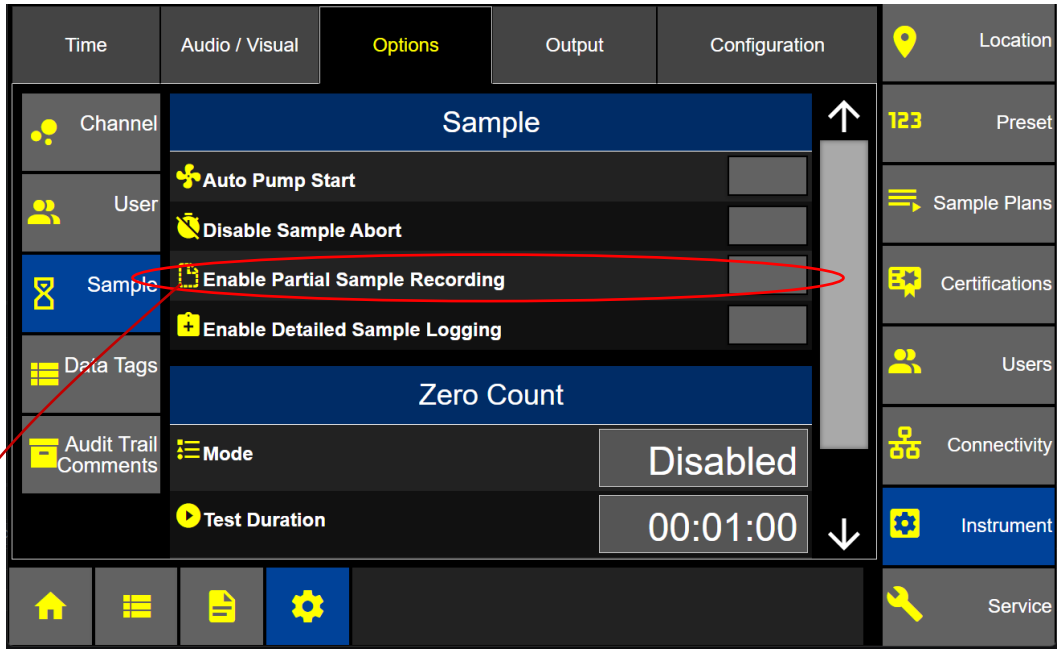
Instrument – Options – Sample

- Press the corresponding button to enable Sample options.

Disable Sample Abort

Enabled: ApexZ will not allow a sample that has been started to be stopped and Enable Partial Sample option will be blacked out and not selectable.

Disabled: Any sample may be stopped at any time.

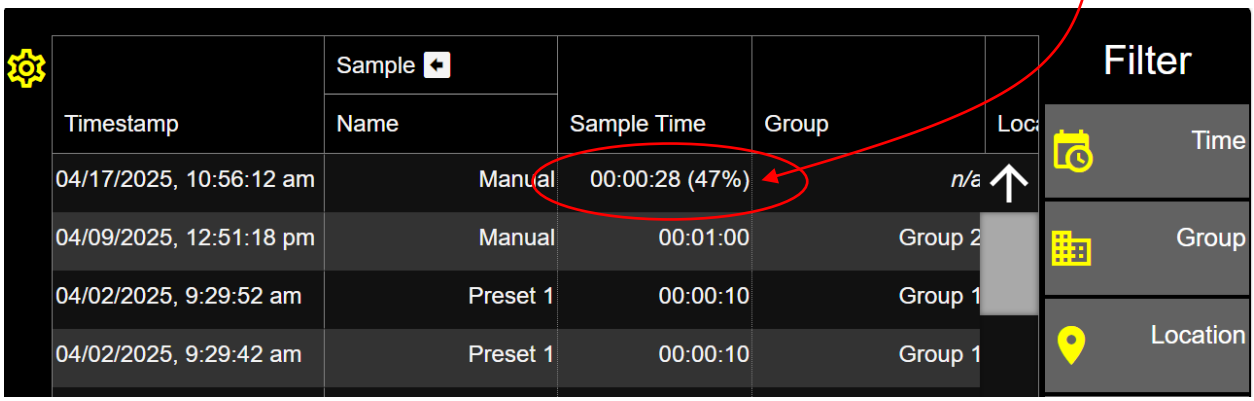


Enable Partial Sample Recording

Enable Partial Sample Recording

Partial Sample Recording: when enabled, if sampling is manually stopped, prior to the end of the sample time, the data collected to that point will be recorded.

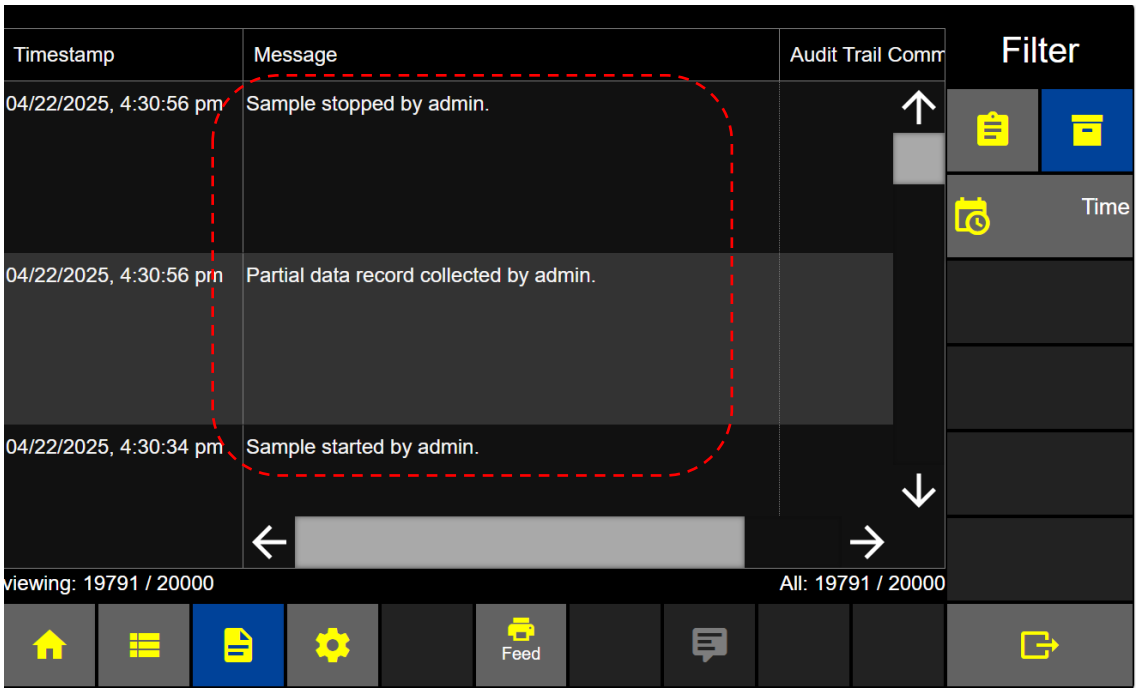
- Partial Sample records listed in the Data record screen will include the % percentage of sample time recorded.



Data Screen showing % percentage of partial sample time recorded

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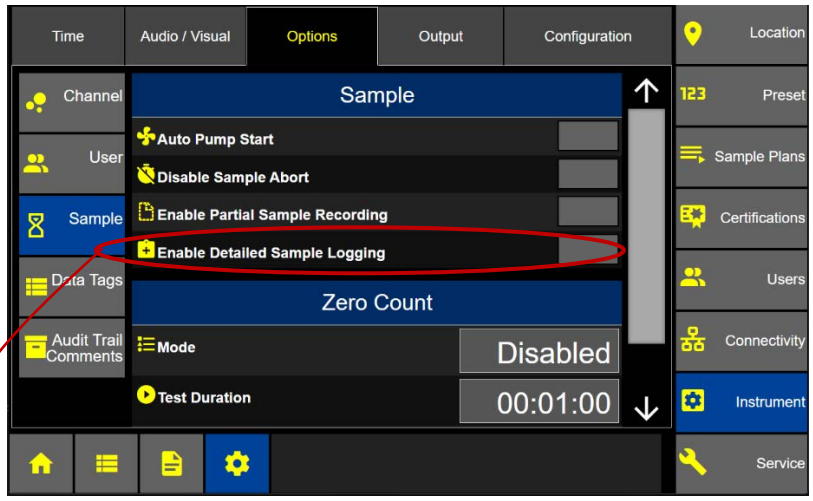
- Partial Samples will NOT be recorded under the following conditions:
    - If the sample is still in Pump-Start-Mode and it is stopped before counting has started, the sample will not be recorded.
    - If the instrument is in a Hold or initial Delay state and the sample is stopped, data will not be recorded.
    - If the battery is pulled out from the ApexZ in the middle of a sample, ApexZ will power off and the sample will not be recorded.
    - If Disable Sample Abort is enabled, then Partial Sample Recording is disabled.
    - If a sample is aborted due to a flow fault (a Flow Error! Aborting Sample message is displayed) the partial sample will not be recorded.
- Partial Sample records will be included in all data exports.
    - CSV PDF and Print will display the partial sample time but not the % percentage.
    - XLSX, CIFS and Network Printer (Printer Emulation or Data Table) exports.
    - Exported data will not show the % of a partial sample record – but will include the partial sample time.
- Partial Sample records are not flagged.
- Partial Sample records will be prompted for Post-Sample Data Tags (if configured).
- Audit Trial messages will be generated for:
    - Sample started by…
    - Partial data record collected by…
    - Sample stopped by…



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Enable Detailed Sample Logging

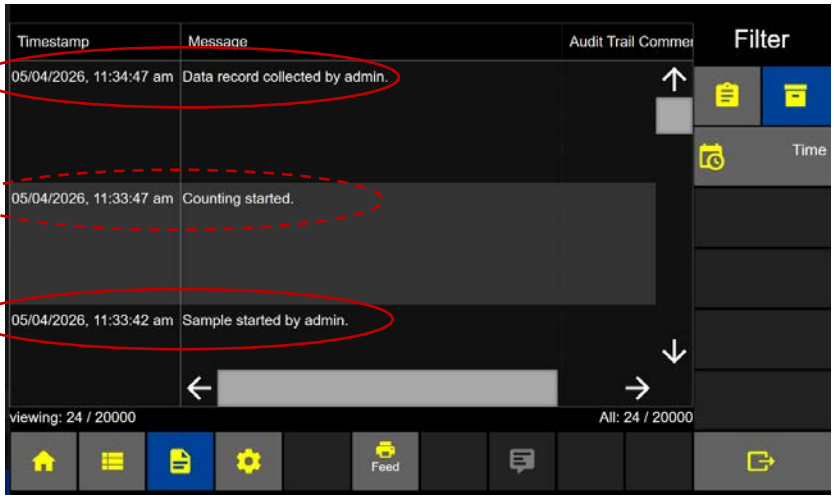
Goto Settings, Instrument, Options, Sample. Enable Detailed Sample Logging. View Tool Tip.



Tool Tip

Enables detailed logging for samples. Additional sample-related messages will be added to the audit trail.

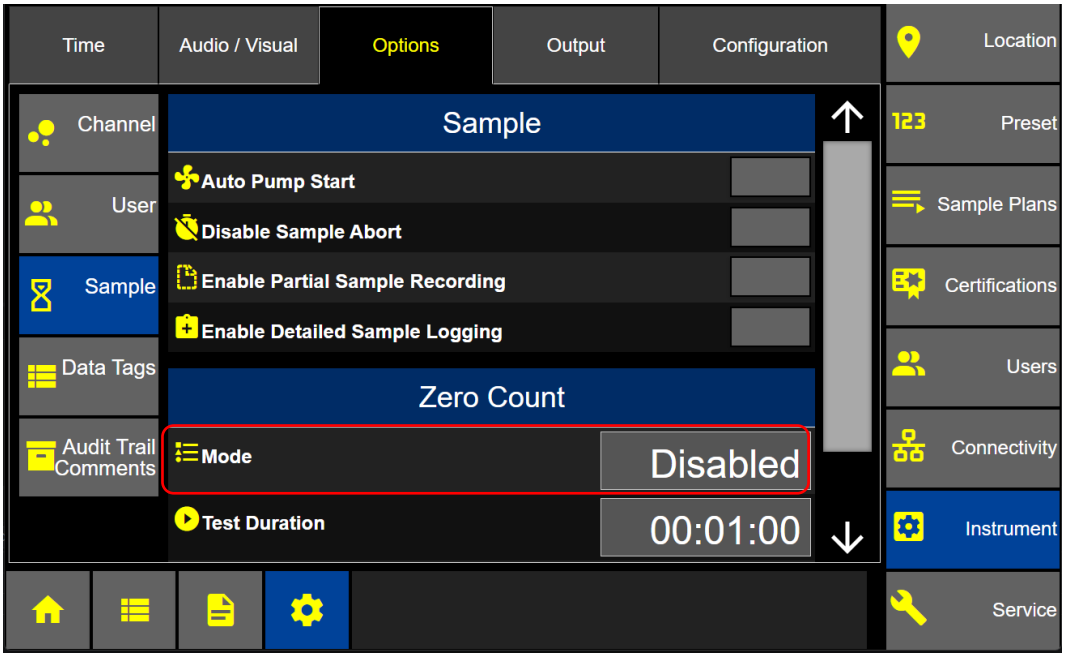
- When "Enable Detailed Sample Logging" is enabled then the ApexZ Audit Trail will post "**Counting started**" timestamp following "**Sample started by (user)**" timestamp.
- When "Enable Detailed Sample Logging" is disabled then Audit Trail <u>will not post</u> the "Counting started" timestamp.



Sample started by (user) = Timestamp when the user pressed the Start button.
Counting started = Timestamp when Sample started counting particles. Timestamp will follow Ramp-Up, Delay and/or Hold Sample setting times.
Data record collected by (user) = Timestamp sample stopped counting particles.

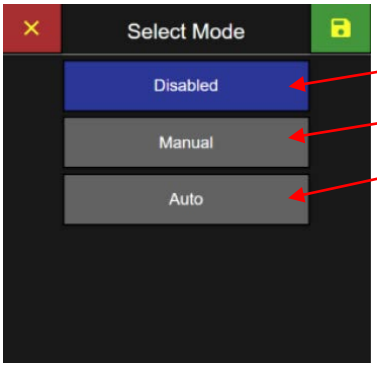
Zero-Count Modes

The Zero-Count Test is useful in providing confidence that data counts in one sampling environment are not carried over into another environment.



Instrument – Options – Sample – Select Zero Count Mode

- **The Mode button** displays 3 Zero-Count mode options:



Disabled: The Zero-Count button will not display on the Home screen.
Manual: The Zero-Count button will display and run for sample time.
Auto: In Auto mode, Zero-Counting will be successful after sustaining a full sample period with no counts. During the test, the timer progress bar will reset to 0 if a count is detected.

- Select Zero Count Mode.
- Press the green Save button.

Test Duration

- Press the Test Duration button to enter your desired Zero-Count sample time with the pop-up numeric keypad.

Delay Time

- Press the Delay button to enter the desired delay time. Delay Time will start after pressing the zero-count start button on the Home screen. The Zero-Count Sample time will start immediately after the delay time is completed.

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Zero-Count on the Home Screen

- When the Zero-Count Mode is set to Manual or Auto, the Zero-Count button will be available on the Main Screen next to the normal Sample Start/Stop button.
- In Manual mode, pressing the Zero-Count Start button will cause the unit to run one sample with the Duration and Delay time as set in the Zero-Count settings screen.

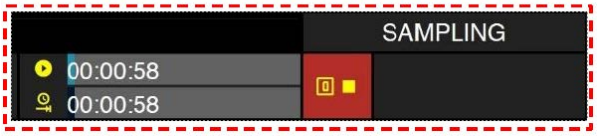


Home Screen with Zero-Count enabled

Manual Mode: Zero-Count running
Total time elapsed



Auto Mode: Zero-Count running
Sample time remaining

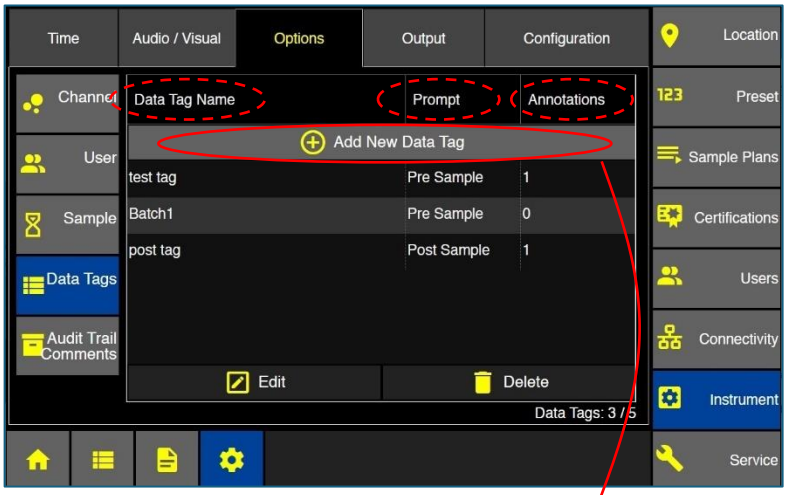


In Auto Mode, pressing the Zero-Count Start button will cause the unit to run with the Duration and Delay time as set in the Zero-Count settings screen. However, upon registering particle counts, the Sample Time (top timer line) will reset. The sample will only be finished after completing the set Test Duration without particle counts. The total accumulated time the test ran will be shown on the second line of the timer, as shown above.

Data Tag Options

Data Tags are set up in the Instrument Settings → Options → Data Tags screen. ApexZ supports up to 5 unique Data Tags. Adding a new Data Tag will require clearing all data records.

Column Headings



Data Tags

Data Tag Name: Data Tags will be listed here by the data tag name given during setup.

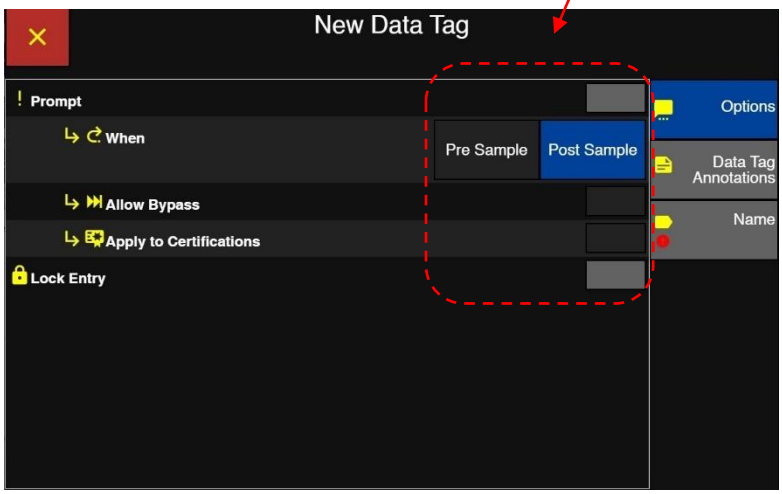
Prompt: Each Data Tag will display Prompt set to display Pre-Sample or Post-Sample.

Annotations: Total number of Annotations will be listed for each Data Tag.

- Press **Add New Data Tag** button, and the New Data Tag screen will display.

Data Tag Settings

!Prompt: Enable the !Prompt feature to force a prompt to appear and request data tag input before or after sampling.

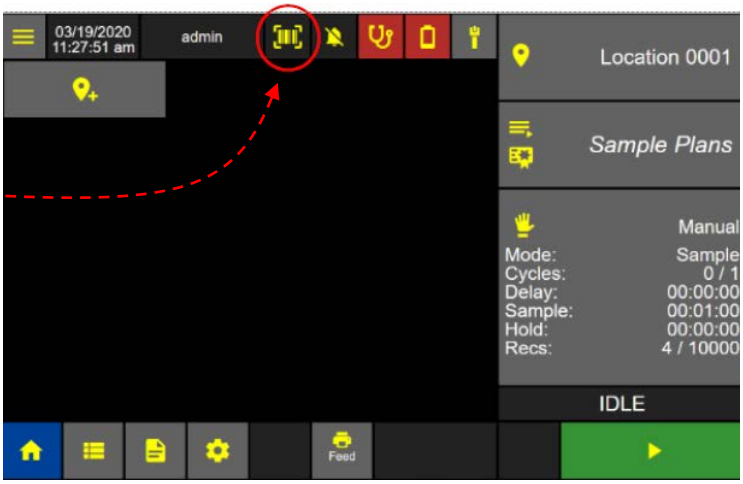


- **When:** Select Pre or Post Sample.
  "Pre-Sample" Data Tag Prompt will appear when the start button is pressed before a sample starts.

  "Post Sample" Data Tag Prompt will appear after the sample has completed and stopped.
- **Allow Bypass:** Enable to allow the user to bypass the data tag prompt when it appears. Bypassing a data tag prompt will be noted in the Audit Trail. User will be allowed to enter the data tag value later in the data record screen.
- **Apply to Certifications:** Enable to prompt for data tag entry when running certifications.
- **Lock Entry:** Enable to lock the data tag entry on the data record the first time it is set. With Lock Entry enabled no data tags may be modified once they have been set. If a data tag has been bypassed, the user can still set the data tag value in the data record screen. Once the data tag has been set, then the value is locked and cannot be modified.

Barcode Scanner

ApexZ supports data tag input through a standard USB barcode reader connected through the ApexZ USB port. Once the USB scanner is connected, a barcode icon will appear on the home screen header.

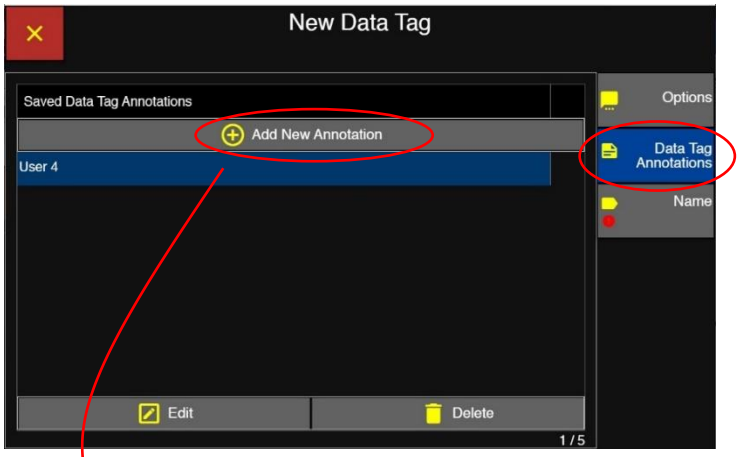


Bar Code Connected Icon

Data Tag Annotations

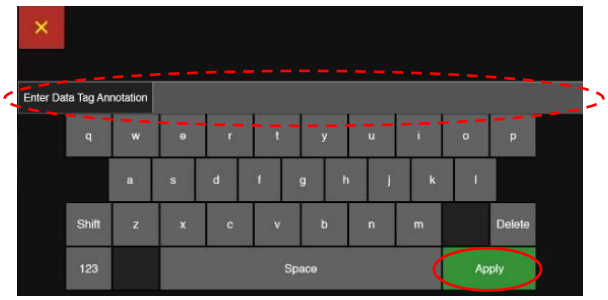
Up to five unique Annotations can be set and used with each Data Tag.

- Press Data Tag Annotations button.
- Press the Add New Annotation button to bring up the Enter Data Tag Annotation keyboard



Saved Data Tag Annotations

- Enter a data tag annotation.
- Press Apply to save the data tag annotation.

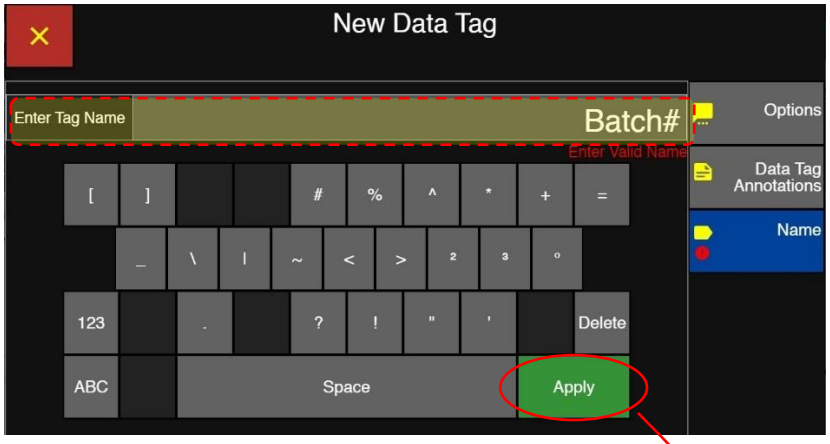


Enter Data Tag Annotation

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Data Tag Name

- Press the Name tab and enter the new Data Tag Name using the keyboard.
- Press the green Apply button.



Enter New Data Tag Name Screen

The screen will display the entered tag name.

- Press the green Save button to save the new data tag name.

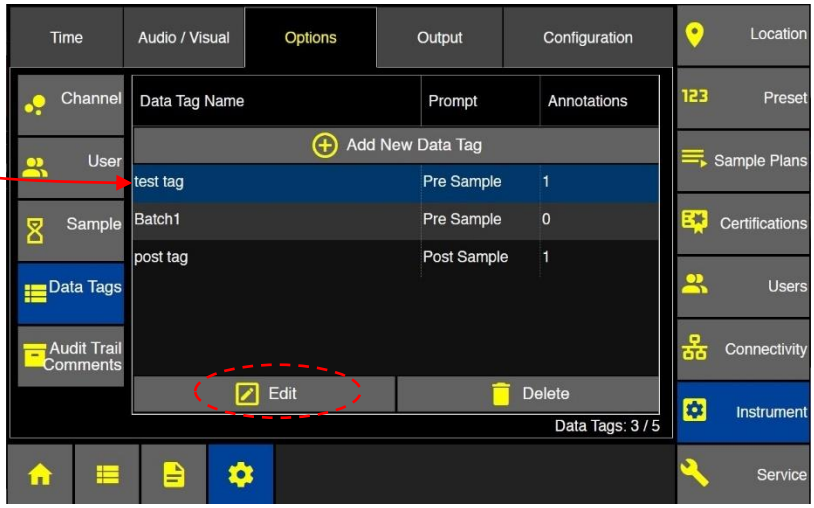


Save New Data Tag Name Screen

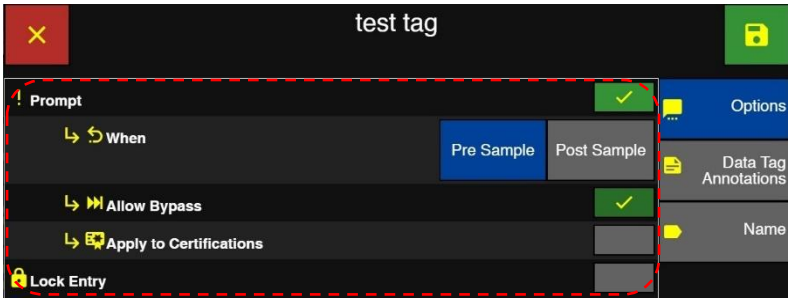
Note: Adding a new Data Tag will require the user to delete all records currently on the unit.

Edit Data Tag

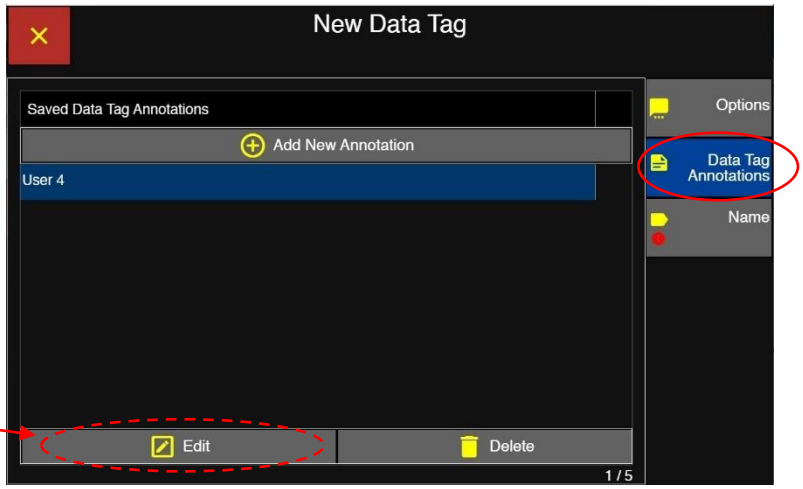
- Select a data tag name and it will highlight blue indicating it has been selected.
- Press the Edit button and the Edit Data Tag screen will display.



- Edit any data tag parameters.

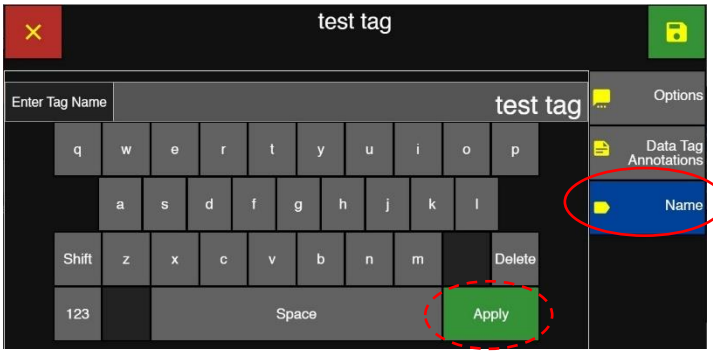


- Press the Data Tag Annotations Edit button to make changes to existing annotations or to add new ones.



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- Press the Name tab.
- Edit the name of the Data Tag Annotation using the keyboard.
- Press the green Apply button.

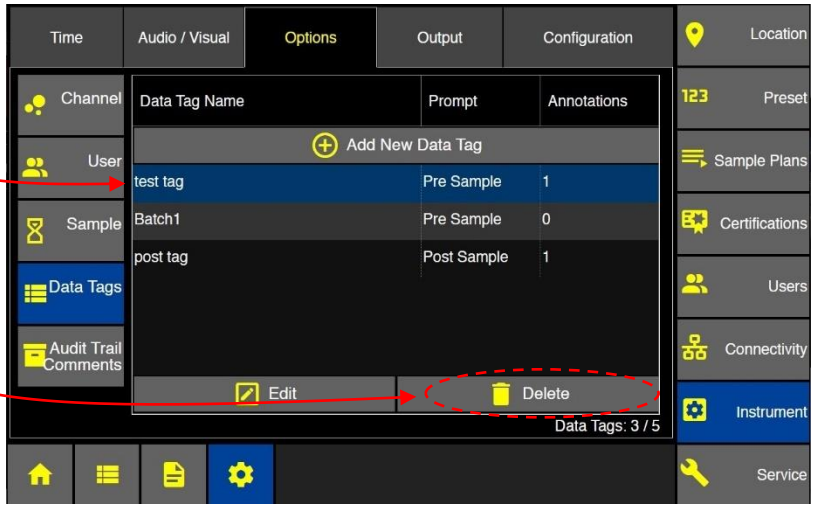


Edit Data Tag Name

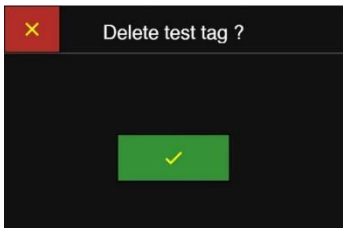
Delete Data Tag

All data records will be cleared when any data tag is added, edited or deleted.

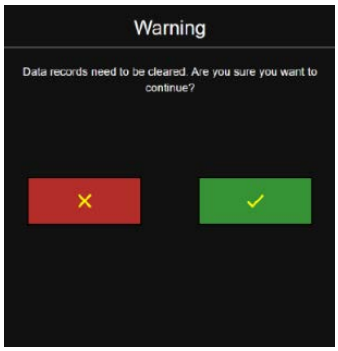
- Select a Data Tag name and it will highlight blue indicating it has been selected.
- Press the Delete button to display the Delete Data Tag confirmation screen.



- Press the green check button to confirm delete data tag.



- Press the green check button to confirm data records will be cleared or Press the red X button to cancel with no data deleted.

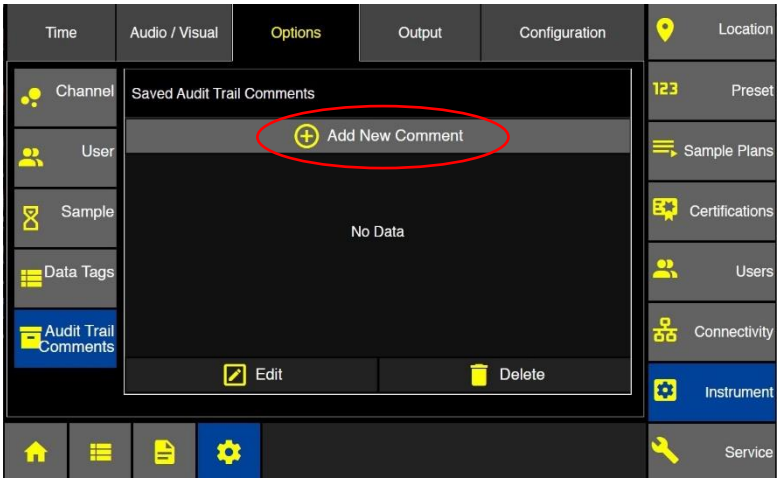


Audit Trail Comment Options

The Audit Trail Comments screen allows the user to pre-define comments for use in the Audit Trail. Comments set up here will be listed in the “Saved Audit Trail Comments” list when adding a comment to a message in the Audit Trail. The user will be able to select these saved comments in lieu of typing in the comment every time.

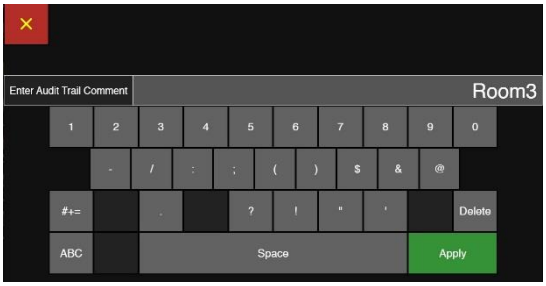
Add a New Comment

- Press the Add New Comment button to bring up the Enter Audit Trail Comment screen.



Instrument Options Data Tag Screen

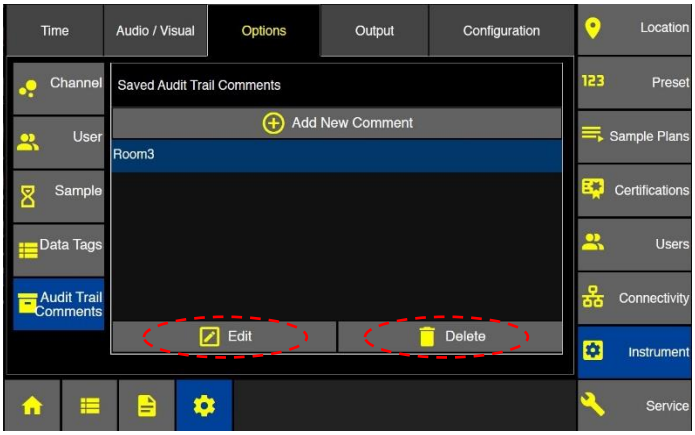
- Enter Audit Trail Comment and press the green Apply button to save comment.



Add Audit Trail Comment

Each saved comment will display on the Audit Trails Screen.

- To Edit/Delete a comment, first select the comment and it will highlight blue.
- Next press the Edit or Delete button.



Instrument Options Audit Trail Comments

Output

The Output screen allows the user to adjust output settings and data formatting for USB, Print, and CIFS.

USB

- Press the USB button to display the Data Output and Format Options for USB.

Data Record File Format

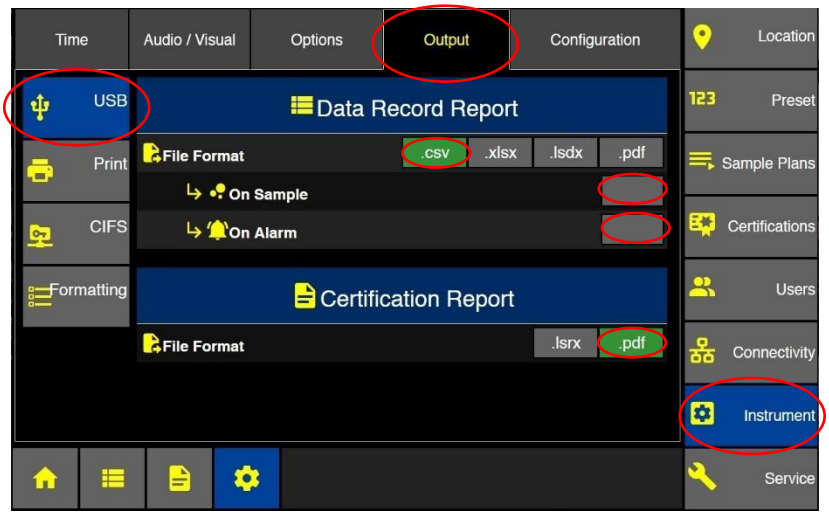
- Set the file format to .csv, .xlsx, .lsdx, or .pdf. Data records output to USB will be saved in the selected format.

On Sample (.csv format only)

- Enable Output "On Sample" and output will initiate after every sample.

On Alarm (.csv format only)

- Enable Output "On Alarm" and output will initiate after every alarm is exceeded.



Instrument Output USB

Certification Report File Format

- Set the file format to .lsrx or .pdf. (The lsrx file format is a non-human readable format that can be imported into LMS XChange and contains both the Certification Report, and the data records used to generate the report.)

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Print – On Board Printer

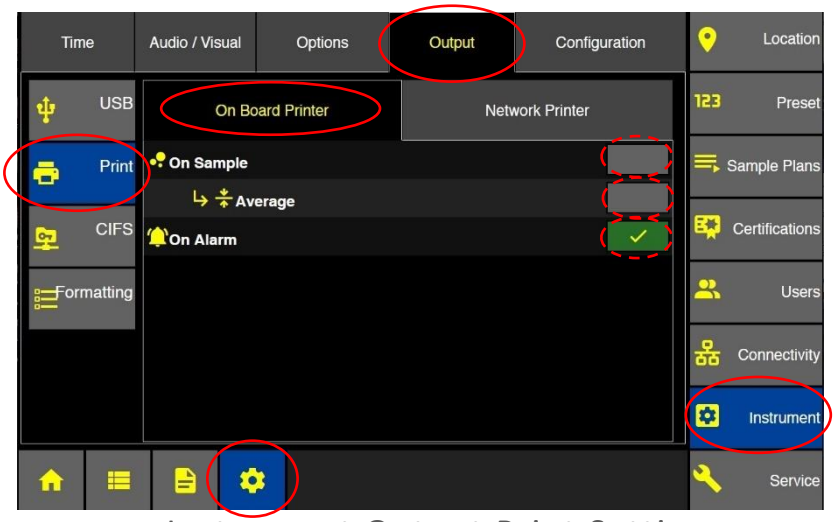
The ApexZ can print to either the optional embedded front-panel printer or to a network printer. The first screen in the Print tab covers automatic print options for the optional on-board printer.

On Sample

- Enable Output “On Sample” and output will print after every sample is completed. Post-Sample Data Tags will not be included on the Printout.

Average

- Enable Average to print the average counts of all cycles at a given location after all cycles have completed.



Instrument Output Print Settings

On Alarm

- Enable Output “On Alarm” and output will print after every sample taken where an alarm is triggered.

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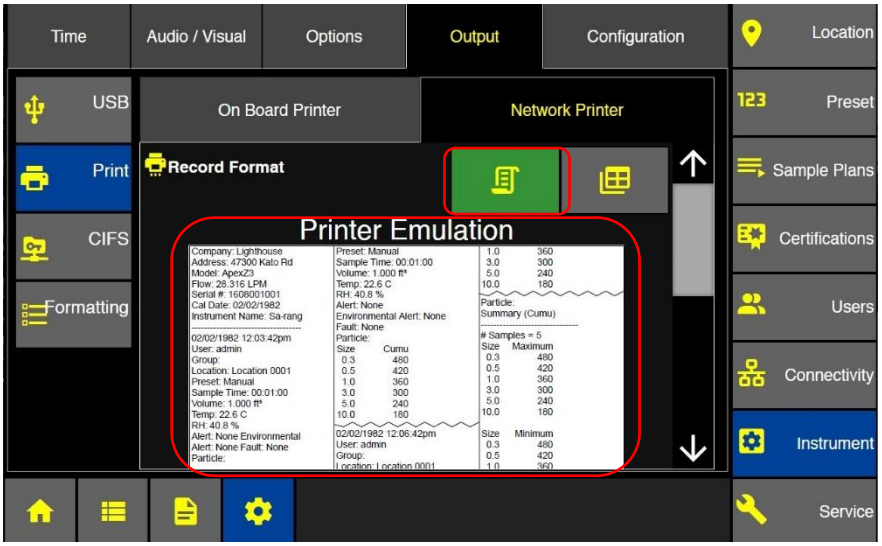
Print – Network Printer

The ApexZ can send print data to a properly set up network printer.

- Select the Network Printer tab from the Print screen.

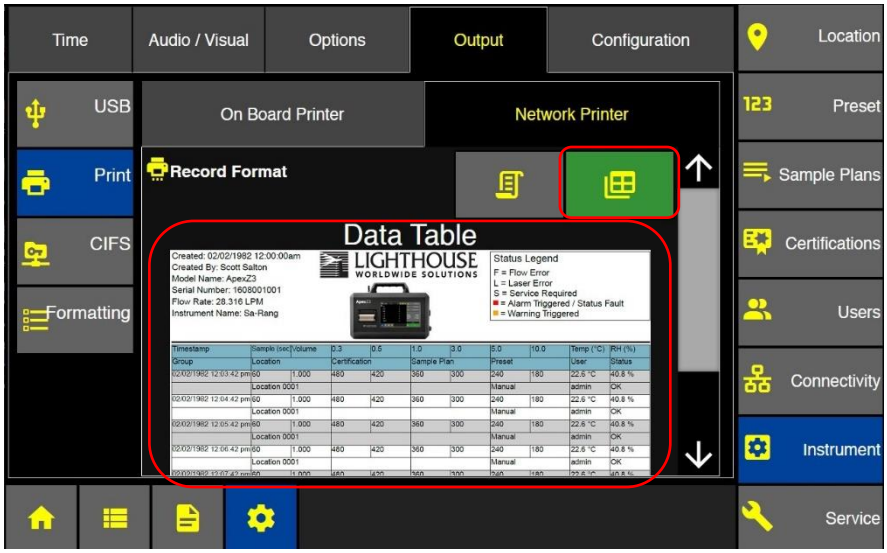
Record Format:
The Network Printer output can be set to either Printer Emulation or Data Table.

Printer Emulation: will display the data in three columns on each page, retaining the size and format of what would come out of the onboard printer.



Instrument Output Print – Network Print Emulation

Data Table: will display the output information in a table format.



Instrument Output Print – Network Print Data Table

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CIFS

Common Internet File System

- Select the CIFS button.

Data Record File Format

- Select the .csv, .xlsx, .lsdx (Lighthouse Secure Data Transfer), or .pdf file format.

Include Audit Trail

- Select Include Audit Trail and all audit trail records will be included in the output.



Instrument Output CIFS

Clear Data Buffer

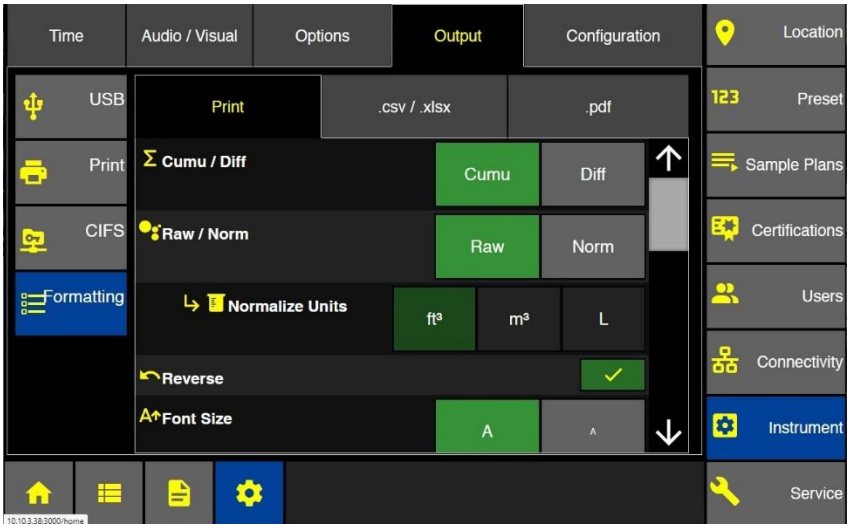
- Select Clear Data Buffer (only valid when exporting ALL data) and after the data file is successfully copied to the CIFS share the ApexZ instrument database will be cleared. If the data exporting fails, then the ApexZ database will not be cleared.

Certification File Format

- Select .lsrx or pdf and Certification outputs to CIFS will be saved in the highlight format. The .lsrx file format is a non-human-readable format that can be imported into LMS XChange and contains both the Certification Report and the records used to generate the report.

Output Formatting Print

- Select the Formatting tab
- Press the Print Tab to edit formatting parameters for printed records and certifications.



Instrument Output Formatting Print

Cumu/Diff

- Select to print data in either Cumulative, Differential, or both.

Raw/Norm

- Select to print Raw or Normalized data. When selecting Normalized also select the Normalized Units (cubic feet, cubic meters, or liters).

Reverse

- Select Reverse and printing will print from the bottom up.

Font Size

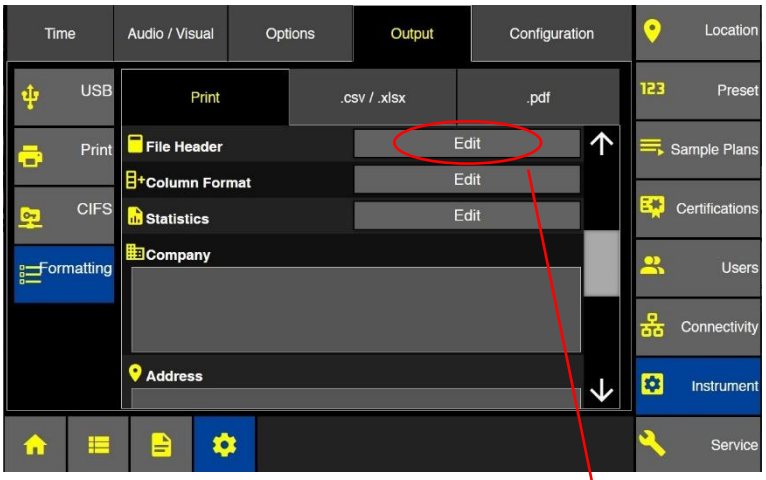
- Select Large or Small font size for print output.
- Use the scroll bar to view more formatting options.

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File Header

- Press the File Header Edit button to enable/disable file headers.

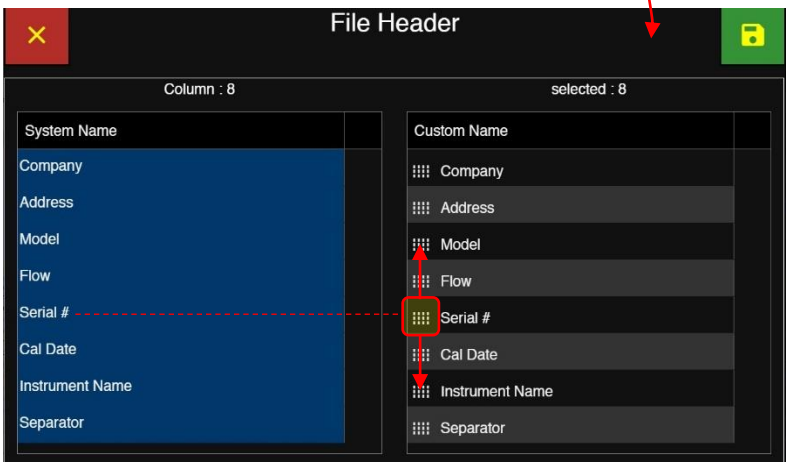
By default, all File Header System Names will be listed on the left column and highlighted blue indicating they are all selected. A matching Name will appear on the right side of the screen.



- Select a highlighted System Name and the highlight will disappear indicating the system name is inactive, and the matching Name will be removed and will not appear on the list of Names.
- Select the inactive System name and it will highlight blue and a matching Name will appear on the Name list on the right side of the screen.

Adjust Name order on the list

- To adjust the order of Names, press and hold the dotted box to the left of each name on the list. Drag the name up or down to change its position.
- Press the green Save button to save the changes made in the File Header screen.

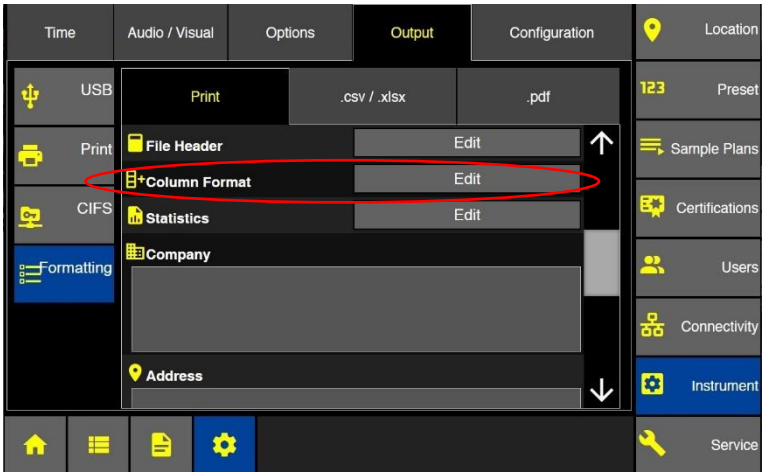


Instrument Output Format File Header

Column Format

- Press the Column Format Edit button to enable/disable the columns included in printed data.

By default, all System Names will be listed on the left column and highlighted blue indicating they are all selected (except for the Temp columns, of which only one will be selected). A matching Name will appear on the right side of the screen.



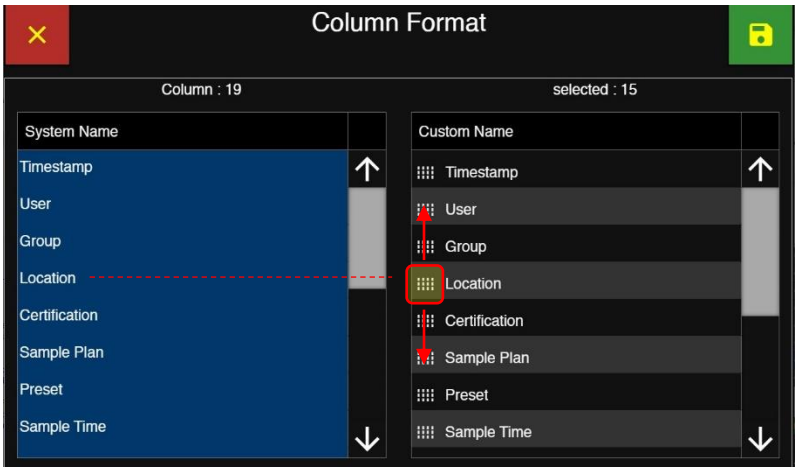
Instrument Output Formatting

- Select a highlighted System Name and the highlight will disappear indicating that system name is inactive, and the matching Name will be removed and will not appear on the list of Names. Select the inactive System Name and it will highlight blue, and a matching Name will appear on the Name list on the right side of the screen.

Adjust Name order on the list

- To adjust the order of Names, press and hold the dotted box to the left of each Name on the right-hand list. Drag the Name either up or down to change its position.

Any Data Tags that have been created will be listed at the end of the System Name list. These can be included / excluded the same as any of the System Names and can also be re-ordered in the right-hand column the same as the other Names.



Instrument Output Column Format

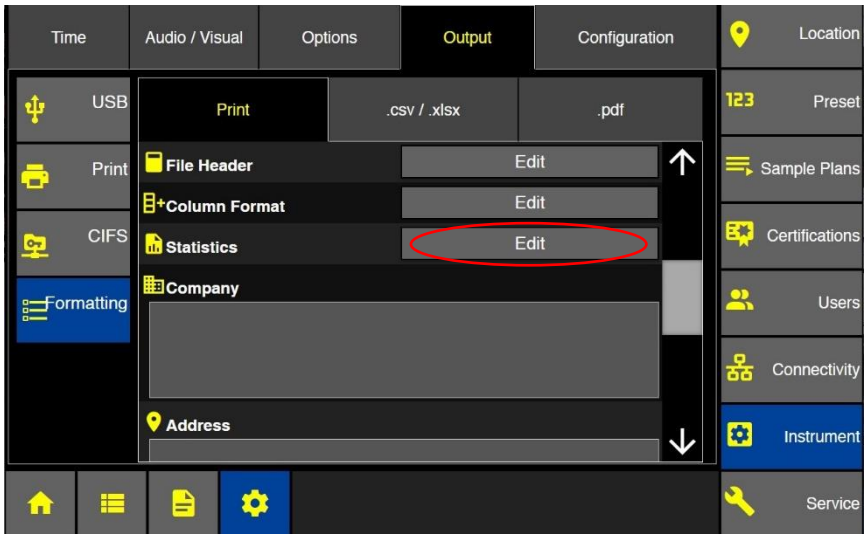
- Press the green Save button to save the changes made in the Column Format screen.

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Statistics

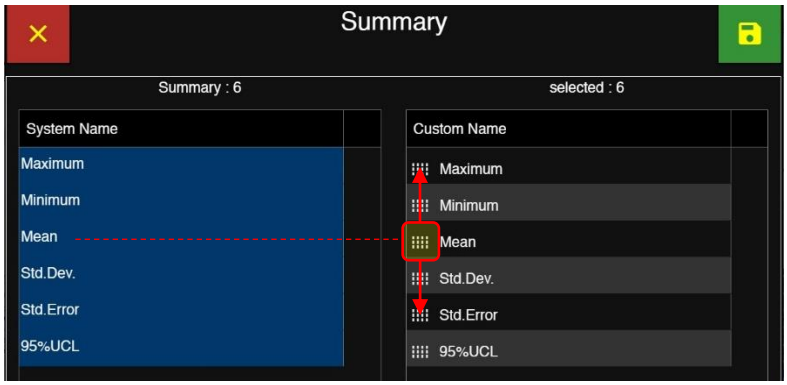
- Press the Statistics Edit button to enable/disable the columns included in summary Statistics.

By default, all System Names will be listed on the left column and highlighted blue indicating they are all selected. A matching Name will appear on the right side of the screen.



Instrument Output Formatting

- Select a highlighted System Name and the highlight will disappear indicating that system name is inactive, and the matching Name will be removed and will not appear on the list of Names.
- Select the inactive System Name and it will highlight blue, and a matching Name will appear on the Name list on the right side of the screen.



Summary of Enabled Statistics

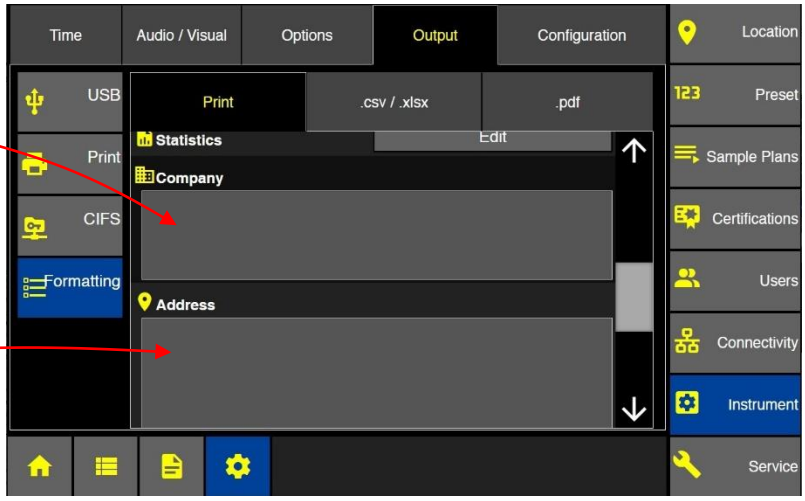
Adjust name order on the list

- To adjust the order of Names, press and hold the dotted box to the left of each Name on the right-hand list.
- Press the green Save button to save the changes in the Summary screen.



Company Name

The user can input custom text for the Company Name column that can be included in the File Header.



- Select the Company Name box to bring up the Enter Company keyboard. Enter the desired Company Name and press the green Apply button.

Address

- The user can input custom text for Address column that can be included in the File Header.
- Press in the Address box to display the Enter Address keyboard.
- Enter desired address or custom text (up to 128 characters available, no multiline entries).
- Press the green Save button to save the Output Formatting.

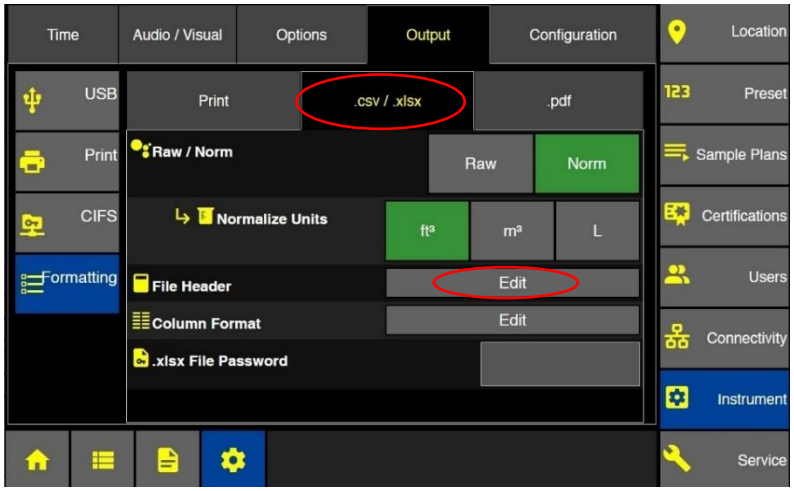
Output Formatting - .csv/.xlsx

.csv/.xlsx Output Format

- Press the .csv/.xlsx tb to edit formatting parameters for the .csv and .xlsx file types.

Raw/Norm

- Select to print Raw or Normalized data. Normalized data requires selecting volume units (cubic feet, cubic meters or liters).



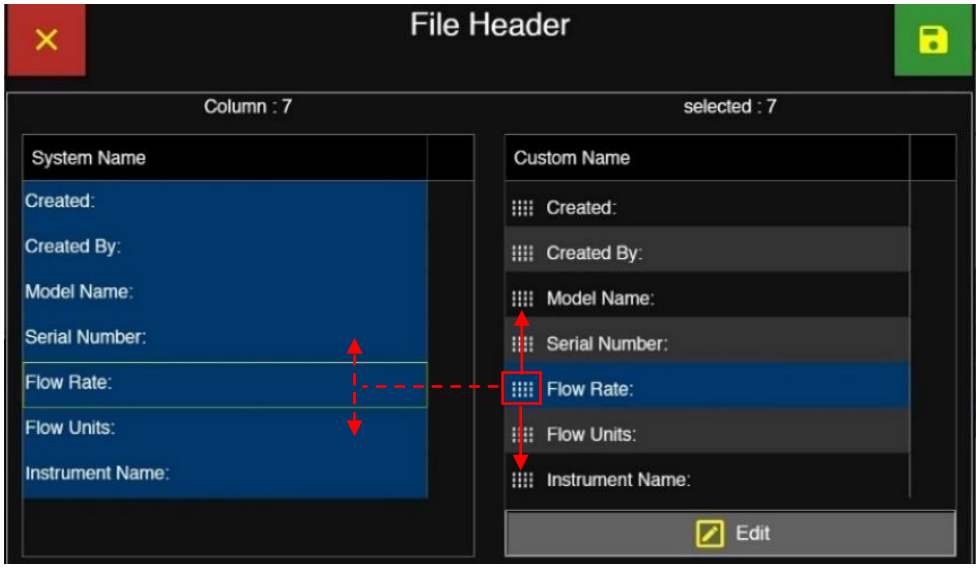
Instrument Output Formatting

File Header

- Press the File Header Edit button to enable/disable or edit custom name data for the file headers in data output to .csv and .xlsx files.

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By default, File Header System Names will be listed on the left column with names highlighted blue indicating those are selected. A matching Custom Name will appear on the right side of the screen. Some System Names may be grey and not highlighted blue. This indicates they are available but not selected for output.



Instrument Output File Header Formatting

- Select a System name to enable (highlighted blue) or disable (grey no highlight). Enabled System Names will appear on the Custom Name list on the right side of the screen. Disabled System Names will not appear on the Custom Name list.

Adjust Custom Name order on the list

- To adjust the order of Column Format Custom Names, press and hold the dotted box to the left of each custom name on the list. Drag the custom name either up or down to change its position.

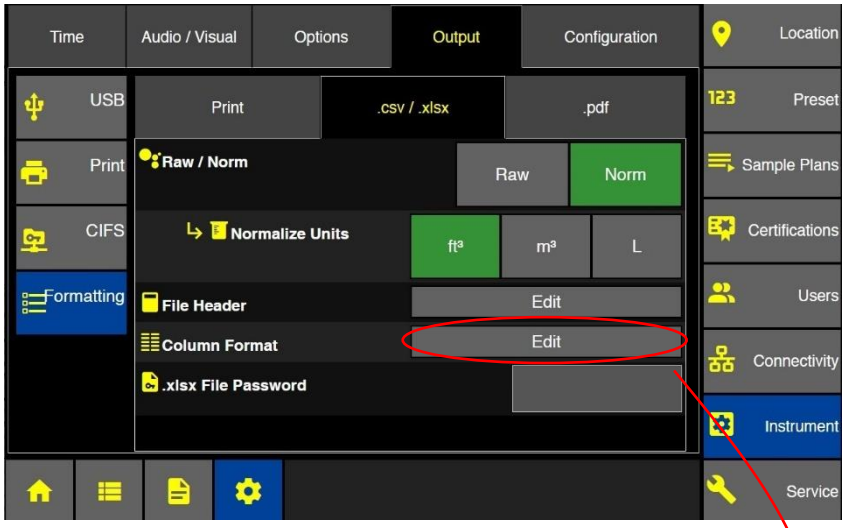
Edit Custom Name

- Press the Edit button to display Enter Custom Name keypad.
- Enter a new custom name.
- Press the green Apply button to save the custom name to the Custom Name list.

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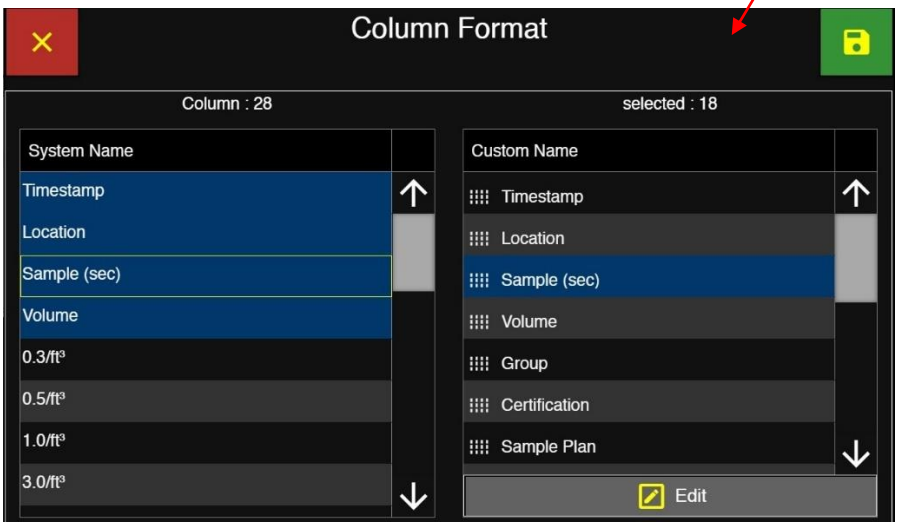
Column Format

- Press the Column Format Edit button to enable/disable or edit custom name data columns output to .CSV and .xlsx files.



Instrument Output Formatting .CSV, .xlsx

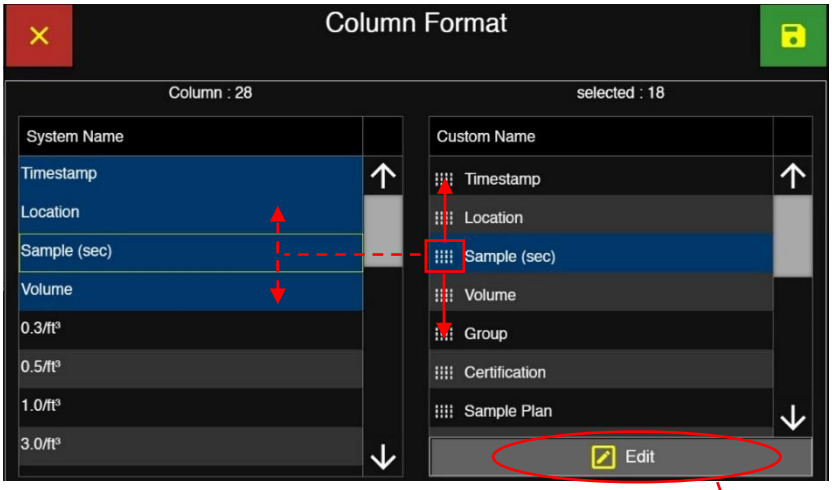
By default, all Column Format System Names will be listed on the left column with names highlighted blue indicating those are selected (except for the Temp columns, of which only one will be selected). A matching Custom Name will appear on the right side of the screen. Some System Names may be grey and not highlighted blue. This indicates they are available but not selected for output.



- Select a System Name to enable or disable. Enabled System Names will appear on the Custom Name list on the right side of the screen. Disabled System Names will not appear on the Custom Name List.

Adjust Custom Name order list

- To adjust the order of Column Format Custom Names, press, hold and drag up or down, the dotted box to the left of a custom name on the list. This will adjust the column positions.

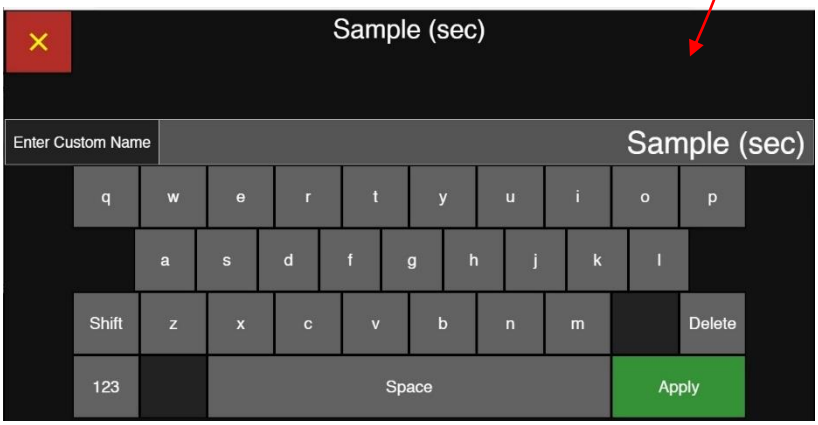


Column Format Custom Names

Edit Custom Name

- Press the Edit button to display the Enter Custom Name keypad.

- Enter a new column format custom name and press the green Apply button to save the custom name to the column format settings.

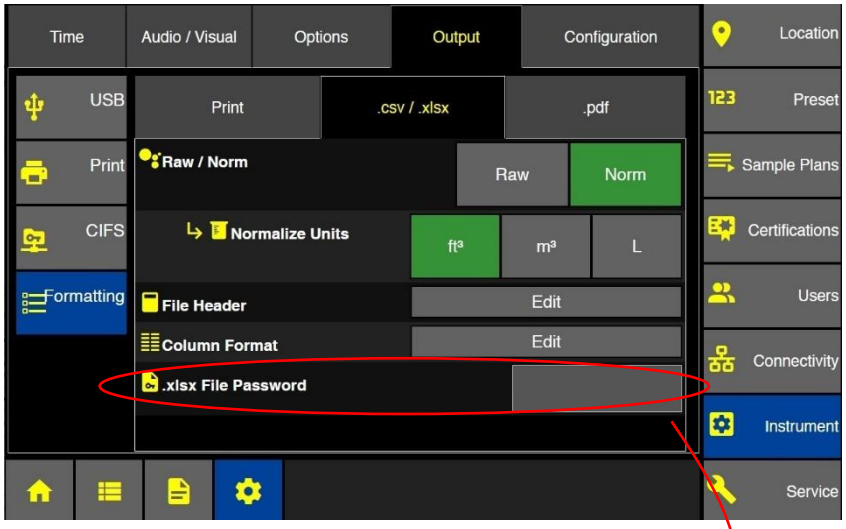


Enter Custom Name

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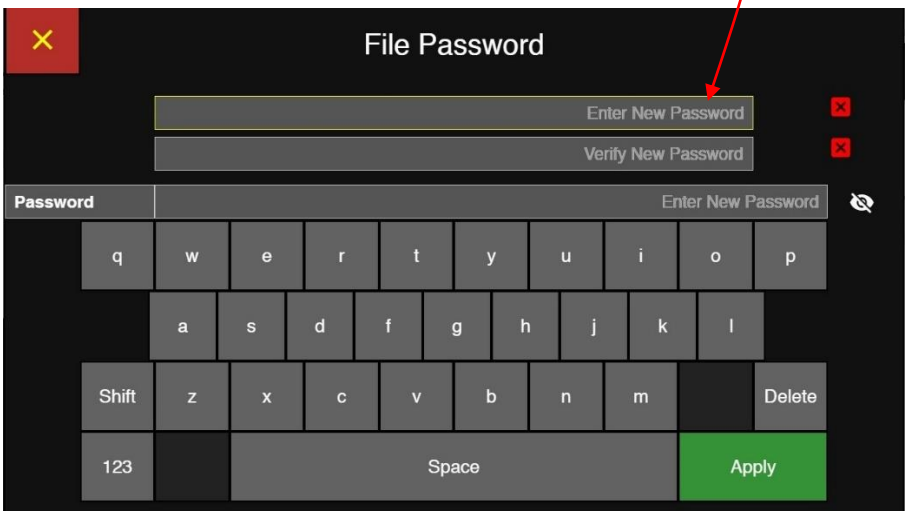
.xlsx File Password

The ApexZ enables greater security for .xlsx (Excel) files via the addition of an optional file password. This function will add a password to all Excel files created, prompting any user to enter that password before attempting to edit the file.



Instrument Output .csv/.xls

- Pres the grey box on the File Password line to display the File Password screen.
- Use the keyboard to enter the desired password and then enter a second time to verify the password. Maximum of 16 characters can be entered.



Instrument Output .xls File Password

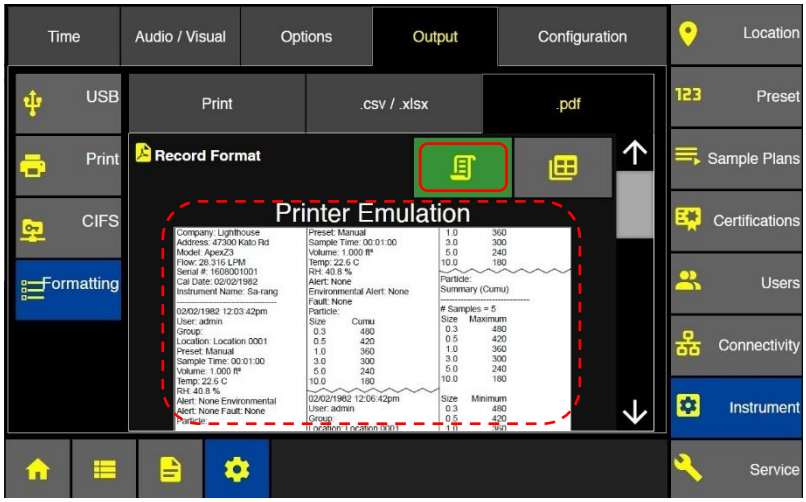
- Press the green Apply button to apply the new password.

Output Formatting - .pdf

- Press the .pdf tab to configure output parameters for PDF.

There are two Print Record Formats available, Printer Emulation and Data Table.

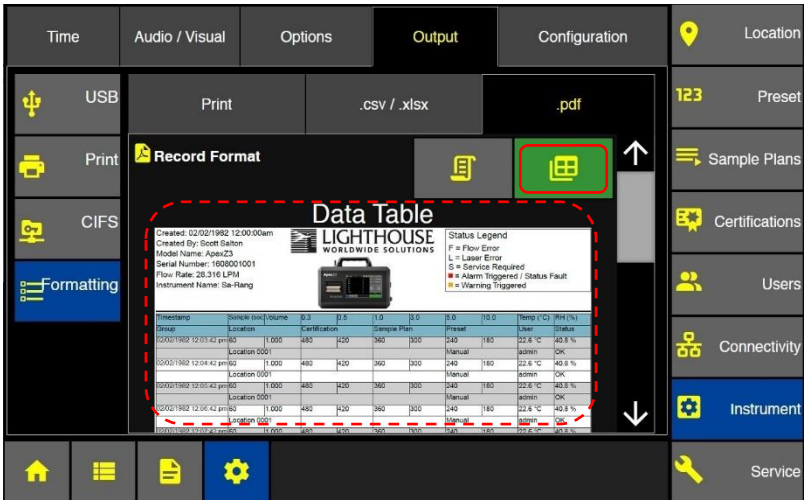
Printer Emulation will lay out the included data in columns emulating what would come out of the optional on-board printer, based on formatting set on the Print Format tab. See example.



Printer Emulation Record Format

Data Table will lay out the data in a table format. See example.

- Use the scroll bar to view additional formatting options below. Regardless of the layout chosen, formatting options remain the same and will apply to both Printer Emulation format and Data Table format.



Data Table Record Format

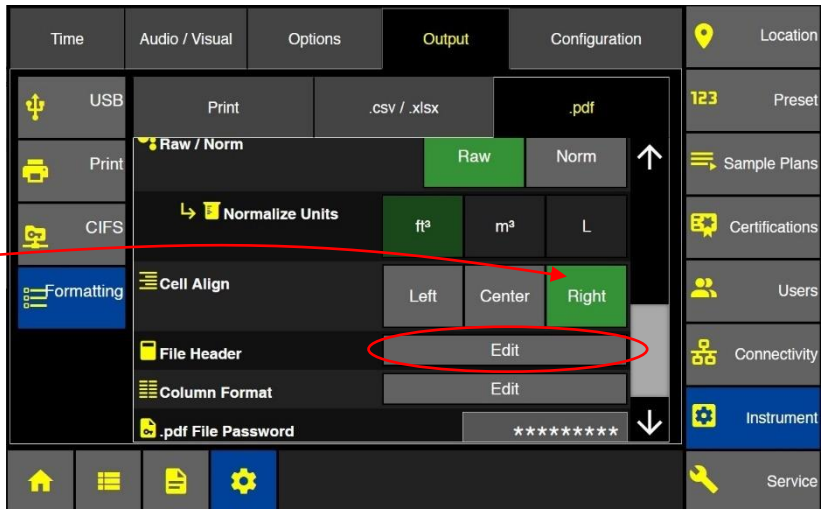
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Raw/Norm

- Select to output Raw or Normalized data. When selecting Normalized also select Normalize Units (cubic feet, cubic meters, liters).

Cell Align

- Choose whether to align text Left, Center or Right.



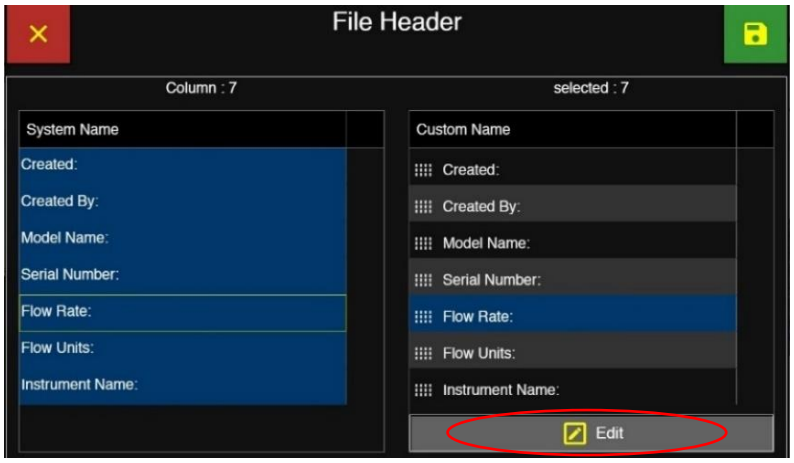
Instrument Output Formatting

File Header

- Press the File Header Edit button to enable/disable or edit custom name data for the file headers in data output to .pdf files.

By default, File Header System Names will be listed on the left column with names highlighted blue indicating those are selected. A matching Custom Name will appear on the right side of the screen.

- Select a System Name to enable (highlighted blue) or disabled (grey no highlight). Enabled System Names will appear on the Custom Name List on the right side of the screen. Disabled System Names will not appear on the Custom Name List.



Adjust or Edit Custom name, order on the list

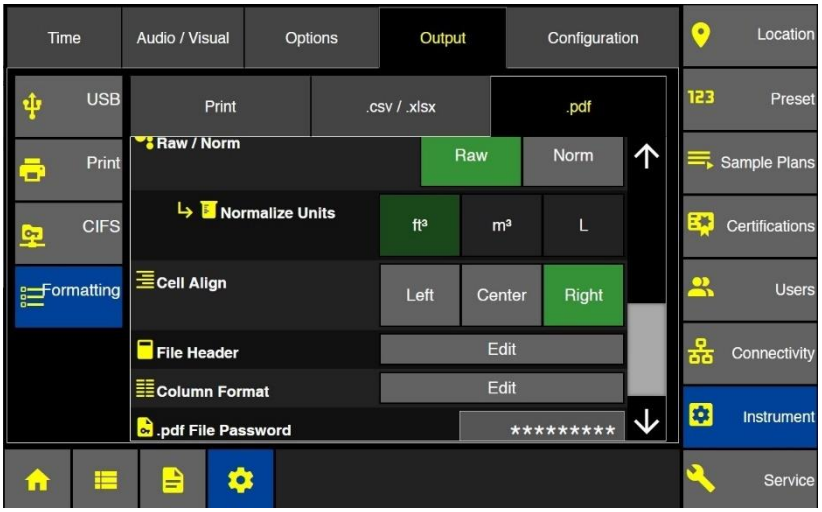
- To adjust the order of File Header Custom Names, press and hold the dotted box to the left of the name. Drag the name up or down to change it's position.
- To edit custom name, press Edit button, enter new name, press green Apply button.

These Custom Names will only affect data in the Data Table format, not Printer Emulation format.

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Column Format

- Press the Edit Column Format button to enable/disable or edit custom name data columns output to PDF files.

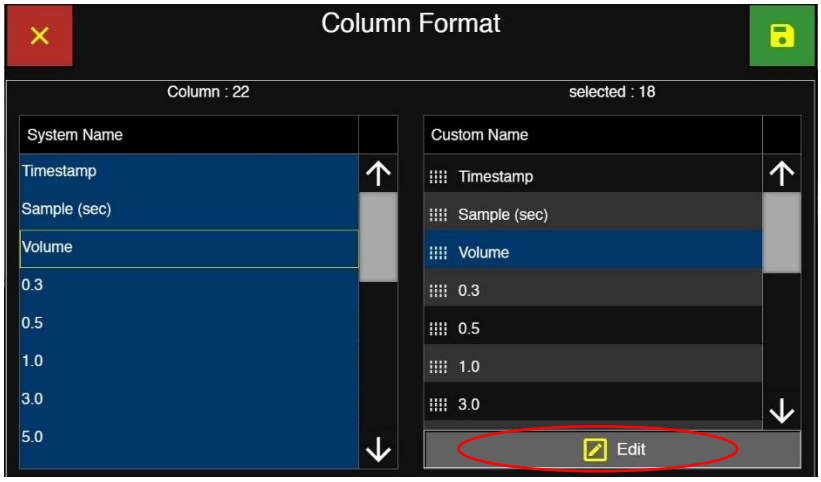


- Select a System name to enable or disable. Enabled names will appear on the custom name list on the right side of the screen. Disabled names will not appear on the Custom name list.

Adjust or Edit Custom name, order on the list

- To adjust the order of File Header Custom Names, press and hold the dotted box to the left of the name. Drag the name up or down to change it's position.

- To edit custom name, press Edit button, enter new name, press green Apply button.

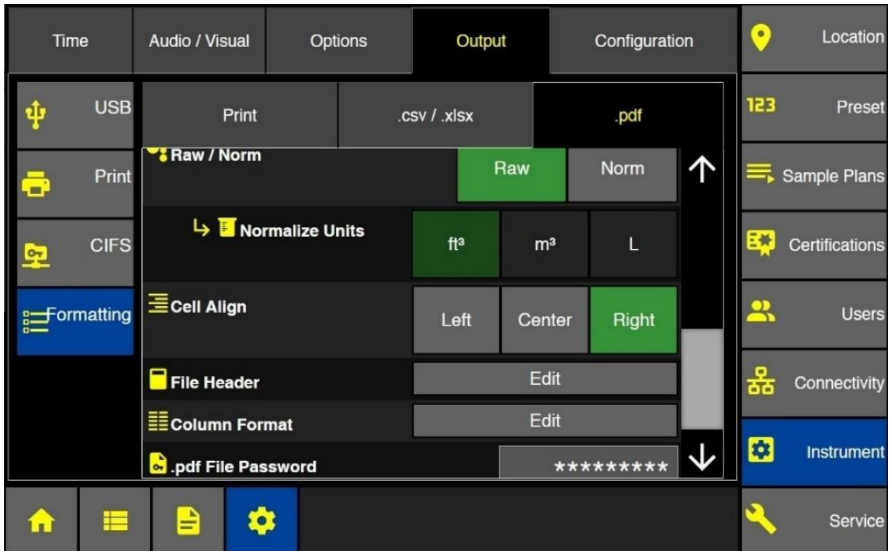


Custom names will only affect data in the Data Table Format, not Printer Emulation format.

PDF File Password

The ApexZ enables greater security for PDF files via the addition of an optional file password. This function will add a password to all PDF files created, prompting any user to enter that password when trying to open the file in a PDF editor.

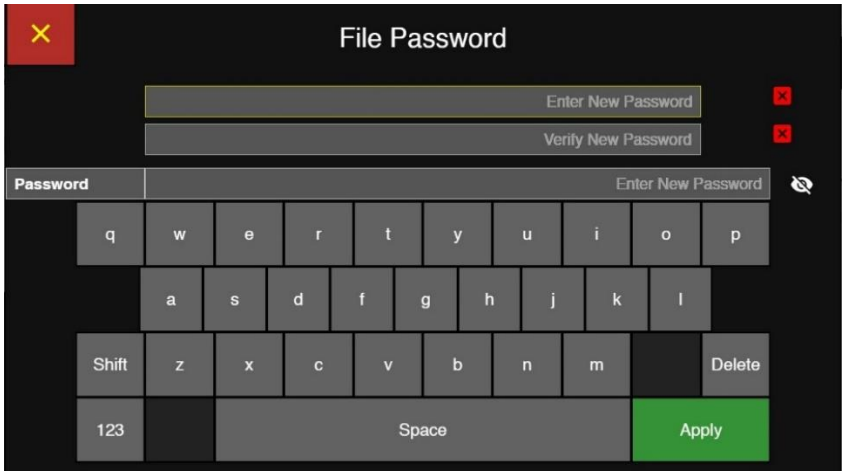
- Press the grey box on the .pdf fie password line to bring up the Fie Password screen.



Instrument Output .pdf

Use the keyboard to enter the desired password and verify the password by entering it a second time. A maximum of 16 characters can be entered.

- Press the green Apply button to verify the entries.
- Press the green Save button to save.
- The PDF file password can be removed by leaving the New Password blank, press Apply then press the Save button.



File Password Entry Screen

Configuration

All the ApexZ settings are saved in the ApexZ configuration file and can be exported onto a USB key or to LMS XChange. The exported configuration file can then be loaded onto another ApexZ instrument or edited using the LMS XChange software.

Save ApexZ configuration file to USB key

- Place a USB key in the ApexZ USB Port.
- Press the Save button to display the Save Configuration screen.
- Press the green check mark button to confirm exporting the configuration to the USB key – OR press the red X button to cancel.

Load ApexZ configuration file from a USB key

- Place a USB key with the desired configuration files in the ApexZ USB drive and press the Load button.
- The Select File screen will display.
- Select your configuration file to load and it will highlight blue.
- Press the green Save button to load the selected configuration.
- Press the green check button to import configuration – OR press the red X button to cancel with no import.

LMS XChange Software 2.x

The LMS XChange 2.x software was designed for use with ApexZ particle counters and is downloadable from the www.golighthouse.com website. LMS XChange 2.x allows users to import data collected on ApexZ3 and ApexZ50 portable particle counters and display the data in a table that the user can view and/or save to an Excel, .CSV, or PDF file. Additionally, Administrator users can manage configurations for ApexZ instruments using LMS XChange. LMS XChange has the following main features:

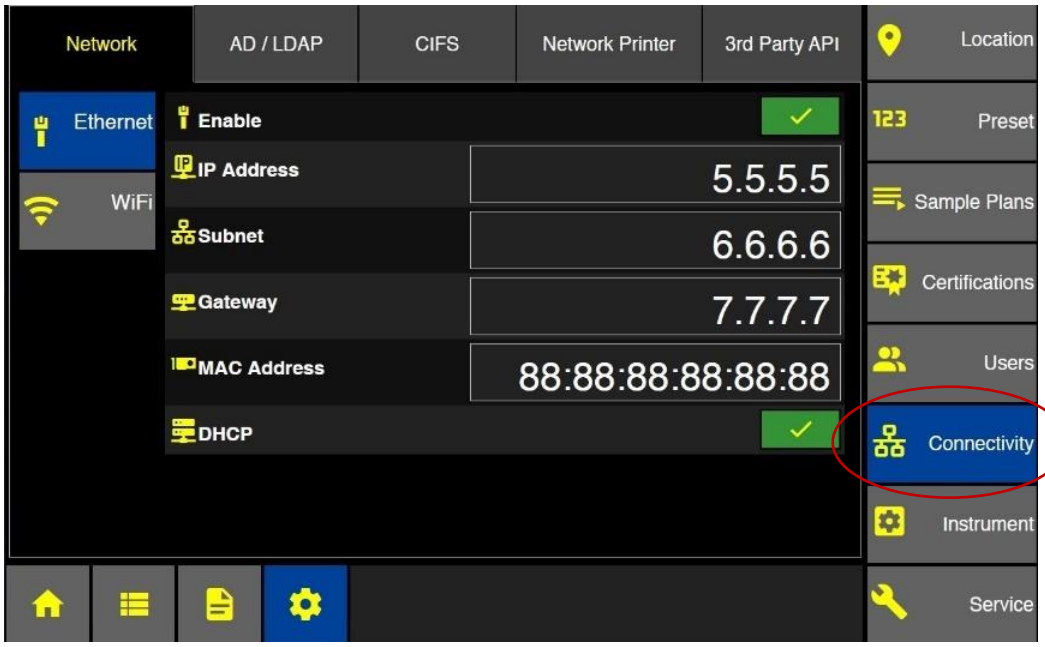
- Import data manually from Lighthouse ApexZ3 and ApexZ50 particle counters.
- Import .lsdx (Lighthouse secure data transfer) files created by ApexZ3 and ApexZ50 instruments.
- Display the imported data on a table, allowing the user to also export the data to an Excel, .CSV or PDF file.
- Three levels of user accounts – Operators, Power Users, and Administrative users.
- LMS XChange Administrator users can create, edit, save and load ApexZ3 and ApexZ50 configurations.
- Record logins, updates, delete, import, configuration changes, etc. in the LMS XChange Audit Log.

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Connectivity

From the Settings screen:

- Press the Connectivity button to view Ethernet, Wi-Fi, AD/LDAP, CIFS, Network Printer, and 3rd Party API settings.



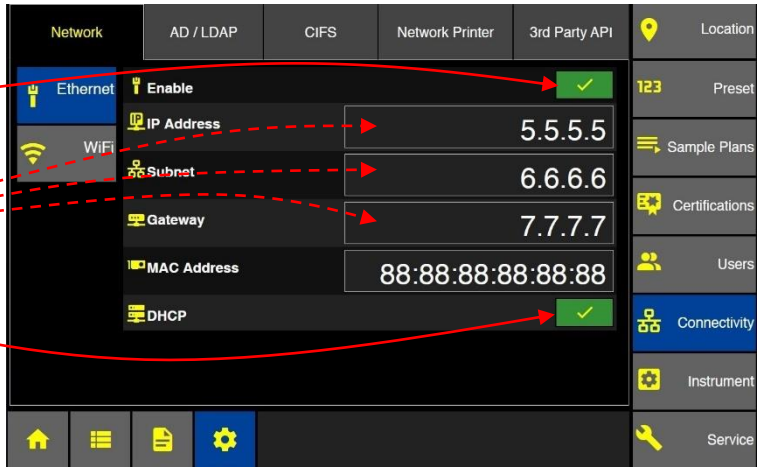
Connectivity – Network - Ethernet

Network – Ethernet

Ethernet Enabled – IP Address is locked

When Ethernet is enabled, the IP Address, Subnet, and Gateway will be locked out from editing.

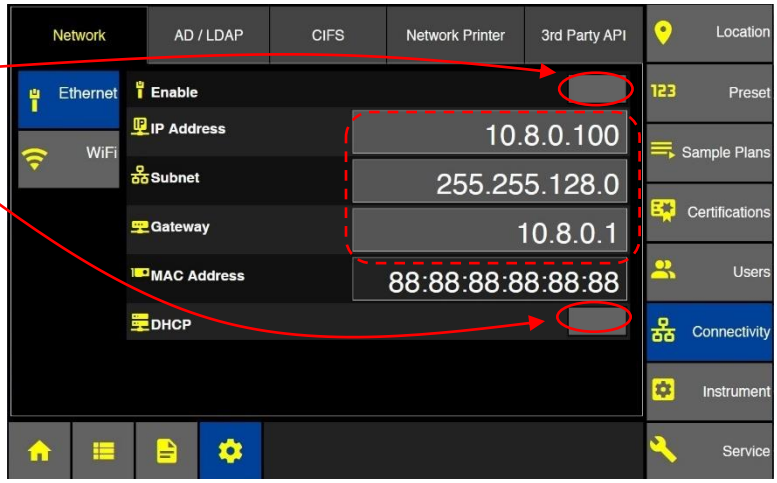
- Ethernet is enabled:
- IP, Subnet, Gateway are LOCKED.
- DHCP is enabled:



Connectivity – Ethernet – Enabled

To Edit IP Address

- Disable Ethernet and disable DHCP to allow editing of the IP Address, Subnet, Gateway.



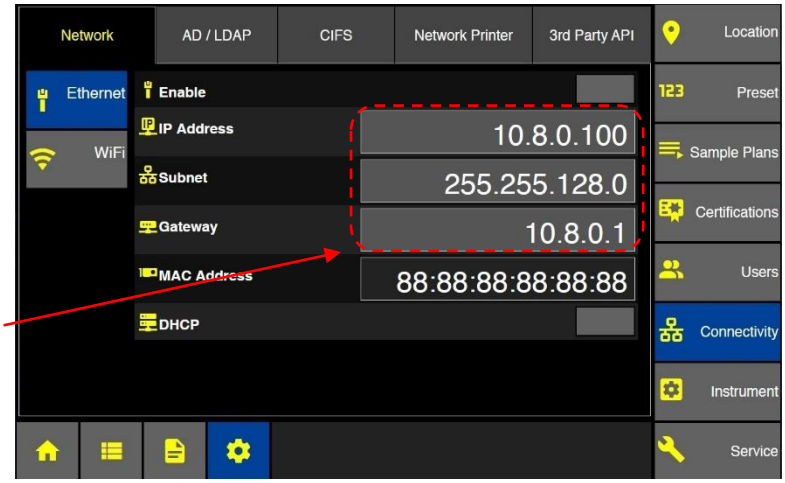
Connectivity – Ethernet – Disabled

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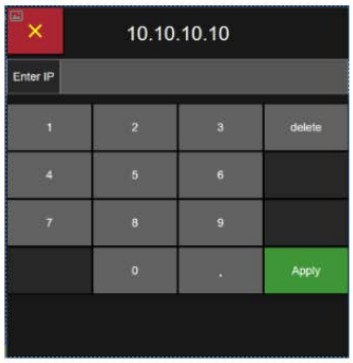
Edit Ethernet Address

- Press the IP address, subnet, gateway input buttons to display the input keyboard and edit these values.

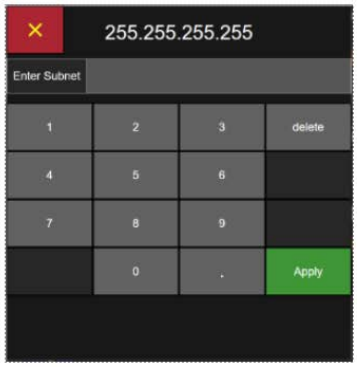
- Note MAC address is fixed and unique to the ApexZ instrument and cannot be changed.



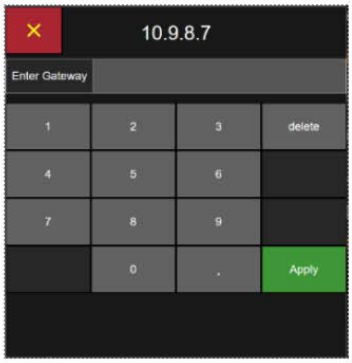
Connectivity – Ethernet



IP Address



Subnet Address



Gateway Address

- Enter the valid address, subnet, gateway and press the green Apply button.
- Press the Enable button to enable the Ethernet connection.

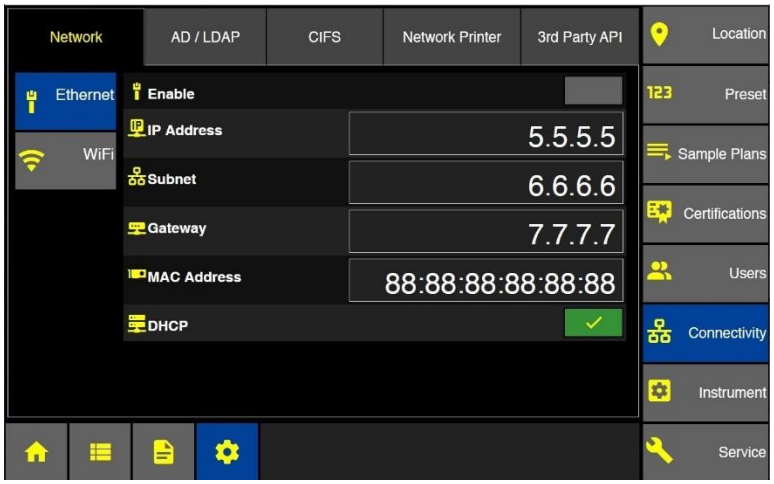
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DHCP (Dynamic Host Configuration Protocol)

When DHCP is enabled the IP Address, Subnet, and Gateway will be dynamically assigned from the HOST network connection. User editing will be locked.

To enable DHCP:

- Disable the Ethernet connection.
- After the DHCP has been enabled, then press the Enable Ethernet button to complete the DHCP connection.

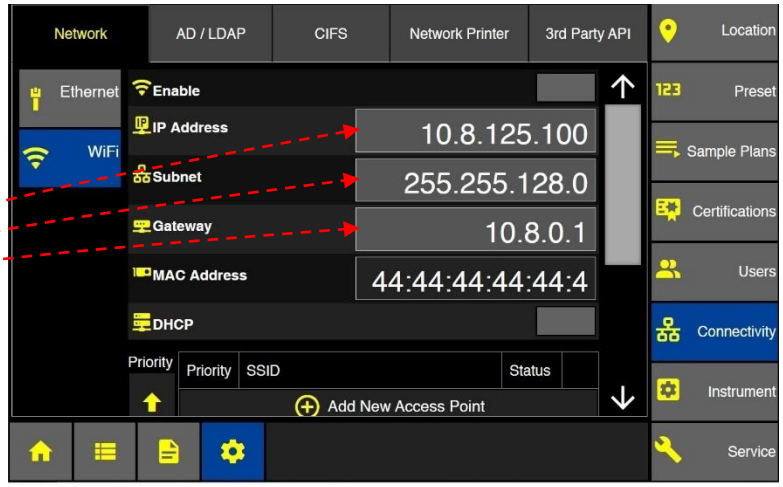


Connectivity – DHCP Enabled

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Network – Wi-Fi

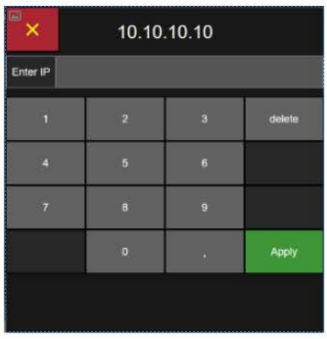
In the Wi-Fi tab, the Wi-Fi, IP Address, Subnet, and Gateway can be either manually entered before enabling Wi-Fi, or assigned via the DHCP.



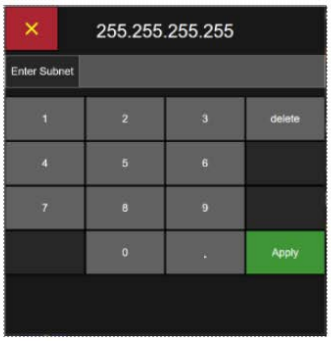
Connectivity Wi-Fi Screen

Edit Wi-Fi Address

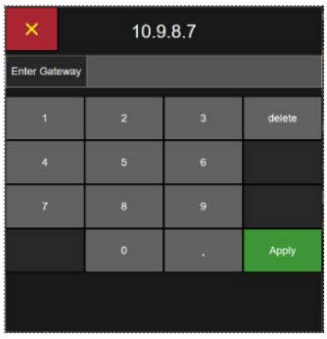
- Press the IP address, subnet, gateway input buttons to display the input keypad and edit these values.



IP Address



Subnet Address

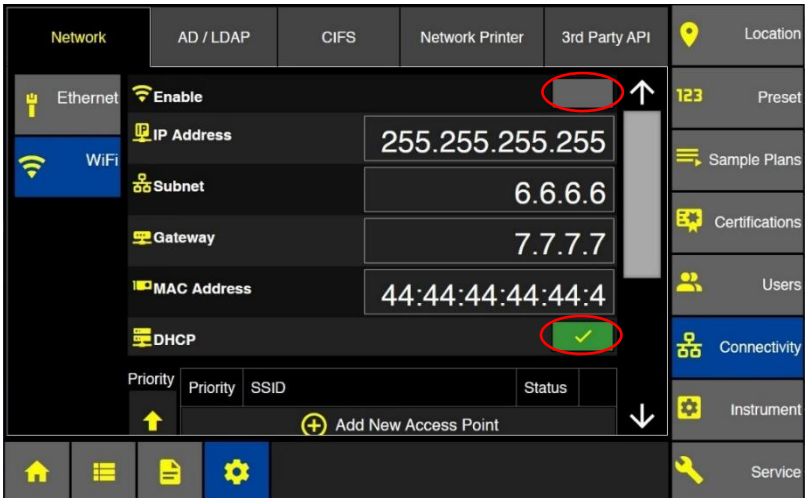


Gateway Address

- Press the green Apply button to save each setting.
- Press the Enable Wi-Fi button to enable the Wi-Fi connection.

DHCP (Dynamic Host Configuration Protocol)

When DHCP is enabled the IP Address, Subnet, and Gateway will be dynamically assigned. User editing will be locked.

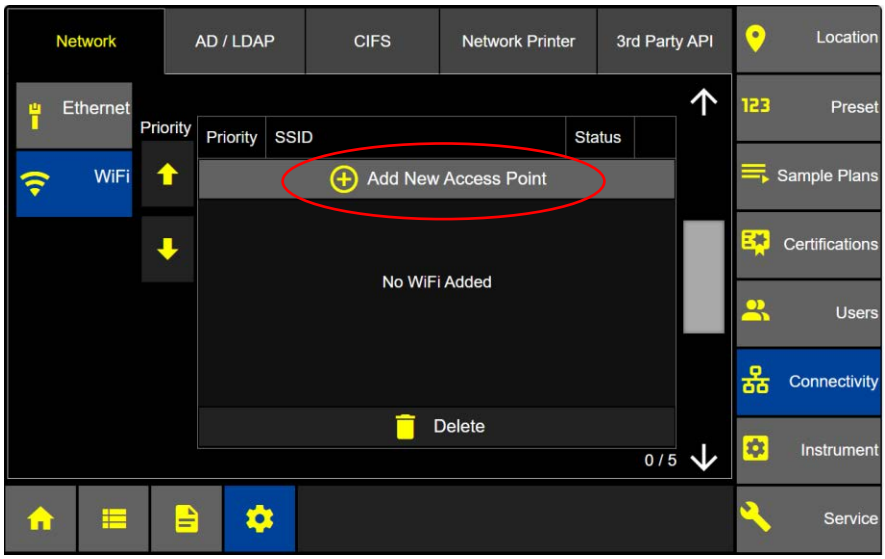


- To enable DHCP, disable Wi-Fi connection first.
- Click to enable DHCP.
- After DHCP has been enabled, press Enable Wi-Fi button to complete the DHCP setup.

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Add New Wi-Fi Access Point

- Use the vertical scroll bar to scroll down and display the Enable Wi-Fi screen.
- Press the Add New Access Point button to Configure Wi-Fi connection.



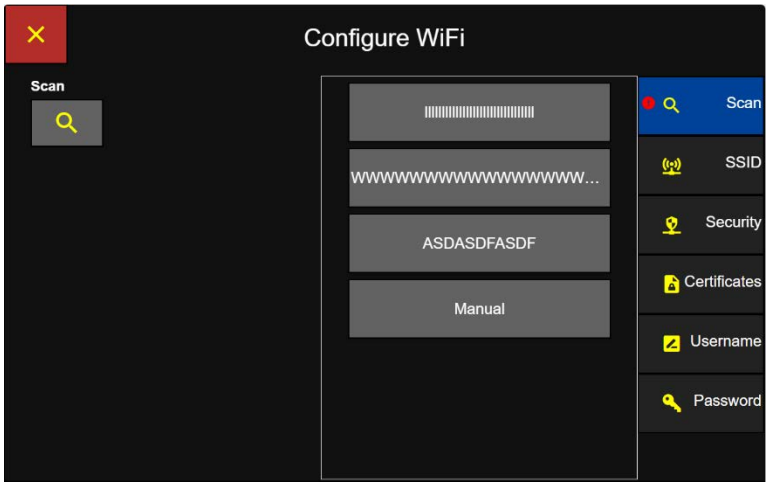
Settings – Connectivity – Network – Wi-Fi

Up to 5 Wi-Fi access points can be saved on the ApexZ unit. Wi-Fi must be enabled to all the user to add new Wi-Fi networks to the connection list. Enable Wi-Fi for the "Add New Access Point" button to be enabled.



Press the Scan button to search for available Wi-Fi networks or routers in the area.

- Press and select a Wi-Fi network for your ApexZ communication.
- After Wi-Fi has been selected, ApexZ will mark with a red dot the remaining required tabs to complete configuration.



Connectivity – DHCP Enabled

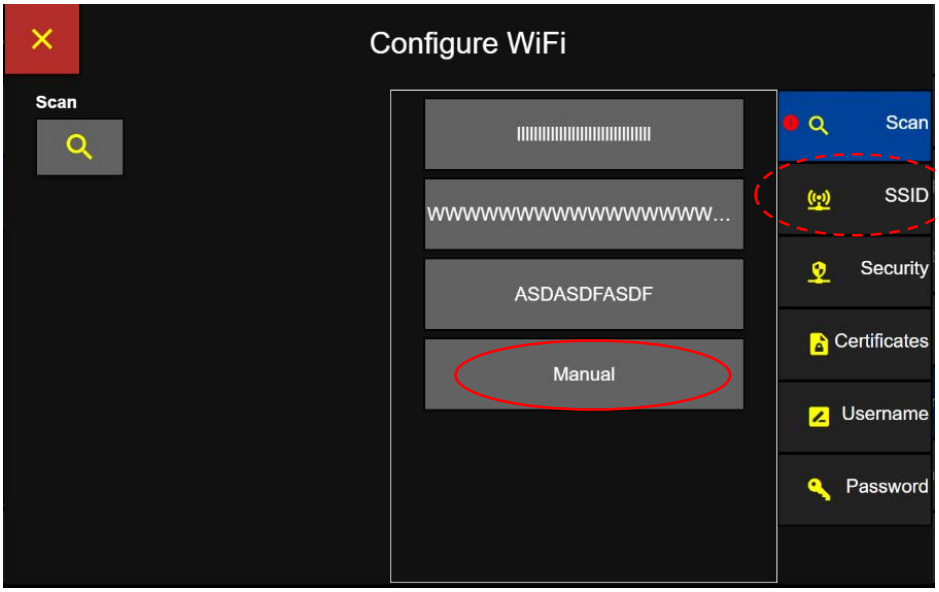
Enterprise Wi-Fi configurations:
Security set to "WPA-EAP"
Also supports WPA2
Username/Password are required.

Local Network Wi-Fi
Security set to "WPA-PSK"
Also supports WPA2.

Open Wi-Fi configurations:
Security set to "None"

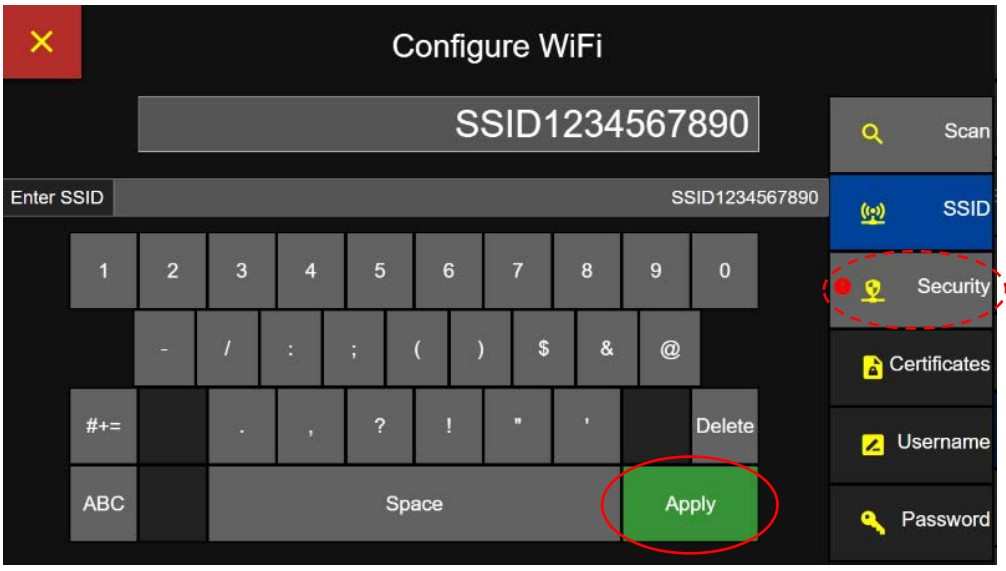
Manual Wi-Fi Configuration

- Select Manual Wi-Fi Configuration
- Press the SSID button.



Connectivity – Scan for Wi-Fi

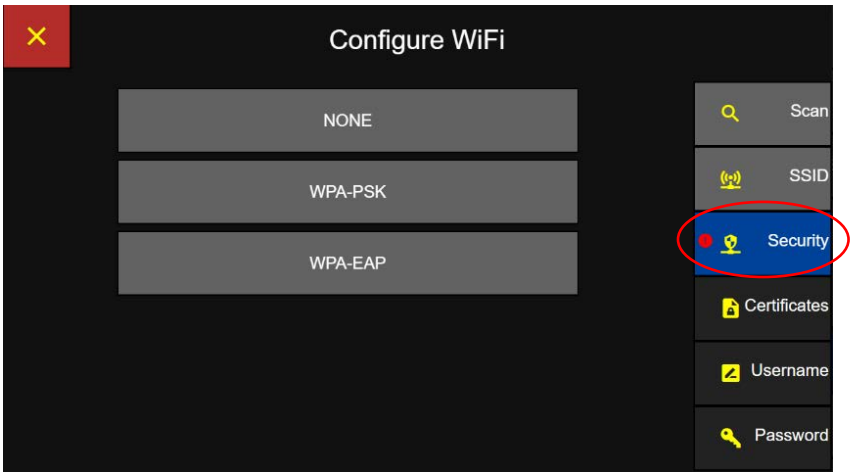
- Enter the SSID with the keypad.
- Press the green Apply button.
- Press the Security button.



Connectivity – Configure Wi-Fi SSID

Select Wi-Fi Security

- Security will be selectable only for Manual Wi-Fi configurations.
- Security will be preselected according to the Wi-Fi type detected.



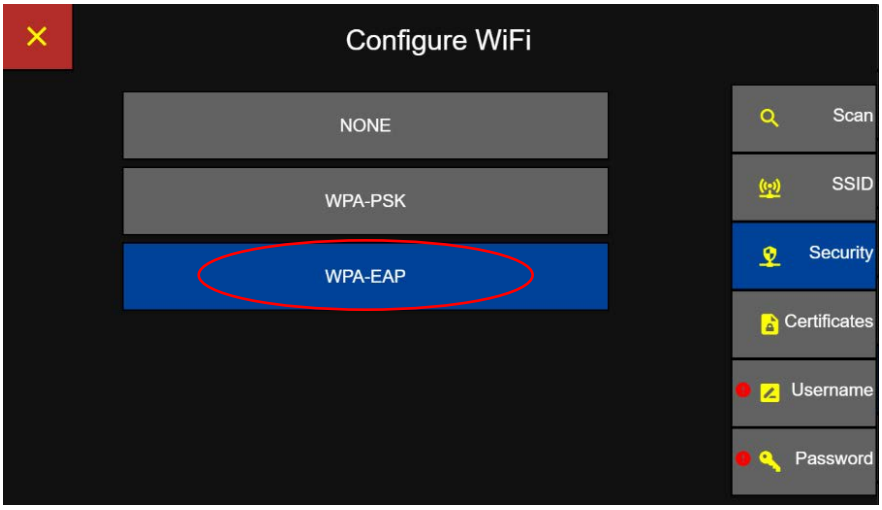
Connectivity – Wi-Fi Security

WPA-PSK: (also supports WPA2)

- Wi-Fi Protected Access – Pre-Shared Key, Password required only.

WPA-EAP: (also supports WPA2)

- Wi-Fi Protected Access – Enterprise, Certificate accepted but not required.
- Username required
- Password required.



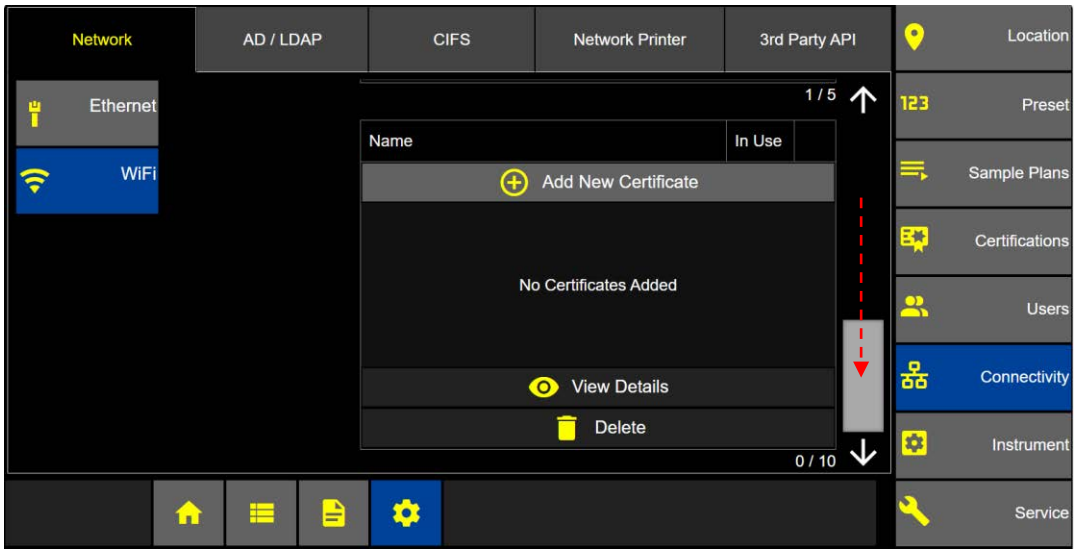
Configure Wi-Fi Security

Wi-Fi Certificates

Wi-Fi Certificates are files to authenticate devices logging into the Network without requiring a username or password. Wi-Fi Certificates can be obtained from your IT Department. Wi-Fi Certificate files must be downloaded from USB key onto ApexZ.

Note: Wi-Fi Certificates must be added before Access points are added.

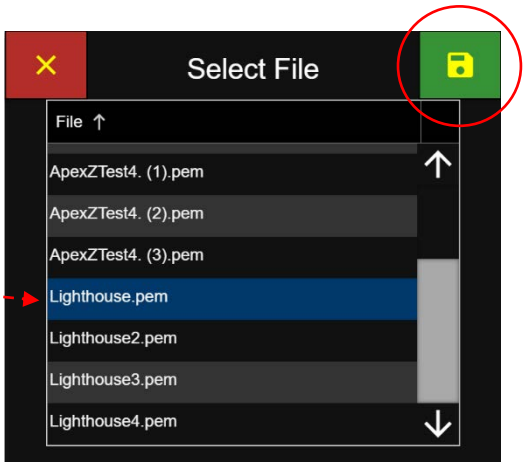
- From Settings - Connectivity – Network – Wi-Fi, slide the vertical scroll bar to the bottom to display the Add New Certificates screen.



- Certificates can be added, removed and inspected.
- Supported file formats include ‘pem’, ‘p7b’, ‘cer’, ‘crt’, ‘cert’.
- Up to 10x Wi-Fi Certificates can be loaded, stored and saved on ApexZ.
- Wi-Fi Certificate names are determined by the file name without the file ext.
- Duplicate file names cannot be imported. (For example: FileName.pem and FileName.p7b cannot both be imported).

Add Certificate from USB drive

- Obtain Wi-Fi Certificate on USB key from IT Department.
- Insert USB drive into ApexZ.
- Press the **+ Add New Certificate** button.
- Select the Certificate file name.
- Press the green Save button.
- File Password screen will display for password encrypted certs.



Select Certificate File from USB

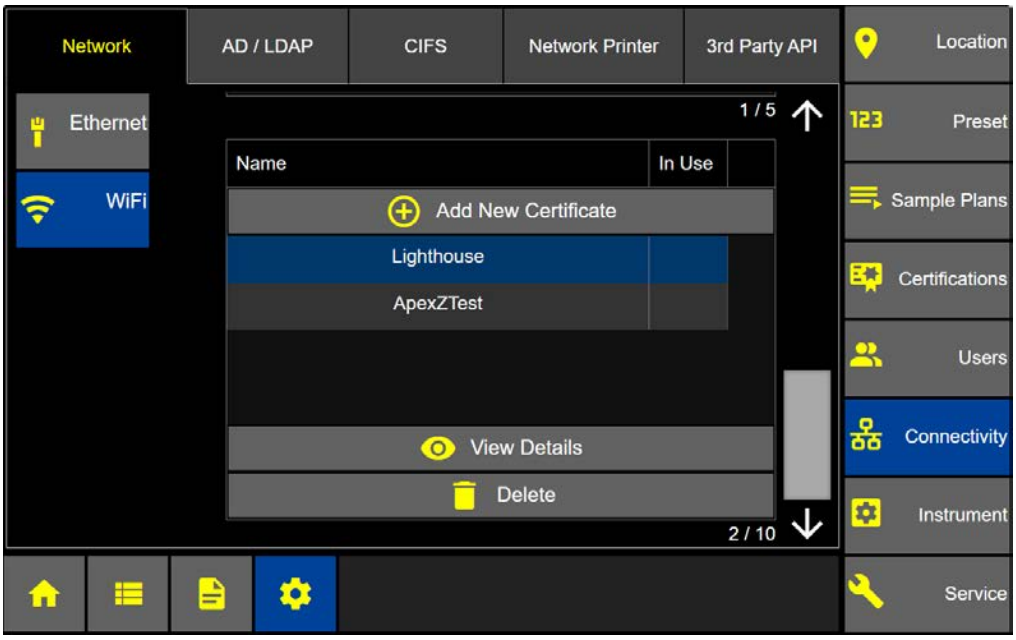


Enter File Password – twice to confirm

- Enter Password twice
- Press the green Apply button.

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- Downloaded Certificates will display on the Certificate screen.



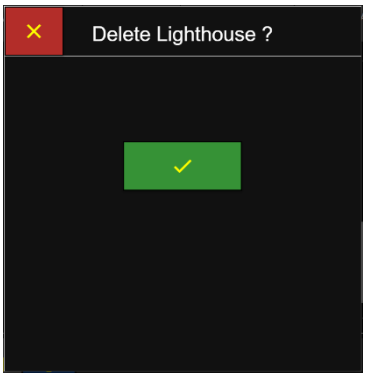
Connectivity – Network – Wi-Fi – Select Certificate

View Details

- Select a saved certificate and it will highlight blue as selected.
- Press the **View Details** button and this will display the Wi-Fi Certificate details.
- Press the red X box to exit the View Details screen.

Delete Certificate

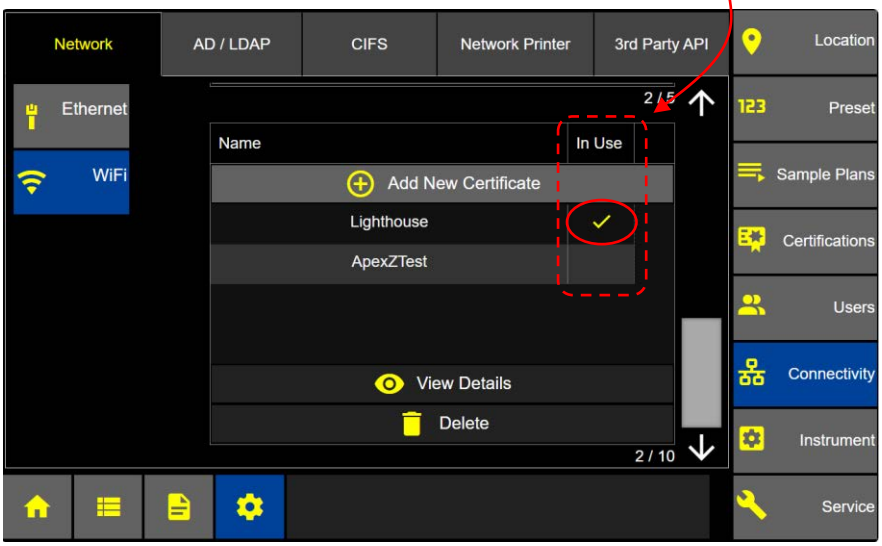
- Select a saved certificate to delete. The certificate will highlight blue selected.
- Press the Delete button and the Delete confirmation screen will pop up.
- Press the green check box to confirm Delete the certificate.
- Or press the red X button to cancel.



Delete a Certificate

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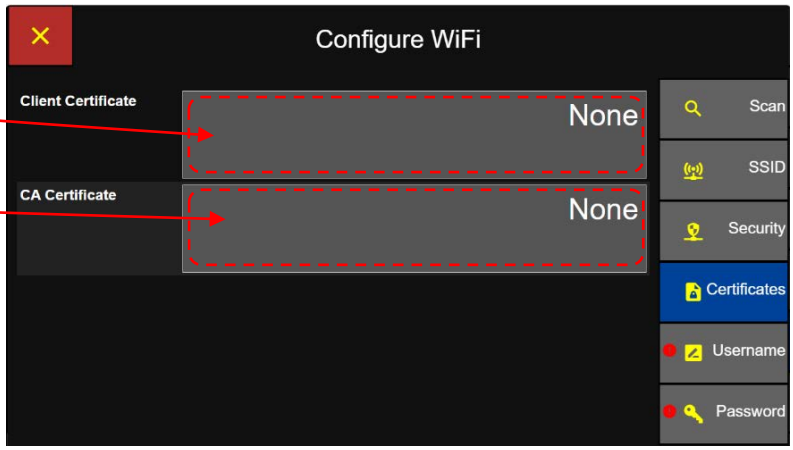
- When a Certificate is tied to an Access Point, then the In **Use Column** will display a checkmark indicating it is connected.



- A user cannot edit a configured access point.
- The Delete button will be disabled if a Wi-Fi Certificate is tied to an access point (SSID).
- To change a Certificate tied to an access point, the access point must be deleted and a new access point configured.

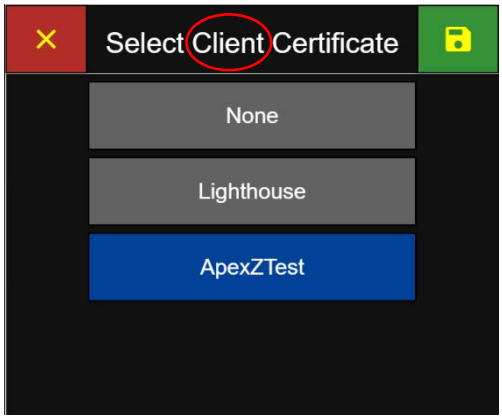
Select Certificates

- Press the Client Certificate button.
- Press the CA Certificate button.



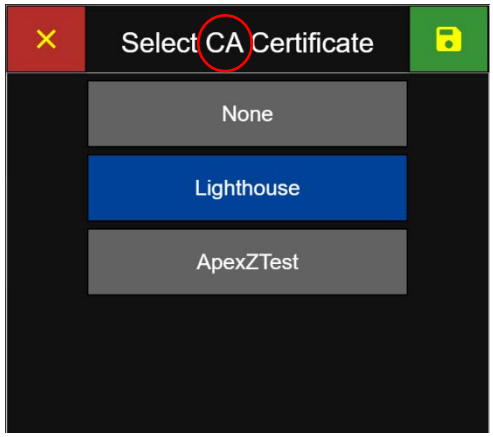
Configure Wi-Fi

- Select a Client Certificate from the pop up Client Certificate List.
- Press the green Save button.
- Client Certificates do not require username or password.



Select Client Certificate

- Press the CA Certificate button.
- Select CA Certificate from the pop up CA Certificate List.
- Press the green Save button.
- If CA Certificate is selected then Username and Password will still be required.

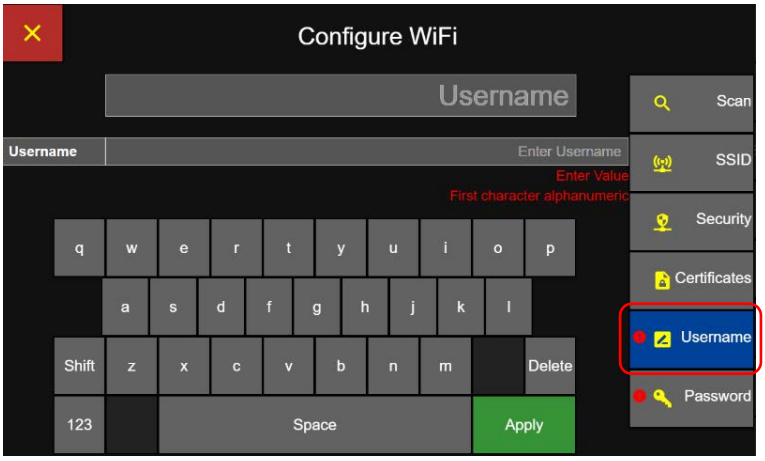


Select CA Certificate

Username / Password

Enter User Name

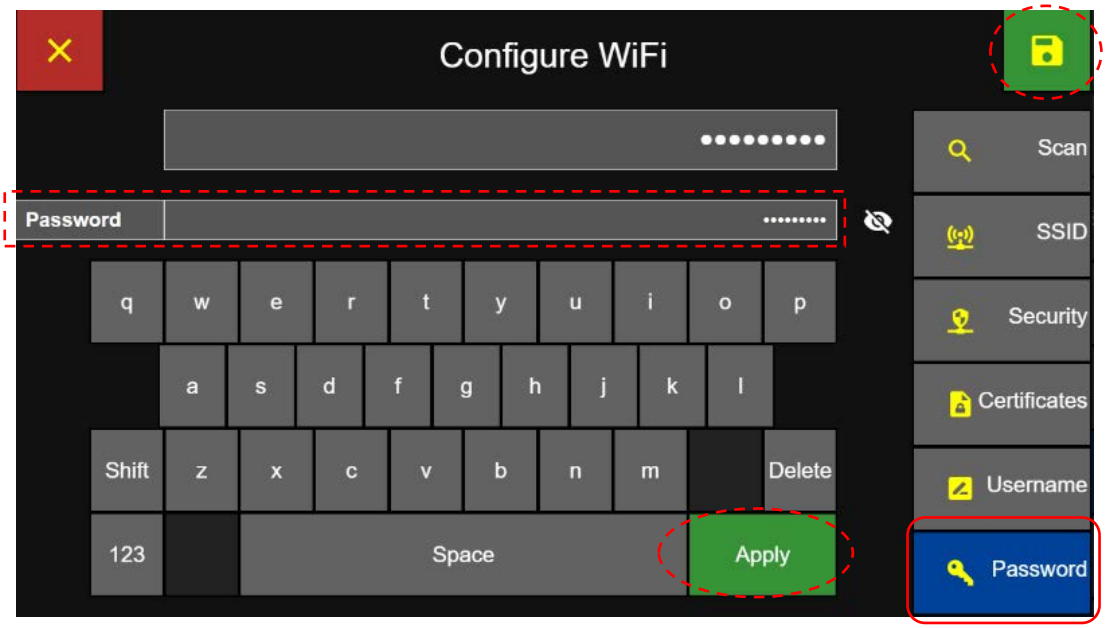
- Select the Username tab.
- Enter Username with the keypad.
- Press the green Apply button.



Connectivity Wi-Fi Username

Enter Password

- Select the Password tab.
- Enter password with the keypad.
- Press the green Apply button.
- Press green Save button to save settings and connect to selected Wi-Fi.



Connectivity Wi-Fi Password

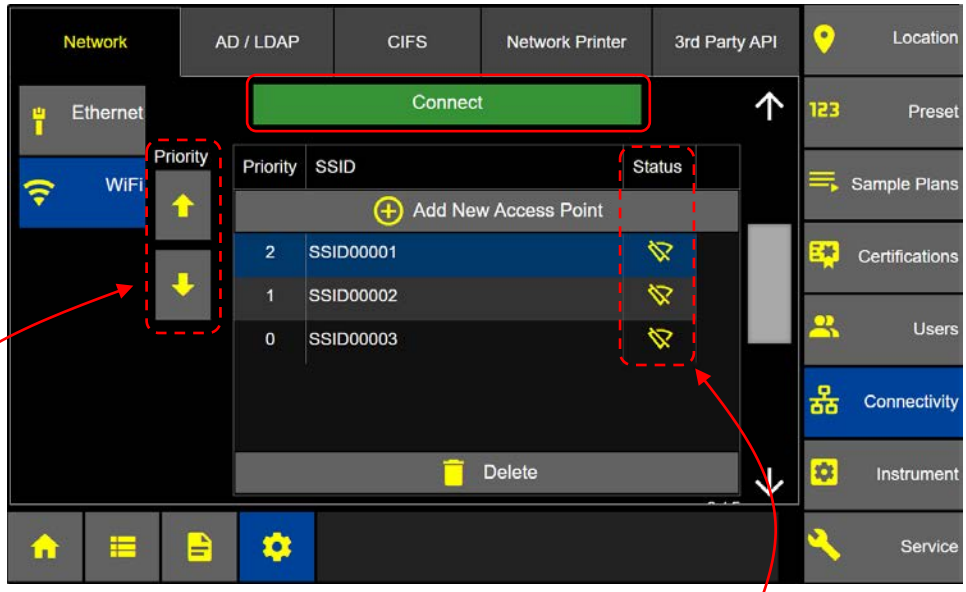
- "Connection Successful" message will display.



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All configured Wi-Fi networks will be listed in the Connectivity Network Wi-Fi screen. This allows users to connect to previously configured Wi-Fi networks without setting them up again.

- Select an SSID from the Access Point list and it will highlight blue.
- Once selected, then a green Connect box will display.



Wi-Fi connection status

- **Use the arrows** to adjust priority of listed networks.
- Wi-Fi network connection status will display in the **Status** column.
- Press the green **Connect** button and ApexZ will connect to the selected Wi-Fi.
- Connection Successful message will display.



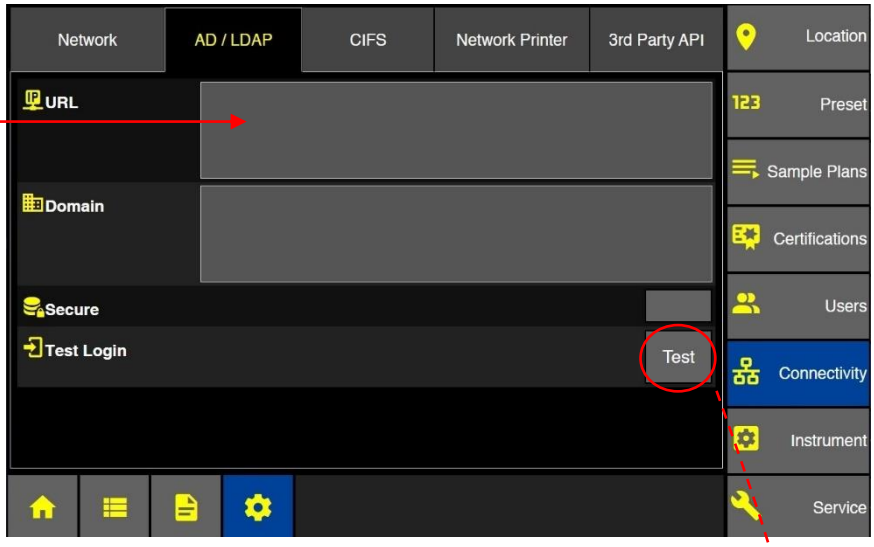
Active Directory AD/LDAP

Validate Users through your network Active Directory

ApexZ allows user login authentication to happen through your Active Directory network connection. Usernames and passwords logging into the ApexZ instrument will be verified against Active Directory usernames and passwords. User Permission Levels can be assigned to AD Groups on your network. Users logging in from AD Groups will be given that AD Groups' assigned permission Level on the ApexZ instrument. Contact your IT department to obtain the URL and Domain for your Active Directory.

Active Directory URL (optional)

- Press the URL button and use the keypad to enter the Active Directory URL and Domaine.
- If URL is entered, the unit only attempts to authenticate to the Active Directory server at that IP.



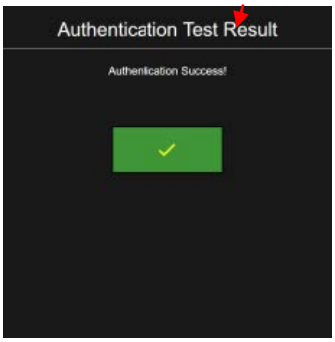
Connectivity Active Directory

Active Directory Domain (required)

- Press the Domain button and use the keypad to enter the Domain name.
- If the Domain is entered and IP is left blank, then the unit will pull all valid IP addresses of the domain and attempt to validate credentials until one succeeds.

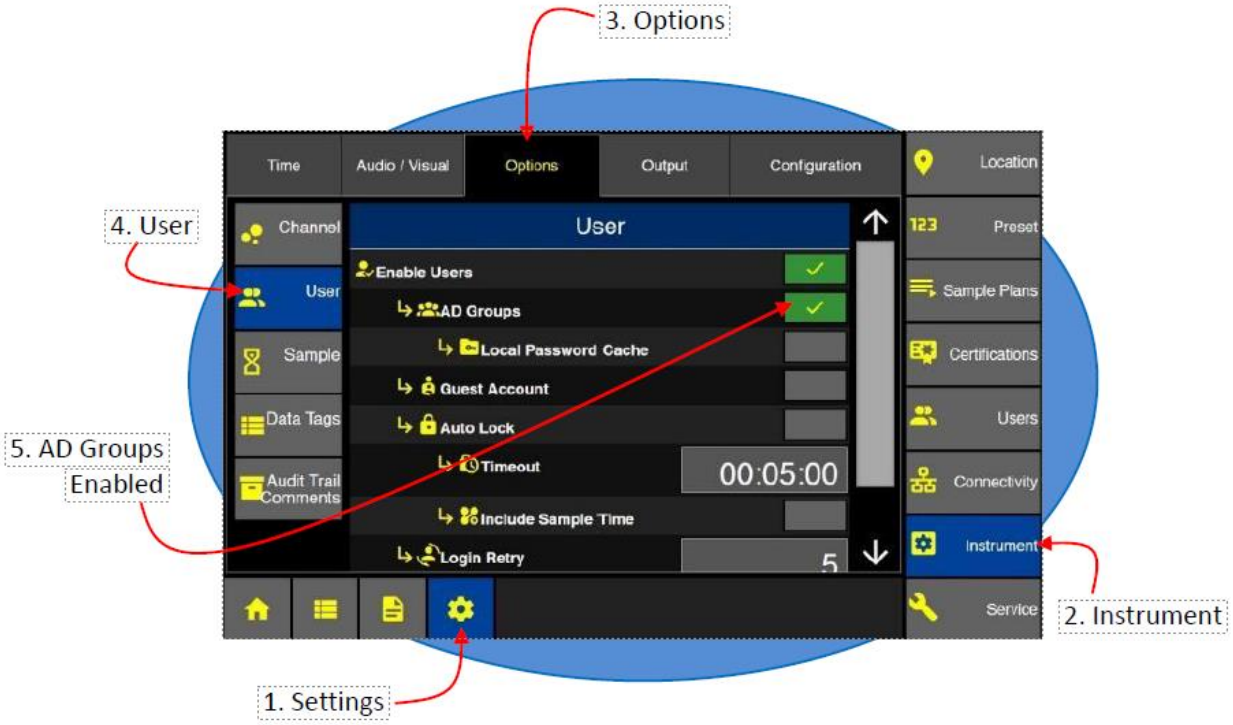
Secure

- Press to enable the Secure button to use LDAP over SSL protocol.
- Press the Test button to Test login to the Active Directory.
- Note: Active Directory Domain must be set up and a Test Login performed before logging in with AD user accounts. ApexZ FW 2.3 and earlier require that each AD User be in at least 3 AD Groups on their network. Only one of those groups needs to be selected on the instrument. ApexZ FW 2.4 and later only require the AD User to be in one AD Group on their network.



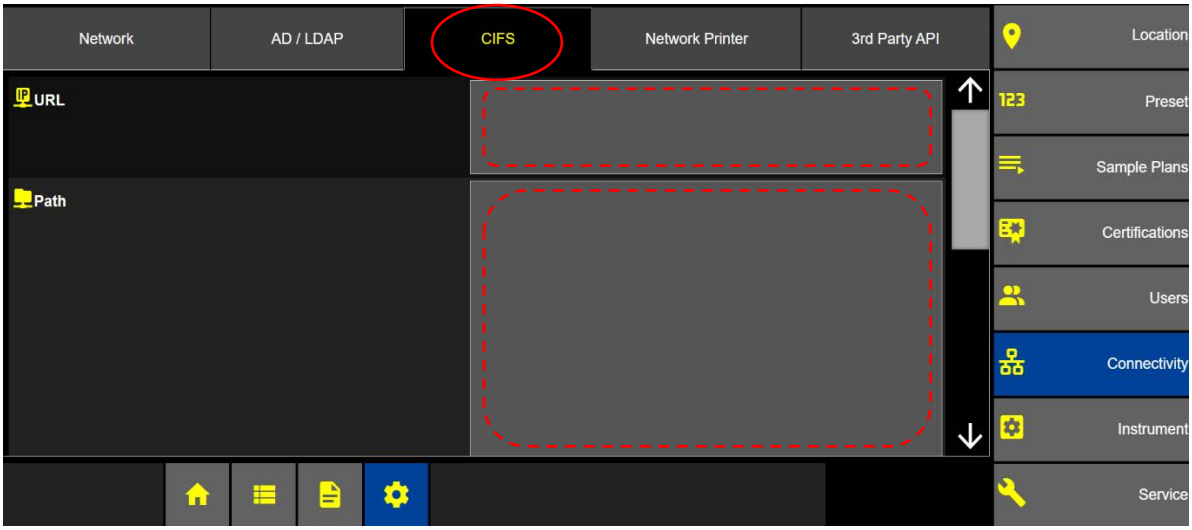
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To activate AD Groups, go to Settings – Instrument – Options – User – AD Groups



CIFS – Common Internet File System

The CIFS “Common Internet File System” is used to connect and export data to connected shared network drives. CIFS operates on SMB 2.1 and uses port 445. Contact your IT Department for the URL, Path, and Folder settings for your CIFS.



Connectivity CIFS URL and Path

CIFS URL

- Press the URL button.
- Enter the IP address using the keypad.
- Press the green Apply button.

Path

- Press the Path button and enter the CIFS Path using the keypad. Exported data will be saved to the CIFS Path.

Slide the elevator bar down to show Domain, Folders and additional fields.

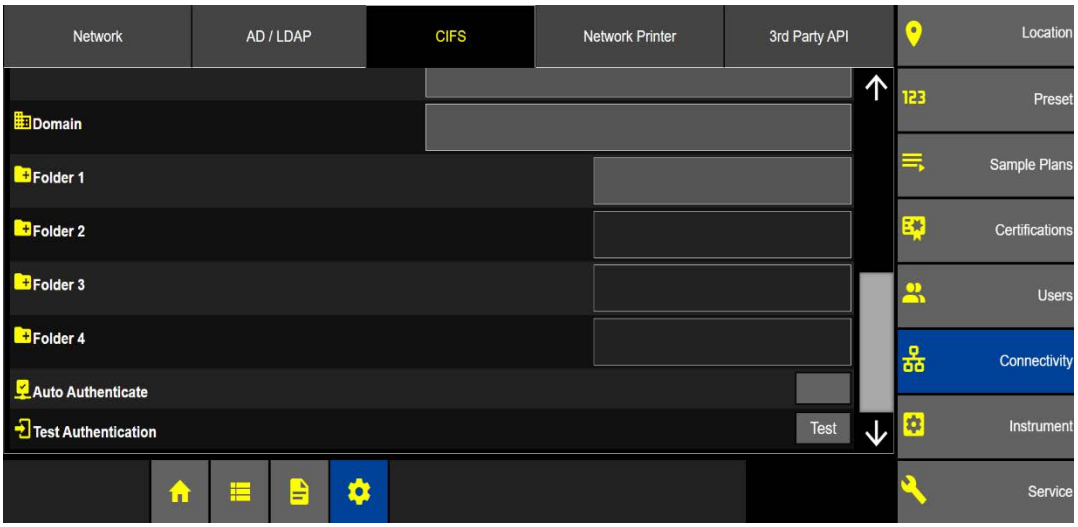
Domain

- Press the Domain button and enter the domain of the shared network drive.

Folder 1-2-3-4

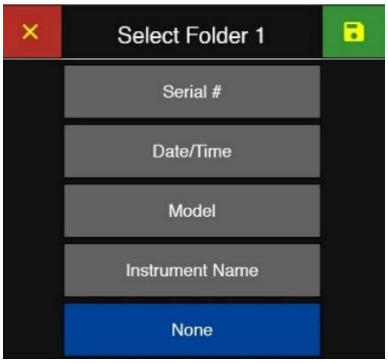
Folder 1, 2, 3, 4 are designed to allow the user to organize data into sub-folders according to the instruments they were downloaded from.

- Press Folder button, select sub folder name from pop-op list.
- After selection, press Save button and the entry will be listed for that Folder. The buttons for subsequent Folders will only be available once the previous Folder has a selection saved.



Connectivity CIFS Domain and Folders

The Instrument Name folder will be named after what is entered on the Settings->Service->About screen, in the Instrument Name field. If this field is empty, selecting Instrument Name for a CIFS Folder will show an orange folder icon in the field after saving, indicating that the Instrument Name has not yet been set on the Apex unit.



Auto Authenticate: Press the Enable Auto Authenticate button and ApexZ will use the currently logged-in user's credentials to authenticate with the network drive when exporting data. Disabling Auto Authenticate will require every user to enter their username and password prior to exporting data to the network drive.

Test Authentication: Press the Test button to test Authentication.
Select Folder

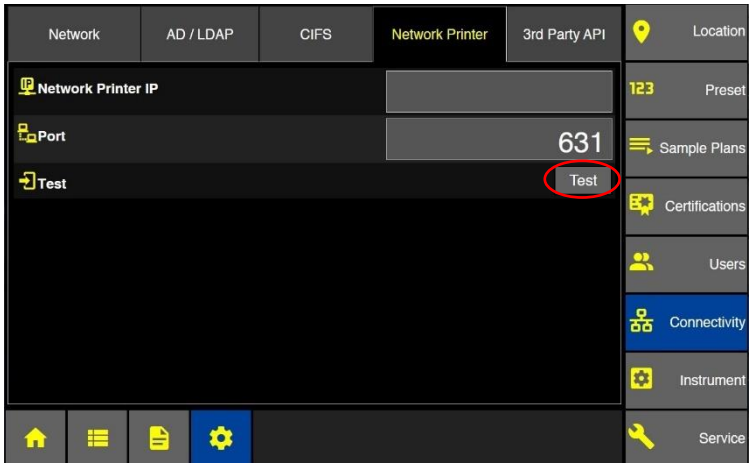
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Network Printer

The Network Printer function allows the user to export data to a Printer on a connected network.

Network Printer IP

- Press the Network Printer IP button to enter the IP address of a Network Printer available for the ApexZ to connect to. To be able to export to the printer, ApexZ must be connected to the same network as the printer.



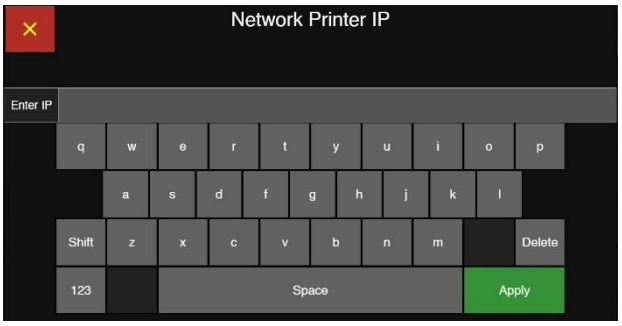
Connectivity Network Printer IP

Port Number

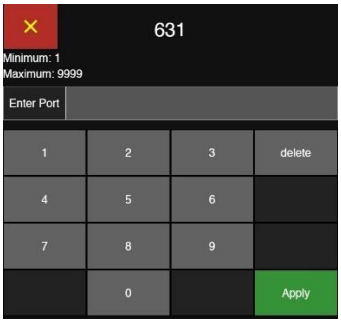
- Press the Port button to enter a port number with a minimum value of 1 and a maximum value of 9999.

Test

- Press the Test button to test the connection to the Network Printer.



Enter Printer IP



Enter Port

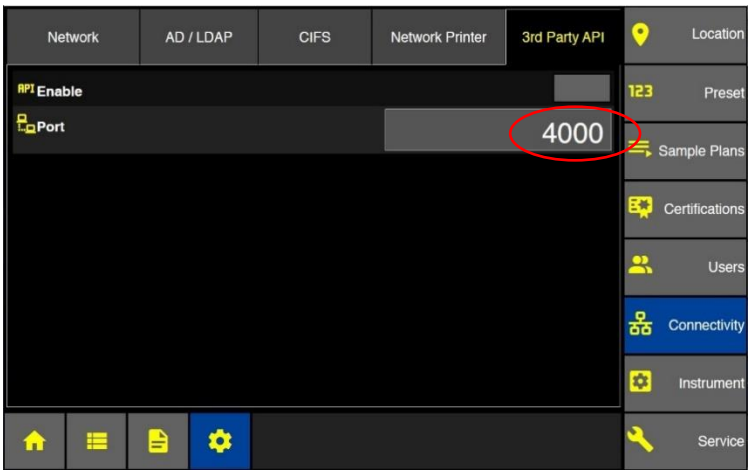
Once connected, the user will be able to Export data to the Network Printer, with the format being determined by the settings at Settings -> Instrument -> Output -> Print -> Network Printer

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3rd party API – Application Programing Interface

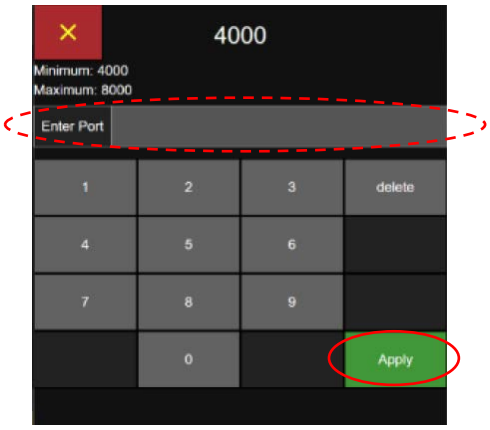
Port Number

- Press the Port button to enter a port number with a minimum of 4000 and a maximum 8000.



Settings – API Port Number

- Press the green Apply button.



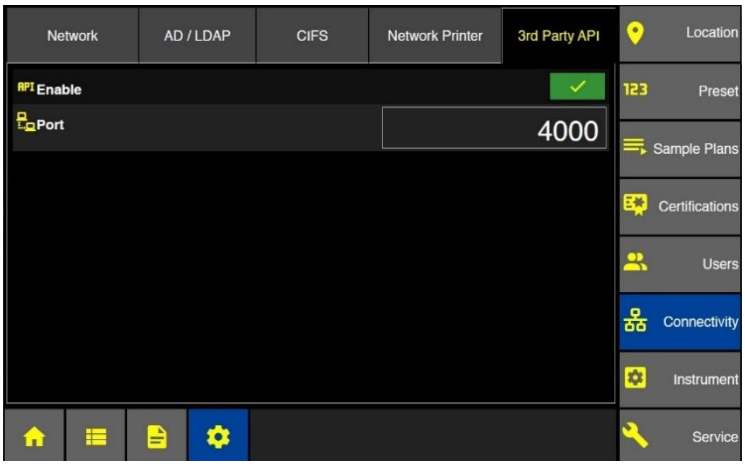
Enter Port

Enable API

- After selecting the port number then press the Enable API button.

After the API has been enabled the port number may not be modified. To change the port number, you must disable the API enable button first to allow editing of the port number.

Note: Contact Lighthouse for documentation about API commands to integrate software with ApexZ.



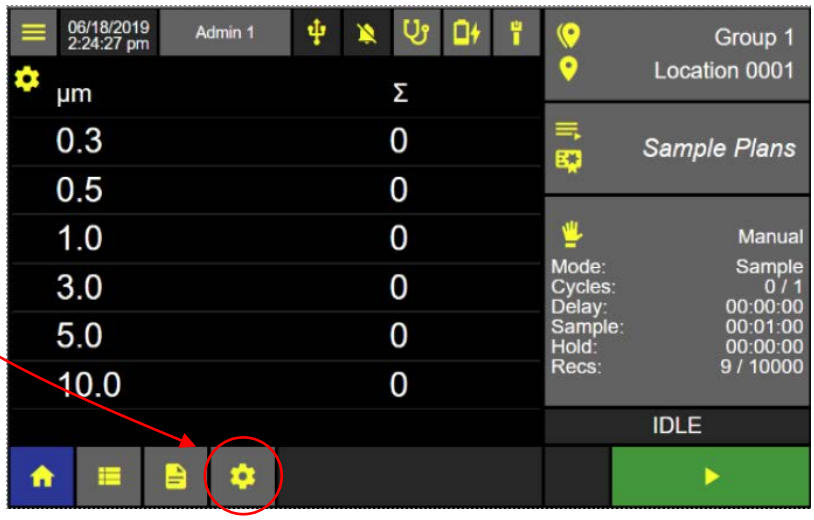
Settings – Enable 3rd Party API

Locations and Groups

The ApexZ instrument has the capacity to store up to 2500 location names. The first 250 location names have been named as “Location 0001”, “Location 0002” and up to “Location 0250”. Additional Location names can be added, and the location name will default to the next sequential location # for example “Location 0251”. Location names can be easily edited/renamed or deleted. Groups may also be created, and Locations may be assigned to Group names. Up to 250 Groups can be created and Locations can be assigned to these groups.

View Locations

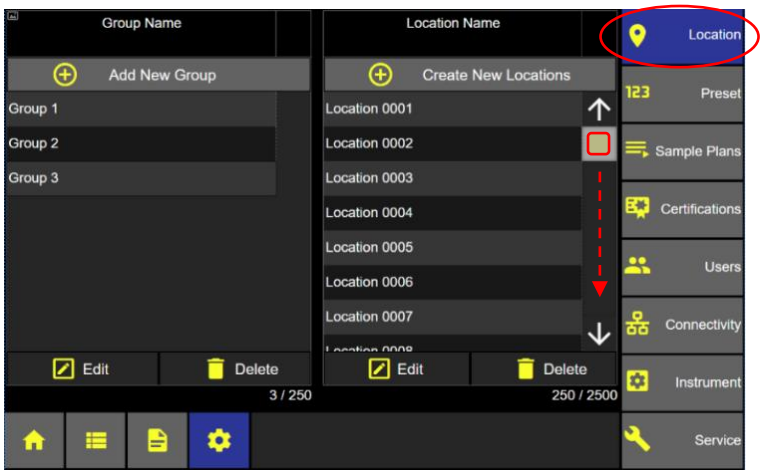
- From the Home Screen press the Settings button to display the Settings screen.



Home Screen

- From the Settings screen press the Location button and it will highlight blue and display the Locations and Groups screen.
- Scroll to view all Locations.

ApexZ is shipped with 250 named locations “Location 0001, Location 0002, …”. These location names can be renamed or deleted, and additional locations can be created up to a total of 2,500 location names.

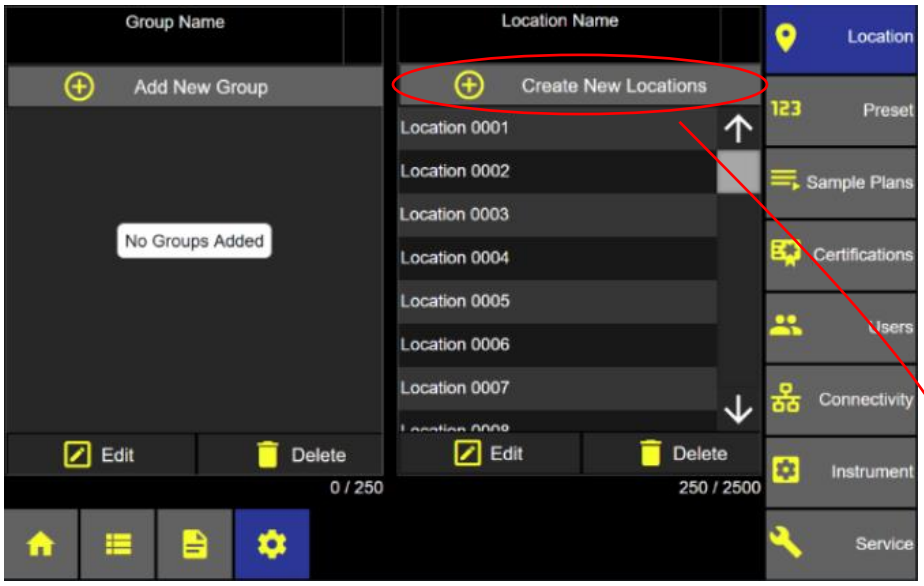


Settings Locations and Groups screen

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Create New Locations

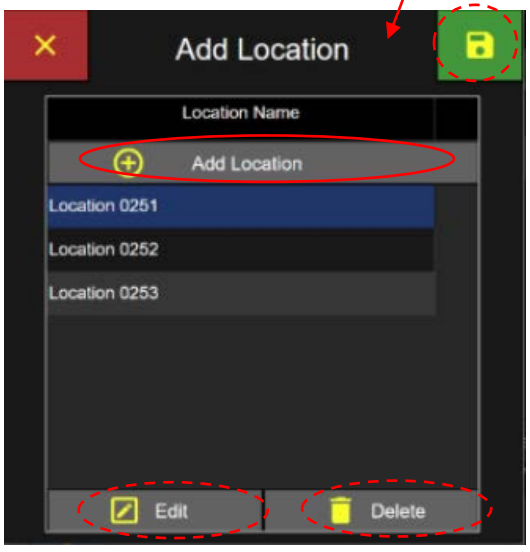
- Press the **PLUS** button to **Create New Locations**. The next location number created will be named “Location 0251”.



Settings – Locations and Groups Screen

Add additional locations before saving.

- Press the **PLUS** button to **Add Location**.
- Press the **Edit** button to change the name of the highlighted location.
- Press the **Delete** button to delete a highlighted location from the list.
- Press the green **Save** button to add the list of new locations to the ApexZ database.

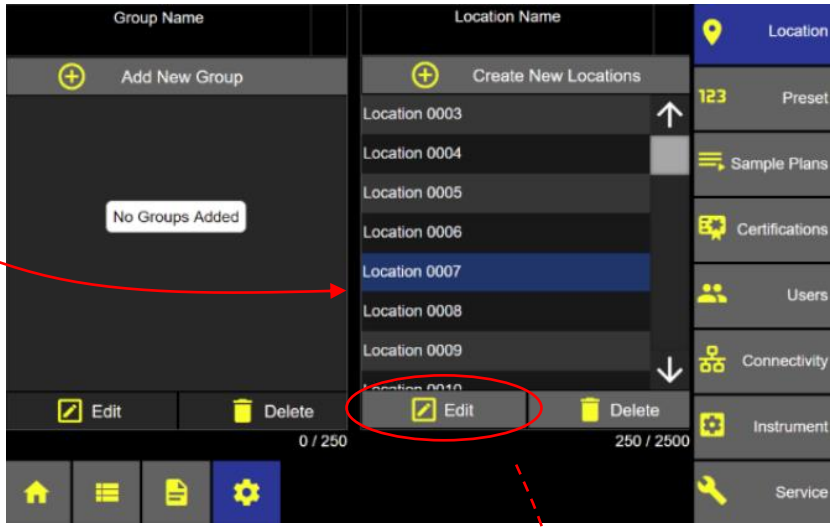


Add Location Input Screen

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Edit a Location

- Select a location name and it will highlight blue indicating it has been selected.
- Press the Edit button to edit the selected location name.

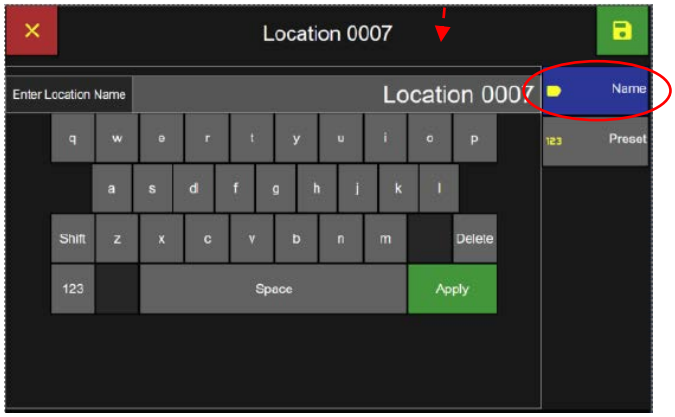


Locations/Groups Screen

Edit Location Name

- Enter new Location Name.
- Press the green Apply button.
- Press the green Save button.

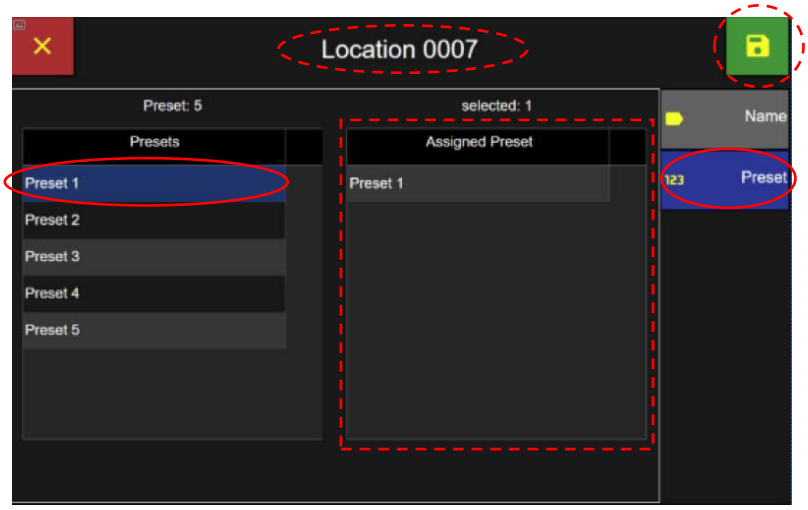
Note: A Preset may be assigned to multiple locations. A location can be assigned to only one Preset.



Edit Location Name

Assign Preset to a Location

- Select the Preset tab to assign Location to a Preset.
- Select the Preset to assign the Location.
- Press the green Save button.

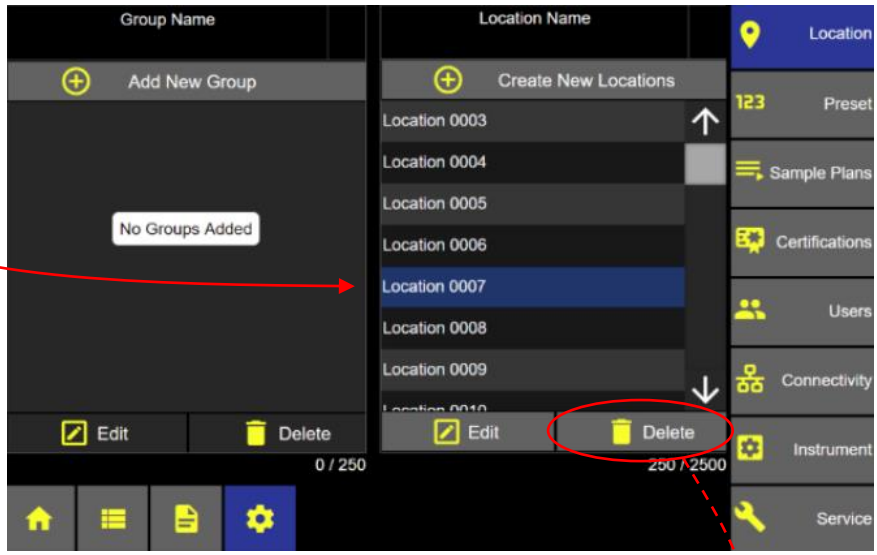


Assign Location to Preset

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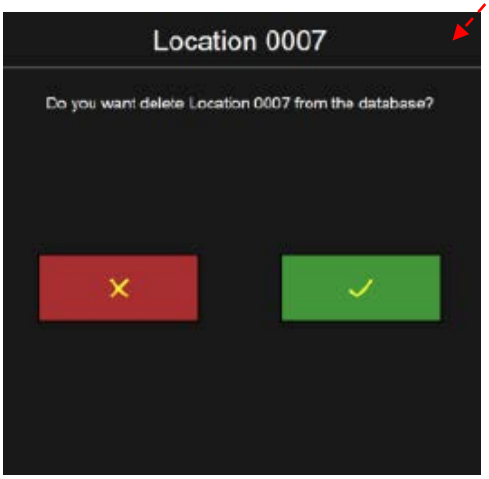
Delete a Location

- Select a location and it will highlight blue indicating it has been selected.
- Press the Delete button to delete the selected location.



Settings – Location/Group Screen

- Press the green check box to confirm deleting the location from the ApexZ database.
- Or press the red X box to cancel delete.

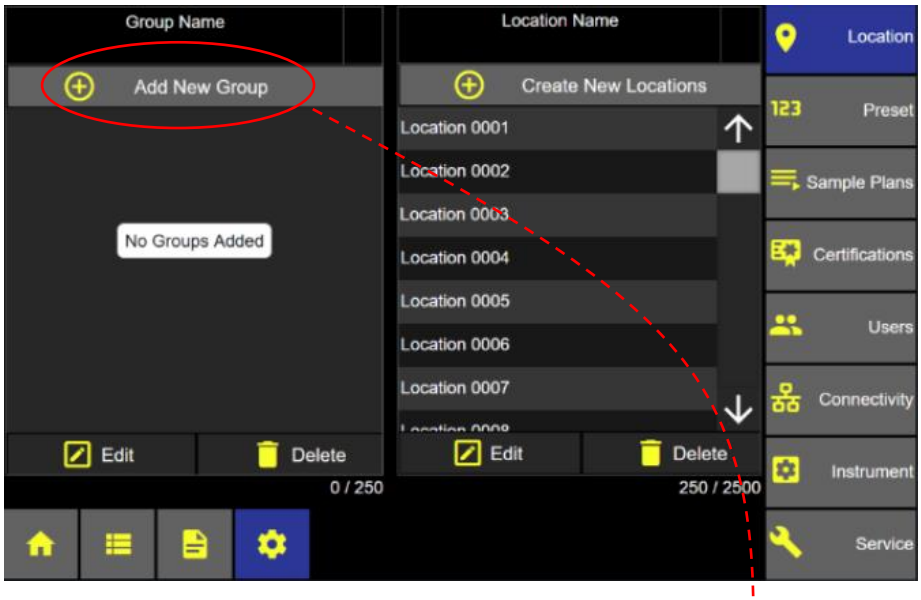


Confirm Delete Location

Add a New Group

Groups may be created, and locations may be assigned to groups. Multiple locations may be assigned to a group, but a single location may only be assigned to one group. Group names can be customized.

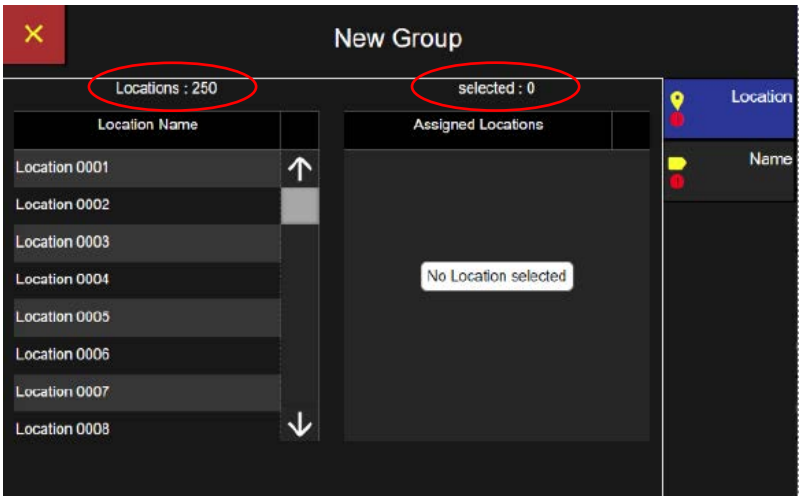
- Press the PLUS Add New Group button to add a new Group.



Groups and Locations

The New Group screen displays a list of all the locations available to be assigned to the new group.

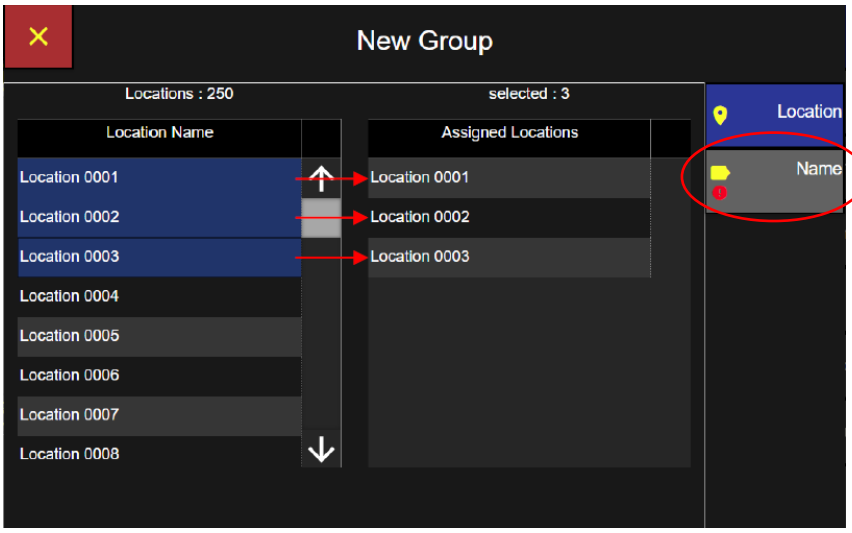
- Total locations available.
- Total locations selected.
- ApexZ can store up to 250 Group names.
- At least 1 location must be assigned to a Group.
- A location may only be assigned to one Group.



Adding New Group

Assigning Locations to a new Group

- Select each location to be included in the Group.
- Selected locations will highlight blue indicating they are assigned to the new group, and they will display on the Assigned Locations list to the right.
- Select the Name tab to display the Enter Group Name screen.

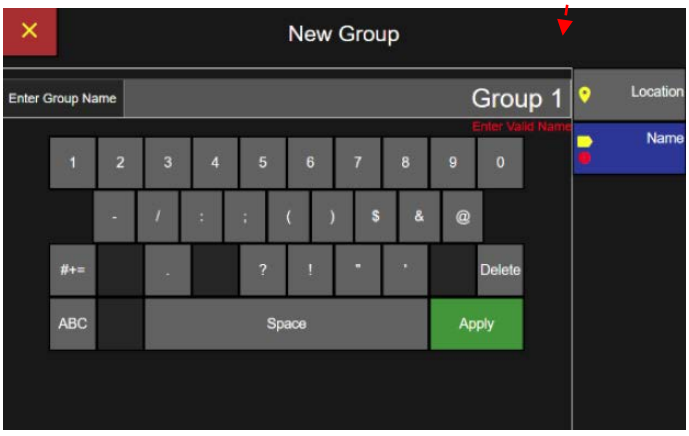


Selecting and Assigning Locations to the New Group

Group Name

Use the keypad to enter the Group name. The Name can have a maximum of 64 characters.

- Press the green Apply button to apply the Group name.
- Press the green Save button to save and return to the Location/Group list. *The green Save button only appears after a name has been entered and the Apply button has been pressed.*

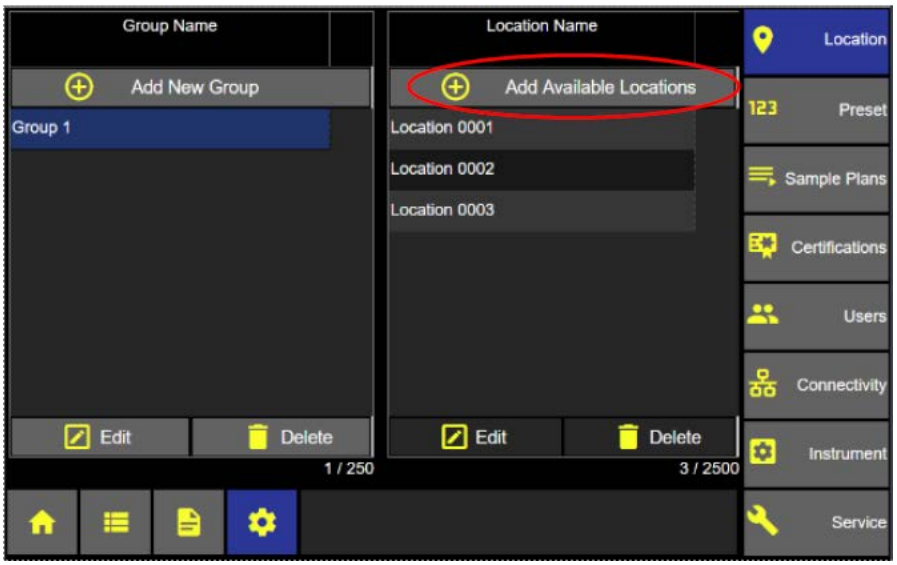


Enter Group Name

Group Selected

When a Group name is selected it will highlight blue, and the locations assigned to that group will be displayed in the Location Name list.

- The Add Available Locations button will be available to add more locations to the Group.

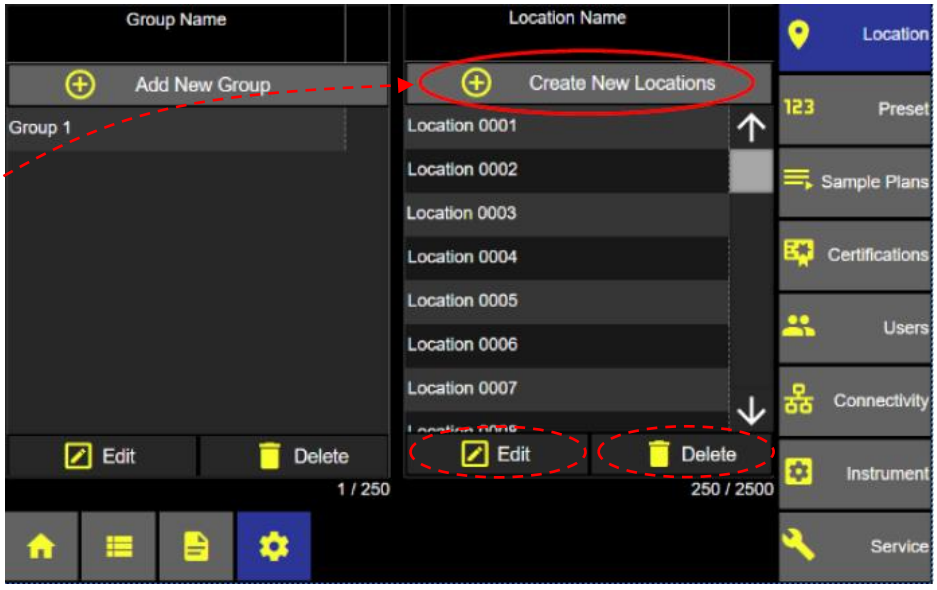


Group Selected – Assigned Locations Displayed

No Group Selected

When no Group Name is selected then all Locations will be displayed, available to Edit or Delete.

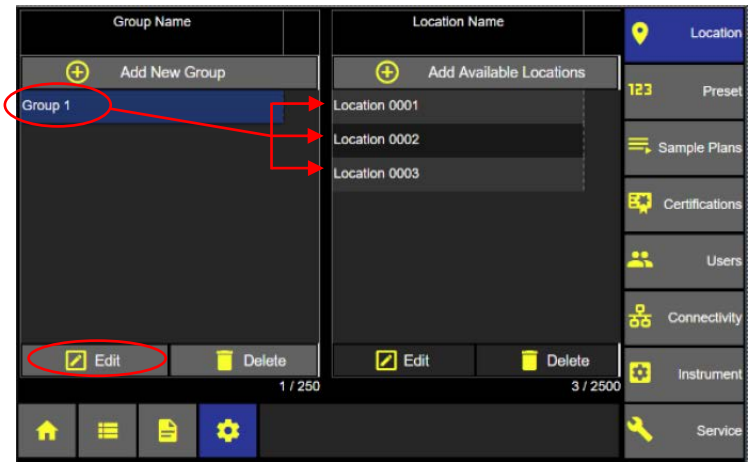
- The "Add Available Locations" button will change to a "Create New Locations" button and allow the user to create new locations in addition to Edit or Delete locations.



No Group Selected – All Locations Displayed

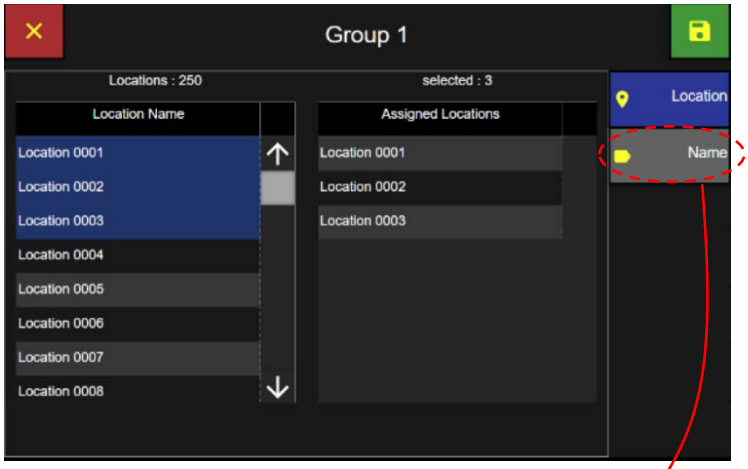
Edit a Group

- Select a Group Name and it will highlight blue and display all assigned locations.
- Press the Edit button below the group name list and the Edit Group screen will display.



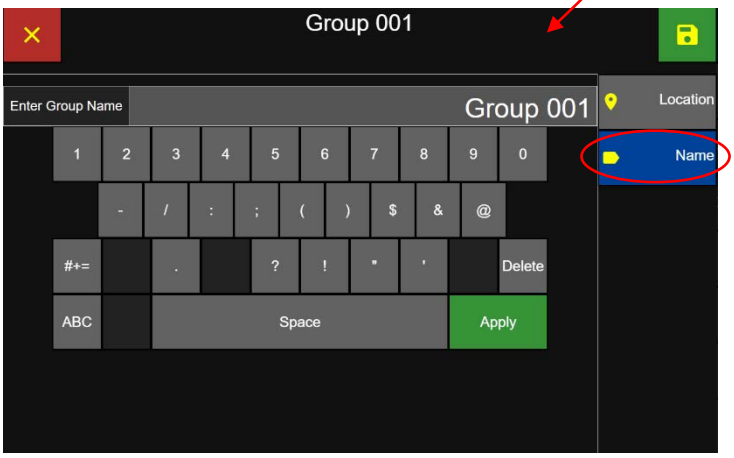
Locations and Groups Screen

- Select additional locations to add or remove.
- Selected locations appear highlighted blue and displayed on the Assigned Locations list.
- Remove a location from the group by deselecting the highlighted location from the location name list. The location will be removed from the Assigned Locations list for this Group.



Edit Group Locations

- Select Name tab to edit Group Name.
- Edit the Group Name with the keypad.

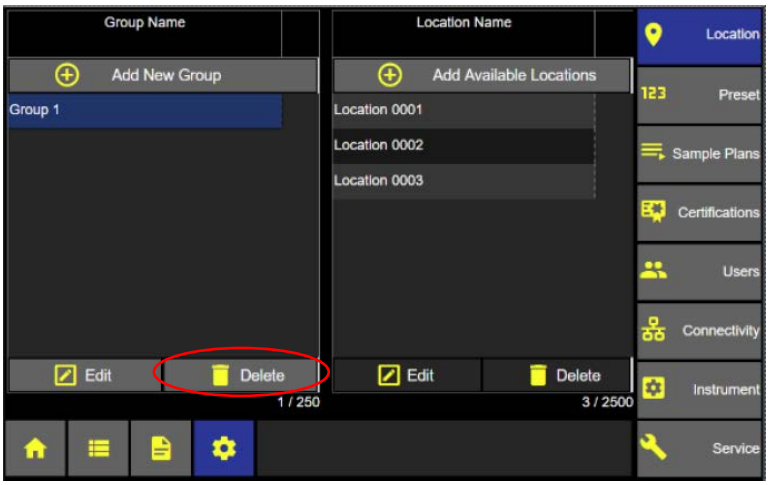


Enter Group Name

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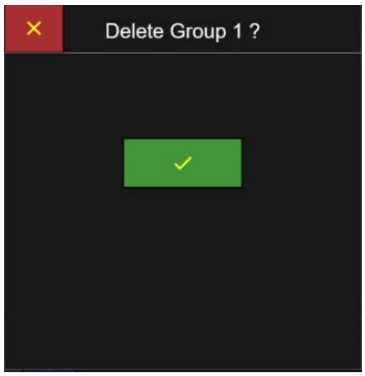
Delete a Group

- Select a Group Name and it will highlight blue and display all assigned locations.
- Press the Delete button below the Group Name list.
- The Delete Group confirmation screen will appear.



Locations and Group Screen

- Press the green check button to delete the selected group.
- Or press the red X button to cancel and no delete.
- When a Group is deleted, associated locations will become available for another Group.



Delete Group

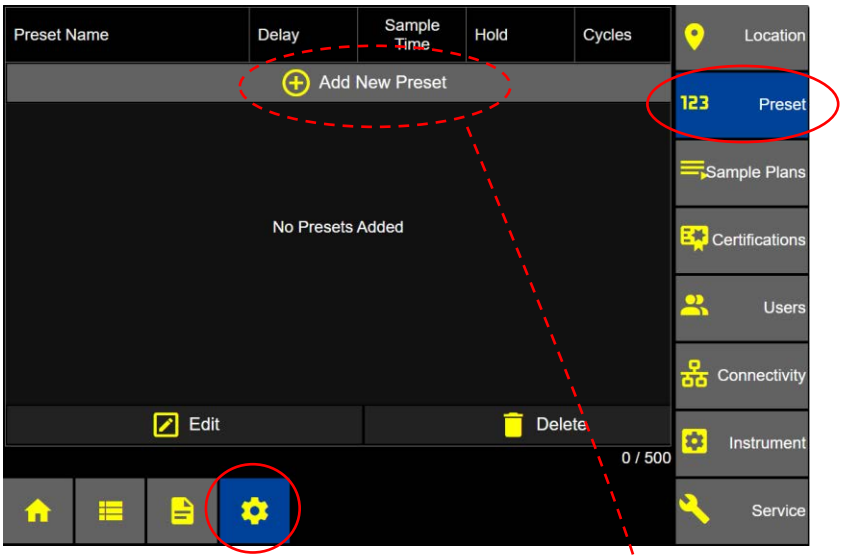
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Blank Page

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Presets

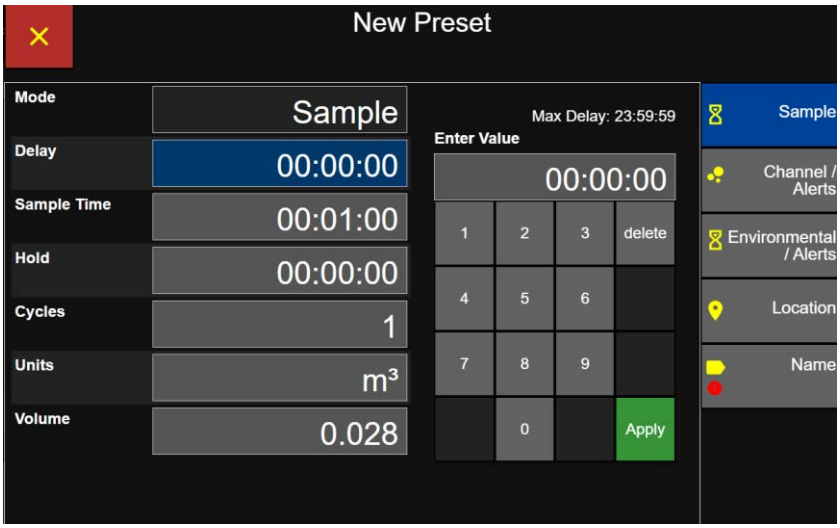
Sample setting parameters can be saved and named as Presets. Presets can then be assigned to locations. Locations linked to Presets will be bound by the sample parameters saved in the Preset. Up to 500 Presets can be added, edited, or deleted.



Preset Screen

Add a Preset

- From the Home screen press the Settings button.
- From the Settings screen press the Preset button.
- From the Preset screen press the Add New Preset button.



Preset Sample Settings

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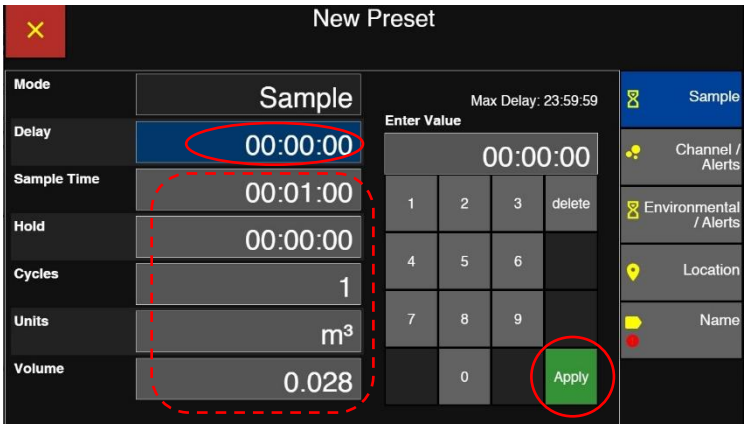
Enter Preset Sample Settings

Delay Time

- Select the Delay button and enter the delay time using the keypad and press the green Apply button.

Sample Time

- Select the Sample Time button and enter the sample time using the keypad and press the green Apply button.



Preset Sample Settings

Hold Time

- Select the Hold button and enter the hold time using the keypad and press the green Apply button.

Cycles

- Select the Cycles button and enter the number of Cycles using the keypad (min 1, max 999) and press the green Apply button.

Units

- Select the Units button and select the units ft3 (cubic feet), m3 (cubic meters), or L(liters)

Volume

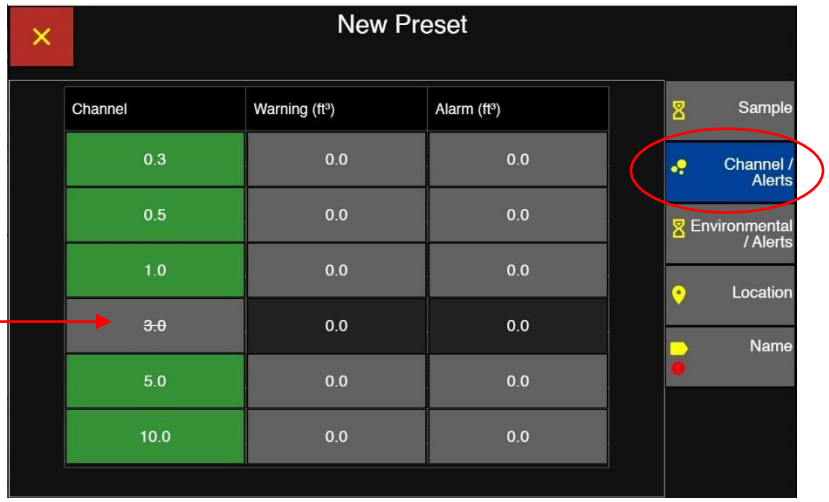
- Select the Volume button and enter the sample volume with the keypad and press the green Apply button. Note that changing the sample volume will adjust the sample time accordingly. Vice-versa, changing the Sample time will change the sample volume accordingly.
- Next Press the Channel/Alerts button to enable channels, warnings, and alarms.

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Edit Channel

Disable a Channel

- Press the Channel/Alerts button to enable channels, warning, and alarms.
- Press the green colored channel size button to disable that channel. It will turn grey with strike-out text. That channel will not be included in this Preset Sample Setting.



Preset Channel/Alerts Screen

Enter Warning/Alarm Settings

- Press a warning button for any channel size and it will display the Enable and Enter Warning Screen.
- Press an alarm button for any channel size and it will display the Enable/Enter Alarm Screen.

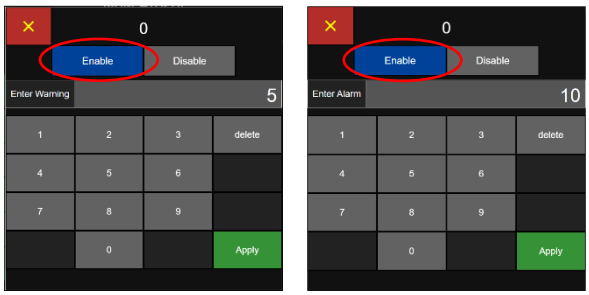
NOTE: *If Global Channels are enabled then channel enabled/disabled status may not be edited here. See Settings-Instrument-Options-Channel.*



Preset Warning and Alarm Settings

- Press the Enable button and it will highlight blue indicating the Warning or Alarm has been enabled.
- Enter a particle count value with the keypad and press the green Apply button to save that warning or alarm level to this Preset.

NOTE: *The preset warning button will display orange, and the Alarm preset button will display red when enabled.*



Enable/Enter Warning/Alarms

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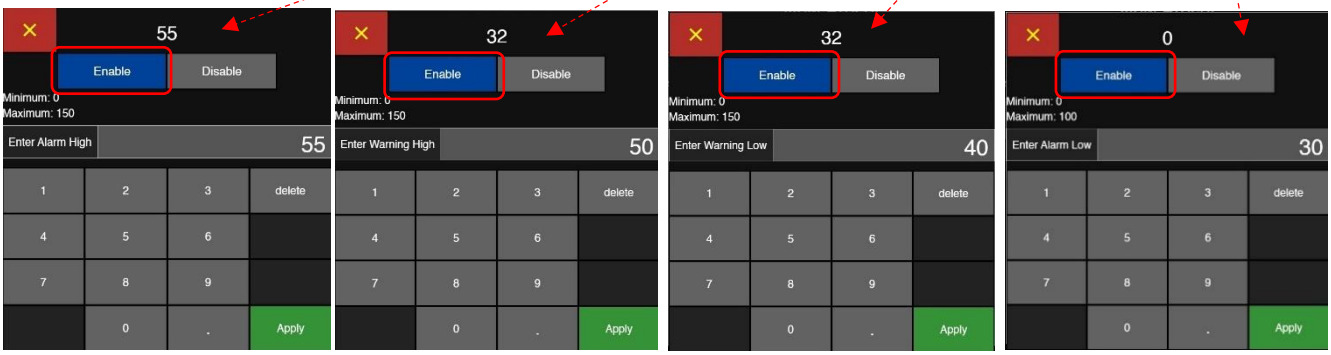
Environmental Alerts

Choose Temperature Units

- Press to select either Celsius (°C) or Fahrenheit (°F). The ApexZ will automatically convert the values within the Alert boxes.

Environmental Alert Settings





Alarm High | Warning High | Warning Low | Alarm Low

Set Temperature Alert Values

- Press each Alarm/Warning button to bring up the input keyboard. Choose Enable or Disable for the Alert, enter a value (within the range indicated, negative values if Celsius is set) and press the Apply button.
- Repeat the action for the Warning High, Warning Low, Alarm Low values.

Set Relative Humidity Alert Values

- Press the Alarm High button for the input keyboard.
- Press Enable or Disable .
- Enter a value (0-100%) and press the Apply button.
- Repeat the action for the Warning High, Warning Low, Alarm Low values.



Environmental Alert Settings

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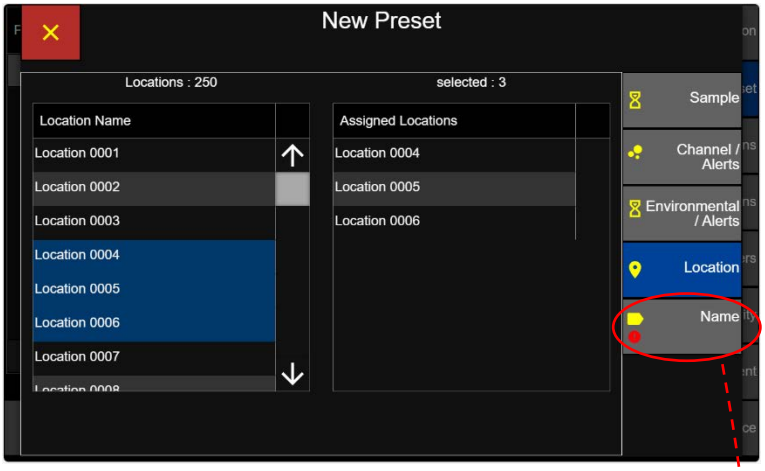
Locations

Assign Locations to the New Preset

A preset can be assigned to multiple locations.

Select Location

- Select location name(s) from the Location Name list and they will highlight blue and display on the Assigned Locations list.
- Multiple locations may be selected and assigned to the same preset at the same time. The Preset can also be created with no locations selected.



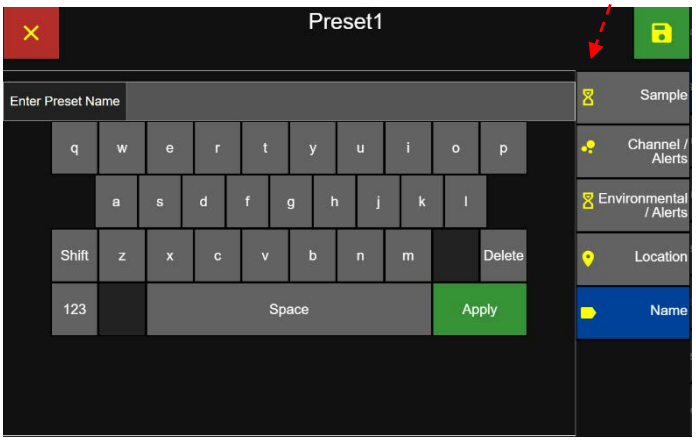
Assign Locations to New Preset

- To remove a location, press the location name again and it will un-highlight and be removed from the assigned locations for that Preset.
- Press the Name button to display the Preset Name Screen.

Preset Name

Use the keypad to enter the Preset Name.

- Press the green Apply button.
- You can press any one of the Sample, Channel/Alerts, Environmental Alerts, Location, or Name buttons and review any Preset settings.
- Press the green Save button to save the Preset.

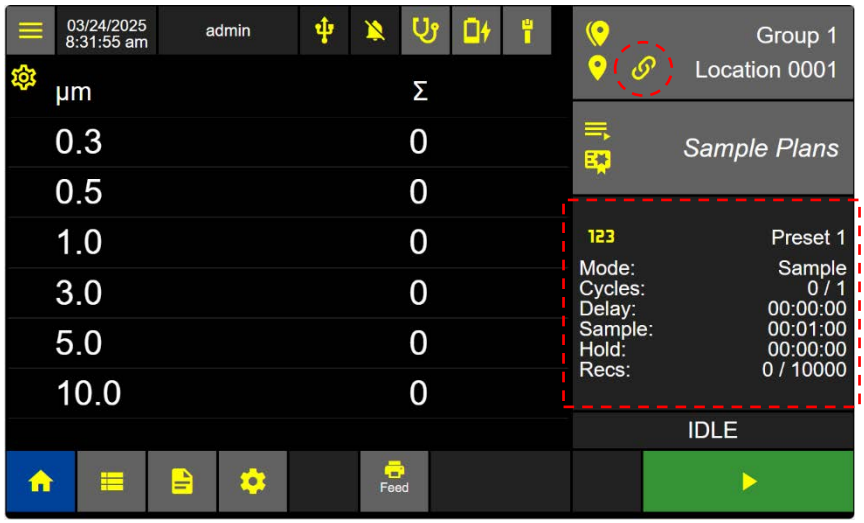


Preset Name Screen

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Locations linked to Presets

When a Preset has been assigned to a location then a linked icon will appear before the location name on the Home screen. The link icon indicates the location is linked to a Preset sample setting.



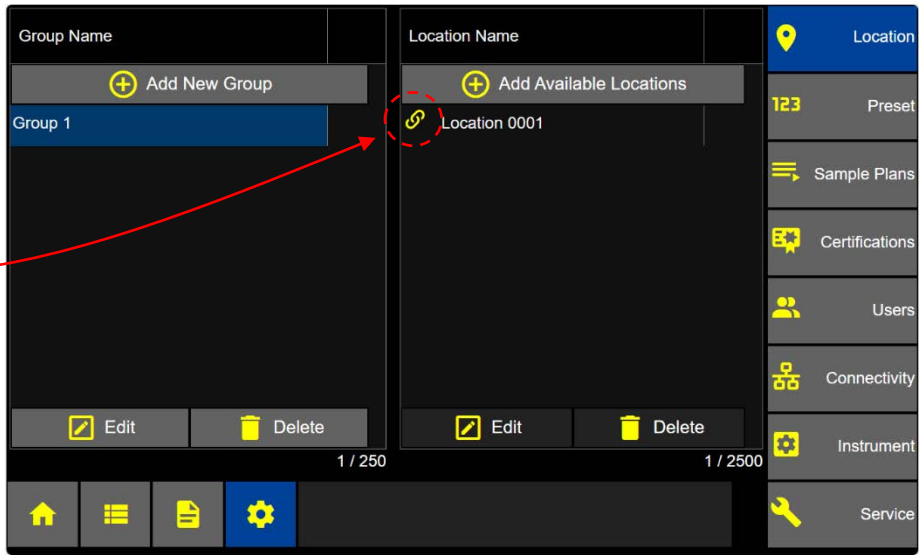
Home Screen

The Preset sample setting will be displayed and locked.

When a location is linked to a Preset, then Manual Sample is not available for that location.

Linked Icon

Presets assigned to locations will display the linked icon on the Group/Locations configuration screen.



Groups and Locations Screen

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Sample Plans

Sample Plans are a collection of Locations with custom sample settings assigned to each location. Recipes (supported in previous versions of ApexZ instruments) were a collection of locations with the same sample settings used at each location. Sample Plans can act as Recipes did, but they can also, in addition, assign different sample settings to each location, either via a Preset or manually.

- From the Home screen press the Settings button to display the Settings screen.

- Press the Sample Plans button to display the Sample Plan screen.

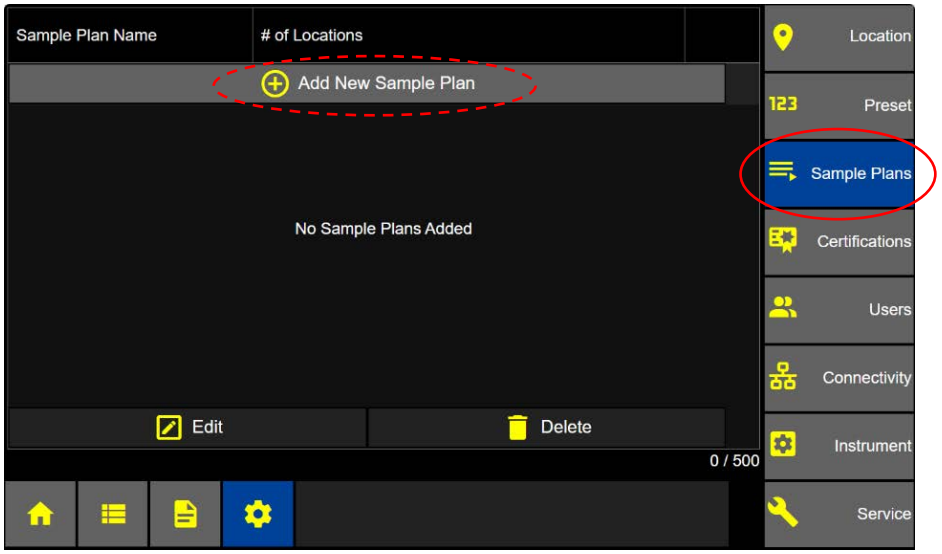


Home Screen

Add New Sample Plan

- Press the Add New Sample Plan button to display the New Sample Plan screen.

  A maximum of 500 Sample Plans can be created.

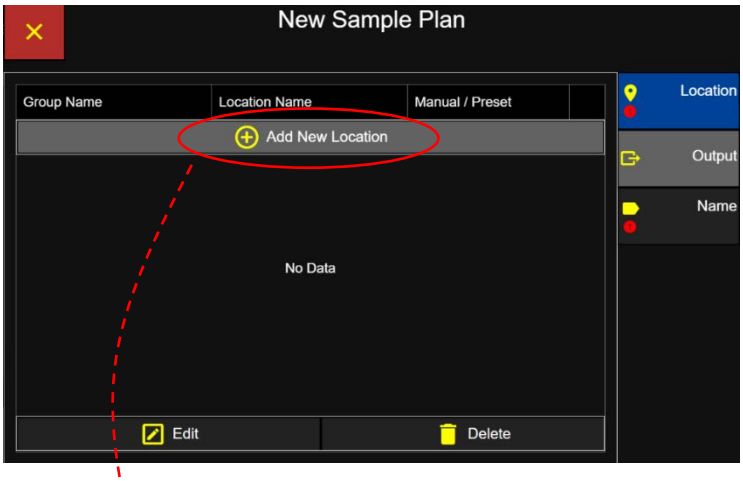


Settings – Sample Plans screen

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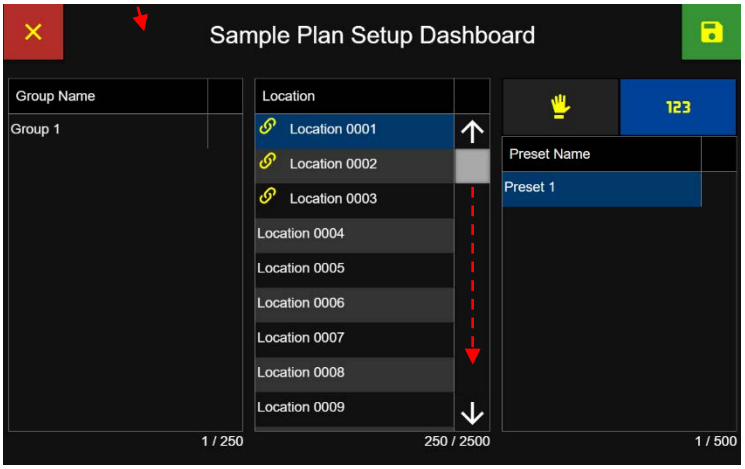
Add New Location to New Sample Plan

- Press the Add New Location button to display the Sample Plan setup dashboard.



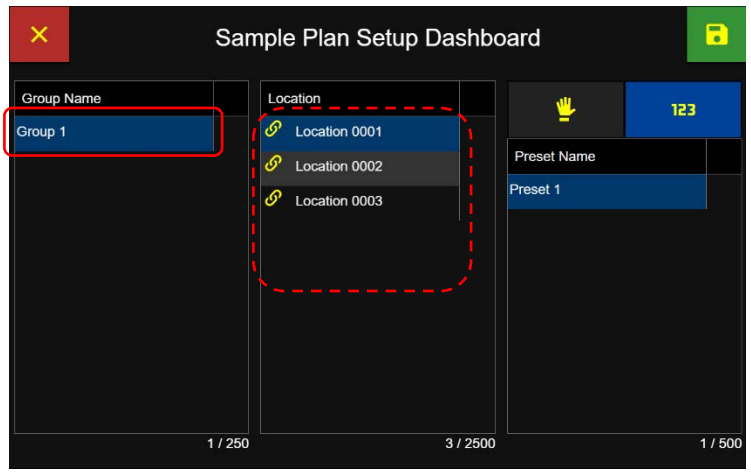
New Sample Plan screen

If no group is selected, then all locations will display and be selectable**. If a selected location is linked to a preset**, then the Preset button will highlight blue and the manual sample settings button will become disabled. The preset name linked to the location will appear in the Preset Name list.



Sample Plan Dashboard – No Group Selected

- **Select a Group name** and only those locations assigned to that group will display.



Sample Plan Setup Dashboard – Group Name Selected

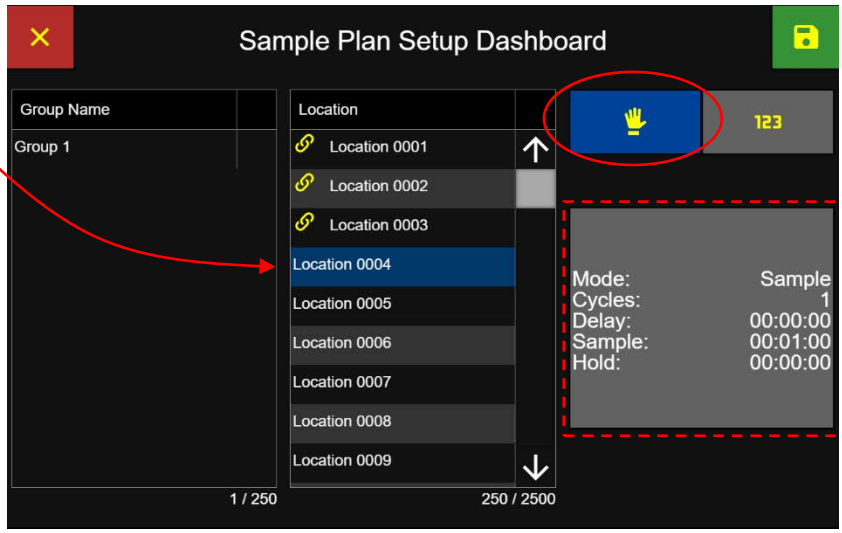
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Select Locations for Sample Plans

- Select a Location from the list and it will highlight blue indicating it has been selected.

Manual Sample Settings

- Click on the Manual Sample icon/button and it will highlight blue indicating it has been selected.
- Click on the Manual Sample Settings button to display the Manual Sample Settings screen.



Sample Plan Setup Dashboard

Delay Time

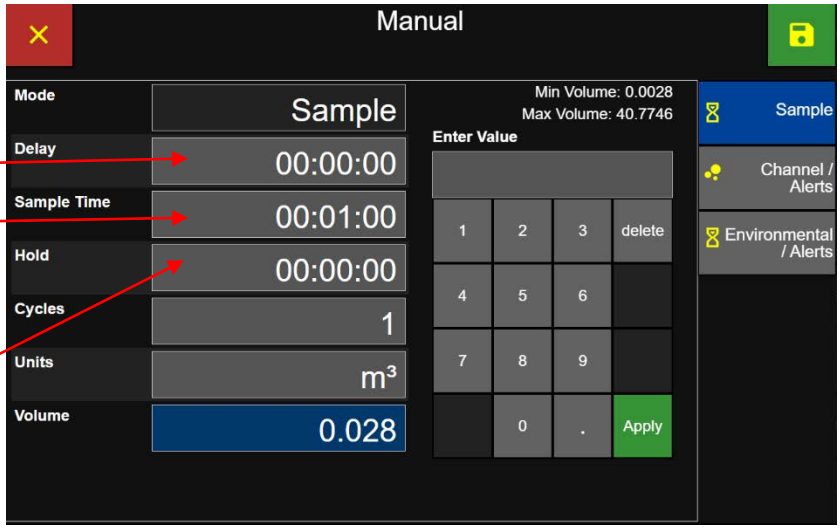
- Select the Delay button and enter the delay time using the keypad and press the green Apply button.

Sample Time

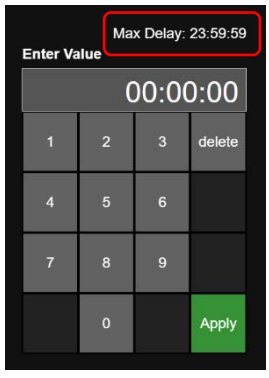
- Select the Sample Time button, enter sample time, press the green Apply button.

Hold Time

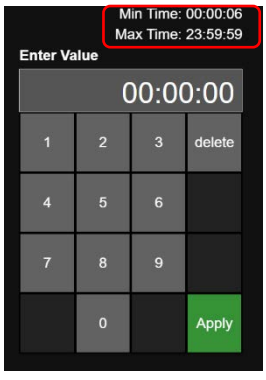
- Select the Hold button and enter the hold time, press the green Apply button.



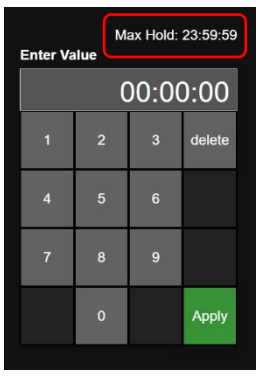
Sample Plan Manual Sample Settings



Max Delay Time



Min-Max Sample Time



Max Hold Time

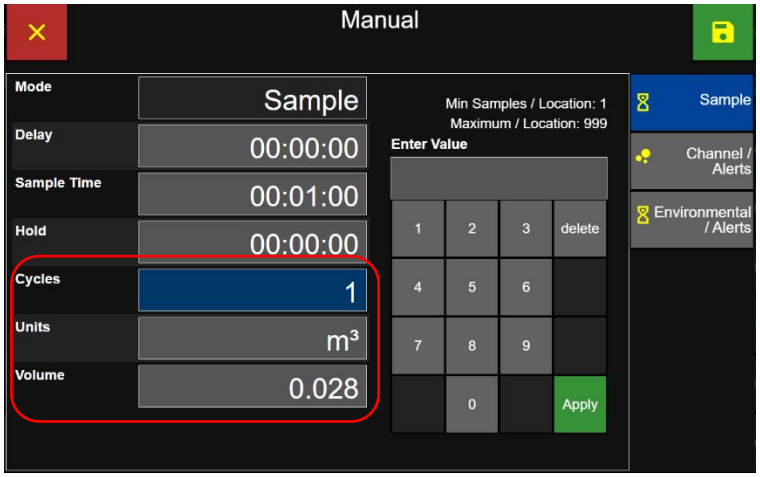
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Cycles

- Select the **Cycles** button and enter the number of cycles using the keypad and press the green Apply button.

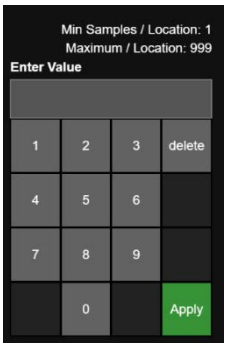
Units

- Select the **Units** button and select units ft^3 (cubic feet), m^3 (cubic meters), or L (liters).

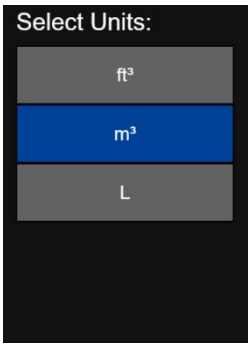


Volume

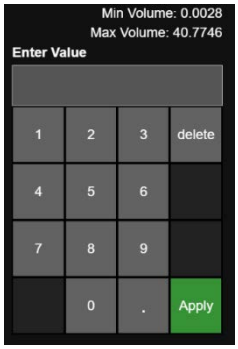
- Select the **Volume** button and enter the sample volume and press the green Apply button.



Number of Cycles

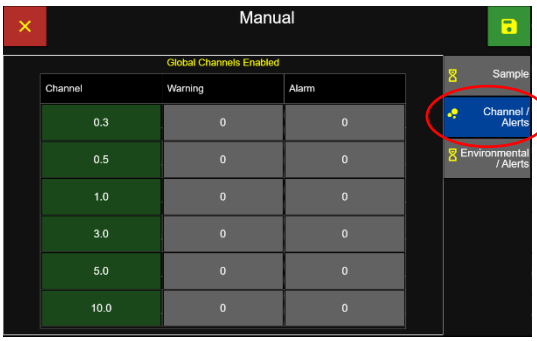


Units of Volume



Volume

- Press the Channel/Alerts button to display the Channel Warning/Alarm input screen.



Enable/Disable Channel Sizes

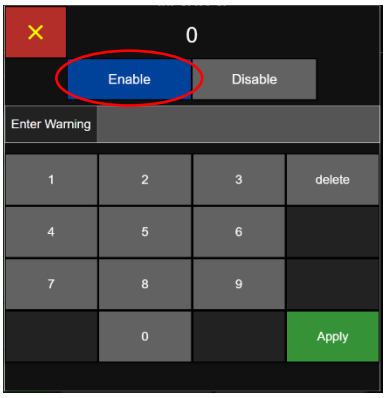
- Each particle size channel can be enabled (green) or disabled (grey)/ If a particle size channel is disabled, then no data will be reported on that particle size channel.

- If Lock Global Channels is enabled, then all channels are locked. Additional channels may not be enabled or disabled. See the Setting -Instrument – Options – Channel screen to change Global Channel settings.

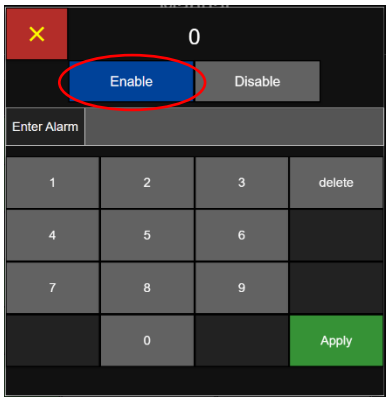


Enter Warning/Alarm Thresholds

- Press a Warning or Alarm threshold button to enter particle count threshold values for that particle channel size.
- Press the Enable button to enable the threshold setting, or press the Disable button to disable the threshold.



Warning Threshold



Alarm Threshold

- Enter the Warning/Alarm threshold particle count values
- Press the green Apply button.

Red button color indicates the channel Alarm threshold is enabled.

Orange button color indicates the channel Warning threshold is enabled.

Dark Grey button color indicates threshold is disabled.

Light Grey – threshold disabled.

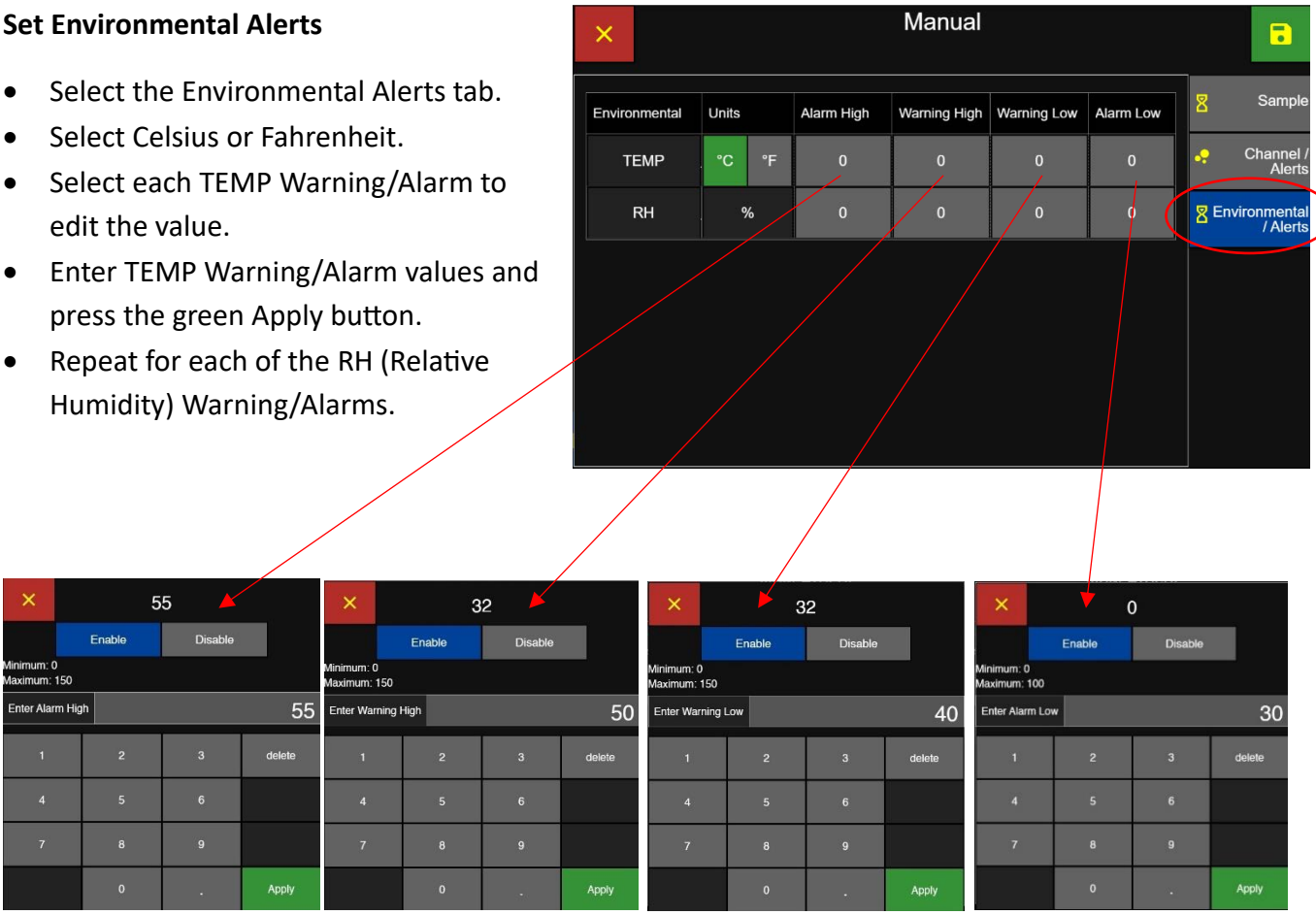


Manual Sample Plan – Channel Warning/Alarms

- Press the green Save button to save the Manual Sample settings to the highlighted location and redisplay the Sample Plan Setup Dashboard.

Set Environmental Alerts

- Select the Environmental Alerts tab.
- Select Celsius or Fahrenheit.
- Select each TEMP Warning/Alarm to edit the value.
- Enter TEMP Warning/Alarm values and press the green Apply button.
- Repeat for each of the RH (Relative Humidity) Warning/Alarms.



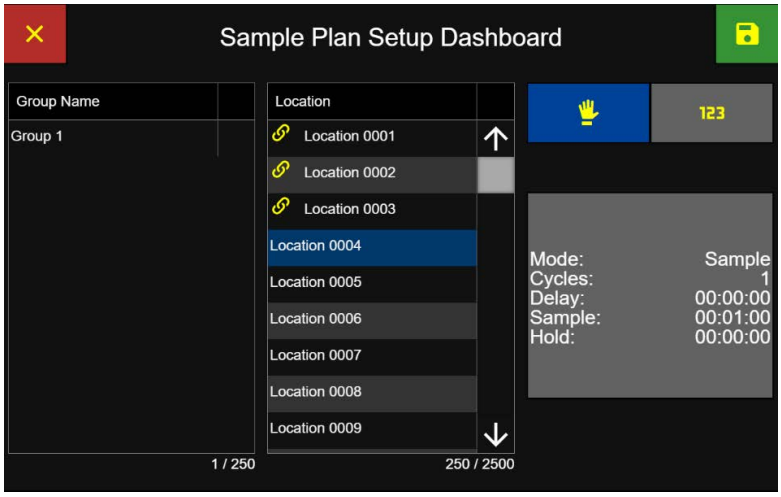
Temperature and Humidity Warning/Alarm Settings

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Add locations with settings to the Sample Plan

- Press the green Save button to save the highlighted location and manual settings to the Sample Plan.

- Repeat to add additional locations with Manual or Preset sample settings.



Manual Sample Dashboard

Preset – Sample Settings

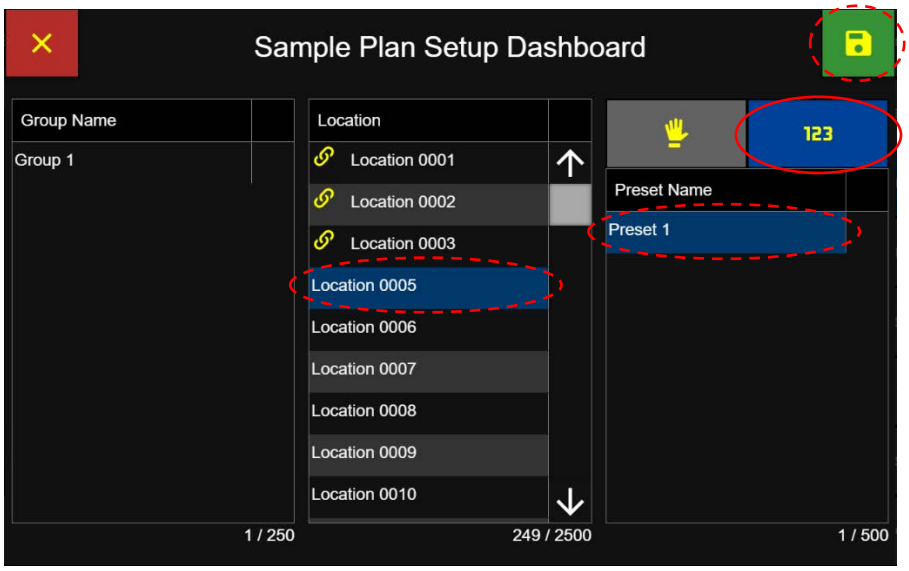
Preset sample settings can be assigned to locations in a Sample Plan.

- Press the Preset button and it will highlight blue indicating it has been selected.
- Select a location and it will highlight blue indicating selected.
- Select a Preset Name and it will highlight blue indicating it has been selected.
- Press the green Save button to save the location with the Sample Plan.

Note: If a location is linked to a preset, then the user will only be able to use that preset sample settings at that location.

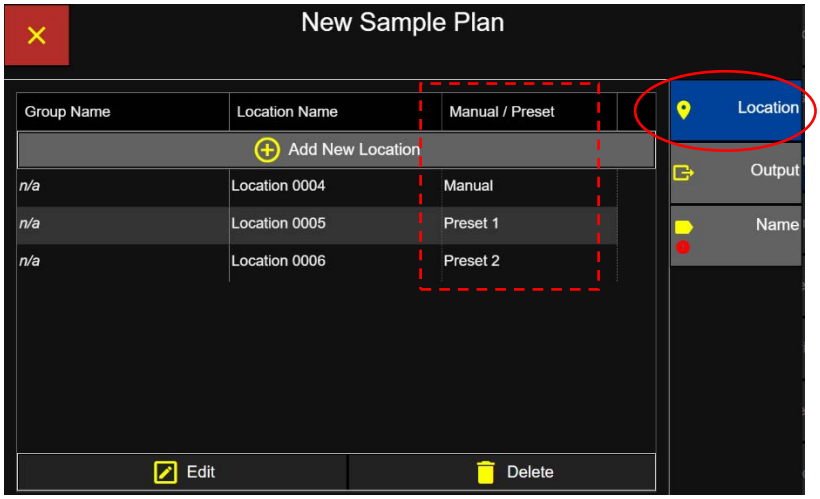
If a location is not linked to a preset, then the user can choose any preset or set up manual sample settings.

If the location selected already has a Preset assigned to it then only that preset name will be listed on the preset name list. This is because a location may be assigned only 1 preset setting.



Sample Plan Settings – Assigning location to a Preset

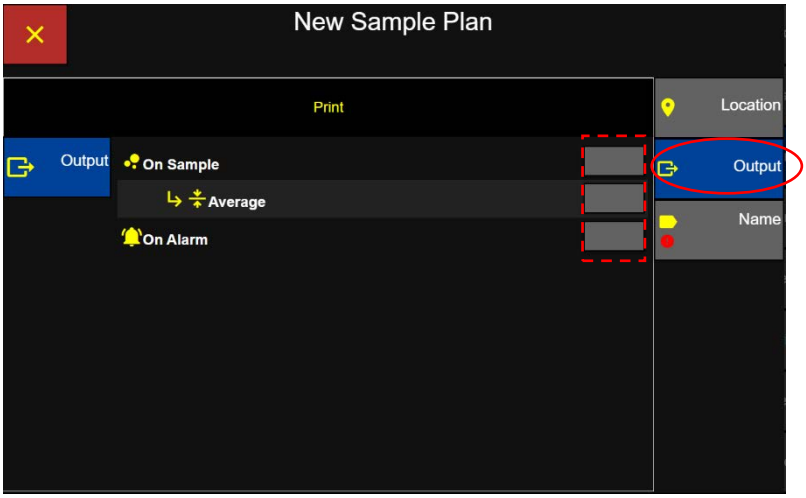
- In this example the first location has Manual Sample Settings and the next two locations have Preset Sample Settings.



Sample Plan with 3 locations assigned

Output

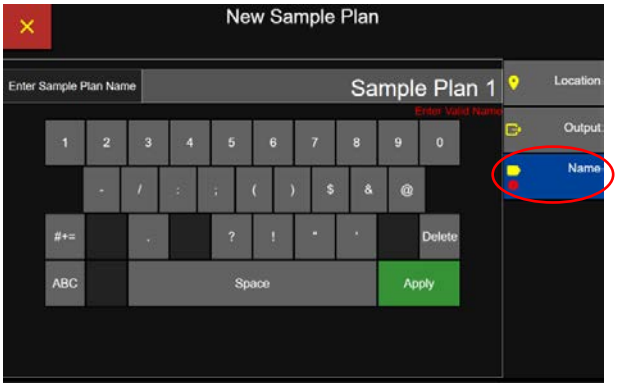
- Press the **Output** button to display the Print Output Options
- Enable **On-Sample** to print after each sample has been completed.
- Enable **Average** to print the Average counts after each sample is completed.
- Enable **On-Alarm** to print after each alarm.



Sample Plan Output Print Options

Sample Plan Name

- Press the Name tab to display the Sample Plan Name screen.
- Enter Sample Plan Name using the keypad, maximum 64 characters.
- Press the green Apply button to apply the sample plan name.

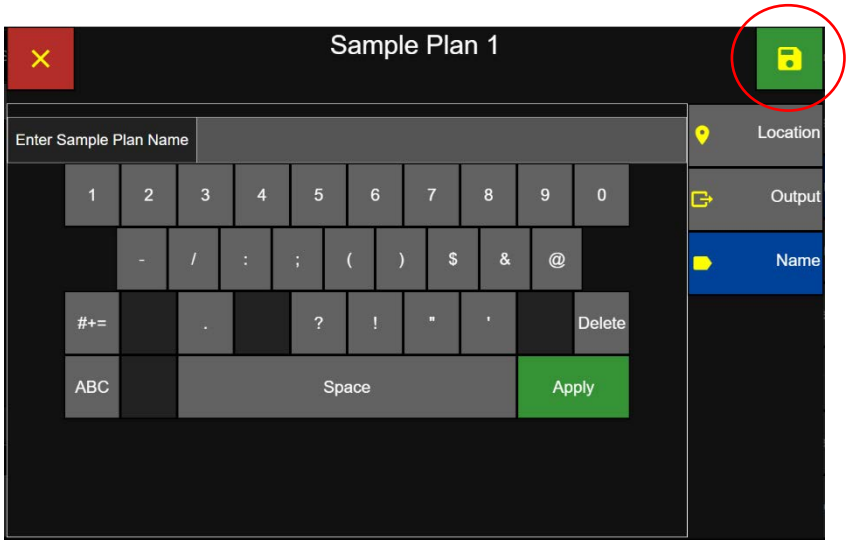


Sample Plan Name Screen

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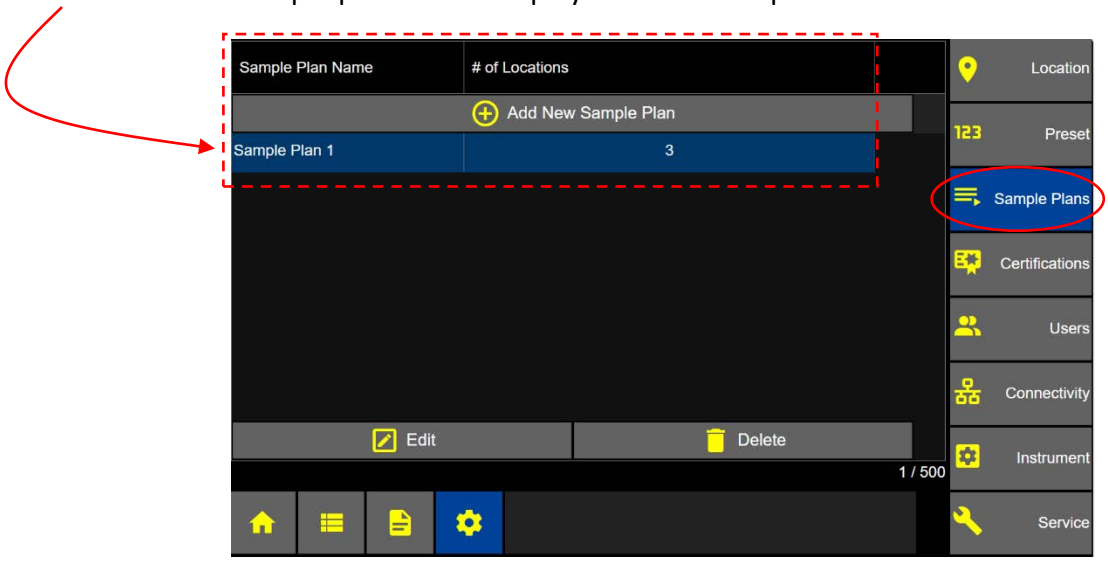
Save the Sample Plan

- Press the green Save button to save the new sample plan.



Save Sample Plan

- The new sample plan will be displayed on the Sample Plan screen.

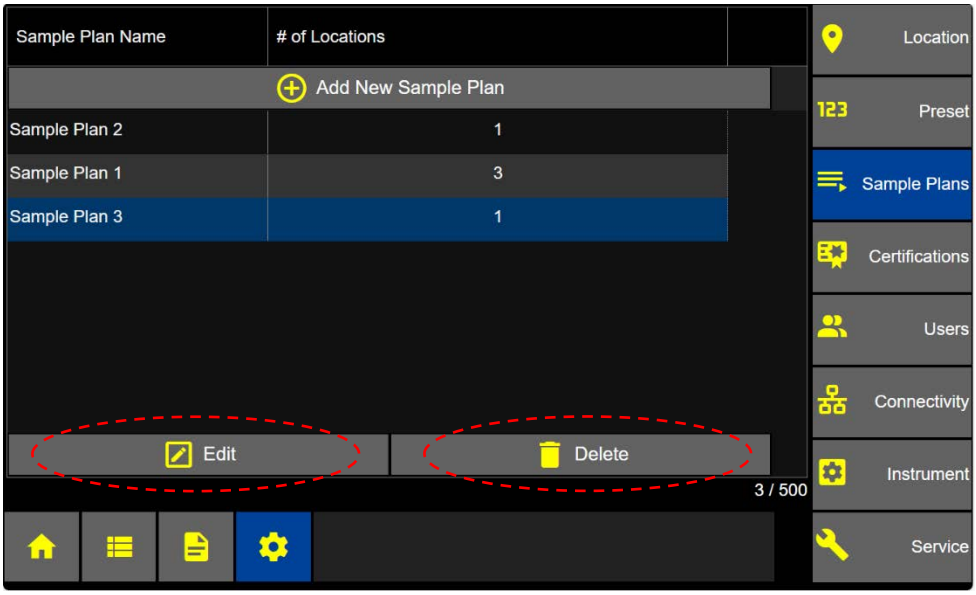


Sample Plans Screen

- The total number of locations included in the sample plan are listed in the **# of Locations** column.

Edit Sample Plan

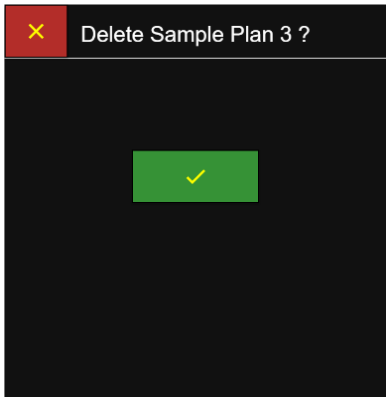
- Select a Sample Plan to edit and it will highlight blue indicating it has been selected.
- Press the Edit button to edit the Sample Plan Settings.
- Edit settings on the Location, Output or Name tabs.



Sample Plans Screen

Delete Sample Plan

- Select a Sample Plan to delete.
- Press the Delete button and the Delete Confirm screen will display.
- Press the green check box to confirm deleting the selected Sample Plan or press the red X button to cancel.

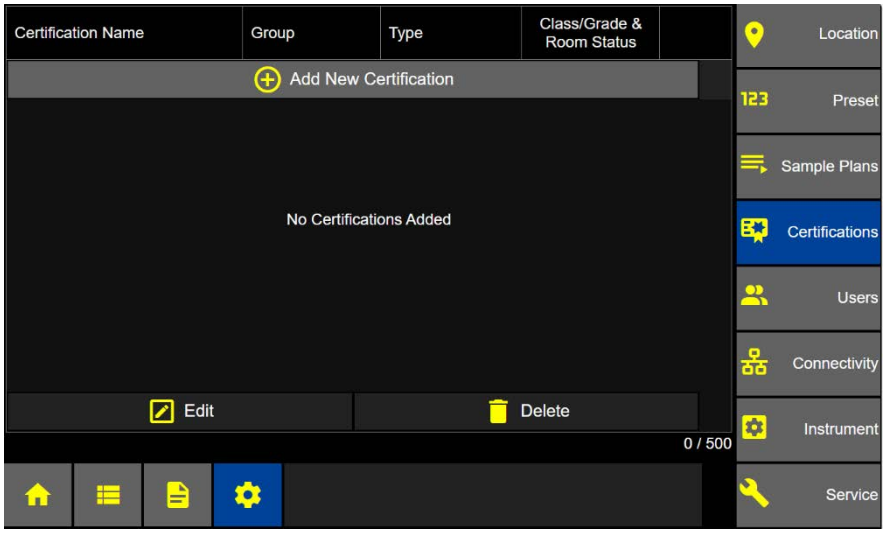


Confirm Delete Sample Plan

Certifications

Add a Certification

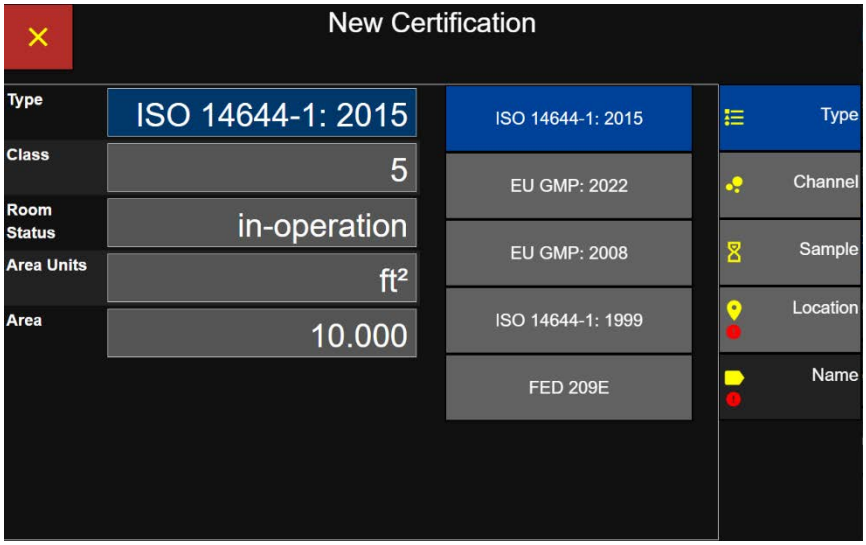
- From the Settings screen press the Certifications button to display the Certifications screen.
- Select the + Add New Certification button to display the New Certification settings screen.



Settings – Certifications

Certification Types

- Select the Certification Type
  ISO 14644-1:2015
  EU GMP: 2022
  EU GMP: 2008
  ISO 14644-1:1999
  FED 209E

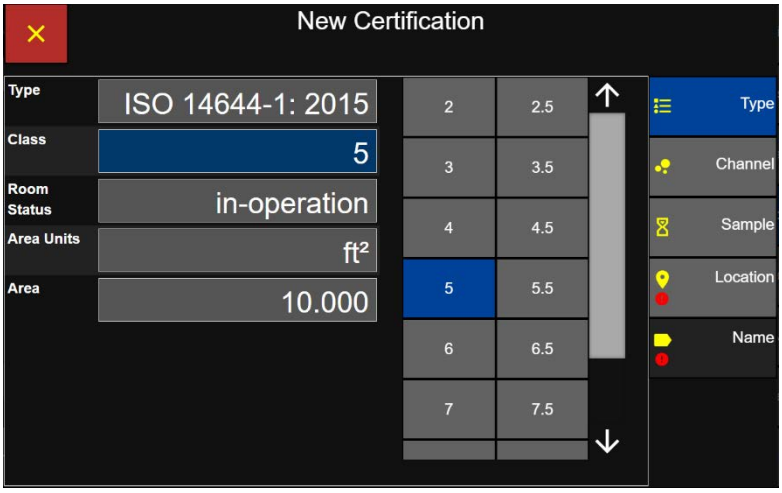


New Certification Settings Screen

Class

- Select the cleanroom Class from the classes/grades available for the certification type selected.
- Certification Classes/Grades will change according to certification type selected.

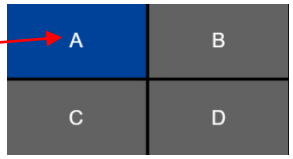
ISO 14644-1: 2015 Classes available: 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0. *(2.0, 2.5 ApexZ3 only.)*



Cleanroom Class/Grades

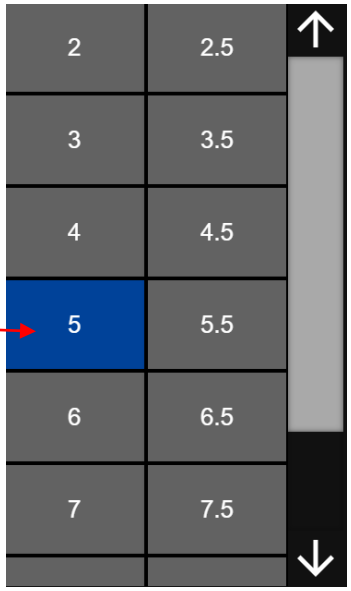
EU GMP: 2008, 2022

Grades: A, B, C, D



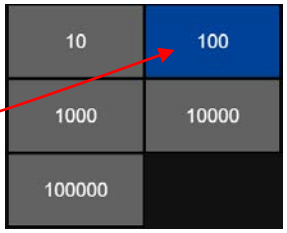
ISO 14644-1: 1999

Classes: 2, 3, 4, 5, 6, 7, 8, 9 *(class 2 ApexZ3 only)*



Federal Standard 209E

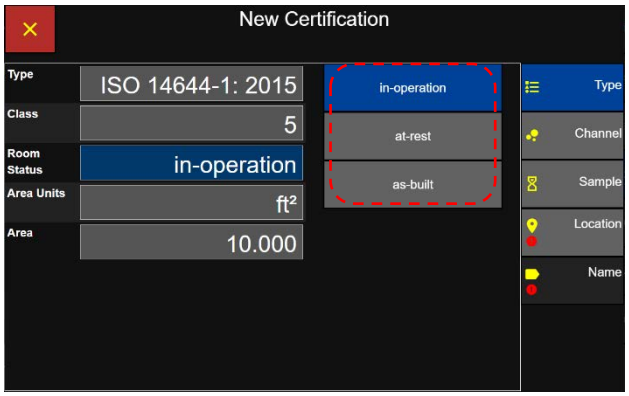
Classes: 10, 100, 1000, 10,000, 100,000



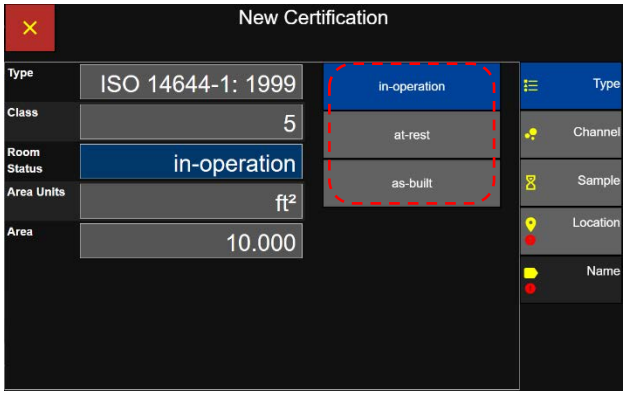
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Room Status

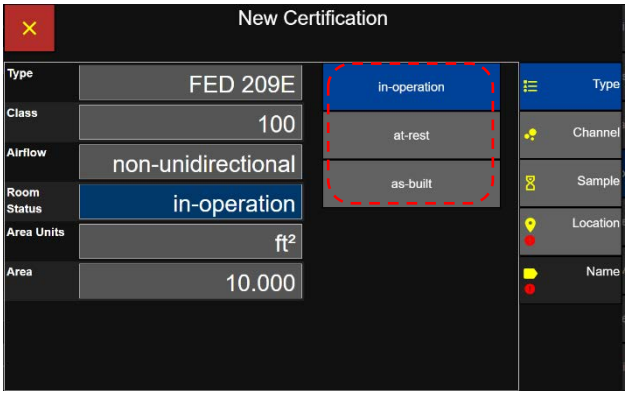
- Select in-operation, at-rest, or as-built and the selected room status will highlight blue indicating it has been selected.
- EU GMP certifications will be limited to Room Status of In-Operation or At-Rest only.



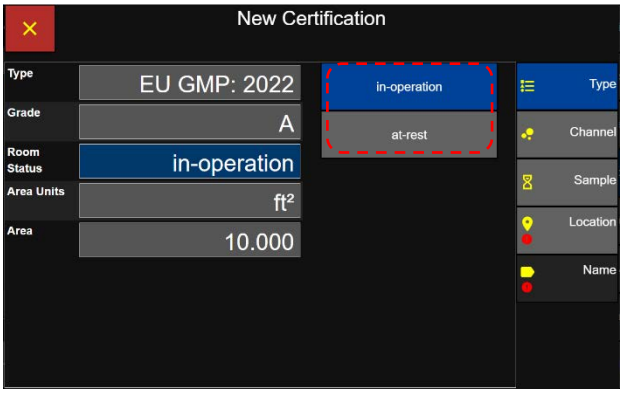
ISO 1464-1: 2015



ISO 14644-1: 1999



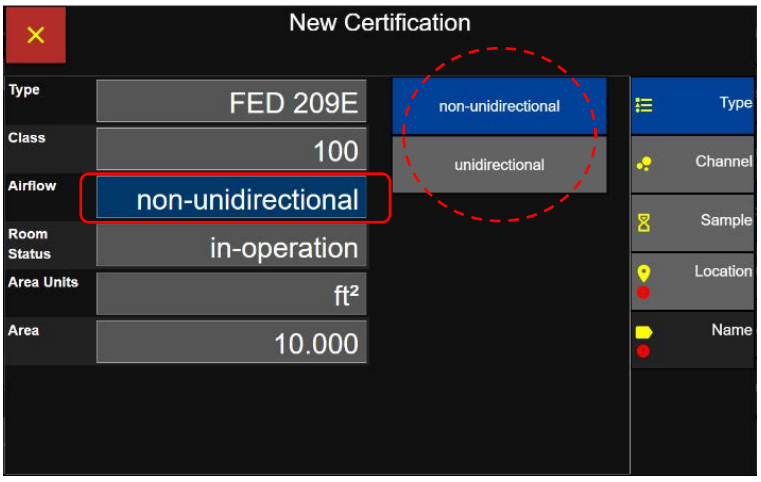
Federal Standard 209E



EU GMP 2008 & EU GMP 2022

Airflow

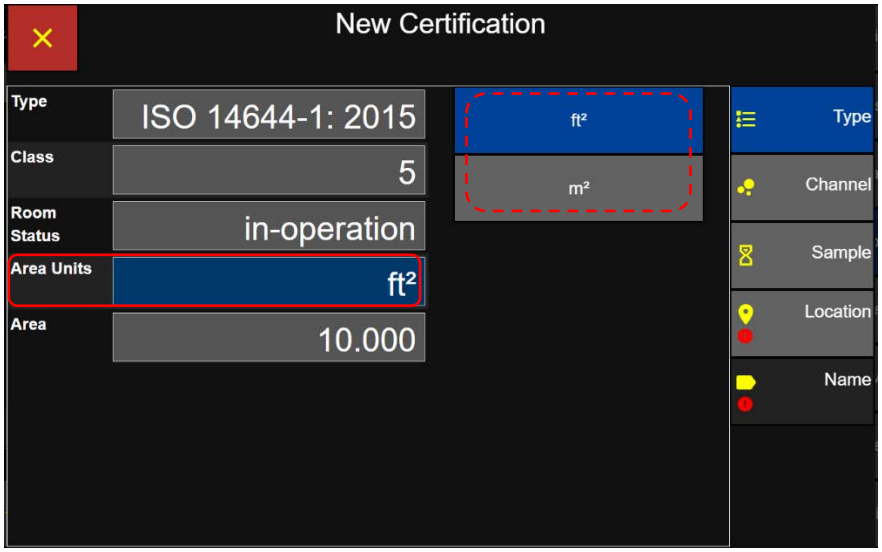
- Federal Standard 209E Certifications, require selecting Airflow as “non-unidirectional” or “unidirectional”.



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Area Units

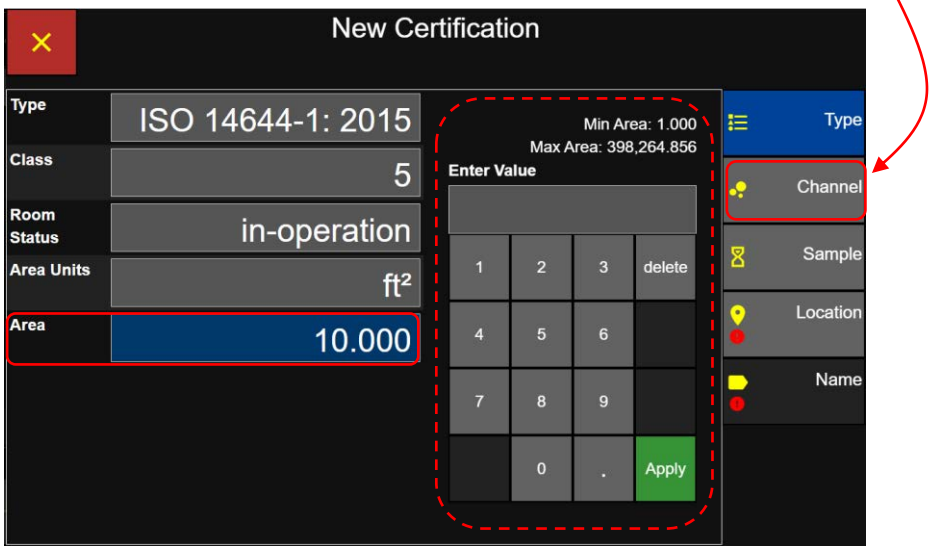
- Press the Area Units button.
- Select the ft^2 or m^2 area units.



Area Units

Area

- Click on the Area button and the numeric keypad will popup.
- Enter the Area value
- Press the green Apply button.
- Press the Channel button to display the New Certification Channels screen.



Area

Channels

Certification channel sizes are limited and locked according to the certification type.

Enabled channels will appear with a green check box.

Disabled channels appear with a red x box.



Certification Channels

- On-screen message “Some allowed channels are not enabled”. In this example the 0.3 µm size particle channel is an allowed channel, but it was disabled. Target Limits are not shown for disabled channels.

The dark grey null set button indicates this channel size is not included in the certification.

The EU GMP: 2022 standard allows users to modify the Target Limit for the 5.0µm channel for Class A (in-operation and at-rest) and Class B (at-rest only), shown by the Target Limit value having a light gray background. The 0.5µm channel cannot be disabled.



When the 5.0 µm channel is disabled, the Target Limit box indicates that the channel must be enabled before the Target Limit can be set.



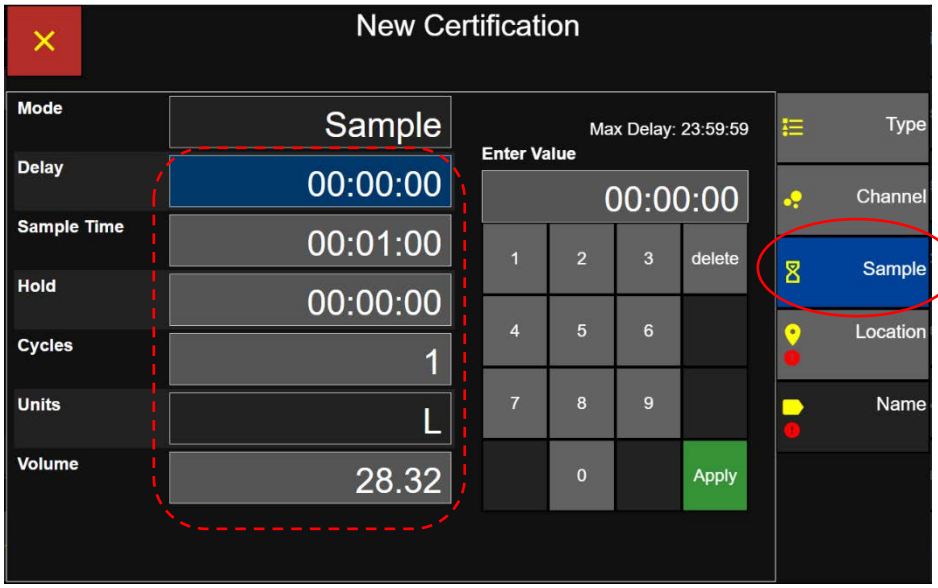
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Sample settings for new certification.

- Press the Sample button to display the new certification sample settings screen.

Delay Time

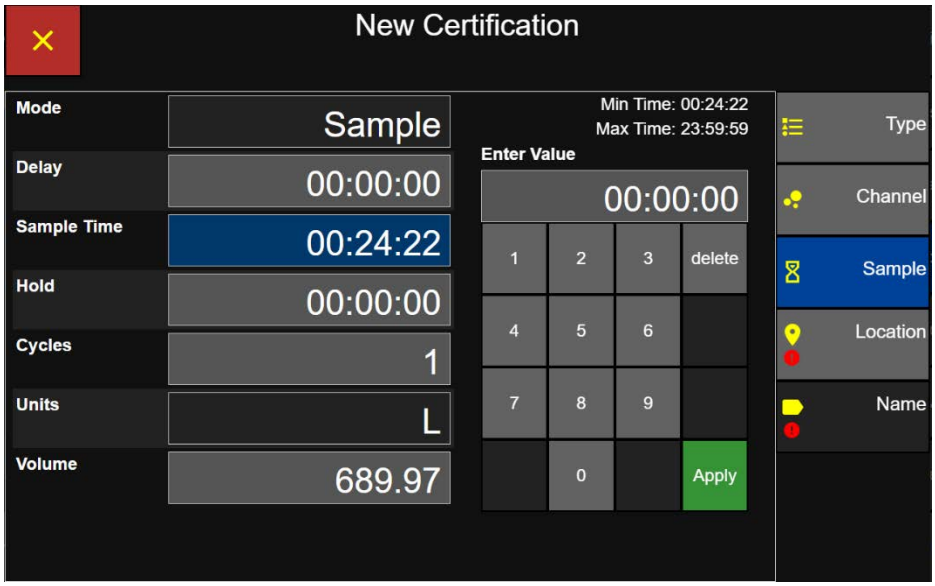
- Select the Delay button and enter the delay time using the keypad and press the green apply button.



Sample Time

Minimum Sample Time is automatically set based on the Certification Type and Channels selected. User can input a longer Sample Time.

Select the Sample Time button. The unit will display the minimum time allowed based on the Certification Type and Channels. To enter a larger Sample Time, use the keypad and press the green Apply button.



The unit will automatically calculate and input the Volume required for the Sample Time selected.

Hold Time

Select the Hold button and enter the hold time using the keypad and press the green Apply button.

Cycles

Select the Cycles button and enter the number of Cycles using the keypad and then press the green Apply button.

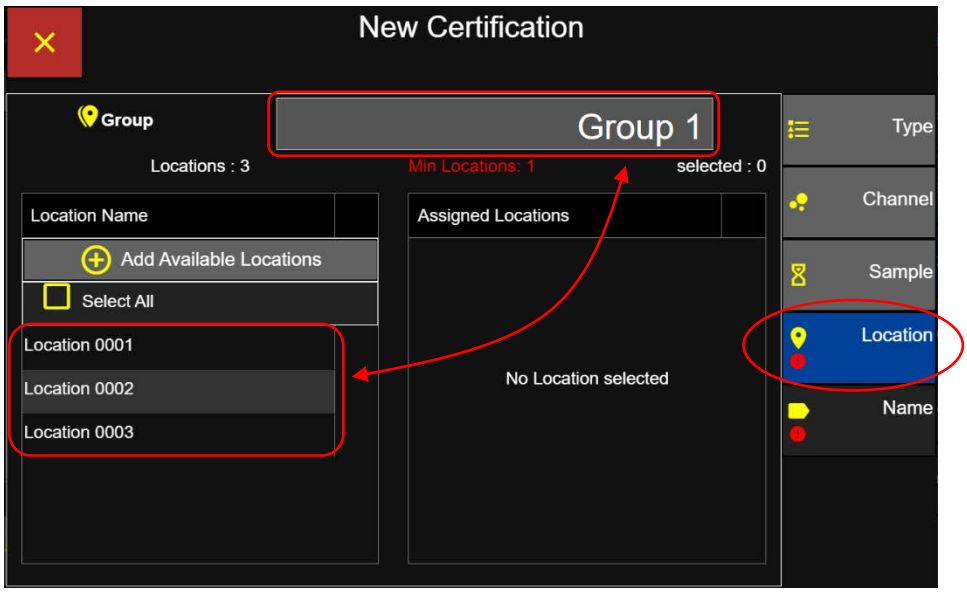
Volume

Once the Sample Time is input, the Volume will be calculated and displayed. If a different Volume value is input, then the Sample Time will be automatically recalculated for the new input Volume. If needed, select the Volume button, and enter the sample volume with the keypad and press the green Apply button.

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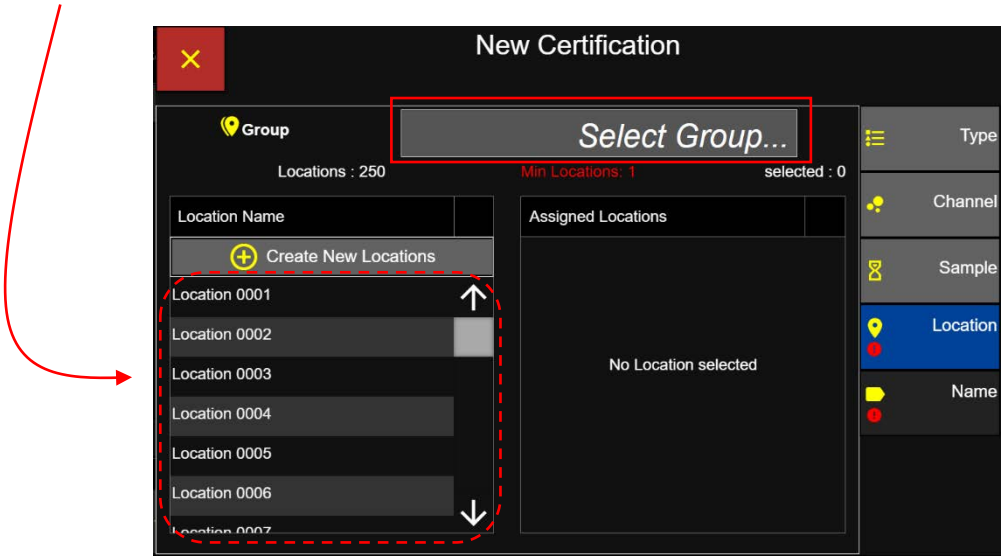
Locations

- Select the Location button to select locations for the New Certification.
- If a Group Name is selected, then only those locations assigned to that group will display in the Location List.



Certification Locations

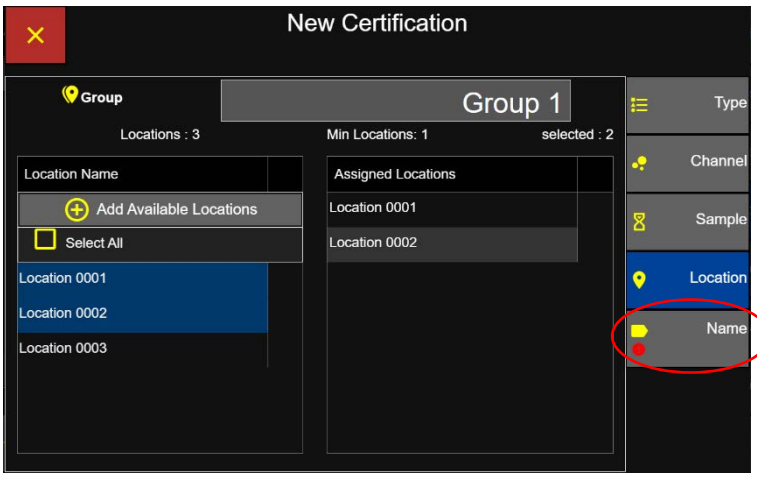
- If no Group Name is selected, then all locations will be available to be assigned to the new certification.



Certifications No Group All Locations Available to Add

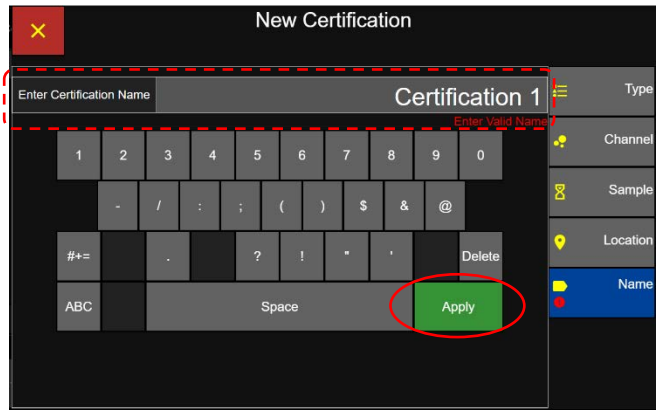
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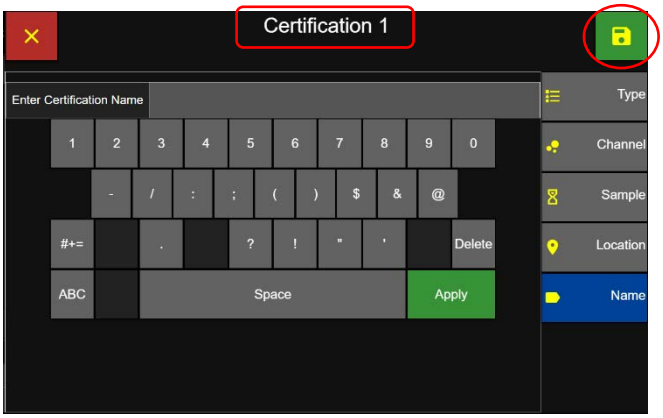
- Select one or more location names and each will highlight blue indicating it has been selected. Each location selected will be displayed under the Assigned Locations column.



Certification Locations

- To undo a selected location from the assigned list simply press the location name to de-select and it will highlight grey, and that location will be removed from the assigned locations list.
- Press the Name button to display the Enter Certification Name screen next.
- Enter the New Certification Name using the keypad.
- Press the green Apply button.
- Press the green Save





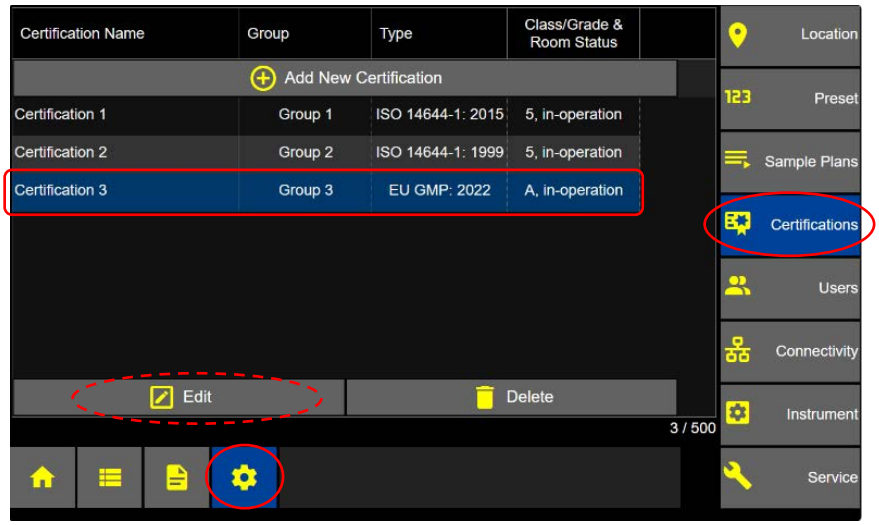
Enter Certification Name, Press Apply and Press Save

Edit a Certification

From the Home screen press the Settings button and then press the Certifications button.

Select Certification to Edit

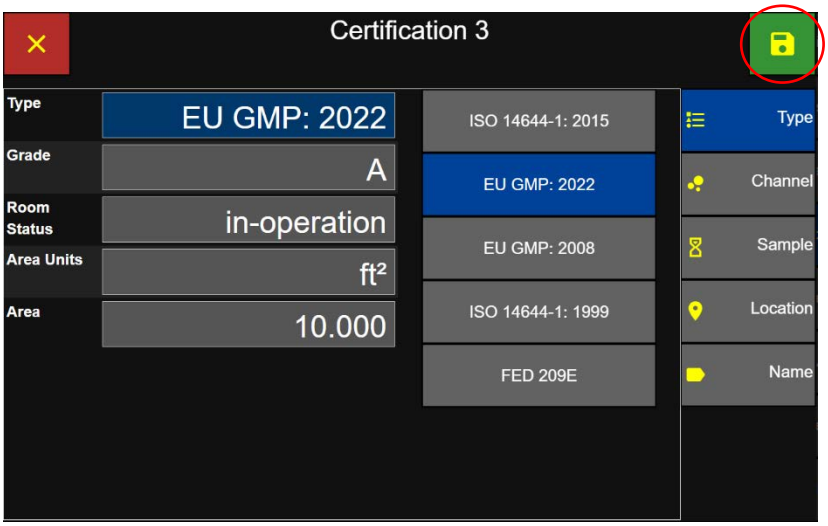
- Select a Certification name and it will highlight blue indicating it has been selected.
- Press the Edit button.



Select Certification to Edit

Edit Certification Settings

- Select a certification setting button to edit: **Type, Channel, Sample, Location and Name**.
- After making edits Press the green Save button to save the certification edits.



Certification Settings

- The edited certification will be saved to the certification names list on the certifications screen.

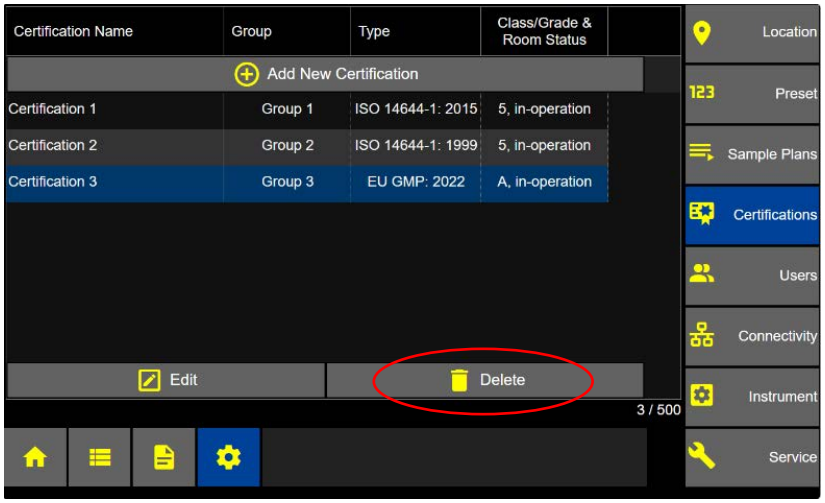
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Delete a Certification

From the Home screen press the Settings button and then press the Certifications button.

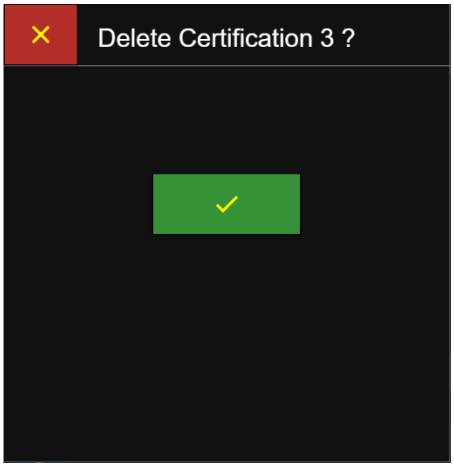
Select Certification to Delete

- Select the certification name to delete and it will highlight blue to indicate it has been selected.
- Press the Delete button to display the delete confirmation pop-up screen.



Confirm Delete of Certification

- Press the green check box to confirm deletion of the highlighted certification.
- Or press the red X box to cancel.



Confirm Delete Certification

Blank Page

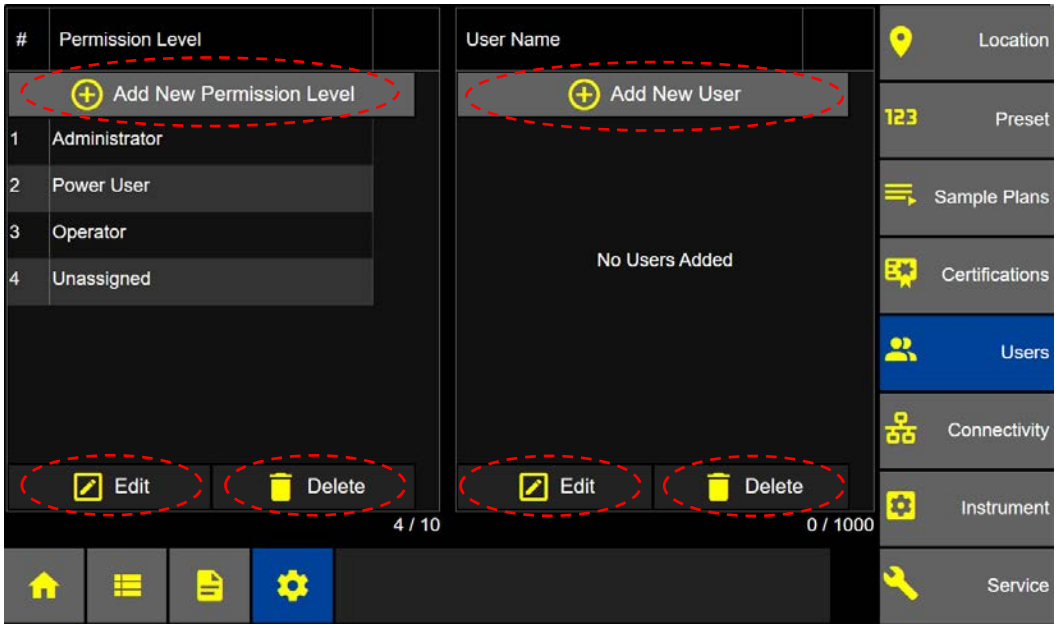
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Users & Permission Levels

Users

ApexZ supports up to 1,000 users and 10 user Permission Levels. Username and Password can be kept locally on the ApexZ unit or verified through Active Directory on your company network. ApexZ supports assigning Permission Levels to individual Active Directory Groups. In addition, ApexZ can prioritize AD Groups and their respective permission levels.

- Add, Edit, Delete Permission Levels
- Add, Edit, Delete Users

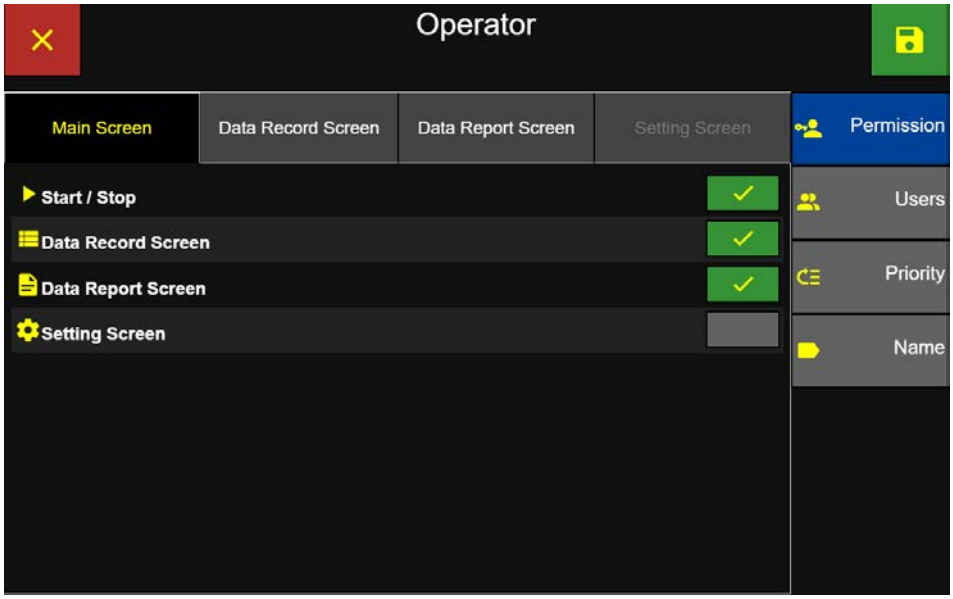


Settings – Users – Permission Levels/Usernames

WARNING: Keep administrator-level username and password secure and retrievable. If the Administrator account login information is lost, functionality can only be restored by having the instruments firmware re-loaded. While a service technician can retrieve the instruments configuration before doing so, all data records WILL be lost.

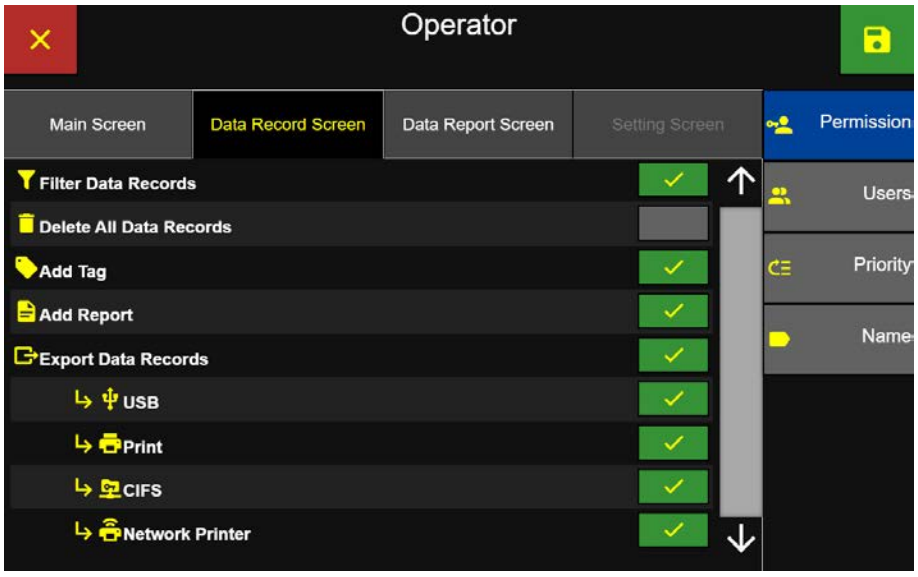
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ApexZ is installed with 4 permission levels and supports up to a total of 10 permission levels. The following are default permission levels: Administrator, Power User, Operator and Unassigned.



Username/Permission Levels screen

- “Operator” and “Power User” permission levels can be edited or deleted.
- “Administrator” and “Unassigned” permission levels may not be edited or deleted.

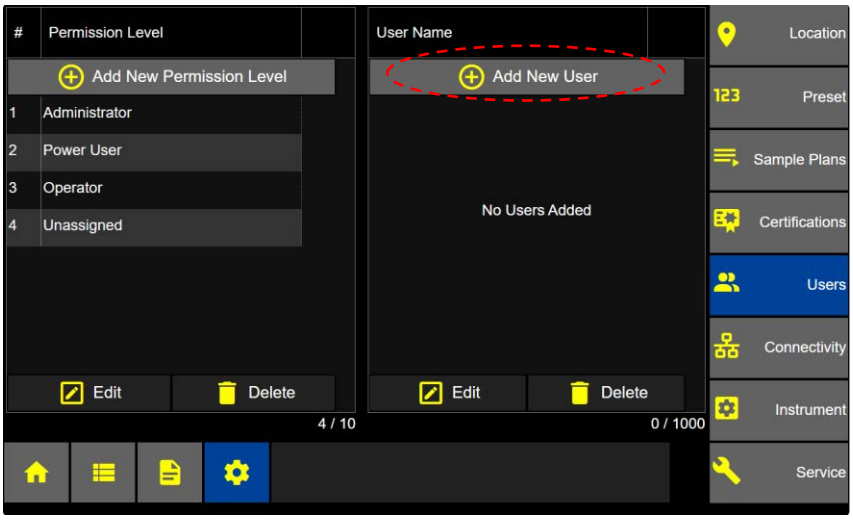


Data Record Permission Level Settings

Add a New User

- Press the +Add a New User button.

Note: To add new users, login as an Administrator level user or disable Users in the Settings -> Instrument -> Options -> User screen.



User Screen

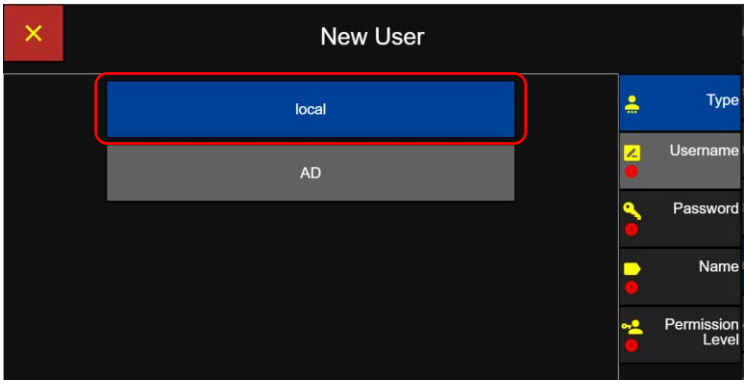
User Type

- Selecting user type “local” will verify Username and Password saved locally on ApexZ.
- Press the Username button.

Note: AD button is not available if AD Groups are enabled in Settings -> Instrument -> Options -> User screen.

Note: When creating an Active Directory User, no password is required. The password resides on the Network Active Directory.

Note: To enable Users, at least one Admin level user must be created first.

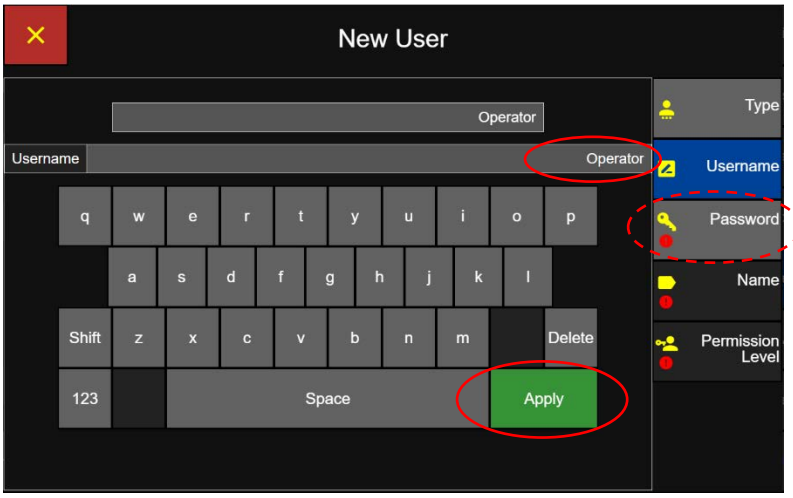


User Type

WARNING: *Keep administrator-level username and password secure and retrievable. If the Administrator account login information is lost, functionality can only be restored by having the instruments firmware re-loaded. While a service technician can retrieve the instruments configuration before doing so, all data records WILL be lost.*

Username

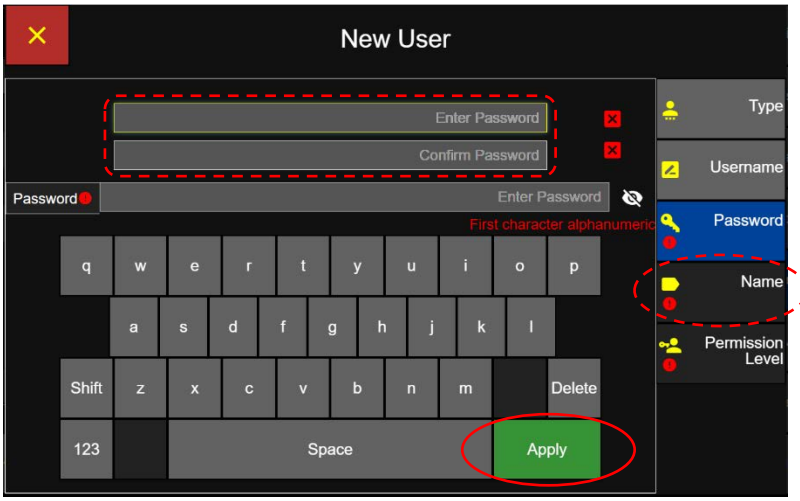
- Enter username on keyboard.
- Press the green Apply button and the username will display in the username box.
- Press the Password button.



Username Screen

Password

- Enter Password on keyboard.
- Press the green Apply button to apply password entered.
- Re-enter the same password to confirm password.
- Press the green Apply button to apply confirmed password. This will make the Name button available.
- Next press the Name button.

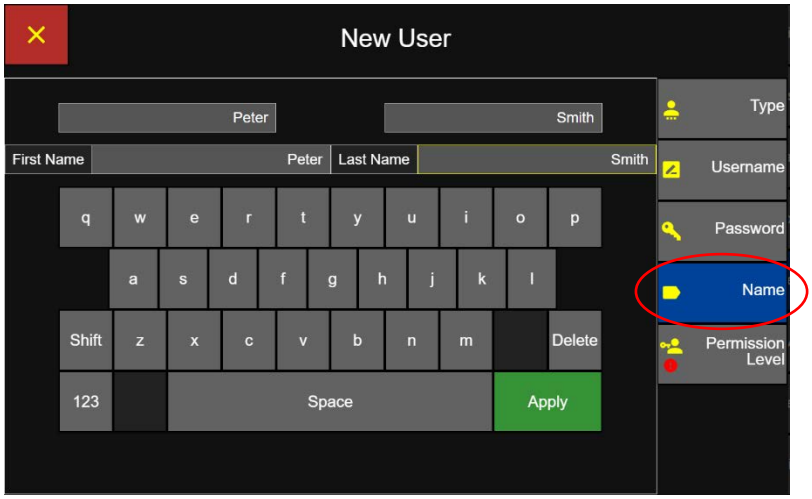


Password Screen

Note: Click on the view/hide password toggle button to view or hide an entered password.

First and Last Name

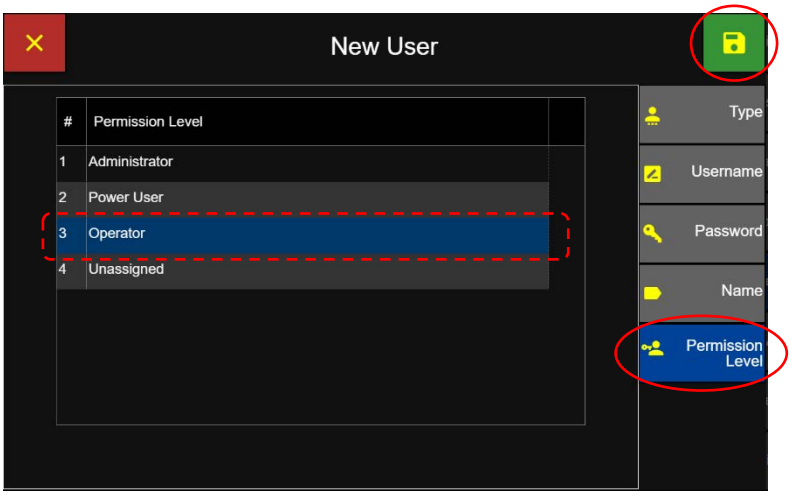
- Press the Name tab button to enter a user first and last name. (AD user first and last name will be entered automatically.
- Press the First Name and its boarder will highlight yellow. Enter Name with the keyboard.
- Press the green Apply button.
- Enter the Last Name with the keyboard.
- Press the green Apply button.
- Next Press the Permission Level tab.



First and Last Name Screen

Permission Level

- Select a Permission Level, Administrator, Power User, or Operator. The Permission Level will highlight blue indicating it has been selected.
- Press the green Save button to save the Permission Level and display the new user included on the user screen.



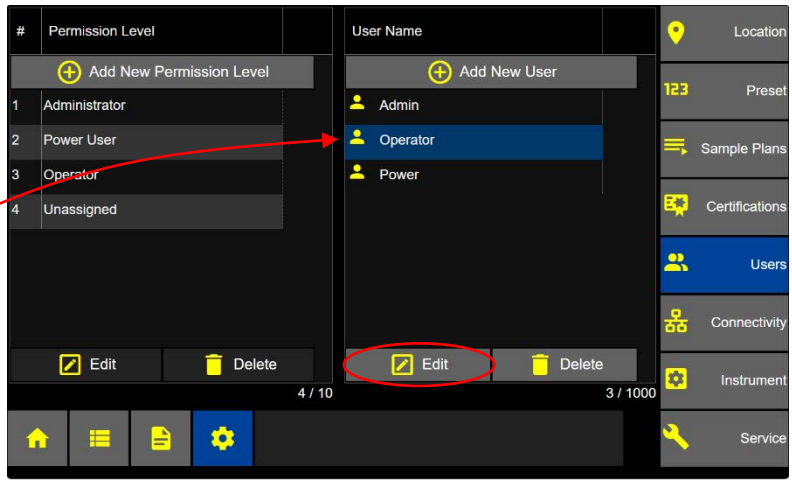
Select Permission Level Screen

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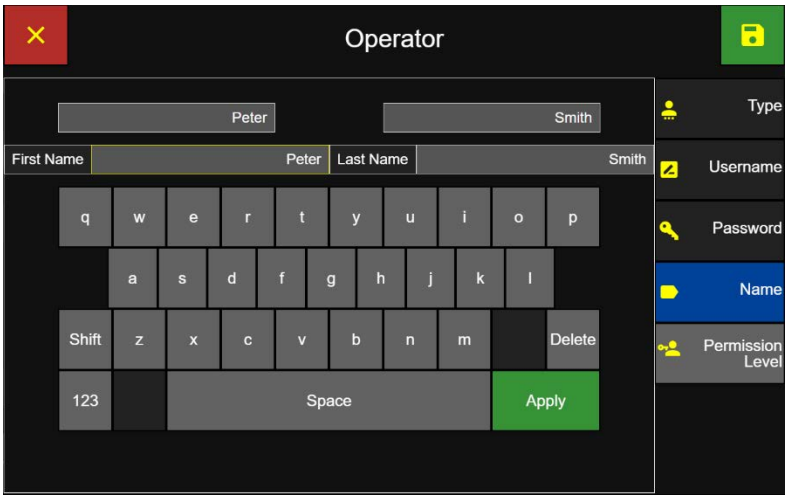
Edit User

To edit users, an Administrator level user must be logged in. With Users disabled, only the Name and Permission Level for Users can be edited.

- From the User screen, select a username to edit from the list and the username will highlight blue indicating it has been selected.
- Press the Edit button to display the user setting tabs.



User Screen



Enter User First and Last Name

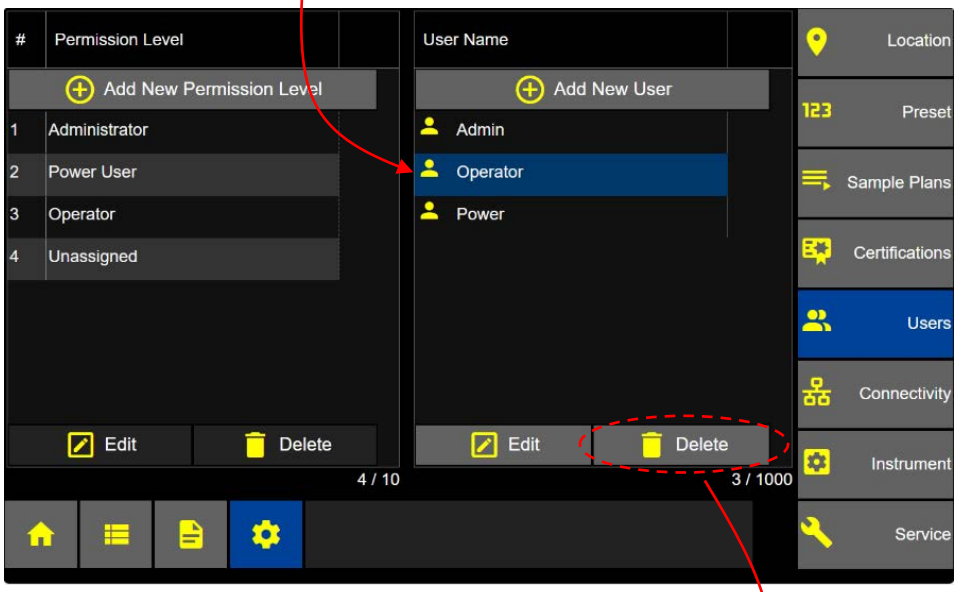
The first three tabs: Type, Username, Password are not available to edit.
The tabs for Name and Group are available to edit.

- Press the Name button to edit the First and Last name.
- Press the Permission Level button to edit the user Permission Level.
- Press the green Save button to save the first and last name edits.

Note: Administrator level users can edit their own password but cannot edit other user passwords. If other users forget their password, then a logged in Administrator permission level user will need to recreate their account.

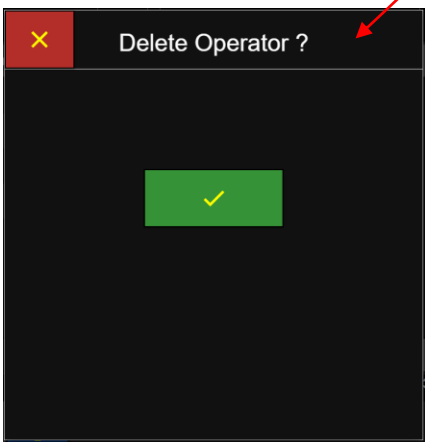
Delete User

- From the User screen, select the username to delete. The selected username will highlight blue.



User Screen

- Press the Delete button to delete the highlighted username.
- The delete confirmation popup will display.
- Press the green check box to delete username.
- Or press the red X button to cancel.

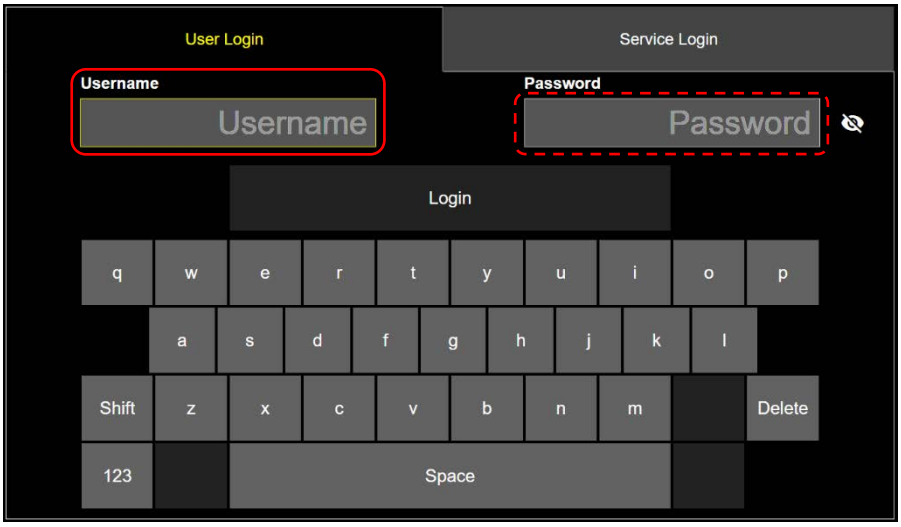


Confirm Delete Username

User Login

Enter Username and Password

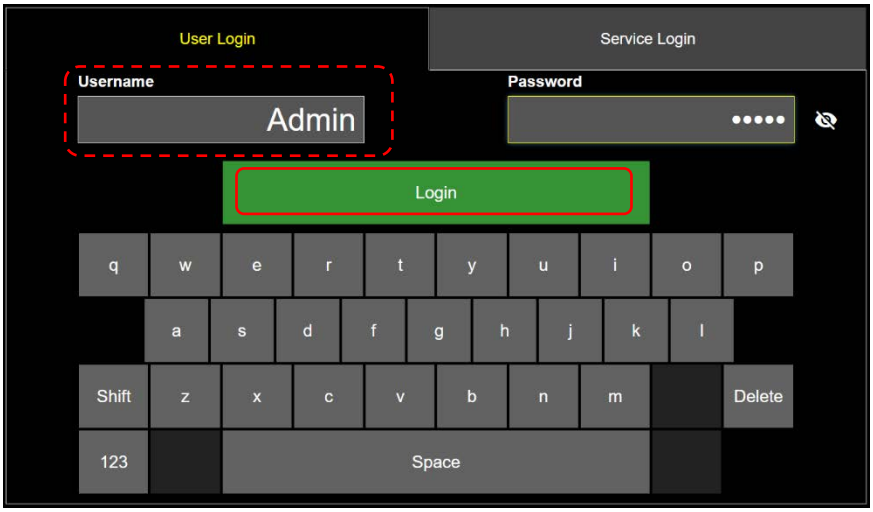
- Touch the Username box and the border will highlight yellow indicating it has been selected.
- **If Users are enabled**, then login with your local ApexZ Username and password.
- **If Active Directory is enabled,** then Users have the option to login with their network Active Directory username and password.



Login Screen

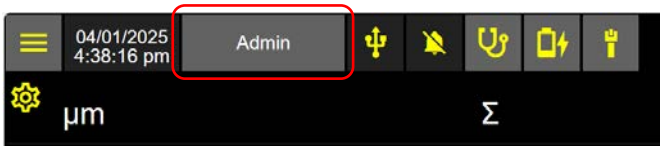
The Username will display in the username box as you type.

- Touch the Password button and the boarder will highlight yellow indicating it has been selected.
- Enter your user password.
- Press the green Login button



Login Screen

- The logged in Username will be displayed on the Home page.

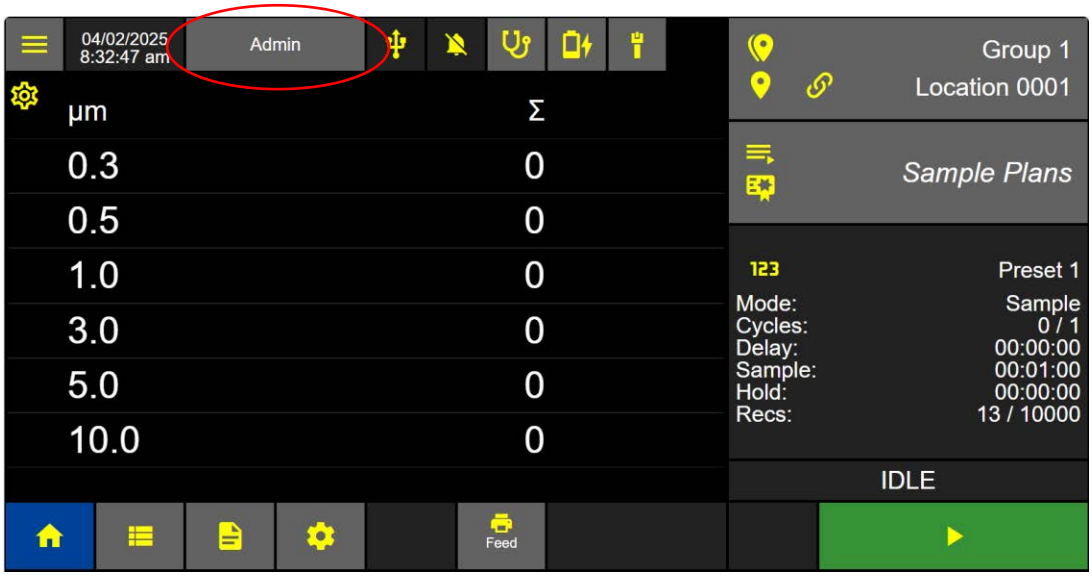


Home Screen

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User Logout

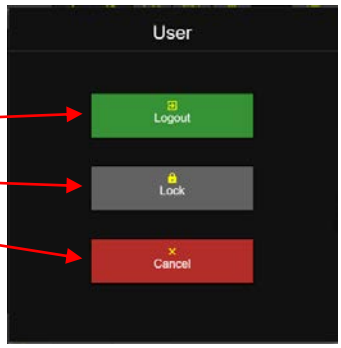
- Press the Username button to display the Logout screen.



Home Screen – Users Enabled

Logout Screen when ApexZ is idle.

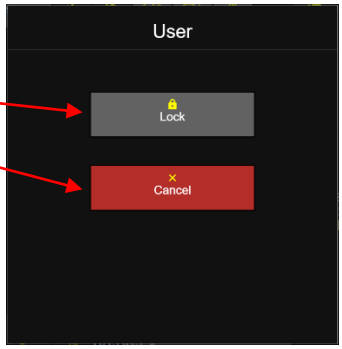
- Press **Logout** to logout.
- Press **Lock** to lock screen.
- Press **Cancel** to remain logged in.



Logout Screen when ApexZ is idle

Logout Screen when ApexZ is sampling.

- Press **Lock** to lock the screen.
- Press **Cancel** to remain logged in.



Logout Screen when ApexZ is sampling

Note: If you press the Username button and it does not display the Logout screen check that Settings -> Instrument -> Options -> Users are “enabled”.

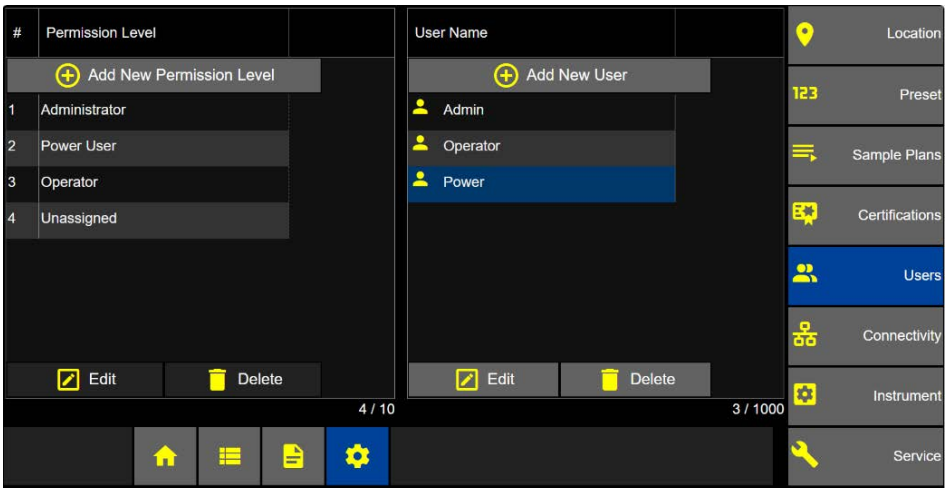
Administrator Permission Level

Administrator Permission level users have all ApexZ features enabled, and no features may be disabled. The default Administrator Permission level cannot be deleted.

Add new Permission Level

ApexZ default User Permission Levels are: Administrator, Power User, and Operator.

- Press the Add New Permission Level button.

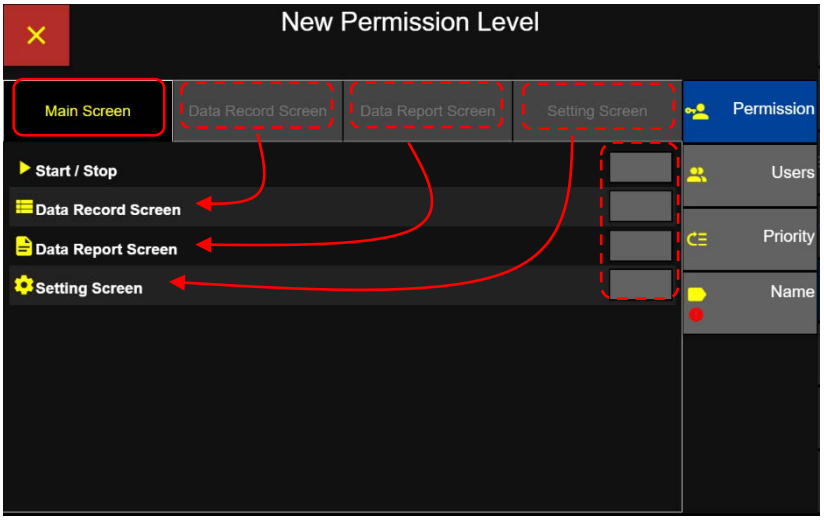


User Screen – Add New Permission Level

Permissions

Select to enable the Screens.

- Enable the Permission level tabs by selecting the corresponding button to enable. Unavailable tabs will be grayed out.

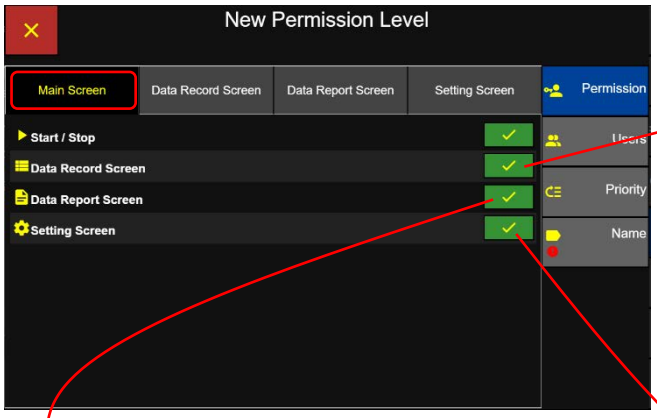


New Permission Level Screen

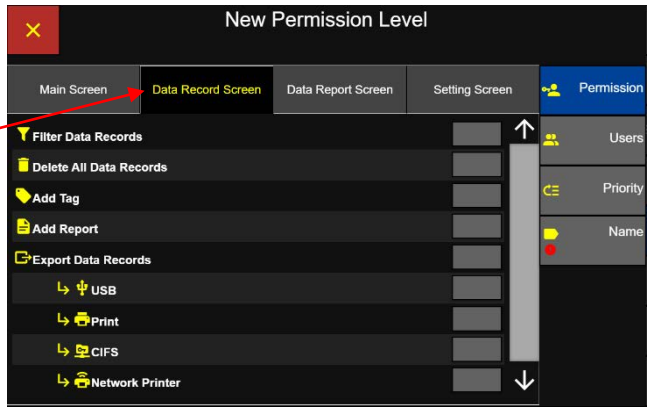
***WARNING**: Keep administrator-level username and password secure and retrievable. If the Administrator account login information is lost, functionality can only be restored by having the instruments firmware re-loaded. While a service technician can retrieve the instruments configuration before doing so, all data records WILL be lost.*

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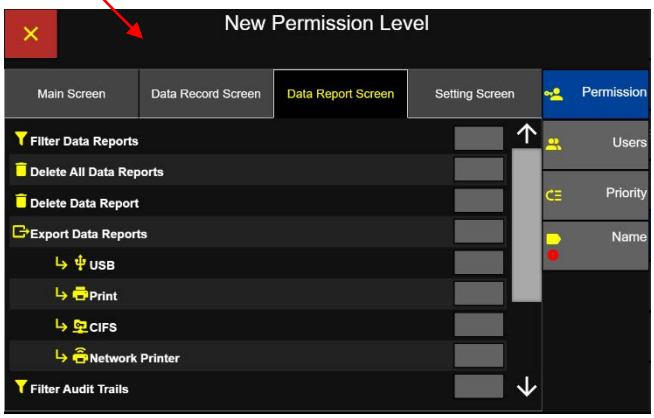
- Select a screen tab to edit permission for that screen.
- Enable or disable any feature by pressing the button.
- The Permissions Main Screen tabs named: Data Record Screen, Data Report Screen, and Settings Screen must be enabled to allow access to those permission settings.
- Press the Enable button and the corresponding tab will highlight and be available to select.



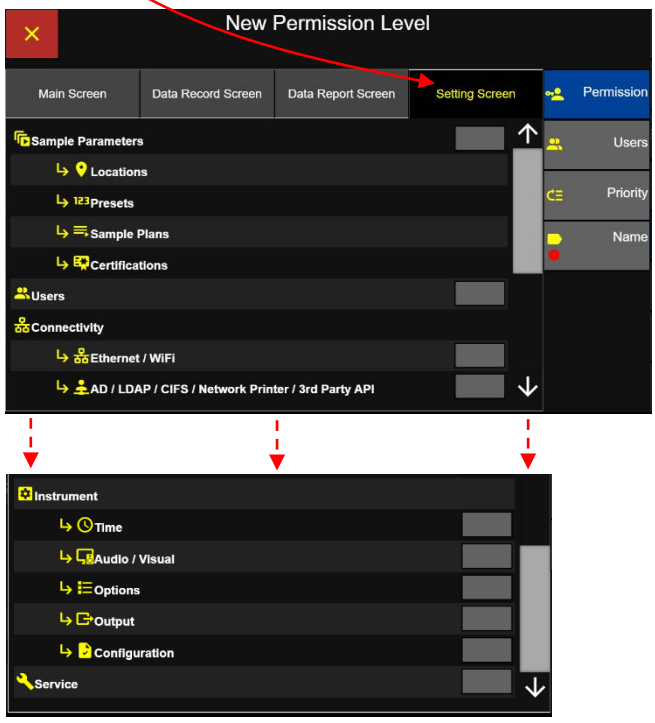
Permissions Main Screen



Data Record Screen



Data Report Screen



Setting Screen

Users

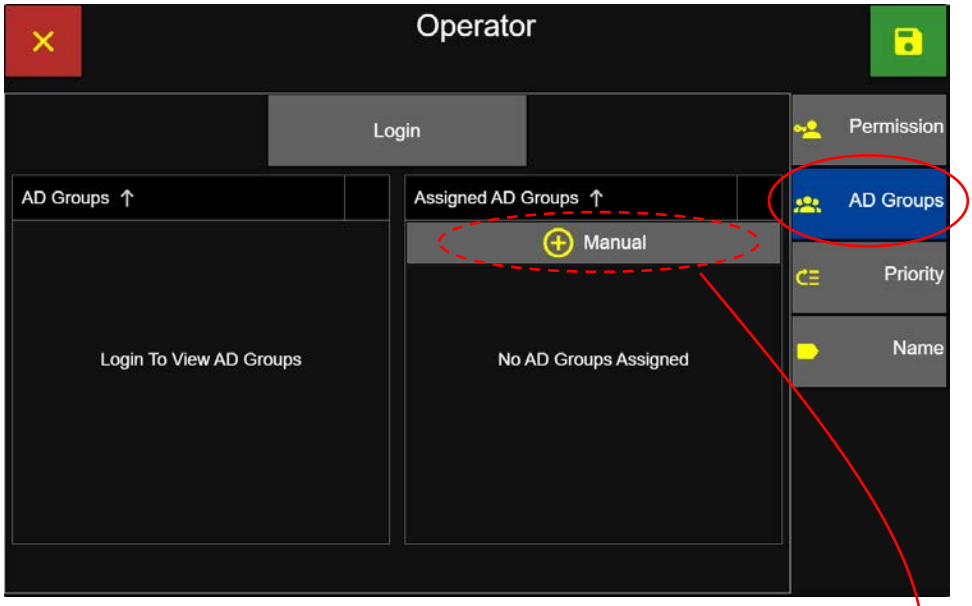
When creating a new Permission Level, this screen will not list any Users. After the Permission Level is created and saved, users can be added to the new Level by editing the User in the Users screen. Once added to a Permission Level, they will show up in the Permission Level User screen when editing the Permission Level.

Assign AD (Active Directory) Group to Permission Level

If AD Groups are enabled in the Settings->Instrument->Options screen, User tab, then AD Groups will show instead of User in the Add New Permission Level screen. Active Directory Group names can be manually assigned to a Permission Level or by logging into the network and selecting from a list of AD Groups.

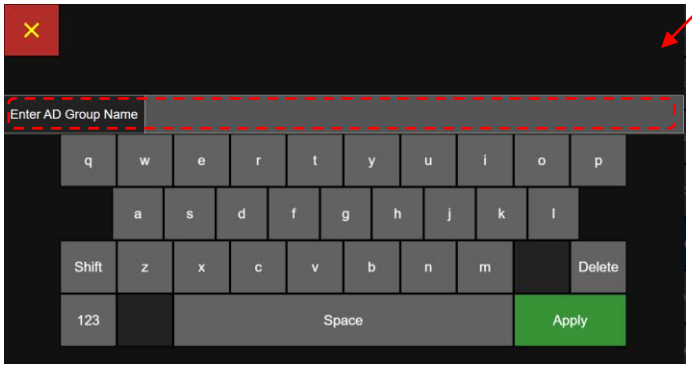
Manually Assign Permission Level

- Press the +Manual button to display the Enter AD Group Name screen.



Assign Active Directory Group to Permission Level

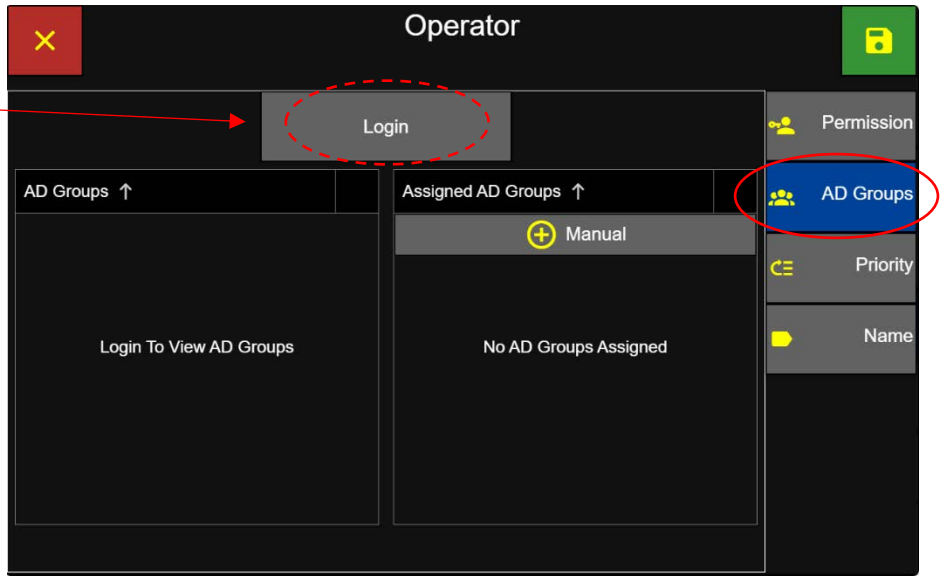
- Enter AD Group Name to assign to the permission level.
- Press the green Apply button.



Enter Active Directory Group Name

Login to select AD groups and assign permission levels.

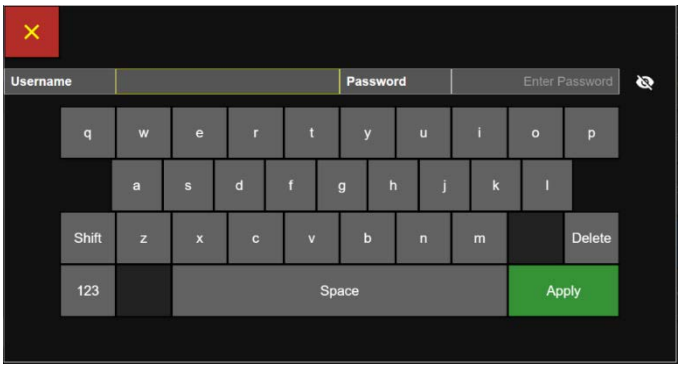
- With the ApexZ connected to the appropriate network, press the login button to login to the Active Directory.



Assign AD Group to Permission Level

Note: To login and display network AD Groups the AD URL and Domain must be entered in the ApexZ Settings Connectivity AD/LDAP screen.

- Enter the Active Directory username and password.
- Press the green Apply button.
- After successful login, AD Groups will display in the AD Groups list column.



Active Directory – Username/Password

- Press the AD Group name and it will highlight blue and display in the Assigned AD Groups column.
- The AD Group has now been assigned to this Permission Level.
- Press the green Save button to assign the AD Group to the Permission Level.

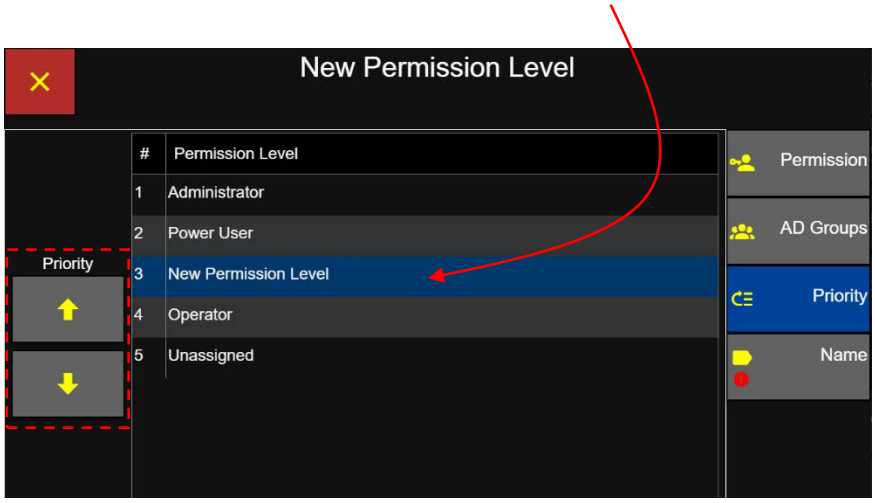


Assign AD Group to Permission Level

Prioritize Permission Levels

ApexZ can prioritize the permission levels created. This is because some users may appear in more than one Active Directory Group. If a user login appears in more than one Active Directory group (with different permission level settings) then the permission level assigned will be from the higher priority permission level setting on the Priority Screen.

- Select Permission Level to adjust and it will highlight blue to indicate it has been selected.



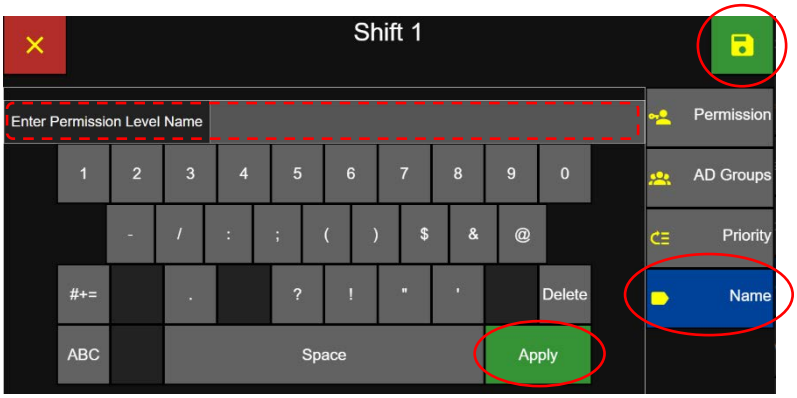
Priority of Permission Levels

- Press the Up/Down arrow buttons to move the selected permission level up or down the priority list. The “Unassigned” permission level cannot be changed or moved.

Permission Level name

Permission Level Names must be entered for any new Permission Level. Up to 64 characters can be entered. The new name cannot be the same as any currently existing Permission Level Name.

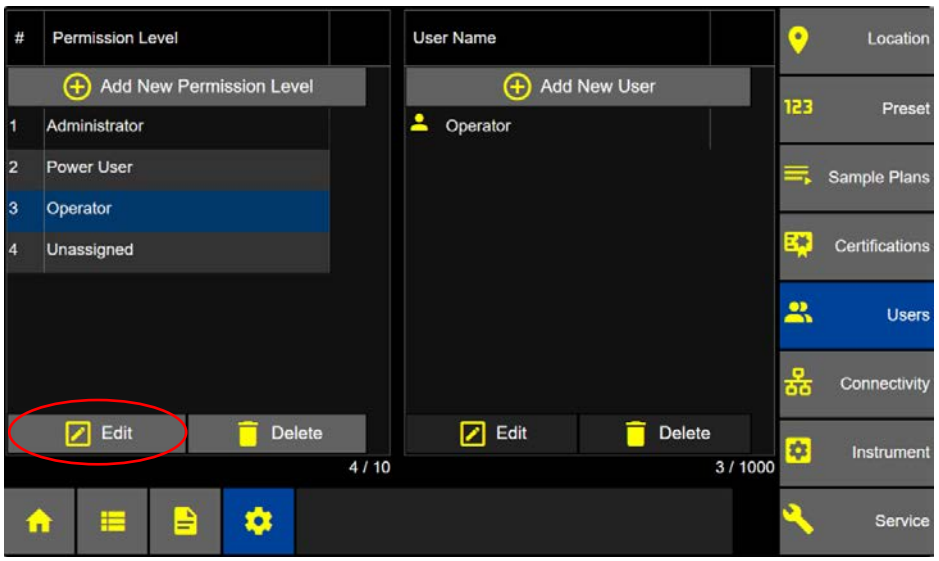
- Select the Name tab.
- Enter Permission Level Name
- Press the green Apply button.
- Press the green Save button.



Permission Level Name

Edit Permission Level Settings

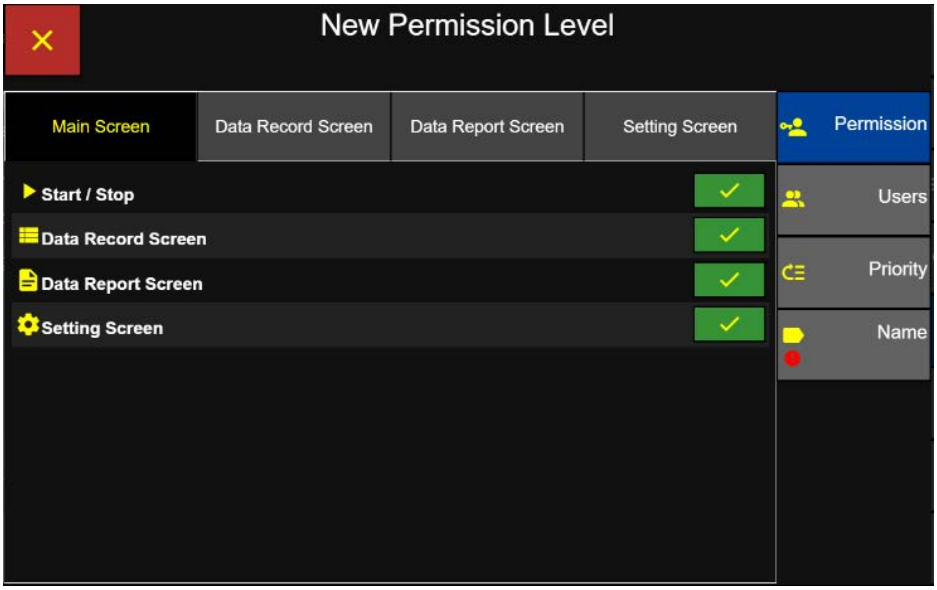
- Select the Permission Level to be edited then press the Edit button to display the permission settings.



Settings – Users – Permission Levels

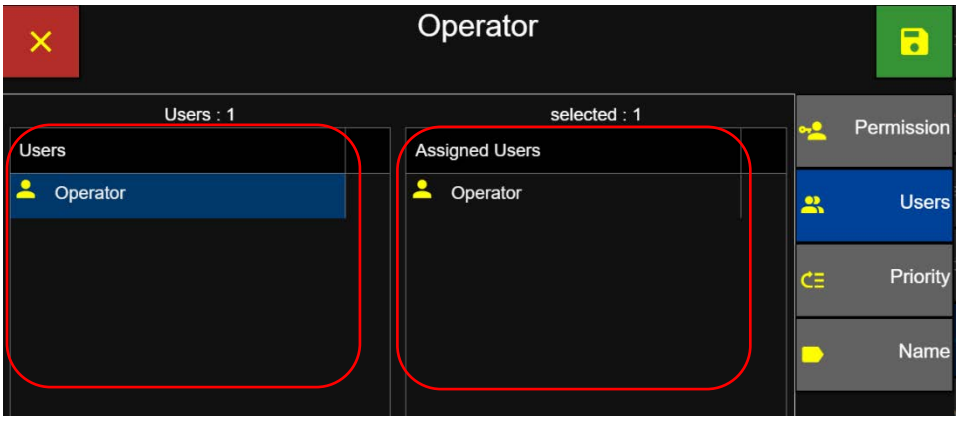
Note: The settings for the default Administrator Level cannot be modified. If any Users have been assigned to the Administrator Level, all can be removed except for one. If the last User is then deleted, the ApexZ will be unable to activate Users in the Settings -> Instrument -> Options -> User screen until one user has been assigned to the Administrator Level.

- The Data Record Screen, Data Report Screen, and Setting Screen options must each be enabled in the Permissions' Main Screen to allow selecting and enabling those options.



Enable Permission Level Access

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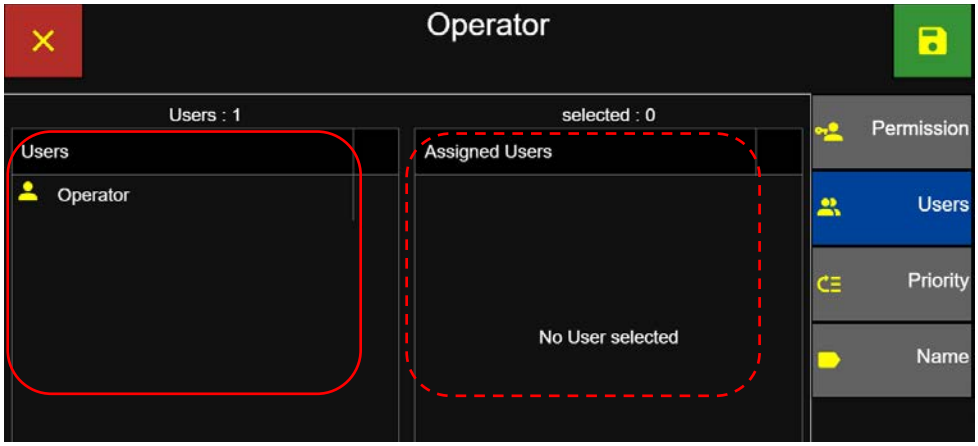


Users assigned to permission levels

- Users assigned to a Permission Level will be listed in both the “Users” and “Assigned Users” columns.

- Selecting a User listed in the “Users” column will remove it from the “Assigned Users” column and pressing it again will replace it.

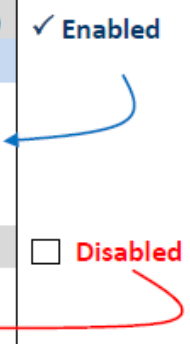
- Press the green Save button to save each new permission level settings.



No Users Assigned to Permission Level

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Permission levels:	Administrator *(Enable Locked)*	Power User *(Enable/Disable)*	Operator *(Enable/Disable)*
Main Screen			
Start & Stop	✓	✓	✓
Data Screen	✓	✓	✓
Report Screen	✓	✓	✓
Settings Screen	✓	✓	
Data Screen	**Administrator**	**Power User**	**Operator**
Filter Data Records	✓	✓	✓
Delete All Data Records	✓	✓	
Add Tag	✓	✓	✓
Add Report	✓	✓	✓
Export Data Records	✓	✓	✓
Export – USB	✓	✓	✓
Export – Print	✓	✓	✓
Export – CIFS	✓	✓	✓
Export – Network Printer	✓	✓	✓
Data Report Screen	**Administrator**	**Power User**	**Operator**
Filter Data Reports	✓	✓	✓
Delete All Data Reports	✓	✓	
Delete Data Report	✓	✓	
Export Data Reports	✓	✓	✓
Export Report – USB	✓	✓	✓
Export Report – Print	✓	✓	✓
Export Report – CIFS	✓	✓	✓
Export Report – Network Printer	✓	✓	✓
Filter Audit Trails	✓	✓	✓
Export Audit Trails	✓	✓	✓
Export Audit Trails – USB	✓	✓	✓
Export Audit Trails – CIFS	✓	✓	✓
Set Audit Trail Comments	✓	✓	✓
Setting Screen	**Administrator**	**Power User**	**Operator**
Sample Parameters	✓	✓	
Users	✓		
Ethernet / Wi-Fi	✓	✓	
AD/LDAP/CIFS/Network Printer/ 3rd Party API	✓	✓	
Time	✓	✓	
Audio/Visual	✓	✓	
Options	✓	✓	
Output	✓	✓	
Configuration	✓	✓	
Service	✓	✓	



Default Permission Level Settings

Blank Page

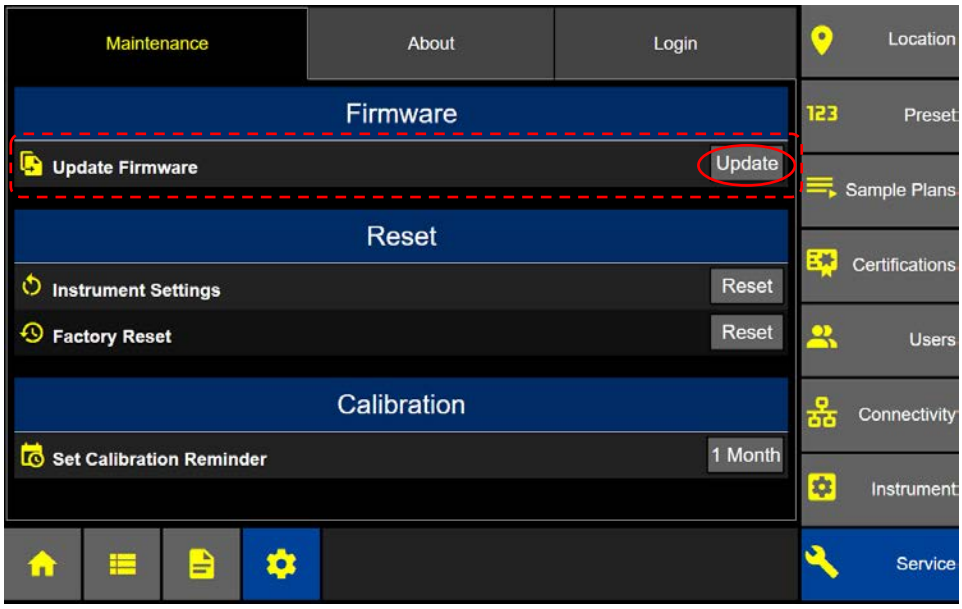
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Service

From the Settings screen:

- Press the Service button to view the Service screen.
- The Service screen displays buttons for Maintenance, About, and Login.
- Press the Maintenance button to display the Firmware – Reset – Calibration settings.

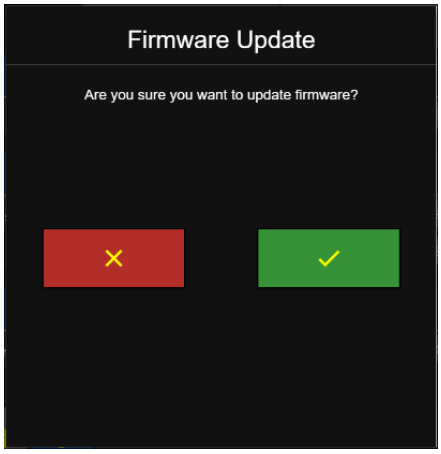
Maintenance



Settings – Service – Maintenance – Firmware screen

Firmware Update

- Insert USB key with updated firmware into ApexZ USB port.
- Press the Update Firmware button.
- Press the green check button to confirm and update the firmware or press the red X button to cancel.
- Leave the USB key in the unit until after the unit restarts and the Home Screen is displayed.

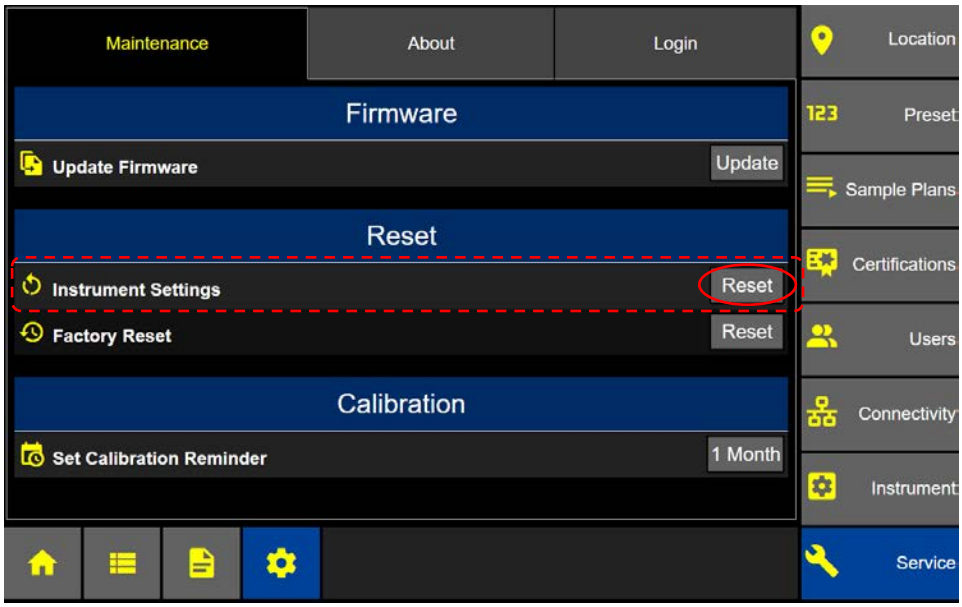


Firmware Update

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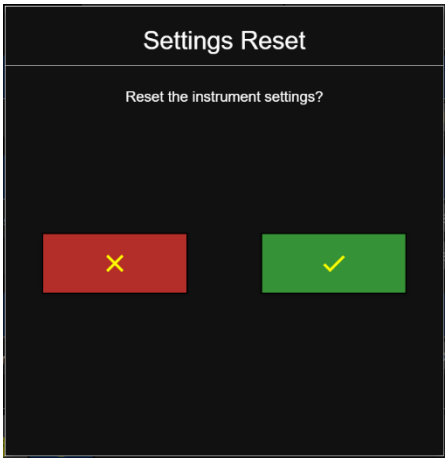
Instrument Settings Reset

- Press the Settings – Service – Maintenance – Instrument Settings Reset button to reset all ApexZ instrument settings.



Settings – Service – Maintenance – Instrument Settings Reset

- Press the green check button to confirm and reset all the instrument settings.
- Or press the red X button to cancel.



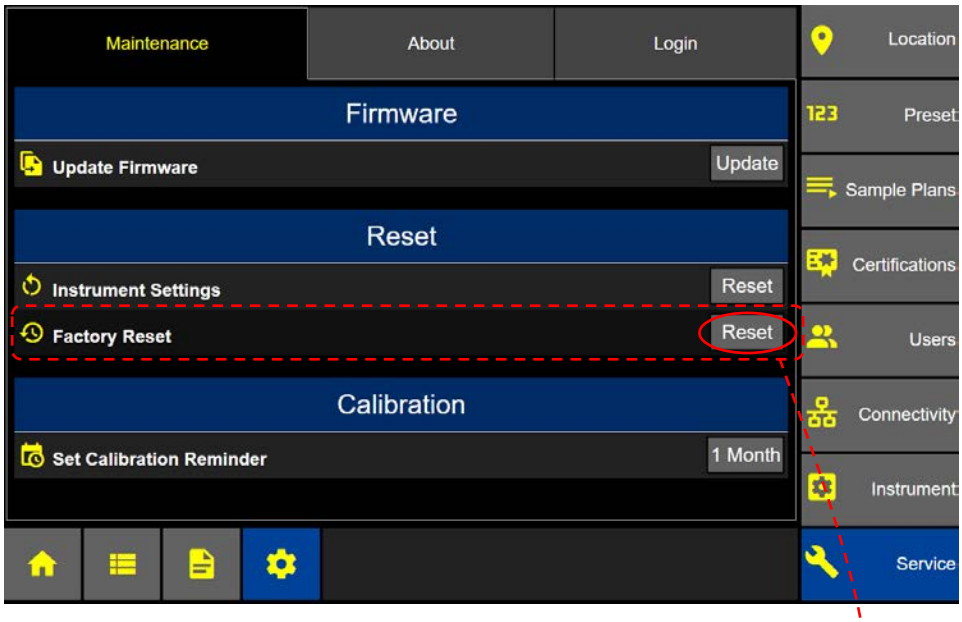
Settings Reset

Note: Instrument settings will be reset for Time and Date, Audio/Visual, Instrument Options including output options and data format. In addition, Connectivity settings for Ethernet, Wi-Fi, AD/LDAP and CIFS will be reset.

Factory Reset

Pressing Factory Reset will DELETE all data on the ApexZ and return the instrument's configuration to its original factory default configuration. Users will be reset to the default "Administrator", "Power User" and "Operator" Permission Levels. There is no data recovery after a Factory Reset. All user created data will be deleted except for Audit Trail logs.

- Press the Factory Reset button and the Database Reset screen will pop up.



Settings – Service – Factory Reset

- Press the green check button to confirm factory reset.
- Or press the red X box to cancel.



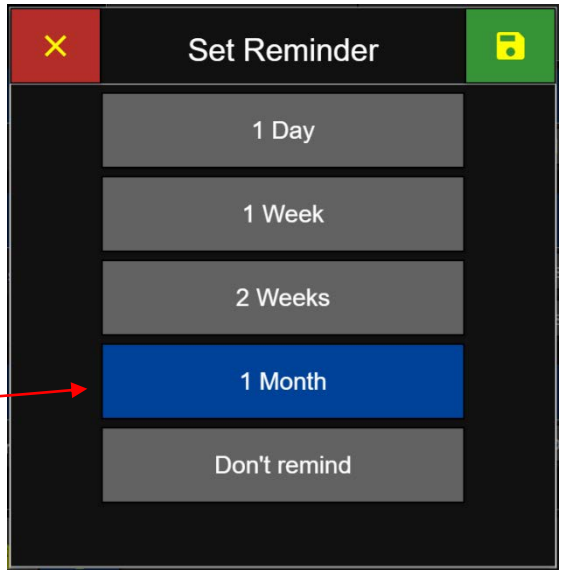
Factory Reset is a Database Reset

Calibration Reminder

- Press the Calibration Reminder button to select the time period for a reminder status warning before the calibration due date. An orange warning will appear in the Self-Diagnostics Status display.

  1 Day
  1 Week
  2 Weeks
  1 Month
  Don't remind

- Press the green Save button.
- Or press the red X button to cancel.



Calibration Due Reminder

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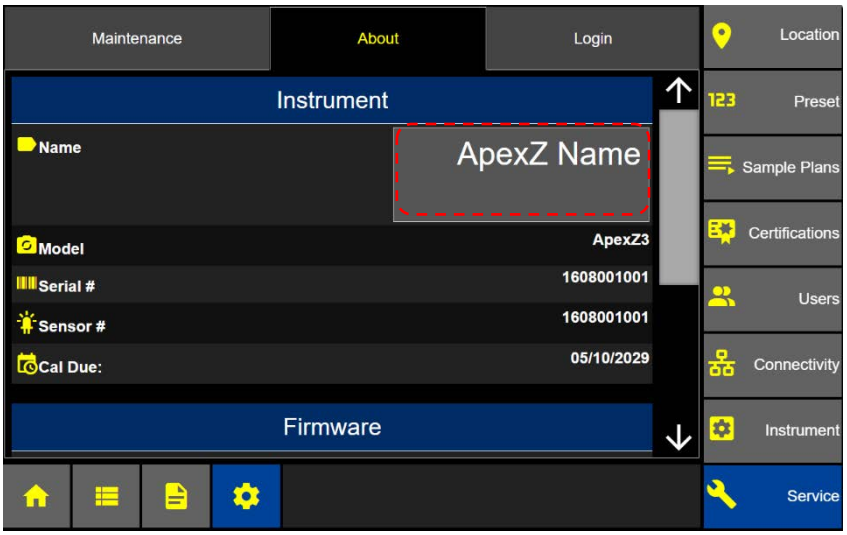
About Screen

Instrument Name

- Press the Instrument Name button to enter a name for your ApexZ instrument.

Model
Serial #
Sensor #
Calibration Due Date
Open-Source Libraries

- Use the elevator bar to scroll down and view the Firmware and Open Source Libraries.

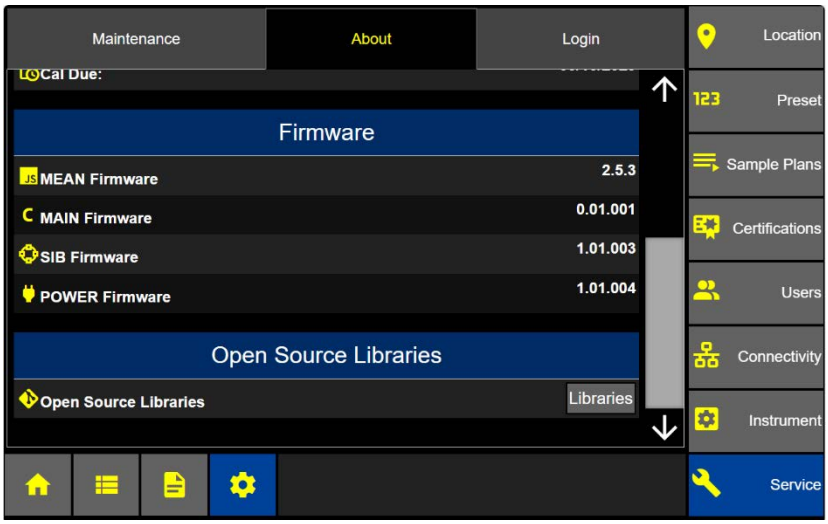


Settings – Service – About - Instrument

Firmware

- View ApexZ firmware.

MEAN Firmware Version
MAIN Firmware Version
SIB Firmware Version
POWER Firmware Version

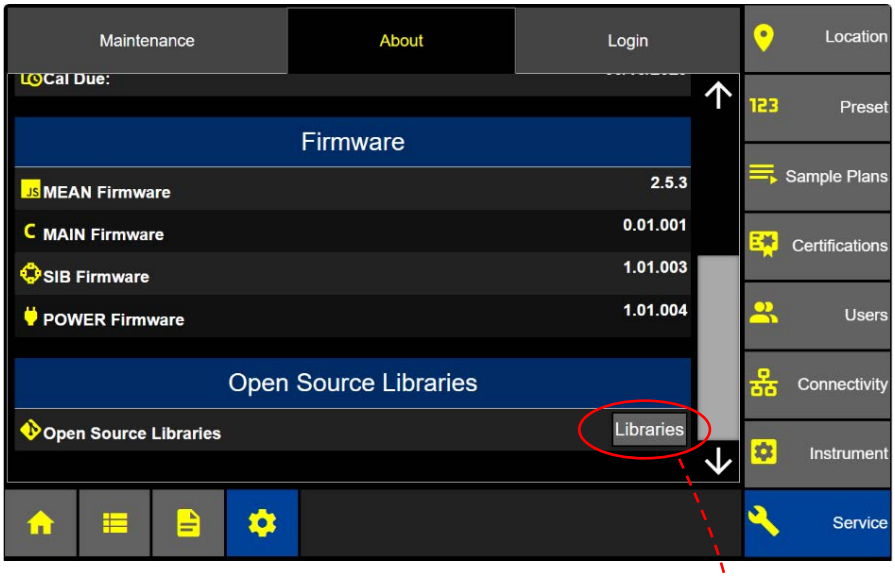


About – Firmware

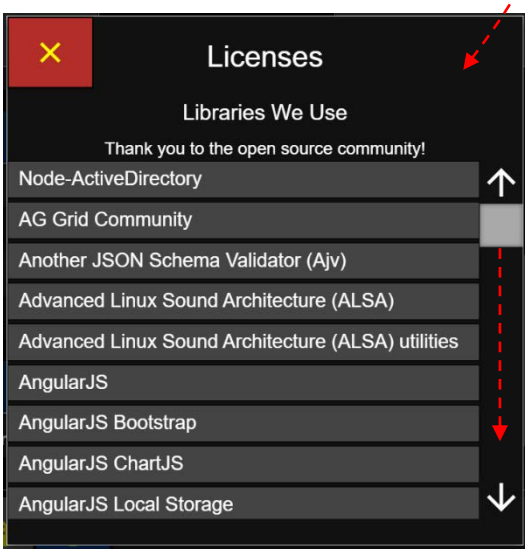
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Open-Source Libraries

- Press on the Libraries button to view the Open-Source Libraries used by ApexZ.



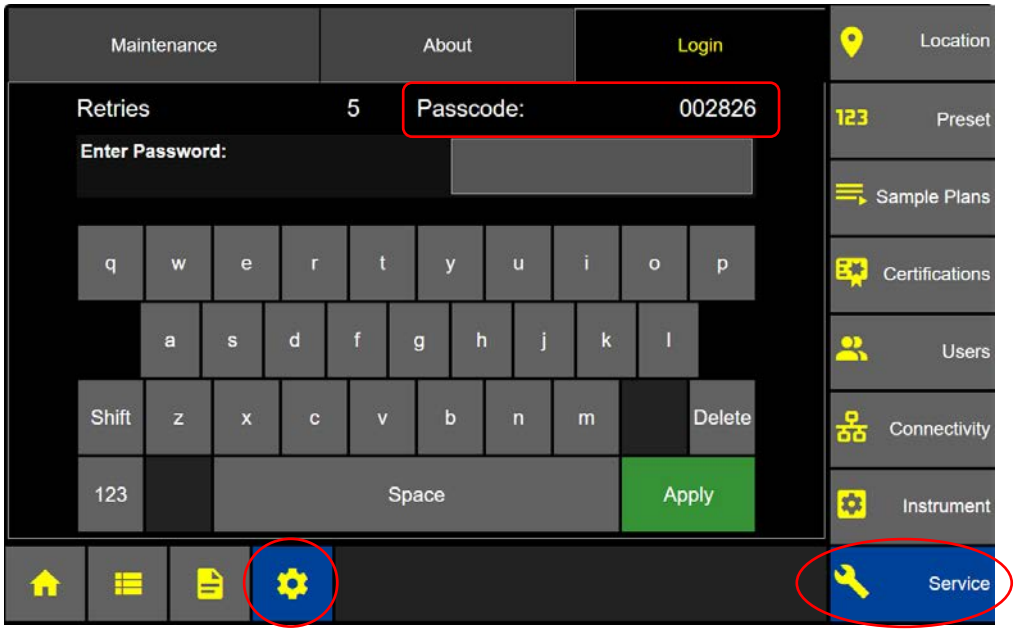
Settings – Service – About – Open Source Libraries



Open-Source Libraries

Service Login

- Press the Settings button then the Service button to display the Service Login screen.
- Note the ApexZ passcode number and use this code to get a password from Lighthouse Worldwide Solutions® Service Department calibration website.
- Use the keypad and enter the password from the LWS Service Center here.
- Press the green Apply button.



Settings – Service - Login

Note: Follow the ApexZ Service Manual for instructions on how to change ApexZ service parameters.

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Calibration

Factory Calibration

- ApexZ3 is factory calibrated to 1 CFM (1 cubic foot per minute).
- ApexZ50 is factory calibrated to 100 LPM (100 liters per minute, 3.53 cubic feet per minute).
- Contact a factory authorized facility to calibrate the ApexZ.

Calibration Due Date

- To display calibration due date, see the Settings-Service-About screen.
- ApexZ calibration is valid for 1 year from date of calibration.
- After the ApexZ calibration data has passed, all records will be shown with a strike-through on the data to indicate that the data is not valid.

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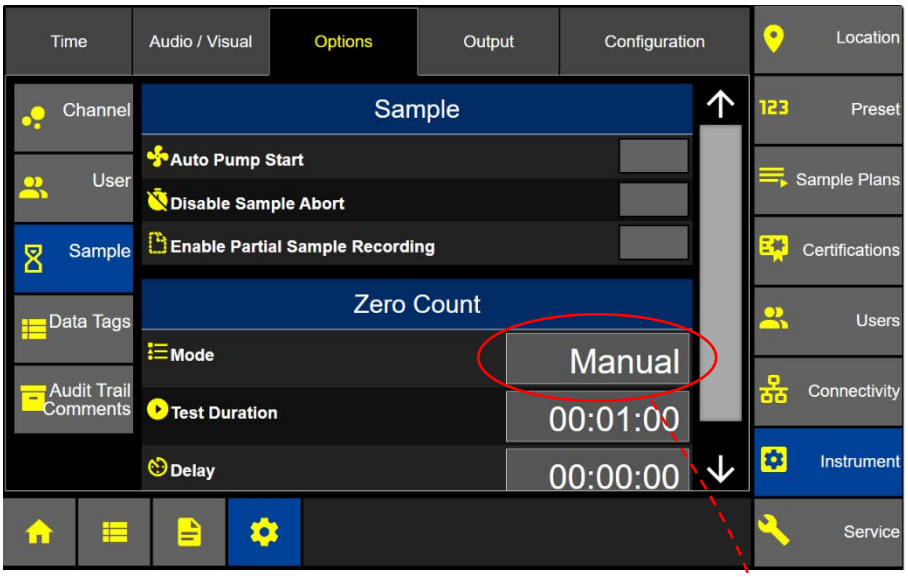
Zero-Counting

The Zero-Count Test is useful in providing confidence that counts in one sampling environment are not carried over into another environment. The Zero-Count Mode button is located by pressing Settings - Instrument – Options – Sample. There are 3 Zero-Count mode options.

Zero-Count Modes

Disabled: The Zero-Count button will not display on the Home screen.

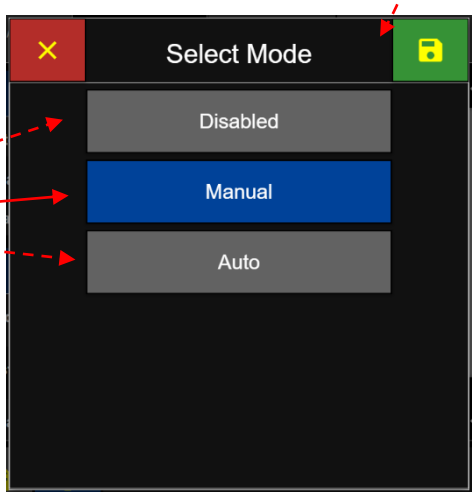
Manual: Zero-Count button will display and run for the sample time when pressed.



Settings – Instrument – Options – Sample

Auto: In Auto mode, during the test, the timer progress bar will reset to 0 if a count is detected. Zero-Counting will be successful after sustaining a full sample period with no counts.

- Select desired Zero-Count mode.
- Press the green Save button.



Select Zero-Count Mode

Test Duration

- Press the Test Duration button to enter your desired Zero-Count sample time with the pop-up numeric keypad.

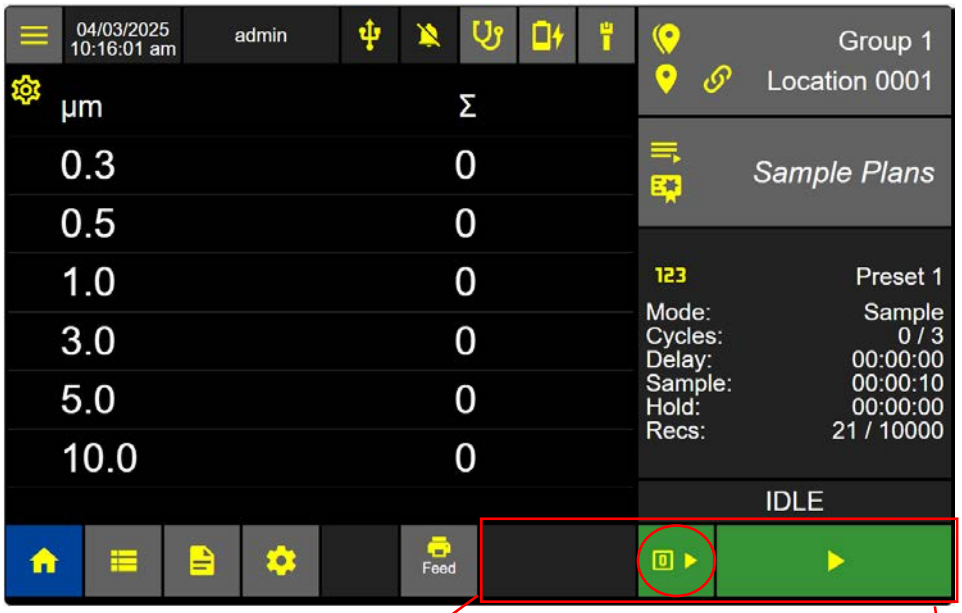
Delay Time

- Press the Delay button to enter the desired delay time. Delay Time will start after pressing the zero-count start button on the Home screen. The Zero-Count Sample time will start immediately after the delay time is completed.

Zero-Count on the Home Screen

When the Zero-Count Mode is set to Manual or Auto, the Zero-Count button will be available on the Main Screen next to the normal Sample Start/Stop button. In Manual mode, pressing the Zero-Count Start button will cause the unit to run one sample with the Duration and Delay time as set in the Zero-Count settings screen.

Home Screen with Zero-Count Start Button Active





Start/Stop
Zero Count Button

Manual Mode Zero-Counting
Total time elapsed



Auto Mode Zero-Counting
Sample time remaining



In Auto Mode, pressing the Zero-Count Start button will cause the unit to run with the Duration and Delay time as set in the Zero-Count settings screen. However, upon registering particle counts, the Sample Time (top timer line) will reset. The sample will only finish after completing the set Test Duration without particle counts. The total accumulated time the test ran will be shown on the second line of the timer, as shown above.

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Trouble Shooting

Sensor Cleanliness

When not in use, place a protective cap over the ApexZ Inlet Nozzle.

- Ensure that the ApexZ unit is not sampling AND has its Inlet flow path capped. This will prevent the aerosol solution from entering and contaminating the sensor, which can lead to negative impacts on data accuracy and sizing.

Printer

Printer paper not advancing while printing – could be the printer door is not closed.

- If the printer door is not closed, then the paper will not advance but the printer will continue to print. Quickly close the printer door and printing will advance the paper properly.

Printer printing but no ink is printed on the paper - printer paper is loaded backwards.

- If the printer paper is loading backwards the paper may still advance forward but no report data will print on the paper. After printing has stopped, simply open the printer door, remove the paper roll and reverse so that the paper feeds up from the back side of the roll and out the top of the printer.(see section: Printer Paper Installation)

Printer paper looped back into the printer housing.

- If advancing printer paper loops back into the printer housing it may cause a paper jam.
- If this happens it is recommended to stop printing. Simply open the printer door at any time and printing will pause. You can adjust the printer paper and close the printer door.
- Printing will resume where it left off.

Printer paper not aligned straight.

- If the printer paper is not straight or misaligned simply open the printer door and printing will stop.
- Realign the printer paper so it is feeding straight and correctly.
- Line up the left and right edges with the printer door exit slot.
- Close the printer door. If printing was interrupted, then it will resume.

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Clean and Disinfect

External Enclosure

The following cleaning agents are acceptable for cleaning ApexZ polycarbonate exterior surfaces.

Spor Klenz
Bleach
Hydrogen Peroxide
IPA

Warnings

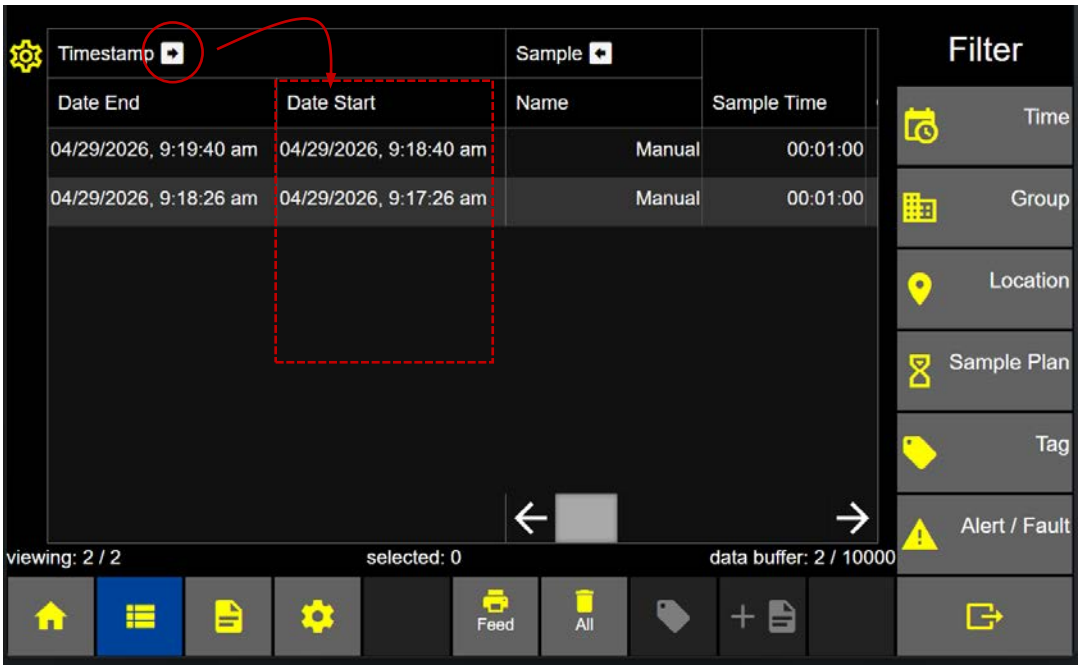
- To minimize the chance of electric shock, turn off and disconnect the power adapter during sterilization. Ensure the Inlet Nozzle is capped during any cleaning process.
- Do not submerge ApexZ in any liquids.
- Do not spray disinfectant solution directly into ApexZ enclosure.
- Do not use gases to disinfect ApexZ.
- ApexZ warrantee will be VOID if damaged by use of an unsuitable disinfectant solution.

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Addendum to ApexZ Data Record Screen

On the Data Record Screen, the Timestamp column now displays Date End and can be expanded to include Date Start.

- **Date Start** is the timestamp when particle counting started for the sample.
- **Date End** is the timestamp when particle counting stopped for the sample.



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