PCE-PQC Series

Remote Particle Counters

User's Manual

Version 1.0

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NOTICE: The contents of this manual are subject to change without notice.

Product Name: PCE Deutschland GmbH PCE-PQC Series Remote Particle Counters

Model Numbers: PCE-PQC 30, PCE-PQC 31, PCE-PQC 32 & PCE-PQC 33

The following standards are applied only to the particle counters that are so labeled. EMC is tested using PCE Instruments power supplies.

North America: EMI: FCC/ICES-003 Class A

FCC Compliance Statement for American Users

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 their own expense.

CE

Declaration of Conformity

In accordance with EN ISO/IEC 17050-1:2010

Manufacturer's Name:	PCE Deutschland GmbH
Manufacturer's Address:	Im Langel 4, 59872 Meschede, Germany

Application of Council Directives

EMC:	2014/30/EU
RoHS 2:	2011/65/EU
Low Voltage Directive:	2006/95/EC

Application of Council Directives

EMC:	EN 61326-1:2013 CISPR 11:2009+A1:2010
RoHS 2 Technical Documentation:	EN 50581:2012
Safety Requirements:	EN 61010-1:2010
Product Name:	Handheld and Remote Particle Counters

Product Model Numbers:
Handheld followed by: PCE-PQC 10EU/US, PCE-PQC 11EU/US, PCE-PQC 12EU/US, PCE-PQC 13EU/US, PCE-PQC 14EU/US, PCE-PQC 15EU/US
Remote followed by: PCE-PQC 20EU/US, PCE-PQC 21EU/US, PCE-PQC 22EU/US, PCE-PQC 23EU/US, PCE-PQC 30EU/US, PCE-PQC 31EU/US, PCE-PQC 32EU/US, PCE-PQC 33EU/US, PCE-PQC 34EU/US, PCE-PQC 35EU/US

We, the undersigned, hereby declare that the equipment specified above conforms to the above Directives and Standards.

Meschede, Germany

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1-1 Important Safety Information

This section presents important information intended to ensure safe and effective use of this product. Please read this section carefully and store it in an accessible location.

- Do not use near explosive, flammable, or reactive gases
- Do not attach directly to pressurized gases or liquids
- Do not improperly discard electronic instruments, only dispose of in accordance with local regulatory requirements or contact PCE Instruments for trade-in option
- Defective or non-working Lithium-Ion batteries must be recycled, do not throw in trash
- This device contains a Class I laser product that is not accessible during normal operation, do not take this device apart, exposure to harmful laser radiation can occur
- Taking the device apart will void all warranties
- Do not use this device for any purpose other than measuring of particles in ambient environments
- Do not operate the instrument with the inlet capped or plugged, as this can cause damage to the vacuum pump
- Do not allow water or any other liquid to enter the inlet of the particle counter; this will damage the unit
- Any changes or modifications to PCE Instruments equipment not expressly approved by PCE Instruments could void the user's authorization to operate the equipment, can risk serious injury, and will void all warranties

Key to Symbols

The symbols in this manual are identified by their level of importance, as defined below.

Read the following carefully before handling the product.

WARNING:

Warnings must be observed carefully to avoid serious bodily injury.

CAUTION:

Cautions must be observed to avoid minor injury to yourself or damage to your equipment.

NOTE: The laser in this product is completely enclosed within a sensor with no user serviceable parts. In addition, the emission level does not exceed the AEL (Accessible Emission Limit) of Class 1 under all conditions of operation, maintenance, service and failure.

1-2 Ergonomic Recommendations

CAUTION: In order to prevent or reduce the potential risks of ergonomic injury, follow the recommendations below. Consult with your local Health & Safety Manager to ensure that you are adhering to your company's safety programs to prevent employee injury.

- Reduce or eliminate repetitive motion
- Maintain a natural position while holding the instrument
- Reduce or eliminate excessive force
- Keep objects that are used frequently within easy reach
- Perform tasks at correct heights
- Utilize a tripod or the built-in stand with the instrument in a freestanding mode

1-3 Warnings for Use of Wireless Devices

Please observe all warning notices with regard to the usage of PCE Instruments' particle counters with optional Wi-Fi communications module installed.

Safety in Hospitals

Wireless devices transmit radio frequency energy and may affect medical electrical equipment. Wireless devices should be switched off wherever you are requested to do so in hospitals, clinics, or health care facilities. These requests are designed to prevent possible interference with sensitive medical equipment.

Pacemakers

Pacemaker manufacturers recommend that a minimum of 15cm (6 inches) be maintained between a wireless device and a pacemaker to avoid potential interference with the pacemaker. These recommendations are consistent with independent research and recommendations by Wireless Technology Research.

Persons with Pacemakers:

- Should ALWAYS keep the device more than 6 inches (15cm) from the pacemaker if turned ON
- Should not carry the device on your chest
- Should use the arm furthest from the pacemaker to minimize the potential for interference
- If you have any reason to suspect that interference is taking place, turn OFF your device

Other Medical Devices

Please consult your physician or the manufacturer of the medical device to determine if the operation of your wireless product may interfere with the medical device.

1-4 Overview

Thank you for purchasing a PCE Instruments particle counter, the most advanced battery powered, remote instrument available.

This user manual will provide the detailed explanation and instructions for the proper use and operation of this feature-rich particle counter.

The PCE Instruments particle counters have a large dynamic range measuring from 0.3 µm to 25.0 µm, with true variable binning for channel size adjustment settings to 0.01 µm. This instrument utilizes 7 or more processors to maintain and manage the various functions of operation. The advanced processing also allows for many operations to take place simultaneously, even while the unit is sampling. This includes adding annotations to the current sample in progress, or adding annotations to previously recorded data while sampling is in progress.

The Real-Time Meter function is unique in its ability to fine-tune the instrument's sensitivity in order to locate particulate sources with visual and audible indications. This versatile particle counter's ability to count higher than typical particle concentrations allows the Real-Time Meter to find point source contamination in cleanrooms as well as locating higher particle concentrations being generated in many industrial environments.

This instrument also has a mass concentration mode, providing for particle mass monitoring of an environment for industrial health and safety regulatory purposes. The unit can measure all (6) adjustable particle size channels and capture PM levels indicated in µg/m³ with values corrected for particle density and refractive index correction.

The technology designed into these particle counters includes advanced power management functions, which includes the industry’s first sleep mode. This permits the instrument to take intermittent samples over the course of a few months, minimizing power consumption and increasing system life.

The PCE Instruments particle counters have versatile communication methods and protocols including: Modbus TCP, USB Host, USB Client and (optional) Wi-Fi, (optional) MODBUS RTU and ASCII.

The remote web server hosting feature allows for monitoring and control of the particle counter from any PC, smartphone or tablet simply by inputting the IP address of the particle counter on the local area network and entering it into any browser. The main processors allow for multiple connections, all with simultaneous access to review, monitor and control the operation of the instrument.

Thank you,

1-5 Specifications

Size Channels (Model PCE-PQC 30 & 32)	Factory calibrated at 0.3, 0.5, 1.0, 2.5, 5.0, 10.0 µm variable binning
Size Range (Model PCE-PQC 30 & 32)	0.3 to 25 µm
Counting Efficiency (Model PCE-PQC 30 & 32)	50% @ 0.3 µm; 100% for particles >0.45 µm per JIS
Size Channels (Model PCE-PQC 31 & 33)	Factory calibrated at 0.5, 0.7, 1.0, 3.0, 5.0, 10.0 µm variable binning
Size Range (Model PCE-PQC 31 & 33)	0.5 to 25 µm
Counting Efficiency (Model PCE-PQC 31& 33)	50% @ 0.5 µm; 100% for particles >0.75 µm per JIS
Flow rates	0.1 CFM (2.83 LPM) (Models PCE-PQC 30 & 31 use an internal pump)
Light Source	Long life laser diode
Zero Count	<1 count / 5 minutes (<2 particles / ft^3) (per ISO 21501-4 & JIS)
Count Modes	Cumulative/differential, mass concentration, count or concentration
Count Alarms	1 to 9,999,999 counts
Calibration	NIST traceable
Display	4.3″ (10.9 cm) WQVGA (480×272) color touch screen
Printer (Optional)	External thermal printer
Vacuum Requirements (Models PCE-PQC 32 & 33)	External vacuum >15” (38.1 cm) of Hg
Vacuum Source (Models PCE-PQC 30 & 31)	Internal 0.1 CFM pump assembly (Part Number: UM-27100A)
Filtered Exhaust (Models PCE-PQC 30 & 31)	Internal HEPA filter
Number of Channels	6
Custom Size Channels	Calibration for custom size channels available
Audible Alarm	Adjustable built-in alarm
Reports	ISO 14644-1, EU GMP Annex 1, FS 209E
Recipes	50 user-configurable recipes
Communication Modes	Ethernet and USB
Optional Communication Modes	Wireless 802.11 b/g, RS485 or RS232
Environmental Sensor	Optional temperature and relative humidity probe 32º to 122ºF (0º to 50ºC) ±1ºF (0.5ºC), 15-90% ±2% relative humidity (optional)
Alarm	Alarms on counts for all particle sizes, low battery, sensor failure, environmental sensors and flow
Standards	ISO 21501-4 and JIS B9921

Calibration	Recommended minimum once per year
External Surface	Stainless Steel
Dimensions (L x W x H)	5.2” x 2.3” x 8.9” (13.3 cm x 5.8 cm x 22.6 cm) includes barb fittings
Weight	2.6 lb (1.18 kg)
Accessories	Operating manual on USB flash drive, isokinetic probe, IMS software, & power supply
Optional Accessories	Printed manual, external printer, wall mount bracket, purge filter assembly, USB cable, barbed inlet fittings and isokinetic probes
Buffer Memory	45,000 sample records (rotating buffer) including particle count data, environmental data, locations and times. Scrollable on screen or printout.
Sample Locations	Up to 1,000 locations 20 characters long
Sample Time	1 second to 99 hours
Power	110 to 240 VAC 50/60 Hz universal in-line power supply
Operating Conditions	41º to 104ºF (5º to 40ºC) / 20% to 95% non-condensing
Storage Conditions	32º to 122ºF (0º to 50ºC) / Up to 98% non-condensing
Warranty	1 Year. Extended warranties available.

Please note that specifications are subject to change without notice.

1-6 Included Accessories

Description	Part Number	Image
1/8" Inlet Barbed Fitting Nickle Plated Aluminum	PS-12004	
Power Supply 15V ~2amp 100-240VAC (Select adapter -US, -EU, -UK or -CN)	EE-80081-XX	
PCE-PQC Remote Series User Manual and Data Download Software (USB Key)	MN-24004	

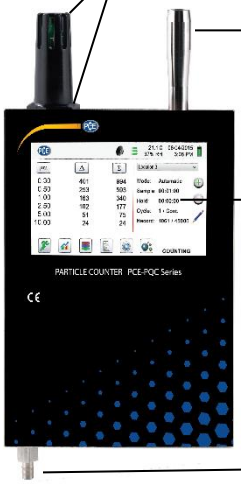
1-7 Optional Accessories

Description	Part Number	Image
Isoprobe Threaded 0.1 CFM (2.83 LPM) Nickle Plated Aluminum	PS-12041	
Wireless 802.11 b/g Output with Internal Antenna	EE-80092	
Temperature / RH Probe 32-122°F (0-60°C) ±1°F (0.5°C), 15 - 90% ±2%	EE-80014A	
External Thermal Printer with 2 Rolls of Paper	AS-99011	
External Thermal Printer Paper - 1 Roll	AS-99012	
External Thermal Printer Cleanroom Paper - 10 Pack	AS-99013	
External Thermal Printer Spare Battery	AS-99014	
Purge Filter Assembly 0.1 CFM (2.83 LPM)	AS-99002A	
USB Cable 6' (1.8m)	AS-99010	

Description	Part Number	Image
Isoprobe Threaded 0.1 CFM (2.83 LPM) Stainless Steel	PS-12070	
Isoprobe Barbed 0.1 CFM (2.83 LPM) Stainless Steel	PS-12022	
1/8" Inlet Barbed Fitting Stainless Steel	PS-12005	
Sample Tubing 1/4" OD (1/8" ID) Per Foot	AS-99018	
PCE-PQC Remote Series User Manual (Printed)	MN-24004P	
PCE-PQC Remote Series Validation Manual	MN-24006	
Certificate of Origin	MN-24000	

1-8 Product Views

Front View



Optional Temp & RH Probe
Universal Sensor Port
Isokinetic Probe

4.3” Color Touch Screen Display

External Vacuum Connection Port
(not present for internal pump models)

Side View

1/8” Barbed Fitting

External Power Connection
USB-B Client Connection
UBS-A Host Connection
Ethernet RJ45 Connection

Connecting Ethernet Cable

Connecting USB - B Client

Connecting USB - A Host

2-1 Unpacking and Inspecting the Instrument

Careful consideration was given to our packing material to ensure that the PCE Instruments remote particle counter will reach you in perfect condition. If the instrument has been subject to excessive handling during shipping, there may be visible damage to the shipping carton. In the event of damage, keep the shipping container and packing material for the carrier's inspection. Carefully unpack the instrument from its shipping container and inspect the contents for damaged or missing items. If the instrument appears damaged or something is missing, contact the carrier and PCE Instruments immediately. Please save the container and packing material in case you have to return the instrument.

2-2 Registering Your Product

All PCE Instruments particle counters are automatically registered upon sale for the warranty period, and tracked by Serial number.

2-3 Contacting PCE Instruments

To order accessories, receive technical assistance, report damaged or missing items from your shipment, or get contact information for your nearest PCE Instruments authorized reseller, call - Germany: +49 2903 976990 **/** USA: +1 (561) 320-9162

2-4 Storing and Shipping the Instrument

If the instrument needs to be packed and shipped for annual calibration or service, it is recommended to use the original packing materials. If they are not available, please insure that the instrument is packaged in a box that is sturdy and that the instrument is well protected with proper packing materials to cushion and protect it from harm during transit.

To store the instrument, place it in its optional case or in a box, under cover, in an environment as stated in the Specifications in Section 1-5.

2-5 Power Considerations and Connecting to AC Power

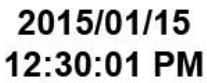
The PCE Instruments instrument comes with a power adapter line cord for AC powered operation. The power adapter is designed to operate with line voltage from around the world. The correct plug adapter must be used to match your local AC power adapter standard. If the instrument power adapter does not have the proper plug configuration, please contact PCE Instruments or an authorized reseller for service.

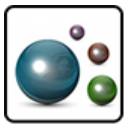
To install the country specific plug adapter, simply slide the adapter into the power supply as shown.

2-6 Turning the Unit On

The PCE-PQC Series instruments are designed to operate as fixed installed instruments, and automatically power on when power is applied to the external power connector. The instrument can be powered down from the Power Management Screen (see section 7.1) but will only power back up if the power connection is removed and reconnected.

3-1 Control and Menu Icons (ALL MODELS)

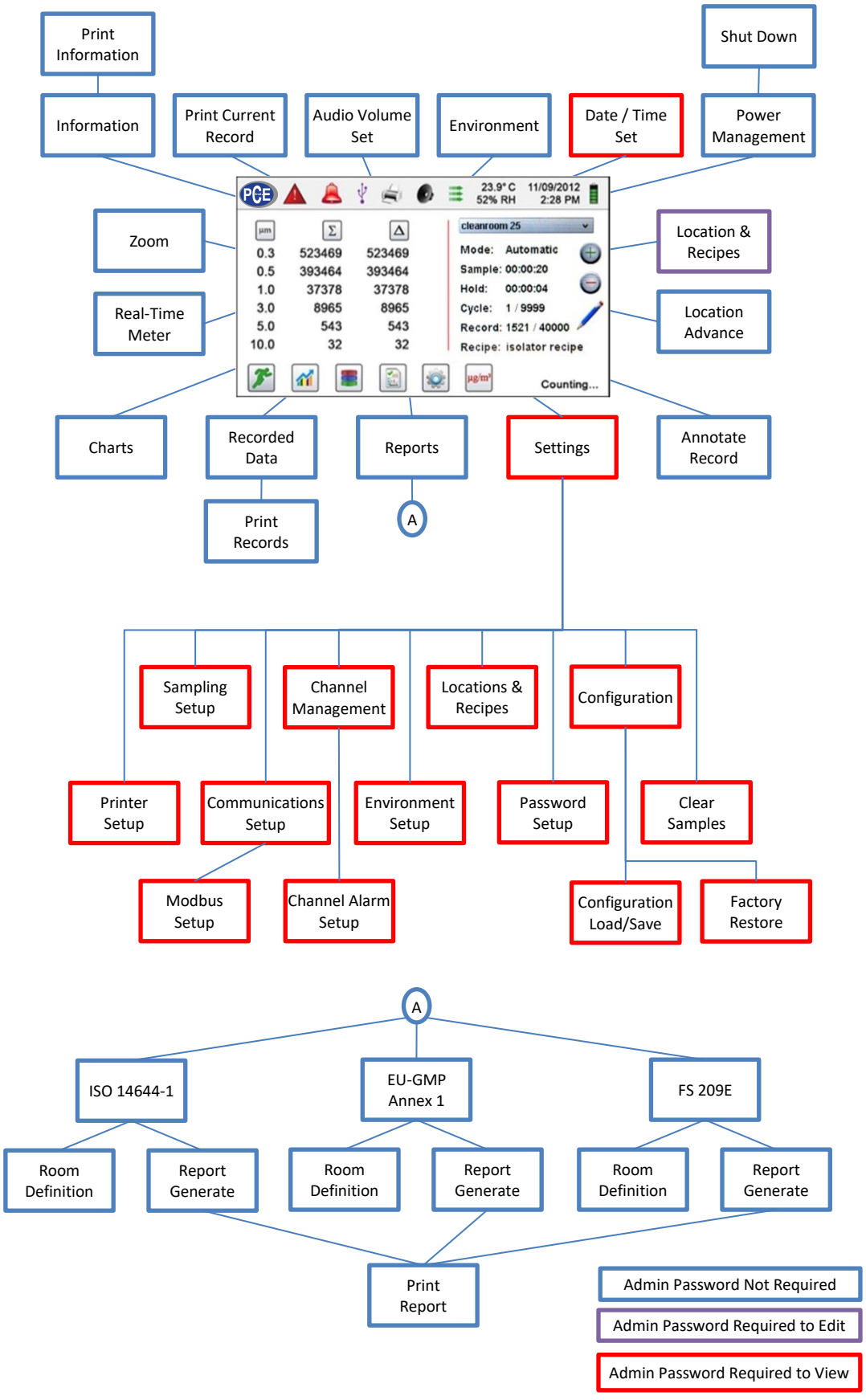
	Function Name	Location/Screen	Description of Function
	PCE Logo Icon	Home Screen	Press the logo and the product information screen will appear displaying your model number, serial number, manufacture date, last calibration date, next calibration due date, and number of channels activated on the unit. Press the Back Arrow icon on bottom left corner of the display to return to Home screen.
	Speaker Icon	Home Screen	Press the speaker icon to adjust volume using a pop-up slider bar. Press the cross bar on slider and move up and down for volume control. Icon will have red prohibited symbol when sound is turned off or muted.
	Temperature & RH Indicator	Home Screen	Press the temperature and RH value indicator, to open a larger screen that displays Temperature, Relative Humidity, and the current Barometric Pressure. Press the Back Arrow icon on bottom left corner of the display to return to Home screen.
	**Time and Date Indicator**	Home Screen	Press the time and date to change the current time and date.
	Power Management Icon	Home Screen	Press the power adapter indicator to display the power management screen.
	USB Icon	Home Screen	If a USB drive is connected, the USB Icon will appear. Press the USB Icon to save the current record to the USB drive.
	Printer Indicator	Home Screen	If the PCE Instruments Printer is connected to USB Port, press the Printer Icon to print the current record.
	System Warning Indicator	Home Screen	When the System Warning Indication Icon appears, press to display additional information. Please contact PCE Instruments technical service for assistance should the Icon remain visible.

	Function Name	Location/Screen	Description of Function
	Alarm Indicator	Home Screen	Visual indication that the instrument has exceeded the user-defined thresholds. Press icon to silence the alarm.
	Run Icon	Home Screen	Press the Run icon to start sampling. Once pressed the Run icon will be replaced by the Stop icon.
	Stop Icon	Home Screen	Press the Stop icon to stop the instrument from sampling.
	Display Mode Icon	Home Screen	Press the Display Mode icon to switch between the Main Screen, Real-Time Meter, Graphing, and PM screen (must enable Mass Mode by going to Settings, then Channel Management for PM Screen).
	Recorded Data Icon	Home Screen	Press the Recorded Data icon to display the saved data records page. All saved records can be accessed from this screen.
	Reports Icon	Home Screen	Press the Reports icon to display ISO 14644-1, EU-GMP Annex 1, or Federal Standard 209E.
	**Particle Icon**	Home Screen	Press the Particle icon to change the indicated values from particle count to count per cubic meter, count per cubic foot, or particle mass concentration (must enable Mass Mode by going to Settings, then Channel Management to display particle mass concentration).
	Differential Mode Icon	Home Screen	Press the Differential Mode icon to toggle the differential data values on and off.
	Cumulative Mode Icon	Home Screen	Press the Cumulative Mode icon to toggle the differential data values on and off.
	Location Menu Icon	Home Screen	Press the Location Menu icon to display the Location and Recipe set-up page. This feature allows for the input of up to 1,000 locations and up to 50 unique user-defined recipes.

	Function Name	Location/Screen	Description of Function
Mode: Automatic	**Mode Indicator**	Home Screen	The Mode Indicator displays the current mode of operation for the instrument. Modes include automatic, manual, and continuous.
Sample: 00:01:00	**Sample Indicator**	Home Screen	The Sample Time indicator displays the current sample time duration (Hours:Minutes:Seconds). This value will count down from the set value for the sample time, displaying the amount of time left in the current sample (go to Settings, then Sampling Setup to change Sample Timing).
Hold: 00:02:00	**Hold Indicator**	Home Screen	The Hold Time indicator displays the current hold time as an interval between samples. The maximum hold time is 99 hours, 59 minutes and 59 seconds (go to Settings, then Sampling Setup to change Hold Time).
Cycle: 1 / 3	**Cycle Indicator**	Home Screen	The Cycle indicator displays the number of count samples that will be taken at a location in automatic mode. The maximum number of possible cycles is 9,999. The value is displayed as the sample number vs. the total number of samples to be completed in this cycle (go to Settings, then Sampling Setup to change Cycles).
Record: 1 / 45000	**Record Indicator**	Home Screen	The Record indicator displays the total number of sampling records saved in the instrument. The instrument is capable of storing 45,000 records in a rotating buffer.
	Settings Menu Icon	Home Screen	Press the Settings Menu icon to open the Settings Screen. All aspects of the instrument's set-up can be managed from the icon driven sub-menus.
	Annotation Icon	Home Screen	Press the Annotation icon to notate up to 32 characters for each record. This action can be performed during sampling or after a sample has been taken. The green pencil indicates an annotation exists for any record (go to Settings, then Configuration to enable Annotations).

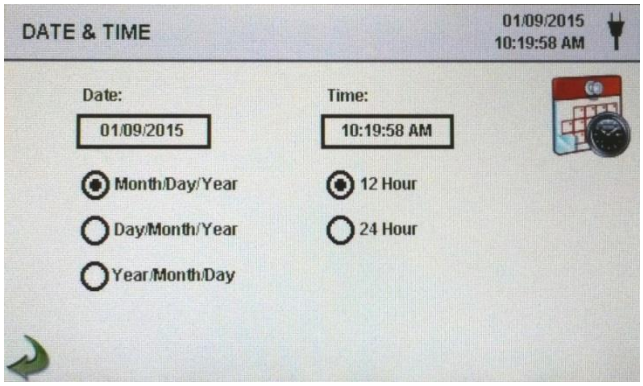
	Function Name	Location/Screen	Description of Function
	Plus and Minus Buttons	Home Screen	Press the Plus or Minus icons to scroll through 1,000 possible locations that can be saved and uniquely identified in the Locations setup screen. Locations can have set recipes assigned to them in advance for ease-of-use during sampling.
	Flow & No Flow Indicator	Home Screen	The three horizontal arrows indicate that the pump is working and that the internal flow sensor is detecting the correct flow rate through the instrument. If a red line appears diagonally through the arrows, it is an indication of a flow error.
	Back Arrow Icon	Various Screens	Press Back Arrow icon to return to the previous screen.

4-1 Operational Flow Chart – Menu Map



5-1 Operation – Initial Power Up – First Time Use

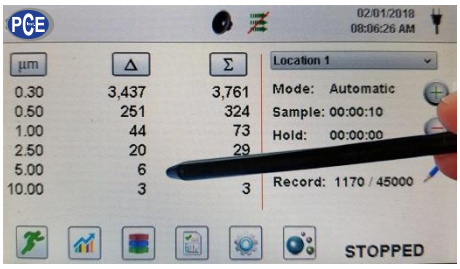
After the Particle Counter turns on for the first time, a window will appear stating “Time of Day Clock Not Set”. Press OK to Set Clock.



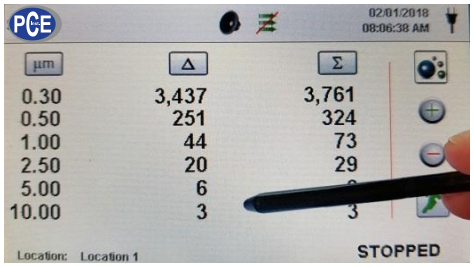
Date Format Select Button	Choose format for Month/Day/Year, Day/Month/Year, or Year/Month/Day by selecting the corresponding button on the screen.
Numeric Keypad	Press Date within the window and a numeric keypad will appear to change the date. To change the values, use the < or > to move cursor. When complete press OK button.
Time Format Select Button	Choose 12 hour or 24 hour clock indication by selecting the corresponding button on the touchscreen.
Numeric Keypad	Press Time within the window and a numeric keypad will appear to change time. Use 24 hour clock format for time entry to properly indicate AM or PM. To change the values, use the < or > to move cursor. When complete press OK button. Time will display AM or PM or 24 hour format based on the selection.
Back Arrow Icon	Press Back Arrow icon to return to the previous screen.

5-2 Display

Press any blank space on the screen to zoom in or out on the Home page.



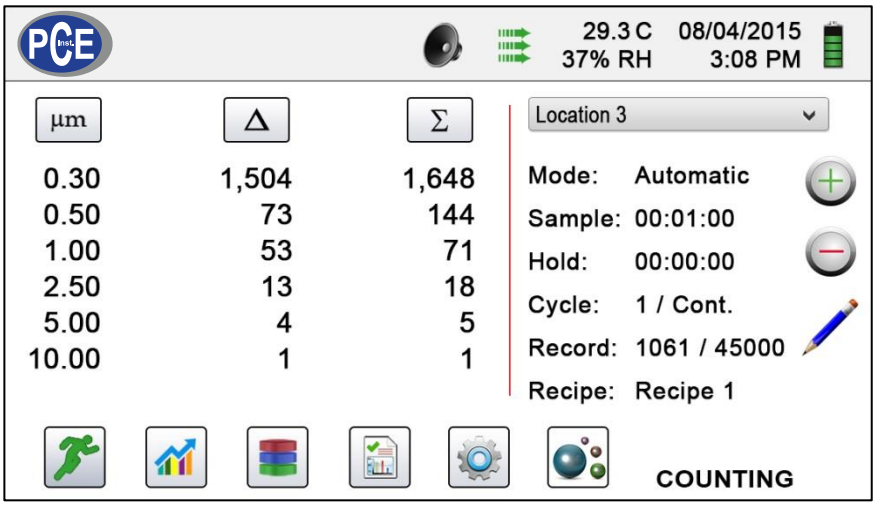
Standard View



Zoomed View

5-3 Taking a Sample

Main Sampling Home Screen



Taking a Sample

Using the Run icon on the display begins the sample

To take a sample, press the Run icon on the screen. This will begin the sample according to the sampling setup parameters displayed on the right side of the Home screen (go to Settings, then Sampling Setup to change Sample Timing).

Stopping the Sample

Using the Stop icon on the display stops the sample

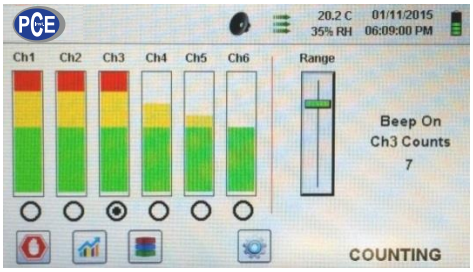
To stop a sample, press the Stop icon on the screen.

Data Unit of Measure Selection

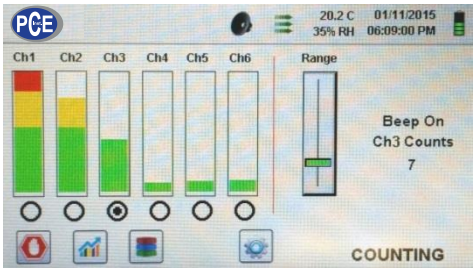
Press the Particle icon to change the indicated values from particle count to count per cubic meter, count per cubic foot, or particle mass concentration (must enable Mass Mode by going to Settings, then Channel Management to display particle mass concentration).

5-4 Real-Time Meter, Graphing, and Environmental Screens

The instrument will display a bar graph visualization that rises and falls with the increase of pulses counted per second, per channel. This can be used to pinpoint the source of particles within an area. The closer the instrument is to the source, the higher the indication appears on the bar graph.



Channel 3 selected and signal at maximum value



Range slider lowered to reduce Channel 3 value

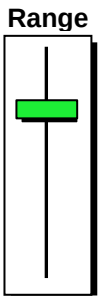
Real-Time Meter Operation

Start/Stop Sampling while on Real-Time Meter or Graphing Screen

The Sampling can be started or stopped from these screens using the Run or Stop icons or by using the one touch button.

Channel Select – Radio Button

Select the channel size that is the focus of the particles being investigated by clicking on the radio select button below each channel. The channel selected also represents the data being displayed in pulses per second on the Graphing screen.



Range – Sensitivity Adjustment Slider

Press and slide the Range slider bar up towards the top of the slider to increase sensitivity and down towards the bottom of the slider to decrease sensitivity. As the instrument gets closer to the particle source the visual signal can increase and hit 100% of the indicated scale long before the actual source of the contamination is found. By moving the Range slider bar down, the sensitivity is reduced, and the indication is scaled down. This action can be repeated until the source is identified.

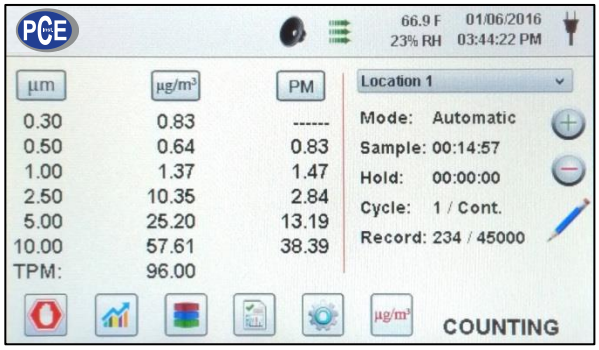
Switching between Main Screen, Real-Time Meter, Graphing, and Environmental Screens

Press the Real-Time Meter icon to switch between the Main screen, Real-Time Meter, Graphing, and Environmental screens (must enable Mass Mode by going to Settings, then Channel Management to display Environmental screen).
NOTE: Go to Settings, then to Screens to select which screens will be available.

Real-Time Graph Operation

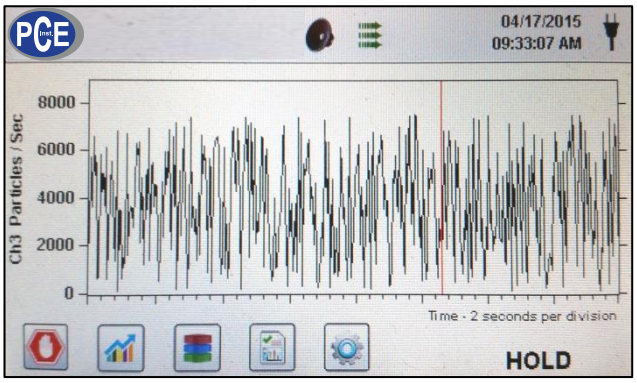
µg/m³ is displayed in the first column for that particle size up to the next size as a value

PM is the sum of all previous channels not including that channel size value



If the Graph function is chosen, this feature graphically displays the pulses per second, making the graph's historical information useful in point source detection.

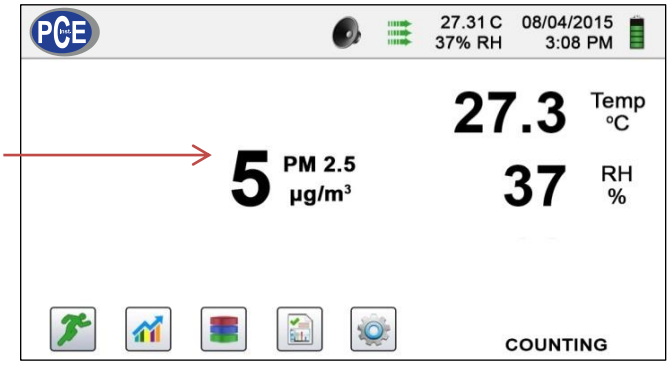
Real-Time Graph



Environmental Screen

This screen displays specific PM size, temperature and humidity.

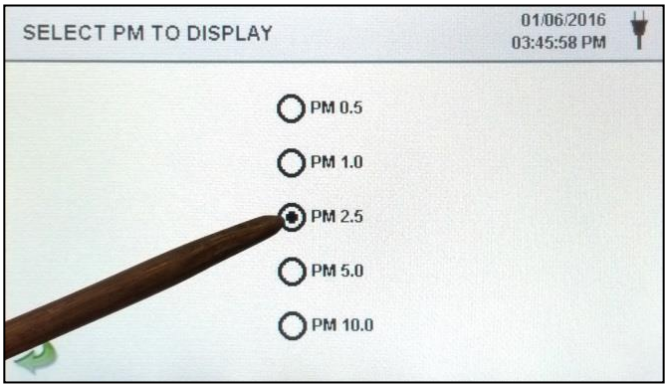
Pressing the PM value accesses the Select PM To Display screen (shown below)



Environmental Screen Size Select

Select the PM size channel to be displayed

Press Back Arrow to return to the previous screen

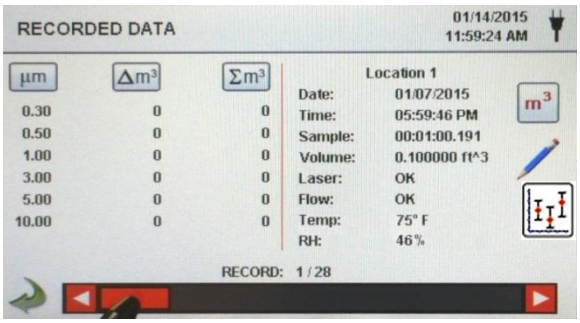


5-5 Recorded Data

The instrument stores up to 45,000 records that can be accessed by selecting the recorded data icon. The Recorded data page uses a horizontal slider bar for scrolling left and right through all records. Press white arrows for fine control in locating a specific record. Press the slider button with the stylus and drag left or right to navigate through large amounts of records quickly.

NOTE: After the 45,000th sample is recorded, the software deletes one block of 250 records. After the block is deleted the next record number will become 44,751. The instrument will then store data to record 45,000 before repeating this process. Each block removed is from the oldest record first, following a first in / first out method.

Recorded Data Screen

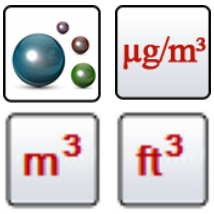


Print or Save the Current Record being displayed

If a Printer or USB thumb drive is attached to the instrument, the current record on the Recorded Data Screen can be downloaded or printed by pressing the corresponding Printer or USB icon.

Turn off Cumulative or Differential columns

All displayed channel values can be turned off or back on from the recorded sample record by toggling the mode icons.

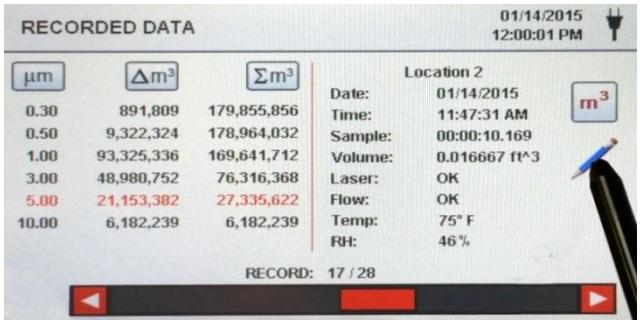


Data Units

Data Units can be changed to the corresponding calculated values by pressing the Particle icon. Press the icon to change between particle count, count per cubic meter, count per cubic foot, or µg/m³ (if enabled).

Adding Annotations to Recorded Data

Press the Annotation icon to notate up to 32 characters for each record. This action can be performed during sampling or after a sample has been taken. The green pencil indicates an annotation exists for any record (go to Settings, then Configuration to enable Annotations).



Annotations Keyboard

Saved Annotation Icon

The green pencil over a document icon denotes that an annotation exists on that record. The annotation can be accessed, edited or deleted.

Caps Lock, ?123, and Delete Keys

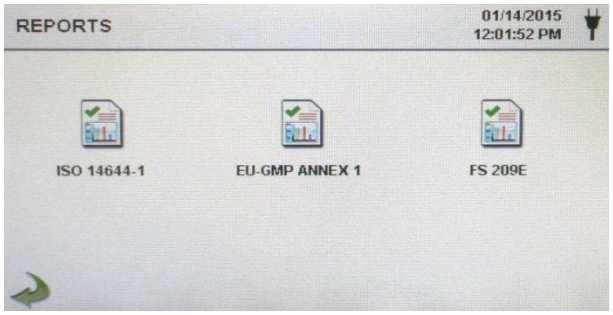
Pressing the Shift Key will activate or deactivate the Caps Lock function. Pressing the ?123 Key will toggle the use of numbers and symbols. Pressing the Backspace Key will delete all text entered on the text line.

Statistics

Pressing the Statistics icon will provide an onscreen display of the minimum, maximum, and average values for the records selected. This function is disabled if a printer or USB stick is connected to the instrument.

5-6 Reports

Report Functions



ISO 14644-1

Press the ISO 14644-1 icon to generate a report based on the parameters and guidelines of the ISO standard.

EU-GMP Annex-1

Press the EU-GMP ANNEX 1 icon to generate a report based on the parameters and guidelines of the EU-GMP standard.

FS 209E Press the FS 209E icon to generate a report based on the parameters and guidelines of the US Federal standard 209E.

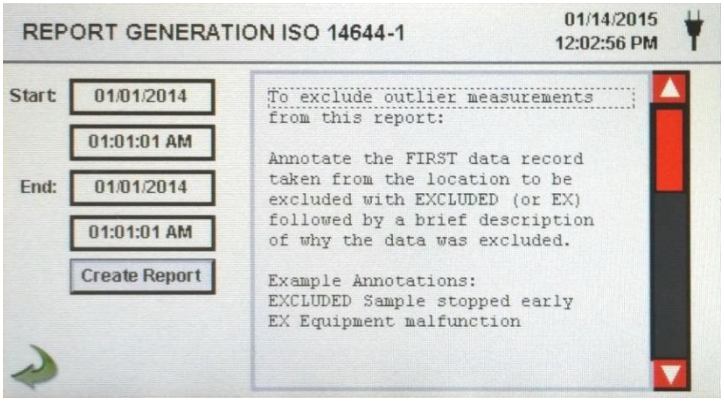
Room parameters can be defined by pressing the Room Definition button. To generate a report, select the Generate button. This creates a report document that can be saved to an external thumb drive, or printed to a connected printer.

Press the Create Report button for 5 seconds to display a sample report with the current test records. These records will be added to the recorded data so the values and information can be reviewed prior to completing the report and saving to an external source.

Generate

Create Report

Press the Generate button to display the Report Generation screen

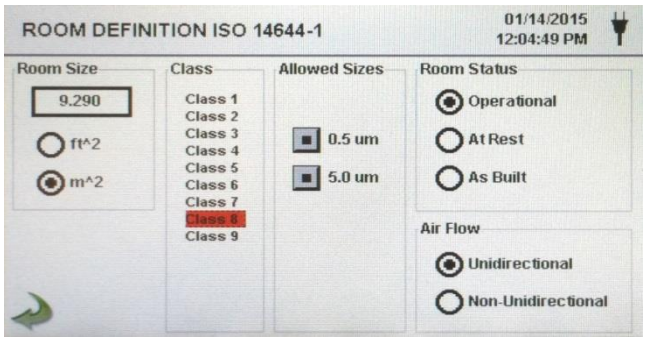


Create Report

Press the Start and End Windows to enter the Start and End dates and times. Press the Create Report button to generate the report. If the values of the count or sampling set-up are incorrect, the report will indicate the errors prior to the report being generated.

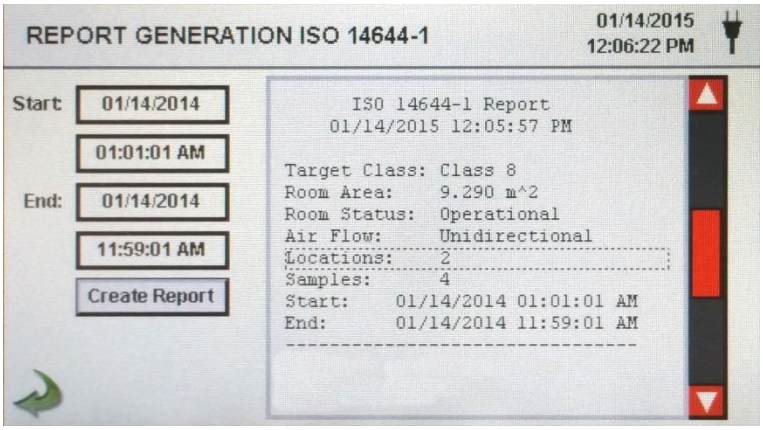
To exclude an outlier measurement from the report, go to Recorded Data, find the specific recorded data to be excluded and annotate the record by writing “EXCLUDED” or “EX”. A brief description must be added after the “EXCLUDED” or “EX” explaining why the data is being excluded. Example Annotations: “EXCLUDED Sample Stopped Early” or “EX Equipment Failure”.

Room Definition



Each Report has a Room Definition page to input data that defines the output of the report. The inputs include Room Size, Class, Allowed (Channel) Sizes, Room Status and Air Flow.

Sample Report Screen



Sample Report (Printed)

```
      ISO 14644-1 Report
    01/16/2015 06:54:08 AM

Target Class: Class 5
Room Area:    80.000 m^2
Room Status:  Operational
Air Flow:     Unidirectional
Locations:    9
Samples:      11
Start:     01/16/2015 06:53:01 AM
End:       01/16/2015 06:53:09 AM
--------------------------------
Class Class 5 (at 0.3)       PASS

 Class Limit:   10,200.00 P/m^3
 Min Sample Vol:  0.00283   m^3

 Grand Mean:             6,349.21
 Std Dev:                2,154.42
 Std Error:                718.14
 95% UCL:                7,684.94

Location               Avg P/m^3
14644 Test Loc 1         8,750.0
14644 Test Loc 2         6,607.1
14644 Test Loc 3         2,107.1
14644 Test Loc 4         3,785.7
14644 Test Loc 5         5.857.1
--------------------------------
Class Class 5 (at 0.5)       PASS

 Class Limit:    3,520.00 P/m^3
 Min Sample Vol:  0.00568   m^3

 Grand Mean:               706.35
 Std Dev:                  381.65
 Std Error:                127.22
 95% UCL:                  942.97

Location               Avg P/m^3
14644 Test Loc 1            750.0
14644 Test Loc 2            857.1
14644 Test Loc 3              0.0
14644 Test Loc 4            250.0
14644 Test Loc 5            785.7
--------------------------------
Unit Serial #:               1000
Last Cal:              05/15/2014
-------- End of Report ---------
```

Printing or Saving a Report

With a thumb drive or printer connected, press the Printer icon to print a report, or press the USB icon to save a report.
NOTE: A thumb drive or printer must be connected to the instrument to display these icons.

6-1 Settings

Settings Screen

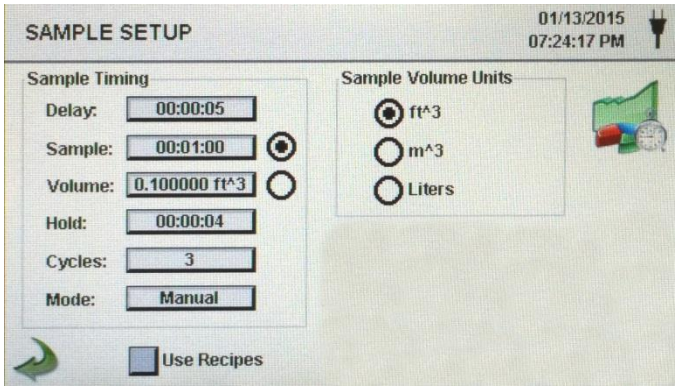
Press the Settings Menu icon to open the Settings Screen. All aspects of the instrument's set-up can be managed from the icon driven sub-menus. When the administrator password is in

use, this screen is not available and may only be accessed and settings modified by the administrator.

6-2 Sampling Setup

Sampling Setup Screen

Press the Sampling icon to display the Sample Setup screen.



Delay

Press the Delay window to open the Enter Time screen. To select the value to change, use the < or > to move cursor. The entry is made in Hours:Minutes:Seconds (HH:MM:SS). The maximum Delay time is 99 hours, 59 minutes and 59 seconds. When complete press OK button.
NOTE: This allows the operator to leave an area before sampling begins.

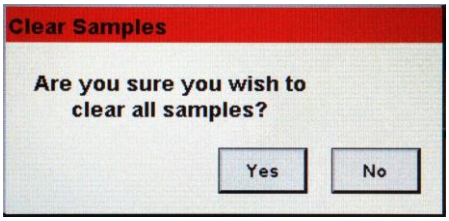
Sample

Press the Sample window to open the Enter Time screen. To select the value to change, use the < or > to move cursor. The entry is made in Hours:Minutes:Seconds (HH:MM:SS). The maximum Sample time is 99 hours, 59 minutes and 59 seconds. When complete press OK button.

Volume

Press the Volume window to open the Enter Sample Volume screen. To select the value to change, use the < or > to move cursor. The volume value entered will control the length of time per sample to achieve the desired sample volume.

Sample or Volume Selection Buttons	Selecting the Sample button will cause the sample to be time based. Selecting the Volume button will cause the sample to be based on the volume of air to be measured.
Hold	Press the Hold window to open the Enter Time screen. This controls the amount of time the instrument will hold between samples in automatic mode. To select the value to change, use the < or > to move cursor. The entry is made in Hours:Minutes:Seconds (HH:MM:SS). The maximum Hold time is 99 hours, 59 minutes and 59 seconds. When complete press OK button.
Cycles	Press the Cycles window to open the Enter Cycles screen. This controls the number of sampling cycles to be taken at a specific location when the unit is in automatic mode. To select the value to change, use the < or > to move cursor. When complete press OK button. **NOTE:** Enter (0000) to activate Continuous Sampling Mode.
Mode	Press the Mode window to open the Select Sample Mode screen. Select Automatic or Manual. When complete press OK button.
Sample Volume Units	Select Cubic Feet (ft^3), Cubic Meters (m^3) or Liters.
Use Recipes Button	The Use Recipes button activates Recipes on the Select Location & Recipe screen. Recipes associated with locations will be utilized in place of the general settings from the Sample Setup screen.
Clear All Samples	Press Clear Samples icon to open the Clear Samples window. All records on the instrument can be cleared with this function. **NOTE**: This action is not reversible and all data will be cleared by pressing the Yes button.

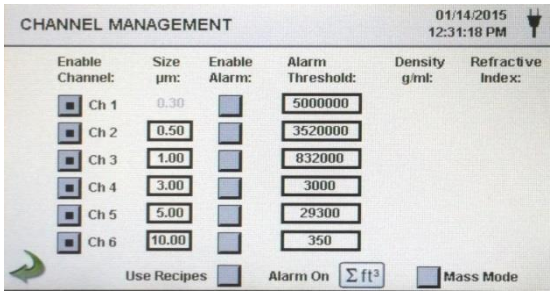


Back Arrow Icon Press the Back Arrow icon to return to the previous screen.

6-3 Channel Management

This screen provides control of many rich features such as enabling or disabling channels, setting custom channel sizes, enabling or disabling alarms by channel, and the setting of the alarm thresholds. The mass concentration mode may also be activated to allow entry of particle density and refractive index values by channel.

Channel Management Screen



Enable Channel

Each channel can be turned on or off by pressing the corresponding radio button. When the channel is turned off all values related to that channel are ignored and will not be displayed or recorded.

Size µm

Press the Size µm window to open the Enter Channel Size screen. This controls the particle size measured and recorded for the selected channel. This feature is also known as variable binning, and is ideal for focusing on specific particle sizes. To select the value to change, use the < or > to move cursor. When complete press OK button.

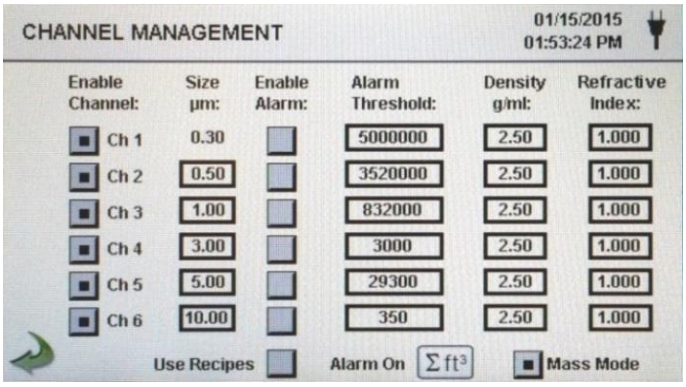
Enable Alarms

Each channel can have an alarm enabled or disabled by pressing if the User Recipes button is not selected. If enabled, Press the Alarm Threshold window to open the Enter Alarm Threshold screen. To select the value to change, use the < or > to move cursor. When complete press OK button.

Alarm On

Press the Alarm On button to open the Channel Alarm Setup screen. Select Δ (Differential Count), Δft³ (Differential Cubic Feet), Δm³ (Differential Cubic Meter), Σ (Cumulative Count), Σft³ (Cumulative Cubic Feet Count), Σm³ (Cumulative Cubic Meter Count), PM (µg/m³).

Mass Mode Settings



Mass Mode Enable — Press the Mass Mode button to enable Mass Mode. The instrument will now display particle count data as calculated particle mass concentration in weight/volume units. The international SI unit for mass is (kg/m³), which can be translated to micro grams per milliliter (µg/ml).

Density g/ml — Press the Density g/ml window to open the Enter Density Factor screen. To select the value to change, use the < or > to move cursor. When complete press OK button.

Refractive Index — Press the Refractive Index window to open the Enter Refractive Index screen. To select the value to change, use the < or > to move cursor. When complete press OK button.

Calculation of displayed Values on Main Screen for Mass Concentration Mode

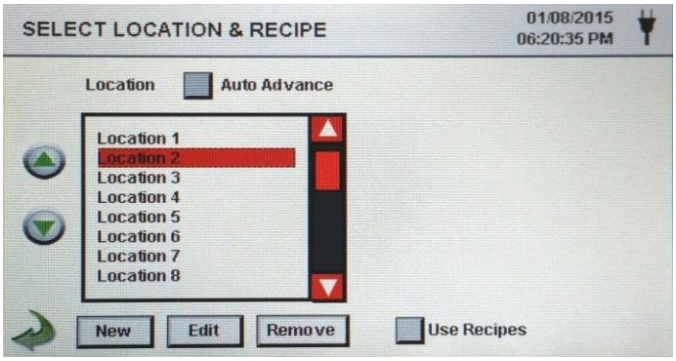
µg/m3 Indicated Values — When Mass Mode is selected and µg/m³ is selected on the Main screen, the instrument is measuring in Mass Concentration Mode. The mass value for a channel size is the particle count between that channel and the next larger channel, calculated using the average particle size of the two channels. For example, the value in the 0.50 µm data field represents the mass of all particles counted between this channel and the next highest channel, calculated as the mass of a particle that is 0.75 µm.

Particle Mass Indicated Values — When Mass Concentration Mode is selected, µg/m³ is the measured value in the first column. The column labeled PM shows the total particle mass of particles that are less than the displayed channel size. For example, the value displayed in the PM column for the 2.5 µm channel is the particle mass (µg/m³ column) of all particles with a size less than 2.5 µm, generally referred to as PM2.5.

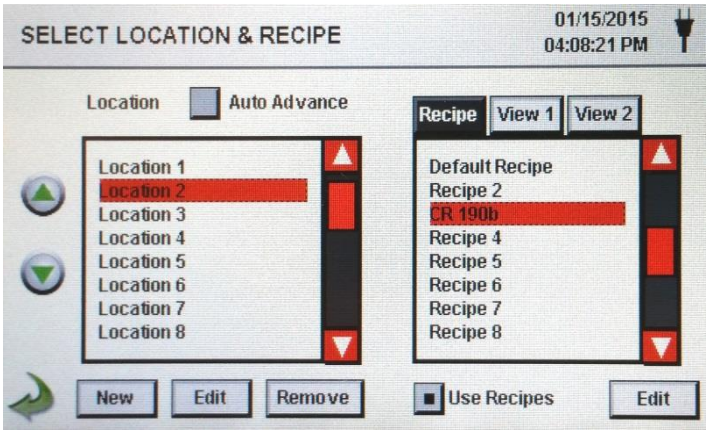
6-4 Locations & Recipes

Press the Locations & Recipes icon to open the Select Location & Recipe screen. Up to 1,000 unique location names can be created. Pressing the User Recipes button allows the creation of location specific recipes which utilize preset sample Delay, Sample or Volume, Hold, Cycles, Mode and Channel Alarm.50 unique recipes can be created and assigned to any number of locations.
NOTE: This feature is only useful if your device is portable, and not fixed-mounted.

Select Location & Recipe Screen

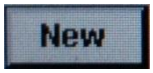


Auto Advance	**Location Auto Advance**	Select the Location Auto Advance button to auto advance to the next location.
	Slider	The Select Location & Recipe screen uses a vertical slider bar for scrolling through all locations. Press white arrows for fine control. Press the slider button with the stylus and drag to navigate through large amounts of locations quickly.
	Change Sequence of Locations	Press the silver and green up and down arrow buttons on the left side of the locations list to change the sequence of locations.
	New Location Entry	Press the New button to open the Enter Name For New Location screen. Use the keyboard to enter the name of the new location. Press OK to save the new location name or ESC to return to the previous screen.
	Edit Location	Press the Edit button to open the Enter Name For New Location screen. Use the keyboard to edit the name of the location. Press OK to save the new location name or ESC to return to the previous screen.
Remove	**Remove Location**	Press the Remove button to delete the currently highlighted location.
Use Recipes	**Use Recipes**	Press the Use Recipes button to display the recipes settings. Select the Location in the Location box and the recipe in the Recipe box to assign the recipe to that location. The location can have one of 50 possible recipes assigned to it.



Edit Recipe for Selected Location

Press the Edit button on lower righthand side of the screen to open the Edit Recipes screen.

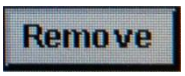


New Recipe Entry

Press the New button to create a new recipe. The Enter Name for New Recipe screen will appear. Use the touchscreen keyboard to enter the name of the new recipe. Press OK to return to the previous screen.

Edit Recipe

Press the Edit button to modify the existing recipe highlighted on the Location list. Pressing this button will display the Enter New Name for Recipe screen. Use the touchscreen keyboard to modify the name of the existing recipe. Press OK to return to the previous screen.



Remove Recipe

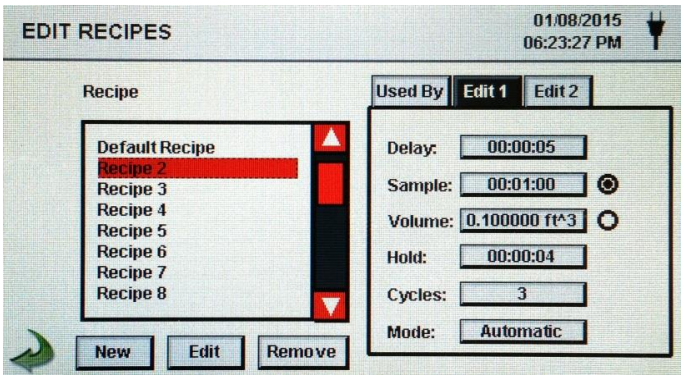
Press the Remove button to delete the recipe that is highlighted on the Location list.

Used By Tab

The Used By window displays all locations currently set for the current recipe.

Edit 1 Tab

Press the Edit 1 tab to adjust the settings for Delay, Sample, Volume, Hold, Cycles, and Mode for the selected recipe.



Edit 1 Delay

Press the Delay window to open the Enter Time screen. To select the value to change, use the < or > to move cursor. The entry is made in Hours:Minutes:Seconds (HH:MM:SS). The maximum Delay time is 99 hours, 59 minutes and 59 seconds. When complete press OK button.

NOTE: This allows the operator to leave an area before sampling begins.

Edit 1 Sample

Press the Sample window to open the Enter Time screen. To select the value to change, use the < or > to move cursor. The entry is made in Hours:Minutes:Seconds (HH:MM:SS). The maximum Sample time is 99 hours, 59 minutes and 59 seconds. When complete press OK button.

Edit 1 Volume

Press the Volume window to open the Enter Sample Volume screen. To select the value to change, use the < or > to move cursor. The volume value entered will control the length of time per sample to achieve the desired sample volume.

Sample or Volume Selection Buttons

Selecting the Sample button will cause the sample to be time based. Selecting the Volume button will cause the sample to be based on the volume of air to be measured.

Hold Edit

Press the Hold window to open the Enter Time screen. This controls the amount of time the instrument will hold between samples in automatic mode. To select the value to change, use the < or > to move cursor. The entry is made in Hours:Minutes:Seconds (HH:MM:SS). The maximum Hold time is 99 hours, 59 minutes and 59 seconds. When complete press OK button.

Edit 1 Cycles

Press the Cycles window to open the Enter Cycles screen. This controls the number of sampling cycles to be taken at a specific location when the unit is in automatic mode. To select the value to change, use the < or > to move cursor. When complete press OK button.

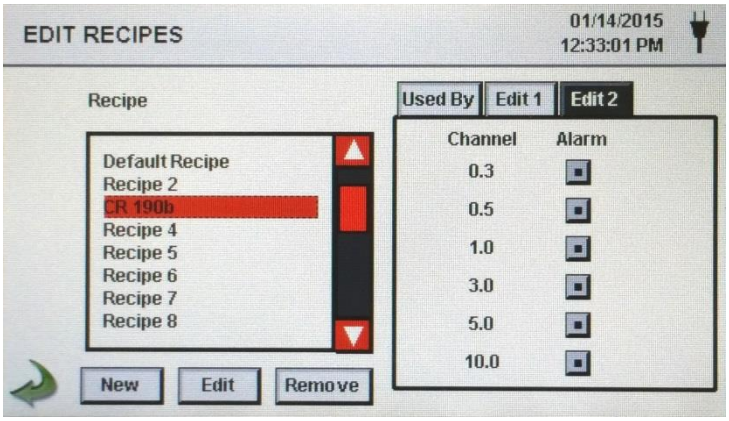
NOTE: Enter (0000) to activate Continuous Sampling Mode.

Edit 1 Mode

Press the Mode window to open the Select Sample Mode screen. Select Automatic or Manual. When complete press OK button.

Edit 2 Tab

Press the Edit 2 tab to enable alarms for each channel size.



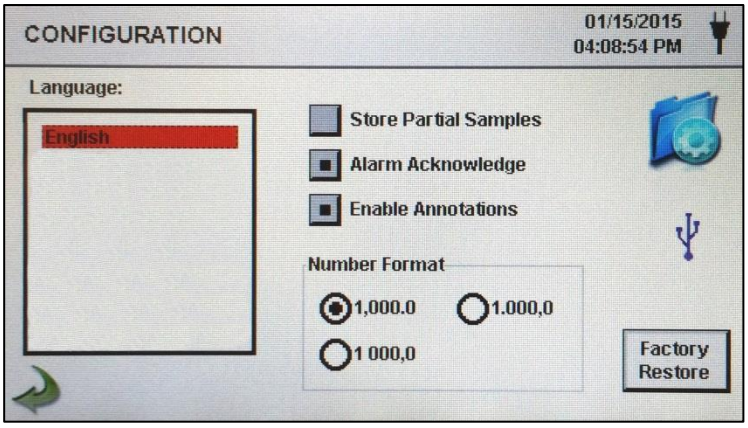
Back Arrow Icon

Press the Back Arrow icon to return to the previous screen.

6-5 Configuration

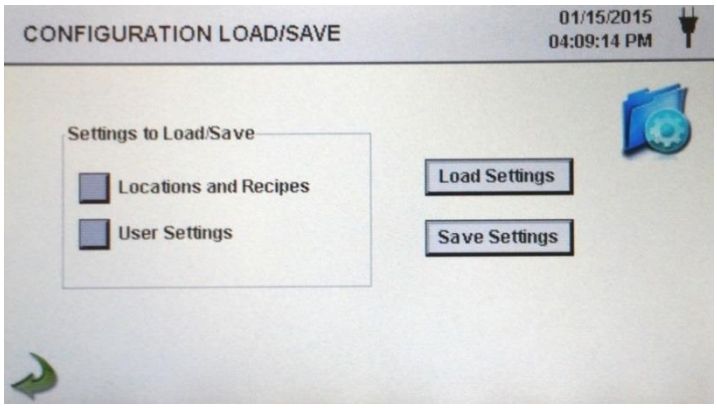
Press the Configuration icon to select Language, Store Partial Samples, Alarm Acknowledgement, Enable Annotations, Number Format, Save Configuration to a USB thumb drive, and Factory Restore.

Configuration Screen



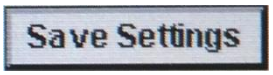
Language	Select and highlight the language to be used with your device.
Store Partial Samples	Select the Store Partial Samples button to save values from a prematurely ended sampling. If this option is left unchecked, the instrument will ignore partial sampling events.
Alarm Acknowledge	Select the Alarm Acknowledge button and the visual alarm bell and the audible sounder will continue to sound until the alarm bell icon is pressed on the Main screen.
Enable Annotations	Select the Enable Annotations button to allow annotations to be entered for each sample record. These annotations will be included in downloaded record data.
Number Format	Select between 1,000.0, 1.000,0 or 1 000,0
Factory Restore	Press the Factory Restore button to open the Confirm Factory Restore screen. Select Settings to Restore and press the Confirm button.
USB Icon	When a USB thumb drive is plugged into the USB host port, the USB icon will appear on the Configuration screen. Press the USB icon to open the Configuration Load/Save screen. Select Settings to Load/Save and press Load Settings or Save Settings. **NOTE:** This feature can be used to load the instrument's configuration to any other PCE Instruments Particle Counter.

Configuration Load/Save Screen



Settings to Load/Save — Select the check boxes to choose Locations and Recipes and/or User Settings to load or save to a USB thumb drive.

Load Settings — Press the Load Settings icon to initiate loading a previously saved settings configuration into the instrument.

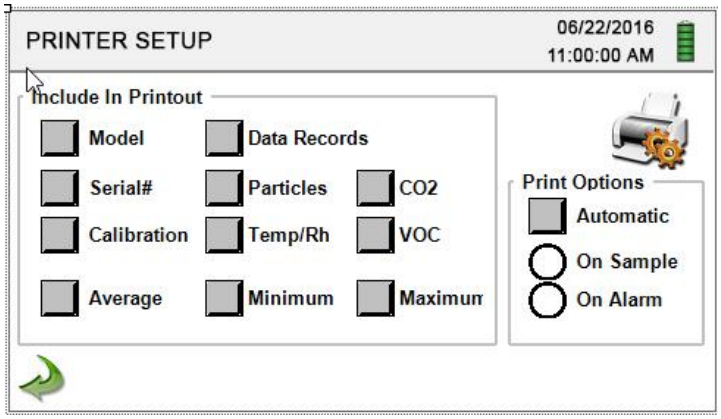


Save Settings — Press the Save Settings icon to initiate saving the current configuration to a USB thumb drive.

Back Arrow Icon — Press the Back Arrow icon to return to the previous screen.

6-6 Printer Setup

Press the Printer Setup icon to open the Printer Setup screen.



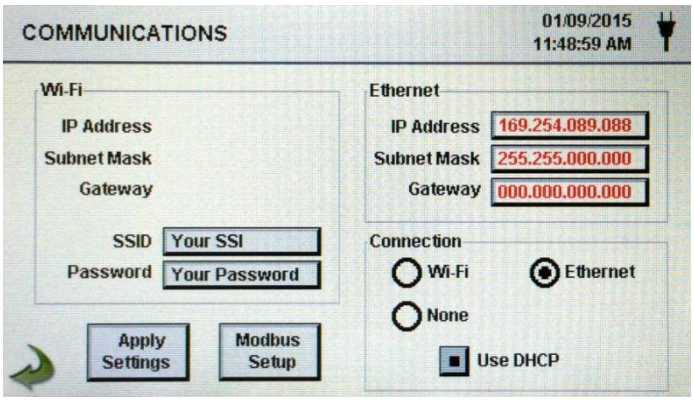
Include in Printout — Select each item to be included in printed values and reports.

Automatic Printing — Select Print Options Automatic button to enable automatic printing On Sample or On Alarm.

6-7 Communication

The instrument has multiple modes of communication for uploading or downloading data or configurations for operation. The modes of communication include Ethernet, RS485, RS232, USB Host or Client, and Optional Wi-Fi. Press the Communication icon to open the Communications screen.

Communications Screen



Ethernet Communication

Select the Ethernet radio button for Ethernet connection.

Use DHCP

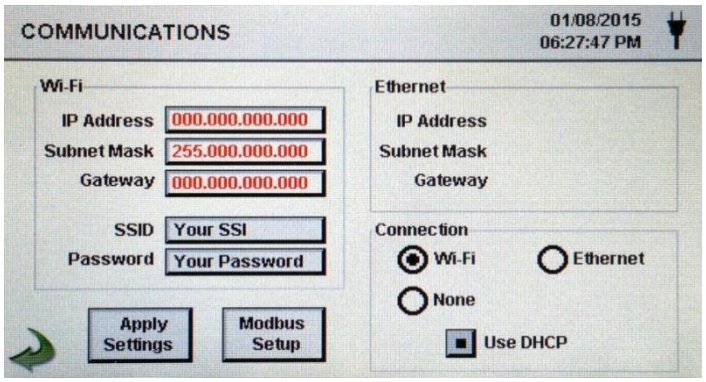
When the DHCP button is selected the instrument will obtain an IP address, subnet mask and gateway information from the router automatically.

IP Address, Subnet Mask, & Gateway

If the DHCP button is not selected Press the IP Address, Subnet Mask and Gateway windows to enter the desired values for your router. A numeric keypad will be displayed for entering these values. To select the value to change, use the < or > to move cursor. When complete press OK button.

Wi-Fi Communication

The instrument can support an optional Wi-Fi communication module. Select the Wi-Fi radio button for Wi-Fi connection.



Use DHCP

When the DHCP button is selected the instrument will obtain an IP address, subnet mask and gateway information from the router automatically.

Wi-Fi IP Address, Subnet Mask, & Gateway

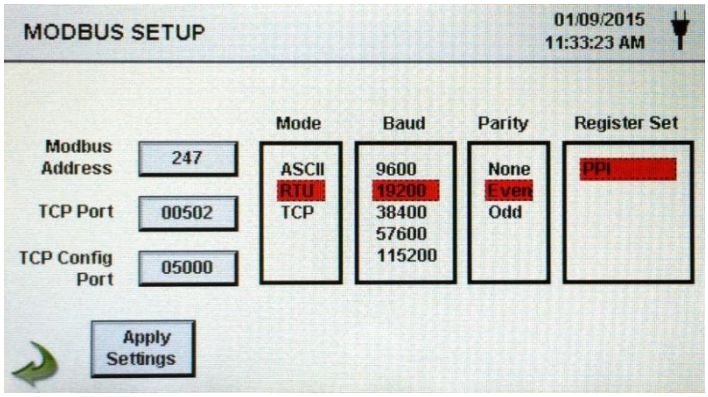
If the DHCP button is not selected Press the IP Address, Subnet Mask and Gateway windows to enter the desired values for your router. A numeric keypad will be displayed

for entering these values. To select the value to change, use the < or > to move cursor. When complete press OK button.

Wi-Fi SSID Press the Wi-Fi SSID window to enter the Wi-Fi SSID and press OK.
NOTE: Case Sensitive

Wi-Fi Password Press the Wi-Fi Password window to enter the Wi-Fi Password and press OK.
NOTE: Case Sensitive

Modbus Setup Press the Modbus Setup icon to open the Modbus Setup screen.



Modbus Address Press the Modbus Address window to open the Enter Modbus Address (0-247) screen. A numeric keypad will be displayed for entering these values. To select the value to change, use the < or > to move cursor. When complete press OK button.

TCP Port Press the TCP Port window to open the Enter Modbus TCP Port screen. A numeric keypad will be displayed for entering these values. To select the value to change, use the < or > to move cursor. When complete press OK button.

TCP Link Timeout The TCP Link Timeout is useful when a connection to a remote computer is absent for longer than the expected time (perhaps due to a router connection drop). This could allow the connection to be automatically reestablished.

Press the TCP Link Timeout window to open the Enter Modbus TCP Link Timeout screen. A numeric keypad will be displayed for entering the number of timeout seconds. To select the value to change, use the < or > to move cursor. When complete press OK button.

NOTE: Setting the TCP Link Timeout to 0 disables the timeout function.

Mode Select ASCII, RTU, or TCP.

Baud Select 9600, 19200, 38400, 57,600, or115200.

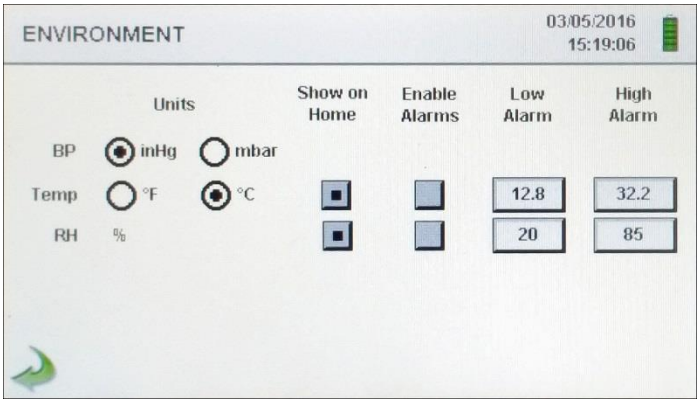
Parity Select Parity, Odd, Even, or None.

Register Set	Select Register Set.
RS-232 or RS-485	Select RS-232 or RS-485 radio button. **NOTE:** The Baud, Parity, and RS-232 or RS-485 are not used if TCP is selected
Apply Settings	Press the Apply Settings icon to apply Modbus Setup settings.
Back Arrow Icon	Press the Back Arrow icon to return to the previous screen.
MODBUS Register Map	The MODBUS register map can be found in the Appendix at the back of this manual.
Internet of Things (IOT)	The instrument can communicate to remote servers over a network or the Internet. The setup of this JSON protocol for IOT can be found in the IMS Manual.

6-8 Environment

Press the Environment icon to open the Environment screen to set Barometric Pressure (BP) Units, Temperature (Temp) Units, Enable Low and High Alarm, Setting Low and High Alarm and Show on Home.

Environment Setting Screen



Units Select Barometric Pressure (BP) Units in Inches of Mercury (inHg) or Millibar (mbar).

Select Temperature (Temp) Units in Fahrenheit (°F) or Celsius (°C).

Show on Home Select Show on Home Button to display the selected value on the Main screen.

Enable Alarms Select the Enable Alarm button to Enable Alarms.

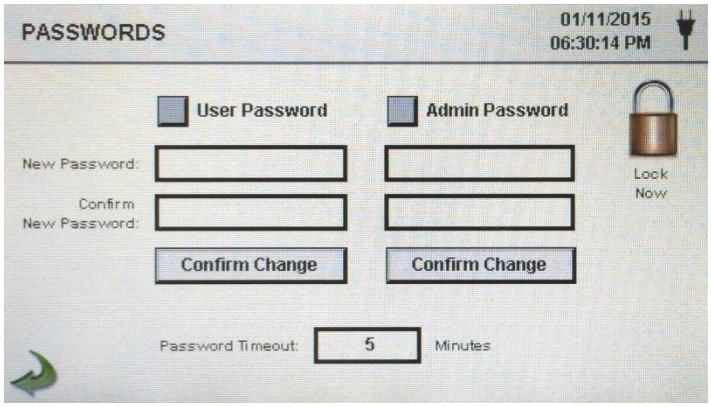
Low Alarm Press the Low Alarm window to open the Enter Low Threshold screen. A numeric keypad will be displayed for entering these values. To select the value to change, use the < or > to move cursor. When complete press OK button.

High Alarm Press the High Alarm window to open the Enter High Threshold screen. A numeric keypad will be displayed for entering these values. To select the value to change, use the < or > to move cursor. When complete press OK button.

6-9 Passwords

Press the Password Setup icon to open the Passwords screen.

Password Setup Screen



User Password	Select the User Password button to enable User Password, preventing any unauthorized use of the instrument. The User Password allows the use of the instrument in its current configuration and saving samples.
New Password **Confirm New Password**	Press the New Password window to open the Enter New User Password (4-15 Chars) screen. Press the Confirm New Password window to open the Confirm New User Password (4-15 Chars) screen. Press Confirm Change Button to save changes. **NOTE:** The default User Password is **1234.**
Admin Password	Select the Admin Password button to enable Admin Password, preventing access to Settings screens, Time/Date, and configurations by Users.
New Password **Confirm New Password**	Press the New Password window to open the Enter New Admin Password (4-15 Chars) screen. Press the Confirm Admin Password window to open the Confirm New Admin Password (4-15 Chars) screen. **NOTE:** The default Admin Password is **4321.**
Password Timeout	Press the Password Timeout window to enter the number of minutes (1-99) the instrument will timeout due to inactivity. A numeric keypad will be displayed for entering these values. To select the value to change, use the < or > to move cursor. When complete press OK button. **NOTE:** The default is five (5) minutes.
Lock Now	Press the Lock Now icon to immediately lock the instrument. **LOST PASSWORD:** Please call or email PCE Instruments for a temporary password that will be valid for the day the password is requested. **NOTE:** This unique password will automatically expire at the end of the day it is issued.

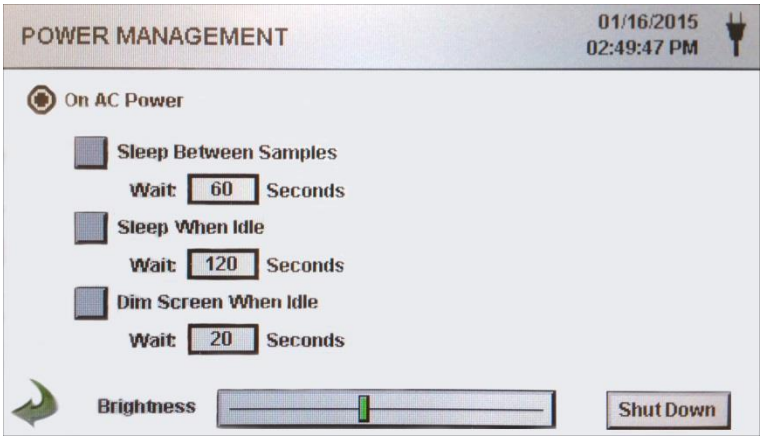
6-10 Screens

Press the Screens icon to open the Config. Screens window. Select Particles, Real-time meter, Graph, and/or PM Environmentals to activate the screens shown when repeatedly pressing the Screens icon on the Main page.

7-1 Power Management

Press the AC Adapter icon to open the Power Management screen.

Power Management Screen



Sleep Between Samples

Selecting the Sleep Between Samples button activates the feature for powering down the instrument between samples to conserve battery life. Press the Sleep Between Samples Wait window to open the Enter Wait Time screen. A numeric keypad will be displayed for entering the Wait Time in seconds from 0 to 65,535. To select the value to change, use the < or > to move cursor. When complete press OK button.
NOTE: A Hold Time has to be set for a minimum of 38 seconds in order to activate Sleep Between Samples.

Sleep When Idle

Selecting the Sleep When Idle button activates the feature for powering down the instrument when idle. Press the Sleep When Idle Wait window to open the Enter Wait Time screen. A numeric keypad will be displayed for entering the Wait Time in seconds from 10 to 65,535. To select the value to change, use the < or > to move cursor. When complete press OK button.

Dim Screen When Idle

Selecting the Dim Screen When Idle button activates the feature for dimming the instrument's screen when idle. Press the Dim Screen When Idle Wait window to open the Enter Wait Time screen. A numeric keypad will be displayed for entering the Wait Time in seconds. To select the value to change, use the < or > to move cursor. When complete press OK button.
NOTE: The minimum Dim Screen When Idle Wait Time is 10 seconds.

Brightness Slider

Press and slide the Brightness Slider to increase and decrease screen brightness.

Shutdown Icon

Press the Shutdown Icon to immediately Shut Down the instrument.

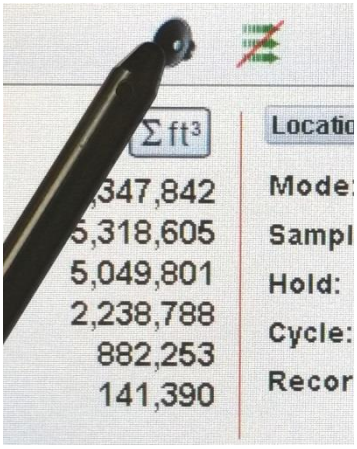
Back Arrow Icon

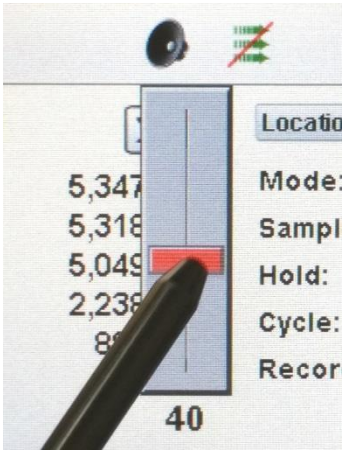
Press the Back Arrow icon to return to the previous screen.

8-1 Volume Controls

Volume Control Icon

Press the Volume Control icon to enable the Volume Control Slider. Slide the Volume Control Slider Bar to adjust the volume. A numeric value appears at the bottom of the slider to indicate relative volume. Moving the Volume Control Slider Bar to 0 mutes the instrument.





9-1 Instrument Management Software (IMS)

The instrument includes a PC based software utility for real-time graphing, downloading data from the instrument, field calibration of sensors, firmware updates, remote diagnostics direct to a service technician, and more.

NOTE: Detailed instructions for the use of the IMS software are contained in the IMS Software Manual on the included USB thumb drive.

Software Installation

Plug the provided thumb drive into your Windows PC and select the IMS Install web installer application file. Follow the installation prompts.

Start Software

Use the IMS Icon in the program folder or on the desktop to start the program.

Connection Indication

Connect the instrument to a PC with the provided USB cable to establish a connection between IMS and the instrument. When a connection has been established the Green USB Connection indication will appear.

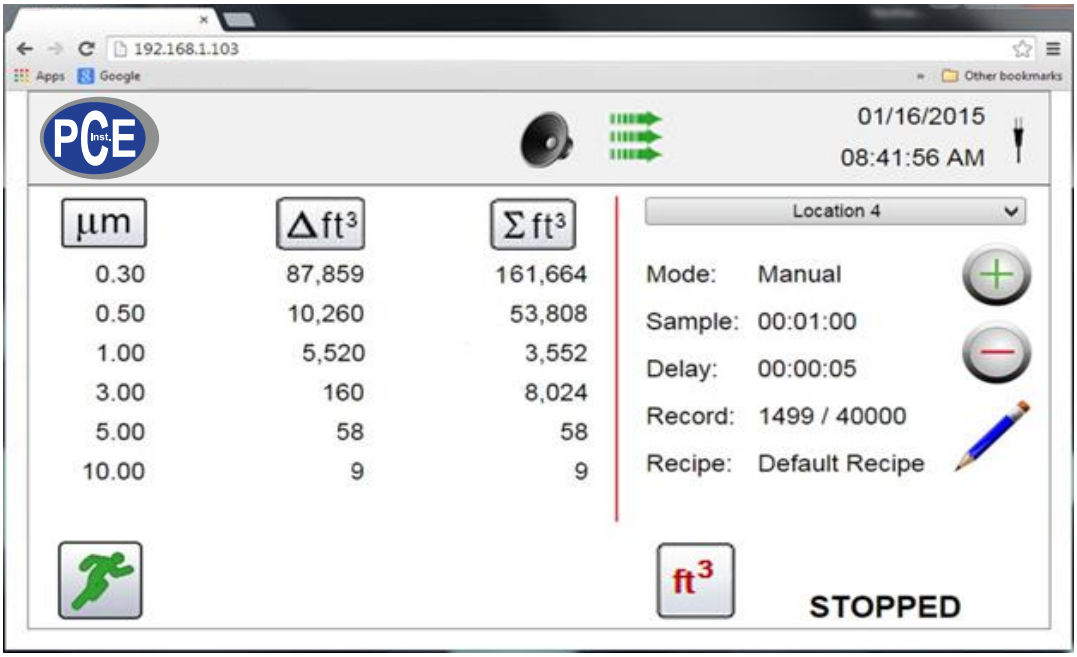
10-1 Remote Operation

The instrument may be accessed with a web browser via Ethernet (wired or Wi-Fi), using the instruments IP address found in the Communications screen. The following functions can be performed remotely: Start and Stop sampling, change Data Units, select Locations and turn on/off displayed channel values.

The Instrument must be placed in Ethernet or optional Wi-Fi mode and the unit must also be connected to a working router on the same network as the PC.

In the Communications screen, select the Use DHCP button and the unit will automatically display the router issued settings. Enter the displayed IP address into any device browser to access the remote screen.

NOTE: The URL address is the IP address that the DHCP Router assigned to the instrument. A static IP address can be provided for the device through the Communications screen by deselecting the Use DHCP button and entering the IP address.



Appendix – A
Modbus Register Map

The MODBUS Register Map can be found on the USB thumb drive.

Appendix – B
Environmental Sensor Data Logging

Environmental sensor data can be logged without running the pump or laser by deselecting all particle channels on the Channel Management screen. An All Channels Are Disabled screen will appear when the Back Arrow button is pressed. Press Yes to confirm and No to cancel.

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