

SafeCide™

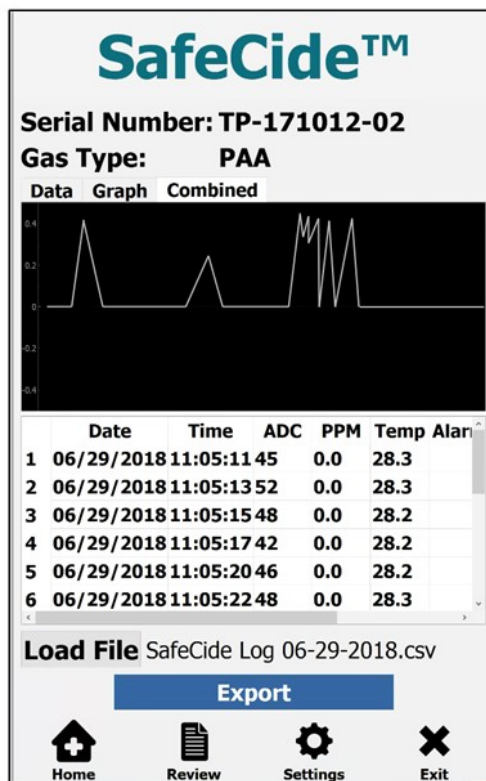
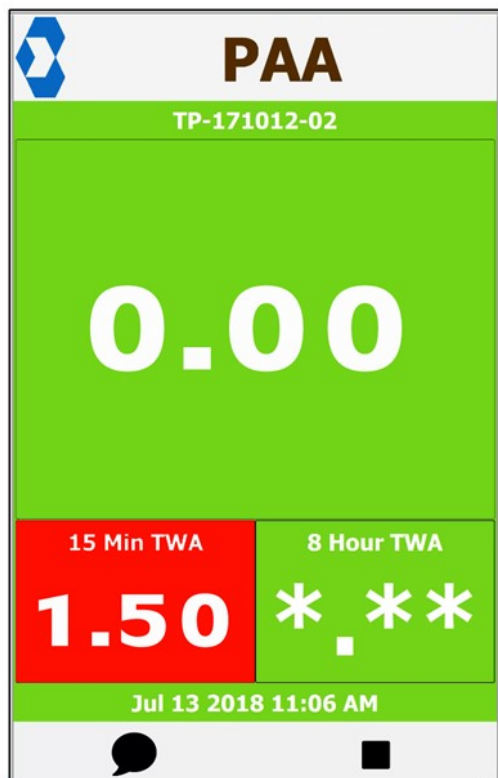


User Manual

SafeCide

Workplace safety is a top priority for any facility. Safecide monitors and alerts you to hazardous gas levels in the air.

Track data to determine the issues and concerns in your facility. Safecide provides informative reports so you can take the necessary actions to resolve the issues. SafeCide provides data in .csv format for further analysis in spreadsheet applications like Excel.



The SafeCide has two modes.

Sampling Mode: Allows for environmental sampling to identify key hot spots and locations where air quality is a concern.

Industrial Hygiene Mode: Allows the SafeCide to serve as a personal monitor or as a fixed-position monitor that will track and display the time-weighted-average (TWA) exposure levels.



SafeCide™ User Manual

Table of Contents

| | |
|--|----|
| Safety and Legal Notices | 4 |
| Overview | 5 |
| Bluetooth Connection | 5 |
| Pairing the Sensor with the Tablet | 5 |
| Pairing the Sensor with SafeCide Software..... | 6 |
| Program Modes | 8 |
| Sampling..... | 8 |
| Industrial Hygiene | 9 |
| Data Logging..... | 9 |
| Log File..... | 9 |
| Data Review | 10 |
| Data Export..... | 11 |
| Data Screen | 12 |
| Comments | 13 |
| Instantaneous Alarms | 13 |
| Visual Alerts | 13 |
| Audible Alerts..... | 14 |
| Custom Alarm Settings | 14 |
| Time Weighted Averages..... | 15 |
| Visual Alerts | 15 |
| Audible Alerts..... | 16 |
| Custom TWA Settings | 16 |
| Location Tags | 17 |
| Managing Locations | 17 |
| Using Locations..... | 18 |
| Technical Support | 19 |



Safety and Legal Notices

SAFETY: THIS MANUAL MUST BE CAREFULLY READ BY ALL INDIVIDUALS WHO HAVE OR WILL HAVE THE RESPONSIBILITY FOR USING OR SERVICING THIS PRODUCT. LIKE ANY PIECE OF COMPLEX EQUIPMENT, THIS PRODUCT WILL PERFORM AS DESIGNED ONLY IF USED AND SERVICED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. OTHERWISE, IT COULD FAIL TO PERFORM AS DESIGNED AND PERSONS WHO RELY ON THIS PRODUCT FOR THEIR SAFETY COULD SUSTAIN SEVERE PERSONAL INJURY OR DEATH.

The warranties made by ChemDAQ Incorporated with respect to these products are voided if the products are not used and serviced in accordance with the instructions in this manual. Please protect yourself and others by following them. We encourage our customers to write or call regarding this equipment prior to use or for any additional information relative to use or repairs.

Information in this document is subject to change without notice. No part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical for any purpose without express permission of ChemDAQ Inc. ChemDAQ has patents or pending patent applications, trademarks copyrights and other intellectual property rights covering this subject matter in this document. The furnishing of this document does not give you license to these patents, trademarks, copyrights, or other intellectual property except as expressly provided in any written license agreement from ChemDAQ Inc.

This device is sold subject to ChemDAQ's Standard Terms and Conditions, available at www.Chemdaq.com, effective at the date of sale. These terms and conditions include the manufacturer's Warranty Information.

ChemDAQ®, SXP® and E-Cell® are registered trademarks of ChemDAQ Inc. Windows® is a registered trademark of Microsoft Corporation SafeCide is a trademark of ChemDAQ Inc. and Excel is trademark of Microsoft Corporation. Bluetooth® is a registered trademark of Bluetooth Sig Inc.

Technical Support

For questions, technical support and repair information contact ChemDAQ's Technical Service Department.

ChemDAQ Technical Services Department

techservice@chemdaq.com

1-800.245.3310 x310

Local: 412.787.0202 x310

ChemDAQ Incorporated
300 Business Center Dr.
Suite 330
Pittsburgh, PA 15205

Overview

SafeCide™ is a portable gas monitoring system designed for use with a ChemDAQ E-Cell® Sensor to provide a simple way to monitor gas in an area, sample locations or perform personal monitoring. The ChemDAQ SafeCide software is installed on a portable Windows tablet which collects, display, and stores gas exposure readings. The SafeCide system can be used in a hands-free mode with the use of a waterproof carry pouch.

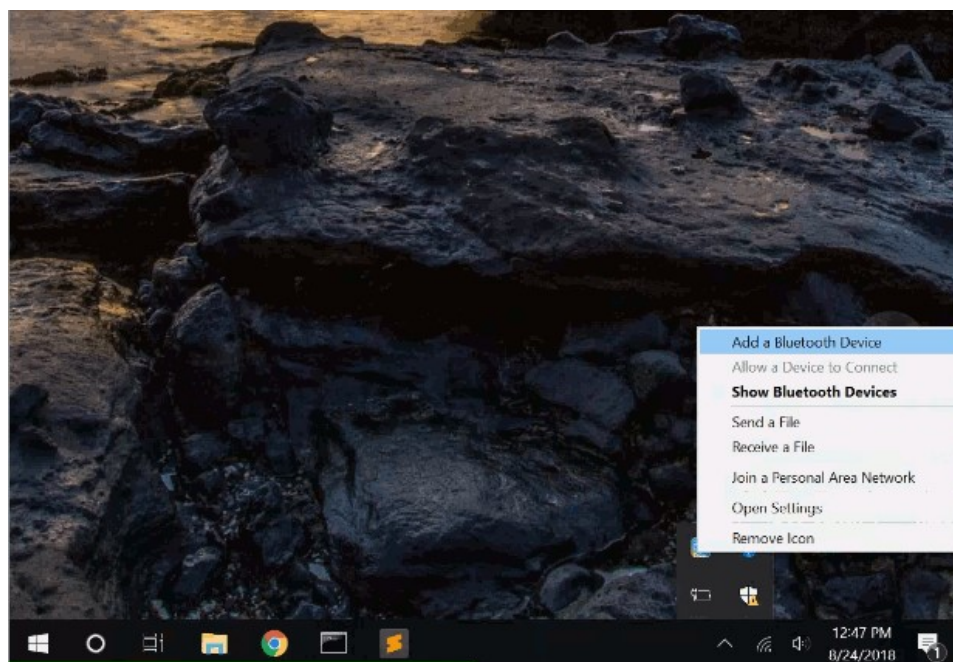
The sensor is connected to the tablet by wireless Bluetooth, allowing the sensor to be placed several yards/meters from the tablet. The distance that the connection can be maintained depends on what else is in the environment that may affect the signal.

Bluetooth Connection

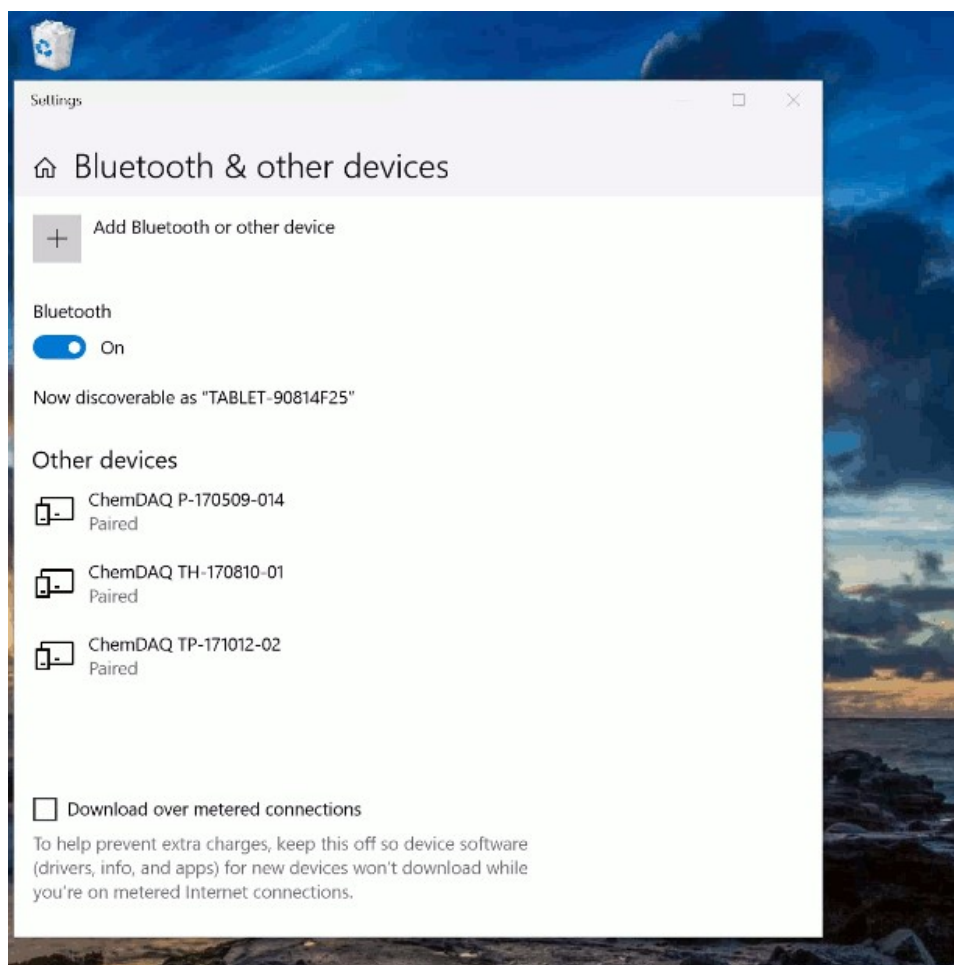
In order to use the SafeCide System, the ChemDAQ Sensor must first be paired (connected) to both the Windows Tablet and the SafeCide Software via Bluetooth. First the sensor is paired in Windows and then it is connected to the SafeCide software.

Pairing the Sensor with the Tablet

1. From the Windows desktop, click the upward facing arrow at the bottom right of the Taskbar to bring up the Tool Icons.
2. Click the Bluetooth Icon to display the available options and select “Add a Bluetooth Device.”



- Currently Connected Bluetooth Devices and Sensors will be displayed. If there is a previously connected sensor, please click it and un-pair it from the tablet.

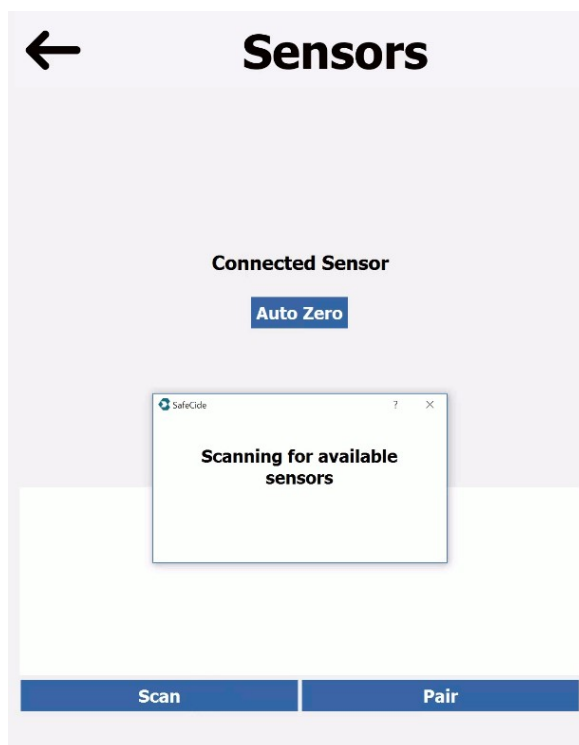


- Press “Add Bluetooth or other device” and select “Add Bluetooth Device”
- Wait for the Sensor’s Serial Number to appear, select it, and press “Connect” ^[2]

Pairing the Sensor with SafeCide Software

- Start the SafeCide Software (double click icon on Windows tool bar)
- Before SafeCide can read data from a Sensor, it must first connect to the Sensor via Bluetooth.
- The currently connected Sensors’ Serial Numbers will be listed on the SafeCide Home Screen. If the display serial number does not match the serial number of the sensor, you will need to connect the SafeCide software with the sensor.
- To do so, click the “Settings” button and select the “Connected Sensor Option”.

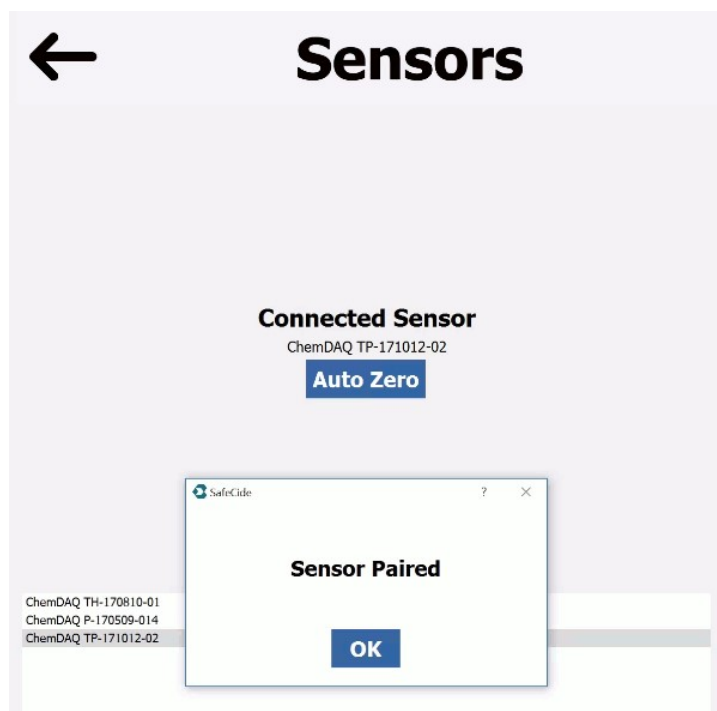
5. Press the “Scan” button and wait while SafeCide scans the tablets connected Bluetooth devices for the Sensor.



6. If the Sensor Serial Number appears in the list, select it and press the “Pair” button.



7. The serial number should now be displayed at the middle of the screen.



8. Return to the Home Screen to ensure that the Serial Number display has been updated to show the correct Sensor.
9. The Sensor is now successfully paired with the Software.
10. This procedure should not need to be repeated until the Sensor Module is exchanged.

Program Modes

Sampling

This mode is designed for use where multiple locations need to be tested for exposure levels and where continuous monitoring is not practical, as is the case in many areas of industrial plants. It's important to regularly measure the air concentration for the chemicals in use where workers are routinely in close proximity to the chemicals being applied. Regular measurements provide peace of mind regarding worker safety and can also be a valuable process monitoring tool.

Sampling mode allows areas of data collection to be named and saved in the program. During data collection, a location tag can be applied to readings from that specific area so that they can be easily identified during data review.

Industrial Hygiene

This mode collects readings over an extended period and calculates a Time Weighted Average (TWA) over a time interval, typically 15 Minutes and 8 Hours. The TWAs are average readings, updated in real time, displayed independently of the current reading. Both TWA readings come with additional alarms and alerts to provide exposure data over longer data collection.

Data Logging

Log File

SafeCide logs data from the Sensor in a Comma Separated Values (CSV) file. By default the filename will be SafeCide Data {Current Date}. To change the filename, press the “filename input box”, allow a few seconds for the on-screen keyboard to appear and enter the desired filename. Each line of the data file will log:

- Date
- Time
- Sensor Reading in PPM
- Alarm Level (if above the threshold)

In addition, if the program is run in Sampling Mode:

- Location (if location tag is currently selected)

Or if the program is run in Industrial Hygiene Mode:

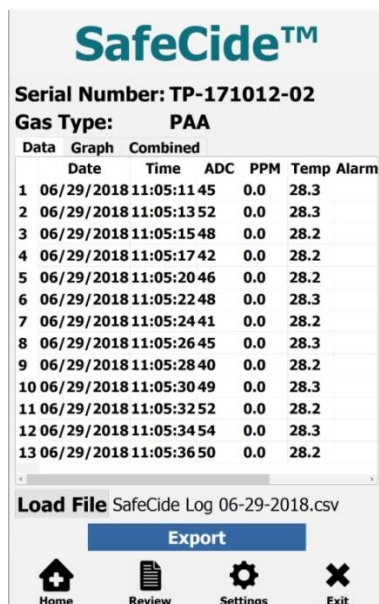
- Minutes' Time Weighted Average
- Hours' Time Weighted Average

The data file also contains two additional fields, ADC and Temperature. The ADC signal represents the raw signal coming from the sensor and the Temperature represents the internal temperature of the sensor which is usually a few degrees warmer than the environment. These fields are used for diagnostic purposes by ChemDAQ only.

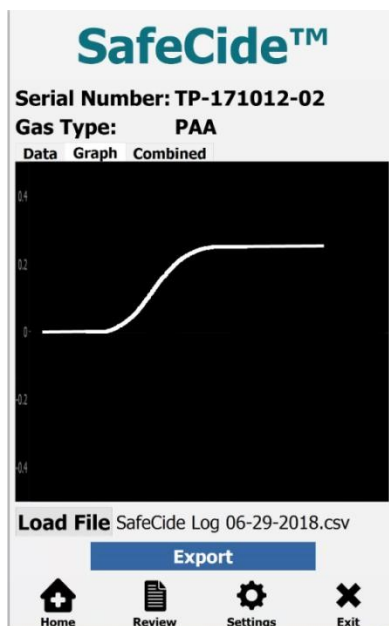
Data Review

Previously logged data can be reviewed in the SafeCide Application:

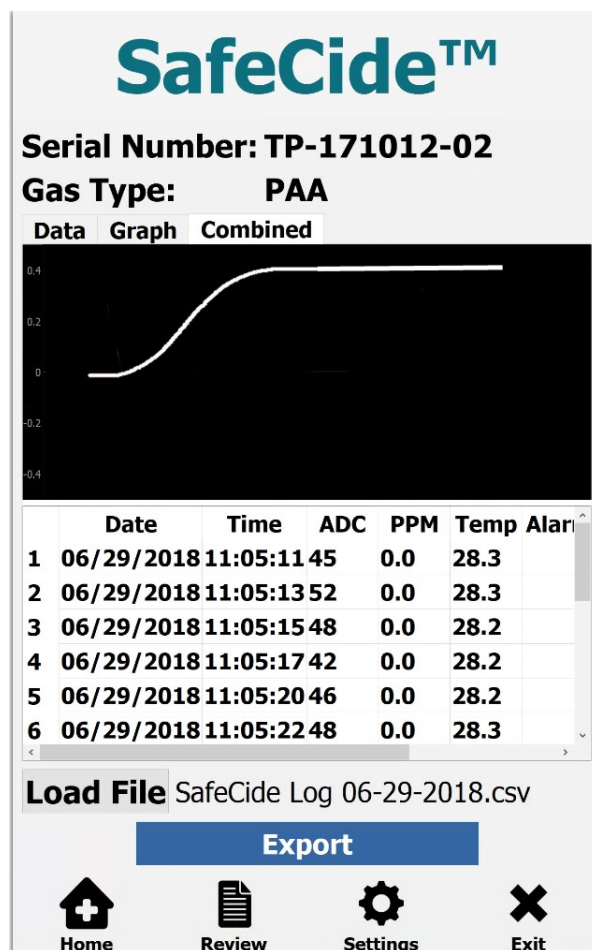
1. Press the Review button.
2. Press the Load File button and select the desired log file.
3. Once selected, the data will be loaded in a Table under the Data tab.



4. The data will be plotted under the Graph tab.



- To provide an alternative view, both the Data and Graph can be viewed simultaneous under the Combined Tab.



Data Export

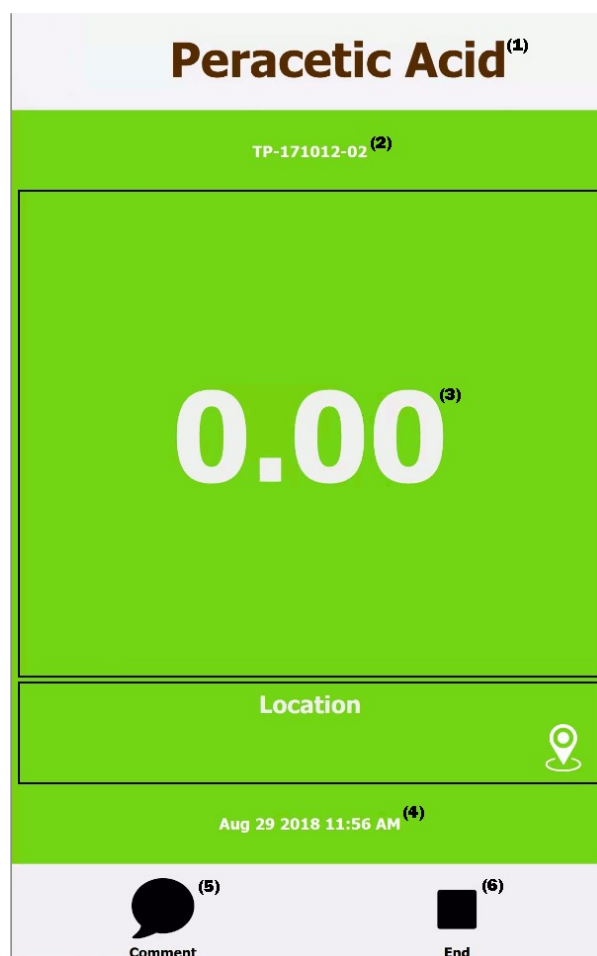
Previously logged data can be exported from the tablet to a USB flash drive or similar device for use on another device:

1. Insert the USB flash drive.
2. Load the data file as previously explained.
3. Press the Export button and select the desired folder/device location and press Open.
4. The file will be copied with the same name as the original log file.
5. A prompt will confirm that the file has been exported.

Data Screen

On the Data Screen in the user should be able to see the following information:

1. Sensor Gas Type
2. Sensor Serial Number
3. PPM Reading
4. Current Date/Time
5. Comment Button
6. End Button



Depending on the program mode selected, the user will have either location tagging information or Time Weighted Averages displayed on the Data screen.

Comments

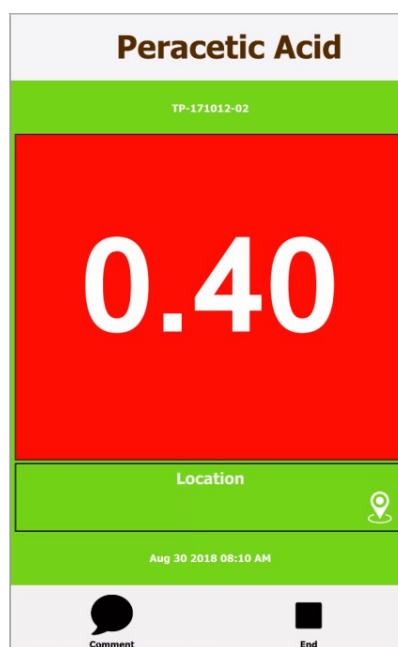
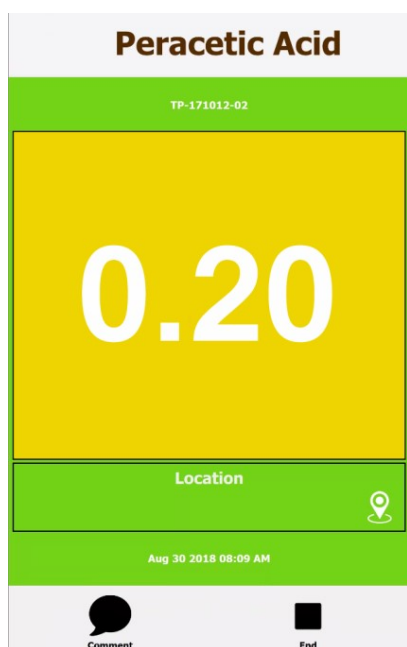
During data collection, a comment can be entered in the log file and reviewed later. On the Data Screen press the “Comment” button and enter the comment. Press “Submit,” and a prompt will confirm that the comment was logged in the data file while returning to the Data Screen.

Instantaneous Alarms

SafeCide will trigger an Alarm when the Sensor’s PPM reading exceeds the exposure threshold.

Visual Alerts

1. There are 2 instantaneous alarms, Low Alarm and High Alarm.
2. The threshold for both types of alarm can be viewed and customized in Settings under the Alarms option.
3. When an alarm is triggered, the background color of the PPM reading will change color.
4. When the PPM is below the Low Alarm Threshold, the background color will be Green.
5. When the PPM Reading exceeds the Low Alarm Threshold, the background color changes to Yellow.
6. When the PPM Reading exceeds the High Alarm Threshold, the background color changes to Red.

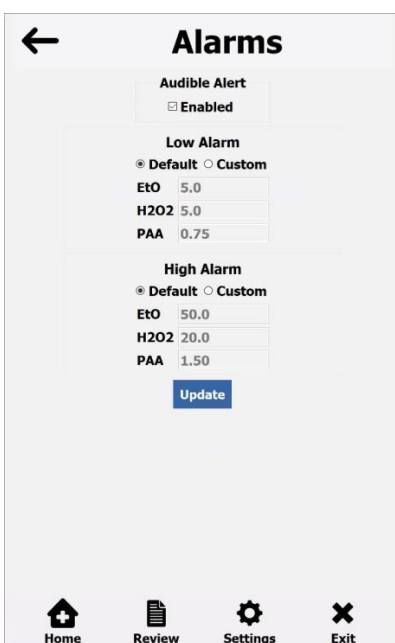


Audible Alerts

1. If the “Audible Alert” option is selected in Settings, there will be a noise played when an alarm is triggered.
Note: The audio is provided by the Tablet and so has limited volume and may not be heard if there is a lot of background noise. If the audio is to be used in noisy background, then an earphone is recommended.
2. To silence the Low Instantaneous Alarm or High Instantaneous Alarm, tap the PPM Reading.
3. When an alarm is silenced, there will be a 5-minute re-alarm timer. If the PPM Reading is still greater than the Alarm threshold after 5 minutes, it will activate the audible alarm again and can be re-silenced if needed. If the PPM Reading falls below the PPM Threshold while the Audible Alarm is on, the audible alarm will automatically silence.
4. Silencing the Audible Alert has no effect on the Visual Alert when an alarm is triggered.

Custom Alarm Settings

1. If desired, the Alarm threshold can be changed to a custom value.
Note: The Low Alarm and High Alarm thresholds are controlled separately. Click the Settings button and select the Alarms Option
2. Select the Custom option. All values should now be set to 0.
3. Set the desired threshold for the gas type of your ChemDAQ E-Cell Sensor, you can leave the thresholds of the other gas types as 0.0.
4. Press the Update button for the custom settings to save and take effect.
5. If you wish to use the Default Settings in the future, select the Default option and press the Update button to have the changes take effect.



← Alarms

Audible Alert
☒ Enabled

Low Alarm
 * Default ☐ Custom ☒
 EtO 5.0
 H2O2 5.0
 PAA 0.75

High Alarm
 * Default ☐ Custom ☒
 EtO 50.0
 H2O2 20.0
 PAA 1.50

Update

Home Review Settings Exit

Time Weighted Averages

In addition to the Instantaneous Alarm, there are also Alarms available for the Time Weighted Average Reading if SafeCide is in Industrial Hygiene Mode.

Visual Alerts

1. The alarms corresponding to the Minutes TWA and Hours TWA are separate alarms/alerts and isolated from one another as well as the instantaneous alarm.
2. There are two alarm levels available for the both the Minute and Hour TWAs, namely the Impending Alarm and the Standard Alarm.
3. The Impending Alarm is triggered when the TWA reaches half of the respective alarm threshold for the minute or hour TWA, and the appropriate TWA box on the screen will turn from green (no alarm) to yellow. The Impending Alarm is intended to provide a warning that the gas/vapor concentration is high enough that it may exceed the TWA threshold in the future, thus allowing proactive measures to be taken before the TWA threshold is exceeded.
4. The Standard Alarm will activate when the TWA PPM reading reaches or exceeds the alarm threshold for the Minute or Hour TWA alarm respectively.
5. When the Minute or Hour TWA Standard Alarm is activated the appropriate TWA box on the screen will turn from yellow (impending alarm) to red.
6. When the Impending Alarm is activated, the words “Impending Alarm” will be visible at the top of the appropriate TWA box on the screen. When the Standard Alarm activates, the Impending Alarm notice will disappear.

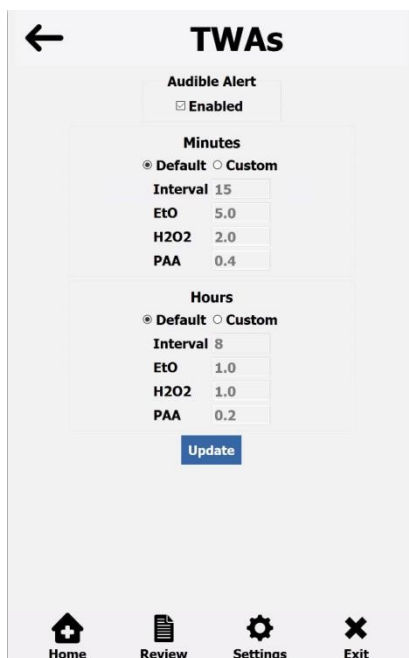


Audible Alerts

1. Just like the Instantaneous Alarms, the TWAs also support Audible Alerts.
2. To silence the Minutes TWA Alarm, tap the Minutes TWA PPM Reading, to silence the Hours TWA Alarm, tap the Hours TWA PPM Reading.

Custom TWA Settings

1. If desired, the TWA threshold and interval times can be changed to custom values.
Note: The Minutes TWA and Hour TWAs threshold and intervals are controlled separately. Click the Settings button and select the TWAs Option
2. Select the Custom option. All values should now be set to 0.
3. First set the desired Interval. This is the time-frame of which the average reading is calculated, i.e. an Interval of 15 under the Minutes section corresponds to the average ppm value over 15 minutes, whereas an Interval of 8 under the Hours section corresponds to the average ppm value over 8 Hours.
4. Then set the desired threshold for the gas type of your ChemDAQ ECell Sensor, you can leave the thresholds of the other gas types as 0.0.
5. Press the Update button for the custom settings to save and take effect.
6. If you wish to use the Default Settings in the future, select the Default option and press the Update button to have the changes take effect.



← TWAs

Audible Alert
☒ Enabled

Minutes
☒ Default ☐ Custom
Interval 15
EtO 5.0
H2O2 2.0
PAA 0.4

Hours
☒ Default ☐ Custom
Interval 8
EtO 1.0
H2O2 1.0
PAA 0.2

Update

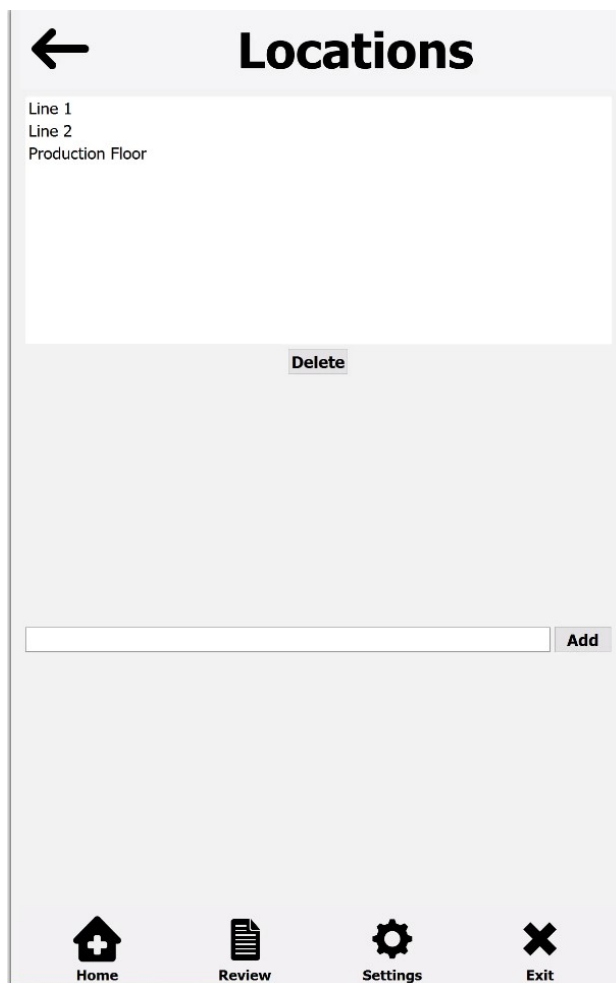
Home Review Settings Exit

Location Tags

Location tagging is a feature that is available when SafeCide is operating in “Sampling Mode”. This feature allows the user to tag readings to a specific location.

Managing Locations

1. Locations can be managed by going to “Settings” and pressing the “Locations” option.
2. At the top of this screen, there is a list of all of the currently stored locations.
3. To remove an existing location, press the location and it should highlight. Click the “Delete” button and the location will be removed from the list.
4. To add a new location, click the “input” box near the middle of the screen and enter the new location. Press the “Add” button and the location should now appear in the list of locations.



← **Locations**

Line 1
Line 2
Production Floor

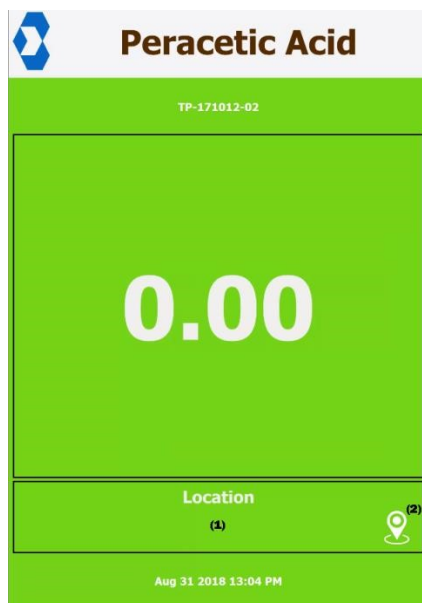
Delete

Add

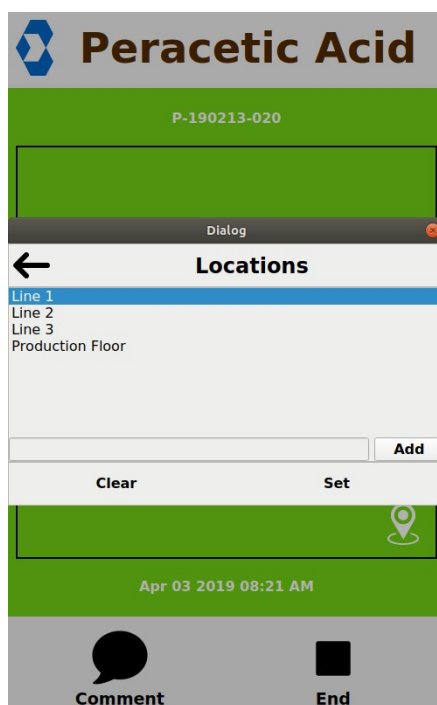
Home Review Settings Exit

Using Locations

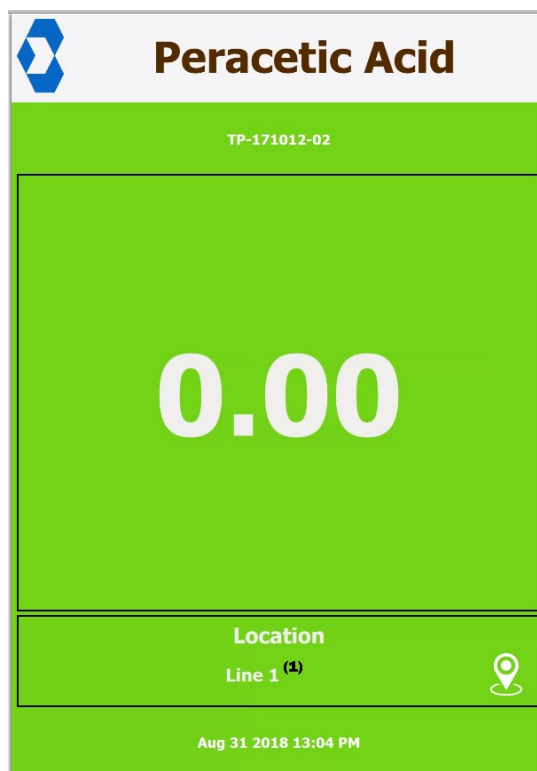
1. On the Data Screen the currently selected location will appear under the “Location” label. If no location is selected this will be blank.
2. To select a location, press the “locations” icon to bring up the locations widget.



3. The widget lists the available locations. New locations can also be listed from this widget.



4. Select the desired location and press the “Set” Button. The locations widget should close, bringing back up the Data Screen and the selected location should now be shown under the locations label.



5. When data collection is completed at the location, the user can either repeat the above steps to switch to a new location or clear the location to cease applying tags to data readings.
6. To clear the location, press the “locations” button to bring up the locations widget and press the “Clear” button.

Technical Support

For questions, technical support and repair information contact ChemDAQ’s Technical Service Department at techsupport@chemdaq.com, 1-800.245.3310 x310 or 412.787.0202 x310; or visit us on our website at www.chemdaq.com.

ChemDAQ Incorporated
300 Business Center Dr.
Suite 330
Pittsburgh, PA 15205