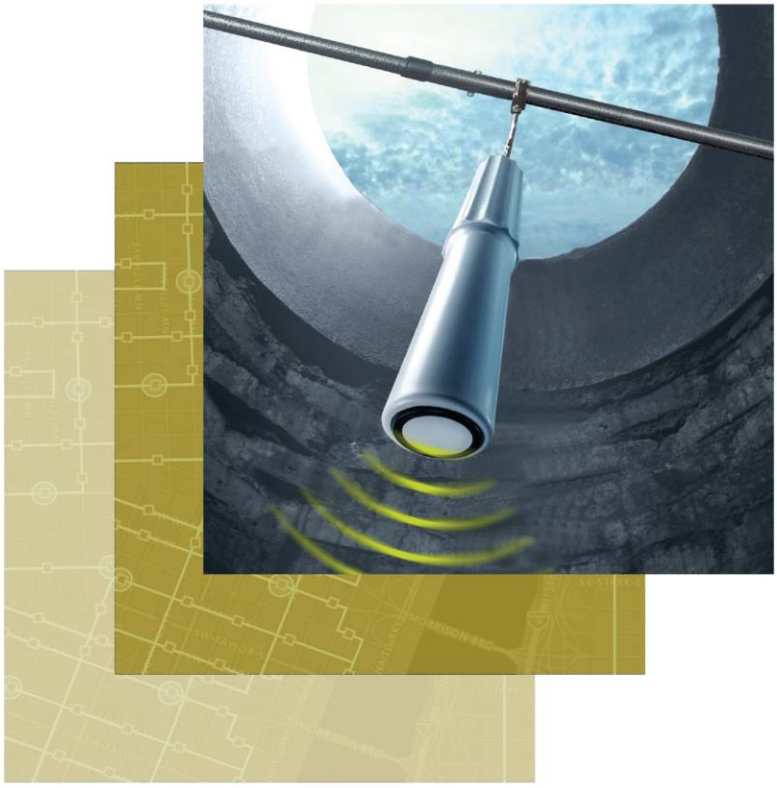
iTracker®

IOM Manual



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Getting Started

Remove the iTracker™ with accompanying installation accessories from the shipping container and packaging. Inspect for any damage during transit (See component Parts List on following page). The iTracker™ itself is shipped fully assembled. The only requirement for operation is the placement of (2) factory-provided lithium batteries into the battery holder located within the upper section of the iTracker® housing. Do not insert batteries until the iTracker® is being prepared for the "INITIALIZATION" process described on Page 6 of this manual.

PARTS LIST

Sash chain

Spanner hook to chain

iTracker

Spanner bar

Calibration pole

Laser alignment tool

Antenna bracket

Antenna / bracket on Spanner bar

Calibration powder

INITIALIZATION

The “INITIALIZATION” process is conducted in order to ensure that the iTracker is operating as specified prior to field installation and also to assist Field Personnel in familiarizing themselves with the steps required leading up to actual field calibration of the sensor.

The simplest way to do this is either with a laptop or smartphone conducted in the convenience of one’s office. Make sure to “INITIALIZE” only one iTracker at a time otherwise the Wi-Fi signals from the remaining iTrackers will begin to interfere with one another. Also, it is very important to keep in mind that only one smart device may be used to communicate with the iTracker at any given time. Multiple connections at the same time from multiple users or devices will cause interference and loss of connection.

1. Remove the cover of the iTracker® and insert the (2) Lithium batteries into the battery bracket making sure that battery polarity agrees with the label on the bracket. A “FLASHING RED” LED will confirm that the iTracker® is now operational and ready for testing.

2. Replace the cover and horizontally position the iTracker on a table or flat surface so that the sensor is facing 2’ – 3’ away from a wall or vertical target. You will hear a “clicking” sound emanating from the ultrasonic sensor housed within the iTracker. This “clicking” sound confirms that the sensor is measuring and recording the distance from the face of the sensor to the target.

NOTE: Once the batteries are inserted, the iTracker will remain fully operational for a period of 10 minutes. It will then automatically turn itself off, so it is important to complete the initialization process within this 10-minute interval. If this cannot be accomplished within the allocated 10 minutes, simply remove the batteries, wait approximately 30 seconds, reinsert the batteries and the 10-minute initialization process will begin again.

3. Using either a laptop or smart phone, view the available Wi-Fi networks within the "Initialization" area. Wait a few seconds and you will see the Wi-Fi Network "Itrack1" appear on your device. Click to connect to "Itrack1". It will ask you for a Security ID. The factory default for the Security ID is 8 zeroes (00000000). Your device is now connected via Wi-Fi to the iTracker.

4. Once you are securely connected to the "Itrack1" network**,** launch your web browser and connect to www.eastechiq.com. using the address bar of your selected browser. Whether you have an Android or Apple device, we recommend that your selected browser should either be Chrome, Firefox or Safari. We have experienced difficulties with various other browsers connecting to the iTracker due to their internal security firewalls. If you experience difficulty connecting, please call Eastech at 1-800-226-3569 and ask for Tech Support.

You may want to store the www.eastechiq.com. address as a bookmark once you have entered it in order to save time "Initializing" or setting up iTrackers in the field. By doing this, it never needs to be typed in again. Just click on the bookmark.

5. Once you are successfully connected to www.eastechiq.com., a screen entitled "Live Value" will appear (Shown on Page 9). "Live Value" presents in real-time the current operating parameters of the iTracker being "INITIALIZED". The value that appears in "Distance", is the distance measured from the sensor face of the iTracker to the designated target. When viewing the "Live Value" screen to assess wastewater levels, the information will update in real time for a period of 30 seconds and then hold last value to conserve battery life. If additional live data viewing is required either refresh the "LIVE VIEW" page or click either on "LOGS" or "SETTINGS" and then return to "LIVE VIEW". The 30-second run period will begin again.

6. The "INITIALIZATION" process is now complete and confirmation of iTracker operating integrity prior to field installation is confirmed.

REMOVE THE (2) LITHIUM BATTERIES FROM THE iTRACKER AND PROCEED WITH "INITIALIZATION" OF THE NEXT iTRACKER.

Installation

IMPORTANT: Do not insert batteries during installation phase.

1. The Spanner Bar functions as a "secure connection point" for the iTracker®. The Bar expands outward as it is manually rotated. Continue to rotate both sections of the Spanner Bar until it is securely locked against the walls of the manhole. Make sure that the Spanner Bar at some point intersects the trough located at the bottom of the manhole.

2 & 3. Slide the Laser Alignment Tool over the sensor face of the iTracker® and tighten. The Alignment Laser will automatically turn on for assistance in centering the iTracker® over the trough. Attach one end of the Antenna Cable to the Connector located on the outside of the iTracker® housing. Using the Carabiner, attach one end of the Stainless Chain to the upper housing of the iTracker. Firmly grasping the Stainless Steel Chain attached to the upper housing of the iTracker®, lower the iTracker® so that it is suspended approximately 2' – 3' above the trough.

Secure the Stainless Steel Chain of the iTracker® to the bottom section of the Carabiner hanging from the Eyelet Bracket of the Spanner Bar.

4. Using the Laser Alignment Tool, adjust the Eyelet Bracket and/or Spanner Bar so that the iTracker® is positioned directly over the center of the manhole trough.

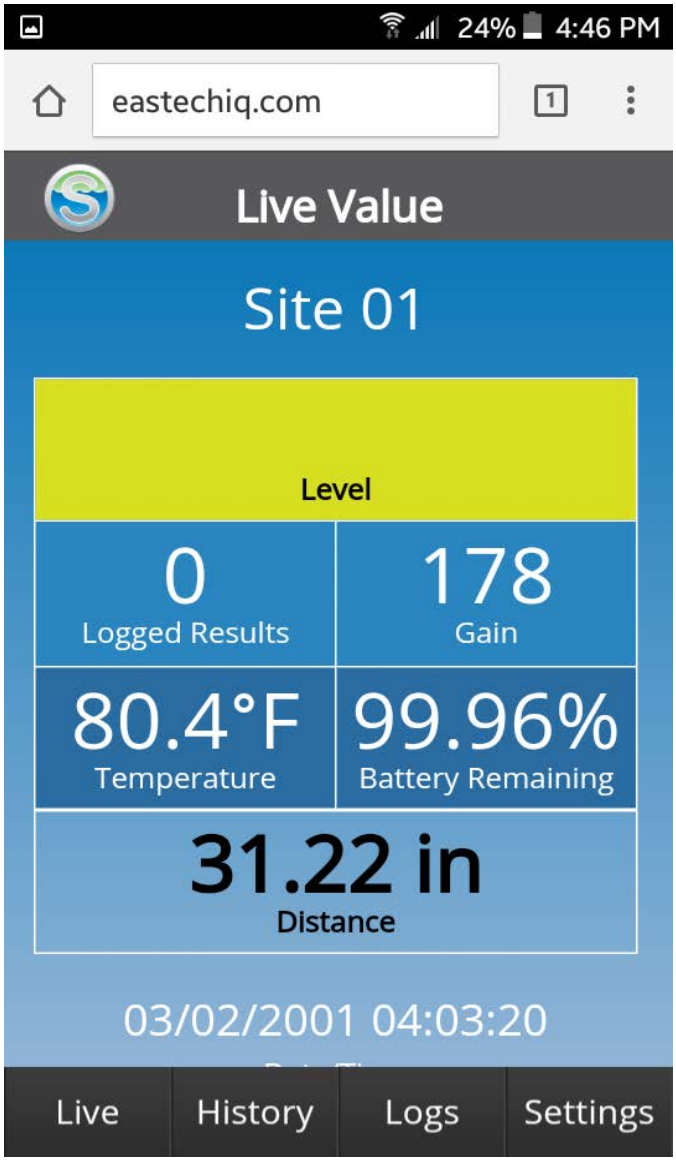
5. Clip the Antenna Bracket onto the Spanner Bar. Connect Antenna to Antenna Cable. Secure Antenna to Antenna Bracket on Spanner Bar. Position the Antenna horizontally making sure to clear the bottom of the manhole cover.

6. Pull iTracker® back up to street level and remove Laser Tool.

THE iTRACKER® IS NOW READY FOR CALIBRATION

Calibration

Prior to inserting batteries, please take the time to look over the "Live Value" and "iTracker Setup" screens pictured below. It is a good idea to first familiarize oneself with the information that will be required for calibration in order that the 10-minute calibration period does not expire. The information to be filled in on the "iTracker Setup" page is necessary for a successful calibration. By clicking on "Settings" at the bottom of the "Live Value" page, the "iTracker Setup" page will appear.



Prior to inserting batteries and physically calibrating the iTracker, we suggest that you first review the following in order to have all the required information readily at hand:

A. The default identifier for the "Site Name" on the "iTracker Setup" screen is "Itrack1" which is the name of the Wi-Fi network for all iTrackers. Simply typing in a new designation of your choosing can change the "Site Name".

B. "Pipe ID" represents the Inside diameter of the sewer pipe entering the manhole housing the iTracker.

C. "Damping" is a factory preset parameter relating to the flow conditions within the manhole. Normal flow is designated as "3". If flow is seen to be "turbulent", the factory preset of "3" should be changed to "7".

D. "Log Interval" in minutes designates the logging rate for each level measurement taken by the iTracker. The number "15" represents a once every 15 minute logging or measurement rate. The logging rate can be increased to once every 5 minutes by deleting the number "15" and inserting the number "5" or once every 10 minutes by deleting the number "15" and inserting the number "10". This can be accomplished by clicking on the arrow to the right of the "Log Interval" box.

E. "Units of Measure" are either "English" for inches, gallons, etc. or "Metric" for mm, liters, etc.

F. "Population" is the Population Modeling method by which all measurements recorded by the iTracker are converted to actual flow in Gallons per Minute. This procedure is not required if all one is interested in is ascertaining **Level Changes** within the collection network due to fluctuating weather conditions or **Percentage Changes (Volumetric Change)** in wastewater **Volume (including Peak Volumes)** due to Inflow and Infiltration when compared to average dry day flows. If actual **Flow in Gallons per Minute** is required (which is necessary when attempting to detect I&I down to a set of adjacent manholes), one of the two following Population Modeling methods is recommended.

a. Ascertain the number of residences (homes) in the area served by the collection system being measured and insert that number in the box labeled "Population". 182 Gallons per Day of water usage per residence (182 gallons per day of average water usage per residence confirmed by the US EPA, USGS and AWWA) will automatically be contributed to the iTracking® Software Program in order to convert measured percentage changes in wastewater volume to flow in Gallons per Minute (GPM).

b. Collect and total the monthly water bills for each residence, commercial facility, business, school, etc. within the area being served by the collection network under investigation by the iTracker. Divide that total by the number of days in the month and then divide that number by 182. In this way, the water bill totals are converted to a corresponding number of residences discharging an average of 182 Gallons per Day into the collection network being analyzed by the iTracker. The corresponding number of residences should now be inserted in the box labeled "Population".

ONCE THE ABOVE REQUIRED INFORMATION IS GATHERED, THE iTRACKER IS READY FOR CALIBRATION.

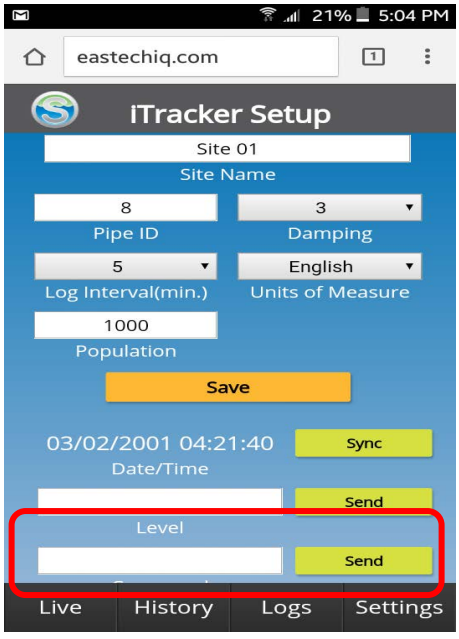
1. Insert the (2) Batteries into the iTracker. A "RED" LED will confirm that the iTracker is operational. Replace the iTracker housing cover and lower the unit into the manhole so that the iTracker is restored to its original hanging position 2' - 3' above the center of the manhole trough.

IMPORTANT: Once both batteries are inserted into the iTracker, you have 10 minutes to perform the calibration prior to the iTracker going to sleep and beginning normal logging operation. If more than 10 minutes is required to complete the calibration, bring the iTracker back up to street level and remove the batteries. After 30 seconds, reinsert the batteries and lower the sensor back down to its original position. The 10-minute calibration period will begin again.

2. Using either a laptop or smartphone, exactly in the same manner as when performing the "Initialization" procedure (see Page 7), connect to the Wi-Fi network "Itrack1" (Security Code 00000000).

3. Once you see that you are connected, launch your web browser and connect to www.eastechiq.com., using the address bar of your selected browser. The "Live Value" screen will appear automatically displaying "Distance" from the top of the water to the sensor face of the iTracker at the bottom of the screen.

4. At the bottom of the "Live Value" screen, click on "Settings" and the "iTracker Setup" screen will appear (see below). At the bottom of the "iTracker Setup" screen is a box (circled in red) labeled "**Level**". This is where the present depth (Level) of the wastewater being measured is inserted. To ascertain the wastewater depth, please proceed with the following steps outlined below the iTracker Setup Screen under the heading **"Ascertaining Wastewater Depth".**



Ascertaining Wastewater Depth

To measure the depth of the wastewater flowing through the trough at the point directly below the iTracker®, use the Calibrated Metal Pole included within the accessory kit. The Calibration Pole has a graduated ruler permanently adhered to the bottom of the Pole.

Utilizing the calibration powder included within the accessory kit, cover the bottom section (as required) of the Calibration Pole with the calibration powder **(1)** and immerse the pole into the center of the trough directly beneath the sensor face of the iTracker® **(2).** The wetted segment of the gradated ruler **(3)** will signify the depth of the wastewater flowing through the trough at the point directly below the iTracker®.

Insert the value corresponding to the measurement shown on the calibration pole (3) into the box labeled "Level" at the bottom of the iTracker Setup screen and press "Send".

(1)

(2)

(3)

5. Now that the current wastewater depth (Level) flowing below the iTracker has been determined and recorded in the "Level" box of the iTracker Setup screen, please complete the setup procedure by entering the following information into the Setup screen. This will be the same information as previously explained and pre-determined on Page 10 of this manual.

a. **Site Name**: The default Site Name has been entered by the factory as "Itrack1". This can be changed to better reflect the actual description of the manhole being monitored (Example: Site 01).

b. **Pipe ID**: The Inside Diameter of the pipe entering the manhole.

c. **Damping**: A factory preset parameter. The factory has preset the damping at "3" designating normal flow patterns entering and exiting the manhole. If flow is seen to be abnormal (turbulent), please change to a higher setting such as "7".

d. **Log Interval**: The iTracker data logging time has been factory preset to "once every 15 minutes". If logging intervals are to be increased, please select "once every 5 minutes (5)" or "once every 10 minutes (10)".

e. **Units of Measure**: Units of measure have been factory preset to "English" (inches, gallons). If metric units are desired, please select "Metric" from the menu.

f. **Date/Time:** Directly below the "Save" button, you will see the current date and time: To coordinate the date and time shown on your device with the iTracker, press the "Sync" button.

ONCE ALL OF THE ABOVE PARAMETERS HAVE BEEN SELECTED, PLEASE CLICK "SAVE". THE CALIBRATION PROCEDURE IS NOW COMPLETE AND THE iTRACKER WILL BEGIN THE MONITORING PROCESS.

DATA IS RECORDED ONCE EVERY 5, 10, OR 15 MINUTES ACCORDING TO THE "LOG INTERVAL" SELECTED DURING THE CALIBRATION PROCESS.

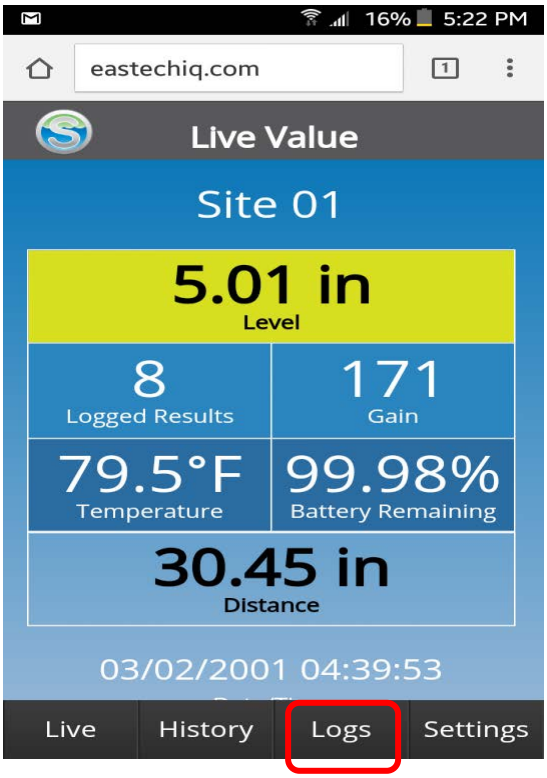
IF THE "LOG INTERVAL" WAS NOT CHANGED FROM THE 15-MINUTE FACTORY SETTING, BATTERY LIFE HAS BEEN CALCULATED TO BE 5 MONTHS. PERIODICALLY CHECKING THE SITE AND VIEWING THE REMAINING BATTERY LIFE ON THE "LIVE VALUE" SCREEN CAN CONFIRM THIS.

Downloading Data

IMPORTANT: The iTracker stores 32,000 records. At a once every 15-minute logging rate, the iTracker will continuously record levels for a period of 333 days (111 days at 5-minute logging intervals). Prior to reaching 32,000 records, it is suggested that the logged data is downloaded and the logger is cleared and reset at "0".

1) Connect to the iTracker Wi-Fi as explained on Page 7 of "INITIALIZATION". The iTracker is now in NORMAL" operation and not in "CALIBRATION" mode. This means that the iTracker will wake up once every 5 minutes and broadcast a Wi-Fi SSID for a period of I minute after which it will stop broadcasting, return to sleep for a 5-minute period and then rebroadcast its SSID again for a period of 1 minute where it will then again return to "sleep mode" for a period of 5 minutes. The iTracker Wi-Fi name is only broadcast for 1-minute duration every 5 minutes. During the 1-minute period that the iTracker wakes up and broadcasts its W-Fi SSID, the iTracker network name (Itrack1) should appear on your web browser. When you see the iTracker network name appear, connect to the network. Once you are connected, it will stay connected until it recognizes several minutes of inactivity.

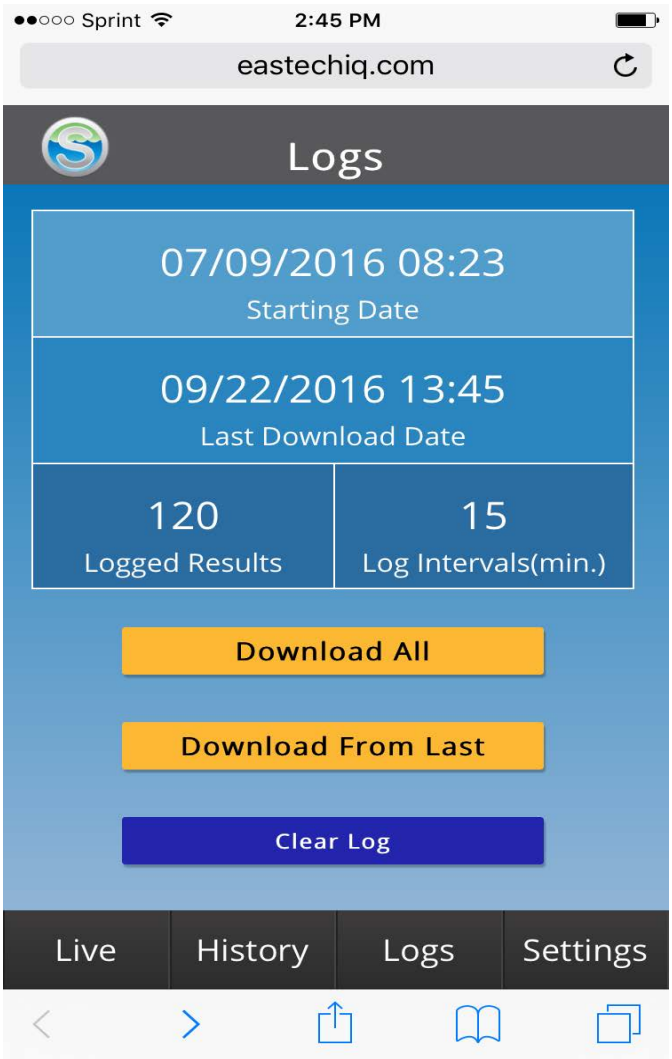
2) Click on the "Logs" button as highlighted below in the red area.



3. After clicking the "Logs" button, the screen below will appear. Displayed are the amount of logged records, your current logging rate interval, logging start date and the last time records had been downloaded from the iTracker. To download all stored records, press the "Download All" button as shown below. If you would like to only download records beginning with the end of the previous download, click on "Download From Last".

To clear all the records and begin over again, click on the "Clear Log" button pictured below.

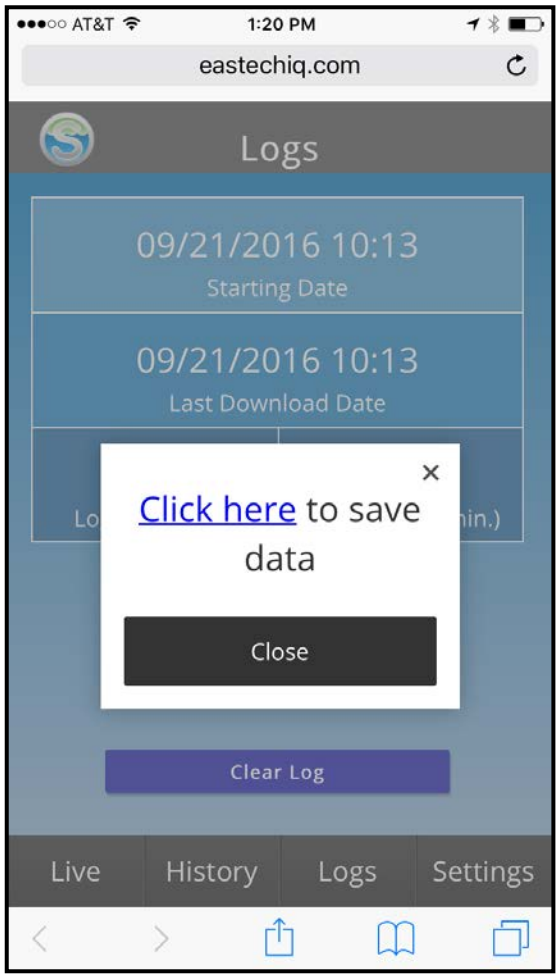
***Warning: If you press "Clear Log", you will not be able to retrieve any previously stored records. The "Logged Records" memory has now been permanently erased.**



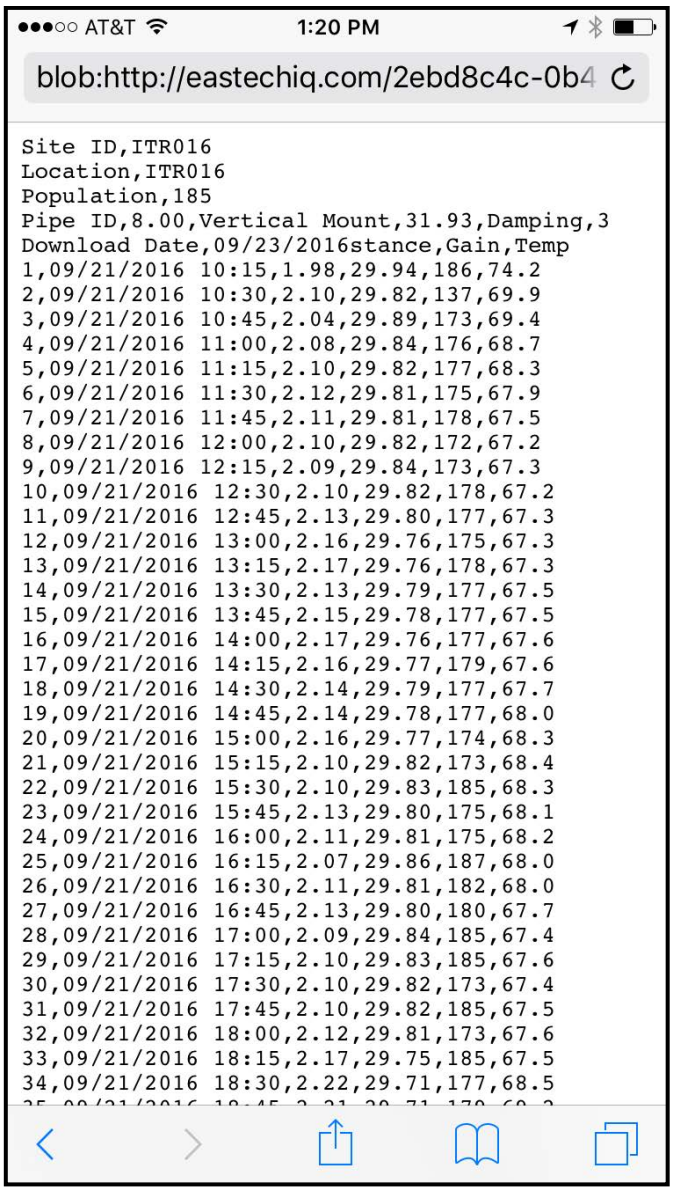
Depending upon the amount of records that have been stored in the ITracker, it may take a few minutes to complete the download process. For laptops and Android phones, when downloading is complete, a screen will pop up inquiring as to where to store the downloaded file. Select the desired location on your device

Apple iPhone Download

When using an Apple iPhone, a few additional steps must be performed to retrieve the downloaded data file due to the iPhone's application protected operating system. The screen below shows the first message that will appear after downloading of data as previously described. Click on "Click Here" on the screen.



Data will be downloaded directly into the Apple browser as shown below. To transfer data from the browser into a file for storage, the data must be **selected, copied, and then pasted** into an Apple application.

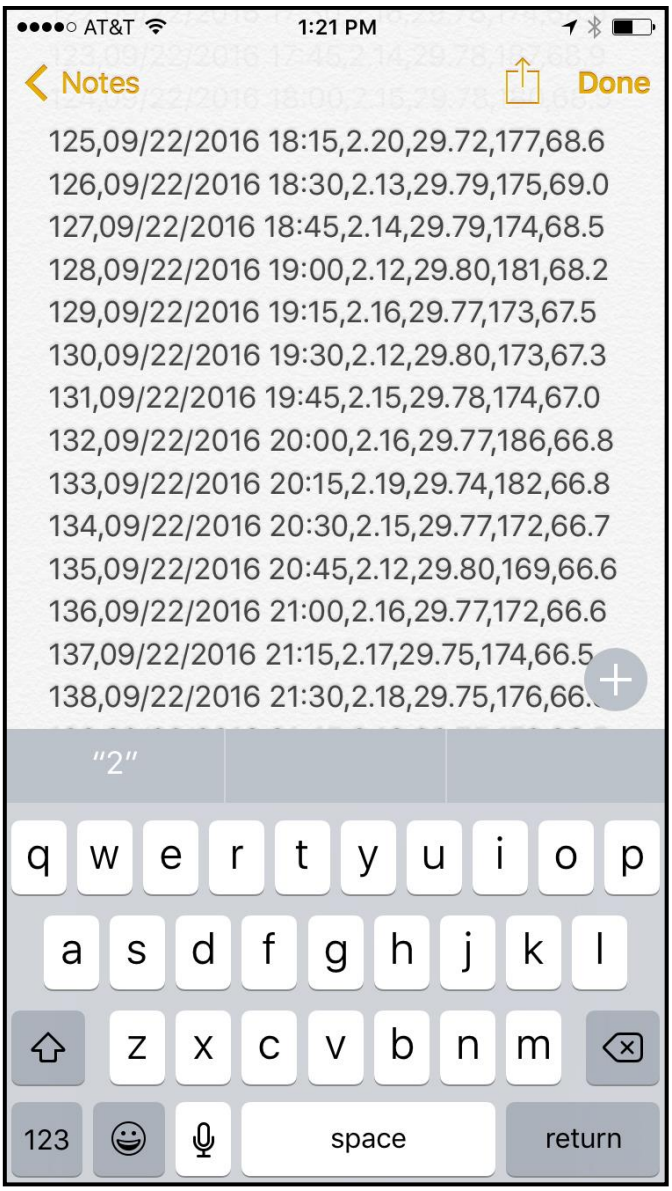


Downloaded data as it appears in browser

A quick way to save the data selected is to drag the data upwards from the bottom until reaching the end point of the selection. Upon reaching the top end point, it will automatically select all data. Copy what has been selected for downloading by clicking on the “Copy” button.

Downloaded data is now ready to be pasted into an Apple application.

One of the applications that the downloaded data can be pasted into is Apple "Notes", shown on the screen below. Once the data is in Apple "Notes", it can then be emailed or saved to other applications of your choice.



Cellular Units

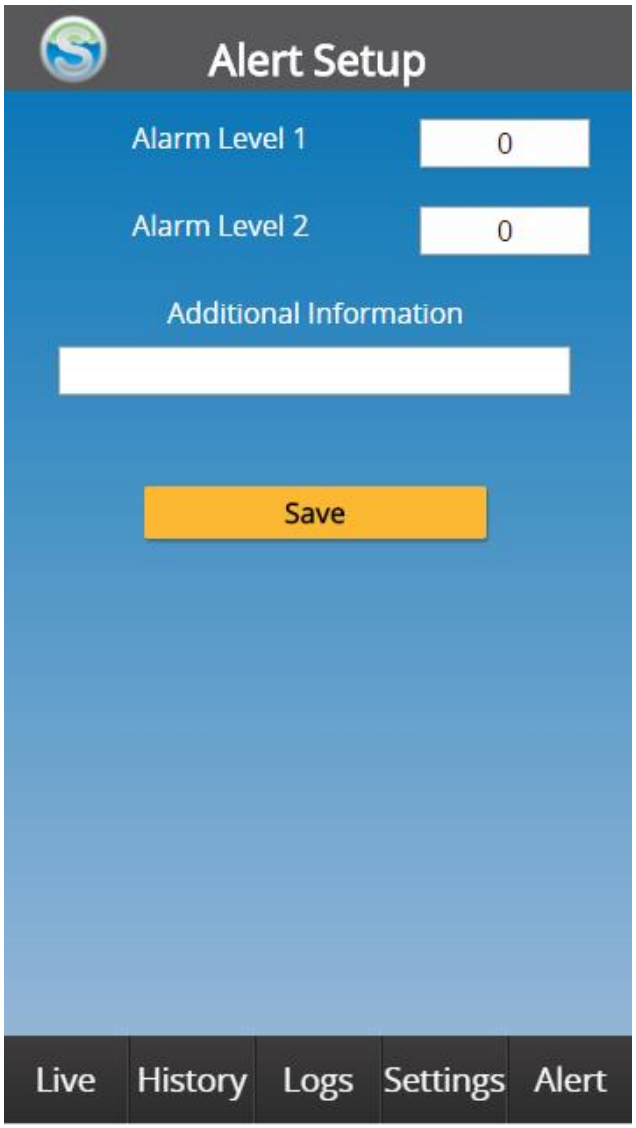
The Cellular Units are installed and initialized the same way as the Wi-Fi only units but the Wi-Fi for these units is only on for the installation process. You can cycle the power on the iTracker to broadcast the Wi-Fi if you have settings you wish to change. Due to the external antennae being used for the Cellular Antenna the internal antenna is used for Wi-Fi so you may have to be closer to connect to the Wi-Fi. There are also two different types of cellular units.

First Response is an SMS only unit that will not send data to the server but only sends out the alerts. The other is the full Cellular iTracker that sends both alerts and data to the server.

You also have the addition of an Alert page where you need to set at what level and battery percentage will the alerts be sent. You need to fill out Alarm Level 1 and 2. These alerts will be triggered when the level rises to a greater level then what you set it to. The alarm will be automatically cleared when the level falls 1” below the alarm level. When an alarm is hit it will also send all the data for that day up to the time the alarm was triggered. If you do not wish to receive an alert for one of the type of alerts just enter 0 into the box and you will not receive that alert.

There is low battery alarm that will trigger when the battery reaches 20%. Additional Information is extra text that is added to your alert so in example if you wanted to know exactly where the iTracker was that had the issue you could input the address into this field and when the alert was sent for that iTracker it would also include the address. The additional text does have a limit of 30 characters though so stay below this amount. Once you have filled out all the fields press the save button and you are good to go. The values you entered should still be in their respective value boxes so you know what you set the alerts to.

Another difference is that the Cellular units have a serial number on your settings page as you can see from below. This serial number references to the serial number on the server and it also corresponds to the sticker on the back of the battery bracket. The iTracker will automatically dump every day’s data around midnight to the server to be stored. You can view all your data and alerts on the website for more information regarding viewing your information please refer to the Server IOM.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Alarm Level 2
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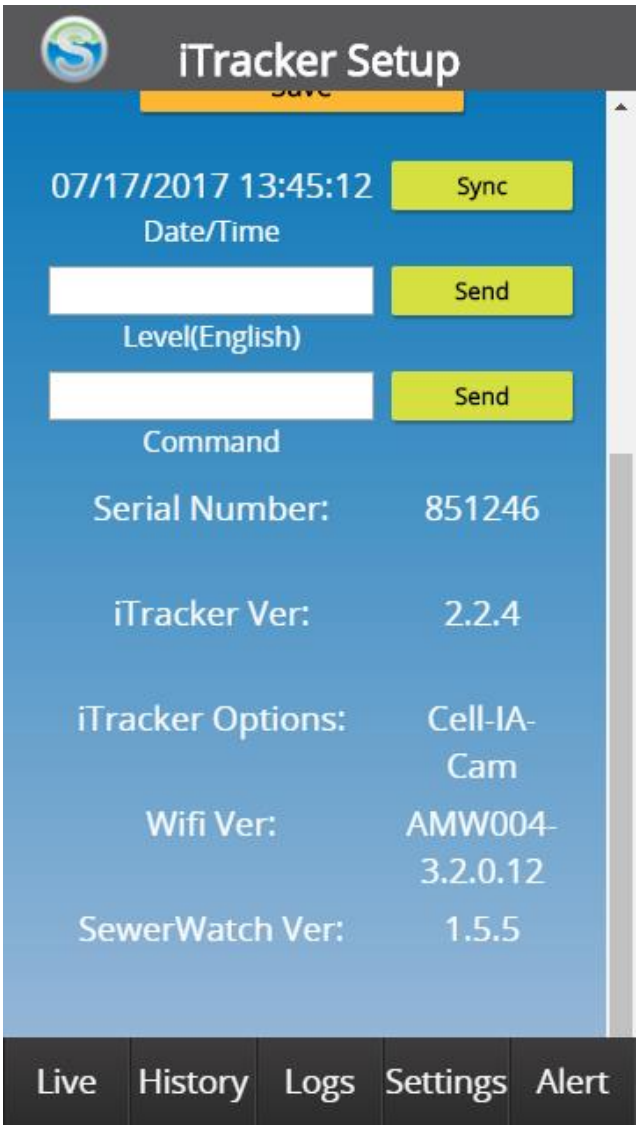
Additional Information
Save
Live
History
Logs
Settings
Alert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07/17/2017 13:45:12
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Date/Time
Send
Level(English)
Send
Command
Serial Number:
851246
iTracker Ver:
2.2.4
iTracker Options:
Cell-IA-Cam
Wifi Ver:
AMW004-3.2.0.12
SewerWatch Ver:
1.5.5
Live
History
Logs
Settings
Alert

Technical Specifications

Enclosure	IP68 SUBMERSIBLE
Material	Marlex 9018 HDPE
Dimensions	14” Length x 2.25” Diameter
Weight	1.9 lbs
Temp. Rating	32 to 160 degrees F
Battery	Tadiran 3.6 volt “D” cell x 2
Output	Wireless 802.11 B/G/N Webserver with SewerWatch application USB port
Logging rates	5 to 60 minutes (selectable)
Accuracy	.1” or 0.1% of target distance, whichever is greater

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