



# **The Water Window**

## **Set up & Install Guide**

# The Water Window

## Set up & Install Guide v1.9

Through this tutorial we will introduce The Water Window tank monitoring system, connect to The Water Window directly to set up its features, and finally install The Water Window into your tank.

### Items Supplied

- Water Window Device
- Outdoor Certified Power Supply
- Level Sensor
- Power supply pigtail connectors
- Magnet - the reset switch is magnetically activated - hold the magnet near the drop to activate
- Heat Shrink Tubing, Wire Nut Connectors

### Items Not Included

- 12v low voltage wires to run between power outlet and meter.
  - Wires from previously installed level alarms or meters can be used with no issues.
  - If new is required, we recommend using a direct burial rated wire, 18ga or larger. Standard low voltage landscape lighting wires from any hardware store would be ideal.

### Pre-Installation Setup Requirements

- Laptop Computer or Desktop, Tablet or Phone with Wi-Fi capability
    - \*Any device with Wi-Fi can be used during the setup process, however a computer is recommended for screen size and clarity of the configuration screen. If your computer does not have Wi-Fi, then a smart device can be used to set up the meter to connect to your network and then the computer can be used to complete the rest of the setup.*
    - \*The terms 'computer' and 'device' will be used interchangeably throughout this guide.*
  - 110V power outlet
  - Good Wi-Fi signal from the network you intend to connect to when installed
  - Ensure you have your home router name and password and record on supplied sheet.
  - Wash sensor and cable with soap and warm water before installation. These sensors have come straight from the factory and have passed through many hands. With heightened awareness on virus and bacteria these days, better to be safe.
- Caution: Do not get water in the connector or inject pressurized water (i.e. from the tap) in sensor head, sensor damage will occur. Gentle rinse only.**

## Component Description



## Indicator Light

### **On power up:**

- Constant slow blink – attempting to connect to Wi-Fi network
- Repeatedly blinks 2 times – Successfully connected to Wi-Fi network
- Repeatedly blinks 3 times – Connection to Wi-Fi network failed, going into Access Point mode

### **On reset switch activation:**

- Slow constant blink – Normal reset will occur when the magnet is removed
- Fast constant blink begins approximately 3 seconds before factory reset occurs. When light stops flashing, (approximately 10 seconds total time), the meter will factory reset when the magnet is removed.



## Part 1 – Network Set up

It is recommended that you power up and configure the water meter prior to installation.

- The Water Window can operate in two wireless modes:
  - I. As a [Client](#) - to connect to your router.  
*the **Client** mode is the protocol that connects The Water Window to the home network*
  - II. As an [AP \(Access Point\)](#) broadcasting its own Wi-Fi network.  
*The **Access Point (AP)** mode is used to connect any device (i.e. computer, tablet, phone) directly to The Water Window to configure it. Additionally, **Access Point (AP)** mode enables The Water Window to operate in a standalone configuration. After a power up or reset, the meter will operate in both modes simultaneously for approximately 5 minutes. If 5 minutes pass and the meter is connected to a network, it will switch to Client mode only and the Access Point will disappear. If the meter has not connected to a network, it will remain in Access Point mode.*

### Connecting the Water Window to your Home Router

A Windows program is available to help automate the process of connecting the Water Window meter to your home network. To use the Windows program, jump to [page 9](#).

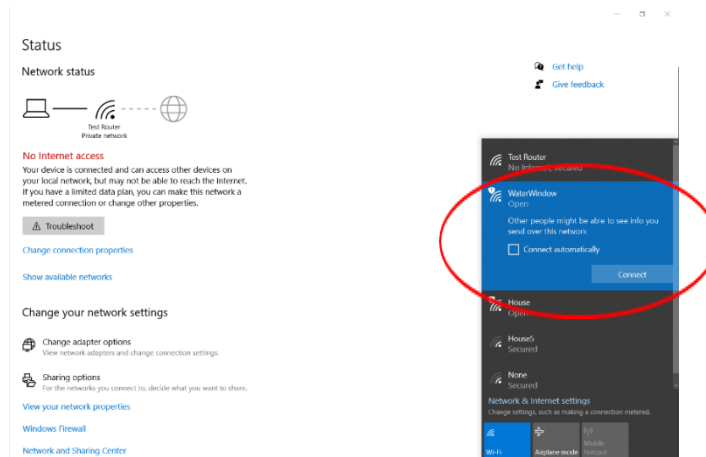
For all other devices the manual connection process below must be followed.

1. Connect the power supply to the Water Window device using the pigtail wires, then plug the power supply into a wall outlet. The indicator light on the side of the meter will start to flash. See video demonstration here: [Connecting](#)



- On your computer, navigate to the Wi-Fi connection manager; scan for Wi-Fi networks. Connect to “WaterWindow” network. 7

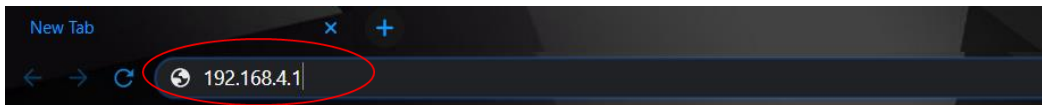
\*\*\***NOTE:** every device’s operating system will be different - you will need to know how to do this on your device. i.e. this is an example only on Windows 10 computer:



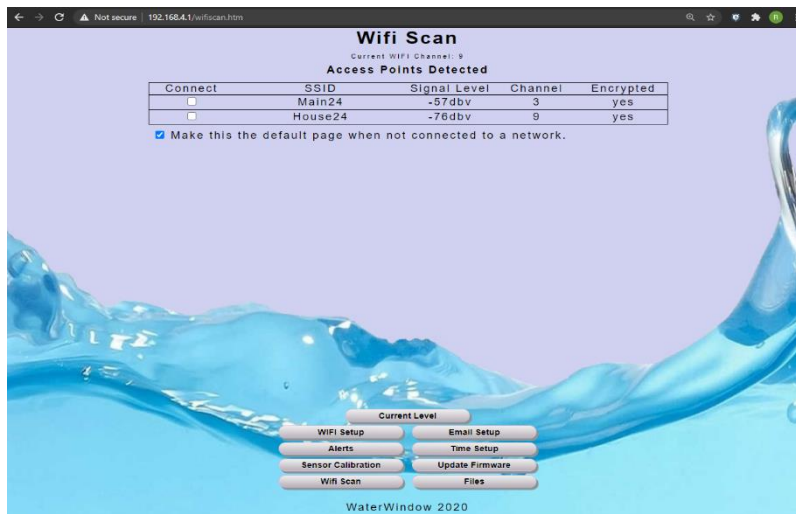
\*\*\***NOTE:** while connected directly to the Water Window your computer will not have internet service.

\*\*\***NOTE:** computers prefer network connections that have internet access and may automatically switch back to your home network during these steps. If these steps are not successful, then check the connection manager on your computer to make sure you are still connected to the Water Window.

- On your computer open an internet browser (Explorer, Chrome, Firefox, Safari) - type 192.168.4.1. into the address bar, press enter.

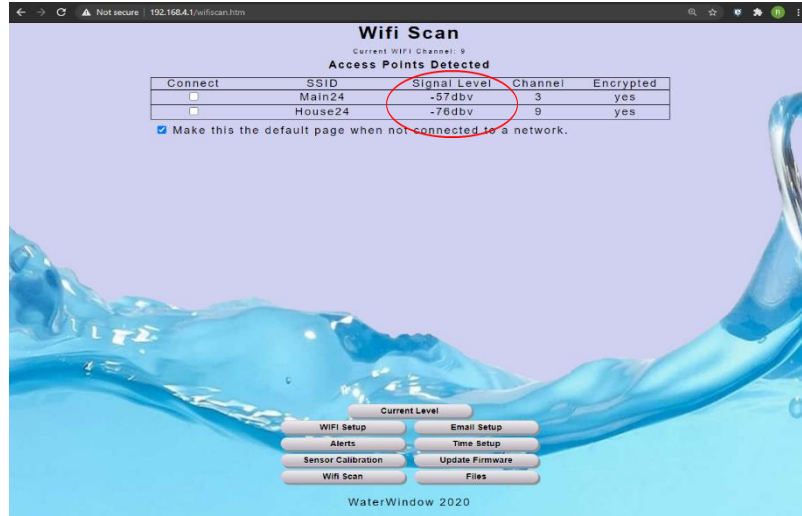


The Water Window wireless scan web page will open where you will choose a network to connect to.



\*\*\***NOTE:** The network scan is performed only during power up. If the network you want to connect to is not displayed, unplug The Water Window, and repeat step 1 -> 3.

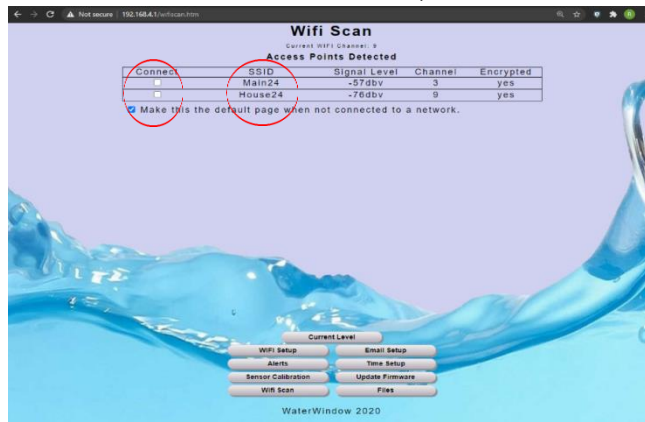
\*\*\***NOTE:** Signal Level of the wireless network (Displayed in the “WIFI Scan” screen and also in the “WIFI Setup” screen)



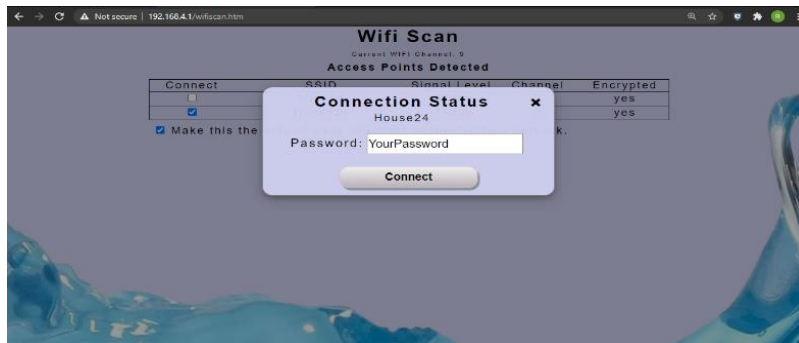
- A signal level greater than -79dbv will usually work well
- Signal levels between -80dbv and -90dbv may work, but increased page loading times and frequent network disconnects can occur causing difficulty viewing data, missed alerts and faulty time syncs.

If your signal level is low at the installation location or if you are experiencing problems connecting to The Water Window, consider increasing the signal level by either moving the Wi-Fi router closer to the meter or installing a Wi-Fi repeater between the Wi-Fi router and the meter.

4. Select your preferred network from “Connect” column,



Enter the Wi-Fi password (recorded on page 2) into the pop-up box and click “Connect”



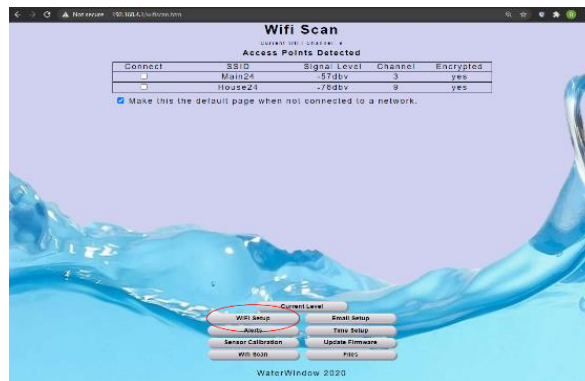
- The meter will connect to your network; record the IP address that is displayed. (Here it is 192.168.0.215)



RECORD IP ADDRESS HERE:

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- Once connected, click the “WIFI setup” button at the bottom of the screen.

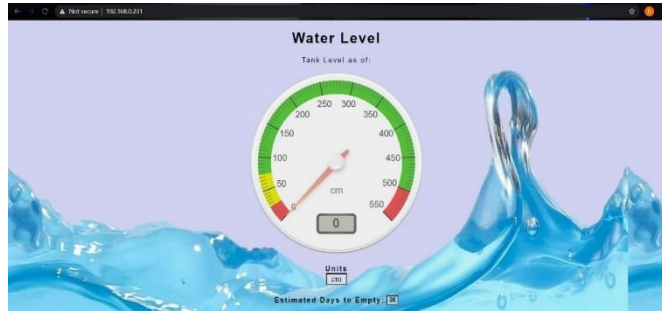


Check the last IP Address field - the green dot indicates the meter is currently connected to the network.



- This screen is also where a username and password can be entered to restrict access to The Water Window. By default, only the setup up screens will be restricted by the password. If you would like to restrict access to the gauges as well, click the “Include Charts” checkbox.

- To restrict access to The Water Window's AP network you can change the AP's SSID and add a password, the same as most other wireless networks.
7. Now that the meter has been connected to your Wi-Fi network, click the "Reset Meter" button to restart the meter with the new setting and then disconnect from the meter and reconnect your computer or device back to your home Wi-Fi network.
  8. Once connected back to your Wi-Fi network you may open any browser and type in the IP address you wrote down. Your water Window is now connected via your router. This will allow you to send updates and alerts through your internet connection.

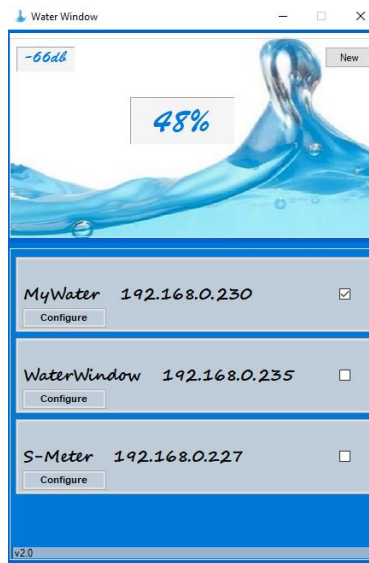


**\*\*\*NOTE:** *the IP address is assigned to clients by the router controlling your network. The IP address is assigned randomly as devices connect to and leave the network. Most home routers will try to assign the same address to a device most of the time, however at some point the address can potentially change. To help find the meter on the network, the meter employs a network discovery process to allow devices to find it regardless of the IP address assigned to it. Apple devices are the only devices that have the discovery process built into the operating system and require no other programs or apps to find the meter. Windows, Android, and all other devices requires knowing the IP address beforehand.*

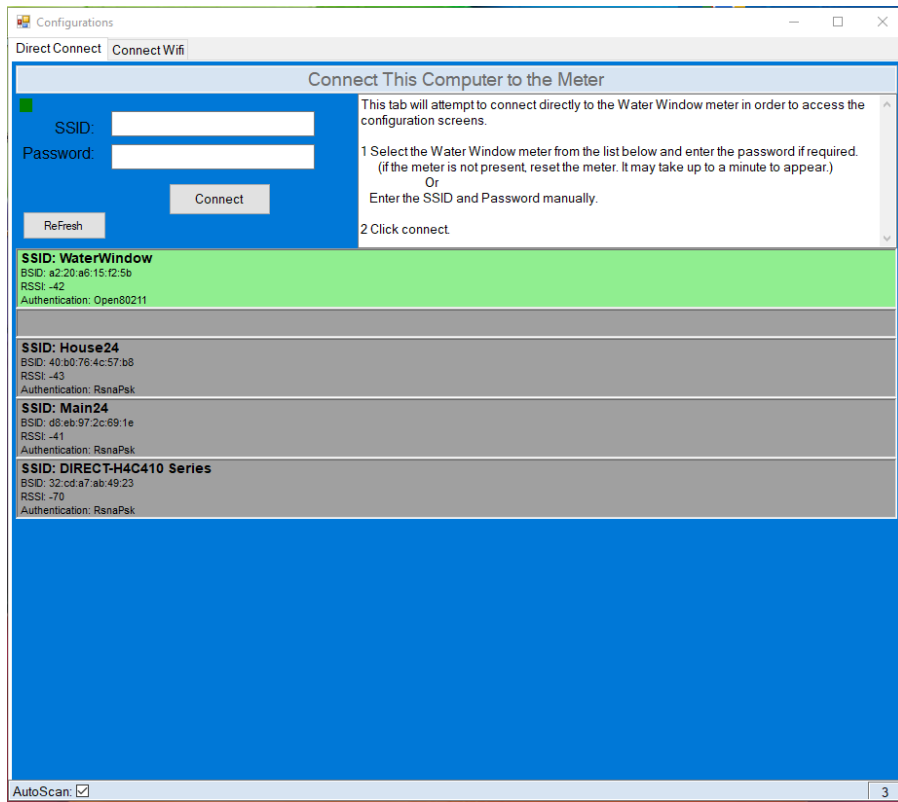


## Using the Windows Program to Connect the Water Window to your Home Router

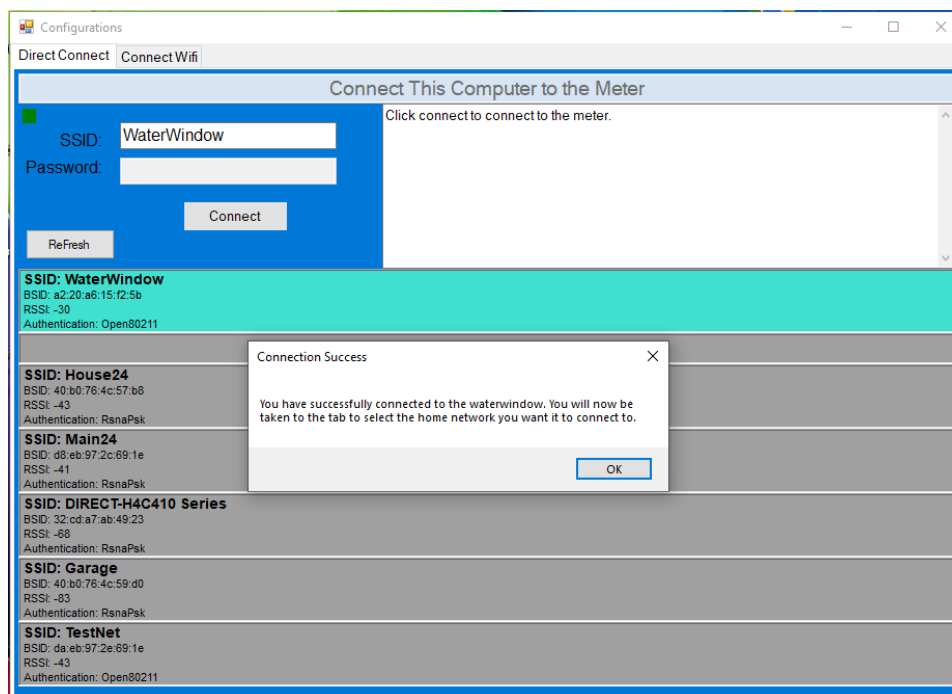
A windows program has been developed and is available on the Water Window web site here: [Windows App](#). Download and install. Currently the program is not digitally signed and Windows will throw up warnings that the program could not be verified and not to install. Continue installing to set up the program. When run, the main screen of the program will search the network for the Water Window meter and display the current level. Clicking on the meter pane will open a browser and take you to the meter. The checkbox will display the level in program



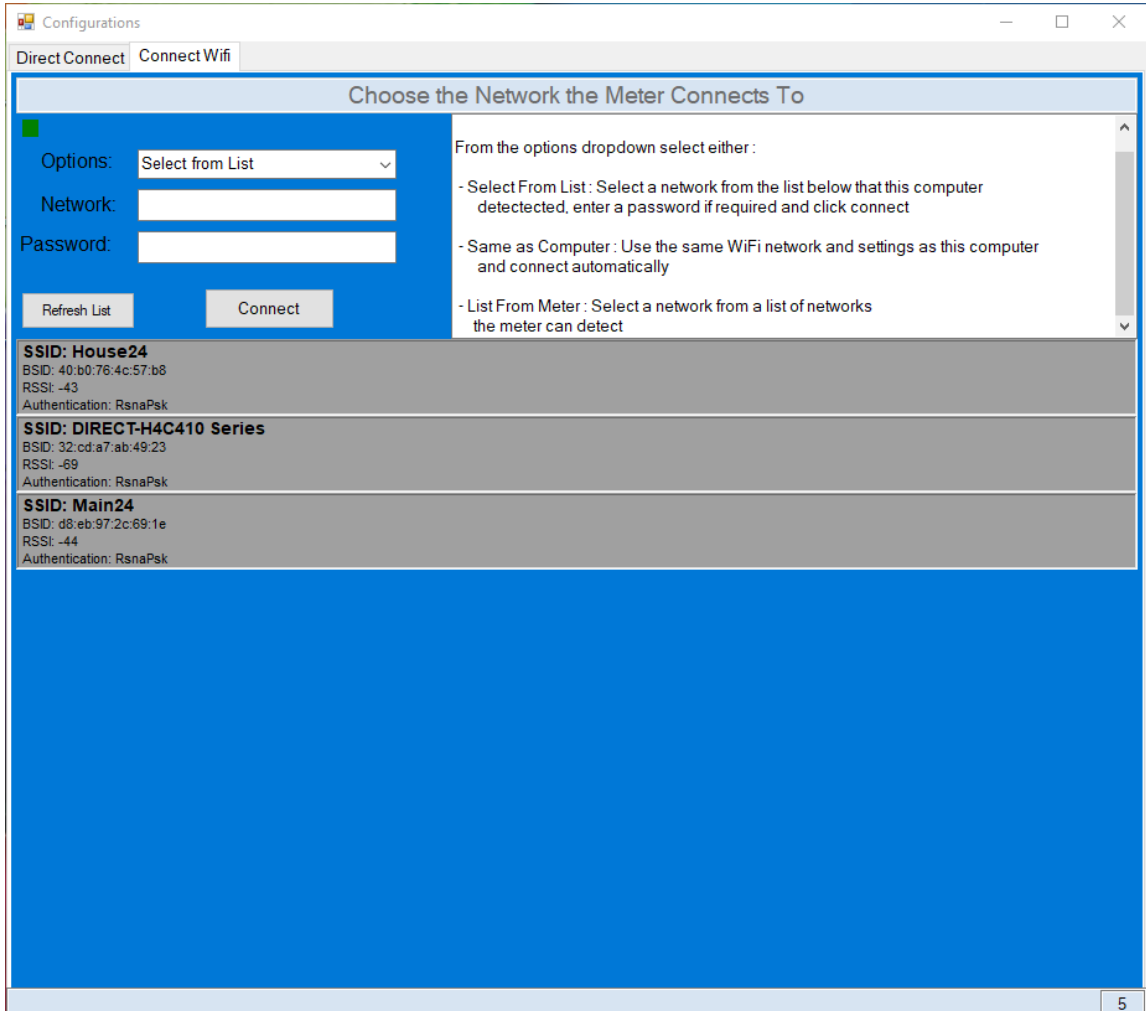
1. When the program opens, it will broadcast a request on your home network that the Water Window meter will recognize and respond to. As meters respond they will be populated in the lower pane. The above picture show 3 meters found on the network. The "check box" will start requesting new level readings from that meter every few seconds.
2. The configure button in the meter pane will open a screen where you can change the network the meter is connected to. This is used to modify the settings after the initial setup has been completed and is discussed in step 7.
3. To configure a new meter or one that has been reset click the "New" button in the top right corner.



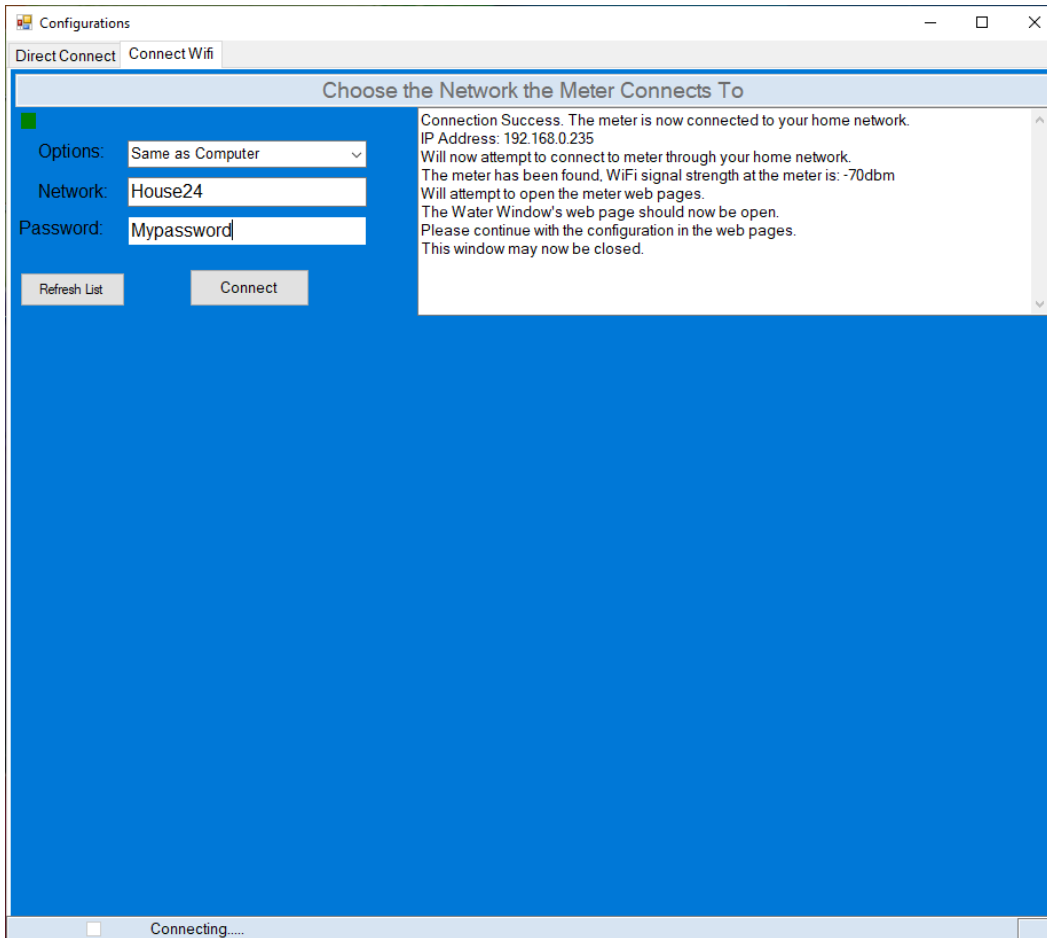
4. The “Direct Connect” screen will now open. The screen will perform WiFi scans every few seconds and report all the WiFi networks found. If the meter is new or is using the default SSID, “WaterWindow”, the program will recognize the meter and give it a green background. If you have previously changed the SSID of the meter, then you will need to select that new SSID.
  - If the meter does not show up, make sure that the meter is within WiFi range of the computer and then restart the meter, either with the magnet or unplug/plug it back in. It may take up to 60sec for the meter to show up after restarting.
5. Once the meter is displayed, click on the meter and then enter a password if required, (by default there is no password), and then click connect.



- The program will connect the computer's WiFi directly to the meter and then change to the "Connect WiFi" tab.



- On this screen you will choose the network you want the Water Window meter to connect to. Under the "Options" dropdown, there are 3 option to choose from.
  - Select from List:** The computer will continue scanning for WiFi networks and display a list to choose from.
  - Same as Computer:** The program reads the SSID and password of the WiFi network the computer was connected to when the program first started.
  - List From Meter:** The program will read a list of networks the meter has scanned.
- Choose one of the methods. Keep in mind of where the meter will be installed and which WiFi network will be in range at that location. Use the [pre-Installation guide](#) on our website to determine the best network at the installation location.
- Click on a network, enter a password if required and click connect.
- The connection process will proceed and if successful the program will change the computers WiFi back to the original network it was connected to and then attempt to open the meters web pages through your home network.



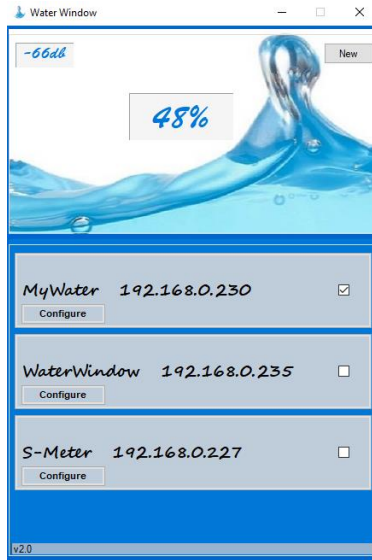
11. If the connection fails, the program will display any messages that are available. In these cases, restart the meter and the program and try again. The manual process of configuring the meter may also be tried.

## Getting a level reading from the water window

### Windows

3 options are available:

1. The program described above which can be downloaded here: [Windows App](#).

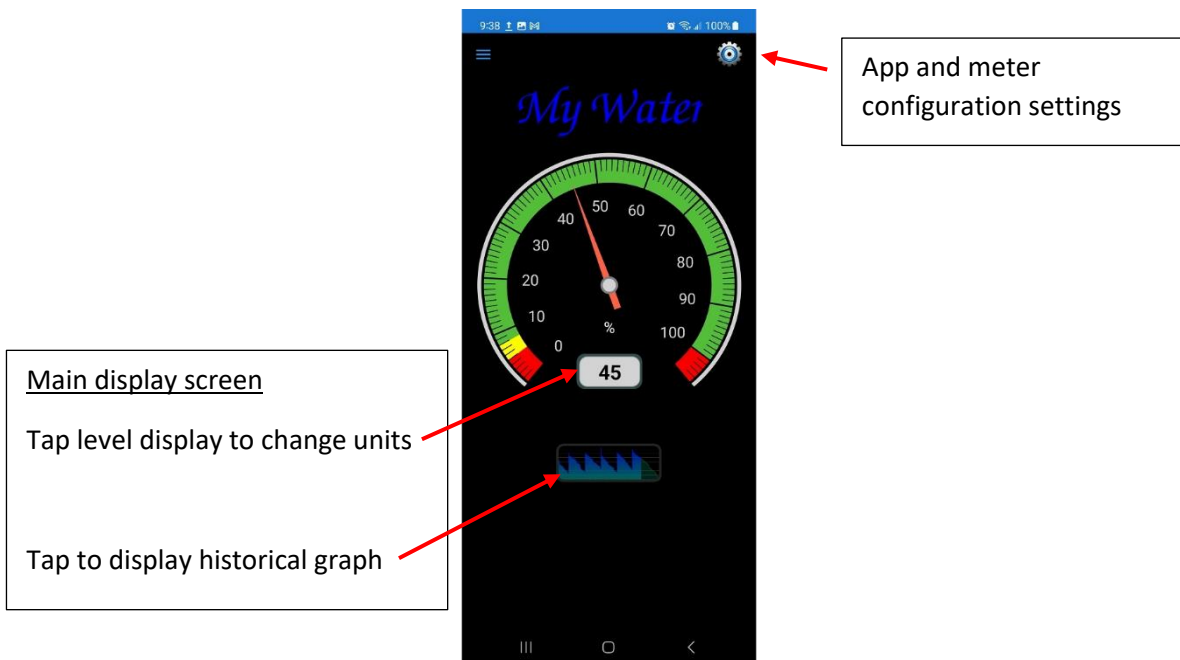
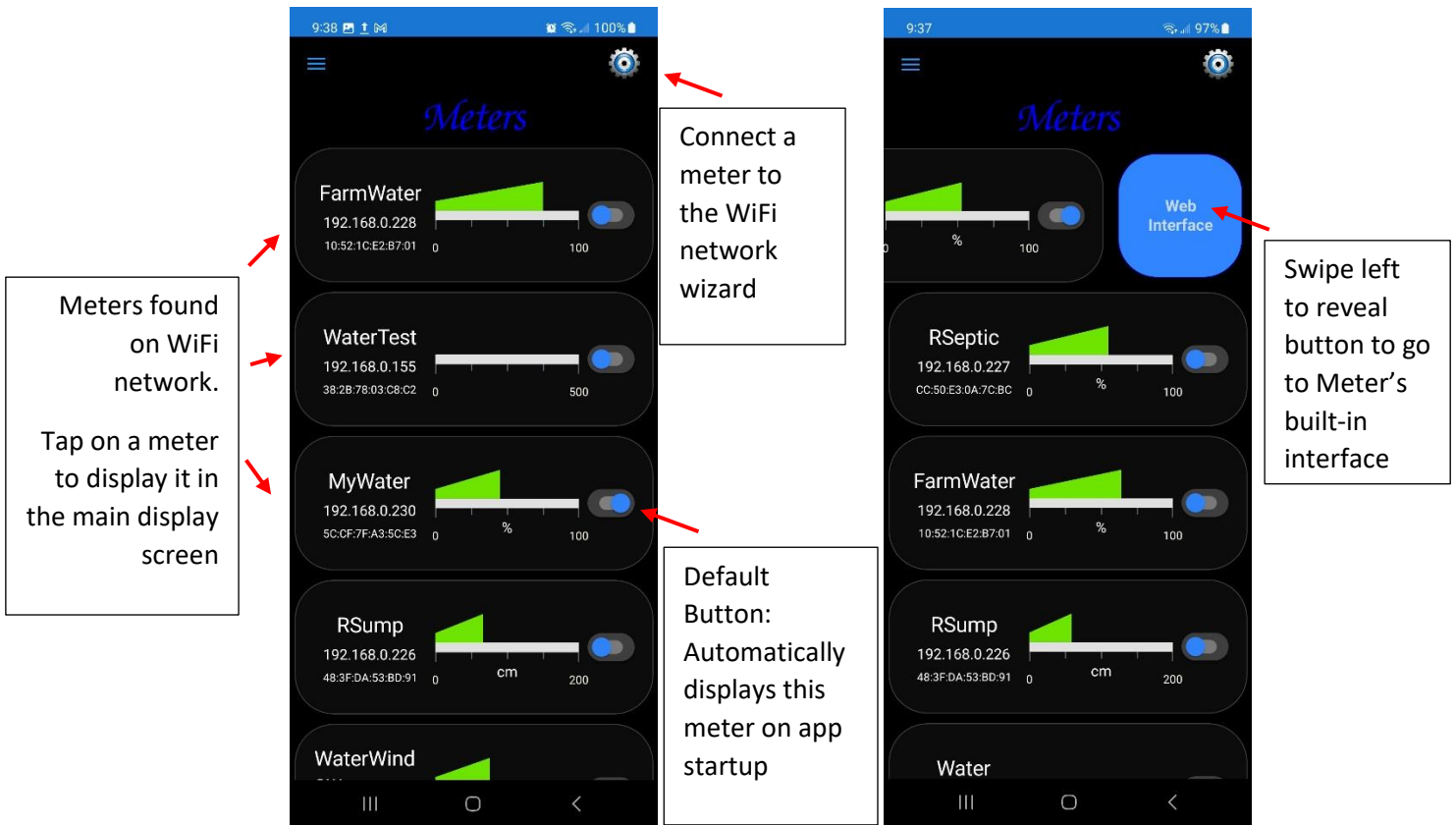


2. Connect directly to the meter: Reset power to the meter and then follow Steps 1 -3 of the "Connecting the Water Window to your Home Router" section and record the new "Last IP Address" from the "WIFI Setup" screen, (Step 6). Update any shortcuts or links with the new IP address.
3. There are settings in your network router that allows you to assign a specific / constant IP address to the meter. This setting is usually called "DHCP Reservation" or "IP Reservation" depending on the router manufacturer. A google search of your router model and "DHCP Reservation" will usually find detailed steps to follow to configure this setting. Generic steps can also be found in Appendix A of this guide.

## Android Devices

An App has been developed that find all the meters on your network, view the levels and change some meter configuration settings. All meter configuration settings can be found in the meter's built-in interface. You can download the app from the play store here: [Android App](#)

During first startup, when a meter has not been set as the default, or when communication with a meter can not be established, the app will go to the search screen where it will search the WiFi network the phone is currently connected to for any meters available.



## Apple Devices

Apple devices have built in services to find the meter using the Host Name. Using Safari browser, type in the meter's Host Name (Set in the WIFI Setup screen) followed by ".local" into the address bar and the meter will open.

**\*\*\*NOTE:** *If changing the host name in the meter do not use any spaces, the name should be all one word.*



- A shortcut to the home screen can then be created to simplify accessing the meter. See instruction at the bottom of the online guide here: [Connecting to the water window](#)
- In above picture, "WaterWindow.local" would be entered into the Safari address bar.

## Part 2 – Setting up The Water Window

Now that the meter is connected through your router it is time to set up the following features:

- Time and Date settings
- Email and SMS Alerts
- Sensor Calibration

And explain other highlights, FAQ's and troubleshooting.

### Time and Date

1. From the Gauge screen scroll down and click on the Setup Button - this is the Network Settings Page. From there scroll down again and select the Time Setup Button.
2. When this page is opened the meter attempts to get the time from the internet and displays it in the Internet time box. The meter contains an internal real time clock that keeps track of the time even when power is removed. Updating the time should only be required if something occurs, such as daylight savings time changes.

*Auto Sync allows The Water Window to attempt to update its time from the internet every hour*

The screenshot shows the 'Level Meter Time' configuration interface. At the top, the title 'Level Meter Time' is displayed above the sub-section 'Time Settings'. The interface includes several input fields: 'Time Zone' is set to '-07 MST/PDT Mountain Time', 'Current Meter Time' shows '11/24/2020, 12:41:06', and 'Internet Time' also shows '11/24/2020, 12:41:06'. To the right of the 'Internet Time' field is a 'Get Net Time' button. Below these fields are two buttons: 'Set Net Time' and 'Set Computer Time'. An 'Auto Sync to Server' checkbox is checked. A large 'Save' button is positioned in the center of the page. At the bottom of the screen, there is a 'Current Level' gauge and a grid of eight buttons: 'WIFI Setup', 'Email Setup', 'Alerts', 'Time Setup', 'Sensor Calibration', 'Update Firmware', 'Wifi Scan', and 'Files'. The background of the page features a blue water splash graphic.

*Change the time either manually or with the set buttons and then click Save to update the time in the Water Window meter*

3. Click the Time Zone text box to access a dropdown and select your current time zone.
4. You can choose to update the Current Meter Time text box either manually, from the Internet Time text box or get the time from your computer.
5. Click the Save button to set the changes in the meter.



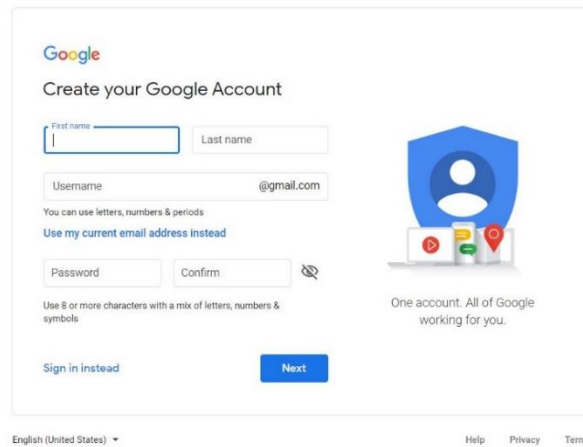
## Email and Alert Setup

To enable Email and SMS alerts, the Water Window must be given access to an Email account to perform the actual Email server functions to send the Email. Even though all communication between the Water Window and the Email server uses standard TLS encryption, it is recommended for safety concerns to create a new account that is only used to send the alerts and does not share a password with any other accounts.

Setup and use of a **Gmail account** is only being outlined here as it is easy to set up and is well tested. The use of other Email providers is possible but is not supported for help.

Create your Gmail account by doing an internet search for “New Google Account” and navigating to the page below:

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English (United States) ▾ Help Privacy Terms

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Setup your new Gmail account and be sure to record your Email address and password.

***Tip*** – do not use personal info and keep email and password random with no optional information, as this will **only** be used for your Water Window. It is also recommended to record the email and password where it can be easily located.

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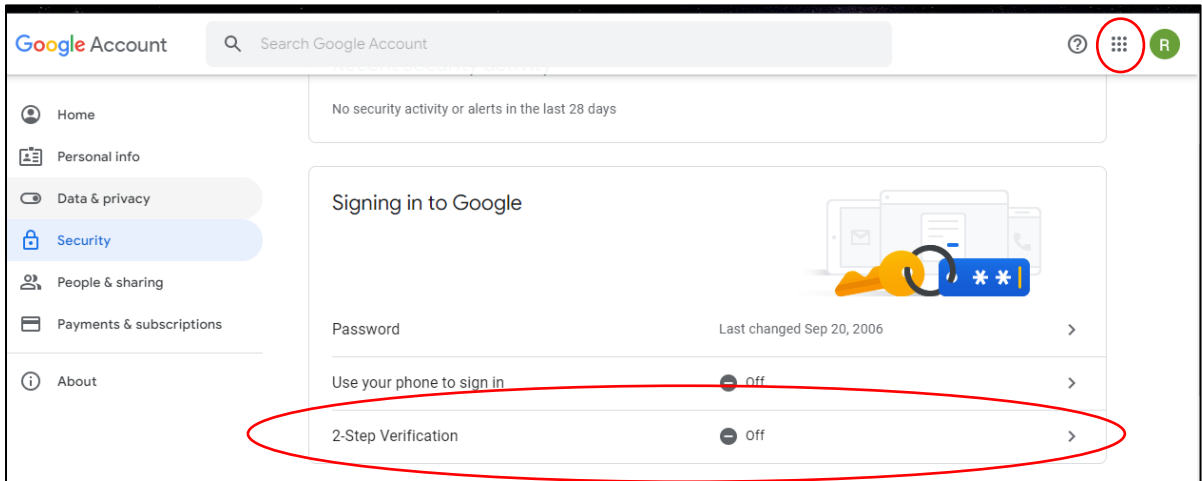
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**\*\*\*NOTE:** The Water Window is not a registered device with Google and as such does not meet Google's standard security requirements. This means you must specify in your Google account that you want to allow a less secure device to connect to your email. To do this you must turn on 2FA, (2 factor authentication), and then get a google generated password to enter into the Water Window.

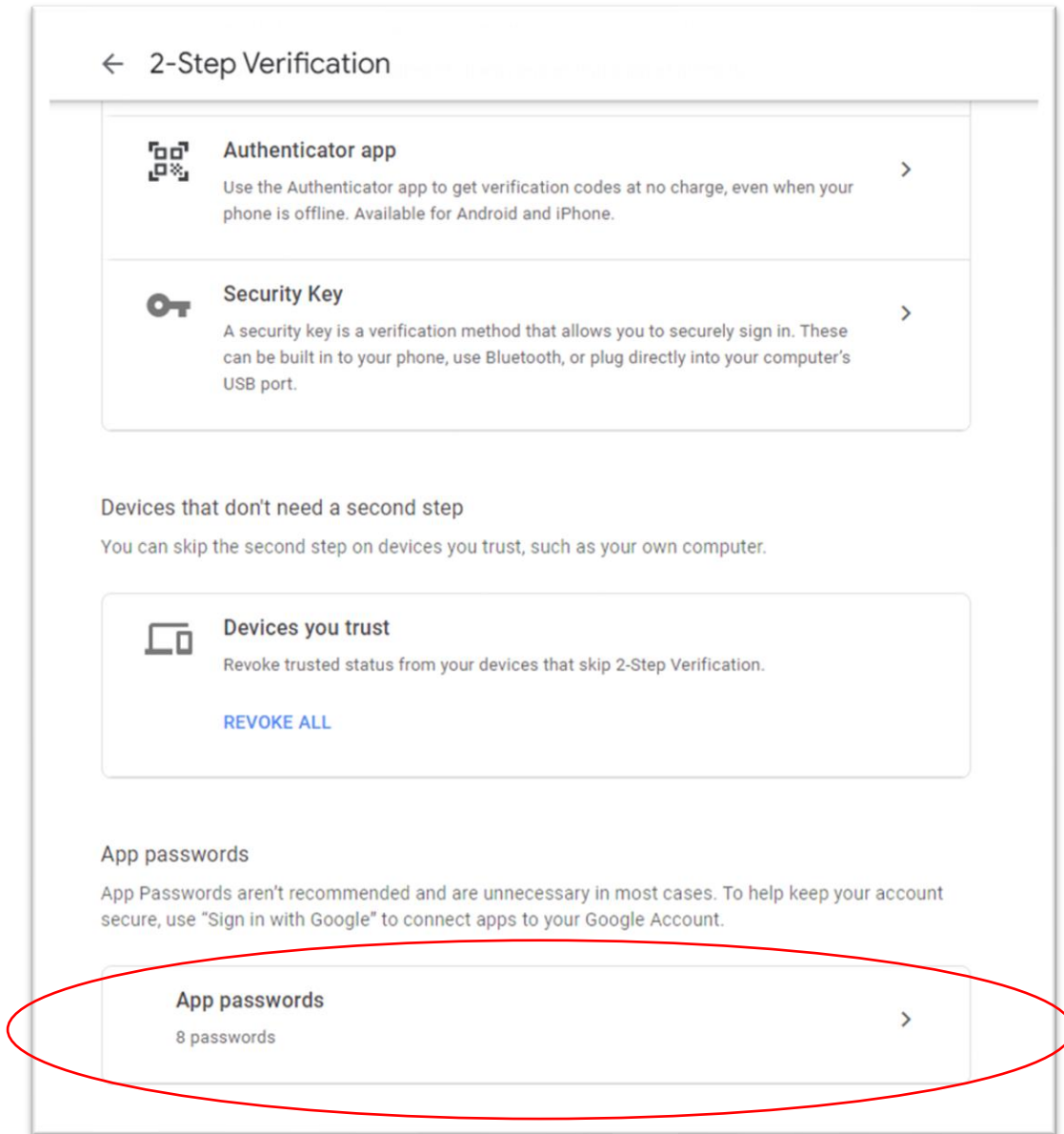
To do this:

- Log into the new Google Account
  - Note: Not the Gmail settings. The Google Account is located in the the box made up of dots
- Navigate to account setting page
- Select Security on left side
- Scroll down to "Signing in to Google" and select "2-Step Verification", then follow the steps to turn it on.

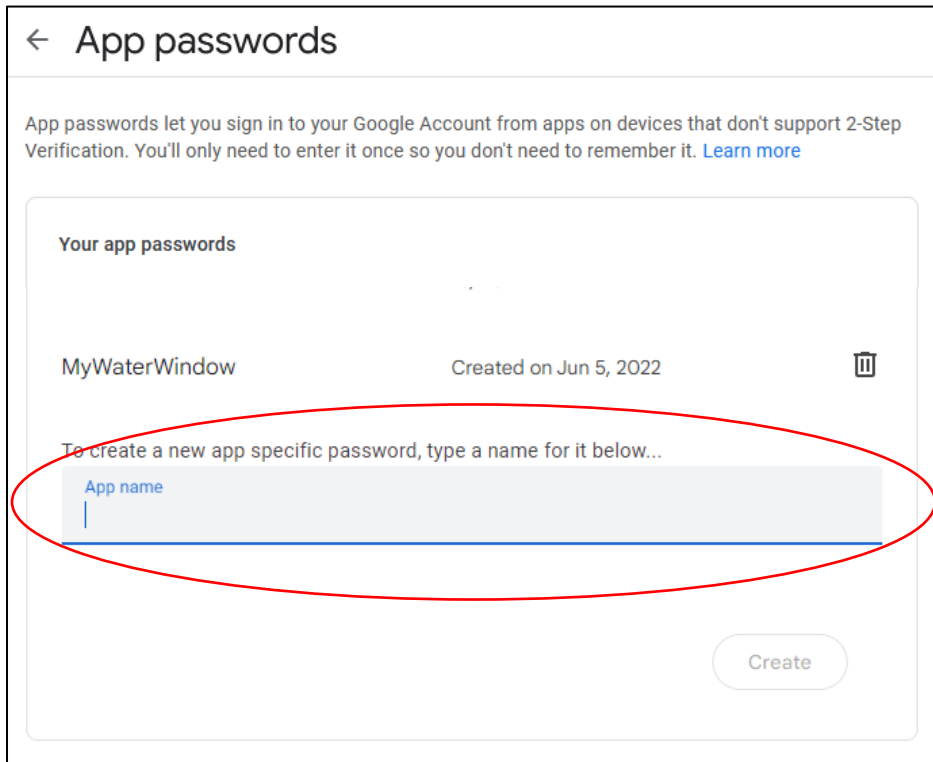
**\*\*Note:** menu's change frequently, however it is usually simple to locate the App setting



- Once 2-Step Verification has been activated, click on it to open a new menu
- Scroll to the bottom of the page to the “App passwords” section



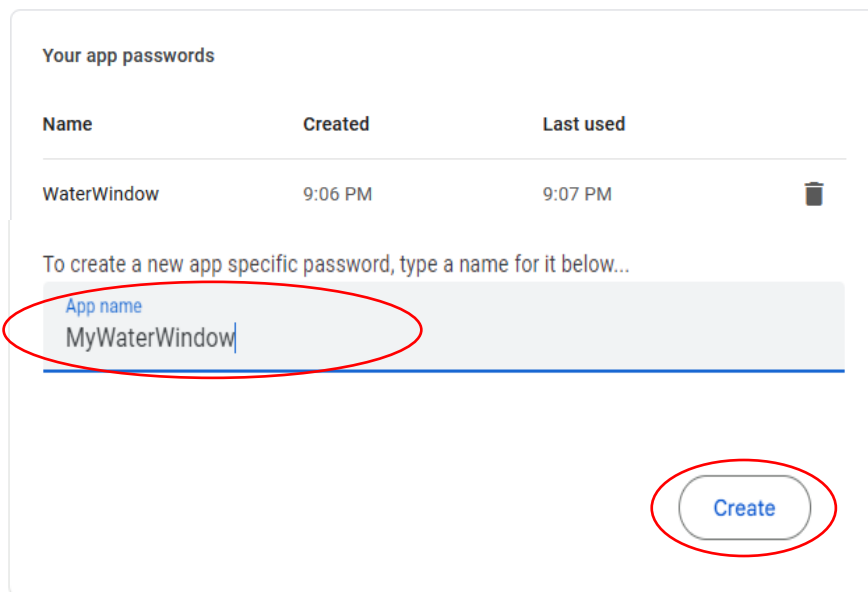
- Select “App passwords” to generate a new access password



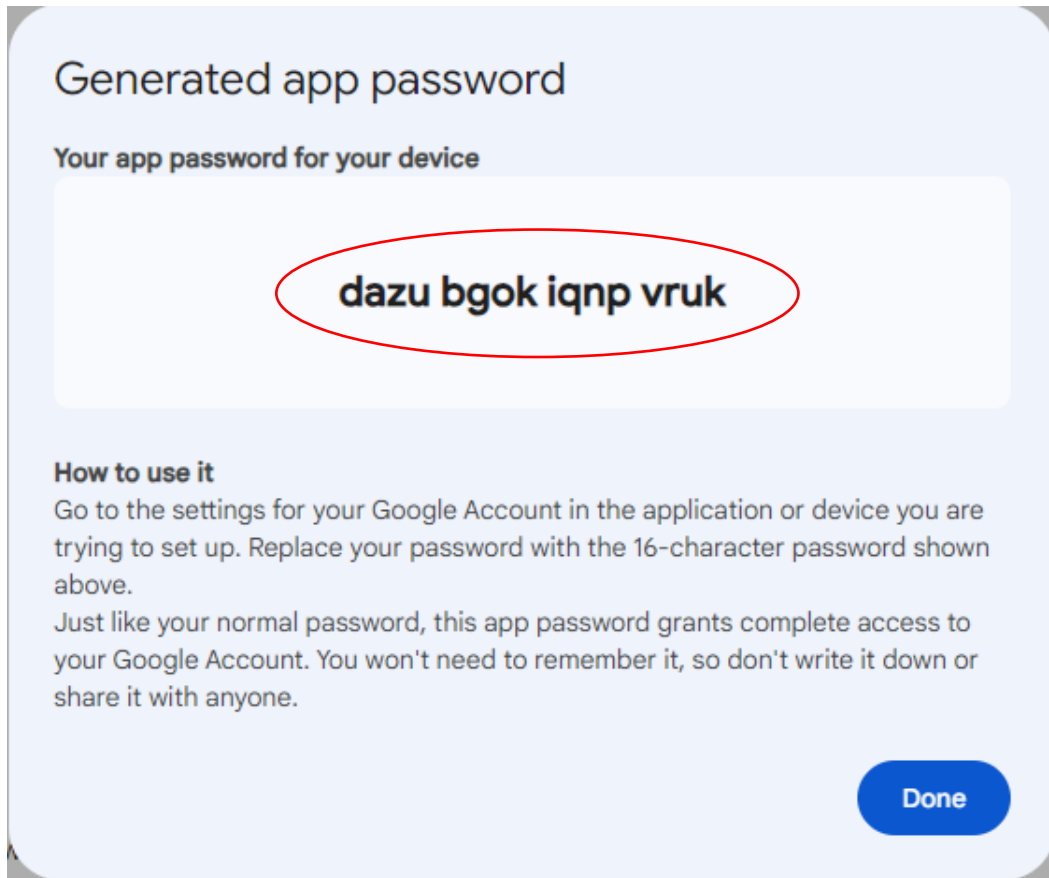
- Enter a name for the meter
- Then click “Create”

## ← App passwords

App passwords let you sign in to your Google Account from apps on devices that don't support 2-Step Verification. You'll only need to enter it once so you don't need to remember it. [Learn more](#)



- A new window will pop up with a password
- Copy/Paste this password into the email setup screen of the Water Window
  
- This “App password” will remain valid until the account password is reset.
- If the account password is reset, follow these steps to generate a new “App password” for the Water Window to use.



With your new Gmail set up and ready to be used for the Water Window alerts, sign back into the meter via your browser.

Navigate to and click the Email Setup button; enter your information and then test the alert.

**Notification Configuration**  
Email Settings

SMTP Server: smtp.gmail.com  
Port Number: 465  
Authenticated Login:   
Sign in Name: Your new gmail@gmail.com  
Password: \*\*\*\*\*

Test Addresses

Test Email Address: YourNormalEmail@gmail.c  
Test SMS Email Address: 9123456789@txt.bell.ca

Email to SMS Addresses

Save Test Email  
Email has been sent!

Current Level  
WIFI Setup Email Setup  
Alerts Time Setup  
Sensor Calibration Update Firmware  
Wifi Scan Files

WaterWindow 2020

Click save

Enter Gmail address here  
Enter the App password from last step into the password field

This section is to test your Gmail info entered above. Enter an email you normally use to receive the email test. Read below to enter an SMS number to test as well.

Then click test

To use the SMS (Texting) alert enter “YourPhoneNumber@????” from your cell provider - see the list below:

- [10digitnumber]@txt.bell.ca (Bell and Solo)
- [10digitnumber]@pcs.rogers.com
- [10digitnumber]@sms.fido.ca
- [10digitnumber]@msg.telus.com
- [10digitnumber]@vmobile.ca (Virgin Mobile)
- [10digitnumber]@mobiletxt.ca (PC Mobile)
- [10digitnumber]@msg.koodomobile.com
- [10digitnumber]@sms.sasktel.com and [10digitnumber]@pcs.sasktelmobility.com
- [10digitnumber]@text.mts.net (MTS Allstream Inc./ Manitoba Telecom Services Inc.)
- [10digitnumber]@txt.windmobile.ca (you have to [active it first](#))

\*\*\***NOTE**: usually this cell phone provider feature is free, however some phone providers may charge a fee for the service.

After clicking the test button, you will get messages to your email and SMS within a few seconds. If not, carefully re-enter the information and click test before trouble shooting further. If you still do not receive a test alert:

1. Check the event log in the Firmware Update screen. This records any errors it receives from the email servers.
2. Log into your new Gmail account to see if errors have been reported there.

Once the Email setup is complete, click on the Alerts button. This screen will allow you to set notifications based on either falling or rising levels as well as repeating time of day/week notifications on your tank level.

The image shows two configuration screens. The top screen is titled "Level Alerts" and has two radio buttons for "Falling" and "Rising". It contains three rows of input fields for "Level", "E-Mail Address", and "SMS E-Mail Address". Below each row are fields for "Enter Email Subject Comment" and "Enter Email Body Comment". The bottom screen is titled "Repeating Notification" and has two radio buttons for "Daily" and "Weekly". It contains a "Time" field, "E-Mail Address", and "SMS E-Mail Address" fields, followed by "Enter Email Subject Comment" and "Enter Email Body Comment" fields.

To activate a level alert, start by selecting Rising or Falling alert. Enter the desired trigger level. Enter your email address and SMS email address to send the alert to, enter a subject line comment and an email body comment. Note the current level is affixed to the end of the comments.

To activate a time alert, start by selecting a Daily or Weekly alert. Click on the Time box to open a day/time picker and select when the alert is to trigger. Fill out the other fields the same as the level alerts.

This screenshot shows the "Level Alerts" screen with a "Time Selector" dialog box overlaid. The dialog box has two tabs: "Hour" and "Minute". The "Hour" tab is active, showing a grid of numbers from 00 to 23. The "Minute" tab is also visible, showing numbers from 00 to 55. Below the dialog box are "Save" and "Cancel" buttons. The background shows the "Level Alerts" and "Repeating Notification" forms from the previous image.

Up to 6 level alerts and 4 day/time alerts can be created.

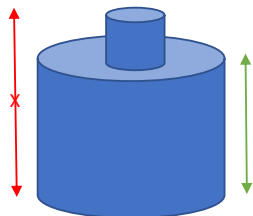
## Sensor Calibration

Setting up your sensor will **require an inner tank height**. The “zero maintenance” sensor works by measuring the height of the water on top of it and is calibrated to measure a maximum height of 5m. To calculate percentage or volume accurately, the tank needs to be as uniform as possible from top to bottom so that as the level changes, the volume of water in each cm of the height remains constant. If the total inner height is known as well as the total volume, then the user will be able to see and chart the actual volume of fluid in gallons or litres.

Measure only the open space from the bottom of the tank to the top; do not include the thickness of the roof of the tank, or the height of any fill pipes or manhole extensions. The value measured and entered into The Water Window will be the 100% full point when calculating percentage remaining.

1. Click the Sensor Calibration button from the bottom menu to get to the page below.
2. Current reading field = raw input from the sensor; this is a good indicator that the sensor is connected and functioning correctly. In air, (0 depth), the sensor should display approximately 660mv.
3. Sensor Type Dropdown– There are currently 2 types of sensors available. The standard sensor that measures up to 5m of water and an extended range that will measure up to 20m of water. Unless you specifically ordered the extended range sensor choose the standard sensor.
4. Sensor Offset to Bottom: Normally in a cistern the sensor can be laid directly on the bottom of the tank. However, if there is a significant amount of sediment on the bottom of the tank, you may want to hang the sensor above the sediment to prevent plugging off of the port holes. If the sensor is hung off the bottom of the tank, measure the distance from the bottom of the tank to the bottom of the sensor and enter here. This will correct the level displayed to the actual level.

Enter your inner tank height in cm.  
Please keep in mind that some tanks have an opening or area not concentric to most of the tank. If this is so, then it is best to only measure the concentric height to get accurate readings.



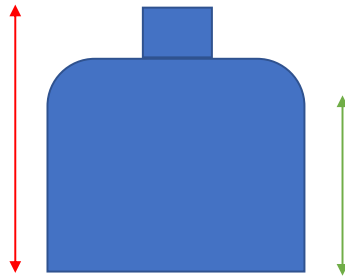
If you know or can calculate your inner tank volume in liters, then divide the volume by your inner tank height to get the L/cm and enter it here. Again, only calculate the volume that is concentric in height.

EG. Tank is 3700gal. 3700x4.5 is 16800L  
Inner Tank Height is 245cm  
 $16800L / 245cm = 68.5L/cm$

**Settings**  
**Calibration Values**  
Current Reading: 0mv 2/11/2022 15:30:29  
Use default calibration:   
Sensor Type: Standard Range 0 - 5m  
**Sensor Disconnected**  
Max Tank Depth: 500cm  
Sensor Offset to Bottom: 0cm  
Liters per Centimeter: 0L/cm  
**Measurement Intervals**  
Normal: 300sec  
High Rate: 2sec  
Save  
Current Level  
WiFi Setup Email Setup  
Alerts Time Setup  
Sensor Calibration Update Firmware  
Wifi Scan Files



If your tank dimensions are not uniform from top to bottom, i.e. a tank with a domed top, then only measure the uniform portion. The tank will always have additional volume, but this portion volume cannot be accurately calculated.



5. Measurement intervals = how often a reading is taken.
  - a. High Rate: whenever a web page is open or a tank fill event is detected, readings are taken and web pages are updated at this rate. Maximum rate is 2 seconds.
  - b. Normal Rate: All other times. Maximum rate is 10 seconds.
    - Typically tank levels do not change very fast and so the sensor circuitry in the meter is powered down between readings. If your tank levels change rapidly, increase the sample rate to improve resolution.
6. Click Save.

## Part 3 – Installing the Water Window

### Installing your meter at the tank

Also see examples on website: [Installation Examples](#)

The Water Window comes with a CSA compliant 12VDC power supply and connector pigtails to plug into the unit. It is the user's responsibility to supply and install all onsite wiring as required. The power line between the power supply and the unit is low voltage DC and is often subject to less stringent installation regulations. It is up to the user to verify and comply with all local installation regulations in their area.

The power requirement of the unit is very forgiving and just about any type of paired conductor wire will work fine. We recommend using a direct burial rated wire, 18ga or larger. Standard low voltage landscape lighting wires from any hardware store would be ideal. If your tank has a float level alarm already installed, the existing wires can be disconnected from the float and from the alarm and repurposed to run power to the unit. When connecting the supplied connector pigtails to the new or existing wiring, we recommend soldering the connections together and then sealing them to prevent moisture from compromising the connection.

1. Determine installation location:
  - The meter **must** be mounted vertically with the sensor and power cable coming out the bottom.

#### **Do not lay flat on the ground.**

The sensor connector has a vent hole that will allow water to enter and burn out the unit if the unit is laid flat on the ground.

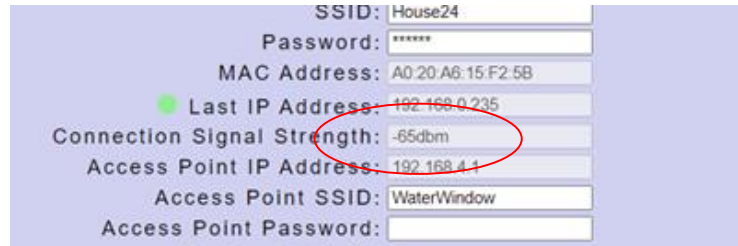


- The meter should be placed 30cm to 50cm (12" to 18") above the ground with the front face of the meter pointed towards the Wi-Fi access point to be connected to.
- When connecting the connectors, **do not over tighten**. The connectors are plastic and may break or the water seals within them can be damaged and fail if over tightened.

#### **The connectors only need to be lightly snugged up**

- Choose a location near the tank where the path between the meter and router has the least number of objects such as walls, bushes, etc. in the way as every object will reduce the Wi-Fi signal.
- Choose a suitable object to mount the meter to, a wooden stake, vent pipe on tank lid, etc. Do not mount to a metal object as this will distort and interfere with the Wi-Fi signal.

2. Before installing anything, it is best to test the meter in the desired location. Use an extension cord to power the unit. Monitor the indicator light on the side to determine what is happening. After a few seconds of constant blinking, it will change the mode: 2 blinks indicate the meter is connected to the home network; 3 blinks indicate the meter failed to make a connection and entered Access Point mode.
3. Using a computer, connect to the meter and go to the WIFI Setup page. Review the connection signal strength and ensure it will be sufficient for a stable connection, (see initial setup, step 3 for guidelines).



4. Once the optimal location has been selected, mount The Water Window and run and install the power line. Please note that the supplied power supply is CSA certified and must not be tampered with. Only the low voltage wires between the power supply can be spliced and extended.

**Do not modify the sensor cable in any way**

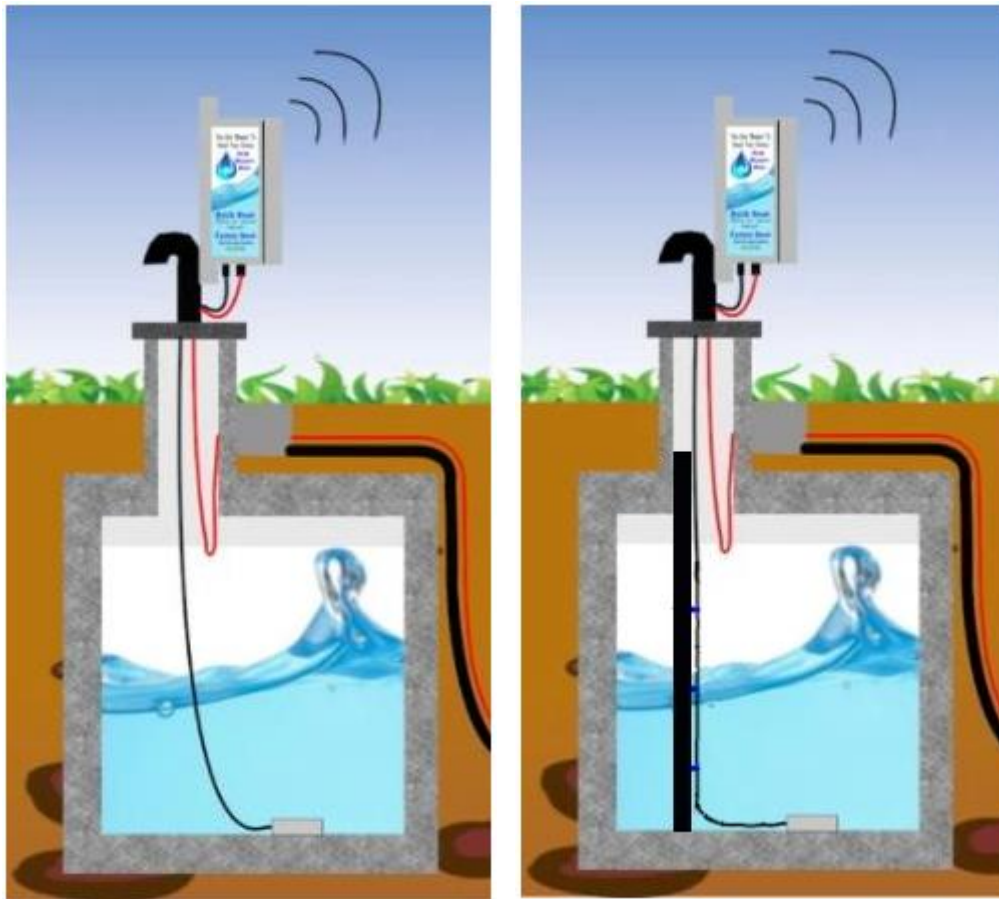
5. Splice the required length of wire between the provided pigtailed and to ensure it powers the unit properly, test with the unit before burying or routing the wire. If the light does not flash when power is plugged in, check the polarity of the wires to ensure it is correct. The unit is protected from reverse polarity so simply swap the wires and try again.

**Warning:** Do not use the temporary connector in the final installation. This connector is only intended to be use indoors during the initial setup to get up and running quickly. These connectors are not weather rated and will rust and start to fail within a year or so if used outdoors and cause intermittent operation that can be hard to track down. The final power wire splice should be soldered together and sealed from the weather with the supplied heat shrink tubing, or some other form of outdoor rated connector should be obtained.

## Sensor Installation

**Warning:** Do not damage the sensor cable jacket. If the cable becomes damaged, water will enter the cable and travel down to the sensor and short out the electronics in the sensor. Take extra care when routing the cable so that it is not pinched or crushed, (i.e. the lid of the tank placed directly on the cable), and away from machinery such as lawn mowers, trimmers etc. The sensor is high quality and is a significant portion of the unit cost.

1. When installing in a clean cistern, the sensor can be lowered down and laid directly on the bottom of the tank.
2. If the meter is being installed in a tank that has a significant amount of sediment on the bottom of the tank, then it is recommended to hang the sensor above the sediment to prevent the ports in the sensor from becoming plugged. In this situation it is recommended that a pole or piece of pipe such as 1.5" PVC pipe be installed from top to bottom that the sensor can be attached to at the desired height.
3. If the tank forms ice in the winter it is recommended to install a pipe from top to bottom to run the sensor wire in. There have been cases where as the level in the tank drops and the ice pulls the sensor cable apart.



## Appendix A

### Setting up a reserved IP if your WIFI router for the Water Window

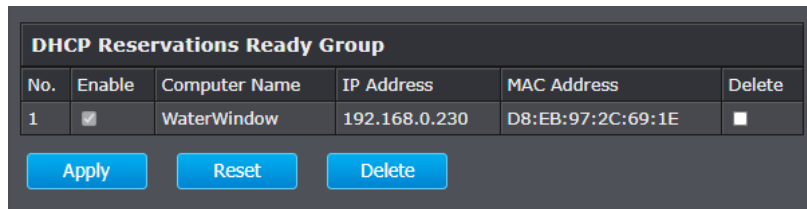
This process requires some knowledge of your home router. The following is a basic outline of the steps required and example is using a Trendnet TEW-810DR router. The Water Window Inc does not take any responsibility for issues that arise from making changes to your router. If you do not feel comfortable setting a DHCP reservation, then we recommend getting help from someone with experience in making the changes. If you decide to proceed, then use these guidelines for reference and refer to your router instructions for instruction on how to do a DHCP reservation. Usually, a Google search using the router model number and "DHCP reservation" will find instructions or guides with detailed steps.

1. Connect to your home router by signing onto the router via WIFI or LAN connection. Most routers can be connected by typing the routers IP address into the search bar of any browser. The routers default IP address can usually be found on the back of the router. Also, on the back of the router will be a default username and password (Unless you have changed it).
2. Once in the router go to the LAN settings screen.

The screenshot displays the web interface of a Trendnet AC750 Dual Band Wireless Router (TEW-810DR). The interface is divided into several sections:

- Header:** TRENDNET logo and model information: AC750 Dual Band Wireless Router, TEW-810DR.
- Navigation:** A sidebar on the left contains tabs for "BASIC" and "ADVANCED" (selected), and a menu with options: Administrator, Setup (selected), LAN Setting, WAN Setting, Routing, IPv6 Setting, QoS, Schedule, Upload Firmware, Management, DHCP Client List, and Wizard.
- Wireless Settings:** Two sections for "Wireless 2.4GHz" and "Wireless 5GHz" are visible.
- Security:** A "Security" section with a lock icon.
- Firewall:** A "Firewall" section with a flame icon.
- Main Content Area:**
  - Local Area Network (LAN) Settings:** A heading with a sub-note: "You may choose different connection type suitable for your environment. Besides, you may also configure parameters according to the selected connection type."
  - LAN Interface Setting:** Fields for IP Address (192.168.0.1), Subnet Mask (255.255.255.0), and MAC Address (D8:EB:97:2C:69:1E).
  - DHCP Server Setting:** Fields for DHCP Server (Enable), DHCP Start IP (192.168.0.150), DHCP End IP (192.168.0.254), and DHCP Lease Time (1440 minutes).
  - Add DHCP Reservation:** Fields for Enable (checked), Computer Name (WaterWindow), IP Address (192.168.0.230), and MAC Address (D8:EB:97:2C:69:1E). Includes a "Copy your PC's MAC" button.
  - DHCP Reservations List:** A table with columns: Enable, Computer Name, IP Address, MAC Address, Edit, Delete. Below the table are buttons for "Delete Select", "Delete All", and "Reset".

3. In the “Add DHCP Reservation” section enter a name for the meter, IP address you want to assign to the meter, and the MAC address of the meter.
  - The IP address can be the one currently assigned or any address within the DHCP Start and End range.
  - The MAC address of the meter can be found on the label on the side of the meter or in the “WIFI Setup” screen of the meter.
4. Click the “Add” button to save the reservation.



No.	Enable	Computer Name	IP Address	MAC Address	Delete
1	<input checked="" type="checkbox"/>	WaterWindow	192.168.0.230	D8:EB:97:2C:69:1E	<input type="checkbox"/>

Apply    Reset    Delete

5. Restart the router and the reserved address will be assigned to the meter.
6. You can now make shortcut links to the meter on your desktop or main screens and know that the IP address will never change.