Ambient Weather OBSERVERIP2.0 Receiver User Manual

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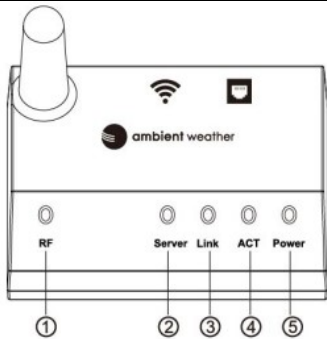
1. Introduction

Thank you for your purchase of the OBSERVERIP2.0 Receiver. The following user guide provides step by step instructions for installation, operation, and troubleshooting. To download the latest manual, firmware upgrades visit:

https://ambientweather.com/faqs/question/tags/tag/OBSERVERIP2.0/

Parts List

QTY	Item	Image
1	OBSERVERIP2.0 Receiver Dimensions (LxWxH): 3 x 2 x 1"	
1	5V DC Adaptor	
1	Ethernet Cable	
1	IP Module Reset Tool	

2. OBSERVERIP2.0 Receiver

2.1 Hardware Requirements

1. Broadband router
2. An "always-on" connection to the Internet. A high-speed DSL or cable internet connection that maintains constant connection to the internet.
3. AC Power

2.2 Software Requirements

1. Network connected computer with browser
2. Network connected computer, smart phone, or tablet with a browser

2.3 OBSERVERIP2.0 Network Connection Options

Connect the OBSERVERIP2.0 receiver power jack to AC power with the power adapter (included), as

shown in Figure 2, reference 10.

The ObserverIP2.0 can connect to your network via Wi-Fi (Section 2.4) or directly connected to your router using the included Ethernet cable (Section 2.5), as shown in Figure 2, reference 8.

Place the powered sensors (including sensor array, indoor thermo-hygro-barometer) about 5 to 10 feet from the OBSERVERIP2.0 receiver and wait several minutes for the remote sensors to synchronize with the receiver. Once synchronized, the Indoor blue LED (Figure 1, reference 2) and Outdoor blue LED (Figure 1, reference 3) will be illuminated. *Adding additional sensors can be found later in Section 2.10*
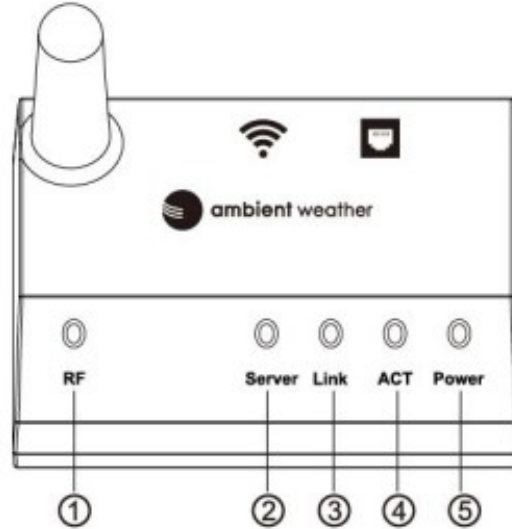
Ref.	LED	Description
1	RF	On when radio frequency receiver is operating properly
2	Server	On when connected to AmbientWeather.net internet hosting service
3	Link	Connect to the internet (or router)
4	ACT	Flashes when there is internet activity
5	Power	AC Power connected

Figure 1
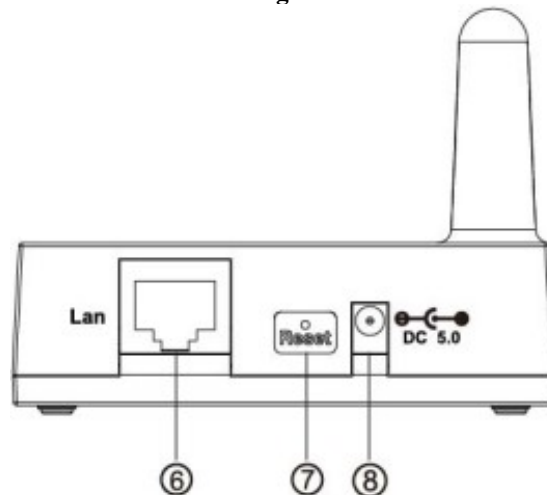
Ref.	Description

Ref.	Description
6	LAN connection (connect to router)
7	Reset button (use IP Module reset tool or open-ended paper clip)
8	AC Power connection

Figure 2

2.4 Finding the OBSERVERIP2.0 from your device (computer, smart phone, or tablet with a browser) when connected to your network via WiFi

2.4.1 PC Users

To find the OBSERVERIP2.0 receiver, connect to power and look for the following WIFI network.
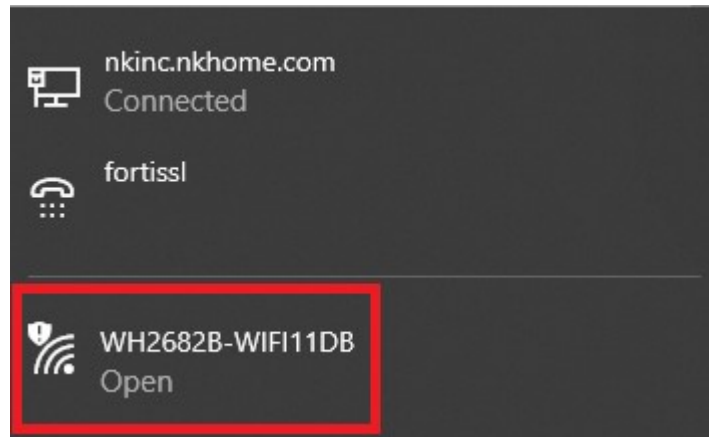
Connect to the network and then open a browser **Note: you may be told network has no internet.**

Navigate to the following IP address 192.168.4.1 you will be presented with the following screen. **(Note: default password is blank)**
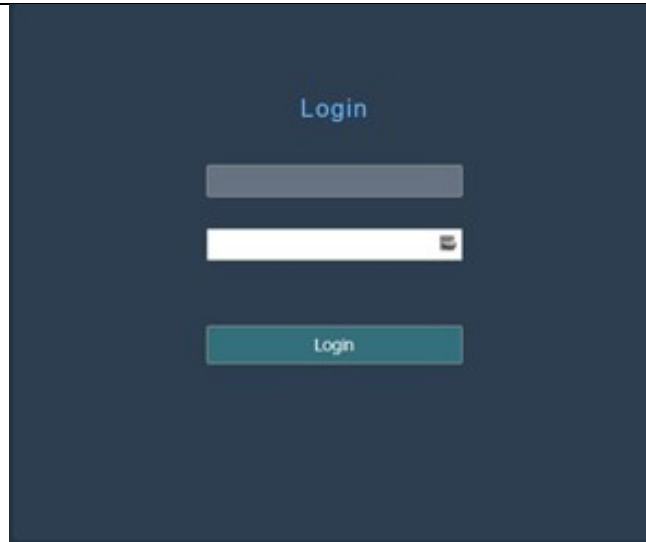
Once logged in you will want to navigate to the local network screen to connect to WIFI.
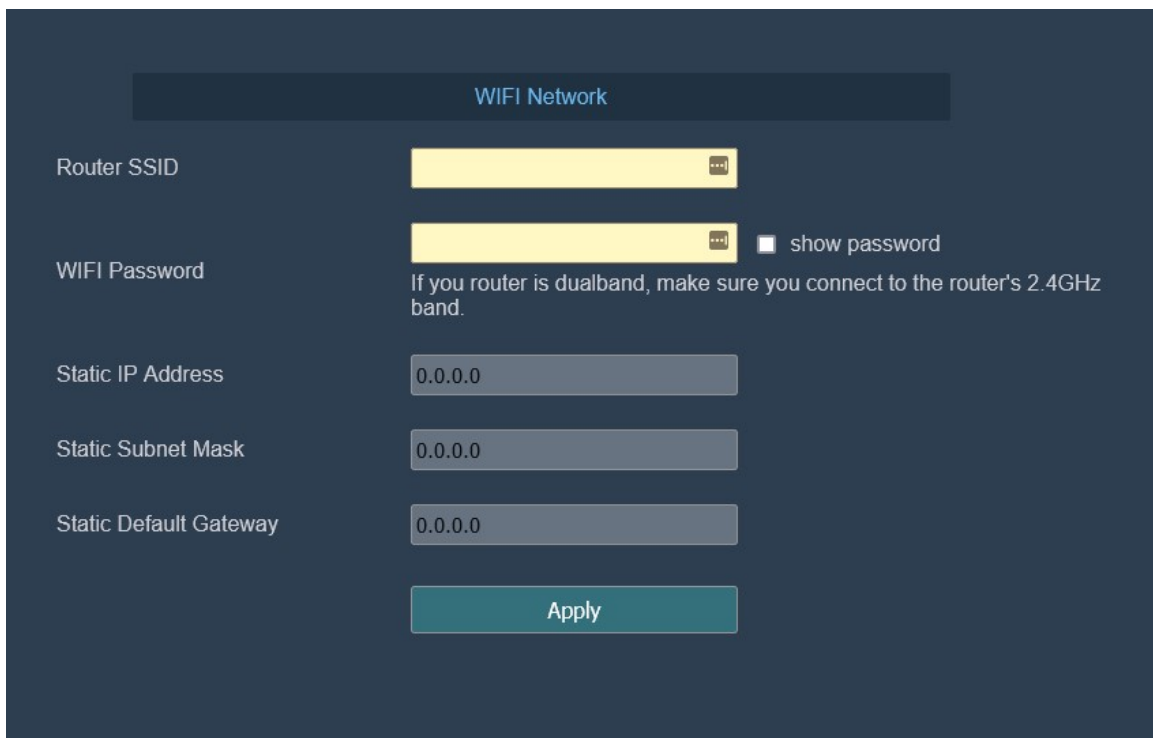
2.4.2 Mac Users

To find the OBSERVERIP2.0 receiver, connect to power and look for the following WIFI network.
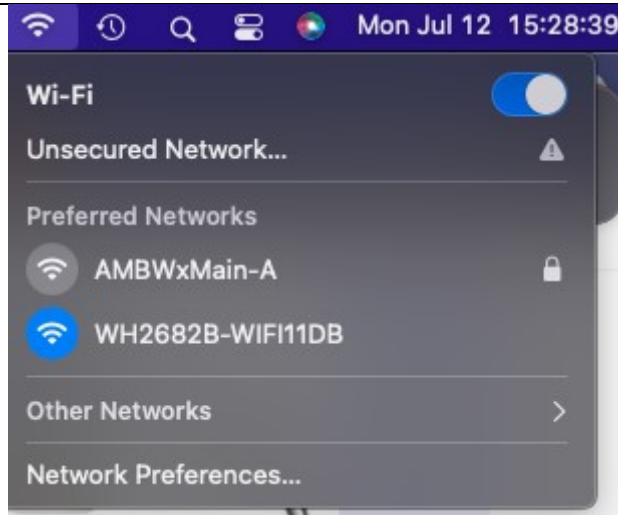
Connect to the network and then open a browser **Note: you may be told network has no internet.** Navigate to the following IP address 192.168.4.1 you will be presented with the following screen. **(Note: default password is blank)**
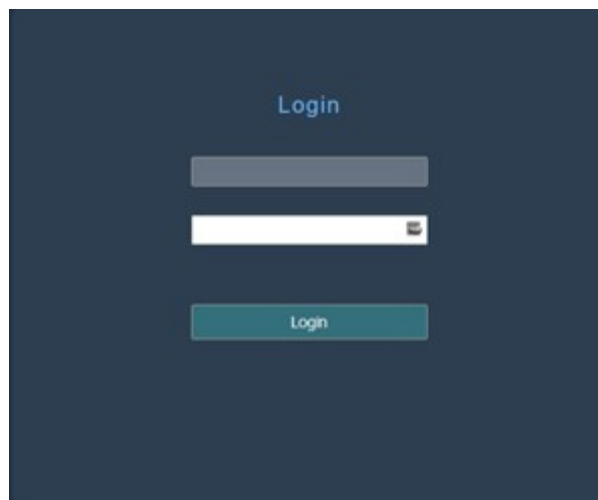
2.4.3 Linux Users
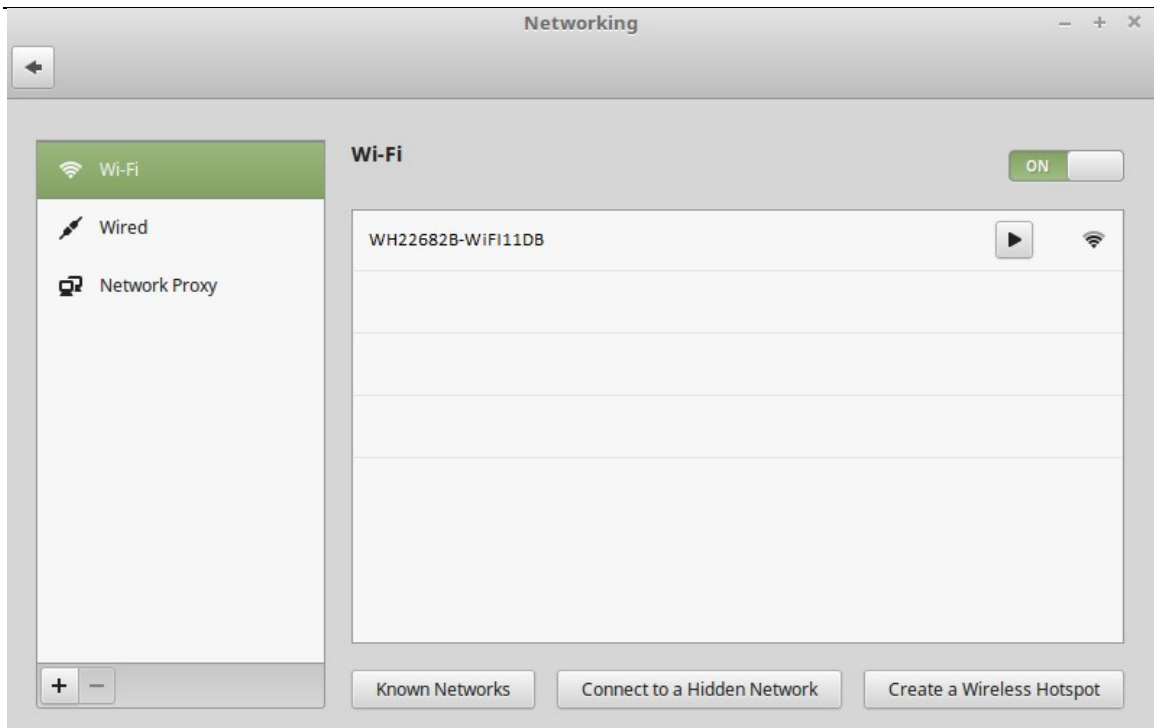
Connect to the network and then open a browser **Note: you may be told network has no internet.** Navigate to the following IP address 192.168.4.1 you will be presented with the following screen. **(Note: default password is blank)**
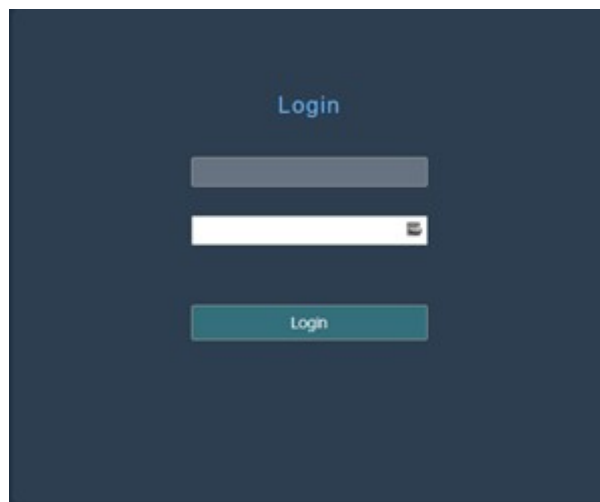
2.5 Finding the OBSERVERIPIP2.0 from your device (computer, smart phone, or tablet with a browser) when connected to your Local Area Network via Ethernet"
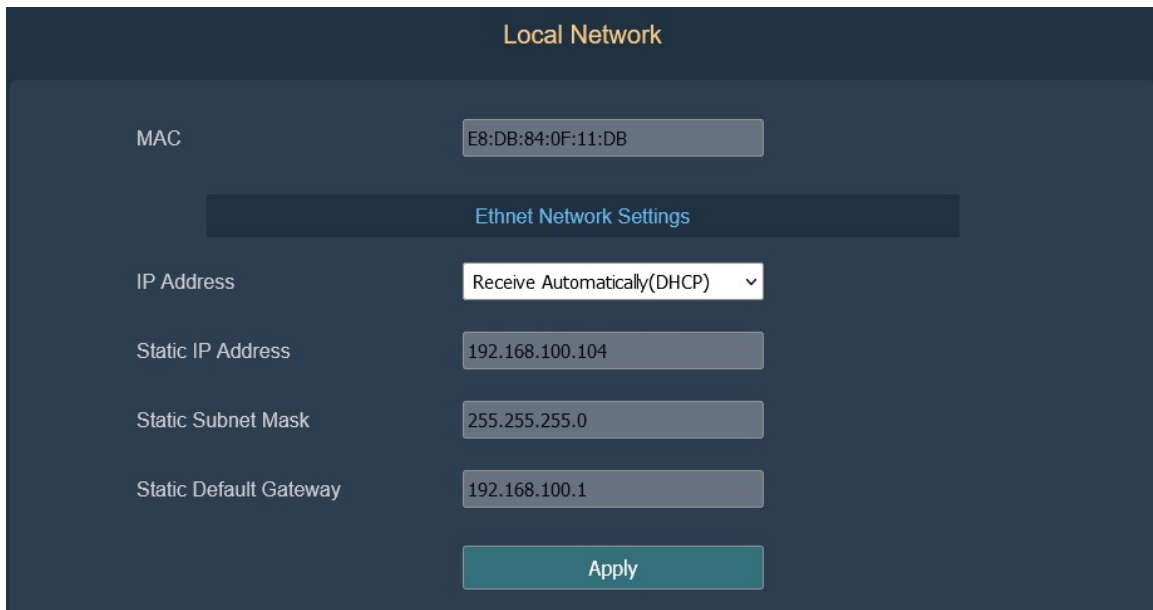
From your web browser, access the OBSERVERIP2.0 from the IP address in the previous section.

Select the **Local Network** tab to program the local network settings. Reference Figure 3:

1. **IP Address.** The default setting is receiving automatically (DCHP), **which is recommended**. The network will assign an IP address. To statically assign an IP address, select **Static** from the pull-down menu. This will prevent the IP address from changing each time you power up the OBSERVERIP2.0 receiver.
2. **Static IP Address.** If Static is selected as the IP address, enter the IP address you wish to access the OBSERVERIP2.0 module.
3. **Static Subnet Mask.** Default is 255.255.255.0. This should not be changed unless you are familiar with networking and subnet masking.
4. **Static Default Gateway.** This is typically the IP address of your router.

If you made any Static IP Address changes (not recommended), to confirm these changes, select **Apply** and **Reboot**.

Note: If you incorrectly set the static IP settings and can no longer access the OBSERVERIP2.0, press the reset button on the back of the module.

Figure 3

2.6 Weather Network Settings

Select the **Weather Services** tab to program the Weather Underground station settings and Ambient Weather Network settings. Reference Figure 4:

Figure 4

2.6.1 AmbientWeather.net

Reference Figure 4. Enter and update schedule and select **Save**. Make a note of the MAC address or. It will be required when you sign up at AmbientWeather.net.

2.6.2 Additional AmbientWeather.net Features

2.6.2.1 IFTTT

The AmbientWeather.net service connects to IFTTT, the platform that allows devices and services to work together seamlessly.

Here are a few things you can do with IFTTT:
- Turn off your Rachio sprinklers when it rains, there is too much wind, or below freezing.
- Close your Hunter blinds when the sun is too intense.
- Close your garage door when it is too windy.
- Blink your hue lights when it starts raining.
- Connect to other web services, such as Gmail, Facebook, Instagram, or Pinterest.

For more information on IFTTT and how it can work for you, visit:

https://ifttt.com/ambient_weather

2.6.2.2 Compatible with Alexa

The Ambient Weather skill provides Ambient Weather personal weather station owners with the ability to get real-time, and past weather information generated by the devices they have set up at AmbientWeather.net.

Enable the skill and get started: say "Alexa, ask Ambient Weather for a weather report.". This will provide you with your outdoor weather report, but you can ask for your indoor weather report as well by saying, "Alexa, ask Ambient Weather about the indoor conditions." You can also ask for a report about a specific day, month, or year! Just say "Alexa, ask Ambient Weather about the weather yesterday." or "Alexa, ask Ambient Weather about the weather in May".

For more information and to enable this skill, visit:

https://www.amazon.com/dp/B074PGCM1D/

2.6.2.3 Works with Google Assistant

The Ambient Weather Google Assistant app provides Ambient Weather personal weather station owners with the ability to get real-time, and past weather information generated by the devices they have set up at AmbientWeather.net

Link your account to get started: say 'hey google, Ambient Weather... weather report.' This will provide you with your outdoor weather report. You can ask for your indoor weather report as well by saying, ' indoor conditions'.

You can also link the Ambient Weather app by downloading the Google Assistant.

Here are some sample commands:
- Weather Report
- Outdoor conditions
- Indoor conditions
- Yesterday's weather
- Conditions for October 15, 2017
- Conditions for September 2017
- Conditions for 2016

For more information and to enable this app, visit:

https://assistant.google.com/services/a/id/668e6f3369f27209/

2.7 Station Settings

Select **Save** to confirm any of the changes in this section.

2.8 Weather Station Settings

Weather Station Model Number: Enter your weather station model number.

2.8.1 Time Zone Setting

Enter your local time zone and daylight Savings Time.

The following table provides times zones throughout the world. Locations in the eastern hemisphere are positive, and locations in the western hemisphere are negative.

Hours from GMT	Time Zone	Cities
-12	IDLW: International Date Line West	---
-11	NT: Nome	Nome, AK
-10	AHST: Alaska-Hawaii Standard CAT: Central Alaska HST: Hawaii Standard	Honolulu, HI
-9	YST: Yukon Standard	Yukon Territory
-8	PST: Pacific Standard	Los Angeles, CA, USA
-7	MST: Mountain Standard	Denver, CO, USA
-6	CST: Central Standard	Chicago, IL, USA
-5	EST: Eastern Standard	New York, NY, USA
-4	AST: Atlantic Standard	Caracas
-3	---	São Paulo, Brazil
-2	AT: Azores	Azores, Cape Verde Islands
-1	WAT: West Africa	---
0	GMT: Greenwich Mean WET: Western European	London, England
1	CET: Central European	Paris, France
2	EET: Eastern European	Athens, Greece
3	BT: Baghdad	Moscow, Russia
4	---	Abu Dhabi, UAE
5	---	Tashkent
6	---	Astana
7	---	Bangkok
8	CCT: China Coast	Beijing
9	JST: Japan Standard	Tokyo
10	GST: Guam Standard	Sydney
11	---	Magadan
12	IDLE: International Date Line East NZST: New Zealand Standard	Wellington, New Zealand

2.8.2 Daylight Savings Time

Enter **off** if you live in Hawaii or Arizona, where DST is not observed. Enter **on** if you live anywhere else, even if you are currently observing standard time.

2.8.3 Units of Measure

Enter your preferred units of measure for each parameter.

Figure 5

2.9 Live Data

Select the **Live Data** tab to view your live data from the weather station.

2.9.1 Reset and Change Rain Totals
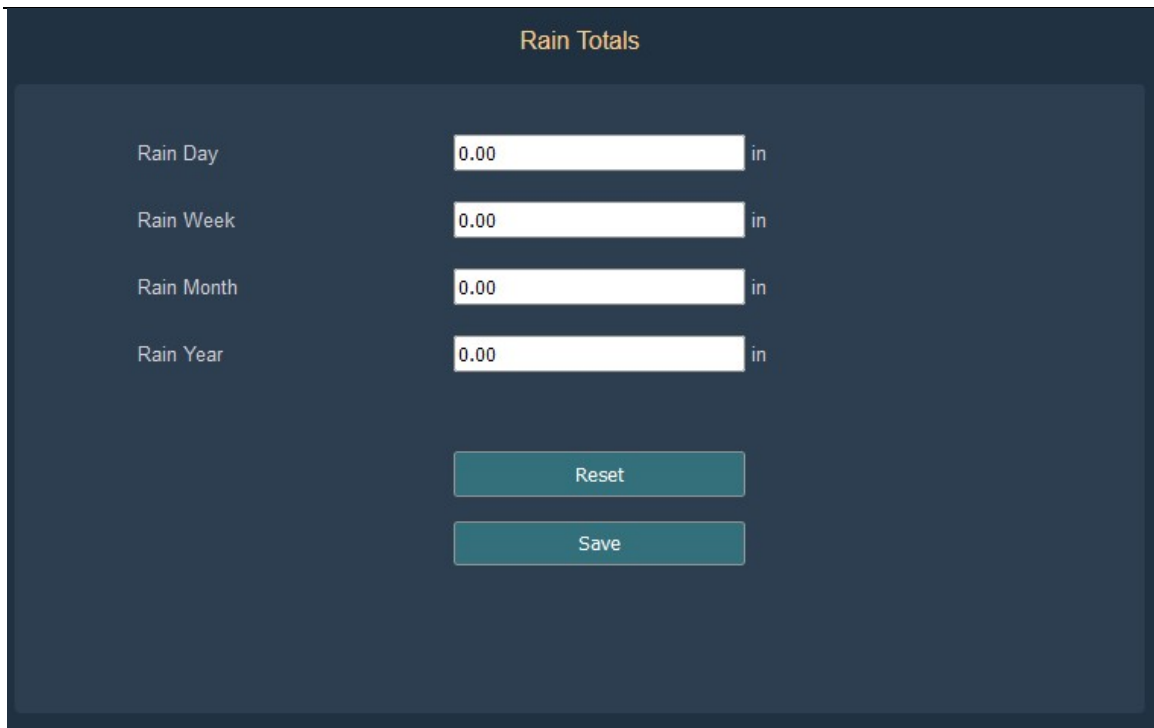
During the installation of your weather station, you may report false rain due to vibration of the tipping mechanism. To reset the rain to 0.00, select the **Reset** button as shown in

Figure 6, or enter the Daily, Weekly, Yearly, Monthly and Yearly rain totals in the appropriate fields, and select **Save**.

During rain gauge cleaning, the tipping mechanism may record false rain. Before rain gauge cleaning, record the rain totals before and after the cleaning procedure, then correct the daily, weekly, monthly, and yearly totals.

Figure 6

2.10 Calibration

Select the Calibration tab to view your calibration data from the weather station.

Calibration of most parameters is not required, except for Relative Pressure, which must be calibrated to sea-level to account for altitude effects. For more information on sea-level pressure calibration, please reference note (3) below.

2.10.1 Relative Barometric Pressure Calibration Example

The following is an example of calibrating the relative pressure. Your results will vary.

1. The local relative pressure from TV, the newspaper, or the internet for the official station in your area is 30.12 inHg.
2. From the Live Data panel, your absolute pressure (measured, and not corrected to sea-level) reads 28.90 inHg.
3. Reference Figure 7. Enter the following offset in the Calibration panel for Relative Pressure Offset:

Relative Pressure Offset = 30.12 – 28.90 = **1.22**

Figure 7

Parameter	Type of Calibration	Default	Typical Calibration Source
Temperature	Offset	Current Value	Red Spirit or Mercury Thermometer (1)
Humidity	Offset	Current Value	Sling Psychrometer (2)
ABS Barometer	Offset	Current Value	Calibrated laboratory grade barometer
REL Barometer	Offset	Current Value	Local airport (3)
Wind Direction	Offset	Current Value	GPS, Compass (4)
Solar Radiation	Gain	1.00	Calibrated laboratory grade solar radiation sensor
UV	Gain	126.7 lux	Solar radiation conversion from lux to w/m² for wavelength correction (5)
Wind	Gain	1.00	Calibrated laboratory grade wind meter (6)
Rain	Gain	1.00	Sight glass rain gauge with an aperture of at least 4" (7)

(1) Temperature errors can occur when a sensor is placed too close to a heat source (such as a building structure, the ground, or trees).

To calibrate temperature, we recommend a mercury or red spirit (fluid) thermometer. Bi-metal (dial) and digital thermometers (from other weather stations) are not a good source and have their own margin of error. Using a local weather station in your area is also a poor source due to changes in location, timing (airport weather stations are only updated once per hour) and possible calibration errors (many official weather stations are not properly installed and calibrated).

Place the sensor in a shaded, controlled environment next to the fluid thermometer, and allow the sensor to stabilize for 48 hours. Compare this temperature to the fluid thermometer and adjust the OBSERVERIP2.0 receiver to match the fluid thermometer.

(2) Humidity is a difficult parameter to measure electronically and drifts over time due to contamination. In addition, location has an adverse effect on humidity readings (installation over dirt vs. lawn for example).

Official stations recalibrate or replace humidity sensors on a yearly basis. Due to manufacturing tolerances, the humidity is accurate to ± 5%. To improve this accuracy, the indoor and outdoor humidity can be calibrated using an accurate source, such as a sling psychrometer.

(3) The OBSERVERIP2.0 receiver displays two different pressures: absolute (measured) and relative (corrected too sea-level).

To compare pressure conditions from one location to another, meteorologists correct pressure to sea-level conditions. Because the air pressure decreases as you rise in altitude, the sea-level corrected pressure (the pressure your location would be at if located at sea-level) is generally higher than your measured pressure.

Thus, your absolute pressure may read 28.62 inHg (969 mb) at an altitude of 1000 feet (305 m), but the relative pressure is 30.00 inHg (1016 mb).

The standard sea-level pressure is 29.92 in Hg (1013 mb). This is the average sea-level pressure around the world. Relative pressure measurements greater than 29.92 inHg (1013 mb) are considered high pressure and relative pressure measurements less than 29.92 inHg are considered low pressure.

To determine the relative pressure for your location, locate an official reporting station near you (the internet is the best source for real time barometer conditions, such as Weather.com or Wunderground.com), and set your weather station to match the official reporting station.

(4) Only use this if you improperly installed the weather station sensor array and did not point the direction reference to true north.

(5) The default conversion factor based on the wavelength for bright sunlight is 126.7 lux / w/m^2. This variable can be adjusted by photovoltaic experts based on the light wavelength of interest, but for most weather station owners, is accurate for typical applications, such as calculating evapotranspiration and solar panel efficiency.

(6) Wind speed is the most sensitive to installation constraints. The rule of thumb for properly installing a wind speed sensor is 4 x the distance of the tallest obstruction. For example, if your house is 20' tall and you mount the sensor on a 5' pole:

Distance = 4 x (20 – 5)' = 60'.

Many installations are not perfect and installing the weather station on a roof can be difficult. Thus, you can calibrate for this error with a wind speed multiplier.

In addition to the installation challenges, wind cup bearings (moving parts) wear over time.

Without a calibrated source, wind speed can be difficult to measure. We recommend using a calibrated wind meter (available from Ambient Weather) and a constant speed, high speed fan.

(7) The rain collector is calibrated at the factory based on the funnel diameter. The bucket tips every 0.01" of rain (referred to as resolution). The accumulated rainfall can be compared to a sight glass rain gauge with an aperture of at least 4". The following is a link to an accurate sight glass rain gauge:

http://www.ambientweather.com/stprraga.html

Make sure you periodically clean the rain gauge funnel.

📓 **Note:** The purpose of calibration is to fine tune or correct for any sensor error associated with the devices margin of error. Errors can occur due to electronic variation (example, the temperature sensor is a resistive thermal device or RTD, the humidity sensor is a capacitance device), mechanical variation, or degradation (wearing of moving parts, contamination of sensors).

Calibration is only useful if you have a known calibrated source, you can compare it against, and is optional. This section discusses practices, procedures, and sources for sensor calibration to reduce manufacturing and degradation errors. Do not compare your readings obtained from sources such as the internet, radio, television, or newspapers. The purpose of your weather station is to measure conditions of your surroundings, which vary significantly from location to location.

2.11   Adding Additional Sensors

The OBSERVERIP2.0 module supports up to 8 additional thermos-hygrometer sensors (Model WH31E, WH31P, WH31PF). Place the sensors in and around your home and monitor on AmbientWeather.net.

The data is automatically passed from the OBSERVERIP2.0 module to AmbientWeather.net based on the channel number.
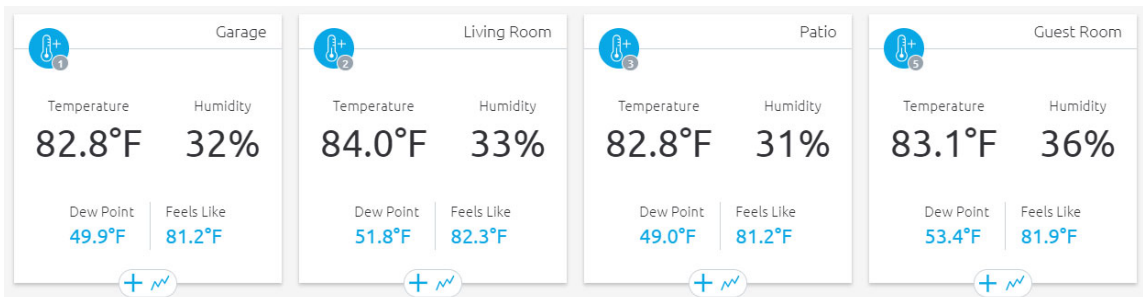
Figure 8

Registering and additional sensors.

Local Network

Weather Services

Device Setting

Unit Settings

Calibration

Rain Totals

Sensors ID

Live Data

Login to the OBSERVERIP2.0 web GUI and access Sensors ID tab.

Temp & Humidity CH2   0x25   ----   Re-register   Edit

On the Sensors ID screen, you can register or re-register an additional sensor by clicking the Re-register button.

2.11.1 Accessories

2.11.2 Indoor   Thermo-Hygrometer-Barometer   Transmitter (optional Model WH32B)

Remove the battery door on the back of the sensor.
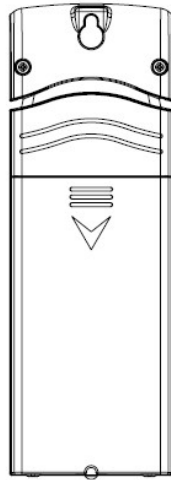
1. Insert two AA batteries.

2. After inserting the batteries, the remote sensor will display temperature, humidity, and barometric pressure on the display.
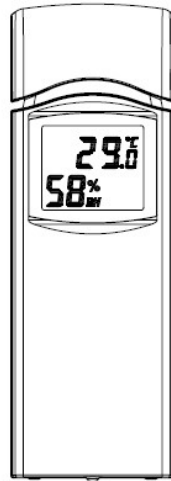
3. This sensor is also capable of displaying in Celsius or Fahrenheit by using the switch under the battery door.
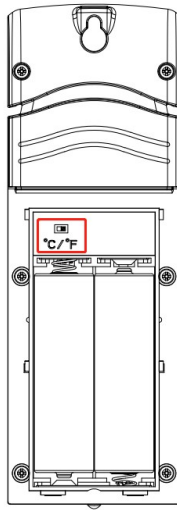
2.11.3 Indoor/Outdoor Thermo-Hygrometer, 8 Channel (optional, Model WH31E)

Note: Do not use rechargeable batteries. We recommend fresh alkaline batteries for outdoor temperature ranges between -4 °F and 140 °F and fresh lithium batteries for outdoor temperature ranges between -40 °F and 140 °F.

1. Remove the battery door on the back of the transmitter(s) by sliding down the battery door, as shown in Figure 9 .
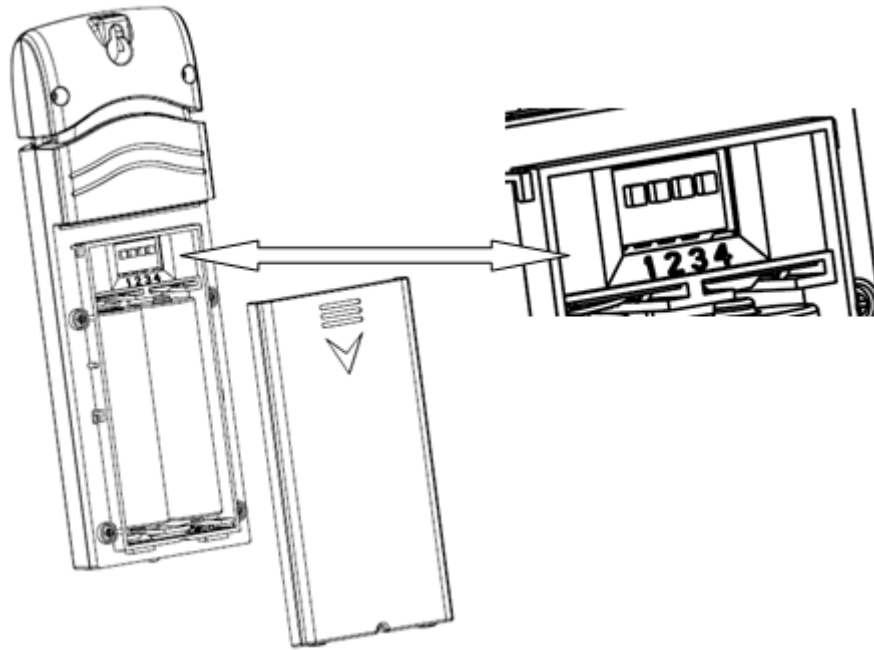
Figure 9

2. **BEFORE** inserting the batteries, locate the dip switches on the inside cover of the lid of the transmitter.

3. **Channel Number:** The OBSERVERIP2.0 supports up to eight transmitters. To set each channel number (the default is Channel 1), change Dip Switches 1, 2 and 3, as referenced in Figure 10.

4. **Temperature Units of Measure:** To change the transmitter display units of measure (°F vs. °C), change Dip Switch 4, as referenced in Figure 10.

■ Switch in down position. □ Switch in up position.

Description	Part Number	Image
Ultrasonic Anemometer, Outdoor Thermometer / Hygrometer, Solar Radiation and UV	WS-5000-ARRAY	
Rain Collector	WS-5000-RAIN	
Anemometer, Outdoor Thermometer / Hygrometer, Solar Radiation and UV	WS-2902-ARRAY	
Indoor Air Quality Monitor	AQIN	
Outdoor PM25 Particulate Monitor	PM25	
Indoor PM25 Particulate Monitor	PM25IN	
Wireless Temperature and Humidity Sensor	WH31E	
Leak Detector	WH31LA	

Description	Part Number	Image
Waterproof Probe Temperature Sensor	WH31P	
Soil moisture sensor	WH31SM	

(*) The WH31E and WH31P and WH31PF share the same 8-channels.
(*) The PM25IN and AQIN share the same channel.
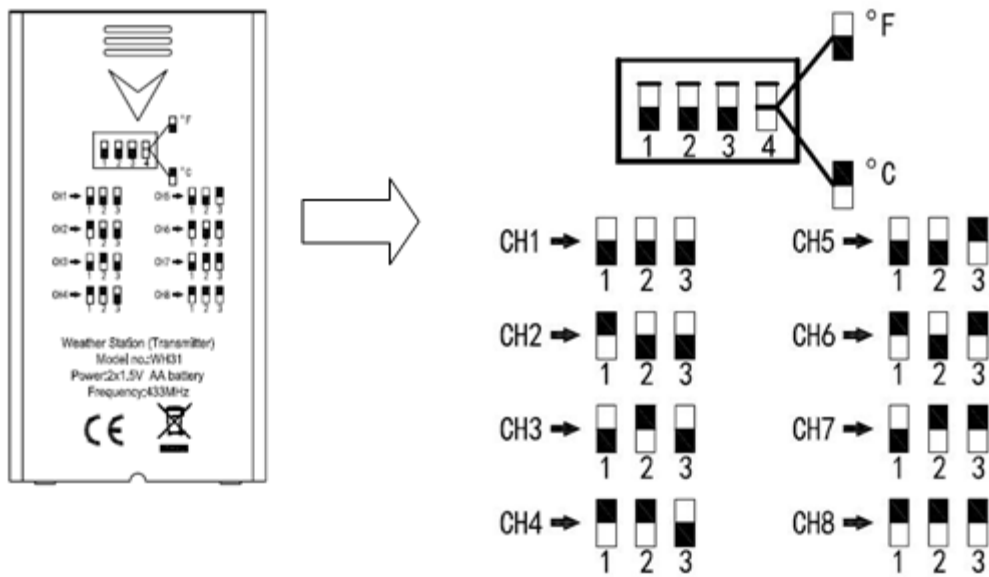
Figure 10

5. Insert two AA batteries.
6. Verify the correct channel number (CH) and temperature units of measure (°F vs. °C) are on the display, as shown in Figure 11.
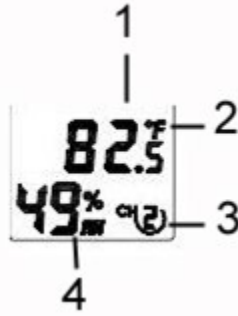
Figure 11

(1) temperature
(2) temperature units (°F vs. °C)
(3) channel number
(4) relative humidity

7. Close the battery door.
8. Repeat for the additional remote transmitters, verifying each remote is on a different channel.

2.11.4 Sensor Placement

It is recommended you mount the remote sensor outside on a north facing wall, in a shaded area, at a height at or above the receiver. If a north facing wall is not possible, choose a shaded area, under an eve.

Direct sunlight and radiant heat sources will result in inaccurate temperature readings. Although the sensor is weatherproof, it is best to mount in a well-protected area, such as an eve.

1. Use a screw or nail to affix the remote sensor to the wall, as shown in Figure 6.
2. Hang the remote sensor up on string, as shown in Figure 7.

Note: Make sure the sensor is mounted vertically and not lying down on a flat surface. This will insure optimum reception. Wireless signals are impacted by distance, interference (other weather stations, wireless phones, wireless routers, TVs, and computer monitors), and transmission barriers, such as walls. In general, wireless signals will not penetrate solid metal and earth (down a hill, for example).
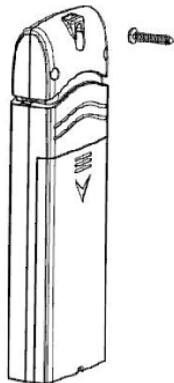
Figure 12
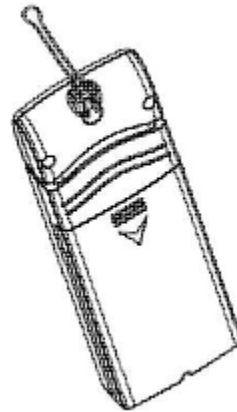
Figure 13

3. Updating Firmware

3.1 PC Users
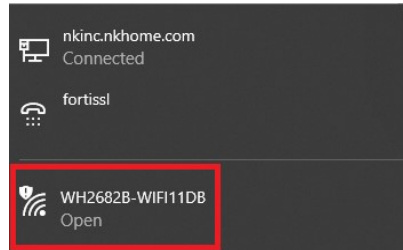
Open internet connections on your PC and look for the following WIFI network.
Connect to the network and then open a browser **Note: you may be told network has no internet.**
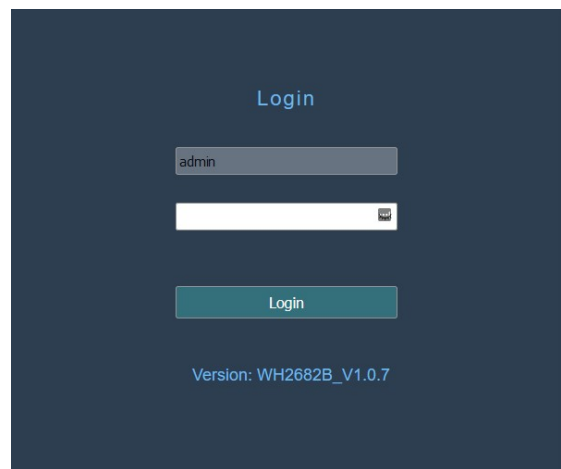
Navigate to the following IP address 192.168.4.1 you will be presented with the following screen.
(Note: default password is blank)
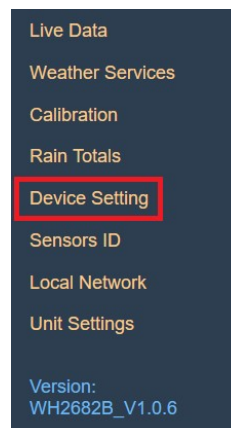
Once logged in you will want to navigate to Device Setting page

You may choose to automatically upgrade firmware by clicking the checkbox and click save.
You may also check for a new version manually.

3.2 Mac Users

To find the OBSERVERIP2.0 receiver, Open internet connections on your Mac and look for the following WIFI network.

Connect to the network and then open a browser **Note: you may be told network has no internet.**

Navigate to the following IP address 192.168.4.1 you will be presented with the following screen.
(Note: default password is blank)

Live Data

Weather Services

Calibration

Rain Totals

Device Setting

Sensors ID

Local Network

Unit Settings

Version:
WH2682B_V1.0.6

Once logged in you will want to navigate to Device Setting page

Upgrade	■ Automatically upgrade firmware	
Version	Version: WH2682B_V2.0.3	Check new version

You may choose to automatically upgrade firmware by clicking the checkbox and click save.
You may also check for a new version manually.

3.3 Linux Users

Networking   − + ✕

◆

📶 Wi-Fi   **Wi-Fi**   ON

🖊 Wired   WH22682B-WiFI11DB   ▶   📶

🖵 Network Proxy

+ −   Known Networks   Connect to a Hidden Network   Create a Wireless Hotspot

Open internet connections on your PC and look for the above WIFI network.

Connect to the network and then open a browser **Note: you may be told network has no internet.**

Navigate to the following IP address 192.168.4.1 you will be presented with the following screen. **(Note: default password is blank)**

Once logged in you will want to navigate to Device Setting page

You may choose to automatically upgrade firmware by clicking the checkbox and click save.
You may also check for a new version manually.

4. Access point deactivation

The ObserverIP 2.0 does broadcast a Wi-Fi network to connect the device to Wi-Fi we have included an option to turn this off once it has connected to Wi-Fi

Device AP Auto OFF ☐ When the device is successfully connected to the router, the AP (WH2682B-WIFI5A6B) will be automatically shut down 5 minutes later

Save

5. Glossary of Terms

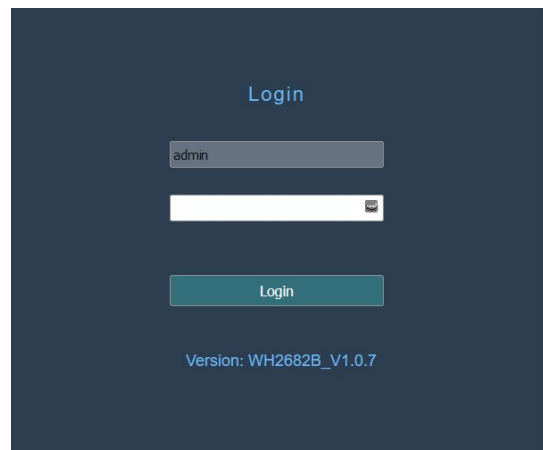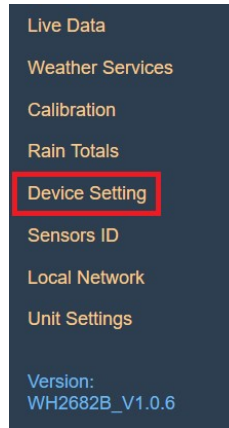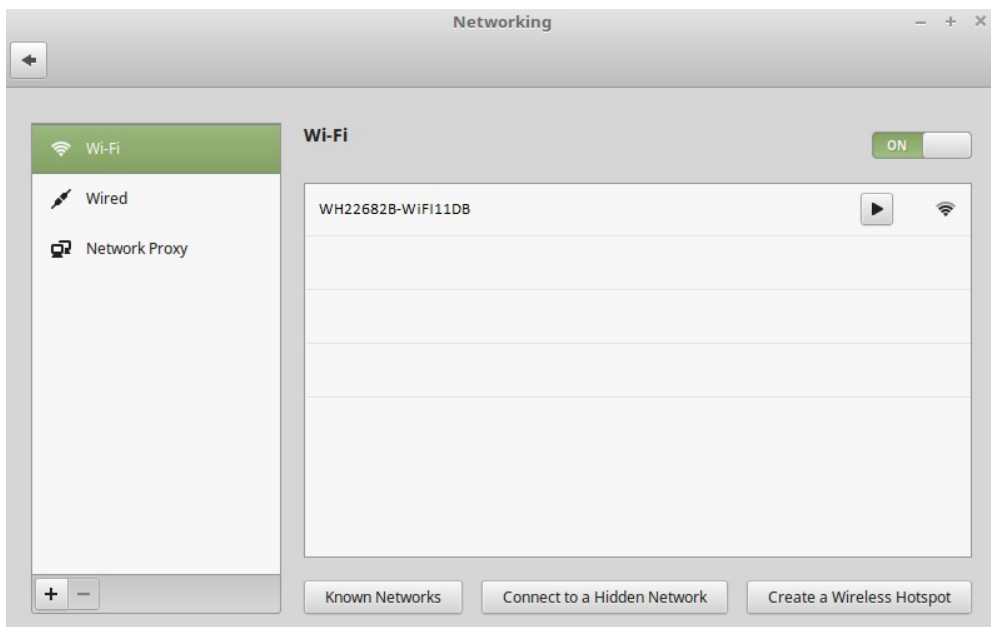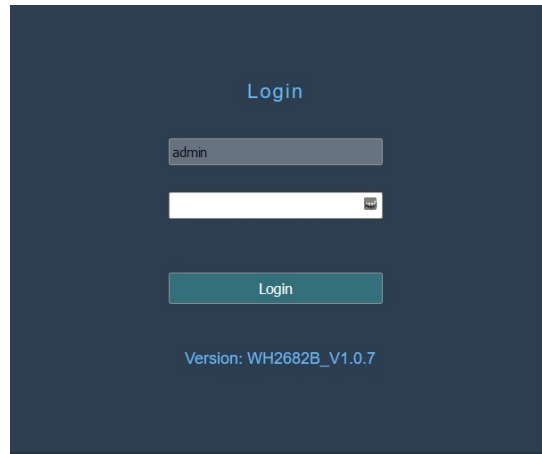| Term	Definition
Absolute Barometric Pressure	Absolute pressure is the measured atmospheric pressure and is a function of altitude, and to a lesser extent, changes in weather conditions. Absolute pressure is not corrected to sea-level conditions. *Refer to Relative Barometric Pressure.*
Accuracy	Accuracy is defined as the ability of a measurement to match the actual value of the quantity being measured.
Barometer	A barometer is an instrument used to measure atmospheric pressure.
Calibration	Calibration is a comparison between measurements – one of known magnitude or correctness of one device (standard) and another measurement made in as similar a way as possible with a second device (instrument).
Dew Point	The dew point is the temperature at which a given parcel of humid air must be cooled, at constant barometric pressure, for water vapor to condense into water. The condensed water is called dew. The dew point is a saturation temperature. The dew point is associated with relative humidity. A high relative humidity indicates that the dew point is closer to the current air temperature. Relative humidity of 100% indicates the dew point is equal to the current temperature and the air is maximally saturated with water. When the dew point remains constant and temperature increases, relative humidity will decrease.
Hectopascals (hPa)	Pressure units in SI (international system) units of measurement. Same as millibars (1 hPa = 1 mbar)
Hygrometer	A hygrometer is a device that measures relative humidity. Relative humidity is a term used to describe the amount or percentage of water vapor that exists in air.
Inches of Mercury (inHg)	Pressure in Imperial units of measure. 1 inch of mercury = 33.86 millibars
Rain Gauge	A rain gauge is a device that measures liquid precipitation (rain), as opposed to solid precipitation (snow gauge) over a set period.

Term	Definition
	All digital rain gauges are self-emptying or self-dumping (also referred to as tipping rain gauge). The precision of the rain gauge is based on the volume of rain per emptying cycle.
Range	Range is defined as the amount or extent a value can be measured.
Relative Barometric Pressure	Measured barometric pressure relative to your location or ambient conditions.
Resolution	Resolution is defined as the number of significant digits (decimal places) to which a value is being reliably measured.
Solar Radiation	A solar radiation sensor measures solar energy from the sun. Solar radiation is radiant energy emitted by the sun from a nuclear fusion reaction that creates electromagnetic energy. The spectrum of solar radiation is close to that of a black body with a temperature of about 5800 K. About half of the radiation is in the visible short-wave part of the electromagnetic spectrum. The other half is mostly in the near-infrared part, with some in the ultraviolet part of the spectrum.
Thermometer	A thermometer is a device that measures temperature. Most digital thermometers are resistive thermal devices (RTD). RTDs predict change in temperature as a function of electrical resistance.
Wind Vane	A wind vane is a device that measures the direction of the wind. The wind vane is usually combined with the anemometer. Wind direction is the direction from which the wind is blowing.

6. Specifications

6.1 Wireless Specifications

- Line of sight wireless transmission (in open air): 330 feet, 100 feet under most conditions
- Update Rate: Outdoor Sensor: 16 seconds, Indoor Sensor: 64 seconds
- Frequency: 915 MHz

6.2 Power Consumption

- OBSERVERIP2.0 Receiver: 5V DC Adaptor (included)

7. Troubleshooting Guide

If your question is not answered here, you can contact us as follows:

1. Email Support: support@ambientweather.com
2. Technical Support: 480-346-3380 (M-F 8am to 3pm Arizona Time)

Problem	Solution
Wireless remote (thermo-hygrometer) not reporting in to OBSERVERIP2.0 Receiver.	The maximum line of sight communication range is about 300'. Move the sensor assembly closer to the OBSERVERIP2.0 receiver. Install a fresh set of batteries in the remote sensor(s).

Problem	Solution
	Make sure the remote sensors are not transmitting through solid metal (acts as an RF shield), or earth barrier (down a hill). Radio Frequency (RF) Sensors cannot transmit through metal barriers (example, aluminum siding) or multiple, thick walls. Move the OBSERVERIP2.0 receiver around electrical noise generating devices, such as computers, TVs and other wireless transmitters or receivers.
Outdoor sensor array does not communicate to the OBSERVERIP2.0 Receiver.	The sensor array may have initiated properly, and the data is registered by the OBSERVERIP2.0 receiver as invalid, and the sensory array must be reset. The reset button is **next to the LED**, near the mounting point on the sensor array. With an open-ended paperclip, press the reset button for 3 seconds to completely discharge the voltage. Take out the batteries and wait one minute, while covering the solar panel to drain the voltage. Put batteries back in and resync with OBSERVERIP2.0 receiver by powering down and up the OBSERVERIP2.0 receiver with the sensor array about 10 feet away. Bring the sensor array inside the house (you can disconnect it from the rest of the sensors). The LED next to the battery compartment will flash every 16 seconds. If the LED is not flashing every 16 seconds… Replace the batteries in the outside sensor array. Non-rechargeable batteries are OK for testing purposes. If the batteries were recently replaced, check the polarity. If the sensor is flashing every 48 seconds, proceed to the next step. There may be a temporary loss of communication due to reception loss related to interference or other location factors, or the batteries may have been changed in the sensor array and the OBSERVERIP2.0 receiver has not been reset. The solution may be as simple as **powering down and up the OBSERVERIP2.0**. Replace the batteries in the outside sensor array. Non-rechargeable batteries are OK for testing purposes. With the sensor array and **OBSERVERIP2.0** 10 feet away from each other, remove AC power from the OBSERVERIP2.0 receiver and wait 10 seconds. Re-connect power.
Absolute pressure does not agree with official reporting station	You may be viewing the relative pressure, not the absolute pressure. Select the absolute pressure. Make sure you properly calibrate the sensor to an official local weather station. Reference Section 2.10 for details.
Data not reporting to Wunderground.com	1. Confirm your password is correct. It is the password you registered on Wunderground.com. Your Wunderground.com password cannot begin with a non-alphanumeric character (a limitation of

Problem	Solution
	Wundeground.com, not the station). Example, $oewkrf is not a valid password, but oewkrf$ is valid.
	2. Confirm your station ID is correct. The station ID is all caps, and the most common issue is substituting an O for a 0 (or vice versa). Example, KAZPHOEN11, not KAZPH0EN11.
	3. Make sure your time zone is set properly. If incorrect, you may be reporting old data, not real time data.
	4. Check your router firewall settings. The OBSERVERIP2.0 sends data via Port 80.

8. Liability Disclaimer

Please help in the preservation of the environment and return used batteries to an authorized depot. The electrical and electronic wastes contain hazardous substances. Disposal of electronic waste in wild country and/or in unauthorized grounds strongly damages the environment.

Reading the "User manual" is highly recommended. The manufacturer and supplier cannot accept any responsibility for any incorrect readings and any consequences that occur should an inaccurate reading take place.

This product is designed for use in the home only as indication of weather conditions. This product is not to be used for medical purposes or for public safety information.

The specifications of this product may change without prior notice.

This product is not a toy. Keep out of the reach of children.

No part of this manual may be reproduced without written authorization of the manufacturer.

Ambient, LLC WILL NOT ASSUME LIABILITY FOR INCIDENTAL, CONSEQUENTIAL, PUNITIVE, OR OTHER SIMILAR DAMAGES ASSOCIATED WITH THE OPERATION OR MALFUNCTION OF THIS PRODUCT.

9. FCC Statement

Statement according to FCC part 15.19:
This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:
1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Statement according to FCC part 15.21:
Modifications not expressly approved by this company could void the user's authority to operate the equipment.
Statement according to FCC part 15.105:

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

10. Warranty Information

Ambient, LLC provides a 1-year limited warranty on this product against manufacturing defects in materials and workmanship.

This limited warranty begins on the original date of purchase, is valid only on products purchased and only to the original purchaser of this product. To receive warranty service, the purchaser must contact Ambient, LLC for problem determination and service procedures.

Warranty service can only be performed by an Ambient, LLC. The original dated bill of sale must be presented upon request as proof of purchase to Ambient, LLC.

Your Ambient, LLC warranty covers all defects in material and workmanship with the following specified exceptions: (1) damage caused by accident, unreasonable use or neglect (lack of reasonable and necessary maintenance); (3) damage resulting from failure to follow instructions contained in your owner's manual; (4) damage resulting from the performance of repairs or alterations by someone other than an authorized Ambient, LLC authorized service center; (5) units used for other than personal use (6) applications and uses that this product was not intended (7) the products inability to receive a signal due to any source of interference or metal obstructions and (8) extreme acts of nature, such as lightning strikes or floods.

This warranty covers only actual defects within the product itself and does not cover the cost of installation or removal from a fixed installation, normal set-up or adjustments, claims based on misrepresentation by the seller or performance variations resulting from installation-related circumstances.

11. California Prop 65

WARNING: Use of the Ambient Weather Products can expose you to chemicals, including lead and lead compounds, which are known to the State of California to cause cancer and bisphenol A (BPA), and phthalates DINP and/or DEHP, which are known to the State of California to cause birth defects or other reproductive harm.

Can I Trust that Ambient Weather Products are Safe Despite this Warning?

In 1986, California voters approved the Safe Drinking Water and Toxic Enforcement Act known

as Proposition 65 or Prop 65. The purpose of Proposition 65 is to ensure that people are informed about exposure to chemicals known by the State of California to cause cancer, birth defects and/or other reproductive harm. A company with ten or more employees that operates within the State of California (or sells products in California) must comply with the requirements of Proposition 65. To comply, businesses are: (1) prohibited from knowingly discharging listed chemicals into sources of drinking water; and (2) required to provide a "clear and reasonable" warning before knowingly and intentionally exposing anyone to a listed chemical. Proposition 65 mandates that the Governor of California maintain and publish a list of chemicals that are known to cause cancer, birth defects and/or other reproductive harm. The Prop 65 list, which must be updated annually, includes over 1,000 chemicals, including many that are commonly used in the electronics industry.

Although our manufacturing process is "lead-free" and RoHS compliant, it remains possible that trace amounts of lead could be found in components or subassemblies of Ambient Weather Products. Bisphenol A (BPSA) could conceivably be present in minute amounts in our plastic housings, lenses, labels, or adhesives, and DEHP & DINP (phthalates) could possibly be found in PVC wire coatings of our cables, housings, and power cords. Unlike RoHS, Prop 65 does not establish a specific threshold for reporting on the substances of concern and instead sets forth a much less definitive standard requiring that the business demonstrate with certainty that there is "no significant risk" resulting from exposure. With respect to carcinogens, the "no significant risk" level is defined as the level which is calculated to result in not more than one excess case of cancer in 100,000 individuals exposed over a 70-year lifetime. In other words, if you are exposed to the chemical in question at this level every day for 70 years, theoretically, it will increase your chances of getting cancer by no more than 1 case in 100,000 individuals so exposed. With respect to reproductive toxicants, the "no significant risk" level is defined as the level of exposure which, even if multiplied by 1,000, will not produce birth defects or other reproductive harm. In other words, the level of exposure is below the "no observable effect level," divided by 1,000. (The "no observable effect level" is the highest dose level which has not been associated with observable reproductive harm in humans or test animals.) Proposition 65 does not clarify whether exposure is to be measured only in normal operation, or in the event of misuse such as intentionally damaging, incinerating or consuming an Ambient Weather Product or component and Ambient Weather has not attempted to evaluate the level of exposure.

A Proposition 65 warning means one of two things: (1) the business has evaluated the exposure and has concluded that it exceeds the "no significant risk level"; or (2) the business has chosen to provide a warning simply based on its knowledge about the presence of a listed chemical without attempting to evaluate the exposure. The California government has itself clarified that "The fact that a product bears a Proposition 65 warning does not mean by itself that the product is unsafe." The government has also explained, "You could think of Proposition 65 more as a 'right to know' law than a pure product safety law."

While using Ambient Weather Products as intended, we believe any potential exposure would be negligible or well within the "no significant risk" range. However, to ensure compliance with California law and our customers' right to know, we have elected to place the Proposition 65 warning signs on Ambient Weather Products.

For further information about California's Proposition 65, please visit https://oehha.ca.gov/prop65/background/p65plain.html