ecowitt®

Weather Station Receiver Manual

Model: WN1980

https://s.ecowitt.com/BHGPPM

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1. Brief Introduction

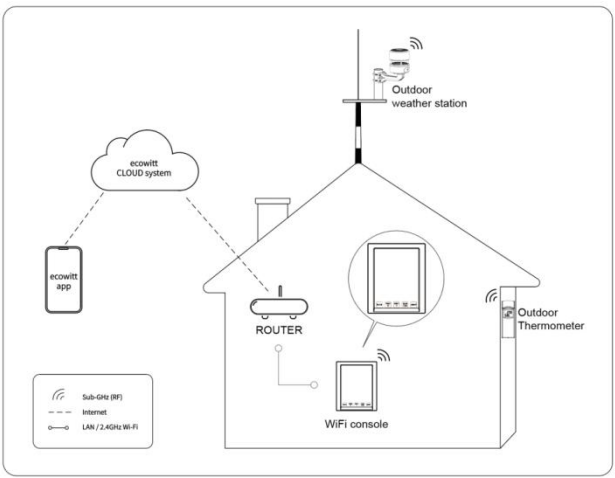


Figure 1 How Ecowitt Ecosystem Works

Thank you for your purchase of the Ecowitt WN1980 weather station receiver.

Ecowitt WN1980 is a 5.3" Wi-Fi LCD screen weather station receiver. It supports indoor and outdoor monitoring, has built-in temperature, humidity, and barometric pressure sensors, and can

connect almost all Ecowitt transmitters with the same RF frequency for weather data, including wind, rain, outdoor temperature, and humidity.

WN1980 connects to a 2.4 GHz Wi-Fi network so that you can view data from anywhere on your phone, tablet, and computer browser—all for free.

So that you know, the WN1980 needs to be used with optional sensors to obtain outdoor weather data and is not a standalone product.

The following user guide provides step-by-step instructions for installation and operation. Use this manual to become familiar with your professional weather station and save it for future reference.

2. Installation

2.1 Package list

1 x WN1980 Weather Station Receiver

1 x DC to USB Cable

1 x User Manual

1 x Quick Start

2.2 Wi-Fi Configuration

2.2.1 Power up

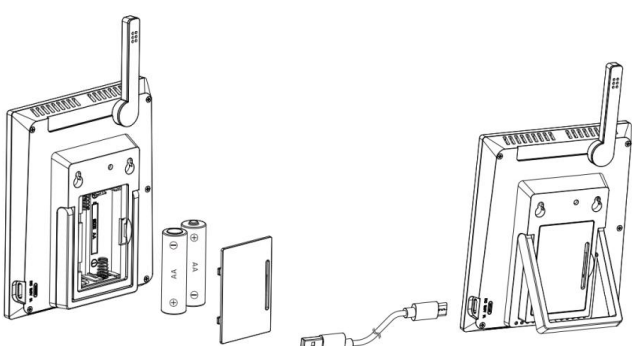


Figure 2 Batteries or USB cord

Note: To ensure proper communication, mount the console upright on a vertical surface, such as a wall. Do not lay the console flat.

2.2.1.1 via USB cord

Insert the 5V Power Adapter into an outlet, then plug it into the Power Jack on the back of the station.

Note: The WiFi configuration can only proceed while powered by a USB cord.

The software version number and frequency are displayed for 1 second, then the full screen is displayed for 3 seconds and finally enters normal mode.

2.2.1.2 via Batteries(not included)

Insert two AA alkaline or lithium batteries (not

included) into the Battery Compartment to power the station on.

- It can run for about **30 days**
- Provide local display functionality only!
- WiFi function **disabled**
- Network connectivity **disabled**
- Data uploading to the cloud platform function **disabled**

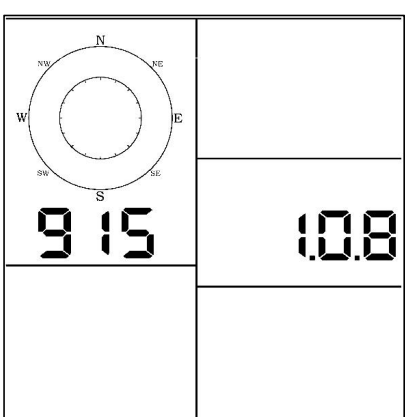


Figure 3 Software Version Num. and Freq. Layout

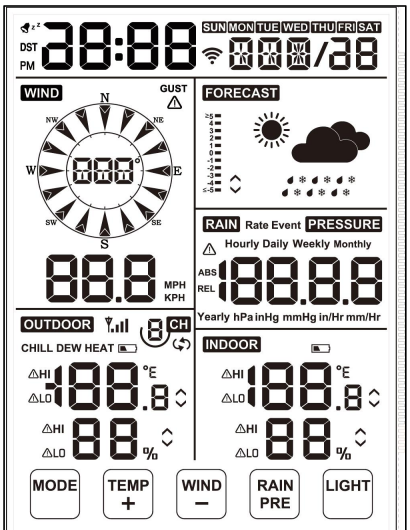


Figure 4 Full Screen Display Layout

Wireless communication is susceptible to interference, distance, walls, and metal barriers. For trouble-free wireless communication, we recommend the following best practices.

Electro-Magnetic Interference (EMI). Keep the console several feet away from EMI, such as computer monitors and TVs.

Radio Frequency Interference (RFI). If you have other devices operating on the same frequency band as your indoor and/or outdoor sensors and experience intermittent communication between the sensor and console, try turning off these other devices for troubleshooting. You may need to relocate the transmitters or receivers to avoid intermittent communication.

1. **Line of Sight Rating.** This device is rated at a 300-foot line of sight (no interference, barriers, or walls). Still, typically, you will get 100 feet maximum under most real-world installations, which include passing through barriers or walls.

2. Metal Barriers. Radio frequency will not pass through metal barriers such as aluminum siding. If you have metal siding, align the remote and console through a window to get a clear line of sight.
The following is a table of reception loss vs. the transmission medium. Each “wall” or obstruction decreases the transmission range by the below factors.

Medium	**RF Signal Strength Reduction**
Grass (untreated)	5-15%
Plastics	10-15%
Wood	10-40%
Brick	10-40%
Concrete	40-80%
Metal	90-100%

Table 1 RF Signal Strength reduction

2.2.2 Download the Ecowitt App

Visit the App Store or Google Play Store or scan the QR code below to download the free Ecowitt App onto your mobile device.

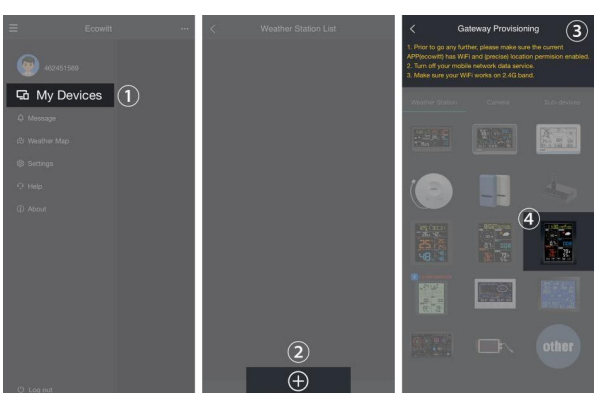
Open the Ecowitt App, follow the on-screen setup instructions to create an account, add a new device, and follow **Section 2.2.3 or 2.2.4** below to connect your WN1980 to your Wi-Fi network.

Figure 5 Download Ecowitt App

Note: For **Section 2.2.3** or **2.2.4** below (2 ways to complete Wi-Fi configuration), you'll need your Wi-Fi network name (SSID) and password. Make sure your Wi-Fi router has no VPN enabled.

2.2.3 Connect the Station to Wi-Fi via the Ecowitt App

(1) Open Ecowitt App →"My Devices"→"Add New Devices"→click WN1980 icon→choose Wi-Fi Provisioning：



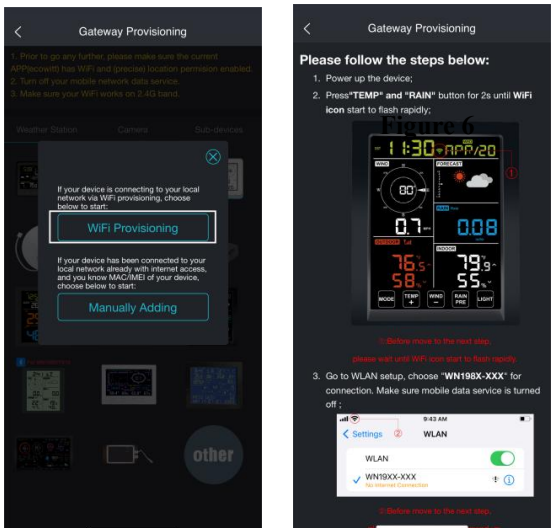


Figure 6

(2) Hold **TEMP+** and **RAIN PRE** for more than 2s in normal mode, which will turn on its hotspot, and the Wi-Fi icon will flash fast on the screen. Use a mobile phone to connect to the hotspot "WN1980x-WIFIxxxx" emitted by WN1980. Then

tick "Operation Completed"→"Next".

Note: WN1980x-WIFIxxxx, the first x represents the frequency: A=868MHz, B=915MHz, C=433MHz, and the last four digits of the product MAC address.

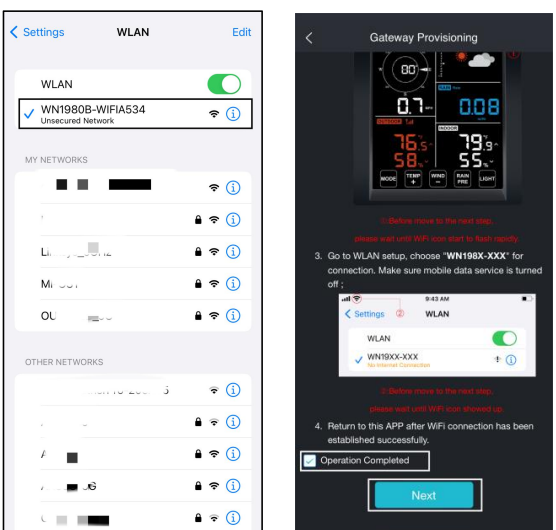


Figure 7

(3) Allow location access; recommend selecting "While Using the App." Then, return to the Ecowitt App.

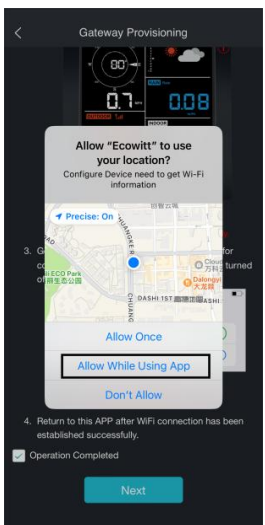


Figure 8

(4) Fill in your router Wi-Fi SSID and password, then click "Submit."

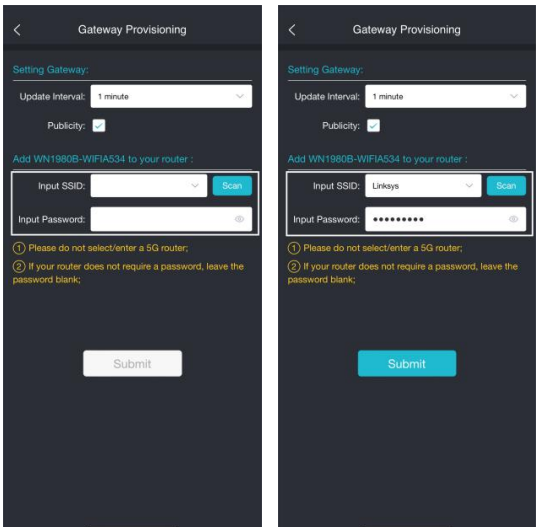
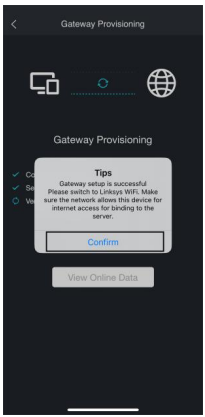
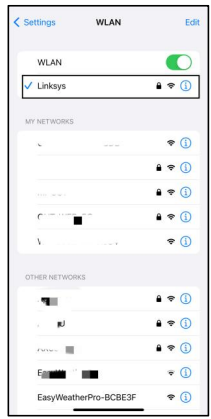
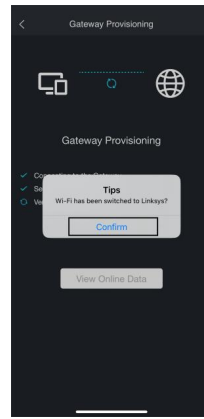


Figure 9

(5) The gateway setup is now successful. Switch your phone's Wi-Fi to the same Wi-Fi WN1980 is connected to. WN1980 has been successfully added to the App, and the data can be viewed online.







Note: If you cannot connect the WN1980 to Wi-Fi using the Ecowitt App, we recommend using the setup via Embedded Web Page **192.168.4.1** on the next page.

Figure 10

2.2.4 Web Page 192.168.4.1

(1) Hold the TEMP+ and RAIN PRE buttons for more than 2 seconds to turn on WN1980's hotspot and connect to this hotspot with your mobile device. Use a mobile browser to search the URL 192.168.4.1. No password is set by default. Click login.

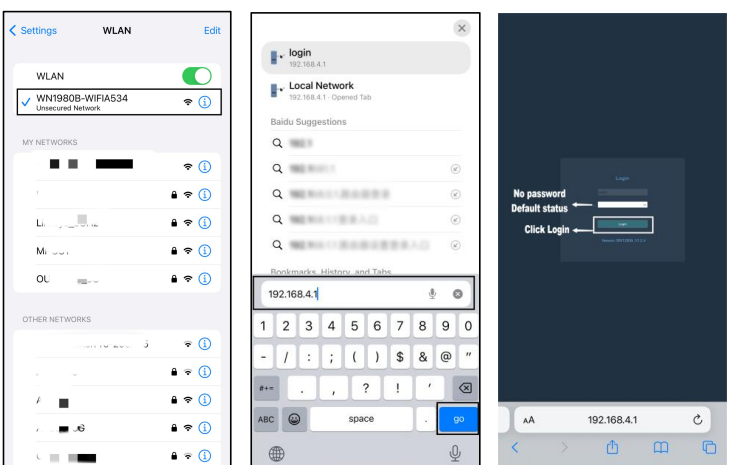


Figure 11

(2) Click Local Network. Input your router credentials and tap on the “apply” button to make the setting effective.

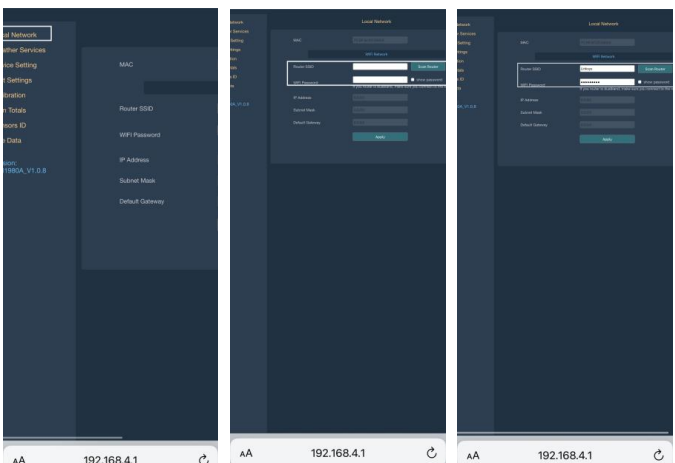


Figure 12

(3) Record the MAC address.

Figure 13

(4) Switch the phone's WLAN network to the same Wi-Fi WN1980 is connected to. Open Ecowitt App →"My Devices"→"Add New Devices"→click WN1980 icon→choose Manually Adding.

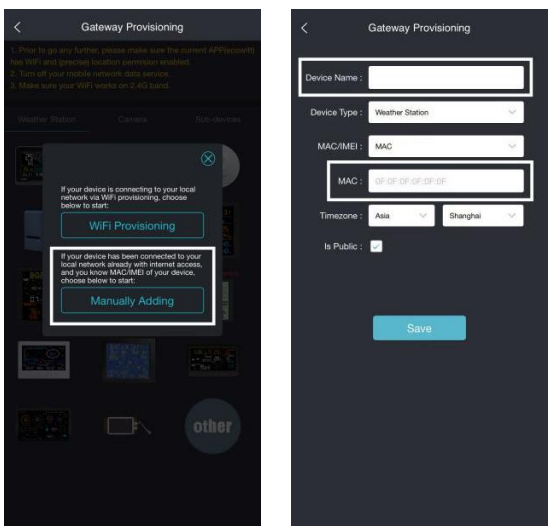


Figure 14

(5) Edit the Device Name and paste the MAC address copied in step (3) into the box. Then click "Save," and the device will be bonded to your account.

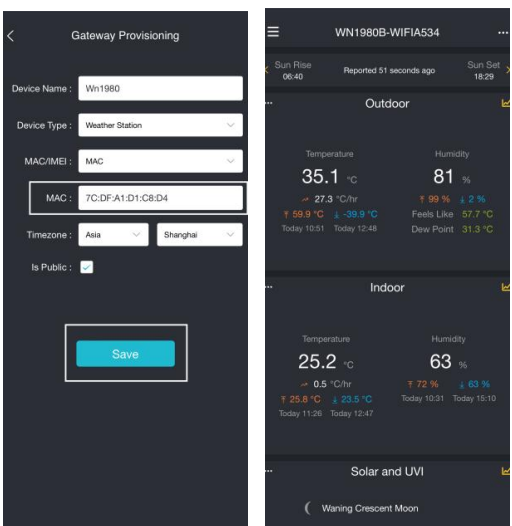
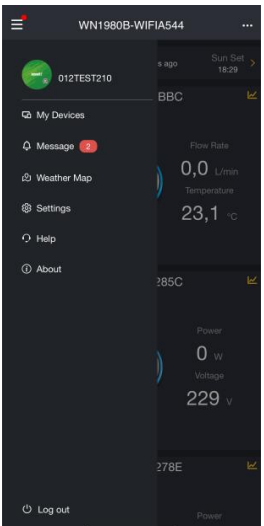


Figure 15

2.2.5 Device Location, Time Zone, DST, and Data Public

After completing the Wi-Fi configuration, follow these steps for Device location, Time zone, DST (Daylight Saving Time), and Data public settings.

1. Click on "My Devices".
2. Click on the "..." icon.
3. Set the Device's location and Time zone on this interface. Tick "Auto DST" and "Is Public" when necessary.
4. Click "Save," then reboot the WN1980 device; the WN1980 will automatically synchronize time and DST.


WN1980B-WIFIA544
012TEST210
My Devices
Message 2
Weather Map
Settings
Help
About
Log out
Sun Set
18:29
BBC
Flow Rate
0,0 L/min
Temperature
23,1 °C
285C
Power
0 W
Voltage
229 V
278E
Power

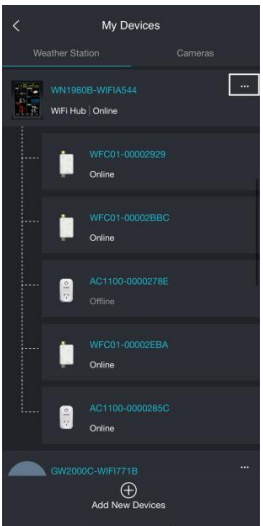

My Devices
Weather Station
Cameras
WN1980B-WIFIA544
WiFi Hub | Online
WFC01-00002929
Online
WFC01-00002BBC
Online
AC1100-0000278E
Offline
WFC01-00002EBA
Online
AC1100-0000285C
Online
GW2000C-WIFI771B
Add New Devices

Figure 16 Related settings via Ecowitt App

Note: After completing the above Wi-Fi configuration and related settings, the WN1980 screen will display a stable Wi-Fi signal, auto time zone, and DST (when in effect).

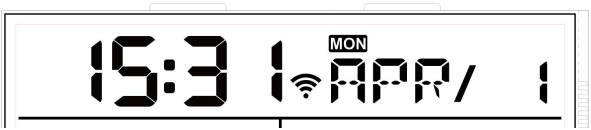


Figure 17 WN1980 Time and Date

2.2.6 Replacing Wi-Fi Router

If you want to change your router, follow **Section 2.2.3** or **2.2.4** again after restoring the gateway to its factory settings (Hold **MODE** + **LIGHT** 2s for a factory reset).

2.3 Adding Sensors

To pair the optional sensors (refer to **Section 4** for more optional sensors) with the WN1980, please do as follows:

1. Power the sensor on and place it next to the console.

2. Wait 1~2 minutes, check whether the console will automatically pick up the sensor data and display it on the screen or App.

3. If data is not received from a registered sensor, the RF icon will decrease the signal by one frame; if data is received, the RF icon will increase the signal by one frame.

4. If data is not received, try the following: after **ensuring the phone and WN1980 are connected to the same Wi-Fi network**, open the Ecowitt App→ Sensor ID→enter the Sensor Management page.

5. On the Sensor Management page, find the sensor you want to pair, select the ID number box, and register it.

6. Once successful, you may return to the main interface to check the data.

If you know precisely the sensor ID and want the WN1980 to pair that sensor only, you may enter the sensor ID and save the change to make it effective.

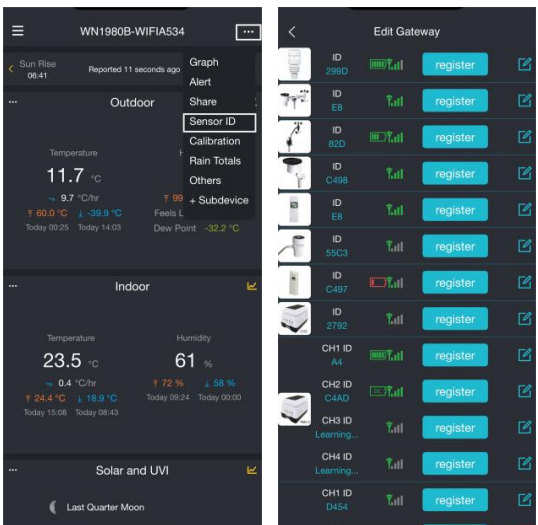


Figure 18 Sensor ID page

2.4 Upload Data to Server

After the Wi-Fi configuration is successful, data can be uploaded to the following weather station servers:

A. ecowitt.net (Default upload to this server)

B. wunderground.com

C. weathercloud.net

D. wow.metoffice.gov.uk

E. Customized servers

Upload servers' management:

(1) Ensure the mobile phone and WN1980 receiver use the same Wi-Fi.

(2) Ecowitt App → "..." at the top right corner → "Others" → "DIY Upload Servers"

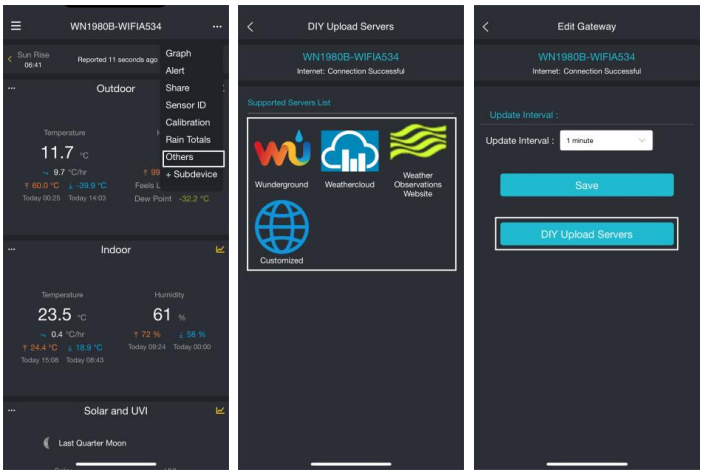


Figure 19 Upload data to a server

3. Instructions for Use

3.1 Multiple Views and Size (mm)

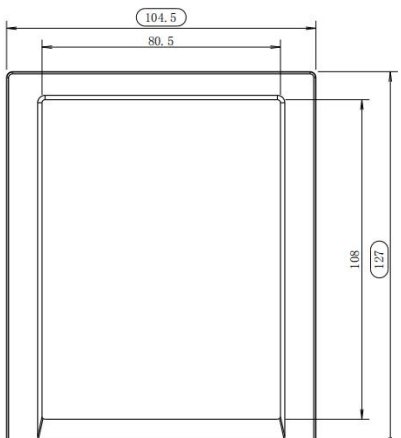


Figure 20 Main View

Figure 21 Right View

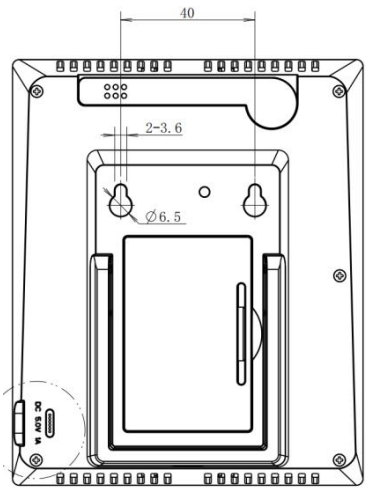


Figure 22 Rear View (Probe closed)

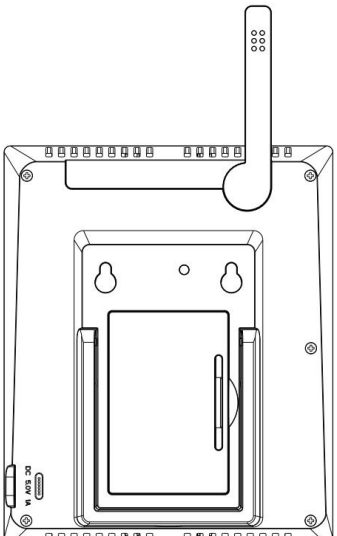


Figure 23 Rear View (Probe open vertically)

* The indoor temperature and humidity work with the best accuracy only when the probe is open vertically.

3.2 Features

1. Touch Key
2. 5.3" LCD
3. Support DC powered and 2 x AA alkaline or lithium batteries powered (With two fresh AA batteries (not included). It can only run for about 30 days with Wi-Fi turned off.)
4. Calendar, date, time
5. Built-in temperature humidity sensor and barometric pressure sensor
6. Support displaying indoor temperature, humidity, and pressure.
7. Support receiving and displaying eight channels of temperature and humidity sensors.
8. Support receiving and displaying wind, rain, outdoor temperature, and humidity data.
9. Support receiving other ecowitt ecosystem sensors. Please refer to **Section 4** for optional

sensors. Support uploading to the cloud server. Data can be viewed via Ecowitt app or Ecowitt server: https://ecowitt.net

10. Weather forecast: Sunny, Partly Cloudy, Cloudy, Rainy, Stormy, Snowy and Storm Snowy
11. Record Max & Min value.
12. Alarm & Snooze function.
13. Support unit setting.
14. Support the DST (Daylight Saving Time) setting.
15. Daily Max/Min function (Clear daily max/min values)
16. Support backlight adjustment under the DC power supply.
17. Support setting backlight on/off time freely on the local webpage.

18. Support uploading to multiple weather servers.
    ■ ecowitt.net (Default upload to this server)

- wunderground.com
- weathercloud.net
- wow.metoffice.gov.uk
- Customized servers

19. Data storage on Ecowitt server:
    https://ecowitt.net

3.3 Station Settings

3.3.1 Touch Key Function Introduction

The console has five keys for easy operation.

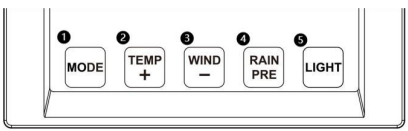


Figure 25 Touch key

1 MODE

- **Hold for 2s:** Enter the Setting Mode
- **Press:** Switch between Normal Mode, Max Mode, Min Mode, High Alarm Mode, Low Alarm Mode, MAC address Display Mode

2 TEMP+

- **Press:** Switch between Outdoor Temperature / Wind Chill / Dew Point / Heat Index / 8 channel optional Indoor / Outdoor Thermo-hygrometer / Circle Mode
- **Hold for 5s:** Resynchronize Sensors
  Remark: for multichannel Thermo-hygro sensors, if cycle mode is selected, all eight

channels will be registered again.

3 WIND-

- **Press:** Switch between average wind speed/gust
- **Hold for 2s:** Switch the wind direction display in degrees/letters

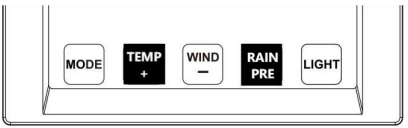
4 RAIN PRE

- **Press (**Pressure mode**):** Switch between Relative pressure /Absolute pressure.
- **Hold for 2s: Switch between Rain / Pressure**

5 LIGHT

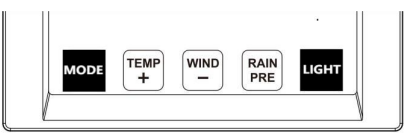
- **Press:** Adjust the backlight level (High/ Medium/ Low/ Off) only when powered by DC adaptor
- To exit setting mode and return to normal displa y mode, simply press the "Light" button anytime.

***Press any button to turn on the backlight temporarily for 15 seconds when powered by batteries.**



TEMP + + **RAIN PRE**

- **Hold for 2s: Activate Wi-Fi configuration mode**

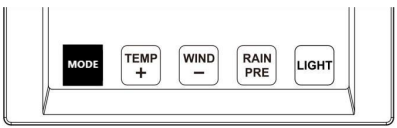


MODE + **LIGHT**

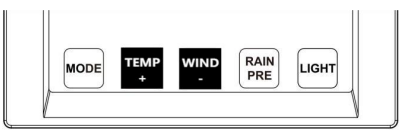
- **Hold for 2s: Execute a factory setting**

3.3.2 Basic settings

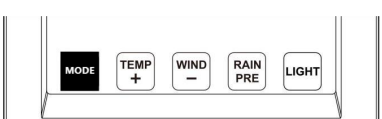
Settings Button Introduction



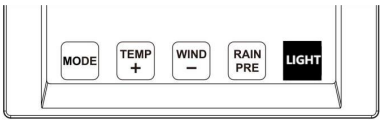
① Hold for 2s to enter the Setting Mode



② Use the TEMP+/WIND- buttons to adjust the values.



③ Press the Mode button to confirm your selection and move to the following setting.



④ You may exit the Settings Menu anytime by pressing the LIGHT button.

Settings Menu Order

1. Beep ON/OFF

2. Automatically Clear Max/Min Rain value ON/OFF

***When set to ON, the minimum and maximum values reset daily at midnight (00:00).**

***When set to OFF, the minimum and maximum values must be reset manually.**

3. 12/24 Hour Time Format

4. Hour /Minute/ Year/ Month/ Date

5. Pressure Units (hPa/ mmHg/ inHg)

6. Rel Pressure data calibration

***Reference Section 3.10 for details on the calibration of relative pressure.**

7. Temperature Units(°F/°C)

8. Wind Units (MPH/KPH)

9. Rain Units(mm/in)

***Automatically return to the main interface after 30 seconds of inactivity.**

3.3.3 High & Low Alarm Settings

Press the **MODE** button till the High/Low Alarm is displayed, as shown.

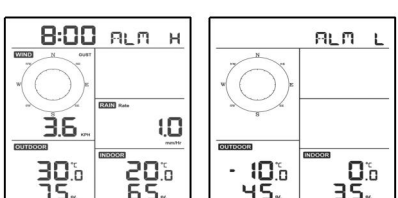
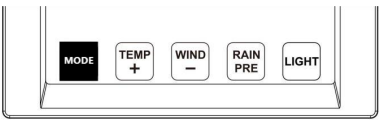
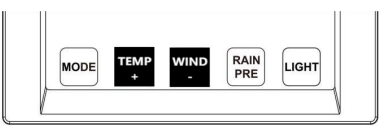


Figure 26 High/Low Alarm Display

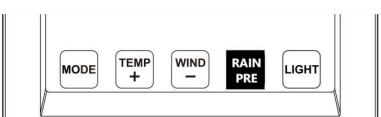
Settings Button Introduction



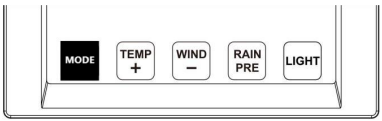
① Hold for 2s to enter the High/Low Alarm Set Mode while the High/Low Alarm is displayed



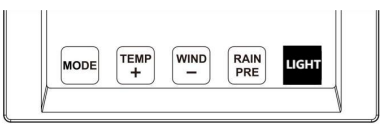
② Use the **TEMP+**/**WIND-** buttons to adjust the values.



③ Use the **RAIN/PRE** button to turn the alarm on/off. Icon appears: On; Icon disappears: Off.



④ Press the **Mode** button to confirm your selection and move to the next setting



⑤ Press the **LIGHT** button to exit the Alarm Settings Menu at any time

***Automatically return to the main interface after 30 seconds of inactivity.**

Alarm Settings Order	Alarm Icon Illustration

1. Alarm Hour /Minute
2. Indoor Temperature/Humidity
3. Outdoor Temperature/Humidity
4. Wind Gust
5. Rain Rate

Segment	High	Low
Alarm Time		
Indoor Temperature	⚠HI	⚠LO
Indoor Humidity	⚠HI	⚠LO
Outdoor Temperature	⚠HI	⚠LO
Outdoor Humidity	⚠HI	⚠LO
Wind Gust	⚠	/
Rain Rate	⚠	/

3.3.4 Max/Min Value Settings

Viewing Max/Min Values

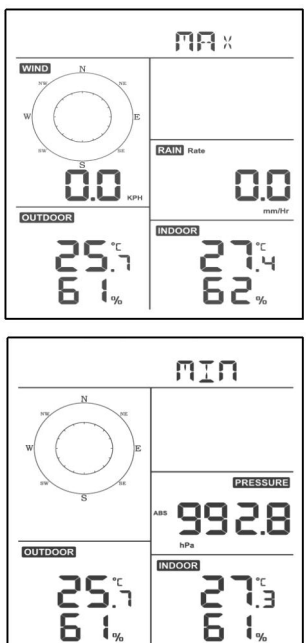


Figure 27 Max/Min Alarm Display

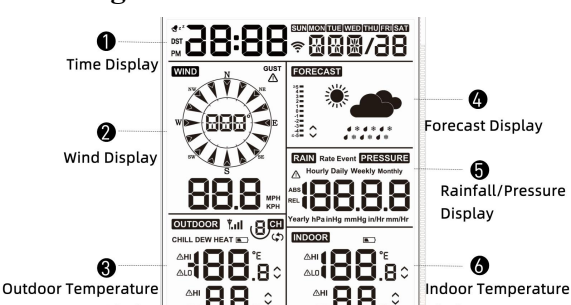
Press the **MODE** button till the max/low values are displayed, as shown.

Clearing Max/Min Values

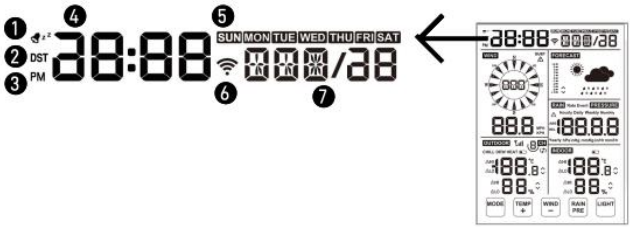
Hold the **MODE** button for 2s while the max/low values are displayed.

Press the **LIGHT** button to return to normal mode.

3.4 Viewing Data



3.4.1 Viewing Time Data



① Alarm

② DST

③ 12H Time Marker

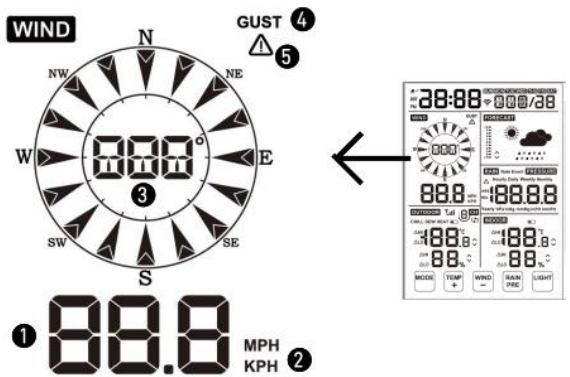
④ Time

⑤ Day of week

⑥ WiFi Icon

⑦ Calendar

3.4.2 Viewing Wind Data



① Current Wind Speed

② The average wind speed in the 16s update period.

③ Wind Speed unit.

④ Wind Direction

⑤ * Hold the WIND - for 2s to switch the wind direction to display in degrees or letters.

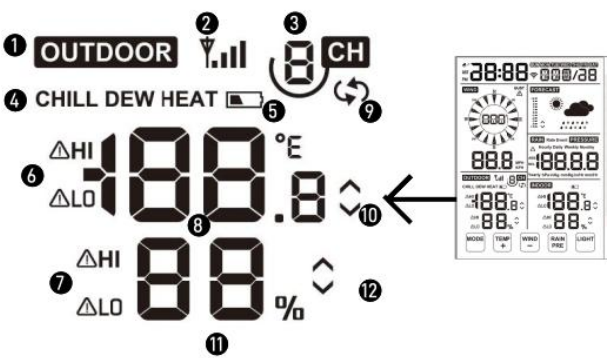
⑥ Wind Gust The peak wind speed in the 16s

update period.

⑦ * Press the WIND - to switch between average wind speed /gust.

⑧ Gust Alarm

3.4.3 Viewing Outdoor Temperature



① Outdoor Segment

② Reception Indicator

③ Channel No.

④ Current Display Mode:

Press the TEMP+ to switch between Outdoor Temperature/Wind Chill/Dew Point/Heat Index/8 channel temperature and humidity/Circle Mode.

⑤ Battery Indicator

⑥ Temp High/ Low Alarm Icon

⑦ Humidity High/ Low Alarm Icon

⑧ Current Temperature

⑨ Circle Mode

⑩ Tendency of Temperature

⑪ Current Humidity

⑫ Tendency Arrows of Humidity

Reception Indicator Quality Indicator

Four Bars	Three Bars
	
No signal loss	Lost signal once

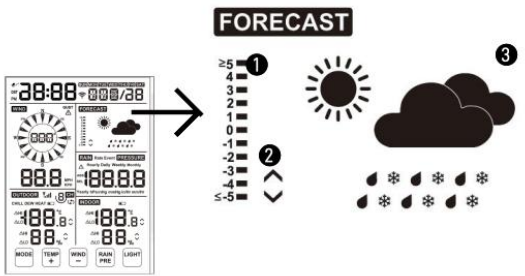
Tendency Arrows Introduction

Temperature / Humidity / Pressure change in a 3-hr update period, updated every 30 minutes.

Tendency indicators	**Condition**	**Humidity Change per 3h**	**Temperature Change per 3h**
⌒	Rising	Rising > 3%	Rising > 1° C / 2° F
⌣	Falling	Falling > 3%	Falling > 1° C / 2° F

*** If the temperature is lower than the minimum range or higher than the maximum range, the temperature field will display dashes (--.-).**

3.4.4 Viewing Forecast Data



① Rate of Change of Pressure

Signifies the difference between the daily average pressure and the 30-day average (in hPa)

② Tendency of Pressure

③ Weather Forecast Icon

Forecast Icon Introduction

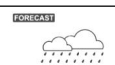
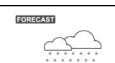
Weather	Icon	Pressure Tendency
Sunny		Increases over a sustained period
Partly Cloudy		Increases slightly / Initial power up
Cloudy		Decreases slightly
Rainy		Decreases over a sustained period
Snowy		Decreases over a sustained period while the temperature is below 0℃
Storm Alert	Icon flashes	Drops rapidly

Table 2 Weather forecasting summarization

*** The forecast is based on the rate of change of barometric pressure.**

*** The weather station takes over a month to learn the barometric pressure.**

Weather Forecast Description

If the rate of change in pressure increases, the weather generally improves (sunny to partly cloudy). If the rate of change of pressure decreases, the weather is generally degrading (cloudy, rainy). If the rate of change is relatively steady, it will be partly cloudy.

The forecast is a prediction 24-48 hours in advance.

Weather Forecast Limitations

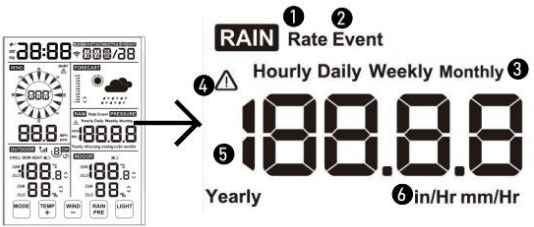
In most locations, this prediction is 70% accurate, and it is a good idea to consult the National Weather Service for more precise weather forecasts. In some locations, this prediction may be less or more accurate. However, it is still an intriguing educational tool for learning why the weather changes.

The National Weather Service (and other weather services such as AccuWeather and The Weather

Channel) has many tools for predicting weather conditions, including weather radar, weather models, and detailed ground conditions mapping.

3.4.5 Viewing Rainfall / Pressure Data

Rainfall Data Display



① Rain Rate

② Event Rain

③ Repeat

④ *Press **RAIN/PRE** to switch between Rain Rate / Rain Event / Rain Hourly / Daily Rain /

Weekly Rain / Monthly Rain / Yearly Rain

⑤ Rain Rate Alarm

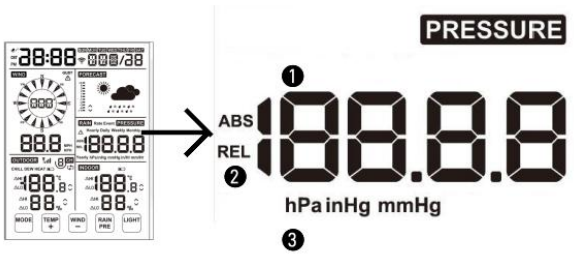
⑥ Current Rain

⑦ Unit

- Rain rate / Hourly rain: The total rainfall of the last 10 minutes * 6 (1 hour) is also known as instantaneous rain per hour.
- Rain event: Continuous rain. Resets if rainfall accumulation < 1 mm in 24 hours.
- Daily Rain: The rainfall since midnight (00:00).
- Weekly Rain: The calendar week total. Resets are on Sunday at midnight (Sunday through Saturday).
- Monthly Rain: Rain of the calendar month total. Resets are on the first day of the month.
- Yearly Rain: Rain of the calendar year, i.e.,

January 1- December 31. Resets are on the first day of the year.

Pressure Data Display



① Current Pressure

② ABS/REL Marker

***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**

③ Unit

3.4.6 Viewing Indoor Temperature Data

① Battery bar

② Temp High/ Low Alarm Icon

③ Humidity High/ Low Alarm Icon

④ Current Temperature

⑤ Current Humidity

⑥ Tendency of Temperature

⑦ Tendency Arrows of Humidity

3.5 Historical Data Export and Clear

3.5.1 Export History Data

WN1980 doesn't support storing data on a memory card. When the Wi-Fi configuration (refer to **Section 2.2** for Wi-Fi Configuration) is completed, you can log in to Ecowitt.net to export the data in CSV file format.

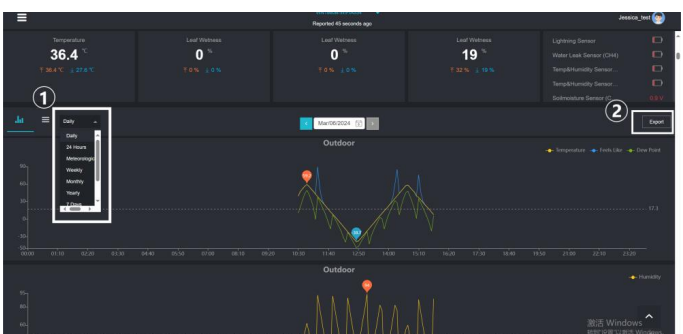


Figure 28 Export Historical Data from Ecowitt.net

Note:

Data with a query period of days/24 hours is retained for three months.

Data with a weekly query period is retained for one year.

Data with a monthly query period is retained for two years.

Data with a yearly query period is retained for four years.

3.5.2 Clear History Data

Under "menu" → "devices" → "..." →"Sure"

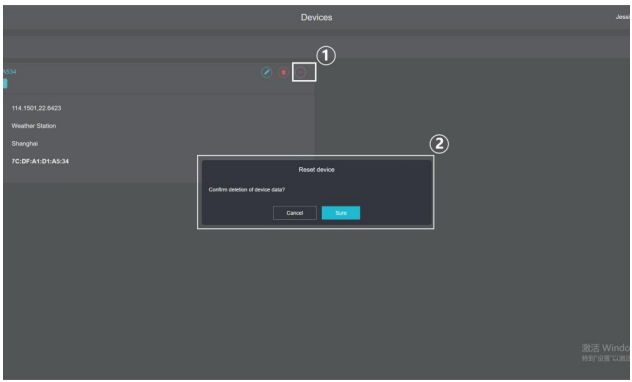


Figure 29 Clear History Data

3.6 Firmware Upgrade

Method 1: Via Ecowitt App

Open Ecowitt App → My Devices →"…" (Open the Edit Gateway page) → tap the firmware version number to upgrade if a new version is available. When the upgrade is complete, the WN1980 will reboot into the latest version.

Figure 30 Upgrade Firmware on the App

Method 2: Via web page 192.168.4.1

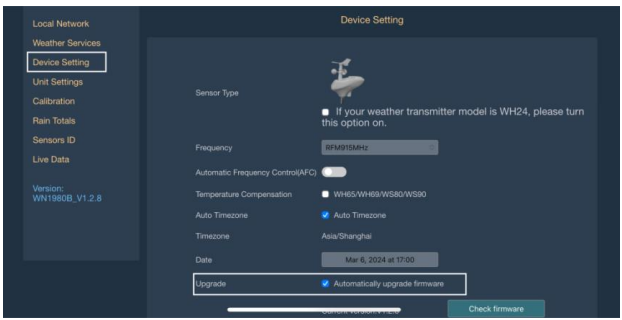


Figure 31 Automatically upgrade firmware settings on the web page.

3.7 Calibration

If you have data from a relatively accurate weather station. You can use the data to do the calibration.

1. Make sure your mobile device is connected to the Wi-Fi network WN1980 is connected to.

2. Click "…" on the top right corner and choose "Calibration".

3. For a particular parameter (Take Outdoor temperature as an example in **Figure 32**). Calculate the offset of data from an accurate reference sensor.

4. Fill in the offset from step 3 , and click Save.

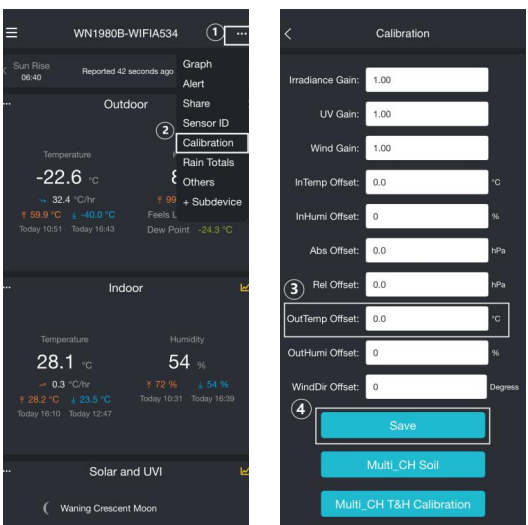


Figure 32 Calibration

3.8 Rainfall Settings

3.8.1 Rainfall Data Priority Setting

If you have multiple rainfall sensors, you can set the priority to display the data from one of them. You can choose between a Traditional Rain Gauge or a Piezoelectric Rain Gauge.

When traditional rainfall or piezoelectric rainfall is selected, if you have more than one rainfall sensor, the priority of rainfall data will be displayed in the following default order.

Traditional rainfall: WH40 > WS69

Piezoelectric rainfall: WS90

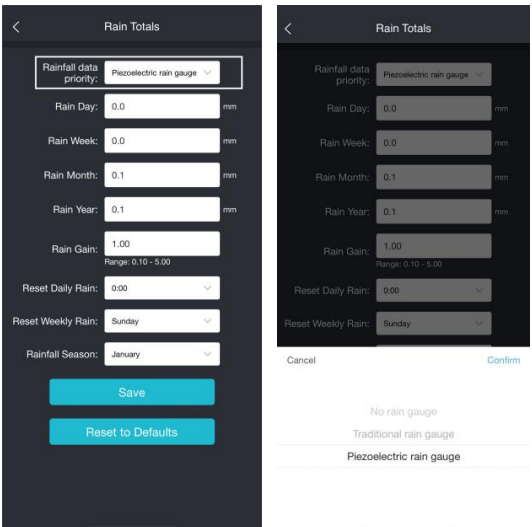


Figure 33 Rainfall Data Priority Setting

3.8.2 Rain Totals Initial Value

Users can set the Rain for the current year, month, or week starting values. This is useful when you use this system instead of another one with accumulated data. Or if you know the values are incorrect.

1. Ensure your mobile device is connected to the same Wi-Fi network.

2. Click "⋯" on the top right corner and choose "Rain Totals".

3. Fill in the correct Rainfall value, click Save.

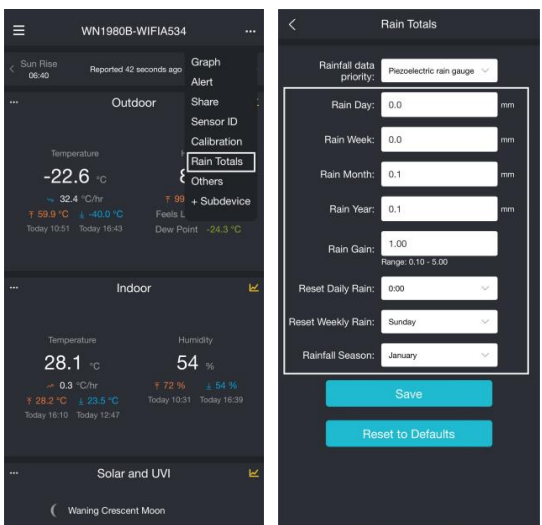


Figure 34

3.8.3 Units

When the rainfall unit is selected via buttons (refer to **Section 3.10** to adjust the unit) or web page 192.168.4.1 (Unit Settings), the WN1980 will automatically calculate and display the corresponding unit and value on the screen. Units set by the Ecowitt App or Ecowitt.net website will not be synchronized to the WN1980.

3.9 Unit and Other Settings

Click Settings and select the units for the different parameters you want. You can see some more settings on this interface.

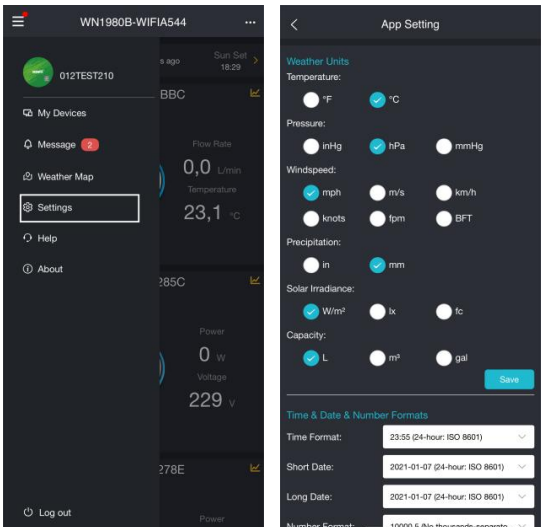


Figure 35 App Setting

3.10 Relative Pressure Calibration Discussion

To compare pressure conditions from one location to another, meteorologists correct pressure to sea-level conditions. Because air pressure decreases as altitude rises, 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 inHg (1013 mb), which is the average worldwide. 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. Optional Sensors

The RF reception function will always be turned on to receive data from supported sensors simultaneously.

4.1 Sensors

When powered by DC or battery, the device supports these sensors as below.

The following sensors can be purchased separately. For more information, please visit our website:

http://www.ecowitt.com. Select the model of the units with the same RF frequency as your gateway or display (the frequency is different for various countries because of regulations).

 **Note: Max QTY of the following table means the maximum number of sensors connected to the WN1980.**

4.1.1 Sensor Data Can be Displayed on the WN1980

Sensor Model	Max QTY	Picture	Functions
WS85	1		Wind speed/ direction, rainfall
WS90	1		Outdoor temperature & humidity, wind speed/ direction, rainfall light, UV upload only but not display
WS80	1		Outdoor temperature & humidity, wind speed/ direction light, UV upload only but not display
WS69	1		Outdoor temperature & humidity, wind speed/ direction, rainfall light, UV upload only but not display
WS68	1		wind speed/ direction light, UV upload only but not display

WH40	1		Rainfall
WN32P	1		Indoor temperature, humidity and pressure
WN32	1		Outdoor temperature humidity
WN31	8		Temperature and humidity
WN30			Temperature
WN36			Pool temperature

Table 3

4.1.2 Sensor Data Can Only be Uploaded to the Cloud

Sensor Model	Max QTY	Picture	Functions
WH57	1		Lightning detection
WH41/WH43	4		PM2.5
WH45/WH46	1		WH45: CO_2, PM2.5, PM10, temperature and humidity WH46: CO_2, PM1.0, PM2.5, PM4.0, PM10, temperature and humidity
WH55	4		Water leak detection
WH51L	8		Soil moisture

WH51			Soil moisture
WN34L/S/D	8		Temperature
WN35	8		Leaf wetness

Table 4

4.2 IoT Device (Upload only)

Sensor Model	Max QTY	Picture	Functions
WFC01	16		Smart water timer
AC1100			Smart plug

Table 5

5. Specifications

5.1 Console

USB gateway built-in sensor	Specification
Model	WN1980
Name	Weather Station (Receiver)
Dimensions	104.5*127*27.5(mm)
Screen Size	5.3"
Material of Plastic Casing	ABS
Material of Screen	VA-LCD
Console Operating Temperature	0°C to 50°C(32°F to 122°F)
RF Connection Frequency	920/915/868/433MHz (depending on local regulations)
RF Wireless Range	Over 100 meters (in open areas)
Reading Update Interval	About 1 minute
WLAN	802.11 b/g/n 2.4 GHz (802.11n, Max 150 Mbps)

WLAN Range	Over 30 meters (in open areas)
Power Supply	5V Type-C to USB or 2 AA Battery (not included)
Battery Life	30 Days（Powered by battery only）

Table 6

5.2 Integrated Sensor Suite

Integrated Sensor	Specification
Temperature Metering Range	0°C to 50°C(32°F to 122°F)
Temperature Metering Accuracy	±1°C(±1.8°F)
Temperature Metering Resolution	0.1°C(0.2°F)
Humidity Metering Range	1% to 99%
Humidity Metering Accuracy	±5%
Humidity Metering Resolution	1%
Barometric Pressure Metering range	300 to 1100 hPa (8.85 to 32.5 inHg)

Barometric Pressure Metering accuracy	±5hpa
Barometric Pressure Metering resolution	0.1 hPa (0.01 inHg)

Table 7

6. Troubleshooting Guide

Problem	Solution
The outdoor sensor array does not communicate with the WN1980.	The sensor array may not have reset correctly. Press the reset button as described in **Section 3.4**. The LED next to the battery compartment will flash regularly. Check and replace the outside sensor array batteries if no LED is up. If the batteries were recently replaced, check the polarity. If the sensor is flashing normally, there is a temporary loss of communication due to reception loss related to interference or other location factors. You can try to move the

	console closer to the array direction or even turn certain angles to see if the reception is more stable. You may also try to set the AFC option (automatic frequency control) on from the embedded web UI of the WN1980 console.
The temperature sensor reads too high in the daytime.	Ensure the sensor array is not too close to heat-generating sources or structures, such as buildings, pavement, walls, or air conditioning units. Use the calibration feature to offset installation issues related to radiant heat sources. Reference **Section 3.8.**
Relative pressure does not agree with the official reporting station	You may be viewing the absolute pressure, not the relative pressure. Select the relative pressure. Make sure you properly calibrate the sensor to an official local weather station. For details, refer to Section 3.10.
No WiFi connection	1. Check for the WiFi symbol on the display. If wireless

	connectivity is successful, the WiFi icon  will be displayed in the time field. 2. Ensure your modem WiFi settings are correct (network name and password) and no VPN enabled. 3. The console only supports and connects to 2.4 GHz routers. If you own a 5 GHz dual-band router, you will need to disable the 5 GHz bands and enable the 2.4 GHz bands. 4. Router setting to be checked so that router doesn't block this device from internet access.

Table 8

7. Warranty

We disclaim any responsibility for any technical error or printing error or the consequences thereof. All trademarks and patents are recognized.

We provide a 1-year limited warranty on this product against manufacturing defects or defects in materials and workmanship.

This limited warranty begins on the original date of purchase and is valid only on products purchased and only to the original purchaser. The purchaser must contact us for problem determination and service procedures to receive warranty service.

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

Manufacturer: Shenzhen Fine Offset Electronics Co., Ltd.
Address: 4/F, Block C, JiuJiu Industrial City, Shajing Town, Baoan District, Shenzhen City, China

8. Care and Maintenance

When batteries of different brand or type are used together, or new and old batteries are used together, some batteries may be over-discharged due to a difference of voltage or capacity. This can result in venting, leakage, and rupture and may cause personal injury.

• Do not mix Alkaline, Lithium, standard, or rechargeable batteries.

• Always purchase the correct size and grade of battery most suitable for the intended use.

• Always replace the whole set of batteries at one time, taking care not to mix old and new ones, or batteries of different types.

• Clean the battery contacts and also those of the

device prior to battery installation.
• Ensure the batteries are installed correctly with regard to polarity (+ and -).
• Remove batteries from product during periods of non-use. Battery leakage can cause corrosion and damage to this product.
• Remove used batteries promptly.
• For recycling and disposal of batteries, and to protect the environment, please check the internet or your local phone directory for local recycling centers and/or follow local government regulations

9. Contact Us

9.1 After-sales Service

Order Issues:

If you encounter any missing or incorrect shipments of Ecowitt products purchased, don't hesitate to get in touch with the respective platform's customer service from the store where you bought the product for assistance.

Usage Inquiries:

Our product is continuously changing and improving, particularly online services and associated applications. To download the latest manual and additional help, and for any issues related to product usage, feel free to contact our customer support team at support@ecowitt.com. We are committed to helping and resolving any concerns you may have.

9.2 Stay in Touch

Ask questions, watch setup videos, and provide feedback on our social media outlets. Follow Ecowitt on Discord, YouTube, Facebook and Twitter.