
WS-2700 Advanced Wireless Weather Station User Manual



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1 Introduction

Thank you for your purchase of the Ambient Weather WS-

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2700 Wireless Weather Station. The following user guide provides step by step instructions for installation, operation and troubleshooting. To download the latest manual and additional troubleshooting tips, please visit:

<https://ambientweather.com/faqs/question/tags/tag/WS-2700/>

1.1 Features

The WS-2700 features:

- Wireless outdoor and indoor humidity (%RH)
- Wireless outdoor and indoor temperature (°F or °C)
- Records min. and max. humidity
- Records min. and max. temperature
- Barometric pressure (inHg or hPa)
- Weather forecast
- Radio controlled (WWVB) automatic date and time or manual date and time
- 12 or 24-hour time display
- Perpetual calendar
- Time alarm with snooze
- Moon phase
- LED backlight
- Wall hanging or free standing

- Supports up to three wireless remote sensors
- Optional AC adapter

2 Quick Start Guide

Step	Description	Section
1	Power up Remote Sensor	3.3
2	Power Up Display Console	3.4
3	Set Up or Program Display Console	4.1
4	Install Sensor	3.6
5	Calibrate Barometer	4.2 and 4.6

3 Getting Started

The WS-2700 weather station consists of a display console (receiver) and a thermo-hygrometer sensor.



Note: The power up sequence must be performed in the order shown in this section (remote transmitter first, display console second) to properly synchronize the remote sensor to the console.

3.1 Parts List





QTY	Item	Image
1	Display Console (WS-2700-C) Frame Dimensions (LxHxW): 6.36 x 3.39 x 0.86” (161.5 x 86 x 21.5 mm)	
1	Thermo-hygrometer transmitter (WH32M) Dimensions (LxHxW): 4.80 x 1.57 x 0.71” (122 x 40 x 18 mm)	
1	Optional Power Adapter (included with WS-2700-AC, sold separately with the WS- 2700).	
1	Manual	

Figure 1

3.2 Recommend Tools

- Hammer and nail for hanging remote thermo-hygrometer transmitter.

3.3 Thermo-Hygrometer Sensor Set Up

Remove the battery door on the back of the sensor, as shown in Figure 2.

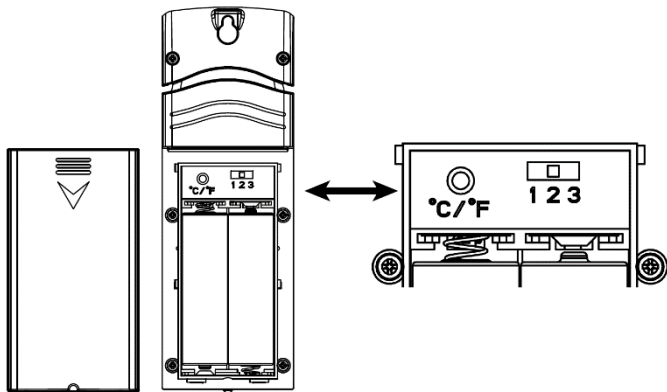


Figure 2

1. BEFORE inserting the batteries, switch the channel switch to the appropriate channel. If you have one sensor, set the switch to Channel 1. If you have two sensors, set the second sensor to Channel 2. If you own three sensors, set the third sensor to Channel 3.
2. To change the temperature units of measure, press the °C/°F button.
3. Insert two AA batteries.
4. After inserting the batteries, the remote sensor will display temperature and humidity and channel number on the display, as shown in Figure 3.

- 1 Temperature
- 2 Temperature Units of Measure
- 3 Channel Number
- 4 Humidity

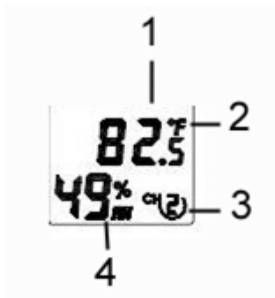


Figure 3

5. Close the battery door.



Note: We recommend lithium batteries for cold weather climates, but alkaline batteries are sufficient for most climates. We do not recommend rechargeable batteries. They have lower voltages, do not operate well at wide temperature ranges, and do not last as long, resulting in poorer reception.



Note: If the incorrect channel number is selected, change the channel number switch on the back of the sensor, and remove and reinsert the batteries for the change to take effect.

3.4 Display Console

3.4.1 Display Console Layout

The display console layout is shown in Figure 4.

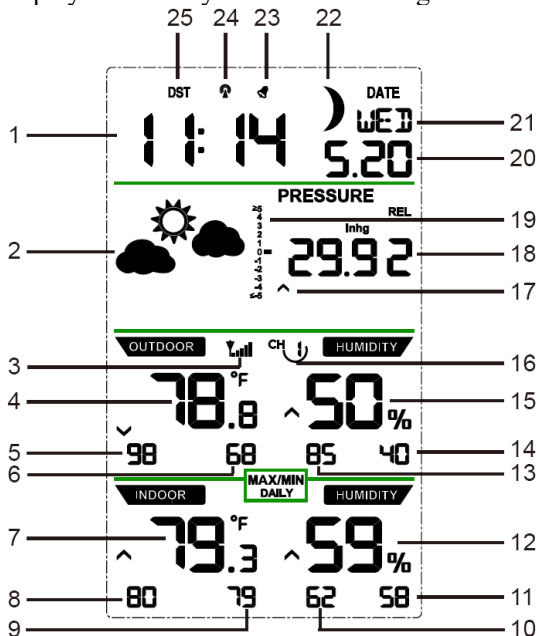
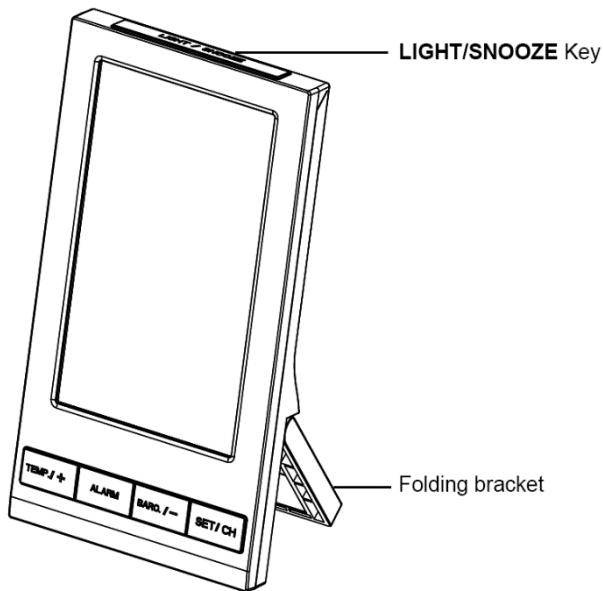


Figure 4

1. Time
2. Weather forecast icon based on barometer
3. Transmitter signal strength
4. Outdoor temperature
5. Max outdoor temperature
6. Min outdoor temperature
7. Indoor temperature
8. Max indoor temperature
9. Min indoor temperature
10. Max indoor humidity
11. Min indoor humidity
12. Outdoor humidity
13. Max outdoor humidity
14. Min outdoor humidity
15. Outdoor humidity
16. Sensor channel number
17. Barometric pressure trend arrow
18. Barometric pressure
19. Pressure rate of change
20. Date
21. Weekday
22. Moon phase
23. Alarm
24. Radio controlled reception
25. Daylight Savings Time

3.4.2 Display Front and Back View



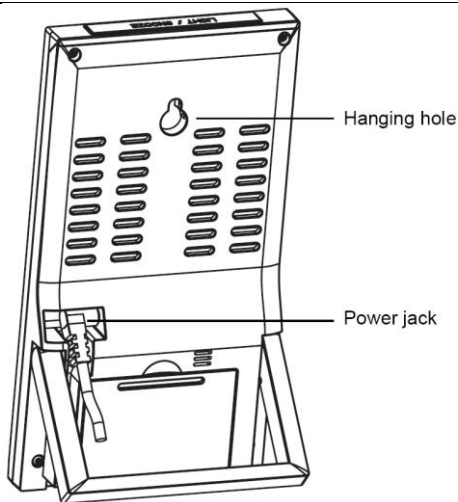


Figure 5

3.4.3 Display Console Set Up

Place the wireless thermo-hygrometer sensor about 5 to 10 feet away from the display console (if the sensor is too close, it may not be received by the display console).

1. Remove the battery door on the back of the display. Insert three AAA (alkaline or lithium, avoid rechargeable) batteries in the back of the display

console. Looking at the back of the unit (left to right), the polarity is (-) (+) for the top battery, (+) (-) for the middle battery and (-) (+) for the bottom battery. The LCD display will beep once and then light up. The brightness selection is set to high when plugged into the adapter.



Note: To avoid permanent damage, please take note of the battery polarity before inserting the batteries.

2. Replace the battery door, fold out the desk stand and place the console in the upright position, as shown in Figure 5.



Note: The backlight will remain on for 5 seconds when on battery power only. The back-light will remain on continuously with the optional AC adapter.

3. After initialization, the console will instantly display indoor temperature, humidity, barometer, moon phase, date and time. The remote search icon will turn on:



Do not touch any buttons until the remote sensor reports in, otherwise the remote sensor search mode will be terminated, and the search icon will turn off. When the remote sensor data has been received, the console will automatically switch to the normal mode, and all further settings can be performed.

3.4.4 Radio Controlled Clock (RCC)


Your console is equipped with the Radio Controlled Clock (RCC). The icon WWVB will appear above the time to signify this.

The RCC is received by the wireless transmitter, and passed to the console. After the remote sensor is powered up, the sensor will transmit weather data for 30 seconds, and then the sensor will begin radio controlled clock (RCC) reception.

During the RCC time reception period (maximum 10 minutes), no weather data will be transmitted to avoid interference.

If the signal reception is not successful (normally during the day due to solar interference), the sensor search will

be cancelled, the outdoor temperature and humidity will update as normal, and the RCC search will automatically resume every two hours until the signal is successfully captured. The regular RF link will resume once RCC reception routine is finished. In some locations, RCC reception may take a few days to receive the signal. The temperature and humidity data will continue to transmit during this period.

Once the radio controlled time is received, the RCC reception icon  will turn on (reference Figure 4).

3.5 Sensor Operation Verification


Verify the indoor and outdoor humidity match closely with the console and sensor array in the same location (about 10' apart). The sensors should match within a few percentage points (the accuracy is $\pm 5\%$). Allow about 30 minutes for both sensors to stabilize.

Verify the indoor and outdoor temperature match closely with the console and sensor array in the same location (about 10' apart). The sensors should match within a few degrees (the accuracy is $\pm 2^{\circ}\text{F}$). Allow about 30 minutes for both sensors to stabilize.

3.6 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 eave.

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 eave.

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.
3.  **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).

We offer an optional Solar Radiation Shield w/ Bracket for WH32M which can be found in Section 8 below.



Figure 6

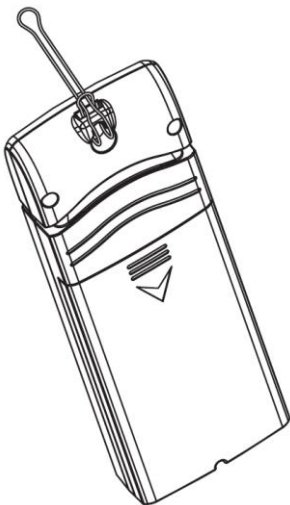


Figure 7

3.7 Best Practices for Wireless

Communication

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


1. **Electro-Magnetic Interference (EMI).** Keep the console several feet away from computer monitors and TVs.
2. **Radio Frequency Interference (RFI).** If you have other 915 MHz devices and communication is intermittent, try turning off these other devices for troubleshooting purposes. You may need to relocate the transmitters or receivers to avoid intermittent communication.
3. **Line of Sight Rating.** This device is rated at 300 feet line of sight (no interference, barriers or walls) but typically you will get 100feet maximum under most real-world installations, which include passing through barriers or walls.
4. **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 factor shown

below.

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

4 Console Operation

 **Note:** The console has four keys for easy operation: **TEMP/+** key, **ALARM** key, **BARO/-** key and **SET/CH/CH** key. There are four program modes: Set Mode, Alarm Mode, Calibration Mode and Min/Max Mode.

Any program mode can be exited at any time by either pressing the **SNOOZE/LIGHT** key (on the top of the display console), or waiting for the 30-second time-out to take effect.

4.1 Set Mode

The Set Mode allows you to change date, time, units of measure and other important functions, as referenced in Figure 8.

To enter the Set Mode, press and hold the **SET/CH** key for two seconds (**SET/CH** + 2 seconds). To advance each command, press (do not hold) the **SET/CH** key.

Command	Function	Description	Settings
SET/CH + 2 seconds	BEEP	Turns on or off the beep with each keystroke	Press TEMP/+ or BARO/- to toggle OFF and ON
SET/CH	RST	Reset max/min daily at 12:00am (on) or manually (off)	Press TEMP/+ or BARO/- to toggle OFF and ON
SET/CH	ZON	Time Zone (TZ)	Press TEMP/+ to increase or BARO/- to decrease (reference Figure 9).
SET/CH	DST	Observe Daylight Savings Time (set to OFF in Arizona and Hawaii, ON everywhere else)	Press TEMP/+ or BARO/- to toggle OFF and ON

SET/CH	12H	12/24 Hour Format	Press TEMP/+ or BARO/- to toggle between 12 hour (12h) and 24 hour (24h) format
SET/CH	HR	Hour of Day	Press TEMP/+ to increase. BARO/- to decrease
SET/CH	MIN	Minute of Day	Press TEMP/+ to increase. BARO/- to decrease
SET/CH	M-D	Month Day Format	Press TEMP/+ or BARO/- to toggle between M-D (month/day) format and D-M (day/month) format
SET/CH	Y	Year	Press TEMP/+ to increase and BARO/- to decrease
SET/CH	M	Month of Year	Press TEMP/+ to increase and BARO/- to decrease

SET/CH	D	Day of Month	Press TEMP/+ to increase and BARO/- to decrease
SET/CH	°F	Temperature Units of Measure	Press TEMP/+ to toggle between °F and °C
SET/CH	inHg	Barometric Pressure Units of Measure	Press TEMP/+ to toggle between inHg and hPa
SET/CH	PRESSURE REL	Relative Pressure Calibration	Press TEMP/+ to increase. BARO/- to decrease. For details on relative barometric pressure calibration, reference Section 4.2.2.
SET/CH	NTH	Northern Hemisphere (NTH) or southern Hemisphere (STH) select	Press TEMP/+ to toggle between Northern and southern Hemisphere
SET/CH		Exit Set Mode	

Figure 8

4.1.1 Time Zones

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

Hours from GMT	Time Zone	Cities
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

Figure 9

4.2 Barometric Pressure

4.2.1 Barometric Pressure History

While in normal mode, press **BARO/-** to check the barometric pressure history. Press the **BARO/-** button to switch to past 12hr/24hr/48hr/72hr average pressure. To exit the barometric pressure history mode, press the **SNOOZE/LIGHT** key (on the top of the display console), or wait 30 seconds for the timeout to take effect.

4.2.2 Relative Pressure Calibration

You will want to calculate your barometric pressure to an

official reporting station in your area. Since barometric pressure does not drastically change in a 50 mile radius (unless the weather is rapidly changing), this method of calibration is acceptable.

To determine the relative pressure for your location, locate your local “official” barometric pressure reading on www.AmbientWeather.net/baro or scan QR code below. To access the pressure relative pressure calibration screen of your console, see Section 4.6 / Figure 12 to enter the value. Relative vs. Absolute Pressure



Note: Calibration setting is saved until console is factory reset. If the console location elevation changes it will need to be recalibrated.

4.2.3 Relative vs. Absolute Pressure

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.

4.3 Dew Point


While in normal mode, Press the **TEMP/+** key to view the Dew Point in the outdoor temperature field. If key idle 30 seconds, the display will return to normal mode.

To exit the Dew Point display mode, press the **SNOOZE/LIGHT** key (on the top of the display console),

or wait 30 seconds for the timeout to take effect.

4.4 Multiple Channel Selection and Scroll Mode

If you have multiple wireless sensors, while in normal mode, press the **SET/CH** key to the different channels. Temperature, humidity, and MAX/MIN records will be displayed for each channel.

To scroll automatically, press the channel button again, and the scroll icon  will be displayed next to the channel number, and will scroll every 5 seconds.

4.5 Alarms

4.5.1 View Alarm Time

While in normal mode, press the **ALARM** key to view the alarm time. The alarm icon will be displayed in the time field.

4.5.2 Time Alarm Settings Mode

To enter the Alarm Mode, press and hold the **ALARM** key for two seconds (**ALARM** + 2 seconds). To advance each command, press (do not hold) the **SET/CH** key.

Command	Function	Description	Settings
ALARM + 2 seconds	Alarm Hour	Set the Alarm Hour Time	Press TEMP/+ or BARO/- to increase or decrease the alarm hour.
SET/CH	Alarm Minute	Set the Alarm Hour Minute	Press TEMP/+ or BARO/- to increase or decrease the alarm minute.
SET/CH	ALARM ON/OFF	Turn the Time Alarm On or Off.	Press TEMP/+ to toggle between Time Alarm ON and Time Alarm Off
SET/CH	LOW Alarm	Turn the LOW Temperature Alarm On or Off	Press TEMP/+ to toggle between Time Alarm ON and Time Alarm Off
SET/CH		Exit Set Mode	

Figure 10


4.5.3 Cancelling the Alarm

If the time alarm sounds, press the any key to silence the alarm. Press the **LIGHT/SNOOZE** key to enter snooze mode.

The low temperature alert will reset automatically once

the value has fallen into the low temperature alert range.

4.5.4 Low Temperature Alarm

The low temperature alarm sounds when the outdoor is between -3°C and $+2^{\circ}\text{C}$ (26.6°F and 35.6°F). The LO temperature icon  will appear and flash on the console. If the BEEP is switched on, an audible alert will also activated when the low temperature alert occurs.

If you own more than one sensor, the low temperature alarm will activate for any one of the sensors.

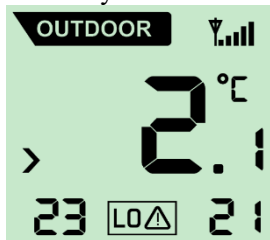


Figure 11

4.6 Calibration

While in the normal node, press and hold the **SET/CH** and **BARO/-** keys for five seconds to enter calibration mode (note: the SET/CH mode will appear after three seconds. Continue pressing the two keys until you see the

CAL icon appear in the upper right-hand corner of the display).

Enter the calibration offset to match the calibration source.

Command	Function	Description	Settings
SET/CH and BARO/- + 5 seconds	CH 1 TEMP	Calibrate the channel 1 temperature	Press TEMP/+ or BARO/- to increase or decrease the outdoor temperature offset.
SET/CH	CH 1 HUMIDITY	Calibrate the channel 1 humidity	Press TEMP/+ or BARO/- to increase or decrease the outdoor humidity offset.
SET/CH	CH 2 TEMP	Calibrate the channel 2 temperature	Press TEMP/+ or BARO/- to increase or decrease the outdoor temperature offset.
SET/CH	CH 2 HUMIDITY	Calibrate the channel 2 humidity	Press TEMP/+ or BARO/- to increase or decrease the outdoor humidity offset.
SET/CH	CH 3 TEMP	Calibrate the	Press TEMP/+ or

		channel 3 temperature	BARO/- to increase or decrease the outdoor temperature offset.
SET/CH	CH 3 HUMIDITY	Calibrate the channel 3 humidity	Press TEMP/+ or BARO/- to increase or decrease the outdoor humidity offset.
SET/CH	INDOOR TEMP	Calibrate the indoor temperature	Press TEMP/+ or BARO/- to increase or decrease the indoor temperature offset.
SET/CH	INDOOR HUMIDITY	Calibrate the indoor humidity	Press TEMP/+ or BARO/- to increase or decrease the indoor humidity offset.
SET/CH	PRESSURE	Calibrate the absolute and relative pressure	Press TEMP/+ or BARO/- to increase or decrease absolute and relative pressure offset.
SET/CH		Exit Set Mode	

Figure 12

Example 1:

The calibrated temperature from a red spirit thermometer, or actual temperature is 60.0 °F.

The uncalibrated or measured temperature is 58.7 °F.

Offset = Calibrated Temperature – Uncalibrated Temperature = 60.0 – 58.7 = 1.3 °F.

Enter the temperature offset +1.3 °F.

Example 2:

The calibrated absolute pressure from a calibrated pressure sensor, or actual absolute pressure is 28.61 inHg.

The uncalibrated or measured absolute pressure measured by the weather station is 28.66 inHg.

Offset = 28.66 – 28.61 = -0.05 inHg

Enter the absolute pressure offset -0.05 inHg



Note: The absolute pressure offset will also affect the relative pressure. To adjust the relative pressure, only (independent of the absolute pressure), reference Section 4.1.

Normally, you would not calibrate the absolute pressure because it is difficult to obtain a calibrated source. The preferred method is to calculate relative pressure to an official source near you, as described in Section 4.2.2.

To exit the calibration mode at any time, press the **LIGHT/SNOOZE** button.



Note: The calibration offset range limits are as follows:

Temperature: $\pm 9^{\circ}\text{F}$

Humidity: $\pm 9\%$

Absolute: $\pm 50\text{hpa}$ ($\pm 1.47\text{ inHg}$)

4.7 Max/Min Mode


The Max/Min data is displayed below each parameter. The orange parameter on the left is the maximum value since the last reset, and the blue parameter on the left is the minimum value since the last reset.



Figure 13

To clear all of the MAX/MIN records, press and hold the **TEMP/+** button for three seconds. Dashes will be displayed until the next update.

MAX/MIN records are cleared automatically at midnight.

The MAX/MIN DAILY icon  will be displayed. To switch this feature off, reference Section 4.1.

4.8 Other Console Features

4.8.1 Display Brightness

Press the **LIGHT/SNOOZE** button to toggle the screen brightness between HIGH, MEDIUM and LOW.

4.8.2 Weather Forecasting

The five weather icons are Sunny, Partly Cloudy, Cloudy, Rainy and Stormy.

The forecast icon is based on the rate of change of barometric pressure. Please allow at least one month for the weather station to learn the barometric pressure over time.

Sunny	Partly Cloudy	Cloudy
-------	---------------	--------

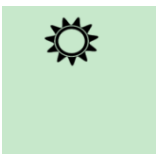
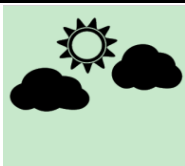



		
Pressure increases for a sustained period of time	Pressure increases slightly, or initial power up	Pressure decreases slightly
Rainy	Stormy	
		
Pressure decreases for a sustained period of time	Pressure rapidly decreases	

Figure 14

4.8.3 Weather Forecasting Description and Limitations

In general, if the rate of change of pressure increases, the weather is generally improving (sunny to partly cloudy). If the rate of change of pressure decreases, the weather is generally degrading (cloudy, rainy or stormy). If the rate










of change is relatively steady, it will read partly cloudy. The reason the current conditions do not match the forecast icon is because the forecast is a prediction 24-48 hours in advance. In most locations, this prediction is only 70% accurate and it is a good idea to consult the National Weather Service for more accurate weather forecasts. In some locations, this prediction may be less or more accurate. However, it is still an interesting educational tool for learning why the weather changes.

The National Weather Service (and other weather services such as Accuweather and The Weather Channel) have many tools at their disposal to predict weather conditions, including weather radar, weather models, and detailed mapping of ground conditions.

4.8.4 Moon Phase

The following moon phases are displayed based on the calendar date and your northern vs southern hemisphere, as shown in Figure 15.

Northern Hemisphere:

				
New	Waxing Crescent	First Quarter	Waxing Gibbous	Full
				
Waning Gibbous	Third Quarter	Waning	New	

Southern Hemisphere:










				
New	Waxing Crescent	First Quarter	Waxing Gibbous	Full
				
Waning Gibbous	Third Quarter	Waning	New	

Figure 15

4.8.5 Pressure Tendency Arrows

The forecast trend arrow updates every 30 minutes. The trend reflects changes in pressure (1 hPa) over the past 3 hours.




Pressure is rising	Pressure is unchanged	Pressure is falling
		

Figure 16

4.8.6 Rate of Change of Pressure Graph

The rate of change of pressure graphic is shown to the left of the barometric pressure and signifies the difference between the daily average pressure and the 30 day average (in hPa).



Figure 17

4.8.7 Resynchronizing Lost Sensor

If the signal is lost between the remote sensor (or transmitter) and the display console (or the receiver), to resynchronize, while in normal mode, Press and hold **SET/CH** and **TEMP/+** button for 5 seconds, to register the outdoor transmitter. The sensor search icon will flash.

Please wait several minutes for the remote sensor reports in. Do not touch any buttons until synchronization is complete.

If the synchronization fails, reset the console by removing one battery from the display console, disconnect from AC power, wait 10 seconds, and reinsert the battery and reconnect AC power.

4.8.8 Factory Reset

To perform a factory reset of the console, press and hold the **SET** button while the console is powering up. After the power up sequence is completed, let go of the **SET** button.

5 Glossary of Terms

Term	Definition
Accuracy	Accuracy is defined as the ability of a measurement to match the actual value of the quantity being measured.
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.
Range	Range is defined as the amount or extent a value can be measured.
Resolution	Resolution is defined as the number of significant digits (decimal places) to which a value is being reliably measured.
Absolute Barometric Pressure	Relative barometric pressure, corrected to 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.

Relative Barometric Pressure	Measured barometric pressure relative to your location or ambient conditions.
HectoPascals (hPa)	Pressure units in SI (international system) units of measurement. Same as millibars (1 hPa = 1 mbar)
Inches of Mercury (inHg)	Pressure in Imperial units of measure. 1 inch of mercury = 33.86 millibars

6 Specifications

6.1 Wireless Specifications

- Line of sight wireless transmission (in open air): 300 feet, 100 feet under most conditions
- Frequency: 915 MHz
- Update Rate: 60 seconds for rain sensor and thermo-hygrometer sensor, 16 seconds for wind sensor.

6.2 Measurement Specifications

The following table provides specifications for the measured parameters.

Measurement	Range	Accuracy	Resolution
Indoor Temperature	-14 to 140 °F -10 to 60 °C	± 1.8 °F ± 1 °C	0.1 °F 0.1 °C
Outdoor Temperature	-40 to 140 °F -40 to 60 °C	± 1.8 °F ± 1 °C	0.1 °F 0.1 °C
Indoor Humidity	10 to 99 %	± 5% (only guaranteed between 20 to 90%)	1 %
Outdoor Humidity	10 to 99%	± 5% (only guaranteed between 20 to 90%)	1 %
Barometric Pressure	8.85 inHg to 32.48 inHg 300 hpa to 1100 hpa	± 0.09 inHg ±3 hpa (only guaranteed between 700 to 1100hpa)	0.01 inHg 0.1hpa

Figure 18

6.3 Power Consumption

- Base station: 3 x AAA 1.5V Batteries (not included)
5V DC adaptor (included with WS-2700-AC, sold separately with the WS-2700).
- Remote sensor: 2 x AA Batteries (not included)
 - We suggest Energizer Lithium for cold weather climates
- Battery life: About 12 months for base station
About 12-24 months for thermometer-hygrometer sensor (use lithium batteries in cold weather climates)

7 Troubleshooting Guide

Problem	Solution
Wireless remote (thermo-hygrometer) not reporting in to console.	If any of the sensor communication is lost, dashes (--.) will be displayed on the screen. To reacquire the signal, reference 4.8.7.
There are dashes (--.) on the display console.	The maximum line of sight communication range is 300 feet and 100 feet under most conditions. Move the sensor assembly closer to



Problem	Solution
	<p>the display console.</p> <p>If the sensor assembly is too close (less than 5'), move the sensor assembly away from the display console.</p> <p>Make sure the remote sensor LCD display is working on both the console and the remote sensor.</p> <p>Install a fresh set of batteries in the remote thermo-hygrometer. For cold weather environments, install lithium batteries.</p> <p>Make sure the remote sensors are not transmitting through solid metal (acts as an RF shield), or earth barrier (down a hill).</p> <p>Move the display console around electrical noise generating devices, such as computers, TVs and other wireless transmitters or receivers.</p> <p>Move the remote sensor to a higher location. Move the remote sensor to</p>









Problem	Solution
	a closer location.
Temperature sensor reads too high in the day time.	Make sure the thermo-hygrometer is mounted in a shaded area. The pre preferred location is a north facing wall because it is in the shade most of the day. Consider the following radiation shield if this is not possible: http://www.ambientweather.com/ambwespatean.html
Indoor and Outdoor Temperature do not agree	Allow up to one hour for the sensors to stabilize due to signal filtering. The indoor and outdoor temperature sensors should agree within 3.6 °F (the sensor accuracy is ± 1.8 °F). Use the calibration feature to match the indoor and outdoor temperature to a known source.
Indoor and Outdoor Humidity do not agree	Allow up to one hour for the sensors to stabilize due to signal filtering. The indoor and outdoor humidity sensors should agree within 10 % (the sensor accuracy is ± 5 %). Use the calibration feature to match the indoor and outdoor humidity to a known source.
Display console	Plug into AC power. The console





Problem	Solution
contrast is weak	was not designed to run exclusively on batteries.

8 Accessories

The following software and hardware accessories are available for this weather station at www.AmbientWeather.com.

Accessory	Image	QR Code
Energizer AA Lithium Battery (2-pack)		

<p>Ambient Weather WH32M Temp & Humidity Sensor for WS-2700 / WS- 2801</p>	 A white, vertical, rectangular sensor with a small LCD screen displaying '74.3' and '59%' and the text 'Temperature, Humidity' below it.	 A blue QR code with the Ambient Weather logo in the center.
<p>Ambient Weather WH31- SRS Solar Radiation Shield w/ Bracket for WH32M</p>	 A white, cylindrical solar radiation shield with a bracket and a three-pronged electrical plug.	 A blue QR code with the Ambient Weather logo in the center.

<p>Ambient Weather WS-2700 Wireless Weather Station Spare Console</p>		
<p>Ambient Weather WS- 2801A Wireless Color Weather Station Spare Console</p>		

9 Introduction to Ambient Weather

Network



Enhanced by a powerful network of weather stations, the Ambient Weather Network provides the most accurate hyperlocal conditions for your neighborhood, activity, or business. Connect your compatible Ambient Weather Station to access your data remotely and join one of the fastest-growing weather communities. Personalize your data tiles, set alerts, and share your weather updates with other weather enthusiasts on our platform, which is always ad-free and free of charge!



Multiple Map Layers

Select the radar, wind, or temperature layers or drill down to view your neighborhood's weather stations.



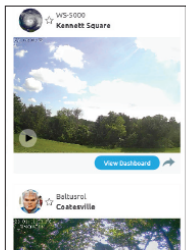
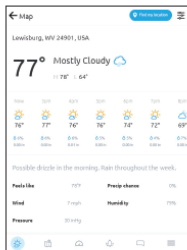
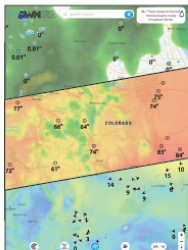
Customizable Forecast

Add your personal weather station to the map and create your own forecast for the community.



Local Weather Cameras

Watch timelapse videos of weather conditions from local weather cameras or add your own.



Scan the QR Code below to download the Ambient Weather Network App for free on the iOS App Store or Android Google Play Store.



10 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 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.

11 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.

12 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 a 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); (2) damage resulting from failure to follow instructions contained in your owner's manual; (3) damage resulting from the performance of repairs or alterations by someone other than an authorized Ambient, LLC authorized service center; (4) units used for other than home use (5) applications and uses that this product was not intended (6) the products inability to receive a signal due to any source of interference or metal obstructions and (7) 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.

13 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>

