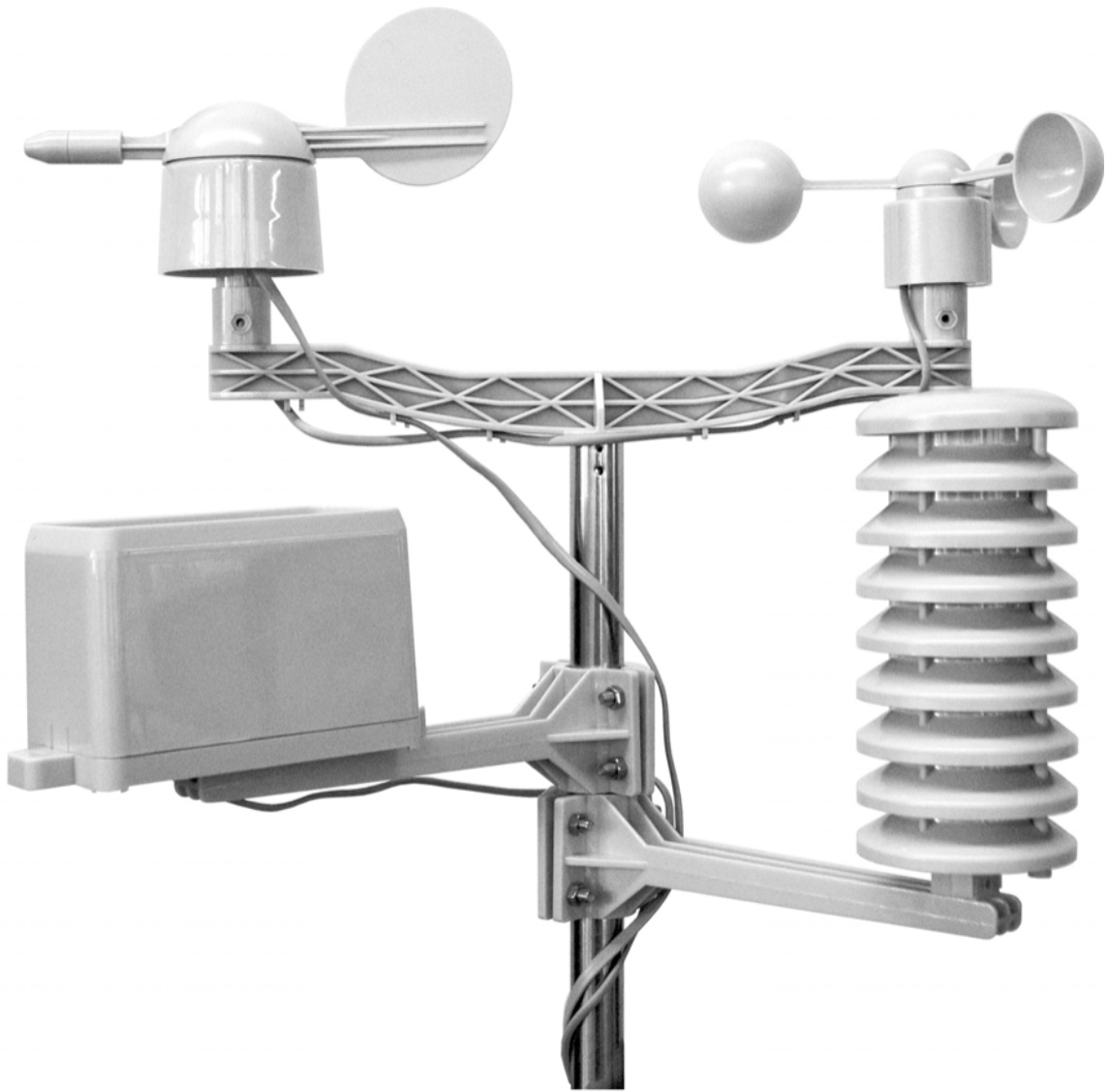# Urban Green Energy

1st step

Wireless
WEATHER STATION

Operation Manual

ABOUT THIS MANUAL

Thank you for purchasing the Urban Green Energy weather station!

1st Step offers:
- Information which can be used to determine if a wind turbine is a viable energy source for your home
- Accurate weather readings
- Readouts of all measured weather data
- Full rebate toward the purchase of your UGE turbine

This manual will aid your installation of 1st Step. We recommend familiarizing yourself with your device by reviewing this manual and saving it for future reference.

Sincerely,
The Urban Green Energy Team

Table of Contents

Glossary of Common Terms

LCD
LCD (Liquid Crystal Display) is a commonly used digital display screen in televisions, computers, watches, and digital clocks.

BAROMETER
A barometer measures atmospheric pressure.

ABSOLUTE AIR PRESSURE
Absolute air pressure is a measurement of local air pressure and can be found using a barometer.

RELATIVE AIR PRESSURE
Relative air pressure is a corrected measurement, which can be found using a combination of absolute air pressure and altitude.

INCHES OF MERCURY (inHg)
Inches of Mercury are the common American units of measurement for air pressure.

HECTOPASCALS (hPa)
Hectopascals are the common Metric units of measurement for air pressure.
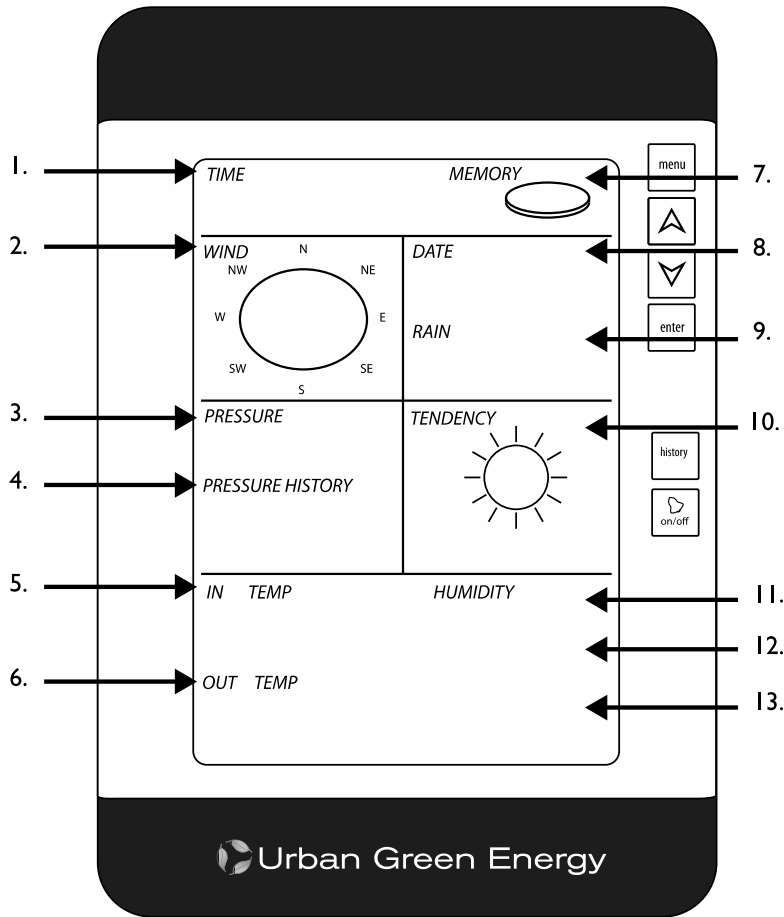

Note:
Before inserting batteries, please **read the operation manual carefully**.

This professional weather station includes:
- One base station (receiver)
- One transmitter unit
- One wind direction sensor
- One wind speed sensor
- One rain gauge
- Mounting hardware
- One USB cable
- A full, 100% rebate toward the purchase of your wind turbine

LCD DISPLAY

1. Time
2. Wind Direction
3. Barometric Pressure
4. Barometric Trend
5. Indoor Temperature
6. Outdoor Temperature
7. Memory
8. Date
9. Rainfall
10. Weather Forecast
11. Indoor Humidity
12. Outdoor Reception Signal
13. Outdoor Humidity

Note: The "Alarm-On icon" in the section indicates that the particular alarm has been enabled.

SET UP GUIDE

Please test all components of the 1st Step before installing the parts in their final positions.

SETTING UP THE BASE STATION AND TRANSMITTER

Slide off the battery cover on the front of the transmitter and insert **two AA size batteries** following the polarity diagrams on the inside of the battery case. The transmitter will initialize for four seconds, after which it will function normally. The LED in the middle of the sensor will flash in 20ms intervals while data is being transmitted.

Install two AA size batteries into the base station. All LCD segments will turn on for a few seconds. The 1st Step will make initial measurements and start to register the transmitter. **DO NOT** press any key before outdoor sensor data is received, otherwise the outdoor sensor-learning mode will be terminated.

When the outdoor transmitter has been registered, the base station will automatically switch to the normal display mode and the user can customize settings according to their preference.

REGISTER TRANSMITTER

If:
- no outdoor weather data is displayed, or
- the signal to the sensors is lost during setting up, mounting, changing of batteries to the sensor or plugging or unplugging cables.

simply press and hold the UP/+ key for 20 seconds and a short beep will sound to synchronize the base stations to the sensors.

Weather data will **not** be received without synchronization.

Note: The radio connection can reach a distance of up to 330 feet between the receiver and the transmitter provided there are no obstacles (buildings, trees, vehicles, high voltage lines, etc.)
Radio interferences such as PC screens, radios or TV sets can cut off radio communication. Please take this into consideration when choosing standing or mounting locations.

MOUNTING THE SENSOR

WEATHER STATION PARTS

❶ Mounting Pole

❷ Connecting Arm Bracket

❸ Connecting Arm

❹ Connecting Arm Bracket

❺ Connecting Arm

❻ Thermo-hygro Sensor

❼ Thermo-hygro Sensor Cover

❽ Rain Sensor

❾ Upper Connecting Arm

❿ Wind Direction Sensor

⓫ Wind Speed Sensor

Important:
On the side of the wind direction sensor, there are four directions indicated: "N", "E", "S", and "W"

1. In order to avoid wind direction error, **the wind sensor must be adjusted to match the letters with their indicated directions.**

2. The wind **speed** sensor wire must be inserted into the phone jack on wind direction sensor.

3. The wind **direction** sensor wire must be inserted into the phone jack located on the thermo-hygro sensor (transmitter) marked "Wind."

4. The **rain** sensor wire must be inserted into the phone jack located on the thermo-hygro sensor (transmitter) marked "Rain."
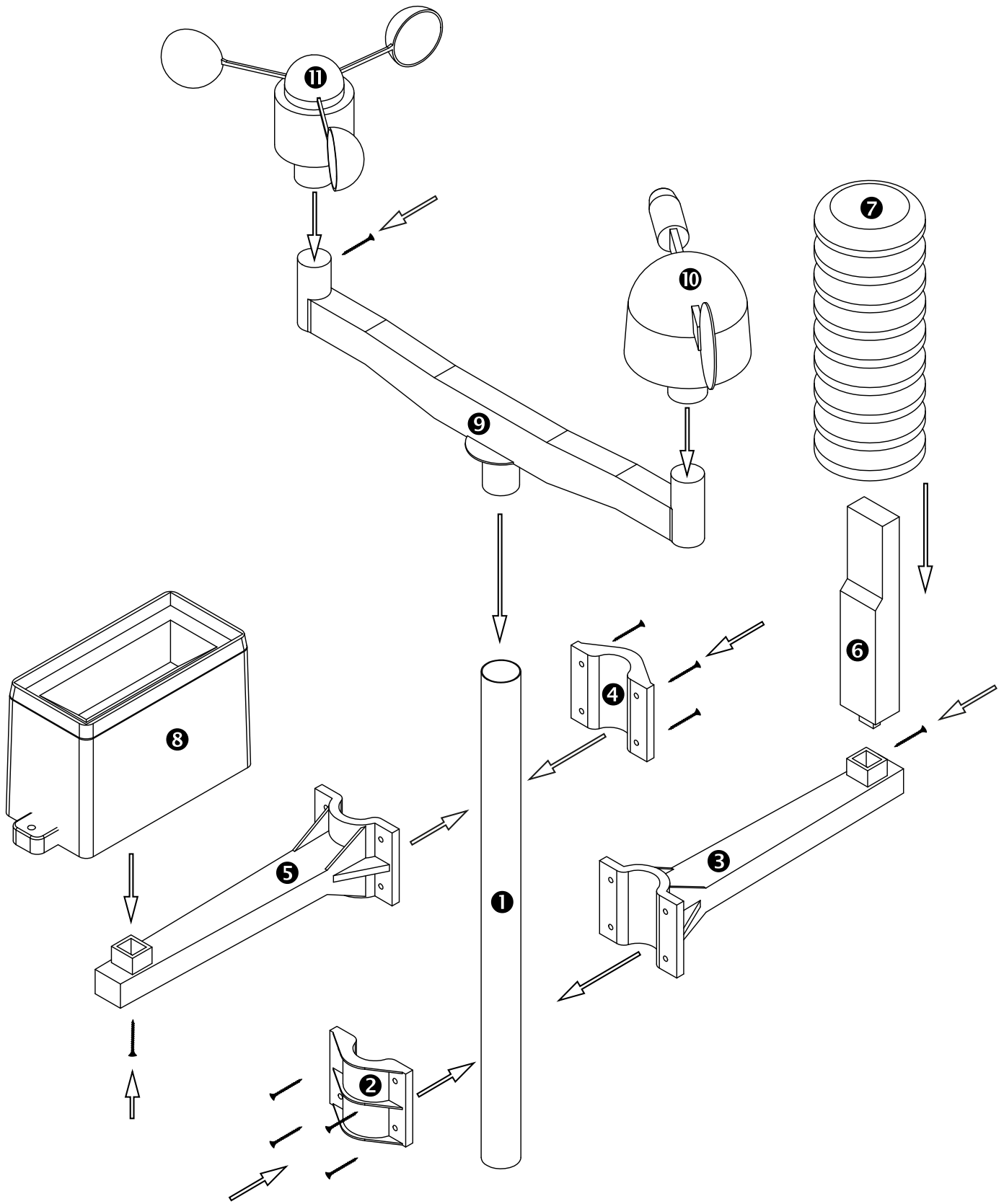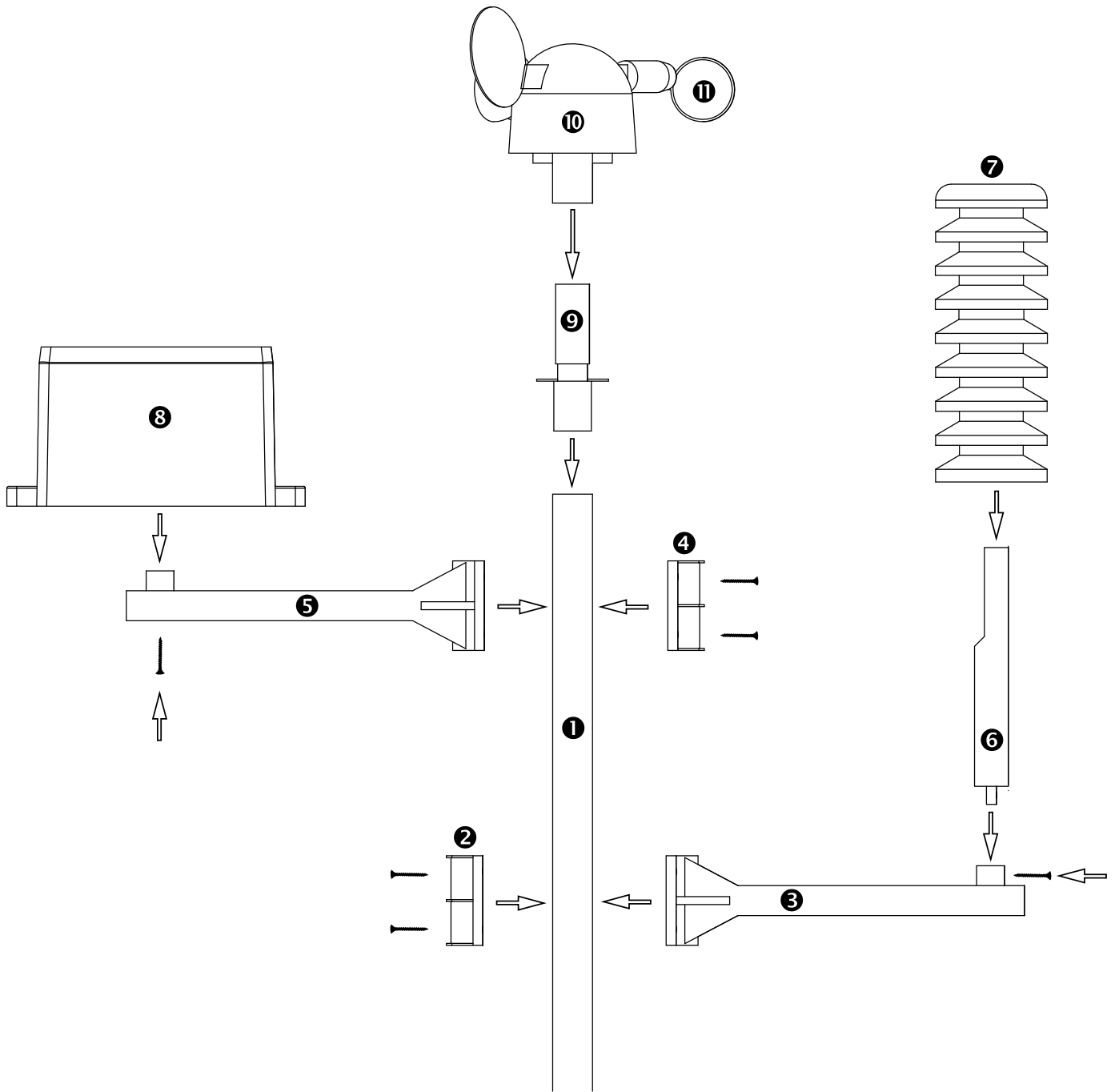
POSITIONING

When used for turbine siting, the anemometer should be placed in the windiest location possible – the higher, the better. The path of the wind should be unobstructed by barriers like buildings and trees. Vertical Axis Wind Turbines are designed to capture wind from all directions, so high open spaces are the best locations for your 1st step

Before mounting the station, verify that the components are working properly by locating each output on the monitor for wind speed, wind direction, rainfall, outside temperature and pressure.

Once verified, place the anemometer in the desired outdoor location. For example, moving mounting locations can usually solve problems with the 433 MHz radio transmitter.

PROGRAM MODE

The base station has six keys for easy operation: **MENU**, **UP/+**, **DOWN/-** , **ENTER**, **HISTORY**, and **ON/OFF**

Note:
- The following steps may not be necessary, with the exception of relative pressure (see below), if the manufacturer default settings conform to your location and preferences.
- Holding the **UP/+** or **DOWN/-** key down while adjusting settings will increase/decrease digits in greater increments.
- Additionally, the setting procedure can be exited at any time by either pressing the **HISTORY** key or waiting for the 30-second time-out to take effect.

The basic setting can be adjusted as follows:

TIME and CONTRAST

- Press the **MENU** key to select TIME, after which the TIME section digits will start flashing with the current LCD contrast setting. Press the **UP/+** or **DOWN/-** key to set the LCD contrast value (level 1-8, default level 5).

- Press the **ENTER** key to cycle through the following modes:
∞   Time zone settings:
   Europe 0 for GMT+1 time zone, 1 for GMT+2 time zone, -1 for GMT time zone.
   North America -4 for Atlantic time zone, -5 for Eastern Time zone, -6 for Central Time Zone, -7 for Mountain Time zone, -8 for Pacific time zone, -9 for Alaska time zone, -10 for Hawaii time zone.
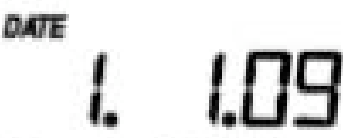∞   12/24h time display select (default 12 hours)
∞   Manual time setting (hours/minutes)
Press the **UP/+** or **DOWN/-** key to navigate to different modes

DATE

- Press the **MENU** key twice to select the DATE section. Digits will start flashing.
Enter DD-MM-YY/DD-MM-WEEK/Time alarm display mode. (Default DD-MM-YY format), press the **UP/+** or **DOWN/-** key to navigate to different modes
- Press the **ENTER** key to select from the following modes, press the **UP/+** or

DOWN/- key to set the value:

∞   Select DD-MM or MM-DD format. (Default DD-MM format)

∞   Calendar setting (year/month/date)

∞   Time alarm setting. (Hours/minutes). Press the **ON/OFF** key to on/off the alarm. If the alarm is enabled, an alarm symbol appears in the display indicating the alarm function has been enabled.

Note: When a weather alarm is triggered, that particular alarm will sound for 120 seconds. The corresponding value, "HI AL" or "LO AL" and the alarm symbol will flash until the weather condition no longer meets the set level. Press any key to mute the alarm.

WIND
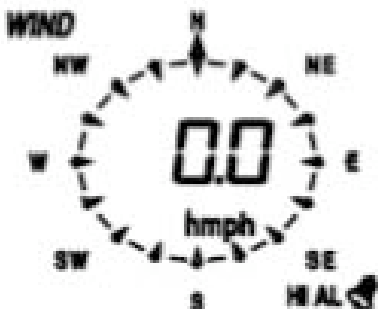
- Press the **MENU** key three times to select the WIND option, WIND section digits will start flashing. Enter average wind speed / Gust display mode. (Default average wind speed), press the **UP/+** or **DOWN/-** key to select a mode.

- Press **ENTER** key to select from the following modes, then press the **UP/+** or **DOWN/-** key to select the display or set the value:

∞   Select the wind speed unit: km/h, mph, m/s, knots, bft. (Default mph)

∞   The wind speed high alarm setting.

∞   The wind direction alarm setting.

∞   Reset the maximum wind speed value. When both the wind speed value and MAX icon are flashing, hold the **ENTER** key for 3 seconds, the maximum value will be reset to current reading.

∞

Note: Press the **ON/OFF** key to turn on/off the alarm. If alarm is enabled, an alarm symbol will appear on the display.

RAIN

- Press the **MENU** key four times to select the RAIN section, and the RAIN display digits will start flashing. Enter rain display mode (1h, 24h, week, month and total rain. Default 1h), press the **UP/+** or **DOWN/-** key to select the display.

- Press **ENTER** key to select from the following modes, then press the **UP/+** or **DOWN/-** key to select the display or set the value:

∞   Select rain fall units: mm, inch. (Default mm)

∞   The rain high alarm setting. Press the **ON/OFF** key to turn the alarm on/off. If alarm is

enabled, an alarm symbol appears in the display

∞   Reset the maximum rainfall value. When both the rain value and MAX icon are flashing, hold the **ENTER** key for 3 seconds, the maximum rain value will be reset to current reading.

∞   To clear the total rainfall, get to the display flashing both the total rain value and CLEAR, hold the **ENTER** key for 3 seconds, and the total value will reset to zero. Other durations, e.g.1h, 24h, weeks or month will be reset to zero automatically.

PRESSURE

- Press the **MENU** key five times to select PRESSURE. Digits will start flashing. Enter the pressure display mode, and press the **UP/+** or **DOWN/-** key to select the display. (Default is absolute pressure),

- Press **ENTER** to select from the following modes, then press the **UP/+** or **DOWN/-** key to select the display or set the value:

∞   Select pressure unit: hPa, mmHg, inHg. (Default hPa).

∞   The relative pressure setting. (If one has selected the absolute pressure display, skip this step)

∞   The pressure high alarm setting. Press the **ON/OFF** key to turn the alarm on/off. If alarm is enabled, an alarm symbol appears in the display

∞   The pressure low alarm setting. Press the **ON/**OFF key to turn the alarm on/off. If alarm is enabled, an alarm symbol appears in the display

∞   Reset the maximum pressure value. When both the pressure value and MAX icon are flashing, hold the **ENTER** key for 3 seconds, the maximum pressure value will be reset to current reading.

∞   Reset the minimum pressure value. When both the pressure value and MIN icon are flashing, hold the **ENTER** key for 3 seconds, the minimum pressure value will be reset to current reading.

Pressure history bar graph

Press the **MENU** key the sixth time to select PRESS HISTORY, and PRESSURE HISTORY digits will start to flash. Press the **UP/+** or **DOWN/-** key to select the bar graph time scale between 12hrs and 24 hrs for pressure history.

WEATHER FORECAST TENDENCY

- Press the **MENU** key seven times to select TENDENCY, and TENDENCY digits will start flashing. Enter the weather forecast tendency display mode press the **UP/+** or **DOWN/-** key to selectthe display. (SUNNY, PARTLY CLOUDY and CLOUDY, RAINY/SNOW),

- Press **ENTER** key to select from the following modes, then press the **UP/+** or **DOWN/-** key to select the display or set the value:

∞   · Set the pressure threshold from 2-4hPa (default 2hPa)
∞   · Set the storm threshold from 3-9hPa (default 4hPa)

Notes on pressure sensitivity setting for weather forecasting:

The pressure threshold can be custom set by the user for weather forecasting between 2-4 hPa (default 2 hPa). For areas that experience frequent changes in air pressure, a higher hPa setting is required than in an area where the air pressure is constant. For example, if 4 hPa is selected, then there must be a rise or fall in air pressure of at least 4hPa to change the weather forecast icons.

Notes on storm threshold setting:

The storm threshold (when the weather icons rain and clouds begin to flash) indicates a dramatic change in pressure and thus the presence of a storm. Much like the general pressure sensitivity setting, one can adjust the storm threshold sensitivity between 3-9 hPa (default 4hPa). If there is a drop exceeding the pressure threshold within 3 hours the storm warning feature and the storm icon (clouds with rain icon and tendency arrows will flash) will be activated.

INDOOR TEMPERATURE

- Press the **MENU** key eight times to select the INDOOR TEMPERATURE section and the INDOOR TEMPERATURE digits will start to flash. Enter the temperature unit mode, press the **UP/+** or **DOWN/-** key to select °C and °F temperature scales.

- Press **ENTER** key to cycle through the following modes:

∞   The indoor temperature high alarm setting. Press the **ON/OFF** key to turn on/off the alarm. If alarm is enabled, an alarm symbol appears in the display

∞ The indoor temperature low alarm setting. Press the **ON/OFF** key to turn on/off the alarm. If alarm is enabled, an alarm symbol appears in the display

∞ Reset the maximum indoor temperature value. When both the indoor temperature value and MAX icon are flashing, hold the **ENTER** key for 3 seconds and the maximum indoor temperature value will be reset to current reading.

∞ Reset the minimum indoor temperature value. When both the indoor temperature value and MIN icon are flashing, hold the **ENTER** key for 3 seconds and the minimum indoor temperature value will be reset to current reading.

INDOOR HUMIDITY

- Press the **MENU** key nine times to select the INDOOR HUMIDITY section, and the INDOOR HUMIDITY digits will begin to flash. Enter the indoor humidity high alarm-setting mode, and press the **ON/OFF** key to on/off the alarm. If alarm is enabled, an alarm symbol appears in the display.

Press **ENTER** key to cycle through the following modes:

- The indoor humidity low alarm setting. Press the **ON/OFF** key to on/off the alarm. If alarm is enabled, an alarm symbol appears in the display

- Reset the maximum indoor humidity value. When both the indoor humidity value and MAX icon are flashing, hold the **ENTER** key for 3 seconds and the maximum indoor humidity value will be reset to current reading.

- Reset the minimum indoor humidity value. When both the indoor humidity value and MIN icon are flashing, hold the **ENTER** key for 3 seconds and the minimum indoor humidity value will be reset to current reading.

OUTDOOR TEMPERATURE

- Press the **MENU** key ten times to select the OUTDOOR TEMPERATURE section, and OUTDOOR TEMPERATURE digits will start flashing. Enter the outdoor temperature display mode; press the **UP/+** or **DOWN/-** key to select the outdoor temperature display (Outdoor Temperature, Wind Chill and Dew Point.)

Press **ENTER** key to cycle through the following modes:

- Temperature unit display. Press the **UP/+** or **DOWN**/- key to select the temperature unit, either°**C** and °**F**

- The outdoor temperature high alarm setting. Press the **ON/OFF** key to turn on/off the alarm. If alarm is enabled, an alarm symbol appears in the display

- The outdoor temperature low alarm setting. Press the **ON/OFF** key to turn on/off the alarm. If alarm is enabled, an alarm symbol appears in the display

- Reset the maximum outdoor temperature value. When both the outdoor temperature value and MAX icon are flashing, hold the **ENTER** key for 3 seconds, and the maximum outdoor temperature value will be reset to the current reading.
- Reset the minimum outdoor temperature value. When both the outdoor temperature value and MIN icon are flashing, hold the **ENTER** key for 3 seconds, the minimum outdoor temperature value will be reset to the current reading.

OUTDOOR HUMIDITY

- Press the **MENU** key eleven times to select the OUTDOOR HUMIDITY section - see Indoor Humidity procedures and settings on previous page.

MEMORY MODES

1) Press the HISTORY key to activate history data toggle display, Press **DOWN/-** key to scroll forward to see earlier weather history data. Press **UP/+** key to see later history weather data. When history data is displayed, the corresponding time will be displayed in the time section area (History data saving intervals can only be changed using the PC software that can be downloaded from the Urban Green Energy website. The default history data saving time interval is pre-set to 30 minutes).

2) Pressing the HISTORY key again will trigger "CLEAR" and the full memory usage icon to flash. Holding the ENTER key for 3 seconds will clear the memory.

RESET TO FACTORY DEFAULT SETTINGS

While in normal display, press and hold the **UP/+** key for 20 seconds to reset all settings to the default settings.

PC CONNECTION

The 1st Step creates a PC read-out of all measured and displayed time and weather data.

DATA STORAGE

For a comprehensive weather history, the base station allows the internal storage of up to 4080 complete sets of weather data. **The base station will lose all stored information if the power supply is interrupted.** In case the memory capacity of the 1st Step is full, new data sets will overwrite the oldest information.

DATA RECALL

Certain weather data can only be read out, processed and displayed by means of a PC. Additionally, setting storing intervals between 5 - 240 minutes is possible.

CONNECTIONS AND SOFTWARE

The 1st Step base station and PC are connected via the USB cable. The EasyWeather software package must be installed on the PC. This software allows the display of all present weather data with graphic symbols. It also allows the display, storage and printing of historic data sets.

Note: When there is large amount of data being uploaded, it will take a few minutes before the system can respond to the setup settings. Otherwise it will display the "read weather data fail" error message as the USB port is reading the data from the memory and the system is not able to respond to any further job tasks.

When the memory is full, it will take approximately two minutes to upload all of the data into the PC. Further details for the PC software can be found in the help menu.

EASYWEATHER PC SOFTWARE INSTALLATION GUIDE

SYSTEM REQUIREMENTS

To install the "EasyWeather" software onto your PC, the minimum requirements are as follows:

Operating System: Windows NT4 (Service Pack >= 6a), Windows 2000, Windows XP, Windows Vista, Windows 7.
Internet Explorer 6.0 or above with Internet access.
Processor: Pentium III 500 MHz or above.
Memory: at least 128MB, 256MB recommended.
Base station and PC must be connected by USB cable.

INSTALLATION OF THE EASYWEATHER SOFTWARE

First, the base station and the outdoor sensors should be connected and checked. (Please reference the operation manual for setting up the weather station). After a successful check, install the EasyWeather software by following these instructions:

1. Turn on your PC and direct your Internet browser to
    http://www.UrbanGreenEnergy.com/products/uge-first-step/register
    Follow the onscreen instructions to submit your product registration.
2. You will receive a link to the software download page via e-mail. Choose from the links to download the correct software for your system as well as the digital PDF version of this manual.
3. When the download is complete, right click on the icon of1st_Step_Setup.exe and select "Run as Administrator."
4. Select the installation process language option and click "Next".
5. Click next and select the destination folder (change directory when needed).
6. Click next and the software will be installed automatically.
7. Press OK to finish the installation process.
8. From —Start—All Programs—EasyWeather path and double click the —EasyWeather icon to start the Application.

Note: The graphic function needs the software to be installed under the administrator account. If it is installed under limited user accounts, the graphic function of the software may not function correctly.

BASIC SETTINGS OF THE EASYWEATHER SOFTWARE ——

After the EasyWeather.exe program has been started, the following main window will appear on the PC screen:
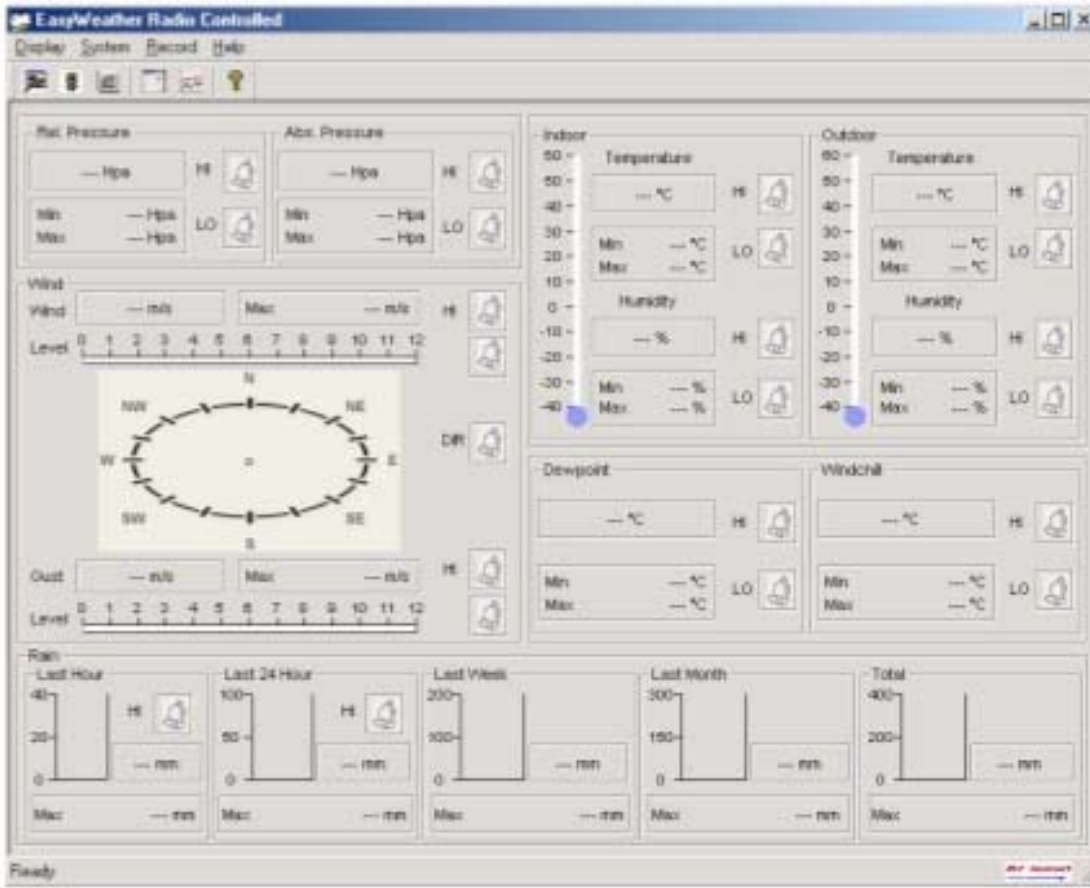
All the settings from the base unit will be reflected into the PC software. Once the base unit is programmed there will be no need to make changes on the PC software.

However, the user can still easily make any setting changes from the PC and download the changes into the base station (the setting change will be reflected on the base station in less than a minute).

When base unit is connected to PC, the icon of ⬛ will be displayed. If no base station is connected, then ⬛ will be displayed.

: Display and setup system configuration

This section is used to set up:

∞PC software display
∞Base station units
∞Enable or disable the corresponding alarm function.

Once you have updated the options, click Save to apply the settings. If you choose not to apply the changes, click Cancel.

: Display and setup system alarm value

This section is used to set:
    ∞The desired time
    ∞The high/low alarm for the base unit

Once you have updated the options, click Save to apply the settings. If you choose not to apply the changes, click Cancel.

: Display min and max recorded value

This section is used to display the recorded minimum and maximum values with their respective time stamps.

Min/Max reset can only be done through key operation on the base station.

: display listed history data

This section is used to display recorded history data in a spreadsheet.

If you want to see all historical data for a desired time period, choose the time duration and press Search to reload the spreadsheet.

Using the Export button, you can output the selected history data into *.txt or *.xls format.

When the memory of the base station is full, new data will automatically overwrite the older data. To create a new weather record, press Clear Memory to refresh the memory space on the base station (remember to upload all data before pressing this button).

Note: Pressing Clear Memory will delete all historic weather data. If you would like to keep a back up history file before deleting all weather data, you can make a copy of the "EasyWeather.dat" file into a different folder or rename the file, ex. "Jan-07.dat" for future reference.
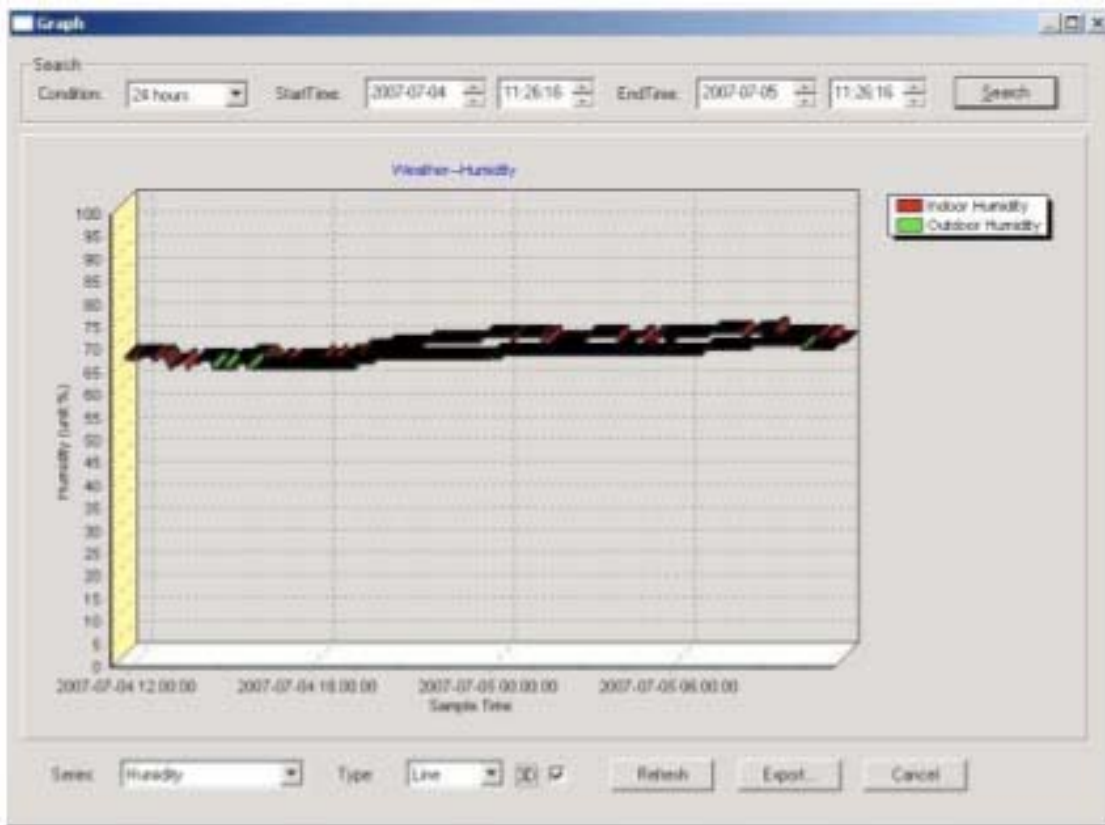
display history data in graph mode
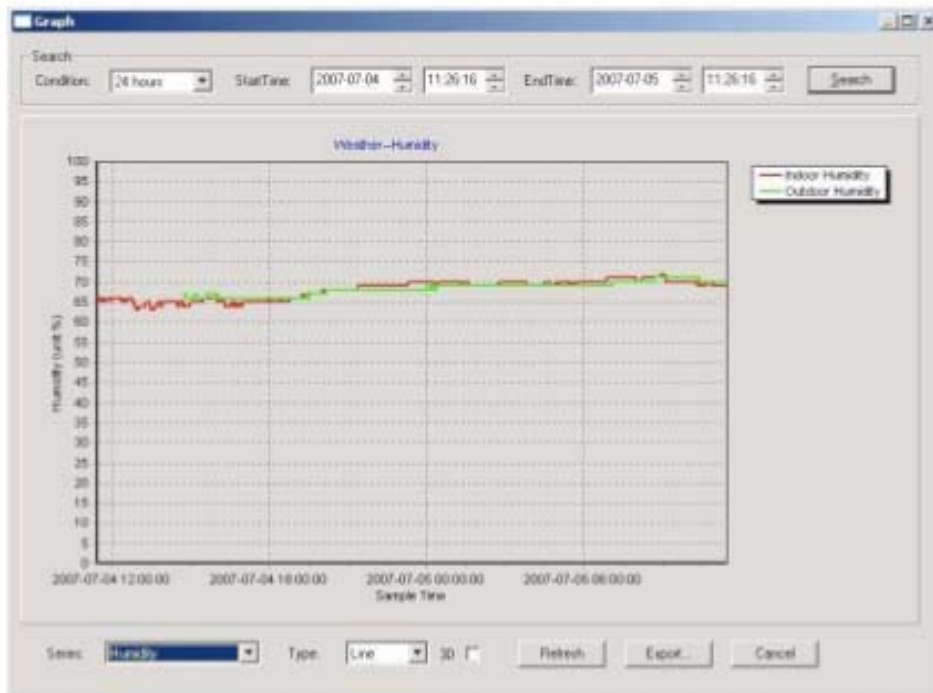
To adjust zoom on the graph, left click and drag to select the desired area to view. The display can be moved by clicking and holding the right mouse button. To reset the zoom, click the Refresh button.

Select the 3D checkbox to view the graph in 3D mode.

TROUBLESHOOTING

What to do if graph function is not working:

This is the most encountered problem with this software. To troubleshoot, check the following settings:
1. Open the folder containing the EasyWeather.exe file
2. Create a file name reg_graph.bat file with WordPad or notepad editor program
3. Type "regsvr32 easyweather.ocx" and save the reg_graph.bat file
4. Double click "reg_graph.bat" file which it should register the graphic driver again. If successful, then the following window will be displayed:
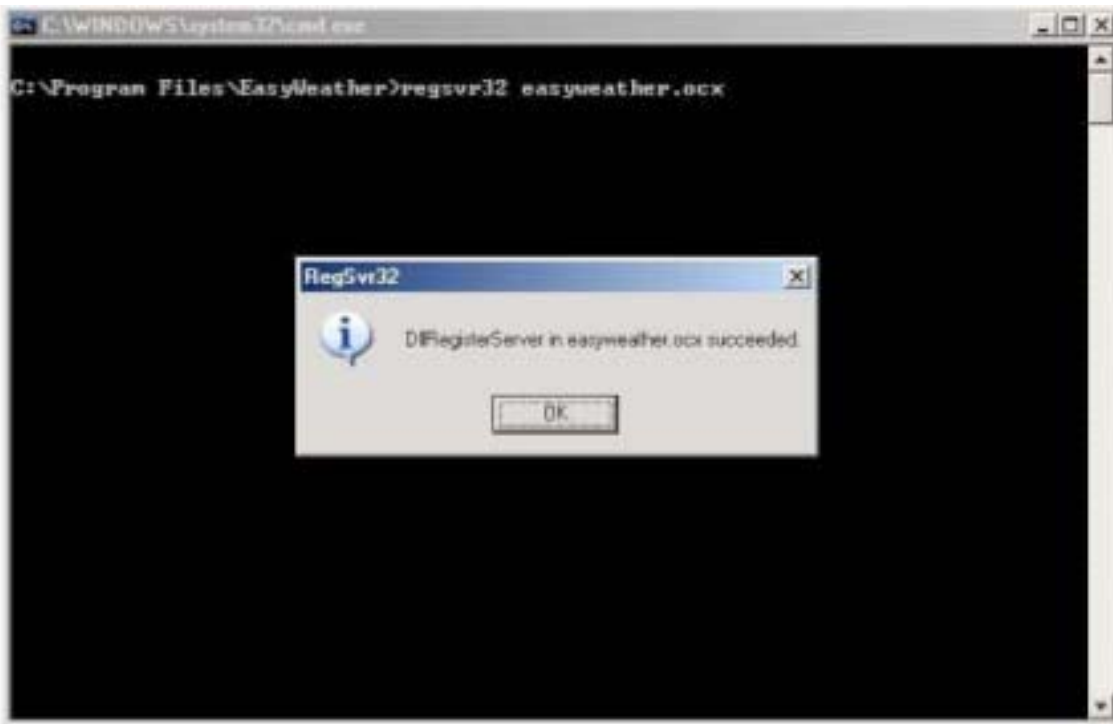
Special Notes about time synchronization between PC and base station:
The EasyWeather software defines the data time scale based on the set time interval between readings. This means an actual time stamp is not assigned to each reading in the memory, rather when the data is downloaded from the base station, the reading times are calculated based on the PC clock. To make the time scale accurate, the base station and PC clock should be synchronized before any data is recorded.

Data should be uploaded to your PC before the memory chart shows 100%

If the rainfall is allowed to reset (exceeding its maximum value), there will be a value discrepancy between the PC and base station.

GO GREEN

You are taking your 1st Step toward energy independence.

With the information gathered by your 1st Step, you can determine if installing a wind turbine is right for you. After collecting sufficient data (three months will provide a good baseline) contact your authorized Urban Green Energy distributor to help you understand your renewable wind-power potential and how you can capture the energy in your wind!

By registering your first step when you download the software, you are instantly eligible to receive a 100% rebate toward the purchase of your first turbine!

Visit **www.UrbanGreenEnergy/distributor** to find the distributor near you.

SPECIFICATIONS

Outdoor data

Transmission distance in open field ———————— 100m(300 feet)
Frequency ————————————————— 433MHz
Temperature range ———————————— -40°C--65°C (-40°F to +149°F)
Accuracy ——————————————— + / - 1 °C
Resolution ——————————————— 0.1°C
Measuring range rel. humidity ———————— 10%~99%
Accuracy ——————————————— +/- 5%
Rain volume display —————————— 0 – 9999mm (show --- if outside range)
Accuracy ——————————————— + / - 10%
Resolution ——————————————— 0.3mm (if rain volume < 1000mm)
1mm (if rain volume > 1000mm)
Wind speed —————————————— 0-160km/h (0~100mph) (show --- if outside range)
Accuracy ——————————————— +/- 1m/s (wind speed< 10m/s), +/-10% (wind speed > 10m/s)
Measuring interval thermo-hygro sensor ————— 48 sec
Water proof level ————————————— IPX3

Indoor data

Measuring interval pressure / temperature ———— 48 sec
Indoor temperature range —————————— 0°C--50°C (32°F to + 122°F) (show --- if outside range)
Resolution ——————————————— 0.1°C
Measuring range rel. humidity ———————— 10%~99%
Resolution ——————————————— 1%
Measuring range air pressure ——————— 300-1100hPa (8.85-32.5inHg)
Accuracy ——————————————— +/-3hpa under 700-1100hPa
Resolution ——————————————— 0.1hPa (0.01inHg)
Alarm duration —————————————— 120 sec

Power consumption

Base station —————————————— (x2)AA 1.5V LR6 Alkaline batteries
Remote sensor —————————————— (x2)AA 1.5V LR6 Alkaline batteries
Battery life ——————————————— Minimum 12 months for base station, Minimum 24 months for thermo-hygro sensor (transmitter)

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Note:
Standard alkaline batteries should not be used when outdoor temperature are below -20 °C as the battery's discharging capability is greatly reduced. Use the proper batteries when the outdoor temperature is lower than -20°C in order to ensure sufficient power for the device to function properly.

Please help in the preservation of the environment and return used batteries to an authorized depot.

LEGAL NOTES

• We reserve the right to delete or change any image whether or not purposely uploaded onto the server by a user of the EasyWeather software products.

• The EasyWeather software products are protected by copyright laws and international copyright treaties as well as other intellectual property laws and treaties.

• The printed materials accompanying the products may not be copied.