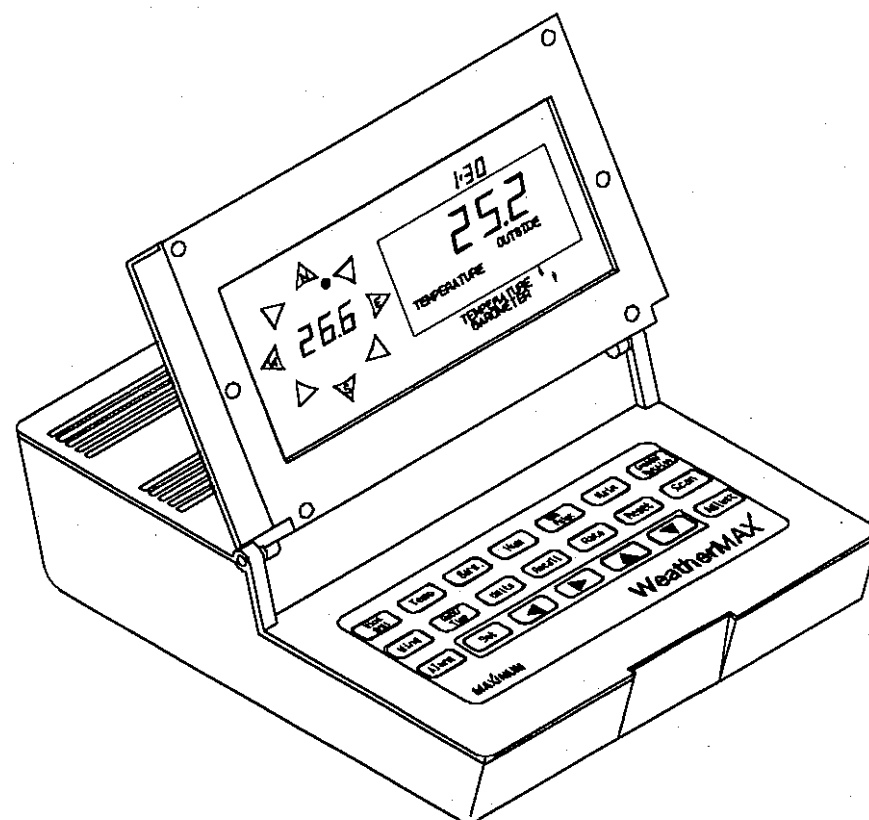


MAXIMUM

WeatherMAX™



MAXIMUM®

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Operation Manual

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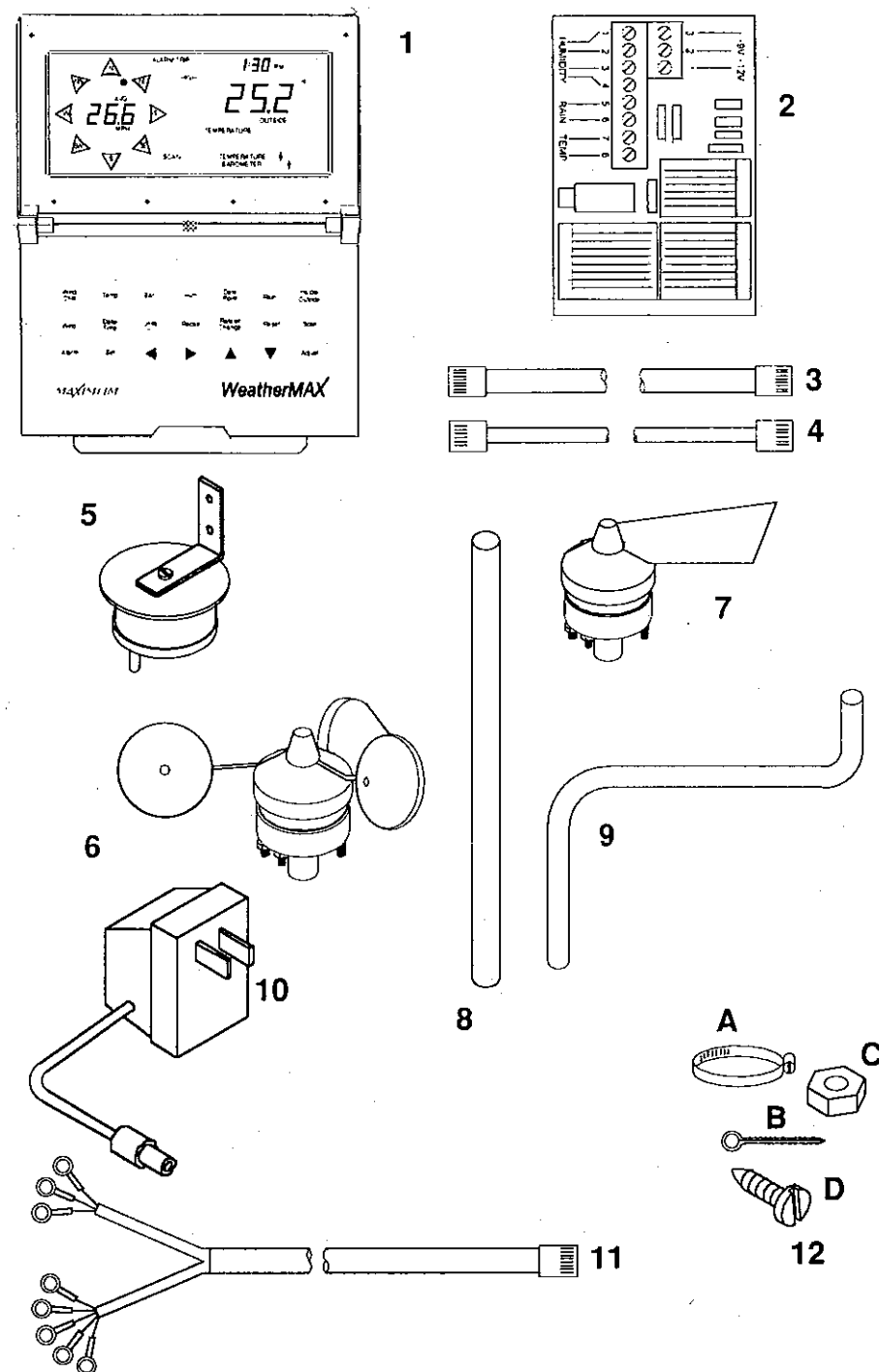
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1. INTRODUCTION & INSTALLATION

This manual is designed to lead you step by step through the procedures required to test, install and use your WeatherMAX. By following these procedures and setting up the system correctly in the beginning, you will soon be able to enjoy all the features of your WeatherMAX for years to come. We strongly suggest that you trial wire WeatherMAX on your workbench prior to final installation. When trial wiring please make sure that the last step you perform is to plug the AC power adaptor in.

SYSTEM COMPONENTS:

- 1 WeatherMAX computer with LCD display and keypad
2. Cable junction box.
3. Junction box cable with plug on each end 12' long (8 pin plug)
4. Junction box cable with plug on each end 12' long (6 pin plug)
5. Outdoor temperature sensor with 60' of cable
6. Wind speed generator (3-cup anemometer)
7. Wind direction sensor (distributor with vane)
8. Anodized straight mast (for generator)
9. Anodized formed mast (lazy Z shape for distributor)
10. AC power adaptor
11. 60' cable with plug one end, lugs on roof end for wind sensors.
12. Installation hardware kit
 - A. 2 Stainless steel hose clamps (for clamping WeatherMAX mounting masts to any mast from 1" - 2 1/2" diameter. If you choose a base mast that does not fall into this range you will be able to buy the appropriate clamps at your local hardware store.
 - B. Two Stainless steel cotterpins
 - C. Ten 4-40 brass hex nuts (there are 2 extra)
 - D. Two #6 panhead 1" long wood screws



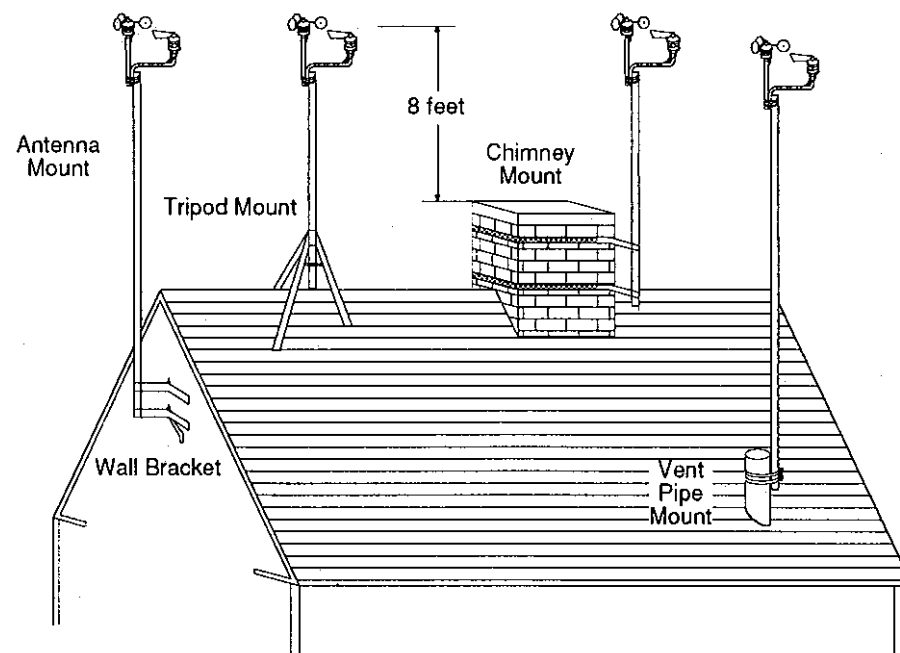
OPTIONAL ACCESSORIES:

1. Rain collector – required for measuring rainfall. The self emptying collector comes with 60' of cable and, measures in .01" increments. When it is installed it requires only a connection to your existing junction box no further connection is required to the WeatherMAX computer.
2. Outdoor humidity sensor – required for measuring outdoor humidity and outdoor dew point. When it is installed it requires only a connection to your existing junction box. No further connection is required to the WeatherMAX computer.
3. 12VDC plug – used when there is no 110VAC (household current) available. Usually used in remote locations or boats. Replaces the standard ac power adaptor.
4. Junction box cables – order the 50' junction box cables for greater flexibility in the placement of your WeatherMAX.
5. RS-232 Software Developer's Kit.
6. Weatherlogger – stores WeatherMAX data when your PC is turned off.
7. Weatherview (Windows) and 4th Dimension (Dos) Software packages. Full details in catalog.
8. Inline Surge Protector

INSTALLATION ADVICE:

A good installation is the most important thing you can do to insure proper operation of your WEATHERMAX for many years of reliable service. We strongly recommend reviewing the following suggestions BEFORE you install your WEATHERMAX.

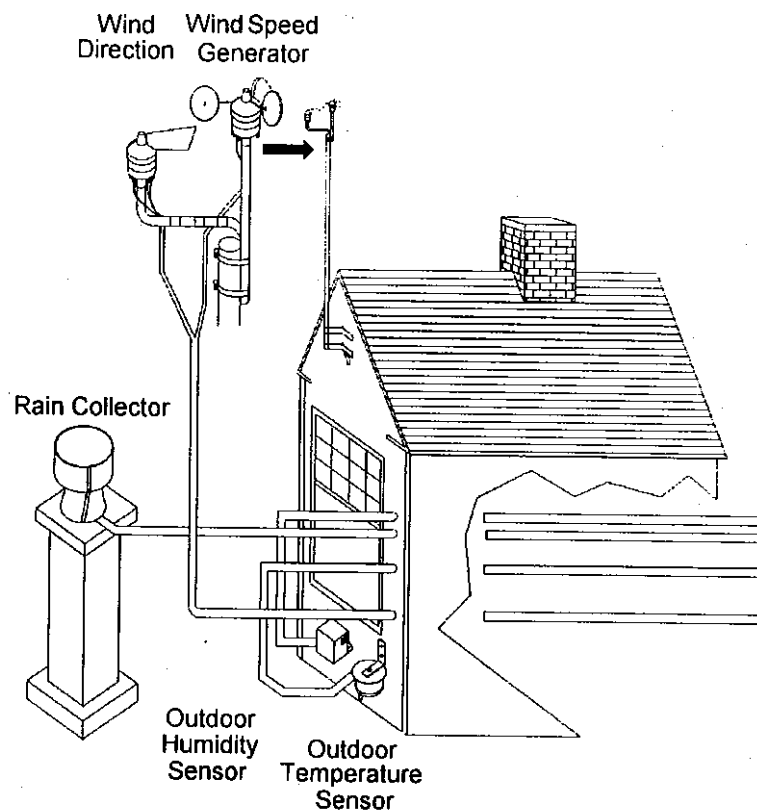
1. Climbing on your roof can be hazardous. If you are uneasy about installing the rooftop sensors, please consult a qualified professional to complete the installation. A TV antenna/ham radio installer would be a good choice. It is always best to show them this manual and get a few quotations before selecting an installer.
2. Decide where you want to place the components, the WEATHERMAX computer, junction box and external sensor. Please pay special attention to the suggestions given in regards to these components.



Roof Mounting Information

- A. Outdoor rooftop sensors – should be mounted on some type of antenna mast at least 8-10' above the highest object on your roof. This is to insure an unobstructed exposure for the wind sensors. Remember your roof is an obstruction and it takes usually at least 8' of height to avoid the turbulence created by your roof. Make sure that the antenna mast or metal pipe is properly grounded. If you are not sure consult a qualified professional.
- B. Outdoor temperature sensor - this sensor should never be more than 5-8' off the ground. It should also ideally be located on the north side of your home. It should also be kept away from sources of heat such as direct sunlight, windows, dryer vents etc.
- C. Optional outdoor humidity sensor - should be mounted in the same location as the outdoor temperature sensor. This is also important for dew point calculations.
- D. Optional rain collector - this is strictly a matter of choice in particular rooftop vs. nearer the ground. However our experience over the years indicates that mounting it on a level fence post or

WeatherMAX System

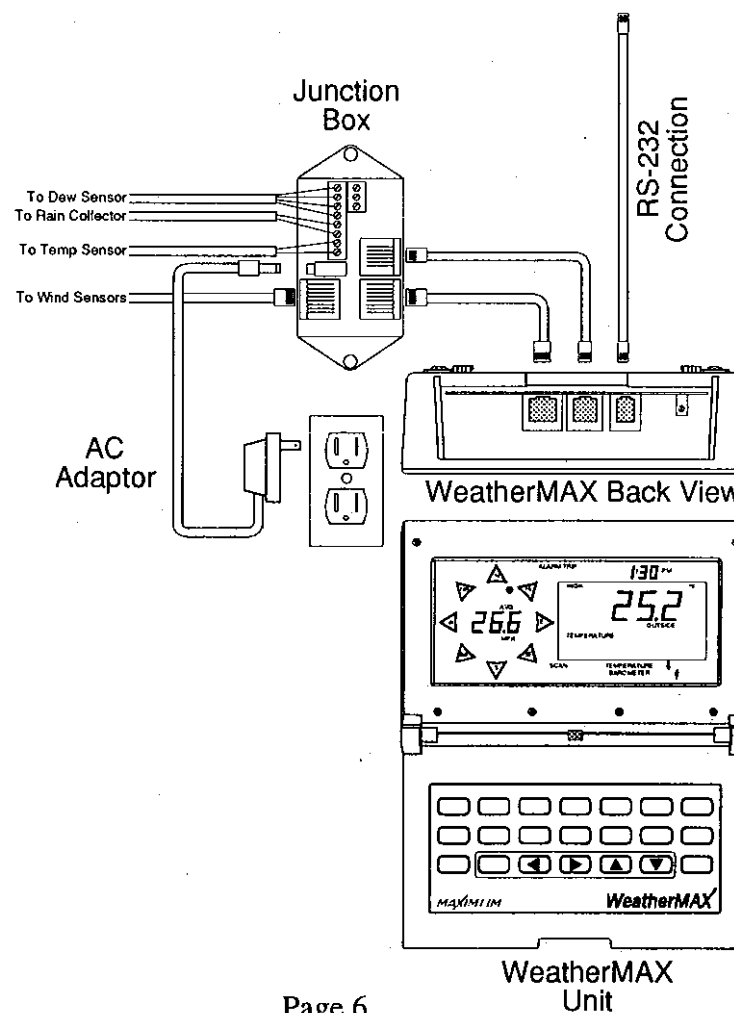


deck as out in the open as possible is much easier than rooftop mounting. It also allows the user to easily remove leaves and other debris that from time to time may end up in the collector.

- E. Junction box location — all the sensors for WeatherMAX connect to the junction box so its placement is important. The standard junction box to WeatherMAX computer cables are 12' long. For greater flexibility in the placement of the box you may purchase 50' junction box cables. Remember when you purchase optional sensors there is no need to add wires from the junction box to the WeatherMAX computer as the two small junction box cables are

already capable of handling these additional sensors. The junction box should be located indoors near an electrical outlet.

- F. AC adaptor — this plugs into the junction box. You should locate the junction box within 6' of an electrical outlet.
- G. Once you are confident that your rooftop sensors are correctly wired and, have verified proper operation, it is recommended that you cover the terminals with a non-conductive silicone caulk.



1. INTRODUCTION & INSTALLATION

Once you have chosen your installation option, as illustrated on the previous pages, we advise that you trial wire WeatherMAX on your workbench before actually installing it. When trial wiring please make sure the LAST step you perform is to plug the ac power adaptor in.

TOOLS AND MATERIALS NEEDED FOR INSTALLATION:

In addition to the parts listed under system components and optional accessories, you will require the following tools and materials. It is best to acquire everything you need before proceeding with your installation:

1. Appropriate mounting hardware for the rooftop mast system you have chosen.
2. Cable clips or weather resistant cable ties with screw holes for securing the cables. Do not at anytime staple your cables.
3. Small and medium sized screwdrivers both flat blade and Phillips.
4. Small adjustable wrench, US socket set or nut driver set.
5. Hand held magnetic compass for wind direction orientation.
6. Electrical tape.
7. Electric drill with drill bits up to 1".
8. Two 9v alkaline batteries for use as the back up power supply.
9. Non-conductive silicone caulk.

INSTALLATION OF YOUR WEATHERMAX:

Make sure you have tested your WeatherMAX before installing it. As mentioned before make careful decisions regarding placement of the components (Junction box, WeatherMAX computer, all external sensors). Pay close attention to previous suggestions and advice given in this manual. The junction box cables (12' long) must be able to reach the WeatherMAX computer. If you wish to place the junction box and the WeatherMAX computer greater than 12' apart you may purchase the optional 50' junction box cables (See Page 3). The junction box must be located within 6' of a standard electrical outlet so that the ac power adaptor can be plugged into the outlet and plugged into the power jack in the junction box. The junction box must be located so that each outdoor sensors' cable (60' long) can reach the junction box.

JUNCTION BOX INSTALLATION PART 1:

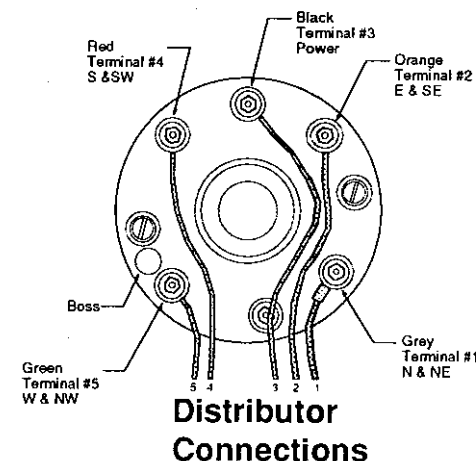
Part 1 - the junction box must be mounted indoors in a location with the previously mentioned considerations in mind. It is best to keep it well above the floor away from moisture, dirt, etc.

- A. Hold the junction box against the mounting surface and mark the hole locations using a pencil or marker.
- B. Using your drill, make some pilot holes for the mounting screws.
- C. Proceed to the next step - rooftop installation. Do not mount the junction box at this time

ROOFTOP WIND SENSORS INSTALLATION:

1. Run the 60' outdoor cable with modular plug between the junction box location and the roof top mast location. The modular plug is on the junction box end and the lugs are on the rooftop end.
2. Outdoors your cable splits near the end into two sections:

- a. The three conductor section is for the wind speed generator.
- b. The five conductor section is for the wind direction distributor. Each sensor has a numbered label on it. Using the hex nuts, securely attach each lug on the correct terminal, use the chart below to match the correct color with the correct number as labeled on the sensor.



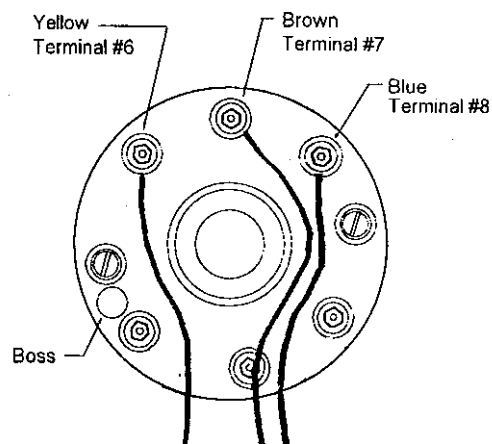
Distributor: 1=Grey, 2=Orange, 3=Black, 4=Red 5=Green

Wind Speed Generator: 6=Yellow, 7=Brown, 8=Blue

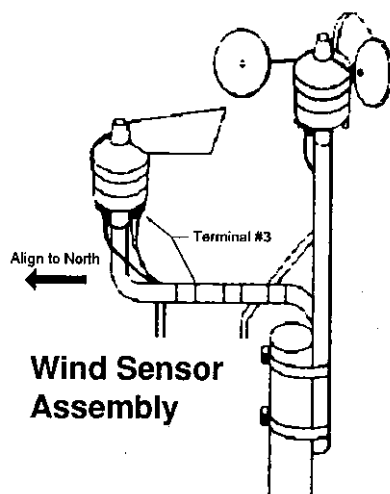
When completed double check your wiring for correct number to color match up, that the nuts are secure, and that no lugs touch one another.

1. INTRODUCTION & INSTALLATION

3. Mount the generator (3-cup) anemometer on the 12" black straight mast using a cotterpin.
4. Mount the distributor (wind direction/vane) on the black formed mast (lazy-z-shape).
 - a. Align the distributor so that the #3 terminal with the black wire lies over the horizontal mast arm (see figure below).
 - b. Install a cotterpin.



Wind Speed Generator

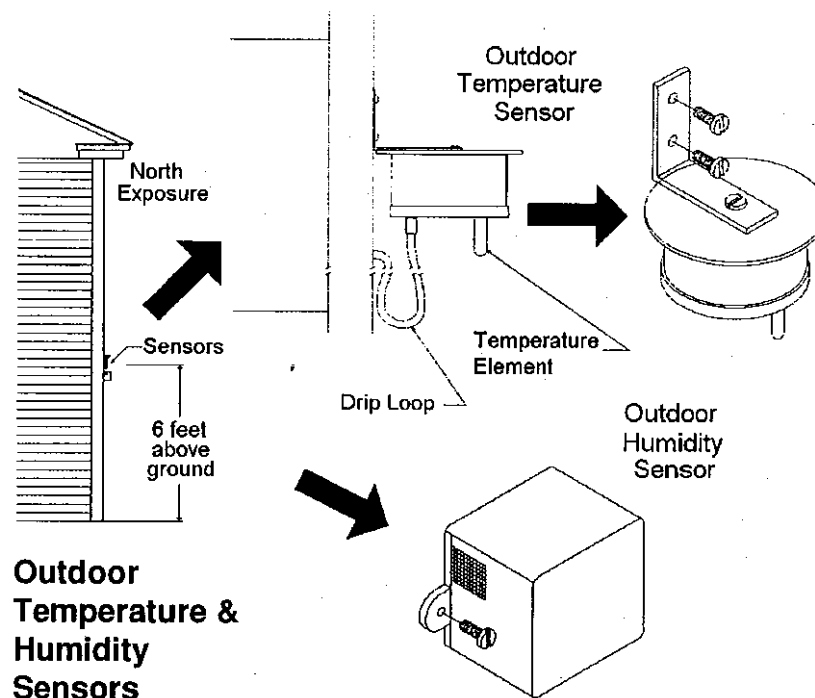


Wind Sensor Assembly

6. Using electrical tape secure the cable to the stub masts and the base mast so it cannot whip in the wind.
 7. Once the cable is secured along the masts, further securing should be done using cable clips or ties. **DO NOT STAPLE THE CABLE.**
 8. Check for overall mast security and that your cable is properly fastened to prevent whipping and chafing.
- Your rooftop installation is now complete.

OUTDOOR TEMPERATURE SENSOR INSTALLATION:

1. Select a location for the temperature sensor that is protected from direct sunlight and clear of potential physical damage. (A North exposure gives best results.) While the sensors are quite rugged, long satisfactory service can be had by using care in selecting its location (6' off the ground is recommended).
2. Mount the temperature sensor assembly with the large wood screws as shown. Form a drip loop with the wire at least 8" below the exit from the sensor and at least 8" below the point of entry in the building as shown. Anchor any cable that is to remain outdoors with cable clips or ties. **DO NOT STAPLE THE CABLE.**
3. Run the remaining wire through the outdoor entry hole indoors to the junction box location. As recommended it is very important to keep the air temperature sensor 5-8' off the ground. Six feet would be ideal.
4. Your air temperature sensor installation is now complete.

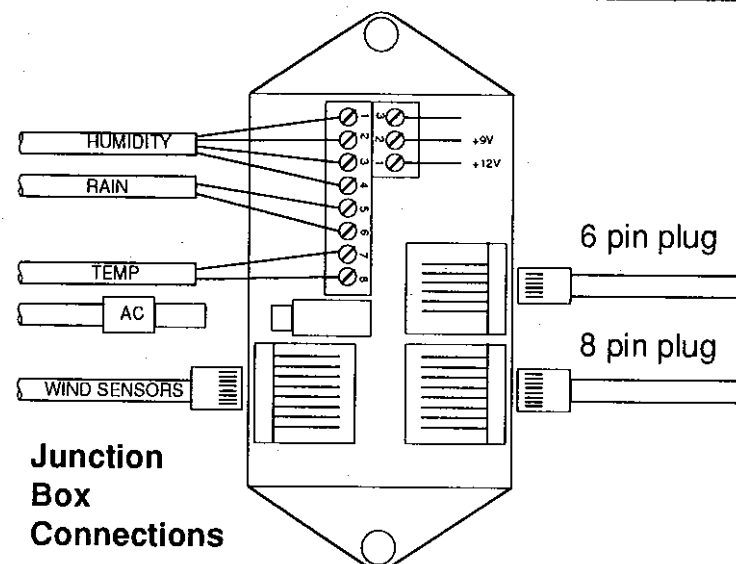


OPTIONAL RAIN COLLECTOR SENSOR INSTALLATION:

Your optional rain collector comes with 60' of cable pre-wired to it. As mentioned before in the "installation advice" section of this manual, we recommend a location other than the roof, however, if you choose to roofmount it, you must find a way to keep the collector perfectly level.

1. Select your mounting location. We recommend an open area above ground level such as a deck or an evenly cut tree stump. A level surface is critical.
2. Back out the four screws holding the base to the collector and rotate the collector to remove it from the base.
3. The hardware package taped inside the base has four screws to mount the collector to the mounting surface.
4. Using the screws provided fasten the base to the mounting surface.
5. Remount the collector on the base and resecure the four screws.
6. Check to see if collector is level.
7. Make sure the plastic screen is in position in the collector.
8. Run the wire into your home to the back of the indicator.

TIPS: DO NOT REMOVE THE TEFLON SPRAY/POWDER FROM THE DIPPER. OCCASIONALLY YOU SHOULD CLEAN THE DIPPER WITH ANY MILD DETERGENT AND RESPRAY IT WITH "ELMER'S SLIDE ALL". THIS CAN BE OBTAINED AT MOST LOCAL HARDWARE STORES.



JUNCTION BOX INSTALLATION PART 2:

Once you have installed and checked all your external sensors, you are now ready to complete the Junction Box installation.

- D. Using your fingers, pry the junction box cover from the box. The cover holds the circuit board containing the connectors you will use.
- E. There is an 8 terminal block that is labeled on the circuit board itself. This block is used to connect the outdoor temp sensor, optional rain collector and the optional outdoor humidity sensor interface.
- F. Insert the wires for each sensor into the correct holes in the terminal block and tighten them securely. There is no polarity for the temperature or rain wires.
- G. Reinstall the box to the cover making sure the jacks are exposed through the cutout in the housing.
- H. Align the junction box against your previously drilled mounting surface and fasten it using the screws provided.
- I. Plug in the 8 conductor rooftop cable plug to the jack labeled from "sensors/power".

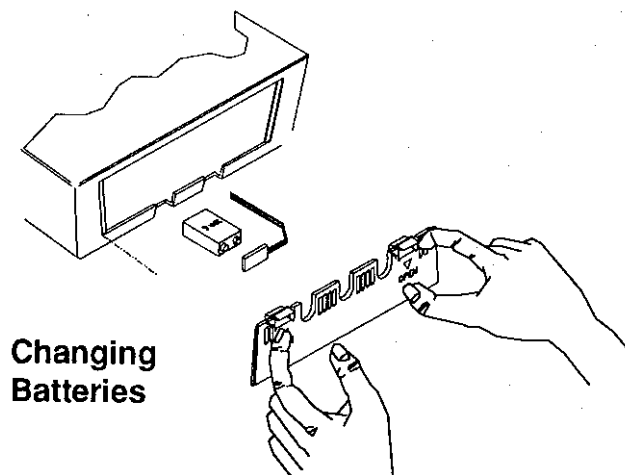
1. INTRODUCTION & INSTALLATION

- J. Plug in the small plug from the ac adaptor to the small power jack also labeled from "sensors/power". NOTE: Do not plug the ac adaptor into an outlet at this time.
- K. Plug in the 8 conductor junction box cable to the 8 pin jack labeled "to WeatherMAX".
- L. Plug in the 6 conductor junction box cable to the 6 pin jack labeled "to WeatherMAX".

CONNECT JUNCTION CABLES TO WeatherMAX COMPUTER and INSTALL BATTERIES.

Your Junction Box installation is now complete.

BATTERY REPLACEMENT/INSTALLATION



- 1. Remove the Battery cover in the rear (If not already done).
- 2. Pull out a battery from its mounting clip.
- 3. Disconnect from its socket and discard the old battery.
- 4. Connect a fresh battery to its socket and slide it into the battery clip.
- 5. Repeat this procedure for the second battery.
- 6. Reinstall the battery cover.
- 7. Installation of batteries will cause WeatherMAX to "Power Up" and begin to operate. Note: When you first turn on your WeatherMAX the display will show 0 MPH wind speed, North wind direction, 12:00 AM and inside temperature. The windspeed display will briefly flash as WeatherMAX initializes itself. The indoor Temperature will then

Battery Replacement

change to the current reading, and the wind speed and direction will operate provided there is wind activity and the cables are all connected.

- 8. You should plug in the AC adapter to avoid draining your back-up batteries. Under most circumstances with fresh 9 volt batteries, your WeatherMAX will operate for approximately 15-20 hours. WeatherMAX will display AC POWER OFF if your adapter is not plugged in, or if you lose power.

WEATHERMAX CABLE CONNECTIONS:

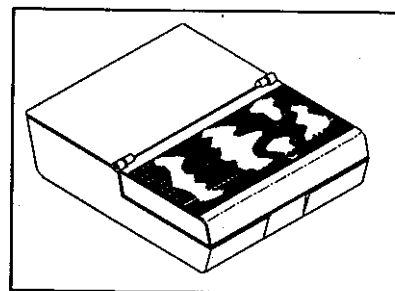
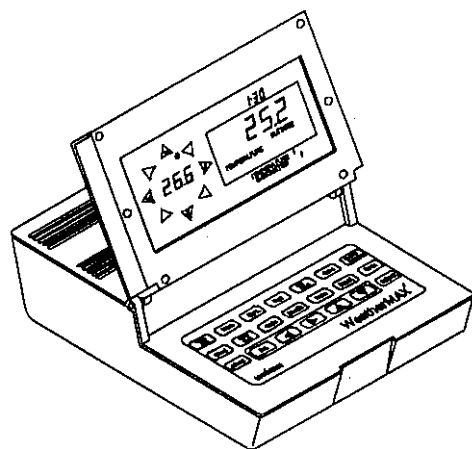
SEE PAGE 5-6

- 1. Remove the Battery cover in the rear.
- 2. Plug in the 8 Pin plug from the Junction Box to the 8 Pin jack in the rear.
- 3. Plug in the 6 Pin Plug from the Junction Box to the 6 Pin jack in the rear.

DISPLAYING YOUR WEATHERMAX:

Your WEATHERMAX should be placed indoors where the keypad is readily accessible. The display is housed separately and hinged so that you may set it at any angle that is comfortable for you to read. WEATHERMAX is designed to sit comfortably on a desk top or most shelves. The hinged display gives you a high degree of versatility for various viewing angles.

Some general suggestions for this type of use are:



Closed Unit

Desktop Use

1. Avoid placing WEATHERMAX in direct sunlight. The black housing will heat up which can cause erroneous indoor temperature and indoor humidity readings and or damage to the unit.
2. Do not place WEATHERMAX near heating/air conditioning ducts, radiant heaters, humidifiers or dehumidifiers.
3. Naturally you may close the hinged display portion at your convenience to avoid others tinkering with it.

TO CLEAN YOUR LCD SCREEN

1. USE ONLY AN ANTI STATIC VIDEO DISPLAY CLEANER WITH A LINT FREE WIPE.
2. Spray the cleaner onto the wipe first and gently wipe the display clean.

CAUTION: Never spray directly onto the screen or keypad.

SPECIAL NOTE: You may notice that rubbing or touching the screen causes black lines and/or blotches to appear. These will disappear shortly. It is strongly recommended that repeated touching or rubbing of the screen be avoided.

HINGE ADJUSTMENT:

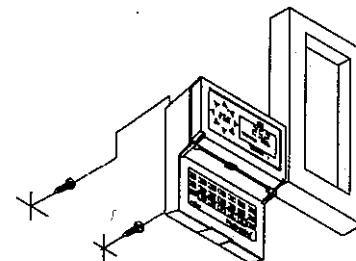
Your WeatherMAX's hinged LCD screen allows you to select a viewing angle that is comfortable for you. The initial adjustment is set at the factory to a specific tension. You may want to tighten or loosen the hinge. This is done by turning the knurled screws with either your fingers or a small screwdriver.

For permanent flat wall mounting:

1. Loosen the hinge screws slightly in order for the display to move freely with little friction.
2. Position the LCD screen all the way back against the housing (as if it was wall mounted).
3. Tighten the screws to maintain this position.

MOUNTING WEATHERMAX ON A WALL:

1. Drill two holes in the wall 4 3/4" apart making sure they are level. Depending upon the nature of your wall surface, such as drywall, plaster, panelling, wood etc., you may consider such things as molly bolts, dry wall anchors etc. to hold the mounting screws. We suggest a #6 pan head type screw as this will fit the keyhole well once you have adjusted the height of the screw off the wall.
2. The provision for your cables entering WEATHERMAX accommodates both desktop and wallmount use. Simply remove the battery cover and fit your wires into the small slots at the bottom of the case. Then reinstall the battery cover.
3. Hold WEATHERMAX carefully and line up the keyholes on the rear to the two screwheads, then gently slide WEATHERMAX into place by pushing gently downward until it no longer moves. The rubber feet on WEATHERMAX will leave a small gap between the wall and WEATHERMAX. This is by design so that air may pass around WEATHERMAX for indoor temperature and humidity readings.
4. If WEATHERMAX is too loose on the wall mounting, remove it and tighten the screws closer to the wall. If it is too tight remove it and back the screws away from the wall.

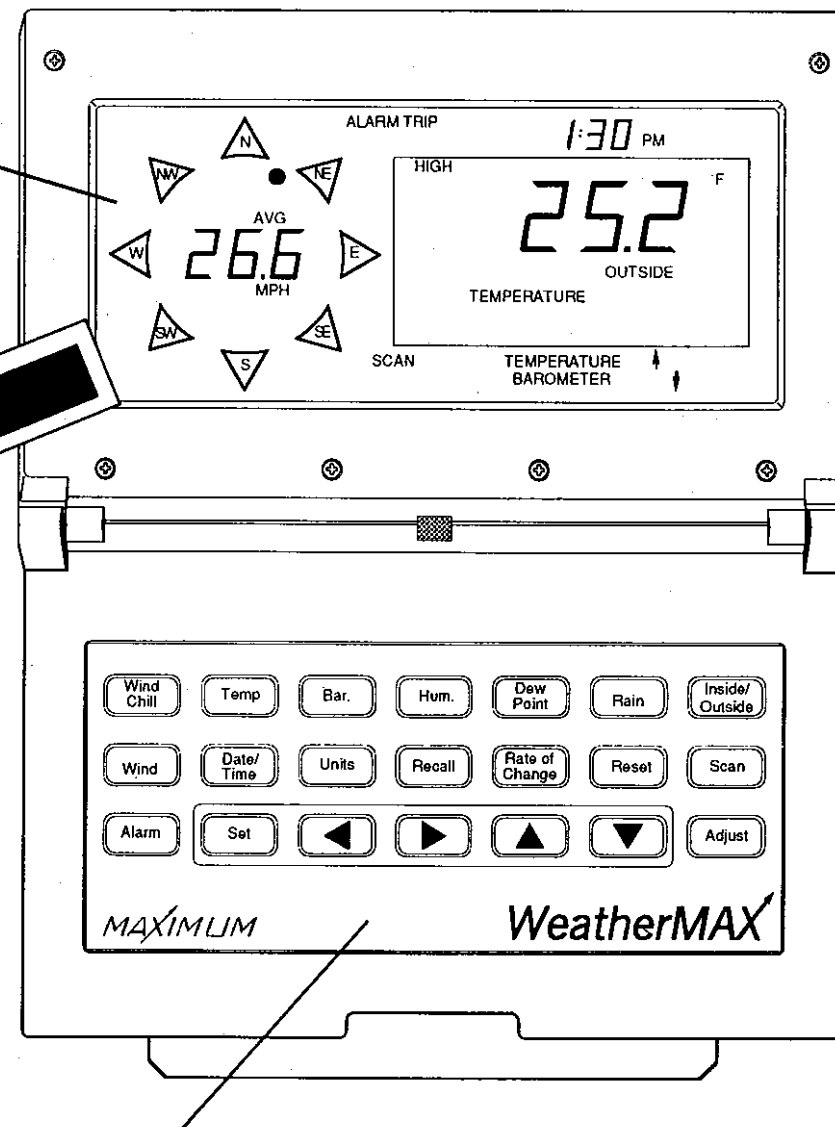
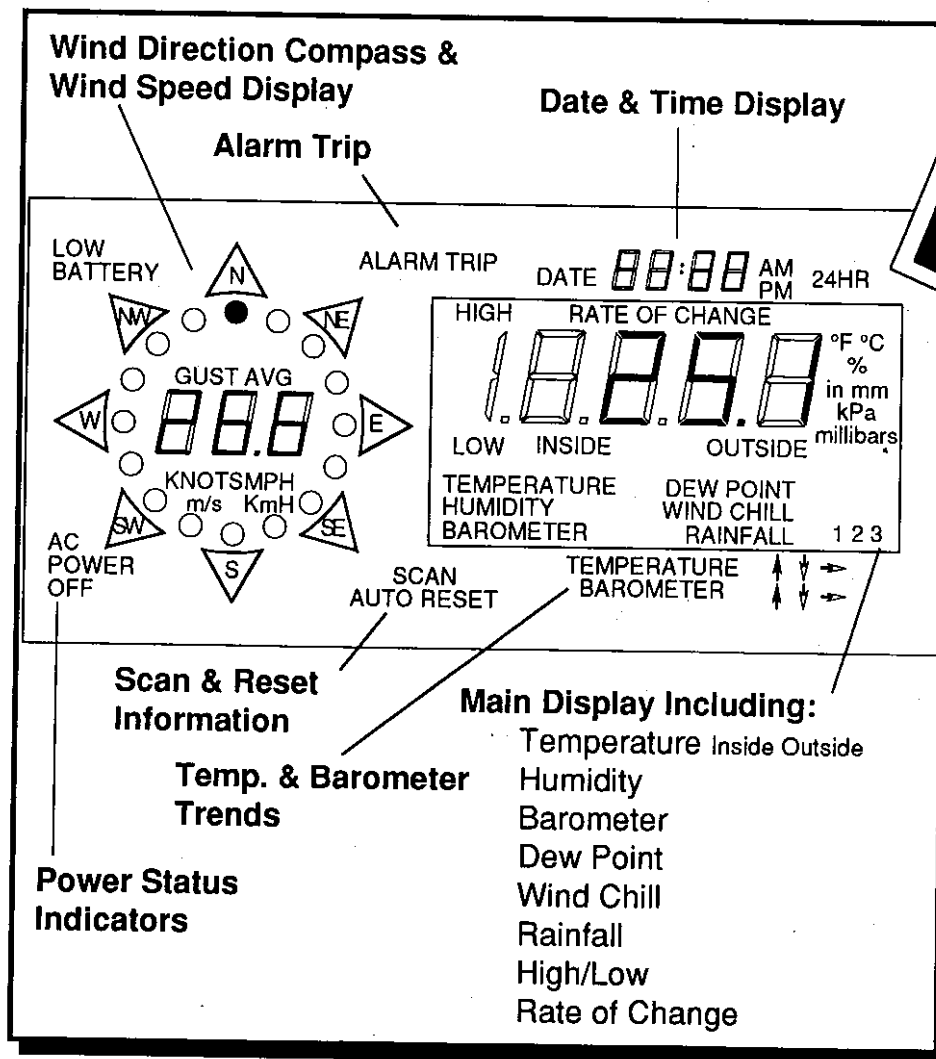


Wall Mounting

WeatherMAX Unit

LCD DISPLAY

All Weather functions are displayed in this 2" x 5" area. The entire LCD display assembly is easily adjustable to any comfortable viewing angle. Below is diagram of all possible LCD segments.



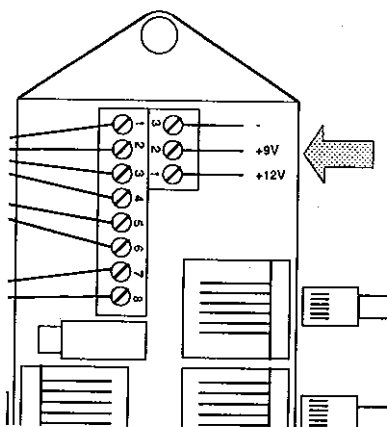
MEMBRANE KEYPAD

21 button pad that allow access to WeatherMAX's many display, retrieval, calibration and customization functions.

Extra Features

EXTENDED BATTERY BACK UP

WeatherMAX possesses an additional battery back up capability above and beyond the two 9V batteries inside the WeatherMAX main unit. This feature is located in the junction box. There is a 3 position terminal block mounted behind the "sensor" terminal block. By properly connecting a 9 volt or 12 volt battery, you may significantly extend the back up time of your WeatherMAX during extended power outages. In all cases, the negative wire from your extra battery connects to terminal #3 as labeled on the circuit board. If your battery is 9 volts the positive wire will connect to terminal #2 as labeled. If the battery is 12 volts, the positive wire will connect to terminal #1 as labeled. An average 12V lantern battery purchased from your local hardware store could extend your back up capability to 5-7 days depending upon the amp-hour rating of your particular battery. Do NOT use the internal batteries and an external battery at the same time.



Specifications

WeatherMAX Specifications

This chart shows the Range, Resolution and Accuracy of the WeatherMax's functions

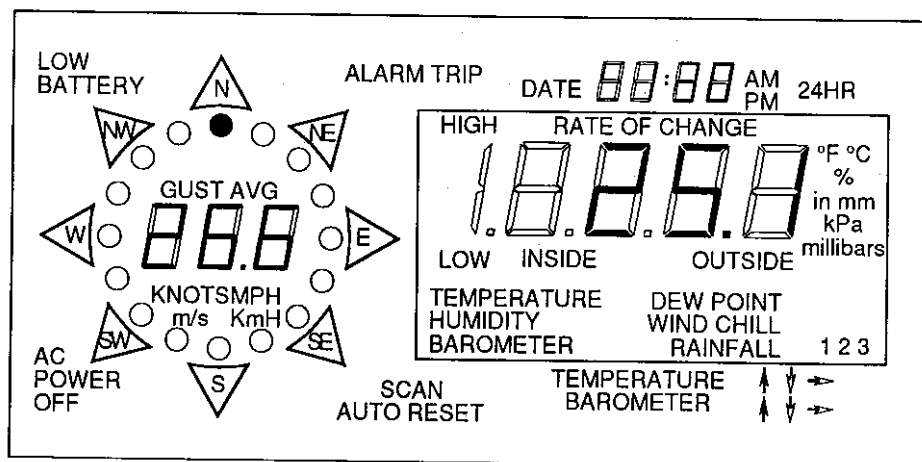
Function	Measurement Range	Resolution
Wind Speed	0-255 MPH	1 MPH
Wind Direction	16 Compass Points	22.50°
Temperature – Outdoor	-40 - 122°F	.1 or 1°F
Temperature – Indoor	50 - 122°F	.1 or 1°F
Barometric Pressure	27.5 - 31.5 in Hg	.01 in Hg
Relative Humidity – Inside	10 - 90% RH	1% RH
Relative Humidity – Outside	20 - 90% RH	1% RH
Rainfall	0 - 99.99" of Rain	.01"
Windchill	-119 to 122°F	1°F
Dew Point – Outside	-7 to 115°F	1°F
Pressure Rate of Change	-4 to +4 in Hg/HR	.01 in Hg
Time	AM /PM 12:00 - 11:59	1 minute
	24 hr/00:00 - 23:59	

Accuracy

Wind Speed – Total System	±2.1 mph
Wind Direction – Indicator	0 error Display System
Temperature – Indoor – Indicator	±1.5°F
Temperature – Outdoor – Indicator	±1.5°F
Barometric Pressure	±.08" Hg
Relative Humidity – Inside	±8% RH
Relative Humidity – Outside –	
Total System	±8% 20-80% RH 0° - 50°C
Rainfall Indicator	0 error Display System
Time	±1 minute/month
Temperature Sensor	±1°F
Wind Direction Sensor	±11.25°
Rain Collector	±.01"/inch

2. USING YOUR WEATHERMAX

When you first turn on your WeatherMAX the display will show 0 MPH wind speed, North wind direction, 12:00 AM and inside temperature. The windspeed display will briefly flash as WeatherMAX initializes itself. The indoor Temperature will then change to the current reading.

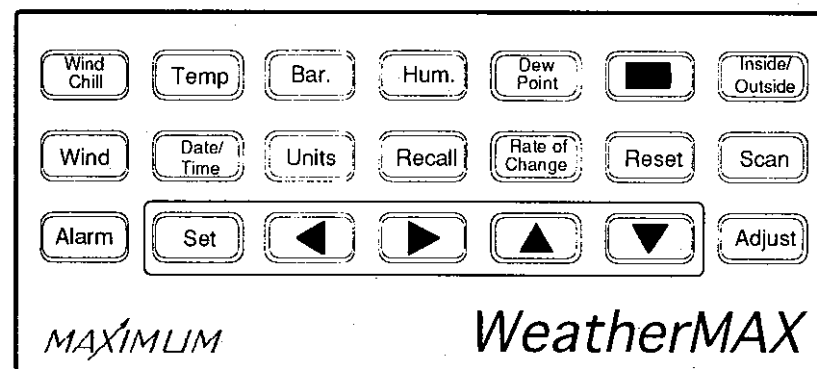


LCD Detail

TIME AND DATE

Time & Date is constantly displayed near the upper right corner of the display. WEATHERMAX displays time in either a 12-hour or a 24-hour format. In the 12 hour format either the AM or PM is displayed with the time. In the 24 hour format the 24 HR is displayed with the time. In both cases, the hour is on the left separated from the minutes by a colon. Date is displayed with the month on the left separated from the day by a colon. *To display the current time and date:*

1. Press the **DATE/TIME KEY**. A short beep will sound indicating that you have entered the date/time mode. The time and a symbol (AM, PM or 24/hr) remain on the display.
2. Press the **DATE/TIME KEY** again. The word DATE and the month and day will appear on the display.



Keyboard Detail

To change the time format:

1. Press the **DATE/TIME KEY** as necessary to display the time.
2. Press the **UNITS KEY**. WEATHERMAX will switch from the 12/hr to the 24/hr format (or vice-versa) and the AM or PM symbol changes to 24/hr (or vice-versa). The **UNITS KEY** allows you to select the format you wish to display. To change the time or date refer to the section on setting the time/date below.

To set the time:

Note: Setting the time for the 12 hour format will automatically set the 24 hour format. When first powering up the display will be showing 12:00 AM.

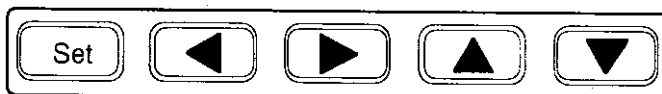
1. Press the **DATE/TIME KEY** as necessary to display the time.
2. Press the **SET KEY**. The Hours digits will flash. Please note the left and right arrow keys select the field you wish to set e.g.: left for hours, right for minutes.
3. Press and hold either the up or down **ARROW KEY** until the correct hour and AM or PM indication is reached.
4. Press the right **ARROW KEY**. The minutes digit will flash.
5. Press and hold either the up or down **ARROW KEY** until the correct minutes are reached.
6. Press the **SET KEY**.

To set the date:

1. Press the **DATE/TIME KEY** as necessary to display the date. The display will show 1:01 (January 1st).

2. USING YOUR WEATHERMAX

2. Press the **SET KEY**. The months digits will flash.
3. Press and hold either the up or down arrow key until the correct month is displayed. 1=Jan., 2=Feb. etc.
4. Press the right arrow key. The day digits will flash.
5. Press either the up or down **ARROW KEY** until the correct day (1-31) is displayed. NOTE: To avoid setting an invalid date, always set the correct month first *before* setting the day.
6. Press the **SET KEY**.



Keys

WIND FUNCTIONS

Wind Speed & Direction information is always displayed within the compass rose on your display. The digits represent wind speed and the dots represent what direction the wind is coming from. There are 16 compass points available for wind direction on your WEATHERMAX. This represents 22 1/2° resolution.

WIND SPEED can be displayed in four different units of measurement. They are miles per hour (MPH), nautical miles per hours (Knots), kilometers per hour (KmH) or meters per second (m/s).

GUST-shows highest wind gust and direction of gust since last reset.

AVG-displays the average wind speed and prevailing direction since your last reset. The very first reading after resetting average will be the present wind speed. The prevailing wind direction dot will show the present direction immediately after a reset if there is a wind speed. If there is no wind speed when you reset then no dot will show.

WIND DIRECTION WEATHERMAX takes a reading every second. When the wind direction changes very rapidly (faster than 1 second) some direction dots may not light. This is normal as WEATHERMAX is between readings.

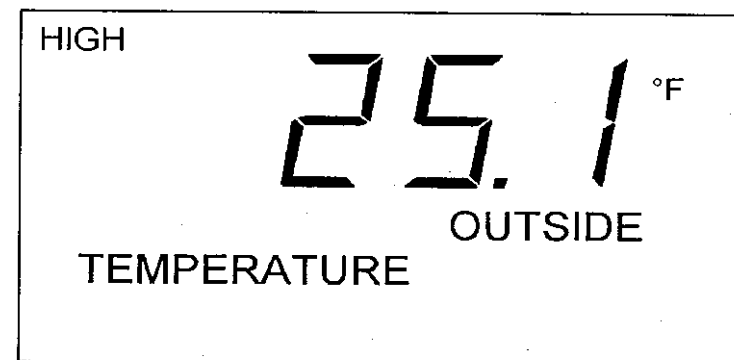
Wind Functions

To use your Wind Display:

1. Press the **WIND KEY**.
2. Press the **UNITS KEY**. The four different units are under the wind speed digits. With each key stroke you will change the unit of measurement.
3. To display High GUST (since last reset) & direction of gust, proceed as follows: Press the **RECALL KEY**. The digits will change & the display will show the word GUST just above the digits. For direction, a dot will show the direction that the High Gust originated from. The clock will show the time and date the gust occurred. If you wish to display the gust in any of the different units simply press the **UNITS KEY** to review the different values.
4. To display Average Speed and the prevailing direction, press the **RECALL KEY**. **AVG** will show above the digits. If you wish to display the average in the different units, press the **UNITS KEY** to review the different values.
5. To resume normal operation, (current display) press the **RECALL KEY**. The wind display will revert back to normal operation.

TEMPERATURE

WEATHERMAX measures and displays both inside and outside temperature readings. All temperature functions are displayed within the rectangular window display. Upon power up or any "full" reset, the



Temperature Display

2. USING YOUR WEATHERMAX

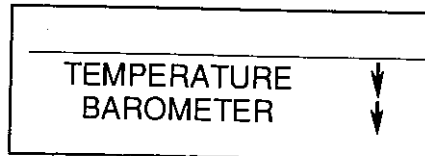
display will show the current Inside temperature in °F. The words INSIDE and OUTSIDE will be displayed along side the actual digits.

To display current outside temperature:

1. Press the **TEMP KEY**.
2. Press the **INSIDE/OUTSIDE KEY**. The word OUTSIDE will appear on the display and the digits change to reflect the outside reading.
3. To revert to the inside temperature, press the **INSIDE/OUTSIDE KEY**.
4. Temperature can be displayed in either °F or °C with or without tenths. To select which unit you wish to see press the **UNITS KEY**. The °C will appear for Celcius or an °F will appear for Fahrenheit. Naturally the digit will change to reflect the correct units. Pressing the key simply alternates back and forth.

To display HIGH/LOW temperatures:

1. Press the **TEMP KEY**.
2. Press the **INSIDE/OUTSIDE KEY** as necessary to select the one you want to review.
3. Press the **RECALL KEY**. The high temperature (and the word HIGH) will appear in the display. The clock will change to show the time and date the high occurred.
4. Press the **RECALL KEY** again. The low temperature (and the word LOW) will appear in the display. Low temperature will be reviewed in the same manner as the high temperature.
5. The **TEMPERATURE TREND** is located underneath the rectangular window. Following power up the trend arrow will not display for approximately 14 minutes. The temperature trend arrow will only show a rise or fall of greater than 3.6°F in two minutes. It is updated every two minutes.



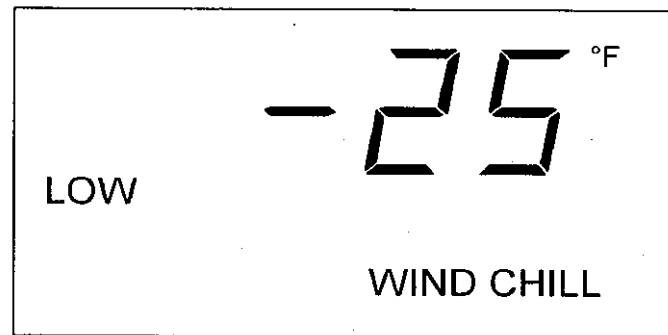
Trend Arrows

WIND CHILL

About wind chill: Wind Chill equivalent temperature (WET) is not an actual temperature but an expression that relates wind speeds to the temperature that we perceive. Wind cools

Wind Chill

your body by constantly transferring heat away from your body. This process is called convection. The net result is as the wind blows you perceive the temperature to be cooler than it actually is. This complex equation is built into



Wind Chill Display

WEATHERMAX's microprocessor so it can calculate the more commonly known term "Wind Chill".

WEATHERMAX calculates the wind chill using the information derived from the wind speed and outdoor temperature readings. WEATHERMAX will display the wind chill in either °F or °C in increments of 1°.

To display the current wind chill:

1. Press the **WIND CHILL KEY**. The words WIND CHILL will appear in the rectangle on the display and the digits will naturally reflect the wind chill.

To change the units:

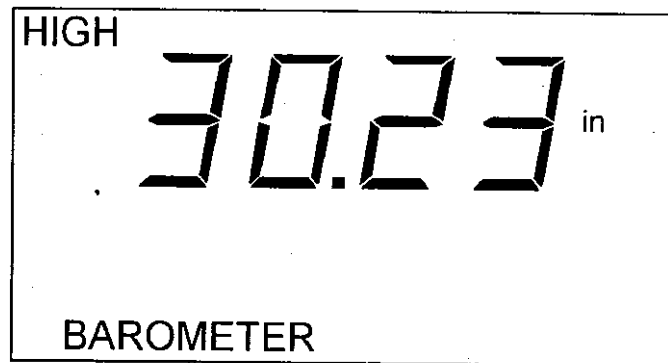
1. Press the **UNITS KEY**. The display will change and the appropriate °F or °C will appear on the display. Simply press the **UNITS KEY** to display the units (°F or °C) you desire.

To display low wind chill:

1. Press the **UNITS KEY** as necessary for °F or °C.
2. Press the **RECALL KEY**. The word LOW will appear in the addition to WIND CHILL and the clock will change to show the time and date the low wind chill occurred.

BAROMETRIC PRESSURE

About Barometric Pressure: Given all the various elements of weather, PRESSURE more commonly known as barometric pressure is the least noticeable. Although these changes are not perceptible to people, they are perhaps the most important factor in changes in our weather. These variations in barometric pressure from place to place are directly responsible for the



Barometer Display

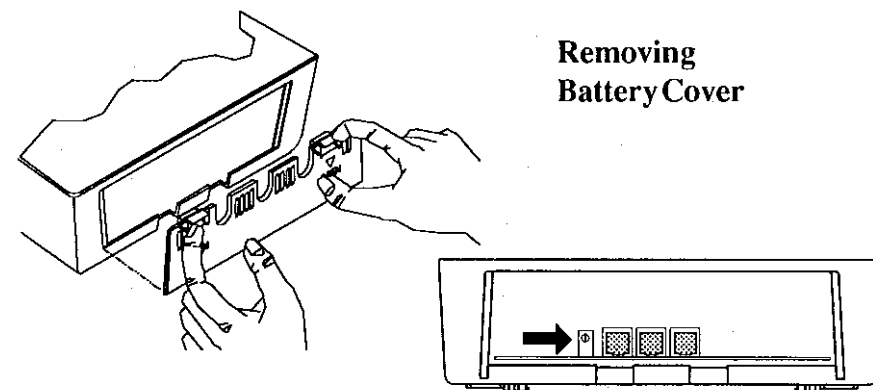
movement of great masses of air (wind). This element of weather makes it possibly the most important element to watch since there is a direct correlation to barometric pressure and the other elements of weather.

Barometric Pressure is displayed within the rectangular window display. There are four units of measure available. They are inches of mercury (in), Kilopascals (kPa), Millimeters (mm) and Millibars.

Setting the Barometric Pressure:

To set the barometric pressure reading in WeatherMAX you must obtain an accurate reading from a source as close to your location as possible. The closest airport, weather bureau or individual with an accurate barometer would be a few examples. Once you have this information proceed as follows:

1. Remove the Battery Cover from the rear of the WEATHERMAX. The adjustment screw is located just to the left of the unused jack in WEATHERMAX. NOTE: Obtain a small blade screw driver for this adjustment.



Barometer Adjustment

2. When you are ready press the **BARO KEY**.
3. Press the **ADJUST KEY**.
4. Press the **ADJUST KEY** again. WEATHERMAX is now ready for you to make your adjustment. When making the adjustment the last digit on the display may roll (fluctuate) slightly. This will not happen during operation.
5. When you are finished, press the **ADJUST KEY** and reinstall the battery cover.
6. NOTE: Following any barometer adjustment, the rate of change value WILL NOT BE CORRECT FOR 72 MINUTES.

To display barometric pressure

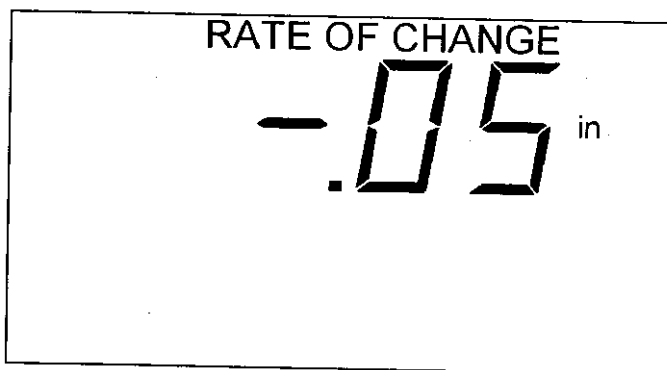
1. Press the **BARO KEY**. The present barometric pressure and the word BAROMETER appear on the display. One of the symbols; in, kPa, mm, or millibars will appear to show which unit is displayed.

To select the unit you desire:

1. Press the **UNITS KEY**. The display and the symbol will change. Press the key again until you obtain the unit of measurement you desire.

To display the HIGH/LOW barometric pressure:

1. Press the **BARO KEY**. Press the **RECALL KEY**. The word HIGH will appear along with the high pressure reading. The clock will change to show the time and date the high occurred.
2. Press the **UNITS KEY** as necessary to review the units you desire.



Rate of Change Display

3. Press the **RECALL KEY** again. The word LOW will appear along with the low pressure reading. Low pressure will be reviewed in the manner as high pressure.

RATE OF CHANGE

About Rate of Change: Many people consider rate of change the most important aspect of weather changes. The rate of rising and falling pressures signals the severity of approaching weather conditions.

Upon power up the very first RATE OF CHANGE reading will not be correct. The barometer trend arrow located underneath the rectangular window will display approximately 12 minutes after any power up. The trend arrow is updated every 12 minutes. The barometer trend arrow will only show a rise or fall of greater than 0.02 in Hg in one hour as measured by the rate of change function. It is updated every twelve minutes.

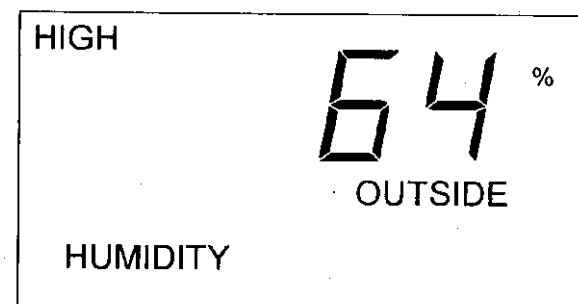
To display rate of change:

1. Press the **RATE OF CHANGE KEY**.
2. Press the **UNITS KEY**, as necessary to display the rate of change in the units you desire. The digits will reflect this rate in the number of units/hour you have selected. For falling pressures a negative (-) sign will accompany the reading. For rising pressures there is no (+) sign.

HUMIDITY

About Humidity: Relative humidity is the most popular form of humidity measurement. In simple terms it can be defined as the amount of water vapor present in the air, divided by the maximum amount of water vapor that the air could hold given the current temperature expressed as a percentage. Example: If the relative humidity is 50% then the air is holding 50% of the maximum amount of water vapor possible at that temperature. Other than temperature, humidity is the condition which most affects our perception of comfort. Humid days are perceived as uncomfortable due to the fact the water vapor impedes the evaporation of our perspiration which is our body's cooling process. Very cold and dry days can cause dry skin or sinus headaches.

Humidity is displayed within the rectangular window. Humidity is expressed only in % (percentage). Therefore it is the only unit of measure available. The WEATHERMAX is capable of measuring two sets of humidity readings. One reading originates from the sensor located inside



Humidity Display

WEATHERMAX. The other comes from the **OPTIONAL EXTERNAL HUMIDITY SENSOR**. If you do not have this sensor the WEATHERMAX will not measure outside humidity and all outside humidity readings will display only a series of dashes. This will also hold true for any and all dew point readings, as the dew point is a calculation of outdoor humidity and outdoor temperature readings.

To display humidity:

1. Press the **HUM KEY**. The word INSIDE and the word HUMIDITY will appear along with a reading on the display.

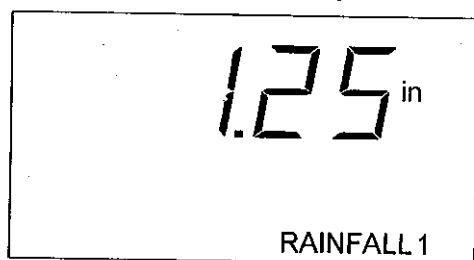
2. USING YOUR WEATHERMAX

To display high/low humidity

1. Press the **INSIDE/OUTSIDE KEY** (as necessary) to select which one you want to review.
2. Press the **RECALL KEY**, the high humidity (and the word HIGH) will appear on the display.
3. Press the **RECALL KEY** again. The low humidity (and the word LOW) will appear on the display. Low humidity will be reviewed in the same manner as the high humidity.

RAINFALL

With the purchase of the optional rainfall collector, WEATHERMAX can store rainfall in three separate "counters" of your choice. It is up to the user



Rainfall Display

to decide what time intervals each of the three counters represents and, to manually reset the counter at the end of the time interval. Example:

Rainfall Counter #	Time interval	Manually reset at end of
1	Daily	Day
2	Monthly	Month
3	Yearly	Year

To display Rainfall:

1. Press the **RAIN KEY**. The word RAINFALL will appear in the rectangular window display along with the "counter" number and the amount stored in that "counter".
2. Press the **UNITS KEY** as necessary to display inches (in) or millimeters (mm) of rain.
3. Subsequent keystrokes of the **RAIN KEY** select through all rain "counters".

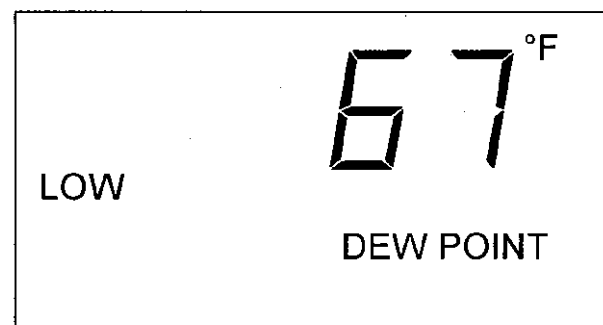
Rainfall

Special note: Resetting Rain Counters:

- A. For maximum memory protection, rain "counter" memories can only be reset **manually** and **individually**. This is to insure that no accidental loss of rainfall data can occur.
- B. For memory protection and operation during power outages, make sure you have properly installed the BATTERIES as mentioned in the installation portion of this manual.

DEW POINT

About outside dew point: Dew point temperature is the measurement of the absolute amount of water vapor present in the air



Dew Point Display

expressed as a temperature reading. This reading represents the temperature at which water will condense from the air. If the actual outdoor temperature falls below the dew point temperature the result will be fog or dew forming.

Outdoor dew point:

With the purchase of the optional outdoor humidity sensor, the outdoor dew point feature is now activated. Dew point is shown in the rectangular window display and is expressed in °F or °C in increments of 1.

To display outdoor dew point:

1. Press the **DEW POINT KEY**. The display will change and the words DEW POINT will appear.
2. Press the **UNITS KEY** as desired to display the units (°F or °C) you wish to see.

2. USING YOUR WEATHERMAX

To display the high/low outdoor dew point:

1. Press the **DEW POINT KEY**.
2. Press the **RECALL KEY**. The word HIGH will appear on the display along with the reading. The clock will change to show the date then followed by the time the high occurred.
3. Press **RECALL KEY** again. The word LOW will appear on the display along with the reading. The LOW will be reviewed in the same manner as the HIGH.

MANUALLY RESETTING MEMORIES INDIVIDUALLY

These instructions are generic to all functions. Be sure to select and view the exact function you wish to reset. All high/low and inside/outside memories are independent of each other and can be cleared individually using this procedure:

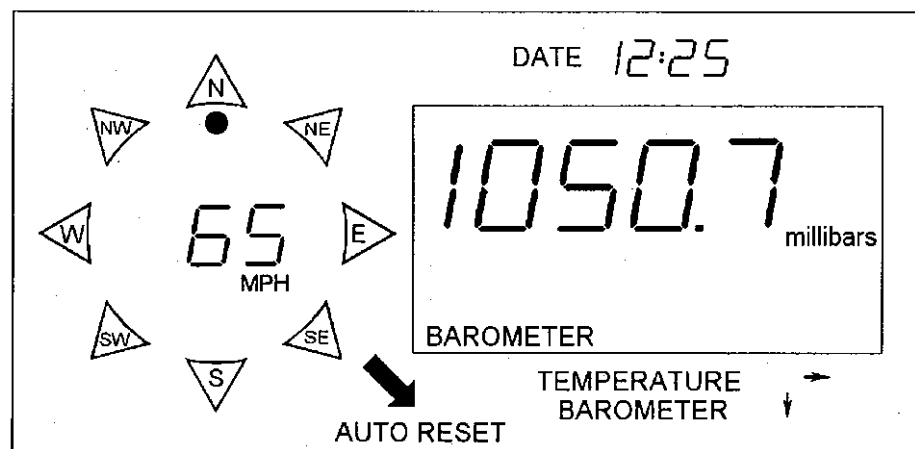
1. Select the function you wish to reset e.g.: high inside temperature, wind gust, low barometric pressure.
2. Once you are viewing the exact function you wish to reset, press the **RESET KEY** key twice. WEATHERMAX will beep with each key stroke. On the second key stroke the display will show a series of dashes. This is to let you know that you can still change your mind and abort the reset command. A third key stroke will reset the function you have chosen. To abort the reset command you must press any function key **before** you initiate the third key stroke.
3. When ready press the **RESET KEY** for the third and final key stroke. All memories, when reset, are replaced by the current reading. As the conditions change the highs/lows are updated.

MANUALLY RESETTING ALL MEMORIES SIMULTANEOUSLY

1. Press the appropriate key(s) to display any high/low memory function.
2. Press the **RESET KEY** twice. WEATHERMAX will beep with each key stroke. On the second stroke the display will show a series of dashes.
3. Press the **RESET KEY** for the third time. A low pitched beep will sound and the display will appear to be in normal operation.

4. Press the **UP ARROW KEY**. Another low pitch beep will sound. Both the wind speed display and the rectangular display will show a series of dashes. This is the final warning that a TOTAL reset of all memories (except for rain, wind average and alarms) is ready to be implemented.
5. Press the **DOWN ARROW KEY**. Another low pitched beep will sound. The displays will return to normal operation and all memories (except rain, wind average and alarms) have now been reset.

NOTE: All high and low readings are replaced by the current readings. As conditions change the highs/lows are updated.



Auto Reset

AUTO RESET

Auto reset is a feature which gives WEATHERMAX the ability (when programmed by the user) to automatically clear all memories (except rain, wind average and alarms) at a fixed time period on a daily basis. The 24hr clock feature in WEATHERMAX is the basis for the auto reset feature. For reasons of simplicity there are only 24 choices available for auto reset programming. Simply put one can select from 00:00 hours (12 midnight) to 23:00 hours (11:00PM) in 1 hour increments only. The average wind speed and prevailing direction are NOT reset by the ALL or AUTO reset methods.

To program auto reset:

1. Press the **DATE/TIME** key as necessary to display the time.

2. USING YOUR WEATHERMAX

- Press the **RECALL** key. The clock display will show a series of dashes and the words AUTO RESET will be flashing.
- Press the **SET** key. The clock will show 00:00 (12 midnight) with the hour's digit flashing.
- Press either up or down arrow key and hold until you reach the number (time) you desire. If you choose 00:00 (12 midnight) proceed to Step 5.
- Once you have achieved the exact hour you desire, press the **SET KEY**. The words AUTO RESET will appear on the display and your clock will display the current time. Auto reset is now programmed.

NOTE: AUTO RESET does not affect rain, wind average or alarm settings.

- Press any function key. Your clock will revert back to its original operation (before programming) and the words AUTO RESET will remain on your display to remind you that WEATHERMAX is now resetting memories for you.

If at any time you wish to view the hour you selected:

- Press the **DATE/TIME KEY** as necessary to display time.
- Press the **RECALL KEY**. The time you have chosen will appear on the display.
- Press the **DATE/TIME KEY** to exit.

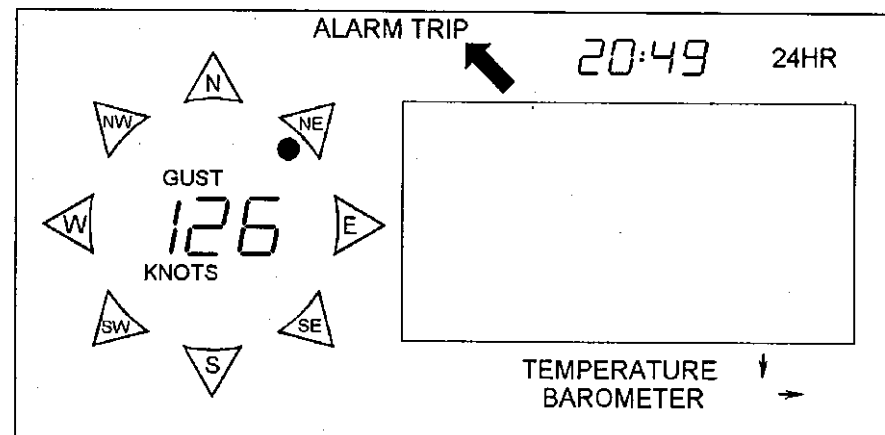
To disable auto reset:

- Press the **DATE/TIME** key as necessary to display time.
- Press the **RECALL** key. Your auto reset time will display and the words AUTO RESET will flash.
- Press the **SET** key. The clock will show 00:00 with the hour's digits flashing.
- Press the **RESET** key three times. On the third keystroke the words AUTO RESET will dis-

Function	High Alarm	Low Alarm
Wind Gust	Yes	No
Outdoor Temp	Yes	Yes
Indoor Temp	Yes	Yes
Wind Chill	No	Yes
Baro. Pressure	Yes	Yes
Rate of Change	No	No
Indoor Humidity	Yes	Yes
Outdoor Humidity	Yes	Yes
Outdoor Dewpoint	No	No
Rainfall	No	No
Wind Direction	No	No

WEATHERMAX Alarms

appear and the clock will revert to normal (real time) operation. Auto Reset is now disabled.



Alarm Trip

ALARMS

WEATHERMAX possesses programmable alarm features that sound whenever a reading exceeds a particular point. All alarms behave in the same basic fashion.

ALARM CONDITIONS:

For all alarms, the alarm is activated when a reading reaches or exceeds any HIGH or LOW alarm set point (set by you) and will sound for five seconds. All sensors that have exceeded alarm limits will be put in a scan sequence displaying the current reading, and the time as well as the date of the alarm trip. In all cases when an alarm is activated the computer will sound and the words ALARM TRIP will show on your display. Should more than one alarm be activated your WEATHERMAX will scan each of the active alarms and display each for approximately five seconds before moving to the next. Pressing the **ALARM KEY** will reset all alarms and cause the WEATHERMAX to resume normal operation. The ALARM TRIP segment on the LCD will cease to be displayed.

To set all alarms:

NOTE: All alarm settings are automatically rounded to the closest whole number in the measurement units listed below:

Windspeed = MPH

2. USING YOUR WEATHERMAX

Temperature = Celcius (°C)
Wind Chill = Celcius (°C)
Barometric Pressure = Inches mercury (in Hg)

1. Press the appropriate key(s) to display the EXACT FUNCTION you wish to program an alarm for e.g. low inside temperature, high outdoor temperature, high indoor humidity.
2. Press the **UNITS KEY** to select the unit of measure you desire.
3. Press the **ALARM KEY**. The words ALARM TRIP will show on your display. The alarm limit of the function will be displayed.
4. Press the **SET KEY**. The right hand digit will flash.
5. Press either the **LEFT** or **RIGHT** arrow **KEYS** to choose the digit you wish to change. The DIGIT will FLASH.
6. Press either the **UP** or **DOWN** arrow **KEYS** and hold it until you reach the desired number.
7. Press the **LEFT** or **RIGHT** arrow **KEYS** to the next digit you wish to change. Repeat Step 5 and repeat Step 6 as necessary.
8. When you have achieved your desired setting, press the **SET KEY**. The words ALARM TRIP will disappear.
9. NOTE: Steps 1-7 must be repeated to program each alarm parameter you desire.

NOTE: Setting the hundreds digit of the temperature alarm will cause the display to add or subtract 100°F. When adding or subtracting 100°F causes the setting to reach the (High/Low) alarm limit the setting will stop at that (High/Low) limit.

To review an alarm setting:

1. Press the appropriate key(s) to display the function you desire.
2. Press the **ALARM KEY**. The words ALARM TRIP and your programmed set point will appear on the display.
3. Repeat Steps 1 and 2 as desired to review all your programmed alarm settings.

To reset an alarm setting:

1. Press the appropriate function key(s) to display the function you desire.
2. Press the **ALARM KEY**. The words ALARM TRIP and the programmed set point will appear on the display.
3. Press the **SET KEY**. The right hand digit will flash.

4. Press the **RESET KEY** twice. On the second key stroke the display will show a series of dashes. This reminds you that you are ready to disable your alarm.
 5. Press the **RESET KEY** again. The alarm limit will be displayed and the right hand digit will flash.
 6. Press the **SET KEY**. The display will show the high/low memory of the function you are "in".
 7. Press any top row key (except **INSIDE /OUTSIDE**) to exit.
 8. Repeat steps 1-7 to disable any alarm settings you desire.
- NOTE: ALL ALARMS MUST BE CLEARED INDIVIDUALLY.**
They cannot be reset by AUTO RESET or a manual full reset.

SCAN

WEATHERMAX is set to perform an **automatic scan** of all functions. Each reading will appear on the display (in the unit of measure you last viewed) for approximately eight seconds before being replaced by the next function in the scan routine. You may also program your own scan routine to fit your needs. This routine programmed by you would be in addition to WEATHERMAX'S built-in scan.

To start WEATHERMAX'S Autoscan routine:

1. Press the **SCAN KEY**. All functions will show on the screen for approximately eight (8) seconds before being replaced by the next function.

To stop the scan routine:

1. Press any top row key except the **INSIDE/OUTSIDE KEY**.

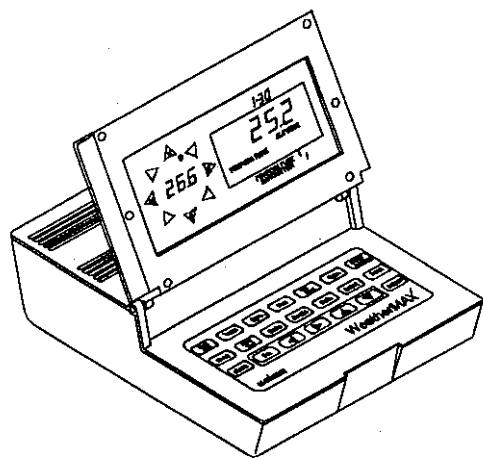
PLEASE READ CAREFULLY

To edit your own customized scan routine:

1. Press the **SCAN KEY**. WEATHERMAX will begin its normal scan routine.
2. Press the **SET KEY**. WEATHERMAX will show the first element of it's normal scan routine.
3. The arrow keys are the controls by which you first view then add or delete the functions you desire as part of your customized scan. They should be used accordingly:
 - A. **RIGHT** arrow key - when pressed moves you to the next item in the scan routine.

2. USING YOUR WEATHERMAX

- B. LEFT arrow key - when pressed moves you to the previous item in the scan routine.
- C. UP arrow key adds the currently viewed item to your scan routine - a unique beep will sound.
- D. DOWN arrow key deletes the currently viewed item from your scan routine - a unique beep will sound.
- 4. When finished press the **SET KEY**. WEATHERMAX will begin your customized scan routine and has now your customized scan.
- 5. To exit, press any top row key except the **INSIDE/OUTSIDE KEY**.
SCAN: Special Notes: While you are editing your customized scan the item being displayed will be displayed in normal fashion. The units of measurement you last viewed will be reflected in your scan routine. Any changes made to the unit of measure outside of the scan routine are reflected inside the scan routine. The existing custom scan routine will always be saved and upon the next editing session, the saved scan will be the starting point to which items may be added or deleted.
- 6. To start "your" scan, press the **SCAN KEY** twice.



3. ADDITIONAL INFORMATION

DISABLING THE BUZZER

Pressing any two keys at once disables your buzzer. Repeat this procedure to reactivate your buzzer.

OUTSIDE HUMIDITY POWER SOURCE

The *WeatherMAX* outside humidity sensor and circuit are not designed to operate when the AC power is off. When the main power (AC) fails the outside humidity circuits will turn off and the outside humidity reading will show as "----". The reason for this action is that the outside humidity readings are wrong when operating on backup battery power. Also the outside humidity sensor and circuit shorten the backup battery life by about 33%.

OUT OF MEASUREMENT RANGE INDICATION

Whenever a measurement is outside the measurement range the reading will show as a series of dashes. (See page 20 of the manual for measurement ranges.)

Examples:

If the outside temperature is -41°F then the display will show "----".

If the outside humidity is 92% then the display will show "----".

OUT OF RANGE INDICATION AND HIGH MEMORIES

If a measurement is out of range "----" when an individual manual reset is performed on a high memory then it will record the out of range measurement as "----" and will retain the out of range indefinitely. To avoid the dashes in a high memory simply reset the high memory when there is a valid reading shown on the display. An Auto or Manual All reset will not cause this problem.

ALARMS

A high alarm is activated when the function rises above the set point. A low alarm is activated when the function falls below the set point.

3. ADDITIONAL INFORMATION

Microprocessor Latch Up

If your *WeatherMAX* appears to be totally dead it may have a latched up microprocessor. This is usually caused by power surges due to nearby lightning.

To correct the problem follow these simple steps:

1. Remove the two junction box cables from the *WeatherMAX* computer.
2. Remove the nine volt batteries.
3. Wait approximately one minute.
4. Reconnect the two junction box cables to the *WeatherMAX* computer.
5. Reinstall the nine volt batteries.

Installing a high quality surge protector with noise filter will help prevent latch up from occurring. Two good protectors are Radio Shack part numbers 61-2794 and 61-2786. Our Inline Surge protector will help prevent surges from damaging the processor via outdoor sensors.

Make sure that the antenna mast or metal pipe is properly grounded. If you are not sure consult a qualified professional.

If problems continue please contact the factory.

4. APPENDIX

INFORMATION TO THE WEATHERMAX USER

WARNING: Changes or modification to this unit not expressly approved by the party responsible could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a CLASS B Computing device, pursuant to part 15 of the FCC Rules. These limits are designated 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:

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

If necessary the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful: HOW TO IDENTIFY AND RESOLVE RADIO TV INTERFERENCE PROBLEMS. This booklet is available from the U.S. Government Printing Office, Washington DC 20402 Stock No. 004000003454.

FIVE YEAR LIMITED WARRANTY

Maximum instruments are supported by many years of experience in building weather instrumentation to the most exacting standards of construction. Instrument sensors and details are consistently the highest quality so that their accuracy can meet the needs of commercial users. The Maximum anemometer/generator, for example, continues to be used in the extreme conditions atop Mt. Washington (New Hampshire). This allows us to offer the following warranty:

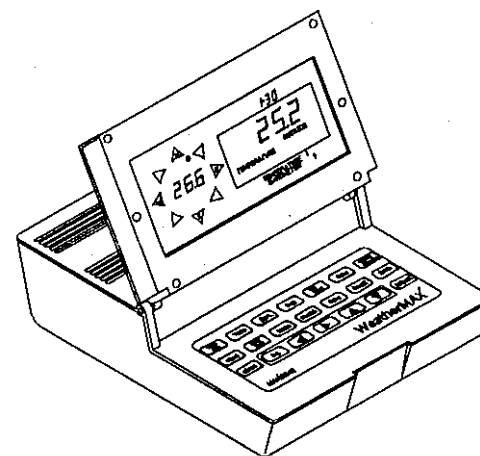
Maximum Inc. of 30 Barnet Blvd., New Bedford, MA. warrants its Weather instruments to be free from defects in the material and workmanship for five years from date of original purchase. This warranty does not cover damages due to improper installation or use, lightning, or damage attributed to unauthorized service. Nor does this warranty apply if any seal on any instrument is broken. Any defective weather instrument which is returned for service will be repaired, at the option of Maximum, free of charge. The foregoing is in lieu of all express warranties.

Procedure

The instrument must be returned, postage prepaid, to Maximum and should be accompanied by a return address and a brief statement of the malfunction. Services under this warranty will be available at any time of the year and will be completed within three weeks after the instrument is returned. The return of the warranty card is not a condition of warranty coverage, but may serve as evidence of your date of purchase.

Limits of Liability

The foregoing shall constitute the sole and exclusive remedy of any owner of a Maximum weather instrument for the breach of warranty including the implied warranties of merchantability and fitness. Implied warranties with the respect to Maximum weather instruments, which shall exist only if imposed by law, shall be limited in duration to the duration of this warranty. Some states do not apply to you. IN NO EVENT SHALL MAXIMUM, INC., BE LIABLE FOR SPECIAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE INSTALLATION OR USE OF ANY INSTRUMENT. Some states do not allow the exclusion of incidental or consequential damages, so the above limitations or exclusions may not apply to you. Maximum does not make or assume or authorize any other person to make or assume for it any other warranty or liability in connection with its weather instruments. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.



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