# MERLIN
INSTALLATION

PROPER INSTALLATION IS IMPORTANT.   IF YOU NEED ASSISTANCE,CONSULT A CONTRACTOR, ELECTRICIAN OR TELEVISION ANTENNA INSTALLER (CHECK WITH YOUR LOCAL BUILDING SUPPLY, OR HARDWARE STORE FOR REFERRALS). TO PROMOTE CONFIDENCE, PERFORM A TRIAL WIRING BEFORE INSTALLATION.

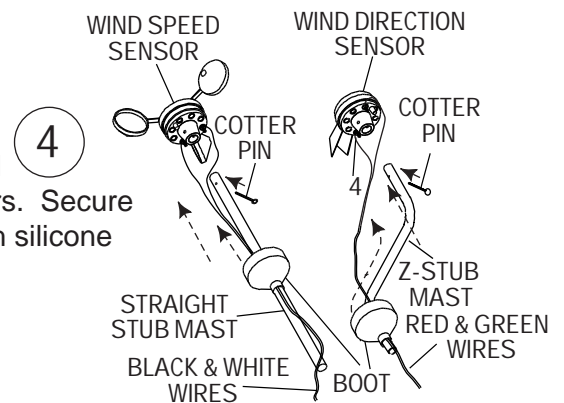**1** Determine where you are going to locate both the rooftop sensors and the read-out.

Feed the teminal lug end of the black and white wires through one of the rubber boots and connect the lugs to the terminals on the bottom of the wind speed sensor using the brass nuts provided.   The polarity does not matter. (Do NOT adjust the nuts that are already on the sensor).

2

BLACK AND WHITE WIRES

BOOT

RED WIRE
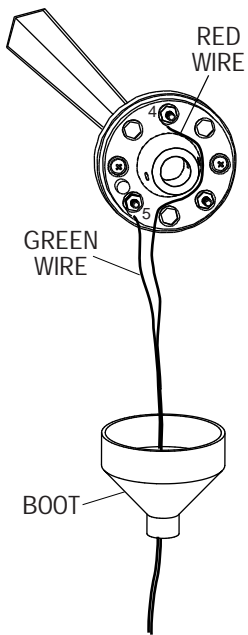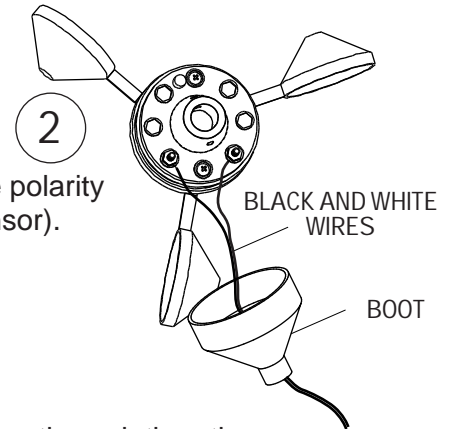
GREEN WIRE

BOOT

3 Feed the terminal lug end of the red and green wires through the other rubber boot.   Connect the red wire to the terminal marked #4. Connect the green wire to the terminal marked #5. The polarity MUST be observed. Use the hex nuts provided. (Do NOT adjust the nuts that are already on the wind direction sensor).

WIND SPEED SENSOR

WIND DIRECTION SENSOR

COTTER PIN

COTTER PIN

4
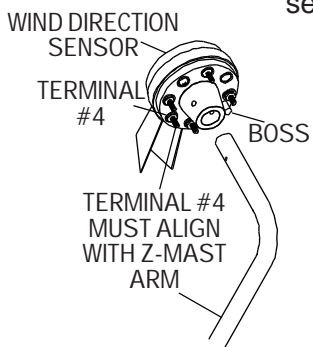
Slide the stub masts through the rubber boots and insert the stub masts into the bottom of the sensors. Secure with the cotter pins. Coat all wire connections with silicone sealant and slip the boots over the sensors.

STRAIGHT STUB MAST

BLACK & WHITE WIRES

BOOT

Z-STUB MAST

RED & GREEN WIRES

WIND DIRECTION SENSOR

TERMINAL #4

BOSS

TERMINAL #4 MUST ALIGN WITH Z-MAST ARM

4A When connecting the wind direction sensor to the Z-mast, make certain that terminal #4 is aligned with the Z-mast arm. If the sensor is not installed in this manner your wind direction readings will be incorrect.

5

Secure the sensors and stub masts to your antenna mast (not supplied) with the two hose clamps. **Align the wind-direction Z-mast arm to true North**. Radio Shack and similar stores have a selection of tall masts and roof mounting brackets. Choose a mount that best suits your location and provides at least eight feet of vertical clearance above objects on the roof.
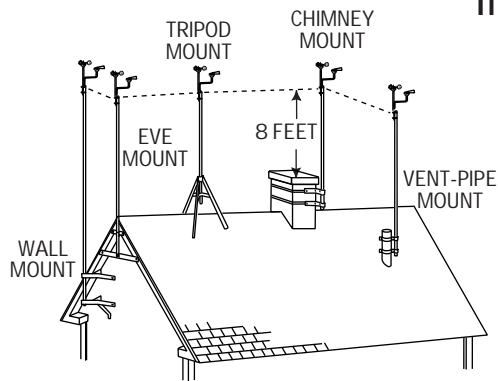
NORTH

HOSE CLAMPS
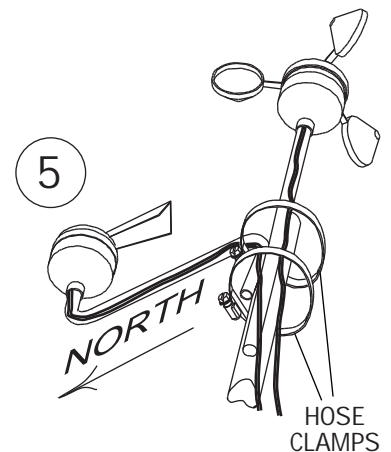
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Samuel Barnett Boulevard
New Bedford, MA 02745
(508) 995-2200

MERLIN
INSTALLATION
(continued)

TRIPOD
MOUNT

CHIMNEY
MOUNT

EVE
MOUNT

8 FEET

VENT-PIPE
MOUNT

WALL
MOUNT

6 Follow the instructions supplied with the antenna mount and secure the mast to the mount.

7

CABLE
CLIPS

WIRE

CAULK

DRIP
LOOP

Secure the wire to the building using cable clips (do not use regular staples). Form a drip loop where the wires enter the hole drilled through the exterior wall. Caulk the hole when done.

BRASS
NUTS

FROM AC
ADAPTER

1 2   4 5

GREEN
WIRE

RED
WIRE
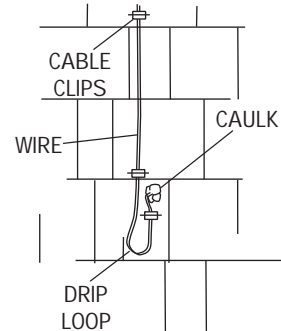
8 Feed the cables through the wall to where the read-out is going to be located. Attach the wires to the rear of the read-out as shown. The red wire from the direction sensor cable connects to terminal #4. the green wire to terminal #5. Connect the black and white wires from the speed sensor to terminals #1 and #2. The polarity does not matter. Although the cable shield itself is not connected, shielded cable must be used. Connect the wires from the AC adapter to the meter. The polarity does not matter. (Do NOT adjust the nuts that are already on the meter).

CABLE-HOLE

WALL

PANEL

SCREW
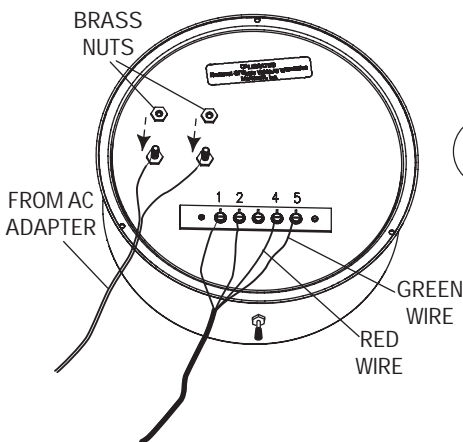
9 Mount the brass read-out directly over the cable feed-thru-hole to avoid crimping the wire under the lip. We recommend mounting the read-out on one of our pre-drilled and centered panels. Plug the power supply into a 110 VAC power outlet.

SCREW

MERLIN
PRESENT
PEAK

04

AVERAGE
FORCAST

MAXIMUM

S
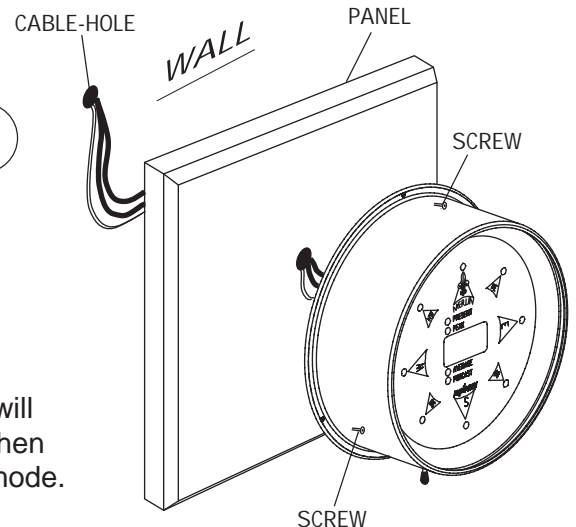
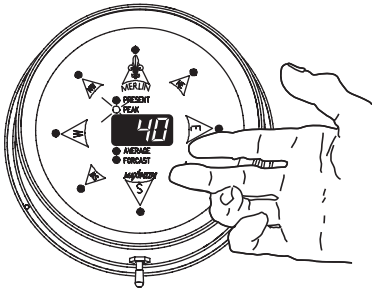**10** When Merlin first starts up it will perform a brief self-test and then go to the "Present" function mode.
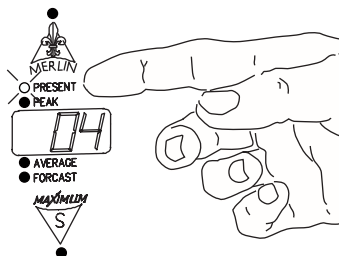
11 Reset all memory functions (see operating instructions). Resetting gives Merlin a fresh starting point for your reference.

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MERLIN
OPERATION

With the switch in the center (resting) position, MERLIN will display the information indicated by the illuminated function (Present, Peak, Average, or Forcast).

To select a function, move the switch to the right and allow it to return to the center. This toggles Merlin to the next function. Repeat this until you see the function that you wish.
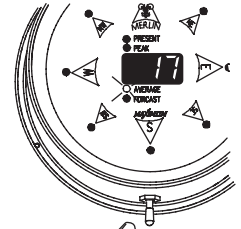
To auto-sequence through all of the functions, hold the switch to the right for at least three seconds. You will see each fucntion light stay on and the corresponding information displayed for approximately four seconds. MERLIN will then move to the next fuction automatically.
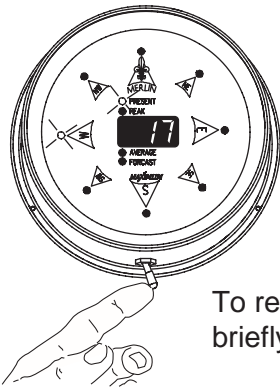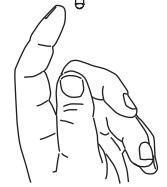
To return to the manual sequencing mode, move the switch briefly to the right and then let it return to center.

To reset all the stored funcions at once, select the "Present" function by moving the switch to the right and releasing until the "Present" light is illuminated. Then hold the switch to the left until the display blanks out (about six seconds). The unit will then perform a self-test and return to normal operation.
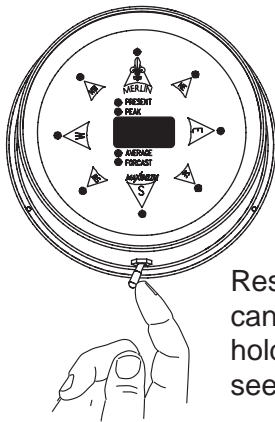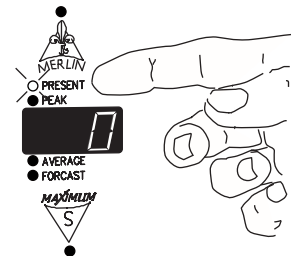
Resetting the Peak, Average and Forcast functions Individually can be done by toggling to the function that you wish to reset. Then hold the switch to the left for at least 6 seconds. At that point you will see the display reset itself.

IMPORTANT FACTS ABOUT YOUR MERLIN

Peak Wind- When first powering up MERLIN, after long power outages, or when totally resetting, the Peak Wind direction LEDs will not function until at least 1 MPH wind has been recorded.

Average Wind- The first reading after setting the Average will be the current wind speed. This reading will settle out as MERLIN accumulates more data. Prevailing wind direction lights will not function until 12 minutes after powering up or resetting. As with the wind speed there will be no prevailing direction indication if there is not wind.

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New Bedford, MA 02745
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MERLIN
IMPORTANT FACTS ABOUT YOUR MERLIN (CONT.)

Forcast- When first powering up MERLIN, after long power outages, or when totally resetting, the Forcast display will read "hld" (hold) for 24 minutes while MERLIN is loading its memory. During the 25th minute MERLIN will make a trend reading "inc" (increase), "dec" (decrease), "---" (no change) in wind speed based on comparing two 12-minute blocks of time. If there has been no wind for an entire 12 minute timing interval, the direction lights will blank out. If there is no wind for the next 12 minutes then the display will show "---" and the direction lights will remain off.

Wind Direction- MERLIN takes a reading *every second.* When the wind changes direction very rapidly (faster than 1 second), some direction lights may not light. This is normal operation as MERLIN is simply between readings.

Latch Up- Power Line disturbances or improper powering up (plugging in the AC Adapter before wiring) can cause a blank or improper display reading. If MERLIN is "latched up" proceed as follows:

1. Remove the Brass Indicator from the wall or panel.
2. Set the switch on the back of the indicator to the UNLATCH position.
3. Wait 15 seconds.
4. Set switch to NORMAL
5. Remount Indicator on wall or panel.
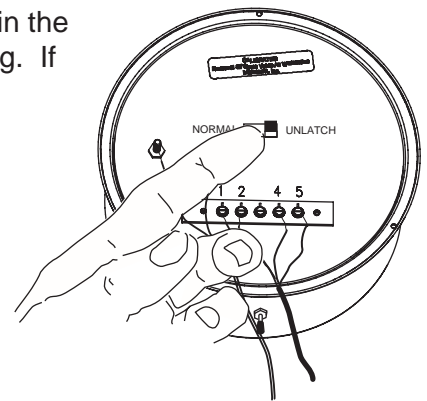
- During long power outages MERLIN's display will blank out and the instrument will not continue to accumulate data. It will preserve the previously accumulated data for up to 15 hours.

- Using the Forcast function and periodically updated Average function together, you can often watch not only small changes in wind conditions but more significant "backing" and "veering" pattens fortelling frontal movements.

- If you are unsure as to when Forcast made it's last update, wait more than 12 minutes and read again (it updates every 12 minutes).

- When MERLIN is in the *Peak, Average, and Forcast* modes the direction lights blink. This indicates that you are observing recorded data and not the present wind direction.

- Setting the switch to Auto does not erase stored data.

- You do not need to time the 6 second reset time, MERLIN will blank out the display to indicate that the memory has been erased.

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MERLIN
TROUBLE SHOOTING
(WIND DIRECTION)

Perform the latch up corrections as previously detailed.

The unit will now perform the self test, all LEDS will light for about 3 seconds. If you did not have time to check that all LEDS light, repeat the procedure. This will cause the self test to start again. If some or all of the LEDS do not light, then the fault is in the instrument.
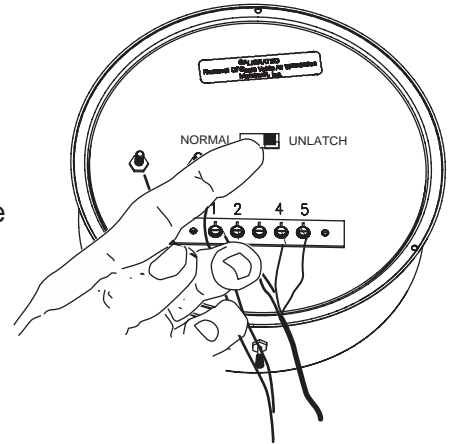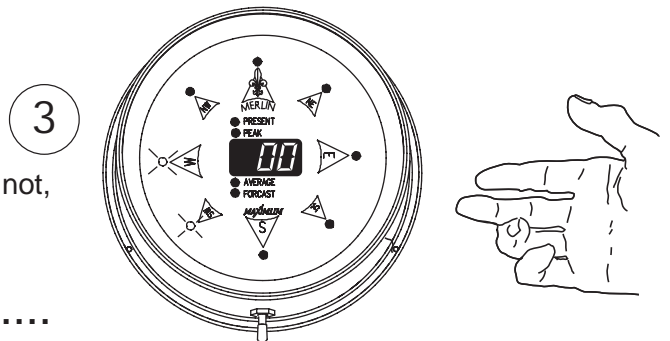
IF ALL LEDS LIGHT......
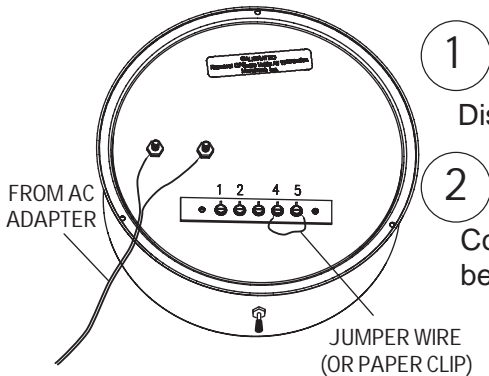
1 Disconnect the sensor wires from the back of the meter.

2 Connect a jumper wire (a paper clip will suffice) between terminals #4 and #5

3 The instrument should indicate "0" speed and "WSW" direction. If not, the fault is in the instrument.

IF THE INSTRUMENT TESTS OKAY......

1 Reconnect the wind direction wires. If there is still a fault in the wind direction portion, then the problem is in the wind direction sensor or the installed wire.
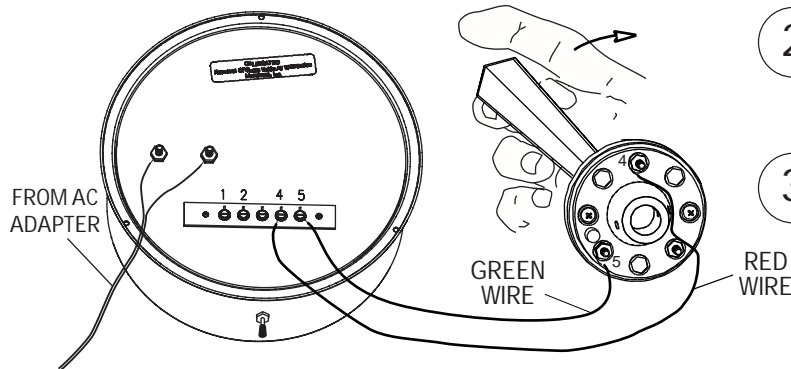
2 Remove the sensor from the roof and connect it to the indicator with short pieces of wire.
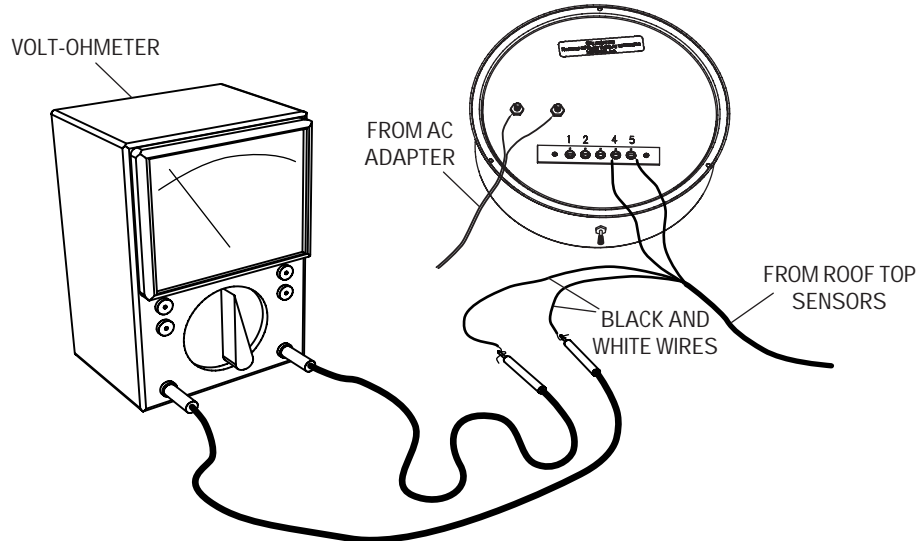
3 Rotate the vane slowly and observe the lights. If it still does not operate properly, then the fault is in the sensor. Otherwise the fault is in the installed wire.

MERLIN
TROUBLE SHOOTING
(WIND SPEED)

VOLT-OHMETER

FROM AC
ADAPTER

1 2 4 5

FROM ROOF TOP
SENSORS

BLACK AND
WHITE WIRES

IF THERE IS WIND......

(1) Disconnect the black and white wires from the back of the of the indicator and connect them to volt-ohmeter as shown.   Set for low range AC Volts.

(2) If the sensor is operating properly, you will achieve these approxiamte readings:
8-9 MPH   =   0.15 VAC rms
17 MPH   =   0.31 VAC rms
51 MPH   =   0.97 VAC rms
102 MPH   =   2.00 VAC rms

(3) If the sensor delivers the above approximate voltages, plus or minus, depending on an estimate of the wind speed, the fault lies in the indicator. If it does not deliver these voltages, the fault lies in the sensor or installed wire.

IF THERE IS NO WIND......

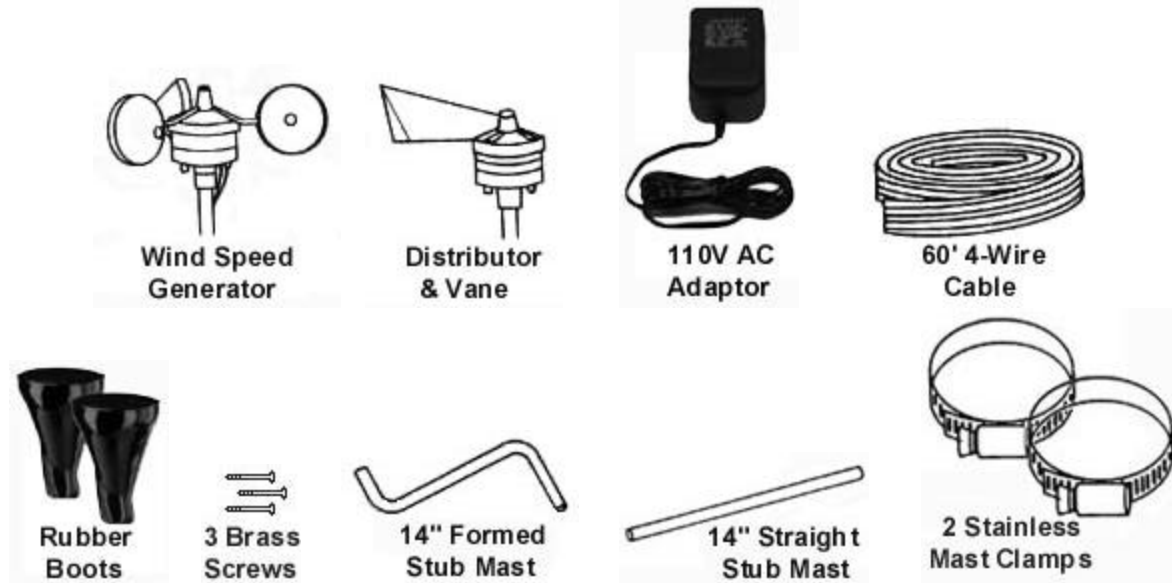(1) Disconnect the black and white wires from the back of the of the indicator and connect them to volt-ohmeter as shown.   Set the range for Ohms.

(2) If the sensor and wire are good, the ohm meter should indicate between 500 and 1,000 ohms. If there is a good reading on the ohm meter, then the idicator is at fault. If the reading is wrong, then the sensor or installed wire is at fault.

IMPORTANT ADDITIONAL INFORMATION

Components: Along with the indicator, the following components are included with this instrument:

Wind Speed Generator · Distributor & Vane · 110V AC Adaptor · 60' 4-Wire Cable

Rubber Boots · 3 Brass Screws · 14" Formed Stub Mast · 14" Straight Stub Mast · 2 Stainless Mast Clamps

Rooftop sensors: To insure a clear unobstructed path for the wind to the sensors, they should be mounted on some type of antenna mast at least 8-10' above the highest object on your roof. Remember, your roof is also an obstruction and it usually requires at least 8' of height to avoid the turbulence it creates.

AC Adaptor: This instrument requires its own AC Adaptor. Due to the various power requirements of each Maximum instrument, attempting to run more than one instrument on a single adaptor could cause improper operation and/or damage to the instrument(s) thereby voiding your 5-year warranty.

Sensors: Properly installed, your sensors will require virtually no maintenance at all. Our sensors do not utilize brushes or wiping contacts. All bearings are Rulon-J self lubricating type and will perform for many years in the harshest environments.

Brass Case: Your brass case is solid brass A70-30 Holloware quality, with a durable lacquer finish. It is in fact a piece of jewelry and should be treated as such. It should be cleaned at least once a week to keep airborne pollutants (dust, etc…) and any moisture from collecting on the case thereby attacking the lacquer. At no time should you use an abrasive cleaner or cloth on the brass case. Simply use a soft cloth or soft paper towel with a mild glass cleaner to wipe the case clean. If your instruments are in a summer home, and you are not able to clean them regularly, simply lay a small cloth or towel across the top two-thirds so that dust cannot settle on the finish.

Specifications: All instrumentation or measuring devices have accuracy tolerances and specifications. Making comparisons between different pieces of equipment is appropriate provided the specified accuracies of both are known.

	Measurement Range	**Guaranteed Accuracy**
Wind Speed	0-255 MPH	±2% Full Scale & Mid Scale
Wind Direction (Indicator)	16 Compass Points	Zero Error (Digital Display System)
Wind Direction (Sensor)		±11.25 Degrees