

OMNI Weather Station installation guide

Phason's OMNI Weather Station works with the OMNI-Weather software to monitor weather conditions at your site. This gives you accurate, local weather information instead of general conditions from an off-site location such as an airport.

The OMNI Weather Station (OWS) hardware consists of the sensors (wind speed, wind direction, temperature, and humidity) and the control unit. An optional Phason Rain Gauge (PRG) is available for monitoring rainfall. For more information, contact your dealer or Phason.

Installing the OMNI Weather Station

Read all the steps before installing the OMNI Weather Station and then follow them in the order they are listed.

Electrical ratings

The required power supply is the Phason Regulated Power Supply (RPS). For more information, see the RPS installation guide or contact your dealer.

- ◆ 10 to 14 VDC
- ◆ 100 mA

Parts included

- | | |
|---------------------------------|--------------------------------|
| ◆ Weather Station unit (OWS) | ◆ Curved shaft |
| ◆ Wind speed sensor | ◆ Straight shaft |
| ◆ Wind direction sensor | ◆ Two-inch hose clamps (2) |
| ◆ Thirty-foot temperature probe | ◆ Strain relief assemblies (3) |
| ◆ Forty-foot wire harness | ◆ Strain relief nut |

Additional parts required

In addition to the parts included with the OMNI Weather Station, you need to provide the following items.

- ◆ Antenna mast—high enough to mount the sensors at least 10 feet above and 10 feet away from any obstacles
- ◆ Antenna base, such as a tripod or gable mount
- ◆ Power supply (10 to 14 VDC)—Phason Regulated Power Supply (RPS)
- ◆ Power cable (AWG 20, weather resistant)—enough to go from the incoming power to the power supply, and from the power supply to the OWS
- ◆ Unshielded twisted pair (UTP) or shielded twisted pair (STP) cable, category 3 (CAT3) or category 5 (CAT5).



If you are using STP cable, you must follow the specific instructions in **Service Bulletin 24—Using shielded twisted pair (STP) cable to connect Phason networkable devices**. For more information, contact Phason Customer Support.

- ◆ Watertight strain reliefs or conduit connectors at all cable entry points
- ◆ Thread locking compound—LOCTITE 242 or equivalent
- ◆ Cable ties—UV/weather proof
- ◆ Compass

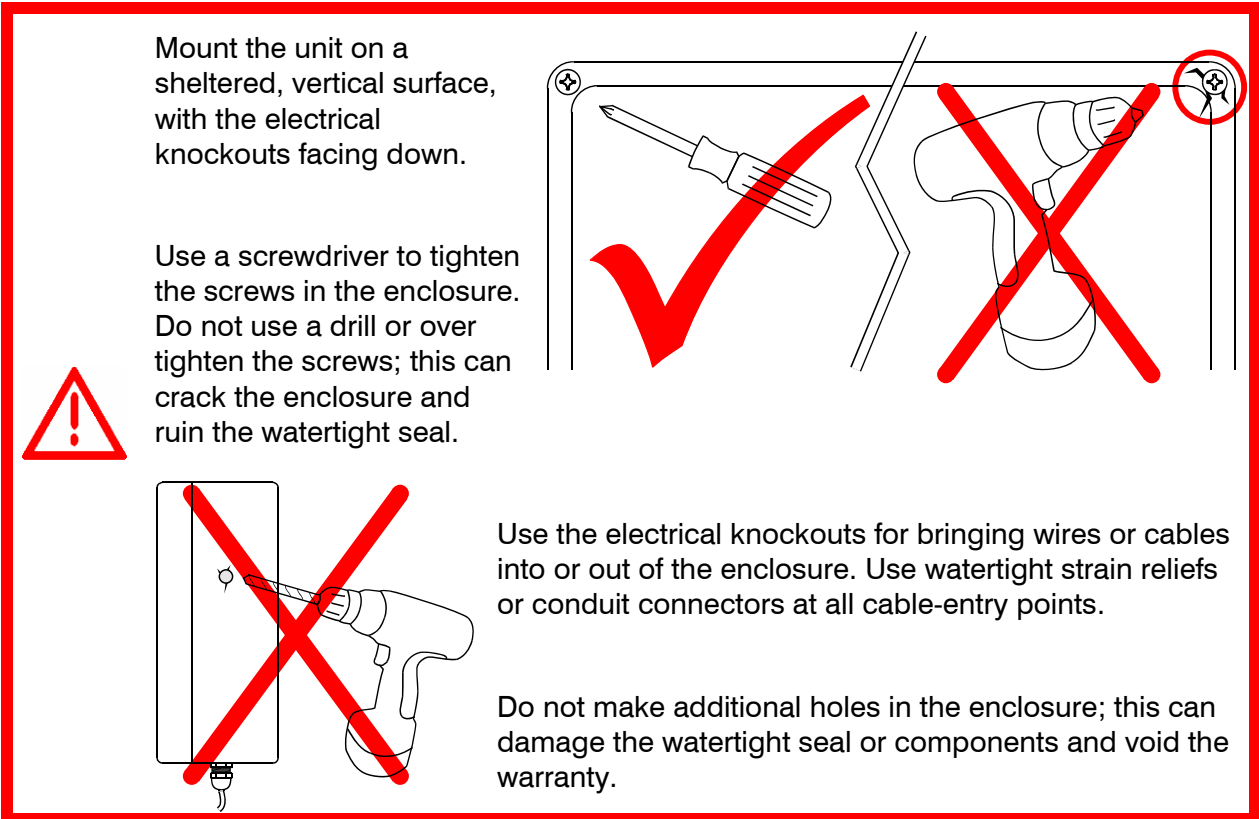
Precautions, guidelines, and warnings



The OMNI Weather Station must be installed by a qualified electrician.

Before installing or servicing the OMNI Weather Station, switch OFF the power supply at the source.

Install the OMNI Weather Station and all equipment connected to it according to local electrical codes.



Routing data wires

Routing data wires in the same conduit as, or beside AC power cables, can cause electrical interference, erratic readings, and/or improper control. Data wires include **all** of the following:

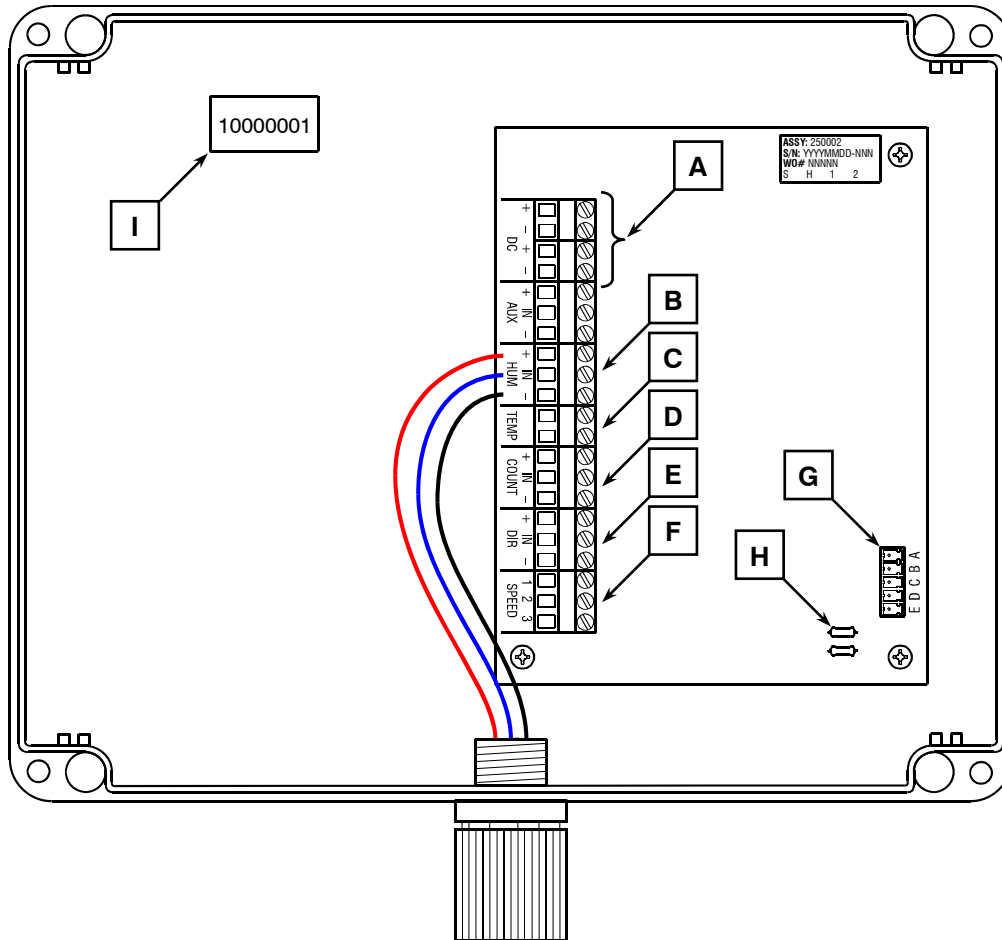
- ◆ Temperature probe and humidity sensor cables
- ◆ Actuator feedback (potentiometer) wires
- ◆ Data communication wires, including RS-232/RS-485
- ◆ Any cable or wire that does not provide AC power

Guidelines for routing data wires

- ◆ Do not run the wires in the same conduit as AC power cables.
- ◆ Do not run the wires beside AC power cables or near electrical equipment.
- ◆ When crossing other cables or power lines, cross them at a 90-degree angle.

If in doubt, **do not run any wire or cable that is not an AC-power wire** inside the same conduit or beside other AC-power wires.

OMNI Weather Station layout



- A** Incoming power terminals—connect the incoming power (10 to 14 VDC) to one of these terminals.
- B** Humidity sensor terminal—the Relative Humidity Sensor should already be connected to this terminal.
- C** Temperature probe terminal—connect the temperature probe to this terminal.
- D** Rain gauge terminal—if you purchased the optional Phason Rain Gauge, connect it to this terminal.
- E** Wind direction terminal—connect the wind direction sensor to this terminal.
- F** Wind speed terminal—connect the wind speed sensor to this terminal.
- G** Communication socket—connect the communication wiring to this socket.
- H** Termination resistors—If there are any devices on the communication channel after this one, then use wire cutters to remove only these two resistors.
- I** Address label—this is the address of the OWS on the OMNI-4000 system.

Select locations for the sensors and OWS

Before you install the OMNI Weather Station, select locations for the sensors and the OWS. The sensors mount on top of an antenna mast.

Mast location guidelines

When selecting a location for the mast, keep the following guidelines in mind.

- ◆ The OMNI Weather Station comes with a 40-foot wire harness. Select a location that allows you to connect the sensors to the OWS without using additional wiring.
- ◆ Select an area where obstacles such as trees, feed bins, or buildings will not affect the sensors.
- ◆ The sensors must be at least 10 feet above and 10 feet away from the tallest obstacle in the immediate area.

OWS location guidelines

When selecting a location for the OWS, keep in mind the following guidelines.

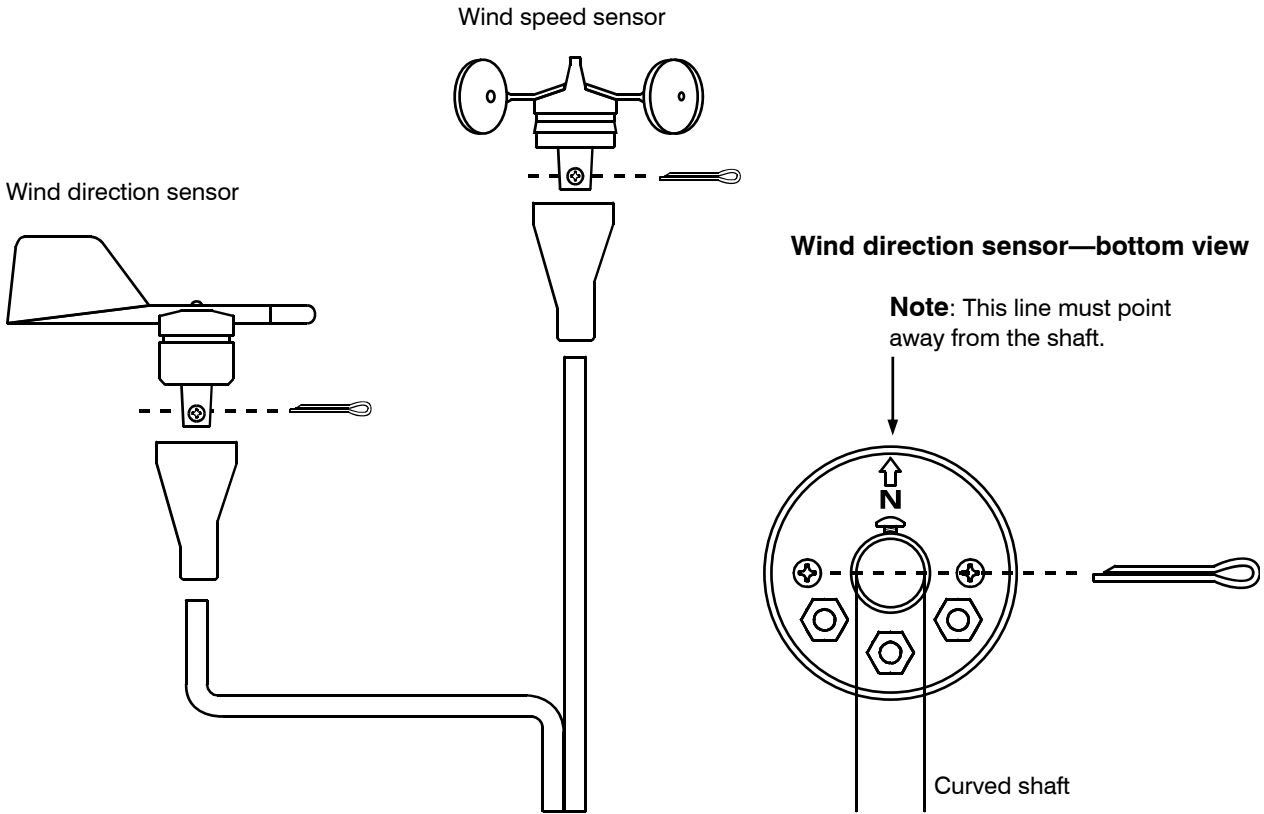
- ◆ The OMNI Weather Station has a temperature probe with a 30-foot cable. Select a location that allows you to mount the temperature probe where it will not be exposed to direct sunlight or other heat sources.
- ◆ You must mount the OWS on a sheltered, vertical surface.
- ◆ You must mount the OWS with the strain reliefs facing down.

Mount the base

Follow the manufacturer's instructions to mount the tripod or other mounting device at the location you have selected.

Mount the sensors to the shafts

1. Mount the wind speed sensor to the straight shaft as shown below.
2. Mount the wind direction sensor to the curved shaft as shown below.

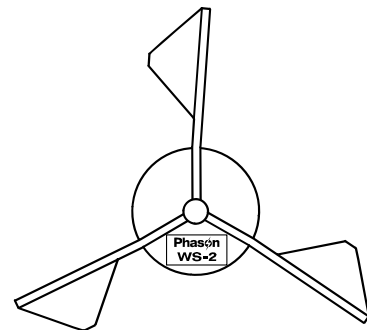


Wind speed sensor type

Most wind speed sensors have a label on the top that shows the sensor type. In the example on the right, the sensor type is WS-2.

If your sensor has no label, the sensor type is WS-1.

Write down this number; you will need it when configuring the software.

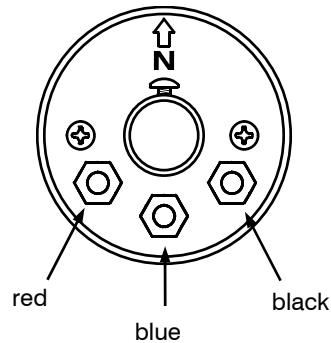
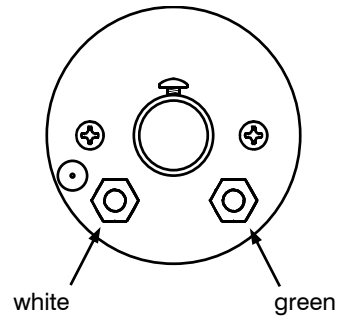


Mount the sensor assemblies to the mast

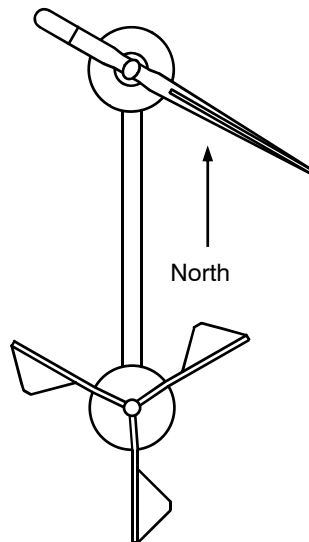
Mount the sensor assemblies to the mast using the hose clamps.

Connect the wire harness to the sensors

1. Insert the wires through the small hole in the bottom of the sensor covers.
2. Connect the ring terminals on the wire harness to the sensors as shown below.
3. To prevent the nuts from loosening after you connect the wires, apply a couple drops of LOCTITE 242 (or a similar product) to each nut.
4. Leave about three inches of slack wire at the sensor end and then use cable ties to attach the wire harness to the mast.

Wind direction sensor—bottom**Wind speed sensor—bottom****Mount the mast to the base**

1. Place the mast in the base.
2. Use a compass to align the sensors as shown below.
3. When the sensors are properly aligned, fasten the mast to the base.

Wind sensors—top view

Mount the OWS

1. Remove the cover from the enclosure.
2. Mount the OWS:
 - ◆ On a sheltered (out of the rain—such as under an overhang), vertical surface
 - ◆ With the strain reliefs facing *down*
 - ◆ *Away* from sources of humidity or heat (such as exhaust fans)

NOTE

Do not enclose the OWS in an attic or box. This can cause temperature and humidity readings to be inaccurate.

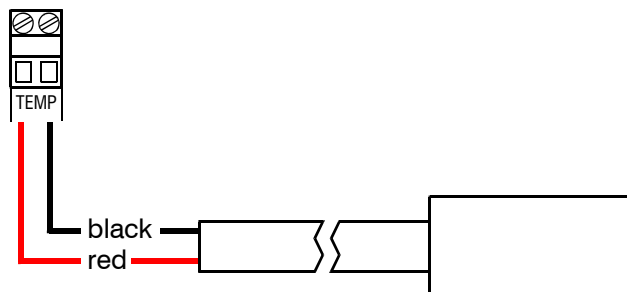
Connect the wire harness to the OWS

Connect the wire harness to the OWS terminal blocks according to the table below. See the drawing on page 2 for locations.

Wire color	OWS Connection
red	DIR +
blue	DIR IN
black	DIR -
green	Speed 1
white	Speed 2
brown	not used

Connect the temperature probe

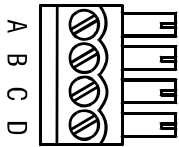
Mount the temperature probe where it will *not* be exposed to direct sunlight or other heat sources. Connect the temperature probe to the OWS as shown below.



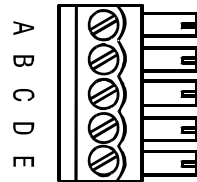
Connecting the communication wiring

There are three possible connector types on Phason devices. The four-positions, **A B C D**, are common to all models. Some models have five positions and include **E** for common reference wiring. The six-position connectors that include position **1** are included on the RS-485A and OMNI Alarm Manager (OAM) only. The proper connector alignment is shown below.

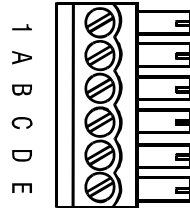
Four-pin connector



Five-pin connector



Six-pin connector



Using consistent wiring helps eliminate communication connection errors and makes troubleshooting much easier. Positions **A/B** and **C/D** must be twisted pairs. Use the wire colors shown below when connecting all devices to the communication system.

Wire function	RS-485A wire colors	First device	All remaining devices
1 alarm signal ^①	1 white/green	1 white/green	1 white/green
A communication	A blue	A blue	A blue
B communication	B white/blue	B white/blue	B white/blue
C communication	C orange	C orange	C orange
D communication	D white/orange	D white/orange	D white/orange
E common reference ^②	E green	E green	E green

① For OMNI systems with an OMNI Alarm Manager only
 ② Not available on all models. IF there is no **E** position, connect common reference to the **DC -** terminal.

Using common reference wiring

Common reference wiring helps eliminate communication problems. The common reference wire normally connects to position E on the connector.

For controls having only four-position connectors, it is a good idea to leave the communication cable one foot longer than is needed for connecting to the terminals (A, B, C, and D). You can then use the extra length of wire to connect to a reference point on the circuit board in place of the E terminal.

For information about which terminal to use in place of the E terminal, see the user manual for the specific device, or contact Phason Customer Support.

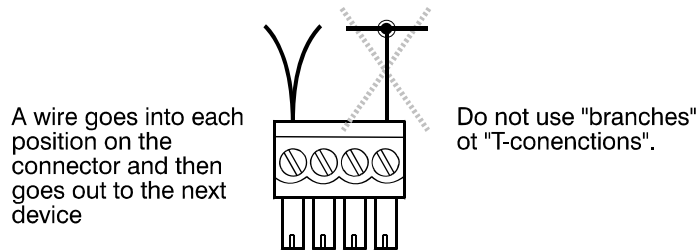
Common mistakes in communication wiring

- ◆ *Not using the correct type of communication cable*—the communication cable must be twisted pair cable, category 3 (CAT3) or category 5 (CAT5). You can use either unshielded twisted pair (UTP) or shielded twisted pair (STP) cable. Phason does not recommend other types of wire.



If you are using STP cable, you must follow the specific instructions in **Service Bulletin 24—Using shielded twisted pair (STP) cable to connect Phason networkable devices**. For more information, contact Phason Customer Support.

- ◆ *Not continuing the communication wiring properly*—all the devices on the communication channel must be connected in series (in a daisy-chain) and the wire must be continued properly from one device to the next. When continuing the communication wiring from one device to the next, the wires must be connected as shown below.



- ◆ *Not terminating the last device on the communication channel*—on all systems, the last device on the communication channel must have the termination resistors in place or a termination module installed.

The termination resistors are located on the circuit board of all OMNI-4000 devices. You must remove the termination resistors from all devices, except the last one on the communication channel. For the location of the termination resistors on the OWS, see **OMNI Weather Station layout** on page 4. For more information about the location of termination resistors on other devices, see the installation guide for the specific product.

If you remove the termination resistors from the last device by mistake, you will have to install a Termination Module on that device. The Termination Module connects to the communication socket on the last device. For information about Termination Modules, contact your dealer or Phason Customer Support.

- ◆ *Running the communication cable in the same conduit as, or beside AC power cables*—routing communication cable in the same conduit as, or beside AC power cables, can cause electrical interference and communication failures. Follow the guidelines below when routing communication cable.
 - ◆ Do not run the cable in the same conduit as AC power cables.
 - ◆ Do not run the cable beside AC power cables or near electrical equipment.
 - ◆ When crossing other cables or power lines, cross them at a 90-degree angle.

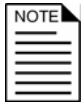
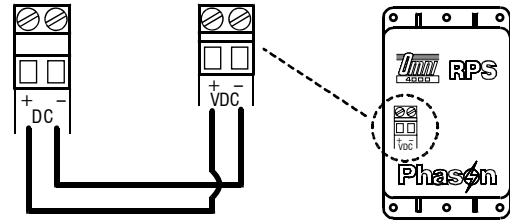
To connect the communication wiring

1. Connect all the devices in series. For example, 'A' on the RS-485A to 'A' on the first device, to 'A' on the second device, and so on.
2. Remove the termination resistors from each device, *except for the last one on the communication channel*. The last device must have the termination resistors in place. For the location of the termination resistors, **OMNI Weather Station layout** on page 4.

Connect the incoming power

The required power supply is the Phason Regulated Power Supply (RPS). For more information, see the RPS installation guide or contact your dealer.

Connect the OWS to the power supply as shown to the right.



The OWS has two DC power terminal blocks. If you have another device that requires the same DC power, you can connect it to the second terminal block. Do not exceed the ratings of the power supply.

Fasten the cover to the OWS

1. Check to make sure you have connected all the wires to their proper locations.
2. Fasten the cover to the OWS.



The cover has a gasket that seals the enclosure. You do not need to seal it with silicone or another sealant.

If you choose to seal the enclosure, use a sealant that is labelled as 'non-corrosive', 'electronics grade', or 'neutral cure', such as GE Silicone RTV6780B, RTV 142, or RTV 162.

Do not use a sealant that is labelled as 'acetic acid cure' or 'acetoxycure'. These sealants release acetic acid while curing, which can damage the OMNI Weather Station and void the warranty.

Service and technical support

Your dealer will be happy to answer all technical questions. Before contacting your dealer or Phason, check the following:

- ◆ Read this manual and verify that all sensors are connected to their proper locations and that all jumpers are in their proper positions.
- ◆ Make sure the communication wiring is correct. For more information, see **Connecting the communication wiring** on page 9.
- ◆ If you still have a problem, collect the following information:
 - ◆ Any messages displayed by the OMNI-Weather software
 - ◆ A description of the problem
 - ◆ A description of what you were doing before the problem occurred

Limited warranty

This warranty applies only to the Phason Inc. (Phason) OMNI Weather Station (OWS). If you need warranty service, return the product and original proof of purchase to your dealer.

Phason warrants the OWS subject to the following terms and conditions.

This warranty is valid only to the original purchaser of the product, for two years from the manufacturing date. The manufacturing date is stated in the first eight digits of the serial number in the form year-month-day.

Phason hereby warrants that should this product fail because of improper workmanship, Phason will repair the unit, effecting all necessary parts replacements without charge for either parts or labor.

Conditions

- ◇ Installation must be done according to our enclosed installation instructions.
- ◇ The product must not have been previously altered, modified, or repaired by anyone other than Phason.
- ◇ The product must not have been involved in an accident, misused, abused, or operated or installed contrary to the instructions in our user and/or installation manuals. Phason's opinion about these items is final.
- ◇ The person requesting warranty service must be the original purchaser of the unit, and provide proof of purchase upon request.
- ◇ All transportation charges for products submitted for warranty must be paid by the purchaser.

Except to the extent prohibited by applicable law, no other warranties, whether expressed or implied, including warranties of merchantability and fitness for a particular purpose, shall apply to this product. Any implied warranties are excluded.

Phason is not liable for consequential damages caused by this product.

Phason does not assume or authorize any representatives, or other people, to assume any obligations or liabilities, other than those specifically stated in this warranty.

Phason reserves the right to improve or alter the OWS without notice.

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