WatchDog

Digital Anemometer

PRODUCT MANUAL

Item # 3305ADD

Spectrum® Technologies, Inc.

CONTENTS

This manual will familiarize you with the features and operation of your new Digital Anemometer. Please read this manual thoroughly before using your instrument.

Specifications

Wind Direction

Range	0 to 359°
Resolution	1°
Accuracy	± 3°

Wind Speed

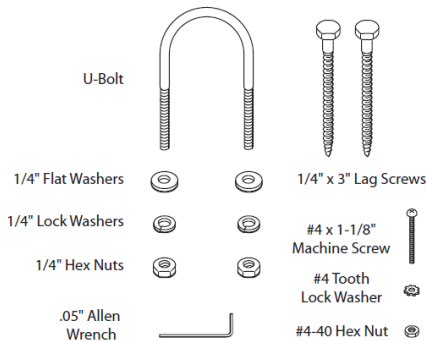|	
Range	0, 1 to 200 mph (0, 1 to 322 km/h)
Accuracy	± 2 mph (± 3 km/h), ± 5%

Components

The anemometer includes the components listed below. Be sure you have all listed components before continuing. Assess your installation and make sure you have all necessary parts, tools, and materials pictured below before you begin.

Wind Vane

Wind Cups

Anemometer Arm
with 40 feet (12.2 meters)
of cable
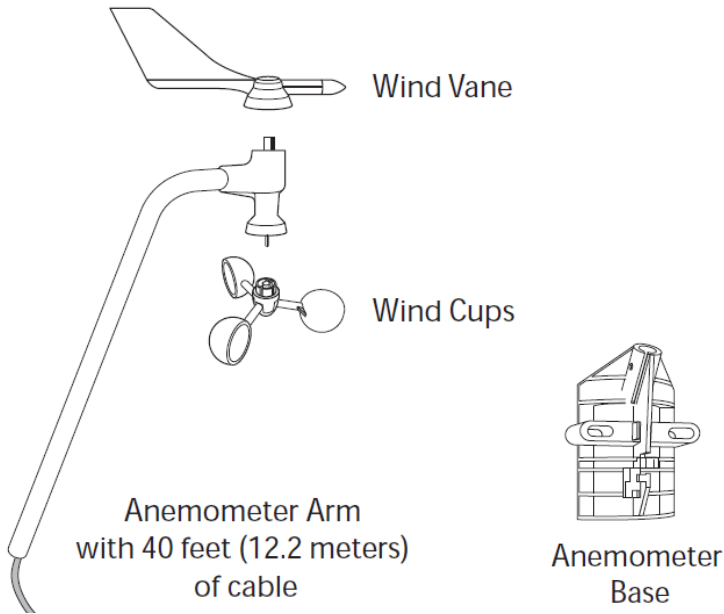
Anemometer
Base

Hardware

The hardware kit contains the items most commonly needed for the installation of the anemometer. Which items you use from the kit depend on where you install your unit. You may need to adapt or purchase additional hardware to fit your individual requirements.

U-Bolt

1/4" Flat Washers

1/4" Lock Washers

1/4" Hex Nuts

.05" Allen
Wrench

1/4" x 3" Lag Screws

#4 x 1-1/8"
Machine Screw

#4 Tooth
Lock Washer

#4-40 Hex Nut

Tools and Materials Needed

In order to confirm the anemometer is reading accurately, you will need access to the **SpecConnect Web Portal** or a computer on which the Retriever and Pup Launch Utility (RPLU) has been installed.

You will also need the following tools and materials to install your anemometer:

- Cable Clips or Weather-Resistant Cable Ties
- Stainless Steel Hose Clamps
- Small Screwdrivers
- Adjustable Wrench
- Hand-Held Compass or Local Area Map

Assembling the Anemometer

Attach the wind cups to the anemometer and check the mounting base orientation before you install it.

Attaching the Wind Cups

Before installing the anemometer, attach the wind cups. Wait until you have installed the anemometer before you attach the wind vane.

1. Push the wind cups onto the smaller of the two stainless steel shafts.

Push cups onto stainless steel shaft

Wind cup shaft

Tighten set screw with Allen wrench
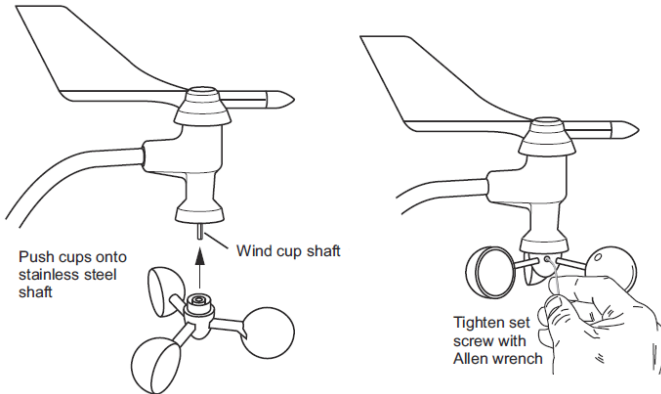
2. Slide the wind cups as far up the shaft as possible.
3. Use the allen wrench provided to tighten the set screw on the side of the wind cups.
4. Spin the wind cups. If they do not spin freely, loosen the set screw, lower the cups slightly, then retighten the set screw.
5. Repeat Step 4 until the wind cups spin freely.

Choosing the Best Anemometer Location

Use the following guidelines to determine the best location for your anemometer.

• Install the anemometer in a location where wind flow is unobstructed by trees and nearby buildings.

• For the most accurate readings, the anemometer should be mounted at least 4 feet (1.2 m) above the roof line.

• You may do this by mounting the anemometer on a television antenna mast, wooden post, or metal pipe.

• Make sure the antenna mast or metal pipe is properly grounded. You may want to use Davis' Grounding Kit.

• If you are not certain about how to ground your installation, consult a qualified professional for national and local codes.

Orienting the Anemometer Arm

The wind vane rotates 360° to measure current wind directions. To obtain accurate readings, the vane must be correctly oriented when mounting the anemometer. By default, the wind vane considers direction of the anemometer arm to be true north.

To ensure correct orientation of the wind vane, mount the anemometer so that the arm points to true north. If it is not possible or practical to mount the arm in this manner, direction to north can be adjusted. See **Direction Calibration** (p. 10) for details.

Installing the Anemometer

Note: Only 3 digital anemometers can be connected to a
*WatchDog Sensor Pup.*

Check the Anemometer Base Orientation

Decide which way to orient the base before installing it.

1. Insert the anemometer arm into the base.
2. Attempt to push the #4-40 x 1 1/4" pan head screw through the holes in the arm and the base.
3.If the screw does not slide easily through the holes, rotate the base 180° to line up the opposite holes and try again.

Installing the Base on a Wooden Post or Surface

1. Hold the anemometer base against the wood surface and use a pencil to mark the location of the four holes on the base.
2. Use a drill with a 3/16" (5-mm) drill bit to make pilot holes in these locations.
3. Drive the lag screws through the holes in the anemometer base and into the wood.
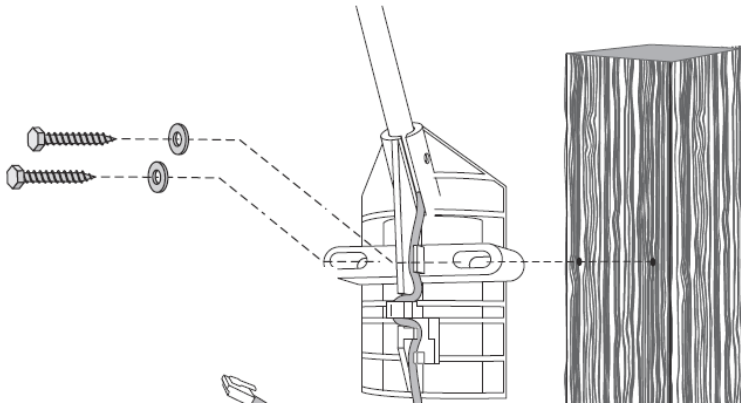
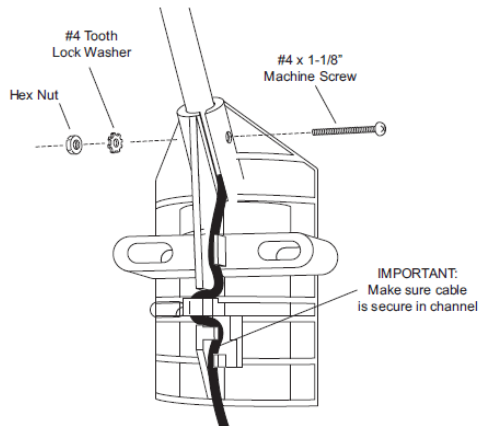## Installing on Antenna Mast or Metal Pipe

Use the supplied U-bolts to mount on an antenna mast or pipe with an outside diameter between 1 1/4" and 1 3/4" (32 to 33 mm).

To mount on a smaller pole, obtain a U-bolt that fits the base openings but that has a shorter threaded section.

1/4" Flat Washer
1/4" Lock Washer
1/4" Hex Nut

U-Bolt

Anemometer
Mounting Base
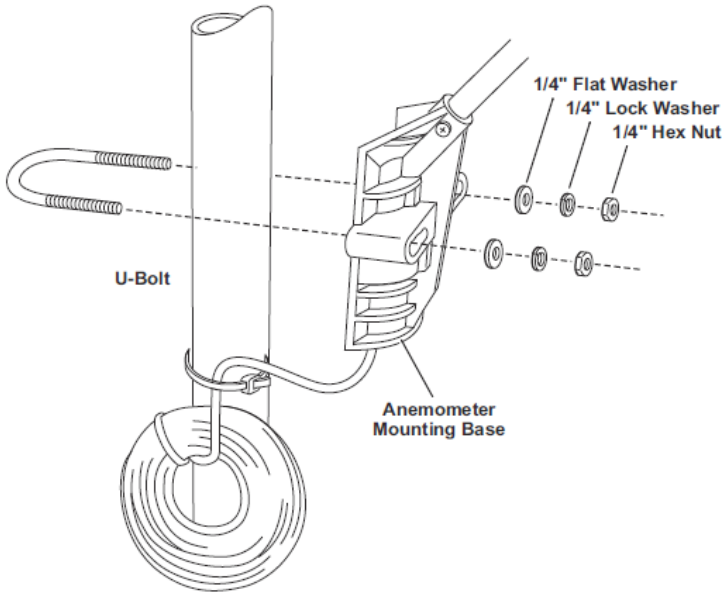
Attaching Arm to Base

1. Insert the anemometer arm into the anemometer base. Guide the anemometer cable through the slot as you insert the arm.

2. Insert the pan head screw into one of the holes in the base and slide it through the arm.

3. Secure the pan head screw using the flat washer, lock washer, and hex nut as shown.

#4 Tooth
Lock Washer

Hex Nut

#4 x 1-1/8"
Machine Screw

IMPORTANT:
Make sure cable
is secure in channel

Installing the wind vane

1. Slide the wind vane down onto the shaft as far as it will go. (Because of the shape of the shaft, the vane will only go on one way.)
2. Use the allen wrench provided to tighten the set screw on the side of the wind vane.

Testing the Anemometer Assembly

The values measured by the anemometer can be seen by observing the latest station update in SpecConnect or by downloading the flash drive from the Retriever to the Retriever and Pup Launch Utility (RPLU). Because of the measurement interval used by the Pup, allow approximately 15 seconds for the reading to stabilize after adjusting the wind cups or vane.

1. Using the compass or map as a guide, point the wind vane in any direction. Confirm the Sensor Pup logs the correct wind direction.
2. Spin the wind cups to make sure you get a wind speed reading. Readjust the cups if necessary.

After successfully testing the anemometer, secure the sensor cable to the metal mast or pipe with electrical tape or zip ties.

Configuring the Pup to Use the Digital Anemometer

The Sensor Pup must have one of its available ports configured for wind to use the Digital Anemometer. Both the Retriever and Pup must be running firmware version 01.04.XX or higher to use the Digital Anemometer. The Anemometer can be used on any port on the Pup. When configured for wind, the Pup supplies three data points:

1. Wind Direction (in 1 degree increments)
2. Wind Gust (highest measured wind speed during the log interval)
3. Average Wind Speed (averaged over the log interval)

When the anemometer is selected in the Retriever & Pups Launch Utility (RPLU), the three parameters above are automatically set and no additional channels may be configured for that port. In **Spec-Connect**, the parameters also may not be changed from the set channels and the corresponding channels must be turned On for each parameter to be reported.

Configuration using RPLU

Configuration using SpecConnect

Direction Calibration

If it is not possible to point the anemometer arm toward true north, the following procedure allows you to reprogram the sensor so wind direction will be accurate.

1. Ensure the unit is plugged into the Sensor Pup and the Pup has been already configured for the anemometer in the port being used.
2. Obtain a strong magnet, such as those used on refrigerators. Flat, flexible business-card types are not useable; hard, disk-type magnets (such as rare-earth magnets) are preferred.
3. Align the wind vane such that tip points toward the north. A compass or map reference should be used to ensure accurate direction.
4. With the wind vane held in the correct direction, hold the magnet over the center of the black bulge in the wire just below where the cable plugs into the Pup. See image below for proper placement.
5. The LED on the cable will light up red when the magnet is in the proper location.
6. Keep the magnet in place for about 5 seconds or until the LED flashes. The new north direction has been set and the magnet should be removed and the wind vane released.
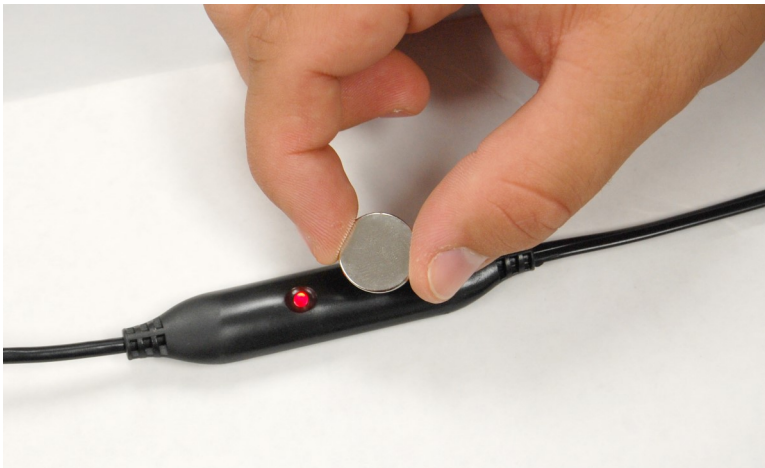
Troubleshooting

While your anemometer is designed to provide years of trouble-free operation, occasionally problems may arise. If you are having a problem with your unit, please check the following troubleshooting procedures before sending the unit in for repair. You will be able to solve many of the problems yourself. If, after checking these procedures you are unable to solve the problem, please call Spectrum Technical Support for further instructions.

Wind speed constantly or intermittently reads 0.

• Make sure anemometer is fully plugged into jack on Sensor Pup.

• Check for broken wire along length of anemometer cable. Carefully check areas where the cable has been secured.

• If you still do not get a reading, the problem is with the anemometer.

Wind speed reading seems too high, too low, or is dashed out.

• Check installation by spinning wind cups. If the wind cups spin freely and the Sensor Pup logs a wind speed, the wind cups are installed correctly. If the wind cups don't spin freely, then try dropping the wind cups approximately 1/16" to 1/8" (1.5 to 3 mm). Use the included Allen wrench to loosen and retighten the wind cup assembly .

• Check for any obstructions blocking the wind near the anemometer.

• A WatchDog Sensor Pup can only accommodate 3 digital anemometers. If you have connected 4, this will lead to inaccurate readings.

Maintenance

Your anemometer does not require any regular maintenance.

CAUTION:

DO NOT attempt to lubricate the wind cup shaft and bearings or the wind vane shaft. Natural or synthetic lubricants will inhibit the normal operation of the anemometer.

Warranty

This product is warranted to be free from defects in material or workmanship for one year from the date of purchase. During the warranty period Spectrum will, at its option, either repair or replace products that prove to be defective. This warranty does not cover damage due to improper installation or use, lightning, negligence, accident, or unauthorized modifications, or to incidental or consequential damages beyond the Spectrum product. Before returning a failed unit, you must obtain a Returned Materials Authorization (RMA) from Spectrum. Spectrum is not responsible for any package that is returned without a valid RMA number or for the loss of the package by any shipping company.

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