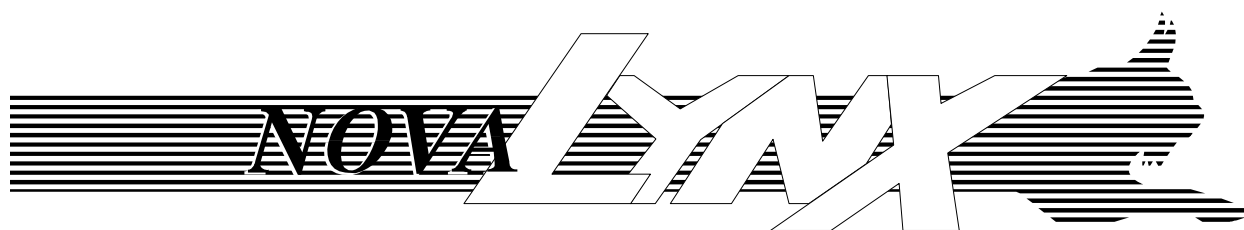


# **NOVALYNX CORPORATION**

**MODEL 200-WS-01B  
WIND SPEED SENSOR**

**INSTRUCTION MANUAL**



## Receiving and Unpacking

Carefully unpack all components and compare to the packing list. Notify NovaLynx Corporation immediately concerning any discrepancy. Inspect equipment to detect any damage that may have occurred during shipment. In the event of damage, any claim for loss must be filed immediately with the carrier by the consignee. Damages to equipment sent via Parcel Post or UPS require the consignee to contact NovaLynx Corporation for instructions.

## Returns

If equipment is to be returned to the factory for any reason, call NovaLynx between 8:00 a.m. and 4:00 p.m. Pacific Time to request a Return Authorization Number (RA#). Include with the returned equipment a description of the problem and the name, address, and daytime phone number of the sender. Carefully pack the equipment to prevent damage or additional damage during the return shipment. Call NovaLynx for packing instructions in the case of delicate or sensitive items. If packing facilities are not available take the equipment to the nearest Post Office, UPS, or other freight service and obtain assistance with the packaging. Please write the RA# on the outside of the box.

## Warranty

NovaLynx Corporation warrants that its products are free from defects in material and workmanship under normal use and service for a period of one year from the date of shipment from the factory. NovaLynx Corporation's obligations under this warranty are limited to, at NovaLynx's option: (i) replacing; or (ii) repairing; any product determined to be defective. In no case shall NovaLynx Corporation's liability exceed product's original purchase price. This warranty does not apply to any equipment that has been repaired or altered, except by NovaLynx Corporation, or that has been subjected to misuse, negligence, or accident. It is expressly agreed that this warranty will be in lieu of all warranties of fitness and in lieu of the warranty of merchantability.

## Address

**NovaLynx Corporation**  
**4055 Grass Valley Highway, Suite 102**  
**Auburn, CA 95602**  
**Phone: (530) 823-7185**  
**Fax: (530) 823-8997**  
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# **NovaLynx Corporation**

## **Model 200-WS-01B Wind Speed Sensor Instruction Manual**

### **1.0 INTRODUCTION**

This manual contains information to aid users of the 200-WS-01B Wind Sensor in the design of custom interface circuits. Data is supplied to systems integrators with the express understanding that NovaLynx Corporation assumes no responsibility or liability for the operation of the wind sensor as a part of any equipment that has been designed or furnished by any organization other than NovaLynx.

#### **1.1 Anemometer**

The 200-WS-01B Anemometer uses three rotating cups to sense wind velocity. As the wind blows past the cups, the pressure of the wind against the insides of the cups causes them to rotate. There are three permanent magnets embedded in the hub that holds the cups. Each magnet, as it rotates past a fixed point on the sensor base, activates a magnetic reed switch mounted in the base. Three closures of the reed switch will be produced for each revolution of the cup assembly. The contacts of the magnetic reed switch capsule are normally open; the contact will close each time a magnet passes over it. The ratio of closed-to-open time is nominally 1/10 of the total period for a revolution of the wind cups. This 1/10th duty cycle may change slightly as the sensor ages and with exposure to temperature extremes.

The anemometer is rated for wind speeds up to 125 miles per hour and has a starting threshold of approximately 1 mile per hour. The magnetic reed switch capsule is rated to carry a maximum current of 10.0 milliamperes with an applied voltage of no more than 50 volts AC or DC. The approximate speed constant for the anemometer is 1.25 mph/Hz. The wind sensor is supplied with 40' of 2-conductor 24AWG shielded cable. The end of the cable is unterminated allowing connection to a variety of monitoring equipment.

## 2.0 SPECIFICATIONS

Turning radius:	4.25"
Speed threshold:	1.2 mph
Transducer type:	Reed switch, magnet-activated
Speed constant:	1.25 mph = 1 Hz
Measurement range:	0-99 mph
Accuracy:	1 mph or $\pm 3\%$
Size:	4.5" H x 8.5" W
Mounting:	1-1/16" o.d. pipe (Standard ASTM Schedule 40, 3/4" pipe)
Cable:	2-conductor, 24 AWG, shielded, 40' standard
Weight/Shipping:	1 lb/2 lbs

## 3.0 INSTALLATION

For meteorological observations, choose a mounting location for the wind sensor that is free from obstructions, especially on the up wind side of the sensor. Standard exposure of wind sensors is thirty feet above ground level. For roof mounted sensors, the anemometer should be at a height that is 1-1/2 the height of the building. If the building is extremely tall, or the 1-1/2 times the height is impractical, mount the sensor at a height that is at least thirty feet above the roof and as close as possible to the up-wind side of the building. Avoid overhead power lines, exhaust vents, and other objects that can cause disturbances currents in the air flow around the sensor.

**WARNING:** Use extreme caution to avoid contacting overhead electrical power lines during the anemometer installation. NovaLynx recommends using only experienced installers to avoid injury and serious problems.

Typically, the 200-WS-01B Anemometer is mounted onto a pipe or a mast. A mast size of 1" to 1-1/16" outside diameter works best. If the pole is metal it should be properly grounded to minimize lightning damage. It may be necessary in some locations to contact a local contractor to ensure that local electrical codes have been met by the installer. The mast should be easy to reach for servicing the sensor and should be properly anchored and grounded. Position the wind sensor onto the end of the mast. Secure the sensor to the mast using the set screws provided in the sensor base. Do not

use excessive force when tightening the screws. Simply tighten the screws until the sensor base can no longer be manually rotated.

The anemometer signal cable is routed down the mast and to the monitoring equipment in the most direct manner. Fasten the cable to the mast to protect the cable from damage during high velocity winds. For best results, use plastic cable ties that are resistant to deterioration by ultra-violet radiation and place them at intervals of two feet. Along areas where there is no mast or there is some other type of support structure, use the most appropriate method available to fasten the cable to the support. Use care when installing the cable to avoid sharp bends, excessive twisting, scrapes and nicks. Additional cable protection can be provided by using plastic or metal conduit.

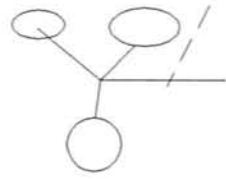
## **4.0 MAINTENANCE**

Maintenance of the anemometer is limited to testing of the sensor's operation and accuracy, and visual inspection for damage. Maintenance should be done regularly to prevent loss of data and to increase the life of the equipment.

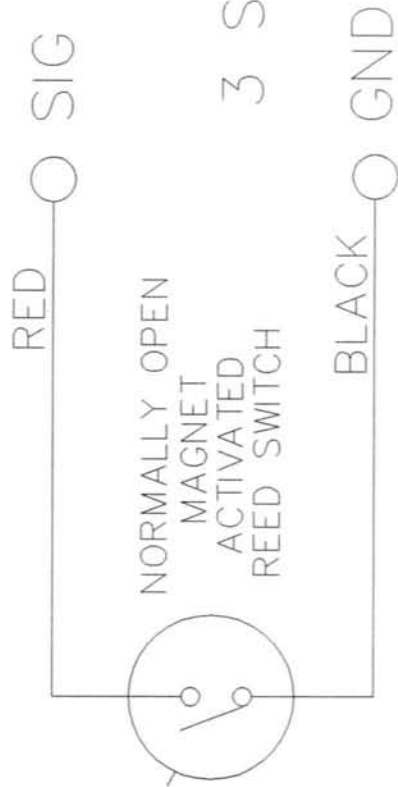
Test the sensor's operation by comparing the output signal of the anemometer to that of a calibrated standard positioned near the anemometer and at the same height. For locations that do not have access to a calibrated standard, check to ensure that there are three switch closures for each cup assembly rotation. Perform this check by manually rotating the cups and observing the sensor's output using an ohmmeter.

Visual inspection should include checking the cable for damage. Repair or replace any damaged cable or sensors as soon as possible. Any anemometer with a damaged or missing cup must be replaced immediately. Check all mounting hardware. Tighten any loose hardware and replace any missing or damaged hardware.

For critical locations, a second anemometer should be stored nearby for immediate replacement should the primary sensor become damaged or disabled.



3-CUP  
ANEMOMETER



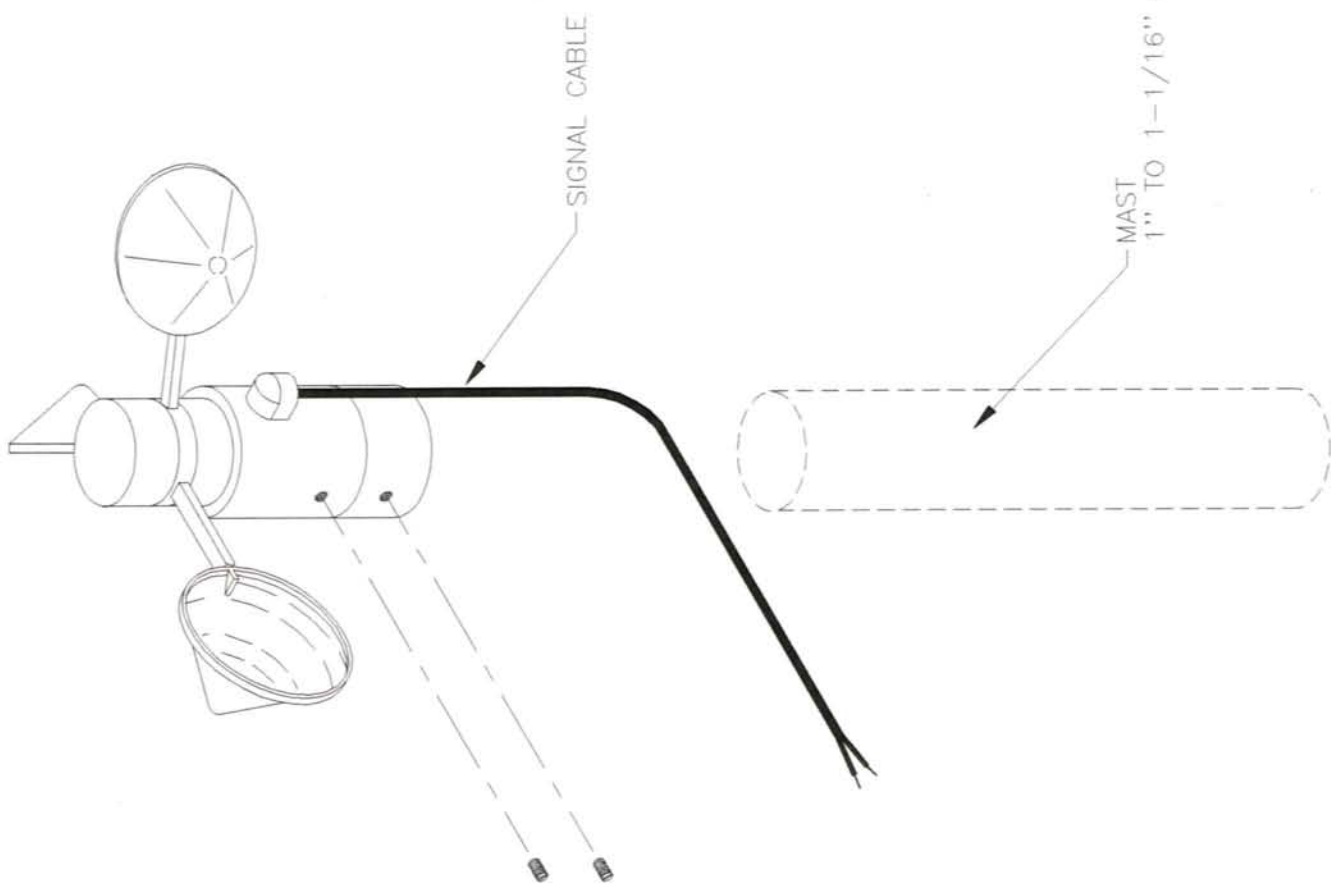
NORMALLY OPEN  
MAGNET  
ACTIVATED  
REED SWITCH



3 SWITCH CLOSURES  
PER REV

		C
TITLE SCHEMATIC, WIND SPEED SENSOR, MODEL 200-WS-01B		
MODEL USAGE 200-WS-01B	SCALE	DWG. NO. SHEET 1 OF 1
BY RGN	SCALE	DWG. NO. SHEET 1 OF 1
DATE 12-8-97	NONE	10000356

REVISIONS		
REV	DESCRIPTION	DATE
A	UPDATE & REFORMAT	04/15/98
		APPROVED



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ENG:		C	10000355
MODEL USAGE:		ACAD FILE:	L_355A
200-WS-01B		SCALE:	NONE
			SHEET 1 OF 1