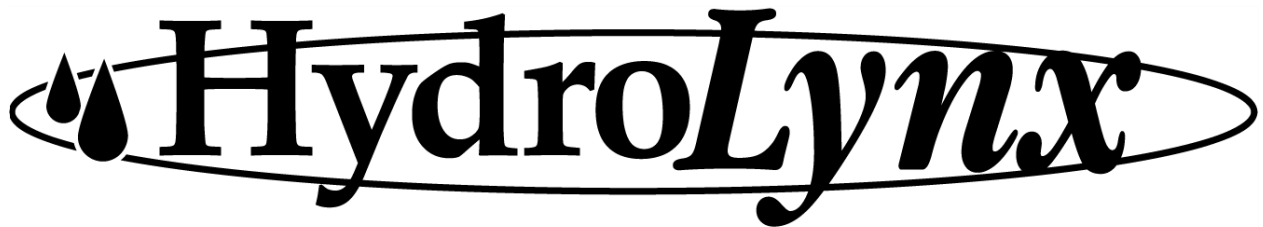


HydroLynx Systems, Inc.

**Model 5050WS
Wind Speed Sensor**

Instruction Manual



Document No: A102704
Document Revision Date: December, 2004

Receiving and Unpacking

Carefully unpack all components and compare to the packing list. Notify HydroLynx Systems 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. If the equipment was shipped via Parcel Post or UPS, contact HydroLynx Systems for instructions.

Returns

If equipment is to be returned to the factory for any reason, call HydroLynx 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 during the return shipment. Call HydroLynx 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 packaging. Please write the RA# on the outside of the box.

Warranty

HydroLynx Systems 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. HydroLynx Systems' obligations under this warranty are limited to, at HydroLynx's option: (i) replacing; or (ii) repairing; any product determined to be defective. In no case shall HydroLynx Systems' liability exceed product's original purchase price. This warranty does not apply to any equipment that has been repaired or altered, except by HydroLynx Systems, 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

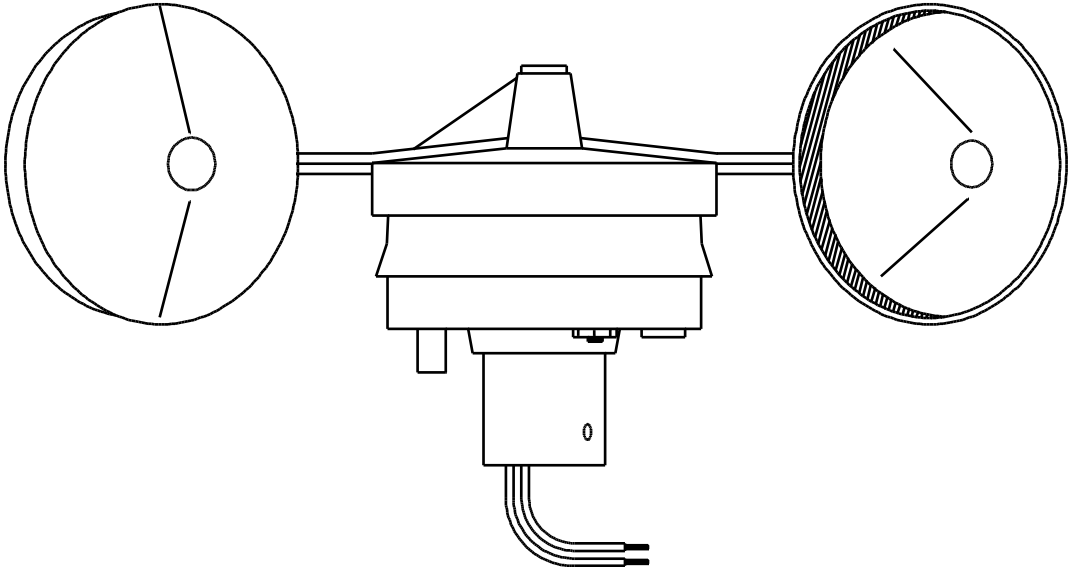
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Equipment Configuration and Parts Identification



5050WS

1.0 INTRODUCTION

1.1 General Description

The 5050WS is the standard sensor used on the 5081 Weather Station for measuring wind speed. This three-cup anemometer is made of durable Lexan plastic that resists icing. It's low moment of inertia responses rapidly to gust and lulls while Teflon bearings make it ideal for use in harsh environments.

1.2 Specifications

Accuracy:	± 2.% of full scale
Starting speed:	4 mph
Cup diameter:	2 inches (51 mm)
Turning radius:	3.75 in
Bearings:	Teflon
Distance constant:	10 ft.
Transducer:	AC generator
Electrical output:	0 to 3.6 Vac, 2 pulse/revolution (ppr), 60 Hz at 1800 rpm

2.0 INSTALLATION

2.1 Unpacking

The 5081MX Mast/Crossarm assembly is shipped with the wind sensors pre-wired. While unpacking the crossarm, locate the wind sensors first and then take care not to damage them during the unpacking. Check that all packing materials have been removed from the wind sensors, especially inside the mounting collar.

2.2 Site Selection

Large obstacles such as buildings and trees create large mixing eddies, causing fluctuations in the localized wind direction. The sensor should be located at a distance of at least ten times the height of an obstruction away from that obstruction.

2.3 Installation

The anemometer is mounted to the sensor mounting arm and fastened with three set screws. Refer to the 5081 Manual for cross arm assembly. The sensor must be installed level for proper operation.

2.4 Connection to the Data Transmitter

The standard input port is a 6-pin non-rotated MS connector. On the 5096-81 this port is labeled Wind. Check alignment key and pin placement before installing the connector. To install the connector, align the keys, press the connector in, then turn the threaded locking collar. It is important that the connector be completely seated. Continue turning the collar until the connector bottoms out.

2.5 Wiring

Refer to Wiring Diagram AC107369. Note that both cables from the wind sensors are attached to the 6-pin MS connector. If it becomes necessary to remove the connector, clearly mark the cables to ensure proper re-assembly.

The wires are spliced to the RED and BROWN signal wires which are attached to terminals inside the body of the sensor.

3.0 THEORY OF OPERATION

The 5050WS is an AC generator, two fixed coils and a rotating magnet, which produces two sine waves per revolution.

At approximately 103 mph (1800 rpm) the anemometer will produce an output signal frequency of 60 Hertz. The 5096 Data Transmitter counts the pulses produced and reports when a some number of pulses has occurred. The number of pulses is equal to the wind run; the ALERT standard for the wind run report is 3 km which is equal to 3924 pulses. The central site converts the report into wind speed by dividing the wind run by the time between reports.

4.0 TESTING AND MAINTENANCE

To test the functionality of the anemometer use a AC voltmeter, oscilloscope or a frequency counter; the 5096 Data Transmitter may be used in place of a frequency counter. Some type of reference must be used in order to calibrate the sensor; consult HydroLynx factory if this is required.

4.1 Testing

- Connect test equipment to sensor.
- Observe that the anemometer is spinning or spin by hand.
- Observe output.

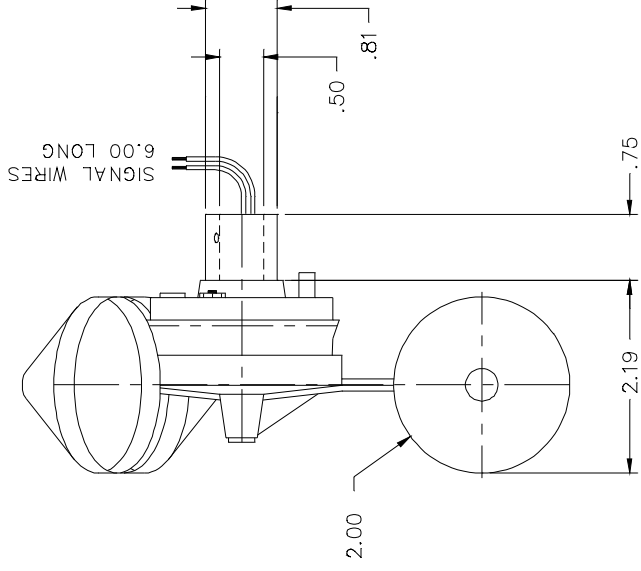
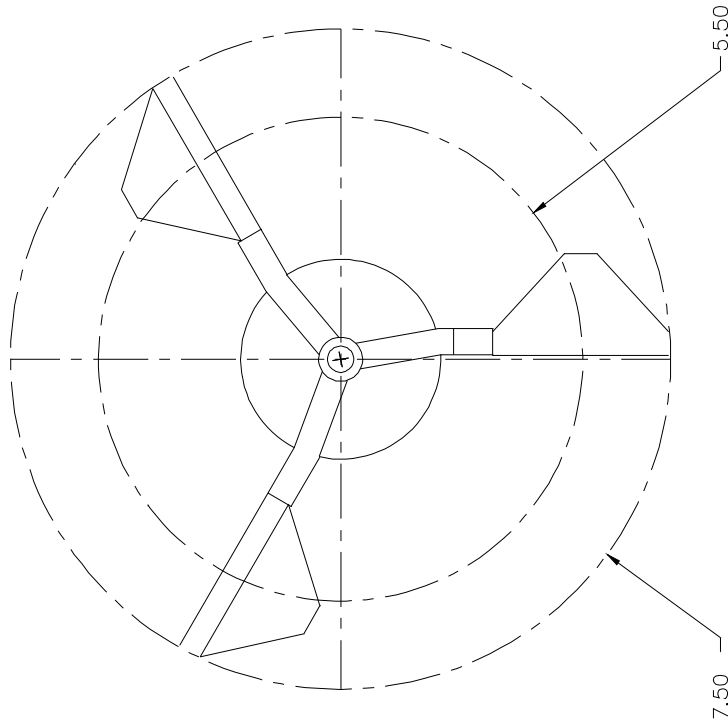
4.2 Maintenance

Maintenance includes inspection of mechanical operation and cleaning.

- Rotate vane assembly; look for smooth rotation and a gradual stop.
- Inspect mounting hardware for secure fasteners; mounting pipe must be vertical. Replace any loose or corroded fasteners.
- Clean any accumulation of dirt, dust, or bird droppings that may affect proper rotation of the vane. Use only soapy water and a soft cloth. Never use solvents or abrasive cleansers. Do not immerse the anemometer in water.
- Inspect the cable and connections.

5.0 FORMS AND DRAWINGS

AC102331 Outline - Wind Speed Sensor
AC107369 Wiring Diagram



N/A	REDRAWN ON NEW BORDER	6-3-99
ECN#	DESCRIPTION	DATE
MODEL USAGE	HydroLynx	
	MODEL NO.	5050WS
	TITLE	WIND SPEED SENSOR
	DWG TYPE	OUTLINE
DRAWN BY S.FOSTER	DATE 6-3-99	
CHECKED BY	DATE	
	SIZE	A
	DWG NO.	AC102331
	REV	B

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES

FRACTIONS = €

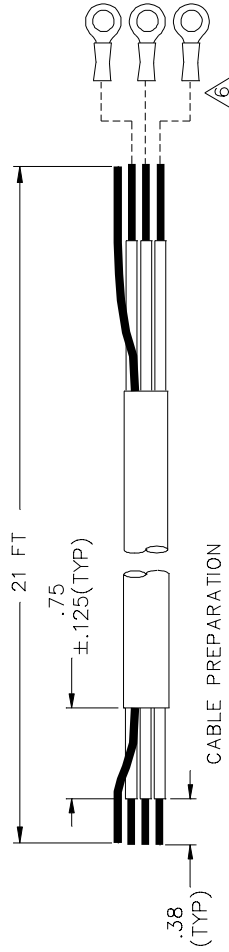
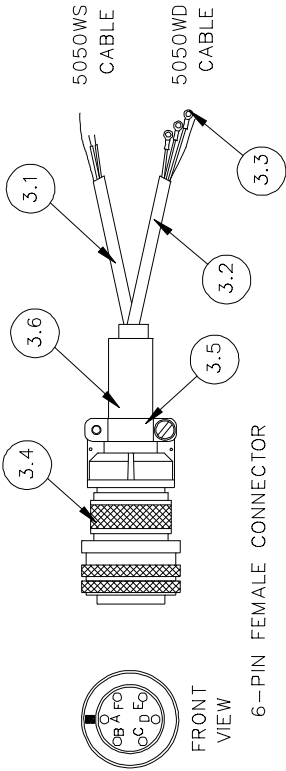
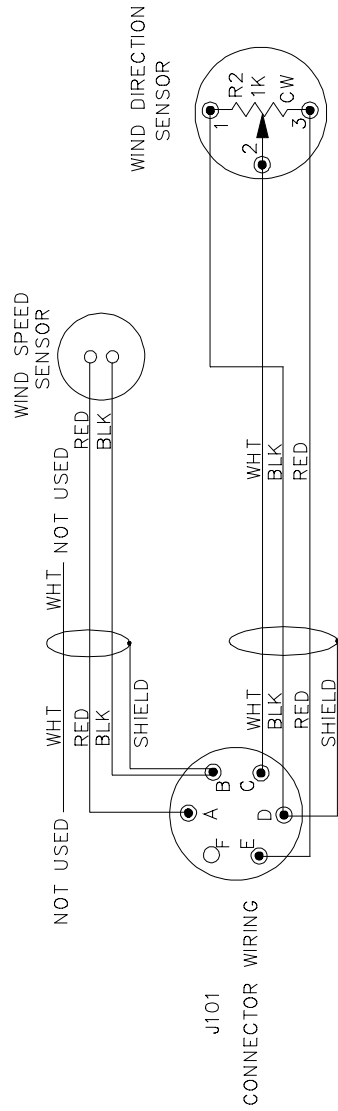
.XX = €

.XXX = €

MATL

FINISH

TREATMENT



- NOTES -
1. PREPARE ENDS OF CABLES AS SHOWN.
 2. CABLE LENGTH: 21 FT EACH.
 3. PIN C TO PIN D : EAST = 250 Ω
WEST = 750 Ω
 4. BOTH CABLES ARE BELDEN # 9533, 3 CONDUCTOR, 24 AWG, SHIELDED.
 5. J101 IS 6 PIN MS CONNECTOR WITH SOCKETS.
 6. ADD THREE #6 RING LUGS TO ONE END OF DIRECTION CABLE ONLY.
 7. PRE 1993, JAN 1 : C = BLACK, D = RED, E = WHITE.
 8. NUMBERS IN BUBBLES ARE 5050WSWD BM REF. NUMBERS.
 9. TOP BM REF. NO. IS 2-5.0.

N/A	REDRAWN ON NEW BORDER	10/1/98
980104	ADD RING LUGS	1/29/98
ECN#	DESCRIPTION	DATE
MODEL USAGE		
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES		
FRACTIONS = ϵ N/A		
.XX = ϵ .01		
.XXX = ϵ .005		
MATL	N/A	
FINISH	N/A	
TREATMENT	N/A	
DRAWN BY	SDH	DATE
CHECKED BY		DATE
DWG TYPE	FAB	DATE
SIZE	B	DWG NO.
	AC107369	REV
		C



MODEL NO. 5050WD,5050,5081
TITLE WIRING, SENSOR CABLE