

CURRENT LOOP WIND SENSORS

FEATURES:

- **Low Threshold**
- **Low Cost**
- **Low Power CMOS Design**
- **Lightweight**
- **4 - 20 mA Outputs**
- **Optional External Heaters**

Climatronics' Current Loop Wind Sensors (P/N 101908) combine accuracy and reliability with low cost.

Sensors with current loop outputs are ideal wherever there is an application involving more than a few hundred feet of separation between the sensor and the signal conditioners, data acquisition, or display systems. These same sensors are also effective in high electrical noise environments. Additionally, the amount of wiring is reduced when current loops are used, which can help reduce both the total cost and time of installation of a turnkey system.

The Current Loop Sensors meet the Environmental Protection Agency's (EPA) Prevention of Significant Deterioration (PSD) requirements. They are also well suited for general wind monitoring applications.

Wind speed is sensed by a three-cup anemometer and is converted to an electrical signal by a 20-hole photochopper, which uses a solid-state light source for maximum reliability. Wind direction is sensed by a counterbalanced wind vane coupled to a precision, low torque potentiometer. Both the wind speed and wind direction sensors use stainless steel precision ball bearings for maximum life and low threshold. Traceability to NIST is available as an option for each anemometer cup assembly by comparison testing against an NIST transfer standard in our wind tunnel test facility.



The sensors and their crossarm are an integral unit. The pre-wired crossarm mounts on a 3/4-inch IPS vertical pipe stub (1.05 inch O.D.). Orientation of the crossarm is along an East-West plane.

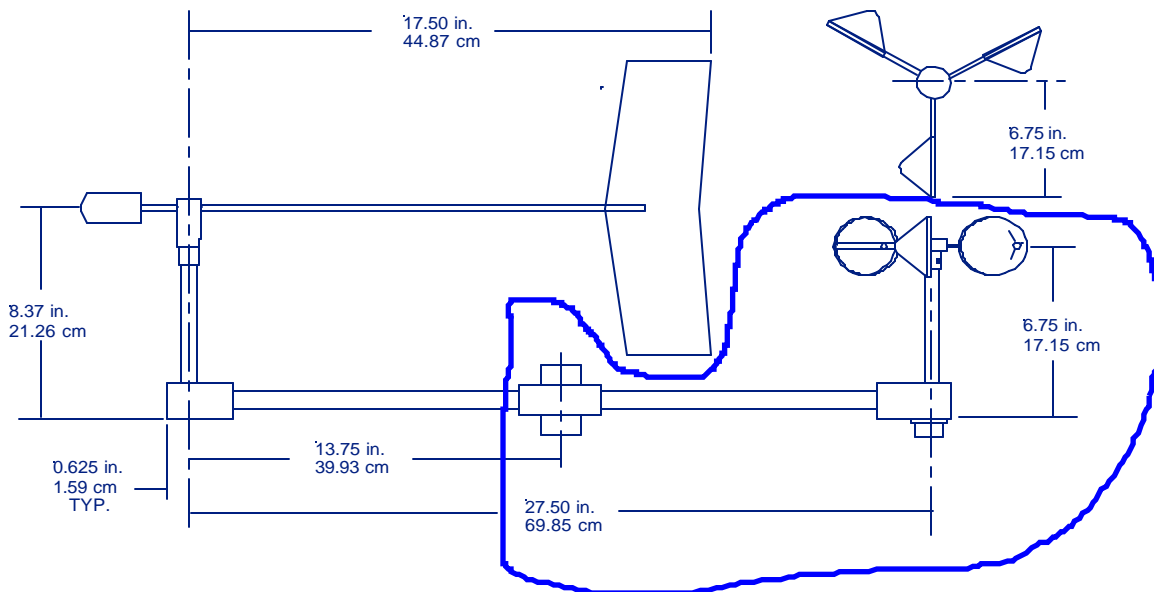
A 24 VDC/50 mA source is required to operate the wind set over a four-conductor cable, which can be up to a mile in length. The 24 VDC/50 mA source

can be supplied by either a customer-supplied source, or from a display or signal conditioner supplied by Climatronics. Optional external heaters for both sensors are available. These heaters consume approximately 40 watts of power and are thermostatically controlled. The optional external heaters required customer-supplied AC power.

SPECIFICATIONS

	Wind Speed	Wind Direction
PERFORMANCE		
Accuracy	0.25 mph (± 0.11 m/s) or $\pm 1.5\%$ of true air speed (whichever is greater)	± 3 degrees
Threshold	<1.00 mph (0.45 m/s)	< 1.0 mph (0.45 m/s)
Distance Constant	102138 LEXAN <2.4m (8.0 ft.) 101286 HD Aluminum <4.6m (<15.0 ft.) 100160 Stainless Steel <2.4m (8.0 ft.)	101944 Standard <2.4m (8.0 ft.) 101292 Heavy Duty <4.5m (<15.0 ft.)
Damping Ratio	N/A	>0.4 to 0.6 at 10° initial angle of attack
Operating Range	0-125 mph (0-55 m/s)	0 to 360 degrees - mechanical
ELECTRICAL SPECIFICATIONS		
Signal Output	4-20 mA proportional to 0 - 100 mph	4-20 mA proportional to 0 - 360° or 540°
Power Requirements	24 VDC at 20 mA maximum	24 VDC at 20 mA maximum
PHYSICAL SPECIFICATIONS		
Weight	Less than 2 lbs. (0.9 kg.)	Less than 2 lbs. (0.9 kg.)
Turning Radius	3.75 inch (9.5 cm)	17.5 inch (44.4 cm)
Operating Temperature	-40° to +140° F (-40° to +60° C)	-40° to +140° F (-40° to +60° C)
SENSOR HEATER SPECIFICATIONS		
External	115 Vac/60Hz 20 Watts per sensor (P/N 101234)	

* Longer cable lengths or higher resistance loads may require higher voltage.



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