wind

Serial Output Wind Sensor

YOUNG

Model 09101 / 09106

Wind Monitor-SE

The Wind Monitor-SE combines the performance and durability of our standard Wind Monitor with a unique optical encoder direction transducer and serial output.

The Wind Monitor-SE offers maximum versatility in a conventional wind sensor. An optical encoder is utilized for vane angle measurement, thereby eliminating the characteristic deadband and wear of potentiometer transducers. The serial output signal is ideal for interfacing with modern data acquisition systems.

The wind speed sensor is a four blade helicoid propeller that turns a multi-pole magnet. Propeller rotation induces a variable frequency signal in a stationary coil; movable slip rings and brushes are not used. The raw signal is converted to a digital serial output by the on-board microprocessor circuit. A more conventional voltage output may be selected simply by moving an internal jumper.

The wind direction sensor is a durable molded vane. Vane angle is detected by a custom optical encoder. The encoder is an absolute type so direction output remains accurate even if power is interrupted. As with wind speed, a serial output or voltage output signal can be selected.

The Wind Monitor-SE is designed for superior environmental resistance. Housing parts are UV stabilized thermoplastic. Fittings are stainless steel and anodized aluminum. Precision grade stainless steel ball bearings are used throughout in the model 09101.

The Model 09106 Wind Monitor-SE-MA is a modified version that is equipped with ceramic bearings and a larger diameter stainless steel propeller shaft. The ceramic bearings are more wear and corrosion resistant extending the service life of the sensor in severe marine environments.

Both the Model 09101 and 09106 mount on standard 1 inch pipe.

Specifications

Range:
Wind speed: 0-100 m/s (224 mph)
Wind direction: 0-360 degrees

Resolution:
Wind speed: 0.1 unit (m/s, kts, mph, km/h)
Wind direction: 1 degree

Accuracy:
Wind speed: ±0.3 m/s (0.6 mph) or 1% of reading
Wind direction: ±2 degrees

Dynamic Response:
Damping ratio: 0.3
Damped natural wavelength: 7.4 m (24.3 ft)
Undamped natural wavelength: 7.2 m (23.6 ft)

Threshold:*
Propeller: 1.0 m/s (2.2 mph)
Vane: 1.1 m/s (2.5 mp)

Available Outputs:
Voltage Output:
WS: 0-5 VDC for 0-100 m/s
WD: 0-5 VDC for 0-540°
Serial RS-485:
RMY, NCAR, or NMEA protocols
Polled or continuous output

Power Requirement:
11-24 VDC, 20 mA

Dimensions:
Overall height: 37 cm (14.6 in)
Overall length: 55 cm (21.6 in)
Propeller: 18 cm (7.0 in) diameter
Mounting: 34 mm (1.34 in) diameter (standard 1 inch pipe)

Weight:
Sensor weight: 1.0 kg (2.2 lbs)
Shipping weight: 2.3 kg (5 lbs)

Operating Temperature:
-50 to 50° C

**Nominal values, determined in accordance with ASTM standard procedures.*

Ordering Information — MODEL

WIND MONITOR-SE 09101
WIND MONITOR-SE-MA 09106

CE *Complies with applicable CE directives.*
Specifications subject to change without notice.

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