

WIND DIRECTION SENSOR

(WD51 Series)

Features

- Full 360 degree measurement
- Visual indication of wind direction
- Magnetic Hall Effect sensing
- Low friction stainless steel bearings
- Low starting torque
- Good dynamic characteristics
- Long operating life
- Concealed cabling
- Simple alignment to North
- Australian designed and Australian Made

Applications

- Meeting Australian Standards
- EPA reporting and licensing
- Meteorology
- Wind profiling
- Automation and alarms
- Crop studies
- Agronomy
- Pollution tracking and dispersion monitoring

The WD51 wind direction sensor is a sensitive wind direction indicator that gives a variable pulse rate output and a visual indication of wind direction.

The aluminium wind vane is attached to an aluminium arm and adjustable marine grade stainless steel pointer. The vane, arm and pointer turn the main spindle, which is supported by low friction shielded long life stainless steel bearings.



A Hall Effect angular position sensor is used for accurate position measurement of the wind direction vane. This provides full 360 degree detection.

Utilising Hall Effect detection technology makes the sensor more sensitive, more accurate and with a higher resolution, while also significantly enhancing the reliability and durability of the sensor.

A labyrinth machined into the spindle housing minimises the entrance of wind-borne dust or moisture into the upper bearing.

The body of the sensor indicates North with a single central bolt allowing easy accurate alignment to North, on-site.

We recommend the use of Envirodata's WS52 series of wind speed sensors and Maestro series data loggers to monitor accurate wind movement, gust, dispersion and Sigma Theta.

WIND DIRECTION SENSOR SPECIFICATIONS

VN: 241204

Sensing Element

- Vane driven Hall Effect position sensor

Measurement Units

- Degrees clockwise deviation from North

Specifications

- Startup Threshold 0.30m/s
- Resolution 0.1°
- Accuracy $\pm 1^\circ$
- Measurement Range 0° to 359.9°

Bearings

- Low-friction marine grade stainless steel
- Instrumentation oil

Special Notes

- Magnetic Hall Effect sensor has no gap over complete 360° range

Calibration Method

- Frequency range is adjusted in the factory
- Not subject to drift
- Direction is set by aligning the sensor body

Maintenance

- Field bearing replacement as required by Australian Standards or every 36 months.

Housing

- Anodised aluminium

Operating Conditions

- Temperature -20°C to +70°C
- Humidity 0% to 100%

Sensor Mounting

- Heights of two and ten metres above ground level are commonly used. Mounting height is determined by application.
- Sensor attaches to top of square hollow section or SHS horizontal arm, secured by a central bolt.
- XA50 cross arm recommended.



WD51 shown with WS52 mounted on XA50 Cross Arm

- Alignment to North achieved by rotating body into position.

Supply Voltage

- 6 to 24 Volts DC

Current Drain

- Average < 4mA at 12V DC
- Peak < 20mA at 12V DC

Output

- Frequency +5V square wave pulse
- 0°-360° = 0-90Hz in a linear scale
- 4-20mA Converters are available (FA12)
- Sensor alarms are available (SA12)

Dimensions

- 190mm from base to top of shaft
- 48mm Diameter at base
- 400mm vane length
- Fly-lead 0.3m with male 3 pin Conxall connection

Options

- Field replaceable bearing kits available
- FX1M5 - 1.5m F-F extension cable
- FX16 - 16m F-F extension cable
- Custom cable lengths available
- Optional adapter plate available to retrofit to WD3X and WD4X series sensor mounting positions