

# μSMART SERIES

Esis Pty Ltd ph 02 9481 7420 fax 02 9481 7267 www.esis.com.au

## Wind Direction Sensor

Model WD2 (Angle)  
Model WD3 (Sine/Cosine)  
Model WD4 (Angle/SigmaTheta)



**The μSmart Wind Direction sensor overcomes the “deadband” problem associated with conventional potentiometer type wind direction sensors by** utilising a design incorporating a continuous rotation type, microprocessor controlled sensor to provide an accurate angular reading of the wind direction. This type of sensor offers the dual advantage of eliminating ‘deadband’ errors and minimising friction within the sensor to give an extremely low starting threshold. The μSmart Wind Direction sensor does not require re-initialisation after power loss as the sensor can instantly identify bearing to an accuracy of better than  $\pm 0.5$  degrees.

The WD2 version provides a single output of angle for wind direction. The WD3 version provides dual outputs for sine and cosine of wind angle. Both sensors can provide a 24 hour standard deviation output which can be logged by the μSmart Data Logger. The WD4 displays angle information and computes the sigma theta directly in the sensor and can be logged in the Data Logger. This sensor can also provide average wind direction based a range of user selectable periods. These sensors can be used with any Data Logger and can also be linked to a wide variety of electromechanical and electronic counters. The sensors offer the most capability when operated with a Monitor Sensors μSmart Data Logger. The μSmart wind direction sensor is also available as in the “Gold Line” series. The Gold Line general specification sheet should be read in conjunction with this document.

### *Features*

- Low Starting Threshold
- Corrosion Resistant Finish
- 1 minute of arc resolution
- Sine/Cosine Output Option
- Long Life Operation
- No “Deadband” Problem
- Water Resistant Design

### *Applications*

- Air Pollution/Plume monitoring
- Automatic Weather Stations
- Wind Profiling
- Crop Studies
- Emergency Services
- Ecology
- Building Construction Research

### *Quality Assurance*

Monitor Sensors is an ISO 9002 quality endorsed company. License # 7224.

## Specifications:

Operating Range:	0 to 40 metres/second (0 to 150 kph)	
Starting Threshold:	<0.2 metres/second	
Standard Output:	Model WD2	Wind direction angle (degrees)
	Model WD3	Sine of wind direction angle Cosine of wind direction angle 24 hour standard deviation
	Model WD4	Angle and Sigma/Theta
	[Note: Model WD3 and WD4 use two separate channels in the data logger.]	
Resolution:	<1 minute of arc	
Accuracy:	<+/-0.5°	
Temperature Range:	+1°C to +60°C (operating) -30°C to +75°C (storage)	
Humidity Range:	0-100%	
Sensor Type:	Continuous rotation, microprocessor controlled position monitor.	
Reliability:	With proper maintenance, an operating lifetime in excess of 5 years is expected.	
Data Output:	Serial data ASCII format. Plus, either Voltage 0-1 volt, 0-2.5 volts, 0-4 volts, or Frequency +5 volt pulse 2-10 Hz	
Options:	4-20 ma Output RS232	
Power Supply :	5 to 28 volts DC unregulated	
Current Drain:	<2 mA	
Weight (unpacked):	350 grams	
Dimensions:	Overall height including spigot and vane 270 mm. Length tip to vane 450 mm.	
Mounting:	Designed to mount on Monitor Sensors standard cross arm (product code M10). Alternatively, a ½ inch BSP adaptor is available for fitting to a standard water pipe.	
Cable Details: WD2 :	Standard product has 0.2 mtrs of cable. Longer cable lengths may be ordered - allow \$2.50/m for additional cable.	
	WD3 : Standard product has 0.2 mtrs of cable. Longer cable lengths may be ordered - allow \$6.00/m for additional cable.	
Related Products:	AN2 &AN3	Anemometers
	ANL1	Wind Characteristics Measuring Station
	WR1	Windrose Software
	M10	Standard Cross Arm Mount
	WS2	Wind Direction Signal Splitter for WD3

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**PO Box 281, ROSEVILLE NSW 2069 AUSTRALIA**