

WIND SPEED AND DIRECTION SENSOR – WSD1



The Wind Speed section of the sensor consists of a low-inertia ABS cup assembly for fast response mounted on a dual ballrace-supported stainless steel shaft. The use of a Bremag 10 magnet operating a long life reed switch produces one bounce-free pulse per revolution of the rotor.

The Wind Direction component of the sensor consists of a dynamically balanced wind vane operating a triple ballrace supported shaft and micro-torque potentiometer with a small deadband of 3°, usually at North, the Potentiometer is usually connected as a potential divider. With the above designs, most modern loggers can be connected to these sensors with little or no interfacing. An additional benefit is the zero power requirement. Various possibilities exist for mounting the unit and a machined 8mm stainless steel stud is supplied for this purpose. However, two mounting systems are recommended; the full mast kit or the bracket kit, and both sensor units are available with each of the mounting options.

The Wind Sensor is manufactured in clear anodised (HT30) aluminium alloy.

For OEM use, special mountings could be made to suit if required, dependent on demand. Please contact our Technical Department to discuss your exact requirements.

TECHNICAL SPECIFICATIONS

Speed Sensor:

Calibration	:	1 contact closure / 1.493m.
Reed detector	:	Bench tested to a minimum speed of 90m/s.
Start up ¹	:	0.5 m/S typically.
Accuracy	:	2%
Linearity	:	2%
Contact rating	:	50 Watts. (d.c. resistive)
Supply voltage	:	100 Vdc maximum
Supply current	:	1 A maximum.

Note:

Supply: Voltage 100Vdc Current 1A max. Contact switched must not exceed the wattage rating. May be used in circuits down to zero voltage and current.

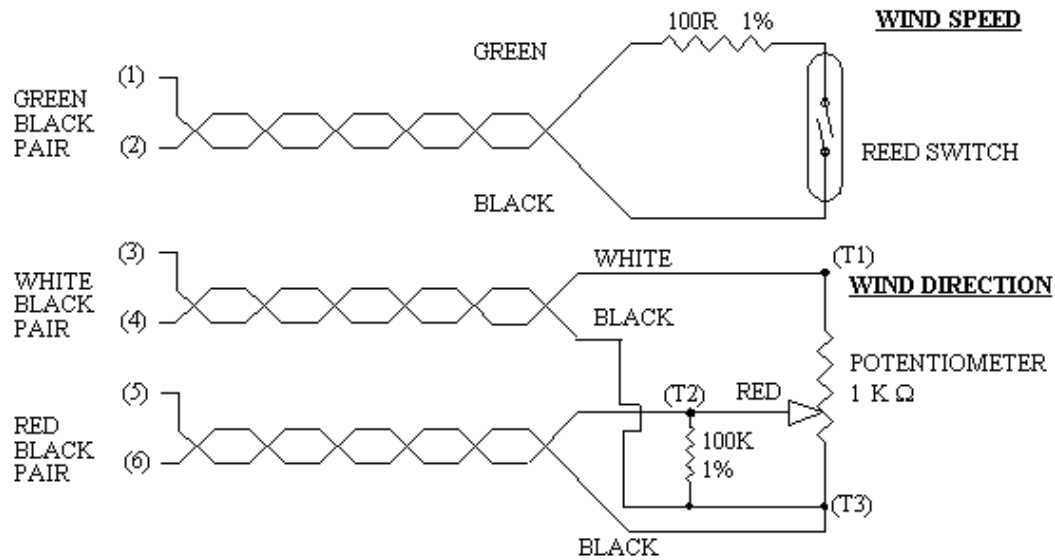
Direction sensor:

Mechanical travel	:	360 ^o (Endless)
Electrical travel	:	357 ^o ±2 ^o
Calibration	:	0 - 1K Ω potentiometer for 0-357 ^o electrical travel.
Resistance tolerance	:	±3%
Linearity tolerance	:	±0.5%
Temperature Coefficient of wire	:	±20ppm/ ^o C
Temperature range	:	-20 ^o C to +70 ^o C
Supply Voltage Max ²	:	80Vdc
Recommended Max. Voltage	:	24Vdc
Height	:	280mm
Max arc	:	120mm
Weight	:	500 gms approx.

¹ Start-up is defined as the speed required to commence the movement of the cups from a standstill in zero wind. However, in practice an anemometer rarely stops and very low wind-speeds are able to be detected due to the low-inertia cup assembly.

²To use voltages higher than the RECOMMENDED MAXIMUM, then a series limiting resistor must be included within the circuit.

WIRING DIAGRAM OF WSD1



DETAILS OF WIRING COLOURS

COLOUR	LABEL	CONDUCTOR USE
GREEN	1	REED switch via 100R resistor.
BLACK	2	REED switch
WHITE	3	POTENTIOMETER (T1) usually excited via a resistor
BLACK	4	POTENTIOMETER (T3) usually to excitation GND
RED	5	WIPER of POTENTIOMETER (T2) usually to analogue HI
BLACK	6	POTENTIOMETER (T3) usually to analogue LO (GND)

ORDERING INFORMATION

WSD1	Wind Speed and Direction sensor
WSS1	Wind Speed and Direction sensor plus a full 2 metres mast assembly, guys and pegs are supplied.
WSS2	Wind Speed and Direction sensor plus a mounting bracket for horizontal or vertical mast up to 50mm diameter

ACCESSORIES AND RELATED PRODUCTS

DT2-W	Small, dedicated Wind monitoring data logger
DT-CAB	DT2 Data logger (RS232) serial communication cable
WD30	Vaisala wind display compatible with the DT2-W logger
WD30-DT	A communication cable to connect the DT2 to the WD30 display
LB-380	4-20mA or 0-10V selectable wind convertor for the WSD1 sensor