ENVIRONMENTAL
MEASUREMENTS
LTD

WIND SENSOR (WSD1)

The Wind Sensor System comprises two sensors, a wind speed only sensor and a combined wind speed and direction sensor. Both are manufactured in clear anodised (HT30) aluminium alloy.
The Wind Speed section of either 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 mercury-wetted reed switch produces one bounce-free pulse per revolution of the rotor.
The Wind Direction component of the dual sensor consists of a dynamically balanced wind vane operating a triple ballrace supported shaft and micro-torque potentiometer with a small deadband of 3^{o}, 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 either units 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

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: (Where applicable)

Mechanical travel	:	360^{o} (Endless)
Electrical travel	:	$357^{o} \pm 2^{o}$
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

[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.

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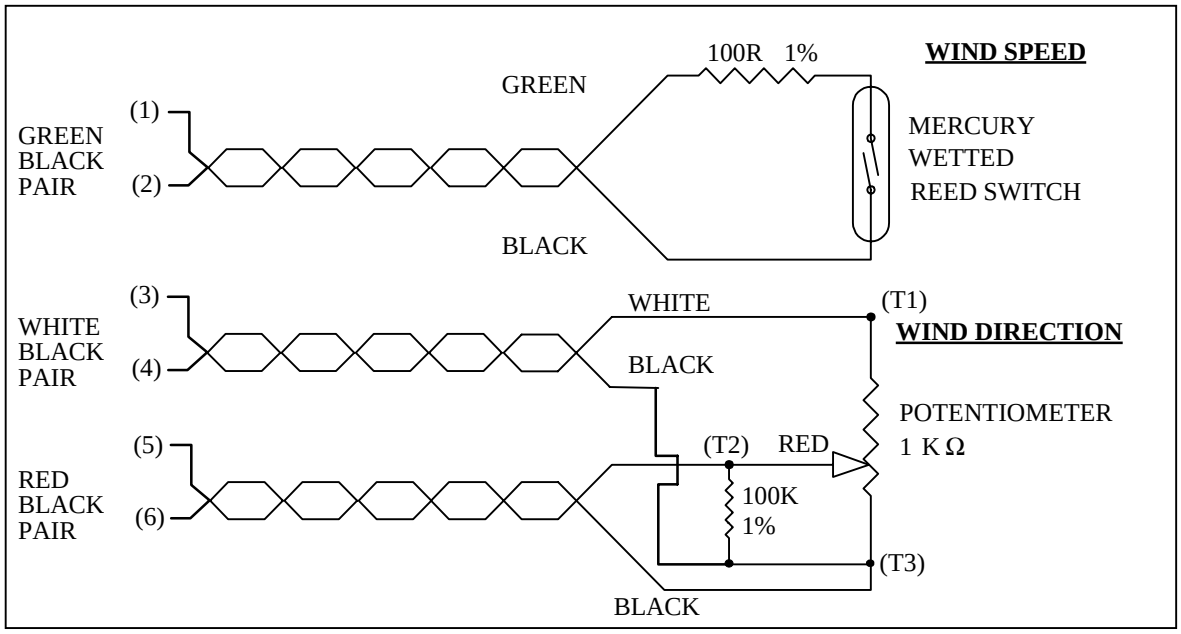
Supply Voltage Max[2]	:	80Vdc
Recommended Max. Voltage	:	24Vdc
Height	:	280mm
Max arc	:	120mm
Weight	:	500 gms approx.

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

WSU1	Wind Speed Unit
WSU3	Wind Speed Unit + full 2 metres mast assembly, guys and pegs are supplied.
WSU4	Wind Speed Unit + bracket version for horizontal or vertical mast up to 2" (50mm) dia.
WSD1	Wind Speed / Dir Head
WSS1	Wind Speed / Dir Head + full 2 metres mast assembly, guys and pegs are supplied.
WSS2	Wind Speed / Dir Head + bracket version for horizontal or vertical mast up to 2" (50mm) dia.

[2]To use voltages higher than the RECOMMENDED MAXIMUM, then a series limiting resistor must be included within the circuit. If this is not done then a very effective HEATER will be produced!

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