

Didcot Instruments Station at CEH: (<https://www.ceh.ac.uk/>)



Didcot DWR 201 G Anemometer:

3.3.2. DWR-201 Cup Anemometers

The cup anemometers each consist of three evenly-spaced conical cups rotating about a vertical axis. When exposed to the wind the pressure exerted on the open side of the cups is greater than that on their backs, thus causing the cups to rotate. This response is independent of wind direction. If the cup speed is known, it may be used to derive the wind speed (Strangeways, 2003).

The cup speed is determined by counting the number of revolutions of the anemometer shaft in a known period of time. The shaft has a contact attached which


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closes a switch each time a revolution is completed, sending an electronic pulse to the logger. The number of pulses, n , is therefore indicative of the cup speed (m s^{-1}) and may be used to determine the wind speed, u (m s^{-1}), by:

$$u = 0.3125n \quad (3.23)$$

where 0.3125 is the calibration constant of the anemometer determined by the manufacturers based upon wind tunnel tests (Wicks, pers. comm.).

The two anemometers were affixed to the AWS. The first was installed in June 2008 at a height of 3.08 m. The second was installed during June 2009 at a height of 2.59 m.

Sensore di velocità del vento		
	Modello	Didcot DWR-201G
	Campo di misura	da 0 a 65 m/s
	Accuratezza	±2%
	Risoluzione	1 m/s
	Soglia	0,4 m/s
	Costante di distanza	6,5 m

Didcot: DWD-301 Windvane:

3.3.3. DWD-102 Wind Direction Sensor


The wind direction sensor consists of a wind vane connected to a circular resistance coil. As the vane responds to changes in wind direction, a contact attached to the shaft moves across the resistance coil. If the resistance coil is incorporated within a circuit, the fluctuations in voltage may be monitored and used to derive the resistance of the circuit, and thus the wind direction (Middleton & Spilhaus, 1953; Strangeways, 2003).

Sensore di direzione del vento		
	Modello	Didcot DWD-103
	Campo di misura	da 0 a 360°
	Accuratezza	±5°
	Soglia	0,4 m/s

Didcot / Lastem Rain Gauge:

Sensore di precipitazione		
	Modello	Lastem C100A
	Risoluzione	0,2 mm/imp.
	Tolleranza	1%
	Diametro di raccolta	203 mm
	Superficie di raccolta	324 cm ²
	Contatto	relè reed a secco

Didcot Solar Radiation Screen:

Sensore di umidità		
	Modello	Rotronic MP101A
	Campo di misura	da 0 a 100%
	Accuratezza (a 20°C)	±1%
	Ripetibilità	±0,3%
	Stabilità	< 1% anno
	Tempo di risposta	10 s

Didcot Pyranometer:

Sensore di radiazione solare globale		
	Modello	Lastem C110R
	Sensibilità spettrale	da 300 a 3000 nm
	Sensibilità	~ 15 uV/(W/m ²)
	Linearità	1% (da 80 a 1300 W/m ²)
	Risposta al coseno	±1% (da 0° a 60°)
	Risposta al coseno	±1% (da 60° a 80°)
	Deriva termica	±0,03%/°C
	Tempo di risposta	20 s