

Demo - Comparison of wind sensors

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	Instrument	What is it made of?	Principle	What does it measure?	Details
1	Wind vane	Various; can be plastic, fabric, metal	Drag force of wind causes rotation; switch/contacts around shaft or potentiometer (resistance changes based on angle)	Wind direction (°)	
2	Cup anemometer	Plastic	Drag force of wind causes rotation; magnet in shaft closes circuit when reed switch passed (pulse counter)		Rotation rate proportional to wind speed
3	Propeller anemometer	Plastic		Wind speed	Suffers from over-speeding, not as much from cosine-response error Faster response than cup
4	Pitot-Static anemometer	Metal tube	Airflow deceleration on object causes stagnation; temp and pressure increase	Wind speed	Use static port to get base-state pressure; pitot tube to get dynamic pressure
5	Sonic anemometer	Aluminum	Speed of sound through air; return time of acoustic signal between transducers	Wind speed	