



UVW (3 Dimensional) Wind Monitor

S1109W / S1109Z

- **3 axis propeller**
- **Maximum sensitivity**
- **50 mph survival**

The UVW anemometer measures the three orthogonal vectors of the wind – along wind component “U”, across wind component “V”, and vertical wind component “W”. Three propeller anemometer sensors are mounted at right angles on a common mast with sufficient separation to minimize wake effects at all normal wind angles. Each propeller measures the component of the wind which is parallel with its axis of rotation. Propeller response as a function of wind angle, approximates the cosine law. When the wind is perpendicular to the axis of the propeller, it stops rotating. The UVW anemometer is designed for maximum sensitivity at lower wind speeds, and has a working range from 0 to 25 m/s when used with the standard expanded polystyrene (EPS) propellers. Optional carbon fiber thermoplastic (CFT) propellers are available with greater range, for more rugged applications. For critical low speed measurements, optional propeller extensions improve response by reducing the stall angle and providing better symmetry.

The propeller anemometer is a precision air speed measuring instrument employing a helicoid, four blade propeller. The propeller drives a miniature tachometer generator, which produces an analog DC voltage proportional to the axial wind component. When propeller rotation reverses, signal polarity reverses. An optional photo-chopper transducer provides a voltage pulse output with frequency proportional to the wind component. Separate outputs are provided for CW and CCW rotation. The propeller anemometer is especially suited for measuring the vertical wind component.





Technical Specifications

S1109W / S1109Z

STANDARD - Propeller (22 x 30 cm) Expanded Polystyrene

Range, Axial Flow:	0 - 30 m/s (70 mph)
Range, All Angle:	0 - 25 m/s (55 mph)
Threshold:	0.3 m/s (0.6 mph)
Distance Constant:	1.0 m (3.2 ft)

OPTIONAL - Propeller (20 x 30 cm) Carbon Fiber Thermoplastic

Range, Axial Flow:	0 - 50 m/s (110 mph)
Range, All Angle:	0 - 40 m/s (90 mph)
Threshold:	0.4 m/s (0.8 mph)
Distance Constant:	2.1 m (6.9 ft)

Signal Output:

Analog DC voltage proportional to wind component at each sensor. Polarity reverses with reverse rotation.

1800 rpm (500 mV) = 8.8 m/s (19.7 mph)

Optional photo-chopper produces voltage pulse with frequency proportional to wind component.

Choice of 3, 6, or 15 pulses per revolution.

Power Requirement:

Transformer supplied with 115V / 230V primary.

Propeller anemometer with generator is self-powered.

Optional photo-chopper requires 5 to 15 VDC / 11 mA

PHYSICAL

UVW Anemometer

Height Overall:	107 cm (42 in)
Projection Of Each Sensor:	41 cm (16 in)
Mounting:	34 mm (1.34 in) diameter (standard 1 in. pipe)
Sensor Weight:	3.6 kg (7.9 lbs)
Shipping Weight:	8.2 kg (18 lbs) approx.

Propeller Anemometer

Length Overall:	43 cm (17 in) w/ mounting fitting
Housing Diameter:	2.5 cm (1 in) (mounts on standard ¾ in. pipe)
Sensor Weight:	0.5 kg (1.2 lbs)
Shipping Weight:	1.8 kg (4 lbs) approx.