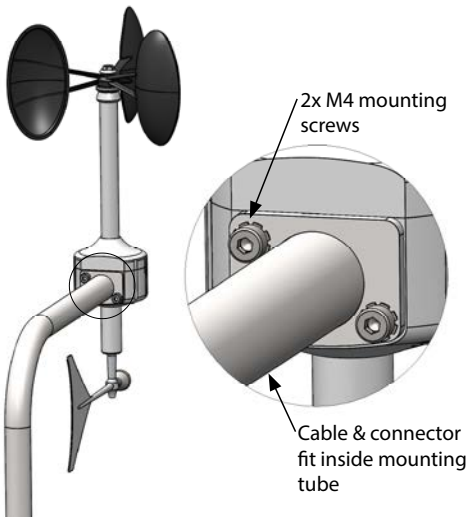
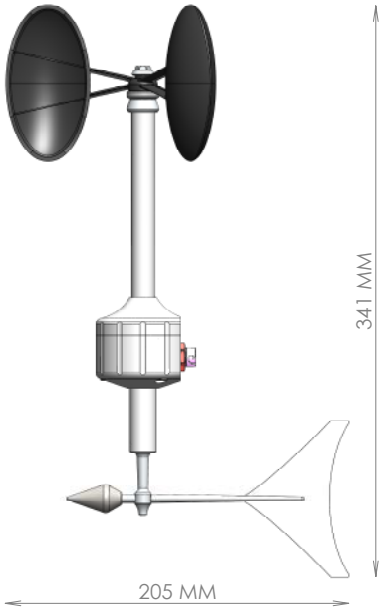
High accuracy combined wind speed and wind direction





Exceeds MEASNET accuracy and linearity

General Description

The only combined anemometer with direction vane on the market that complies with MEASNET linearity requirements of IEC 61400-12-1 [2005-12]. Its best in class performance is due to elliptical cups. Optimized dynamic performance exceeds most top of the line stand-alone anemometers and wind vanes.

- High accuracy
- Small distance constant
- Minimum over-speeding
- Robust all metal body and oversize ball bearings
- High survival wind speed >90m/s (324kph / 200mph)
- 25 Watt heater for winter operations (Optional)
- 2-5mA very low power consumption
- Robust & simple digital RS485 MODBUS RTU & ASCII output
- Highest lightning protection with Class A result for surge, EFT/burst, ESD per EN 61000-4-2, EN 61000-4-4, EN 61000-4-5

Patented elliptical cup design is a result of dynamic and aerodynamic optimization from our extensive experience in the aerospace industry. It introduces a new level of performance to cup anemometers thanks to its high area-to-inertia ratio rotor. Its optimized labyrinth bearing holder protects bearings from dust, dirt and sand ingress and requires very low maintenance.

This anemometer is designed to measure horizontal wind velocity in the fields of meteorology, wind energy assessment and climate research. For winter operation it is equipped with a 25W automatic heater. In combination with snow shedding cups, it significantly reduces icing and snow buildup.

Advanced Features

- Elliptical cups for high linearity and accuracy
- Low inertia rotor means low start speed and minimal over-speeding
- Cup shape minimizes snow & ice buildup in winter
- 5...24VDC operation with inrush & reverse polarity protection
- Universal bayonet connector for easy installation and maintenance featuring NBR rubber o-rings for reliable operation from -40°C to 80°C
- Simple setup, featuring unified RS-485 MODBUS (ASCII & RTU) communication protocol common to all BARANI sensors
- Simple, two M4 screw universal mounting

Calibrated sensors

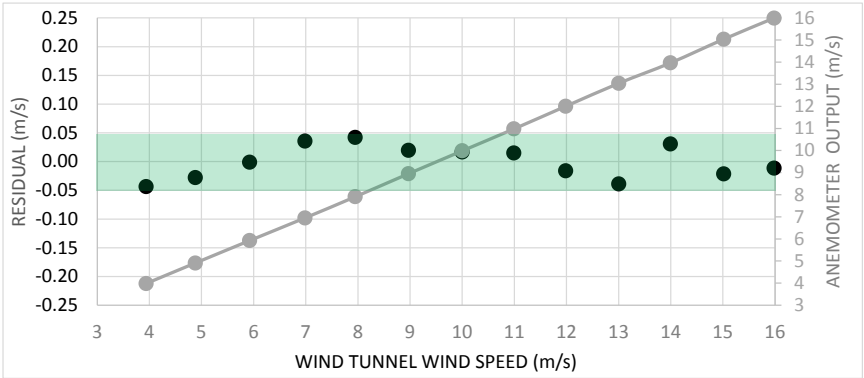
All sensors come standard with one-point factory calibration. An independent laboratory calibrated version with a certificate per ISO/IEC 17025:2005 or MEASENT/IEC 61400-12-1:2005 is available per request. Calibration provides individual slope and offset values to configure the anemometer or your data logger.

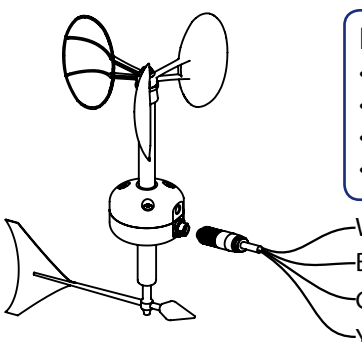
Additional information

For MODBUS communication protocol: see MODBUS guide.

Measurement standards			
	Range	**Resolution**	**Accuracy**
Wind speed	0-80 m/s	0.01m/s	±0.05m/s (4-16m/s) with MEASNET CALIBRATION
Wind direction	0-360° (no dead-spot)	1°	2°
Linearity	R^2 > 0.99995 MEASNET/IEC 61400-12-1:2005		
Tilt angle sensitivity	Cosine response, see graph. (for horizontal wind speed measurement)		
Starting wind speed	<0.3m/s		
Default linearity constants	Uncalibrated MEASNET defaults: Slope = 0.434 m/s | Offset = 0.305 m/s Correlation equation: m/s = 0.434*freq(Hz) + 0.305 | (3 pulses / revolution)		
Distance constant	2.4m @ 5m/s & 2.9m @ 10m/s (est.)		
Electrical			
Output signal & protocol	RS-485 with Modbus RTU & ASCII unified with all BARANI sensors		
Supply Voltage	5...24VDC with inrush protection & reverse polarity protection		
Power consumption	2-5mA (1.1Amp for Heater version @ 24V)		
Lightning & surge protection	per IEC EN 61000-4-5 on both data & power lines, Surge, EFT/Burst, ESD		
Environmental Rating			
Operating temperature	-40°C to +80°C		
Operating humidity range	0% to 100% RH		
Survival wind speed	>90m/s (324kph, 200mph)		
Connection	Bayonet connector with NBR o-ring (-40°C to 80°C)		
IP – Protection rating	IP55W (DIN 40050)		
General			
Heater (optional)	25W max. @ 24VDC (>12VDC is recommended)		
Weight	Anemometer = aprox. 250g (without mount)		
Dimensions	Anemometer = Ø164mm Wind Vane = R136mm Total height = 320mm		
Patented	OHIM 002153882-0001, 002153882-0002, 002153882-0003		

MeteoWind 2: meets MEASNET accuracy requirements





Bayonet connector
- water proof (-40...80°)c
- positive locking
- NBR rubber o-ring
- unified wiring for all BARANI sensors

WHITE = GND (common ground)
BROWN = VCC (power for sensor and heater)
GREEN = A (non-inverting RS-485)
YELLOW = B (inverting RS-485)