

Super High-accuracy Digital Inclinometer -BWS2000/VG500

In 2016, the new installed capacity of wind power in the world exceeded 54GW. In 2017, the annual global wind power generation capacity is expected to reach 60GW. The electric fan is developing towards the large, complicated, automatic and high - speed. However, the problems arising from the operation of power fans are becoming more and more prominent, resulting in great loss of manpower, material resources and financial resources. However, most monitoring system lacks real time and reliability, and can not monitor and diagnose fan status in time.



- On February 16, 2017, the fan of the no.110 wind power plant in wui, hebei province collapsed.
- On February 11, 2016, a unit of Fenner wind farm in Madison county, N.Y.
- On August 17, 2016 ,a fan collapses in a wind farm in the Point Tupper, nova scotia, Canada
- On January 20, 2010, the fan of the left cloud wind farm in shanxi collapsed.
- On February 8, 2010, a unit of wind farm in the tianjing shenzhou 2, ningxia province collapsed.

The Six Factors Cause Fan Collapses



Product figure

Product advantage:

- Tower tilt measurement accuracy up to 0.001 °
- The tower tilted dynamic measurement accuracy up to 0.1 °
- Real-time monitoring the tower geometry change
- The characteristics of low frequency and transient response ability
- Data high stability, is not affected by the outside world
- Sensor setting is convenient, shorten the construction time
- Small volume, light quality, long service life
- IP67 degree of protection, resistance to external electromagnetic interference
- Mature technology, wide application and low cost

Super High-accuracy Digital Dual-Axis Inclinometer BWS2000 Technical Indicators

Mechanical Characteristic	
Connectors	Direct cable (1.5m)
Protection Level	IP67
Shell Materials	Magnesium Aluminum
Fix	M4 screws x3

Electrical Specifications	
voltage	9~35V
Current consumption	50mA(12V); 40mA(24V)
Operating temperature	-40°C~85°C
Store temperature	-55°C~100°C

Performance Specifications					
Measuring range	Condition	±5	±15	±30	°
Measuring axis	Mutually perpendicular	X-Y	X-Y	X-Y	
Accuracy	Indoor	0.001	0.003	0.005	°
Resolution	Static	0.0005	0.0005	0.0005	°
Zero temperature drift	-40~85 °C	±0.0007	±0.0007	±0.0007	°/°C
Cross axis error	-40~85 °C	0.001	0.001	0.001	°
Activation Time	Adjustable	< 3s	< 3s	< 3s	
Frequency response	5-100 adjustable	100 (max)	100 (max)	100 (max)	Hz
Baud rate	Adjustable	2400~115200	2400~115200	2400~115200	
MTBF	≥30000 h/time				
Electromagnetic compatibility	According to GBT17626				
Insulation resistance	≥100 MΩ				
Shockproof	20000 gravity, 3 Times/Axis				
Weight	350g(aviation plug); 320g(plastic plug)				

Super High-accuracy Digital Dynamic Inclinometer BWS500 Technical Indicators

Mechanical Characteristic

Connectors	aviation plug (1.5m)
Protection Level	IP67
Shell Materials	Magnesium Aluminum
Fix	M4 screws x3

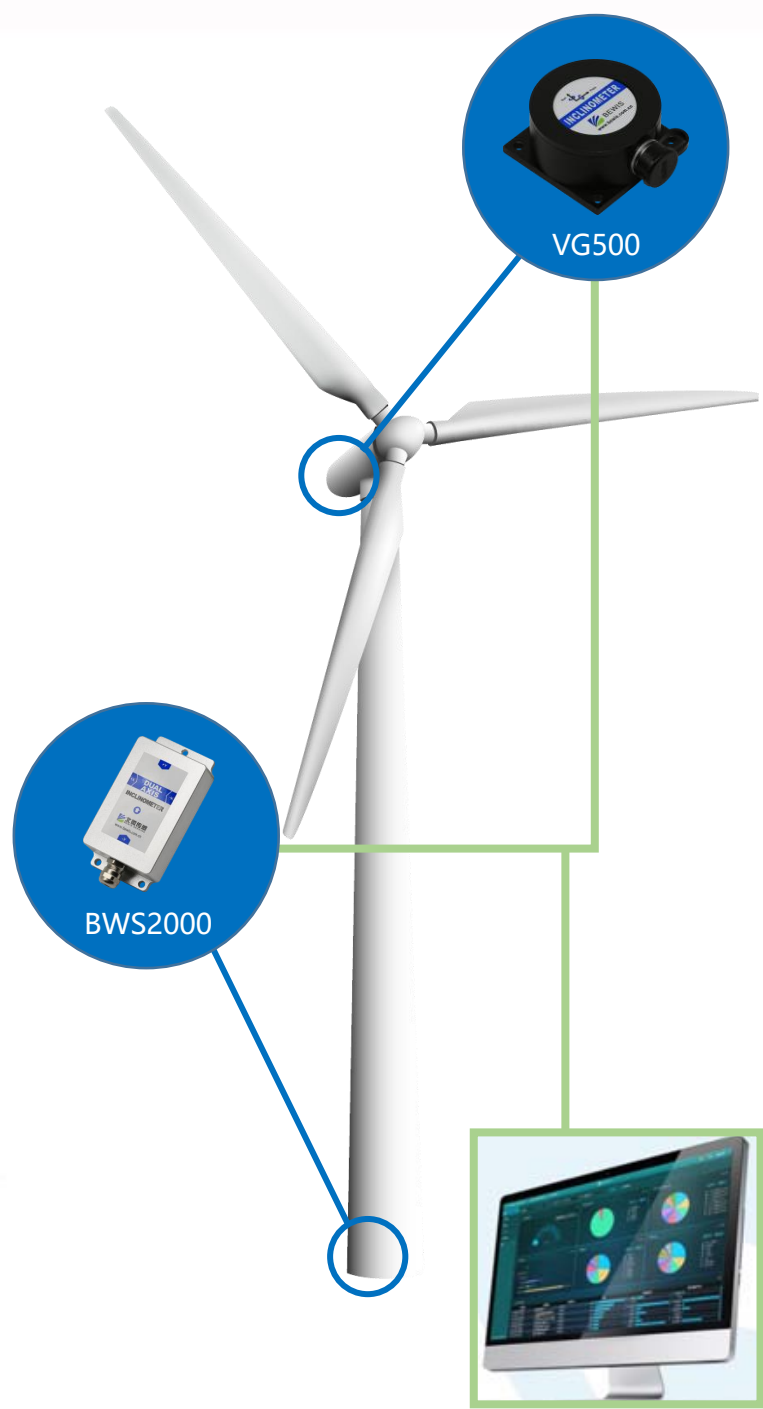
Electrical Specifications

voltage	10~35V
Current consumption	50mA(12V); 40mA(24V)
Operating temperature	-40°C~85°C
Store temperature	-55°C~100°C

Electrical characteristics

Attitude parameters	pitch accuracy	0.1°
	Roll accuracy	0.1°
	Resolution	0.01°
	Tilt margin	Pitch ± 90°, roll ± 360°
Physical properties	Dimension	L103.8 x W55.4 x H26 (mm)
	Weight	150 g
	RS232/RS485/TTL interface	5 pins
Interface characteristics	Start delay	<50 ms
	Maximum sampling rate	100 Hz
	Serial communication rate	2400~115200 baud rate
	Digital output format	Binary high performance protocol
Power supply	Supported voltage	DC 10-35V
	Current (max)	40mA
	Operation mode	30mA
Environment	Store range	-40°C~+125°C
	Operation temperature	-40°C~+85°C
	Vibration resistance	2000g

Super High-accuracy Digital Dynamic Inclinerometer Successful Case



Sinovel wind power technology (group) co. LTD



The overturning monitoring system of qingan wind power generator set



Hefeng tech fan status online monitoring system

Sensor monitoring