WSG SONIC ANEMOMETER

Two-axis wind velocity and direction sonic measurement sensor

PRODUCT DESCRIPTION

The WSG gonioanemometric transducer is an ultrasonic wind sensor without moving parts. It is distinguished by its sturdiness and low cost. This 2-axis ultrasonic wind sensor requires no maintenance, a factor that makes it a veritable low-cost alternative to the traditional sensors equipped with vanes or propellers, with all the benefits of ultrasound technology. Since it has no moving parts, it is ideal for use in adverse weather conditions.

WSG is able to provide wind velocity and direction data through one serial output or two analogue outputs. In order to confirm proper operation, the outputs are jointly transmitted to a string with an instrumentation status code. WSG was designed with a corrosion-proof polycarbonate structure that also makes it very lightweight and easy to transport.

OPERATION

WSG measures the time an ultrasonic pulse takes to travel from the north transducer to the south transducer, and compares it with the time necessary for a pulse to travel in the opposite direction, that is to say, from the south transducer to the north transducer. The times are compared in the same way between the west and east transducers. The wind velocity and direction can be calculated by the differences in flight time on each axis. This calculation is independent from factors such as temperature and humidity.

MAIN FEATURES

Construction materials:
this sensor is designed with a corrosion-proof polycarbonate structure that makes it very lightweight and easy to transport. With a true solid-state construction, WSG can be used in harsh environmental conditions without fear of damages often associated with cup or propeller sensors. WSG is suitable for a wide range of wind monitoring applications and is particularly appropriate for marine and offshore use (ships, buoys, beacons), as well as for land installations. With its exterior made of corrosion-proof material and with no moving parts, this ultrasonic wind sensor eliminates the need for costly on-site maintenance, especially in remote and hard to access stations.

Easy maintenance:
owing to its measurement principle that requires no moving mechanical parts, a Sonic Anemometric sensor is less subject to malfunctions and the replacement of components than its mechanical competitors.

Sturdy and reliable construction:
lastly makes it an instrument with a long lifetime, which safeguards the customer's investment. The instrument does not drift due to aging and requires no periodic calibrations.

INSTALLATION AND MAINTENANCE

Generally speaking, wind reading instruments have to be able to take measurements of the wind conditions in a vast area. In order to get a good reading of the velocity of the horizontal component of wind motion, the device has to be installed in an area free of obstacles for at least 10 metres.
Free area means that the transducer must be placed at least 10 times the height of the closest obstacle. If this is not possible, the sensor must be installed at a height such that the nearby obstacles do not affect the measurement of the wind velocity taken. The transducer must be place in the centre of any vegetation at the site, and not on one side. This is to prevent privileged directions from being created in the reading. The sensor must be secured in a perfectly horizontal position, ensured using a spirit level, to prevent water from seeping into the instrument. Lastly, in view of its construction and principle of measurement, it is totally maintenance-free.

COMPONENTS THAT CAN BE ADDED TO OR BE BUILT INTO THE PRODUCT
This sensor can be equipped with a heater (model WSG/R).

TECHNICAL SPECIFICATIONS

SPECIFICATIONS	
WIND VELOCITY MEASUREMEN	
Sensor type (WV)	Ultrasonic measurement device
Measurement range	0-60 m/s
Accuracy	± 2% @ 12 m/s
Output	Various options RS232, SDI12, etc.
Operative temperature	.35#C ... + 70°C
WIND DIRECTION MEASUREMENT	
Sensor type (WD)	Ultrasonic measurement device
Measurement	0-359°C
Accuracy	± 2% @ 12 m/s
Output	Various options RS232, SDI12, etc.
Operative temperature	.35°C ... + 70°C