

WS425 F/G Ultrasonic Wind Sensor



The ice-free WS425 F/G meets the standards of the US National Weather Service.

Features/Benefits

- Premium, ice-free sensor for most demanding weather conditions
- Enhanced 150 W heating to ensure ice-free operation
- Wide measurement range up to 165 knots
- Highly accurate up to 125 knots
- Maintenance-free
- Superior data availability secured by Vaisala patented WINDCAP® technology
- Triangular shape prevents wind interference between transducers
- Wide operating temperature range -62 ... +55 °C (-80 ... +130 °F)
- Large transducer heads are insensitive to rain
- Optical cable modem, RS-232 for service mode
- Field verification device available
- US National Weather Service relies on Vaisala WINDCAP® technology

WS425 F/G for harsh conditions

The WS425 F/G models are special ice-free versions of the standard WS425 family. With its exceptionally high heating power of 150 W, the WS425 F/G is suitable for most demanding conditions.

Initially, these models were designed to interface with the network of the Automated Surface Observing System (ASOS), the primary surface weather observing network in the United States.

Maintenance-free

The WS425 F/G has no moving parts, and it is resistant to contamination by salt, dust, and corrosion. In addition to improving accuracy and the reliability of data in all wind conditions and climates, the WS425 F/G requires no on-demand or periodic maintenance.

Measurement based on ultrasound

The WS425 F/G uses ultrasound to determine horizontal wind speed and direction. The measurement is based on a transit time, the time it takes for the ultrasound to travel from one transducer to another, which depends on the wind speed.

The transit time is measured in both directions for each pair of the transducer heads. Using two measurements for each of the three ultrasonic paths at 60° angles to each other, the WS425 F/G computes the wind speed and direction.

The wind measurements are calculated in a way that completely eliminates the effects of altitude, temperature, and humidity.

Heating

To secure operation in the most difficult conditions, the sensor has an enhanced heating feature with a total heating power of 150 W. The heater foils are placed inside the ceramic

transducers, the transducer arms, and the bird spike.

The heating control is located in the power supply module, an integral part of the delivery.

ASOS compatibility

The WS425 F/G includes a 10-meter sensor cable, a power supply with a heating control circuitry, and power relays to control the heating current.

The optical modem that isolates the sensor from the host system allows for safe communication.



Technical Data, Dimensions

Wind

Wind speed

Range	0 ... 165 knots
Starting threshold	virtually zero
Delay distance	virtually zero
Resolution	0.1 knots
Accuracy (range 0 ... 125 knots)	±0.26 knots or +/-3 % of reading, whichever is greater

Wind direction

Range	0 ... 360°
Starting threshold	virtually zero
Delay distance	virtually zero
Resolution	1°
Accuracy (2 knots < wind speed < 0 ... 125 knots)	±2°

Outputs

Communication media	Optical cable, RS-232 for service
Message format	ASOS compatible
Baud rate	2400, 4800, and 9600
Available averages	1 ... 30 s
Response time (continuous measurement)	1 s

General

Operating voltage	115 VAC/60 Hz or 240 VAC/50 Hz
Power consumption (max. heating)	150 W
Operating temperature	-62 ... +55 °C (-80 ... +130 °F)
Material	
body, arms, power	stainless steel
transducer heads	silicone rubber
Sensor dimensions	
height	350 mm
width	250 mm
depth	286 mm
weight	1.7 kg
Power dimensions	
height	340 mm
width	342 mm
depth	165 mm
weight	12.5 kg
Approvals	CE

Accessories

Power supply	WS425PowerUS, WS425PowerEU
Cable	4253100
Installation kit for ASOS	4257100
Field verifier	WS425VERIFIER



The mounting tube, cable assembly, and an adapter for F/G models.