

## Vaisala Wind Tower System WTS700

High Performance Wind Measurement System with Ultrasonic Wind Sensors



### Features / Benefits

- High performance wind measurement system with ultrasonic wind sensor technology
- Excellent choice when no compromises in data can be accepted
- Professional system for use in any climate in any part of the world
- Ultrasonic sensor can be mounted upside down to eliminate measurement disruptions from birds and to utilize gravity to clear snow/ice from the measurement paths
- Proven accuracy and design – wind tunnel and field tested
- Measnet calibrated WMT700 ultrasonic wind sensor
- All-in-one sensor reduces the need for extra booms for wind vanes, saving you costs
- Low life-cycle costs
- Vaisala’s WMT700 ultrasonic sensor eliminates over-speeding and is not affected by vertical wind components
- Powerful data logger to collect and store information
- Continuous data collection

### Overview

The Vaisala WTS700 is a state of the art wind measurement system for all needs in professional wind power applications. Its Measnet calibrated ultrasonic wind sensors are a perfect choice for conditions where no compromises in measurement accuracy are accepted.

### High Performance Measurement System with Investment Grade Ultrasonics

The WTS700 wind measurement system utilizes Vaisala’s Measnet calibrated WMT700 ultrasonic wind sensor to produce highly accurate wind data for use in all wind farm applications. Although ultrasonic sensors are still being considered as a standard option for IEC specifications, Vaisala has obtained wind tunnel tests and data from deployed meteorological wind towers in order to prove that ultrasonic sensors provide more consistent and higher quality data than mechanical sensors. Measnet calibrated wind tunnel tests show that issues with poor azimuth response

are no longer valid with modern design, including Vaisala’s WMT700. Better measurement performance from the ultrasonic sensors produces high quality data for analysis, and the continuous data availability reduces uncertainty of the dataset – investment grade measurements!

The WMT700 sensor provides accurate, reliable sensing without any moving parts. Heated versions are available and the sensor detects both wind speed and direction from a single sensor, which means less booms are required for wind vanes. The WTS700 wind measurement system boasts the Measnet calibrated WMT700 ultrasonic wind sensors, and also includes:

- Sensor booms and supports for lattice towers
- All necessary cabling
- Data logger for collecting measurements
- Your option of 1, 2 or 3 measurement levels for 60, 80 or 100 meter towers
- Vaisala’s combined air temperature and relative humidity sensor at the top measurement level

- Precision barometric pressure sensor
- Lightning surge protection built into the WMT700 ultrasonic wind sensor

The system can be equipped with an additional Vaisala air temperature and humidity sensor and pyranometer. Standard power supply options are mains power or external 24VDC feed. The power system can accommodate a battery charger for optional solar panels. Ultrasonic

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wind sensors require additional power, but Vaisala is making every effort possible to reduce consumption, researching ways to make the sensor as efficient as possible.

## Convenient Access to Your Measurement Data

Vaisala's WTS system collects, stores and transmits data utilizing a fully digital design, which minimizes interference and results in a continuous data set. Extensive quality checks in the sensors and data logger ensure high quality data. Vaisala's powerful data logger reads the signals from the sensors and stores the data in internal memory for later download to a computer. A 2GB CF-memory card able to store up to 1 year of 10 minute wind data and other observations is standard with the WTS700 system.

Wind and weather data is transmitted from the site to either Vaisala for managing, or directly to the customer. Data transfer from the site to your office is easy using a flash memory to collect data directly from the site, or through GPRS cellular service remotely.

## Vaisala Service

Service packages from Vaisala help you manage data collection, full system monitoring, and data display. We can collect, host, monitor, inspect and distribute the data according your needs. Two standard service packages are available, or we can customize a service package to meet your needs.

System Components	Equipment	Specifications	Description
Wind	WMT702	WMT702 range is 0 to 65 m/s and 0 to 360°  WMT702 accuracy is $\pm 0.2$ m/s or 3% of reading, whichever is greater and $\pm 2^\circ$ for direction WMT700 Measnet calibrated accuracy is better than $\pm 0.1$ m/s (4 to 16 m/s)	Ultrasonic wind sensor for measurement of wind speed and direction  Heating options: 1) Transducers 2) Transducers and arms
Relative humidity, temperature, dew point	HMP110	Relative humidity range is 0 to 100% ( $\pm 2\%$ )  Temperature range is $-40^\circ\text{C}$ to $+80^\circ\text{C}$ ( $\pm 0.2^\circ\text{C}$ )  Dew point range is $-40^\circ\text{C}$ to $+80^\circ\text{C}$	Humidity and temperature probe
Barometric pressure	BARO-1QML	Pressure range is 500 to 1100 hPa, $\pm 0.2$ hPa	Barometric pressure sensor
Automatic Weather Station	WTE301	QML201C data logger, 4-band GSM/GPRS modem, Mains/Solar or external 24VDC power supply Power consumption, measurement system: 0.7A (12VDC, 3 level system) Heater power consumption: 30A (24VDC, 3 level system) Internal batteries 52Ah (12VDC, estimated 5 days backup for measurement)	Integrated automatic weather station in one compact enclosure. All external wiring uses connectors for easy installation.
Optional components	Metek uSonic-3 Basic HMP155  CMP3	3D ultrasonic wind sensor, range $\pm 50$ m/s three axis  0 to 100% for Relative Humidity, $-80$ to $+60^\circ\text{C}$ for temperature  300 to 2800 nm / 0 to 2000 W/m <sup>2</sup>	3D ultrasonic wind sensor  Humidity and temperature probe  Solar radiation sensor (pyranometer)
		Stand alone power supply and telemetry options available upon request	

# VAISALA

For more information, visit [www.vaisala.com](http://www.vaisala.com) or contact us at [sales@vaisala.com](mailto:sales@vaisala.com)

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