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Vaisala Wind Tower System WTS140

Wind Measurement System for Complex Terrain

Features / Benefits

- System is designed specifically for Class B conditions (complex terrain)
- Fulfills all IEC standards for wind monitoring
- Measnet calibrated wind sensor
- Powerful data logger to collect and store information
- Wind sensor accurately measures horizontal wind speed with excellent cosine response
- Continuity of data
- Excellent choice when financing requires strict reporting
- System is flexible and can be customized to meet your needs with additional sensors or services

Overview

The Vaisala WTS140 wind measurement system is designed for accurately monitoring wind conditions in complex terrain using mechanical sensor technology. The WTS140 system fulfills the IEC61400-12-1 requirements, and is the best choice for demanding terrain or Class B site conditions. The sensor package is a solid choice when terrain is an issue, and financing requires strict guidelines. When financing your wind farm, the WTS140 will provide reliable and trustworthy data for your investment.

A Complete and Reliable Measurement System

Vaisala's core expertise is weather measurement. We research, design, develop and manufacture weather sensors. Vaisala has weather installations in all parts of the world, in every climate, and we've even sent a weather sensor to Mars! We have applications in many industry fields, including Meteorology, Energy, Airports, Roadways, and Maritime.

The WTS140 system was developed specifically for site assessment and power curve verification in complex terrain. The main component of the system is the Thies first class anemometer, a high-performing sensor designed for complex terrain. Along with the Measnet calibrated wind sensors, the WTS140 standard package comes with:

- 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

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

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

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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 WTS140 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	Thies anemometer	Thies range is 0.3 to 75 m/s and 0 to 360º Thies accuracy is < 3% of measured value or < 0.3 m/s and 1.5º for direction Thies anemometer Measnet calibrated accuracy is ± 0.1 m/s (4 to 16 m/s) Class B, classification index B 3.0	Thies first class sensor for measurement of wind speed and direction
Relative humidity, temperature, dew point	HMP110	Relative humidity range is 0 to 100% (± 2%) Temperature range is -40°C to +80°C (± 0.2°C) Dew point range is -40 °C to +80 °C	Humidity and temperature probe
Barometric pressure	BARO-1QML	Pressure range is 500 to 1100 hPa, ± 0.2 hPa	Barometric pressure sensor
Sensor booms		By default 4.5 m extruded aluminium, 100 cm sensor support tube	Telescopic booms with hinge for easy maintenance access
Automatic Weather Station	WTE301	QML201C data logger, 4-band GSM/GPRS modem Mains/Solar or external 24VDC power supply Power consumption, measurement system: 0.5A (12VDC, 3 level system) Heater power consumption: 10A (24VDC, 3 level system) Internal batteries 52Ah (12VDC, estimated 9 days backup for measurement)	Integrated automatic weather station one compact enclosure. All external wiring uses connectors for easy installation.
Optional components	WMT702	WMT702 range is 0 to 65 m/s and 0 to 360º WMT700 Measnet calibrated accuracy is better than ± 0.1 m/s (4 to 16 m/s)	Ultrasonic wind sensor
	Metek uSonic-3 Basic	3D ultrasonic wind sensor, range ±50 m/s three axis	3D ultrasonic wind sensor
	HMP155	0 to 100% Relative Humidity, -80 to +60°C for temperature	Humidity and temperature probe
	CMP3	300 to 2800 nm / 0 to 2000 W/m²	Solar radiation sensor (pyranometer)

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For more information, visit www.vaisala.com or contact us at sales@vaisala.com

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