

## МЕТЕОСТАНЦИИ

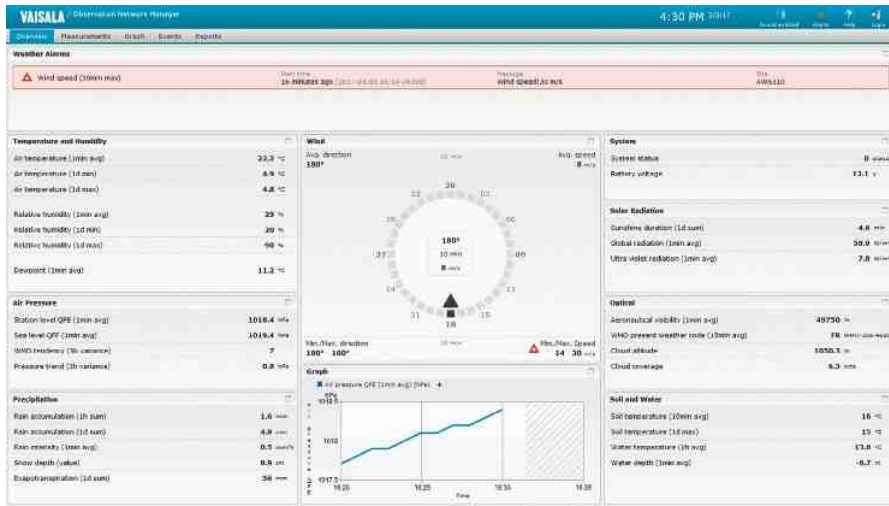
AWS 310, 430

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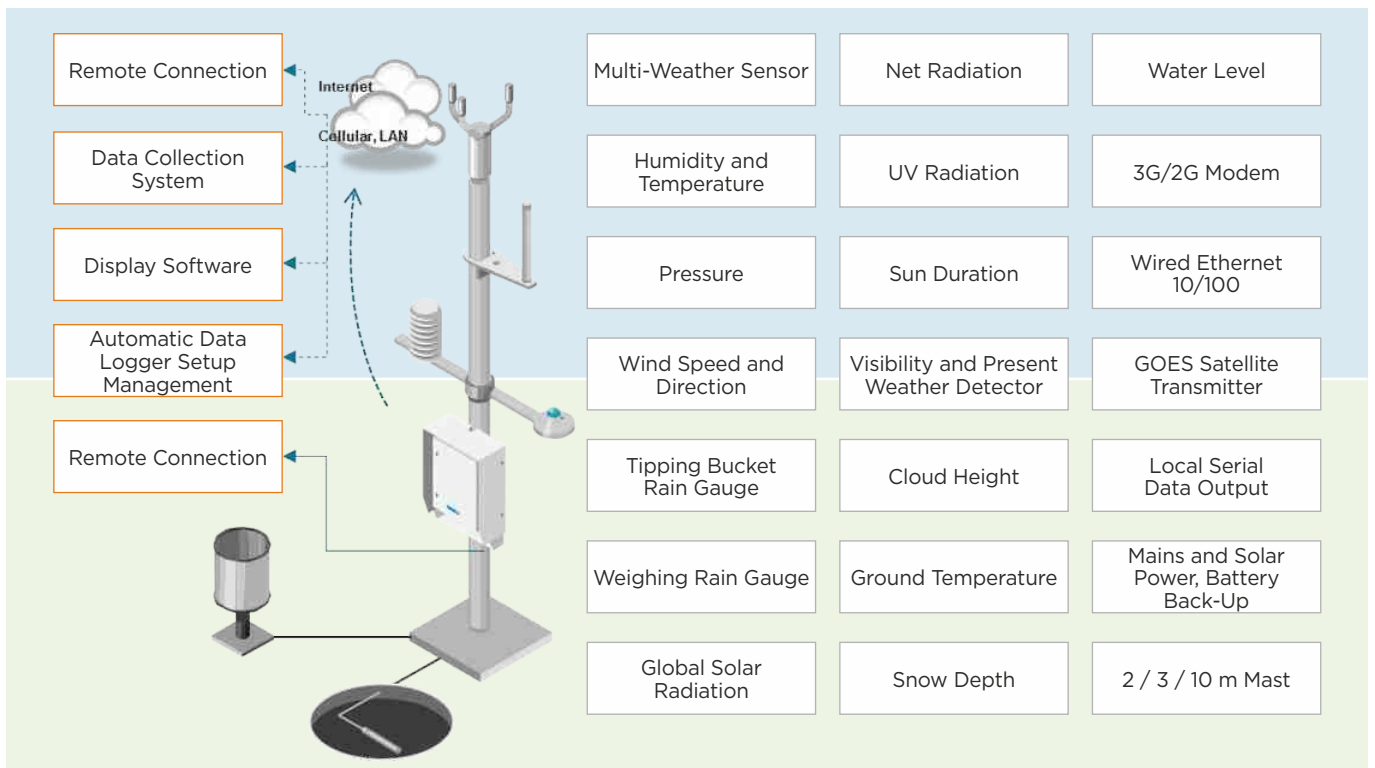
# AWS 310



Even without the NM10 software, you don't have to be on site to adjust settings or fix problems – the Vaisala AWSClient software supports setup, diagnostics, and data retrieval and is included in each AWS310 delivery. The AWS310 StationView GUI allows the user to view basic station information, sensor status, and readings, set site-specific parameters, and perform many of the AWSClient functions using a graphical user interface. The AWS310 can also automatically download a new configuration file from a network server, making maintenance even easier.

## Vaisala Weather Station Training

Reliable data cannot be achieved without skilled technical staff to operate and maintain your weather station. Training courses provide an excellent overall understanding of the AWS310 system, and also cover how to install, operate, and troubleshoot the system and conduct any necessary field repairs.



# Technical Data

## General

Data Collection Platform	Vaisala Data Logger QML201
Operating temperature	-40 ... +60 °C
Storage temperature	-60 ... +70 °C
Humidity	0 ... 100 %RH
Methods of Testing and Required Test Results, as follows:	
APPLIED STANDARD OR TEST PROCEDURE	
Environmental tests: Operating	
Dry heat	IEC 60068-2-2
Cold	IEC 60068-2-1
Damp heat	IEC 60068-2-30
Environmental tests: Storage	
Dry heat	IEC 60068-2-2
Cold	IEC 60068-2-1
Damp heat	IEC 60068-2-30
Environmental tests: Transport	
Vibration (random)	ETSI EN 300 019-2-2v2.3.1
Rough handling (free fall etc.)	ETSI EN 300 019-2-2v2.3.1
EMC tests IEC 61326-1- Industrial Standard	
Electrostatic discharge	EN 61000-4-2
Fast transient burst	EN 61000-4-4
RF field immunity (80MHz ... 18GHz)	EN 61000-4-3
Transient surge	EN 61000-4-5
Conducted RF immunity	EN 61000-4-6
RF field emission	EN 55022
Emission to DC/I/O ports	EN 55022
Harmonic current emissions	IEC 61000-3-2
Magnetic field immunity	IEC 61000-4-8
Immunity to Voltage Dips and Short	IEC 61000-4-11
Safety tests	
Electrical safety	IEC 60950-1
Enclosure protection & IP-class IP66 acc. IEC 60529. Sand & dust test acc. MIL-STD 810 G Method 506.5 Procedure 1	
Enclosure materials	Stainless steel AISI316L, painted white
Enclosure radiation shield materials	Aluminum, painted white
Enclosure size	600 (H) x 500 (W) x 200 (D) mm
Mast <sup>2)</sup>	Tilttable 2/3/10 m pole mast
Weight	Enclosure approx. 30 kg
10 m mast with sensors	75 ... 125 kg (composite mast)
	150 ... 200 kg (aluminum & steel mast)
Maximum wind speed	75 m/s with 10 m mast and two guy wire sets
Powering	90 ... 264 VAC, 45 ... 65 Hz
	12 ... 24 VDC recommended (30 VDC max.)
Solar panel	30W / 2 x 30W
Internal battery	Up to 52 Ah / 12 V with simultaneous AC (mains) and solar power supplies
Battery regulator	Charge/recharge control
	Temperature compensation
	Deep discharge protection
	Simultaneous inputs from solar and AC (mains) power allowed

## Data Validation, Calculations and Reports<sup>1)</sup>

Data quality control	Upper / lower climatological limits
	Step change validation
	Sensor status indication
Statistical calculations	Averages over set periods
	Minimum / maximum values
	Standard deviation
	Cumulative values
Other calculations	Dew point
	Heat index
	Wind chill
	Wet bulb temperature
	QFE/QFF/QNH pressure
	Sunshine duration
	Evapotranspiration
Default reporting formats	Table format diagnostics message
	CSV (comma-separated values) log message
	Vaisala SMSAWS message
All calculations and reporting in SI units by default <sup>1)</sup>	

## Preconfigured Sensor Options<sup>2)</sup>

Weather transmitter	WA15, WMT703 (dual sensors available)
Wind speed & direction	WXT531, WXT532, WXT535, WXT536
Atmospheric pressure	BARO-1QML (Class A accuracy)
	PTB330 (Class A accuracy, with three transducers)
Air temperature, relative humidity & dew point	HMP110, HMP155
Rain / precipitation	QMR102, RG13, Pluvio2L
	(installation pedestal included)
Global solar radiation	SMP3, SMP6, SMP10, SMP21, SMP22, SP Lite2
Net radiation	QMN101
UV radiation	SUV5
Visibility & present weather	PWD22
Cloud height & sky condition	CL31
Ground temperature	QMT110
Snow depth	SR50A
Water level	Vegapuls 61, PAA-36 X W

## Preconfigured Communication and Data Collection Software Options<sup>2)</sup>

Wireless communication	Five-band UMTS 3G modem
	(with quad-band GSM GPRS support)
Landline communication	RS-232, RS-485 bus, LAN
Data collection software	Vaisala Observation Network Manager
	NM10
Satellite communication	Vaisala High Data Rate GOES
	Transmitter (V2.0)
Maintenance terminal software	Vaisala AWS Client with
	StationView GUI

<sup>2)</sup> for other data validation, calculation, report, mast, powering, sensor, communication data collection software options, and measurement unit conversions, please contact Vaisala

## Accessories Provided

USB maintenance cable
Removable 2GB CF memory card

# AWS430 Automatic Weather Station



## Features/Benefits

- Designed specially for critical maritime weather applications.
- High-quality anti-corrosive design and EMC characteristics that comply with Lloyd's Register and IEC 60945 requirements
- High data availability
- Built in test procedures and data validation
- Accurate true wind calculation even from multiple sensors
- Meets NMEA 0183 and IEC 1162-1 requirements for data communication
- Complies with CAP 437 requirements

AWS430 is an automatic weather station specially designed for maritime environments such as ports, ships, and offshore platforms. The AWS430 contains either a water proof outdoor enclosure with various mounting options or 19" equipment rack unit. Outdoor enclosure is designed to withstand the salty and wet conditions that prevail aboard ships and platforms as well as the freeze/thaw conditions experienced in extreme-weather environments. It is also able to endure vibration and shock.

## Wide Range of High Quality Measurements

The basic weather parameters measured are wind speed and direction (relative wind, true wind, upwind), atmospheric pressure, air temperature, and humidity. Additional sensors can be installed for measuring other parameters, including water temperature, duration of rain and sunshine, global and long wave radiation,

amount of precipitation, cloud height, visibility, wave height, water level, water current and ship motion. AWS430 has built in calculation for many meteorological and statistical parameters such as dew point temperature.

## Flexible Integration

To obtain the most accurate true wind calculation, the vessel's own gyrocompass and navigation system can be used to provide the required heading and ship speed, direction, and location information. However, an optional GPS compass can also be integrated into the system. The system fully supports all the requirements for data communication as specified in NMEA 0183 and IEC 1162-1. When system is equipped with several wind sensors the most accurate wind data is selected by built in selection algorithm. The Vaisala AWS430 supports LAN connection with XML and Modbus TCP-IP protocols and remote maintenance functionality. Satellite communication options are also available.

## Self Diagnostics and Constant Data Availability

Built-in algorithms test each measurement to ensure data quality. For every parameter, tests are carried out on the minimum and maximum readings as well as step limits. Various parameters are also cross-checked. The built-in testing system continuously monitors the sensors, providing an immediate alert in case of a fault.

## Designed for Demanding Maritime Applications

All the materials of the AWS430 have been selected for their ability to withstand the harsh, corrosive conditions experienced in maritime environments. The AWS430 has successfully passed a wide variety, of environmental, electrical, vibration and shock tests. All test specifications comply with both the Lloyd's Register approval system and the IEC 60945 international maritime standard.

# Technical Data

## General

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Temperature	
Operating, Outdoor Enclosure	-50 ... +60 °C (-58 ... 140 °F)
Operating, 19" Rack Enclosure	-25 ... +60 °C (-13 ... 140 °F)
Storage	-50 ... +70 °C (-58 ... 158 °F)
Humidity	0 ... 100 %RH

In compliance with Lloyd's Register (LR) Type Approval System, Test Specification Number 1; 2002, Performance and Environmental Test Specification for the Environmentally Tested Products used in Marine and Offshore Applications, and IEC 60945 International Standard, 4th edition, 2002-08, Maritime Navigation and Radio communication Equipment and Systems - General Requirements Methods of Testing and Required Test Results, as follows:

Vibration	IEC 60068-2-6/IEC 60945
Shock	MIL-STD-202G, Method 213B, cond. J
Dry heat	IEC 60068-2-2/IEC 60068-2-48
Damp Heat	Cyclic IEC 60068-2-30
Extreme conditions*	IEC 60068-2-3, Test Ca
Low temperature*	IEC 60068-2-1 Test Ab/Ad
Rain & spray*	IEC 60529/IEC 60945
Corrosion & Salt mist*	IEC60068-2-52, test Kb/VDA 621-415
Conducted LF immunity	IEC 61000-4-16
Conducted RF immunity	IEC 61000-4-6
EFT immunity	IEC 61000-4-4
Surge immunity	IEC 61000-4-5
ESD immunity	IEC 61000-4-2
Dielectric tests	IEC 60947-2
Conducted emissions	CISPR 22 **
Radiated emissions	CISPR 22 **
RF field immunity	IEC 61000-4-3
Insulation resistance	IEC 60092-504
Power supply short term variation immunity	IEC 61000-4-11
Power supply failure immunity	IEC 61000-4-11/IEC 60092-504
Materials	Acid-proof stainless steel Anodized sea aluminum UV resistant plastic
Size, Outdoor Enclosure	600 (H) x 500 (W) x 200 (D) mm
Size, 19" Rack Enclosure	177 (H) x 433 (W) x 555 (D) mm
Weight, Outdoor Enclosure	max 40kg
Weight, 19" Rack Enclosure	max 15 kg
Powering	90 ... 264 VAC, 45 ... 65 Hz 24 VDC (30 VDC max.)*

Internal battery	2.6 Ah/12 V
Battery regulator Charge/recharge control	
Temperature compensation	
Deep discharge protection	

\* Only with Outdoor Enclosure. \*\* Limits according to IEC 60945

## Basic Sensor Options

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Wind speed & direction WMT52, WMT700  
Atmospheric pressure BARO-1, PTB330  
Air temperature, relative humidity & dew point HMP155  
Rain/precipitation Model 50202, DRD11A  
Water temperature DTS12W  
Vaisala weather transmitter WXT520  
GPS Satellite Compass Vector G2  
Visibility sensors PWD10/20/50  
Present weather sensors PWD12/22/52  
Ceilometer CL31  
Wave and tide sensor WGS167  
Water Current sensor 4830 Z-pulse DCS  
Water salinity sensor 3919  
Water level sensor PAA-36XW  
Ship motion sensor DMS-525  
Solar radiation/sun duration

## Additional Sensor Options

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RS485/RS232 sensors  
SDI-12 sensors  
Ethernet devices  
Analog sensors, with differential measurement up to 10 sensors total  
Digital sensors, two counter/frequency inputs  
Software controlled power outputs

## Data Validation, Calculations and Reports

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DATA QUALITY CONTROL  
Upper/lower climatological limits Step change validation  
Statistical calculations Averaging over user set periods  
True & relative wind, wind selection (upwind)  
Message inputs/outputs  
NMEA 0183 MVW/XDR/MTW message output  
NMEA 0183 HDT/RMC/VTG/GLL message input  
Vaisala SMSAWS message output  
XML format message output  
Modbus TCP-IP message output

## Communication Options

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Satellite communication Iridium, Inmarsat-C  
Wireless communication UHF, VHF, GSM, GPRS  
Landline communication RS232, RS485 bus, LAN  
Data displays, Vaisala Panel displays  
Pocket/Laptop/Tabletop PC

**Note!** Environmental and electrical specifications are valid only for the AWS430 weather station main unit. Sensor specifications are as stated in sensor specifications.

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