

Vaisala AWS430 Automatic Weather Station for Your Extreme Application Demands



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. Several different satellite communication options, such as Iridium and Inmarsat-C, 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

Temperature	
Operating	*) -50 ... +60 °C (-58 ... 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	IEC 60068-2-52, 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	approx 40kg
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	

Standard Sensor Options

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

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

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

Standard Communication Options

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

*) for further extended range, please contact Vaisala **) limits according to IEC 60945

VAISALA

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