DATASHEET

AWS310

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Automatic Weather Station AWS310



Vaisala Automatic Weather Station AWS310 has everything that you need for taking accurate and reliable weather measurements. It is a complete communication and data monitoring solution including sensors, electronics, mast, and power supply.

An all-in-one solution with many applications

Vaisala Automatic Weather Station AWS310 is a weather data collection system that automatically measures, processes, and stores meteorological data for professional use. AWS310 can be operated as a standalone unit, or it can be connected with other compatible Vaisala weather stations to form weather observation networks.

AWS310 stations can be used for several applications, such as synoptic, aviation, and agricultural meteorology, hydrology, and climatology. Using the same standard hardware and software for many purposes lowers the cost of training, spare parts, and logistics support.

Validated data from reliable sensors

Vaisala weather stations and instruments are fully compliant with World Meteorological Organization guidelines. The design quality of Vaisala weather stations has been proven with extensive tests in the development phase and on the field.

To ensure continuous accuracy of measurements and calculations, AWS310 includes built-in data quality controls that test sensor data against minimum and maximum limits and changes between successive measurements. The weather station's QML data logger continuously monitors the status of the sensors to ensure measurement reliability, notifying the user if the status of any sensor becomes invalid. All the sensors operate independently from each other, meaning that an individual sensor failure does not affect the performance of the other sensors.

Maintenance made easier

For AWS310 networks, the Vaisala Observation Network Manager NM10 software provides a powerful browser-based interface for 24/7 monitoring, access, and control of all your observation sites. Continuous, reliable observations improve the performance of your weather services and weather-critical operations, while shorter site visits and correct maintenance actions save time and money.

Even without the optional NM10 software, it is possible to adjust settings and fix problems remotely. The Vaisala AWS Client software that is included in each AWS310 delivery supports setup, diagnostics, and data retrieval. The AWS310 StationView GUI allows the user to view basic station information, sensor status, and readings, to set site-specific parameters, and to perform many other functions using a graphical user interface.

AWS310 can also automatically download a new configuration file from a network server, making maintenance even easier.

Features

- Complete solution for weather data collection
- Common options preconfigured, fully customizable for special needs
- WMO-compliant sensors for validated data
- Remote configuration management
- Easy remote monitoring of network status using the optional NM10
- Long calibration intervals
- Fast delivery for preconfigured systems

Technical data

Operating environment

Operating environment	Outdoor use
Use in wet location	Yes
Operating temperature [1]	−40 … +60 °C (−40 … +140 °F)
Extended operating temperature (project delivery)	−60 … +50 °C (−76 … +122 °F), cold start at −40 °C (−40 °F)
Storage temperature [2]	−60 … +70 °C (−76 … +158 °F)
Operating humidity	0–100 %RH
Pollution degree	2
Maximum operating altitude	3000 m (approx. 9800 ft)

1) *Excluding QMD202, QST102-3, NR Lite2, RG13(H), CL31, SR50A, and PAA-36XW. See the device and sensor specifications.*
2) *Excluding QMD202, QST102-3, HMP155, OTT Pluvio² L, and PWD series sensors. See the device and sensor specifications.*

Compliance

EU directives and regulations	Low Voltage Directive (2014/35/EU) EMC Directive (2014/30/EU) RoHS Directive (2011/65/EU) as amended by 2015/863
Electromagnetic compatibility (EMC)	EN 61326-1, industrial environment FCC part 15 B, Class B ICES-3 / NMB-3 (Class B)
Electrical safety	IEC/EN/UL/CSA-C22.2 61010-1
Compliance marks	CE, FCC, ICES, RCM

Environmental compliance

Test	Applied standard or test procedure	Specification
Operation		
Cold	IEC 60068-2-1	−40 °C (−40 °F)
Dry heat	IEC 60068-2-2	+60 °C (+140 °F)
Vibration (sinusoidal)	IEC 60068-2-6	Frequency range 5–200 Hz 1.2 mm/s velocity, 5–12 Hz 0.7 g, 12–200 Hz
Shock	IEC 60068-2-27	5.0 g, pulse duration 11 ms with 100 pulses in each direction
Damp heat, cyclic	IEC 60068-2-30	+40 °C (+104 °F) / 85–95 %RH
Vibration (random)	IEC 60068-2-64	5–100 Hz
Storage		
Cold	IEC 60068-2-1	−60 °C (−76 °F)
Dry heat	IEC 60068-2-2	+70 °C (+158 °F)
Damp heat, cyclic	IEC 60068-2-30	+40 °C (+104 °F) / 85–95 %RH
Transport		
Shock	IEC 60068-2-27	18 g, pulse duration 6 ms, with 100 pulses in each direction
Rough handling	IEC 60068-2-31	Drop height 60 cm (23.62 in)
Vibration (random)	IEC 60068-2-64	5–200 Hz

EMC compliance

Test	Applied standard or test procedure	Specification
Emissions radiated	CISPR 32 / EN 55032, Class B	30 MHz – 2 GHz
Emissions conducted to mains (AC)	CISPR 32 / EN 55032, Class B	150 kHz – 30 MHz
Emissions conducted to telecommunication lines	CISPR 32 / EN 55032, Class B	150 kHz – 30 MHz
Emissions, harmonic current	EN 61000-3-2	0–40th harmonic
Immunity to RF field (80 MHz – 6 GHz)	EN 61000-4-3	11 V/m (80 MHz – 1 GHz) 4 V/m (1–6 GHz)
Immunity to electrical fast transient	EN 61000-4-4	2 kV AC, 1 kV I/O
Immunity to surge	EN 61000-4-5	2 kV / 1 kV AC, 1 kV I/O
Immunity to conducted RF	EN 61000-4-6	4 V e.m.f. (150 kHz – 80 MHz)
Immunity to voltage dips and short interrupts	IEC 61000-4-11	0 % 1 cycle 40 % 10 cycles 70 % 25 cycles 0 % 250 cycles

Powering specifications

AC (mains) power	100–240 V AC, ±10 % 50/60 Hz 6.8 A maximum (100 V AC)
Mains fuse (nominal)	10 A
External DC	15–28 V DC 10 A maximum
DC fuse (for sensor powering, not heating)	Ceramic tube, 5 × 20 mm, 6.3 A M
Solar panel	70 W, typical 15–28 V DC 6 A maximum (each) / 10 A combined (both inputs)
Internal backup battery	12 V / 24–28 Ah (48–56 Ah with 2 batteries)
Overvoltage category	II

ENC652 specifications

IP rating	IP66
UL 50E/NEMA rating	NEMA 4X
Maximum operating wind speed	75 m/s (168 mph)
Door opening angle	100°
Material	Stainless steel AISI 316, painted white
Size (enclosure only)	600 × 500 × 207 mm (23.62 × 19.68 × 8.15 in)
Weight (excluding backup battery)	< 30 kg (66 lb) [1]

1) *Depends on the selected options.*

Standard sensor options

Wind speed and direction	WMT700, WA15 (dual sensors available)
Weather transmitter	WXT531, WXT532, WXT535, WXT536
Atmospheric pressure	BARO-1 (Class A accuracy), PTB330 (Class A accuracy, with 3 transducers)
Air temperature, relative humidity, and dew point	HMP110, HMP155
Rain/Precipitation	RG13(H), OTT Pluvio^2 L
Global solar radiation	SMP3, SMP6, SMP10, SMP21, SMP22, SP Lite2
Net radiation	NR Lite2
UV radiation	SUV5
Visibility and present weather	PWD22
Cloud height and sky condition	CL31
Ground temperature	QMT110
Snow depth	SR50A
Water level	VEGAPULS 61, PAA-36XW

Standard communication options

Wireless communication	4G LTE cellular modem with seamless fallback to 2G and 3G networks
Landline communication	RS-232, RS-485, LAN
Data collection software	Vaisala Observation Network Manager NM10
Satellite communication	Vaisala GOES DCP Transmitter QST102-3
Maintenance terminal software	Vaisala AWS Client with StationView GUI

For other data validation, calculation, report, mast, powering, sensor, communication data collection software options, and measurement unit conversions, contact Vaisala.

Standard accessories

USB maintenance cable
Removable 2 GB CF memory card

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