

## Maritime Automatic Weather Station AWS830

For helideck monitoring and metocean systems



### Features

- Optimized for maritime weather applications, with consideration for isolation barriers and vibrating environments
- Proven cyber-threat resilience (tested against DoS attacks and network storms)
- 2 enclosure options: outdoor and server rack enclosure
- Rugged, anti-corrosive design and easy maintenance
- Complies with IEC 60945, IEC 62443-4-1, CAP 437, and HCA
- Supports easy Python programming and custom parameter validation
- Supports CAA-approved and CAP 437-compliant HMS software: Vaisala Elements

Vaisala Maritime Automatic Weather Station AWS830 provides reliable meteorological and oceanographic data for maritime environments, such as vessels and offshore platforms.

AWS830 contains either a weatherproof outdoor enclosure with various mounting options or a 19" equipment rack unit. The outdoor enclosure is designed to withstand the harsh maritime and extreme-weather environments. It is also tested with comprehensive vibration and shock tests according to relevant standards.

### High-quality measurements

AWS830 measures key weather and oceanographic parameters: wind speed and direction, atmospheric pressure, visibility, cloud height, air temperature, humidity, and helideck motion. Additional sensors can be easily integrated for measuring other parameters, such as wave height.

DMU801 data management unit offers built-in Python modules and support for custom modules for meteorological calculations and messaging purposes.

### Optimized for helideck monitoring

AWS830 is designed to meet the latest CAP 437 and HCA (Helideck Certification Agency) requirements. It is fully compatible with Vaisala Elements Helideck Monitoring Software. Support for third-party HMS (Helideck Monitoring System) is available upon request.

### Flexible integration

AWS830 supports data communication specified in the NMEA 0183 standard. Therefore, it can easily parse in the speed, heading, and positioning information of the vessel. An optional GPS compass can also be integrated into the system.

### Effortless usability

With its fast native LAN and USB-C connections, AWS830 can be easily monitored, managed, and maintained both locally and remotely through a browser-based web user interface.

### Built-in cyber security

To ensure data security and protection against cyber threats, AWS830 has built-in measures, such as secure boot, regular firmware updates, controlled software execution, and dynamic firewall.

Furthermore, AWS830 employs secure communication protocols. For example, the connection between the weather station and Vaisala Elements is protected using TLS and authenticated using security certificates.

### Designed for demanding maritime applications

All the materials of AWS830 have been selected for their ability to withstand the harsh, corrosive maritime environments. The weather station has successfully passed a wide variety of environmental, electrical, vibration, and shock tests. The tests are conducted according to the international maritime standard IEC 60945, in addition to other relevant standards.

# Technical data

## Specifications for system with outdoor enclosure

Operating environment	
Operating environment	Outdoor use
Use in wet location	Yes
Operating temperature	-50 ... +60 °C (-58 ... +140 °F), cold start at -40 °C (-40 °F) <sup>1)</sup>
Operating humidity	0-100 %RH
Storage temperature	-60 ... +70 °C (-76 ... +158 °F) <sup>2)</sup>
Storage humidity	0-100 %RH, non-condensing
IP rating	IP66
UL 50E/NEMA rating	Type 4X
Enclosure mechanical specifications	
Dimensions (H × W × L)	600 × 500 × 207 mm (23.62 × 19.69 × 8.15 in)
Lifting weight (enclosure with backplate), depending on configuration	Approx. 27 kg (60 lb)
Materials	
Enclosure	Stainless steel AISI 316L, painted white (RAL9003, gloss 80)
Coating	Powder paint
Flanges	Stainless steel AISI 316 Rubber (TPE)
Cable glands	Nickel-plated brass Stainless steel AISI 304
Radiation shield	Aluminum EN AW-5754

1) Excluding PJB480 and DEIF XDi-N display.

2) Excluding backup battery, WM80, PTB330, and DEIF XDi-N display.

## Specifications for system with 19" rack enclosure

Operating environment	
Operating environment	Indoor use
Use in wet location	No
Operating temperature	-25 ... +60 °C (-13 ... +140 °F) <sup>1)</sup>
Operating humidity	0-100 %RH, non-condensing
Storage temperature	-60 ... +70 °C (-76 ... +158 °F) <sup>2)</sup>
Storage humidity	0-100 %RH, non-condensing
IP rating	IP20
UL 50E/NEMA rating	Type 1
Enclosure mechanical specifications	
Dimensions (H × W × L)	177 × 425 × 547 mm (6.97 × 16.73 × 21.54 in)
Lifting weight, depending on configuration	Approx. 21 kg (46 lb)
Material	Aluminum EN AW-5754
Faceplate coating	Anodized, black
Flange	Rubber (TPE)
Connectors	4 × Ethernet ports USB-C service port AC (mains) input port (IEC 60320-C14)

1) Excluding PJB480 and DEIF XDi-N display.

2) Excluding backup battery, WM80, PTB330, and DEIF XDi-N display.

## Powering specifications

AC (mains) power	100-240 V AC, -15 ... +10 % 50-60 Hz, ±10 % 6.8 A maximum (100 V DC)
AC (mains) fuse (nominal)	ENC652 enclosure model: 10 A Rack enclosure model: 5 A
External DC	22 V DC nominal (-10 ... +30 %), typical operating voltage 24 V DC 10 A maximum
Backup battery	12 V 13 Ah, VRLA (valve-regulated lead-acid) battery
Output voltage	12 V, 24 V, and variable
Overvoltage category	II
Power consumption (without sensor heating)	Typical: 16 W Maximum: 24 W
Power consumption (with sensor heating) <sup>1)</sup>	Typical: 145 W Maximum: 274 W

1) Calculated with 2 × WMT700 and PWD22 with heating on.

## Data communication

Data communication interfaces	Serial (RS-485) Ethernet SDI-12
Maintenance interfaces	Web UI (through USB-C or Ethernet)
Communication protocols	NMEA 0183 Secured HMS protocol SMSAWS Custom Modbus TCP
Data collection and visualization	NMEA-dominated messages with proprietary sensor messages (for example, wave radar and motion sensors) Visualization and data collection with Vaisala Elements Helideck Monitoring Software
Data format	Outputs: <ul style="list-style-type: none"><li>NMEA MWV</li><li>NMEA XDR (multiple)</li><li>Forwarded Vaisala ASCII messages</li><li>Forwarded PSMCC message</li><li>Forwarded wave radar messages</li></ul> Inputs: <ul style="list-style-type: none"><li>Vaisala ASCII sensor inputs</li><li>PSMCC (motion sensor)</li><li>Wave radar proprietary ASCII message</li></ul>
Measurement and output interval	Wind: 4 Hz Motion: 10 Hz Wave: 4 Hz Weather sensors: 15-30 s

## Compliance

EU directives and regulations	EMC, LVD, RoHS
EMC immunity	IEC/EN 61326-1, industrial environment FCC part 15 B, Class A ICES-3 / NMB-3 (Class A) IEC 60945
EMC emissions	CISPR 11 / EN 55011, Class B <sup>1)</sup> IEC 60945 IEC 301908-1
Safety	IEC/EN 62368-1
Safety listing (U.S. and Canada)	MET Listed
Cybersecurity	Developed in accordance with ISO/IEC 27001 and IEC 62443-4-1 for secure product development practices
Compliance marks	CE, FCC, RCM

<sup>1)</sup> Class A if the system includes ComNav G2 satellite compass.

## Electromagnetic compatibility

Conducted RF immunity	IEC 61000-4-6
Electrical fast transient immunity	IEC 61000-4-4
Surge immunity	IEC 61000-4-5
ESD immunity	IEC 61000-4-2
Radiated emissions	CISPR 16-2-3
Conducted emissions	CISPR 16-2-1
RF field immunity	IEC 61000-4-3
Power supply variation	IEC 60945
Power supply failure immunity	IEC 60945

## Environmental compliance

Cold	IEC 60068-2-1
Dry heat	IEC 60068-2-2
Vibration (sinusoidal)	IEC 60068-2-6
Change of temperature	IEC 60068-2-14
Shock	MIL-STD-202G, method 213B, condition J
Damp heat, cyclic	IEC 60068-2-30
Vibration (random)	IEC 60068-2-64
<b>Outdoor enclosure ENC652 only</b>	
Corrosion and salt mist	VDA-621-415