

Automatic Weather Station AWS810 Airport Edition



Features

- Designed and tested for aviation applications with Vaisala AviMet® systems
- Complete solution for weather data collection
- Modern security architecture
- Advanced data management with Vaisala Data Management Unit DMU801
- ICAO- and WMO-compliant sensors with long calibration intervals
- Excellent expandability and flexibility
- Enhanced remote maintenance through Ethernet connection
- Wide range of installation, power supply, and communication options
- Surge protection for power input, sensor connections, and output data connections

Vaisala Automatic Weather Station AWS810 Airport Edition is a complete weather observation solution optimized for aviation applications. It provides reliable and accurate weather measurements to support safety-critical airport operations, using ICAO- and WMO-compliant sensors.

Optimized for airport weather observation needs

AWS810 Airport Edition is designed and tested for use with Vaisala AviMet Automated Weather Observing System (AWOS) and Low-level Windshear Alert System (LLWAS), ensuring complete end-to-end system integration. With Vaisala AviMet, users can remotely collect and view weather data, as well as monitor and control the AWS810 Airport Edition stations.

A complete solution

AWS810 Airport Edition includes everything you need for accurate and reliable weather measurements: the enclosure, a wide variety of sensor options, installation kits, power supply, and communication devices.

A robust, tightly sealed IP66 stainless steel enclosure protects the electronics. Flexible installation and powering options are available to meet customer and site-specific requirements, including a solar-powered option for remote locations.

Reliable data collection

The station sends meteorological data to the airport weather system in real time using the available communication options: landline (RS-232, RS-485, leased-line modem), Ethernet or fiber optic communication, or wireless communication (UHF radio).

To provide redundancy in safety-critical airport applications, data can be sent simultaneously through 2 parallel communication ports. The data is also saved on the weather station's memory for later export.

AWS810 Airport Edition includes built-in data quality controls and continuous sensor status monitoring by the DMU801 data management unit to ensure reliable and accurate measurements.

Excellent long-term stability

Sensor calibration is vital to accurate and reliable observations. The sensors of AWS810 Airport Edition ensure excellent long-term stability with a low risk of drift or sudden changes in calibration. This results in longer calibration intervals, lower maintenance costs, and reduced downtime.

Data security prioritized

AWS810 Airport Edition provides first-class data security mechanisms to protect your data against cyber threats and unauthorized access. At the core of the system is the DMU801 data management unit, a secure platform developed in accordance with ISO/IEC 27001 and IEC 62443-4-1 secure product development practices. DMU801 enables secure data acquisition, processing, and integration across the system. Regular firmware updates ensure continuous enhancements throughout the product lifecycle.

Remote maintenance and station management

The web user interface allows you to adjust settings and fix problems remotely. It is possible to view basic station information, sensor status and readings, and to set site-specific parameters. Through the Web UI you can also update the firmware and restore factory default settings.

Technical data

Operating environment

Operating environment	Outdoor use
Use in wet location	Yes
Operating temperature with 28 Ah backup battery or without battery	−40 ... +60 °C (−40 ... +140 °F)
Operating temperature with 24 Ah backup battery	−40 ... +50 °C (−40 ... +122 °F)
Extended operating temperature (with insulated enclosure and heating) ¹⁾	−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 WA15, DRS511, and QMT110. See the manufacturer documentation.
²⁾ Excluding HMP155 and backup battery. See the manufacturer documentation.

Powering specifications

AC (mains) power	100–240 V AC, −15 % ... +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
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	Type 4X
Maximum operating wind speed	75 m/s (168 mph)
Door opening angle	100°
Material	Stainless steel AISI 316L, 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)
Atmospheric pressure	PTB330 (Class A accuracy, with 3 transducers)
Air temperature and relative humidity	HMP155
Rain/precipitation	Several options
Global solar radiation	Several options
Sunshine duration	Several options
Ground temperature	QMT110
Runway temperature	DRS511
Standard interfaces	CL31, LT31, FD70, FS11, PWD series, TSS928, WM80, QMT107

Standard communication options

Landline communication	RS-232, RS-485, or leased-line modem
Wireless communication	UHF radio interface
Ethernet communication	Fiber optic, copper
Dual communication	Any combination of 2 standard communication options
Local maintenance connection	USB-C, browser-based Web UI

Compliance

EU directives and regulations	EMC, LVD, RoHS
EMC immunity	EN 61326-1, industrial environment FCC part 15 B, Class B CAN ICES-3(B)/NMB-3(B)
EMC emissions	CISPR 32 / EN 55032, Class B
Safety	IEC/EN/AS/UL/CSA-C22.2 61010-1
Eye safety (SFP modules)	Class 1 laser product, EN 60825-1:2014
CLASS 1 LASER PRODUCT	
Safety listing (U.S. and Canada)	MET Listed ¹⁾
Cybersecurity	Developed in accordance with ISO/IEC 27001 and IEC 62443-4-1 for secure product development practices
Compliance marks	CE, China RoHS, FCC, RCM, UKCA

¹⁾ AWS810 backplate only -option is MET Recognized. Heated/insulated AWS810 option (with insulated enclosure) is not listed.

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)
Damp heat	IEC 60068-2-78	+40 °C (+104 °F), 93 %RH
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
Vibration (random)	IEC 60068-2-64	5–100 Hz
Storage		
Cold ¹⁾	IEC 60068-2-1	−60 °C (−76 °F)
Dry heat ¹⁾	IEC 60068-2-2	+70 °C (+158 °F)
Transport		
Vibration (random)	IEC 60068-2-64	5–200 Hz
Shock	IEC 60068-2-27	18 g, pulse duration 6 ms with 100 pulses in each direction
Rough handling	IEC 600068-2-31	Drop height 25 cm (9.84 in)

¹⁾ Excluding backup battery.

Electromagnetic compatibility

Test	Applied standard or test procedure	Specification
Emissions radiated	CISPR 32 / EN 55032, Class B	30 MHz–6 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 radiated, Class B	FCC part 15 B, Class B	30 MHz–18 GHz
Emissions conducted, Class B	FCC part 15 B, Class B	150 kHz–30 MHz
Emissions, harmonic current	EN 61000-3-2	0–40 th harmonic
Immunity to electrostatic discharge	EN 61000-4-2	Contact, HCP ±4 kV Contact, VCP ±4 kV Contact discharge, all conductive parts ±4 kV All discharge, all nonconductive parts ±2 kV, ±4 kV, ±8 kV
Immunity to RF field (80 MHz ... 6 GHz)	EN 61000-4-3	10 V/m (80 MHz–1 GHz) 3 V/m (1–6 GHz)
Immunity to electric fast transient	EN 61000-4-4	±2 kV AC, ±1 kV I/O
Immunity to surge	EN 61000-4-5	Line to line ±1 kV (AC and I/O) Line to ground ±2 kV (AC and I/O)
Immunity to conducted RF	EN 61000-4-6	3 V r.m.s. (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