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DATASHEET

AS41

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AUTOSONDE® AS41



Vaisala Automatic Sounding Station AUTOSONDE AS41 is an upper-air observation system for synoptic and adaptive use. With a loading capacity of 60 radiosondes, it provides the longest autonomous sounding capacity on the market.

Features

- Upper-air observation system for synoptic and adaptive use
- All benefits of Vaisala Radiosonde RS41 and Vaisala Cirrus® Sounding System MW51
- Easy reloading and needed only once every 4 weeks
- Safe working environment, gas lines located outside the container
- Balloon filling with either hydrogen or helium
- Remote diagnostics, control, and configuration
- Controlled access for improved operational safety

High-quality data

Complemented by Vaisala Cirrus Sounding System MW51 and the RS41 radiosonde, Vaisala AUTOSONDE AS41 provides world-class sounding data. Its automated and manual operations are based on proven algorithms and procedures, such as the automatic ground check.

As a reliable start reference for sounding data, AS41 uses either Vaisala Automatic Weather Station AWS310 installed on a 10-meter mast according to WMO requirements or Vaisala Weather Transmitter WXT536 installed on a short mast on the container roof.

High data availability

Each individual detail in AS41 has been carefully designed and tested to achieve high target rates of successful soundings.

AS41 is designed to endure extreme weather conditions around the world. Thoroughly tested automation control and carefully selected components and materials guarantee continuous operation with minimum downtime.

AS41 enables using multiple satellite systems with RS41 radiosondes, which enhance accuracy and mitigate GNSS interference.

Cost efficient solution

AS41 offers the longest autonomous sounding capacity on the market. Site visits are significantly reduced as reloading is only required once every 4 weeks.

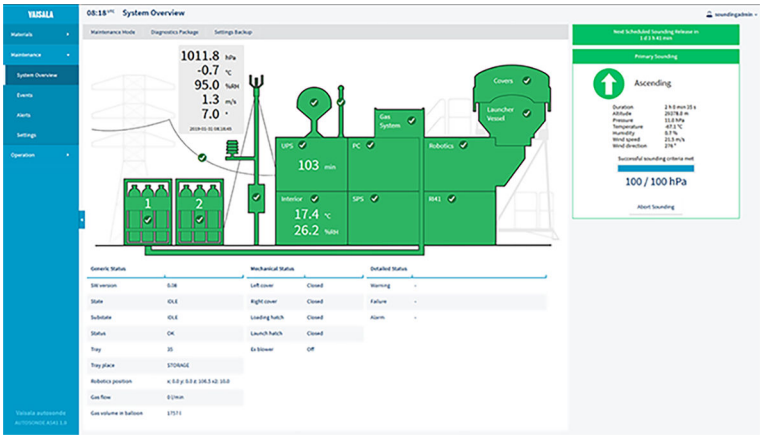
As AS41 complies with tight international standards for explosive athmospheres, cost-efficient hydrogen can be used as an optional balloon filling gas in place of helium.

Secure operation

The system is designed with security in mind. User access is controlled, while data transfer and remote control use secure communication. You can access the AS41 user interface from anywhere within the connected network using a standard web browser. Message authentication prevents tampering of radiosonde communications.

Easy and safe maintenance

Maintaining AS41 is safe and easy. All maintained parts are accessible from built-to-purpose maintenance platforms which include safety railings around them. AS41 fulfills common directives and standards for machine safety, electrical safety, Ex safety, and similar.



User interface design supports easier system diagnostics.

Technical data

AUTOSONDE AS41

Loading capacity	60 radiosondes
Storage capacity for consumables	4 months (2 soundings a day)
Radiosonde	• RS41-SG, RS41-SGE • RS41-SGP, RS41-SGPE
Sounding workstation	• Sounding system software preinstalled • Windows® operating system preinstalled • AUTOSONDE Control software preinstalled • System recovery tools, including USB drive with recovery image
Sounding processing subsystem	SPS511
Antennas	Telemetry antenna (directional UHF) GNSS antenna
Automatic ground check device	RI41-AS41
Uninterrupted power supply	Options for 1 hour and 3 hours
Surface observation options	• AWS310, sensors on separate 10-meter mast, complies with WMO CIMO guide 8 • WXT536, sensors on short mast attached to the container

Electrical specifications

Main electric cabinet	Located inside the container Includes surge protectors, circuit breakers, residual current devices, mechanics controller, safety controller, servo drives, and frequency controllers.
Mechanics controller	Industry standard programmable logic controller with analog and digital I/O and electric motor controls.
Input voltage and frequency tolerance	±10 %
Input power options	• 400 V AC 50 Hz 20 A, 3-phase • 230 V AC 50 Hz 25 A, 1-phase
Maximum power consumption	5500 W
Average power consumption	Under 1000 W
Cabling	Halogen-free
Wall sockets	Integrated in the operator desk
Lights	Ceiling light with presence detector Remotely controlled robotics room lights
Heater	1000 W with thermostat
Air conditioner with heating functionality	2000 W

Mechanical specifications

Container	
Dimensions during transportation (L × W × H)	6058 × 2438 × 2896 mm Transports as CSC-approved 20-feet HC sea container
Dimensions during operational use (L × W × H)	8000 × 3300 × 5200 mm
Dimensions of access door with window (L × H)	900 × 2100 mm
Total weight with launcher vessel	7.5 t
Launcher vessel	
Vessel tube dimensions	Ø 2 m
Vessel frame material	Acid-proof steel frame Separate from the container
Covers	2 pieces, operated by electric gearmotors
Cover dimensions	Ø 2 m, inside
Cover material	Laminated fiberglass
Gas flow measurement	
Gas flow measurement unit	• Installed on the container roof • 2 flexible input gas hoses controlled by magnetic valves • Connection to gas regulator • Output hose to nozzle controlled by magnetic valves
Gas flow meter	With electrical current output Maintenance-free, no moving parts Automatic measurement of gas amount
Balloon	
Balloon size	200–1200 g
Balloon filling gas	Hydrogen or helium
Nozzle	Connected to the balloon during loading Gas-proof connection

Operating environment

Operating temperature	−40 … +53 °C (−40 … +127 °F)
Operating humidity	0–100 %RH, condensing
Maximum operating wind speed	25 m/s
Surviving wind speed	60 m/s
Storage temperature (short term)	−40 … +53 °C (−40 … +127 °F)
Storage humidity	0–100 %RH, condensing

Compliance

Explosive atmospheres Part 14: Electrical installations design, selection and erection	IEC 60079-14 (2013), IEC 60079-10-1 (2015)
Machine safety	Machinery Directive 2006/42/EC
Compliance marks	CE

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