

Vaisala DigiCORA[®] Unmanned Sounding System AUTOSONDE[®]



Fully automated upper-air observation from urban areas
to the remotest locations

Fully automated upper-air observation

The Vaisala DigiCORA® Unmanned Sounding System AUTOSONDE® automates the synoptic upper-air observations. It saves costs and gives the freedom to extend the coverage of upper-air networks everywhere. In populated areas, remote locations, or in climates ranging from polar to tropical, the efficiency of the unmanned sounding system has been proved.



An attendant only needs to reload the daisywheel with radiosondes and balloons every 12 days.

Minimize operating costs and maximize meteorological data availability

The Vaisala AUTOSONDE® has the capacity to perform entirely automatically for 24 consecutive synoptic soundings. It is only at this point the Vaisala AUTOSONDE® is restocked and checked manually. A restocking and check visit only takes three hours, which means eight synoptic observations per man-hour. This gives real benefits and operational reductions in costs. Fully automatic sounding in turn by preprogrammable and repeatable actions improves data quality and availability.

Whether it is a new station, or a replacement of an older system, setting up and reconfiguring the Vaisala AUTOSONDE® is quick and inexpensive. This compact package includes everything from

the sounding station to the balloon filling unit. It can be transported on a trailer, making it easy to relocate. The system is also easy to reconfigure to suit new sites saving time and money.

Proven performance in every climate

The Vaisala AUTOSONDE® system has been used extensively in both highly and non-populated areas of the world. Its robust design and ability to operate automatically make it the ideal choice for the remotest regions and the most extreme climates.

The system is equipped with heaters and an air conditioner to cope with wide variations in any climate. In even more extreme conditions, a cold climate kit is available to deal with a minimum operating temperature of -40°C and additional windcovers raise the operating wind speed up to 25 m/s.

Benefits

- Entirely automatic for 12 consecutive days
- Remote configuration
- All benefits of Vaisala Radiosonde RS92 and Vaisala DigiCORA® Sounding System
- Cost effective due to low maintenance and low man-hours

Remote flexible operation

Vaisala AUTOSONDE® can be configured remotely from a central location by using the Remote Control System. It also allows the remote interruption of the systems regular sounding schedule to measure interesting events such as extreme weather phenomena. The whole system network can also be monitored from one central location

and remotely commanded to adapt actions according to changing weather conditions.

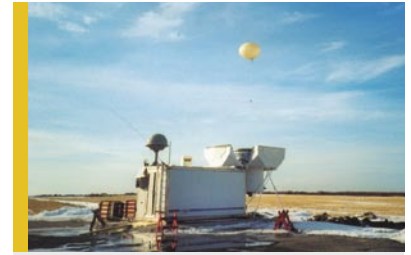
Superior performance with DigiCORA® Sounding system and Radiosonde RS92

Vaisala DigiCORA® sounding system is a complete package for measuring the upper-air atmospheric profile. Vaisala Sounding Systems share the same standard software components, graphical tools, antennas and

receivers. The Vaisala AUTOSONDE® also uses the Vaisala RS92 radiosonde, which is field proven and gives excellent data performance.

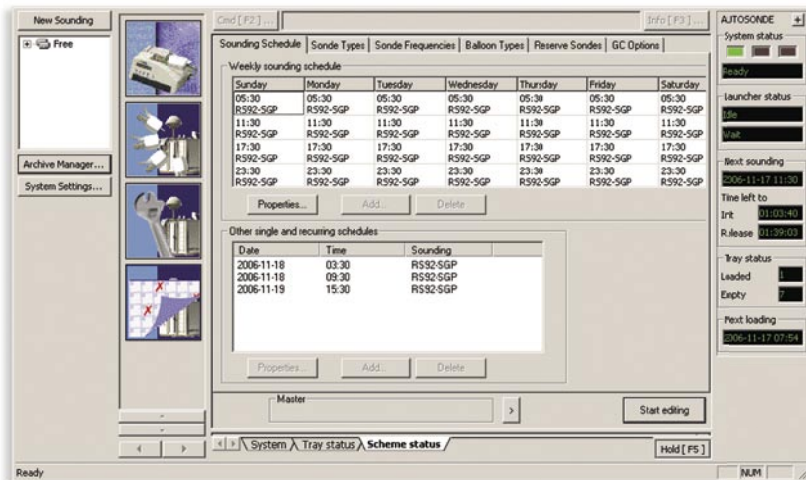
Data availability ensured

A Vaisala service contract ensures that your system keeps working productively, delivering the measurement data you require, over the systems entire lifecycle. Vaisala has over 70 years of experience in serving upper-air measurement.



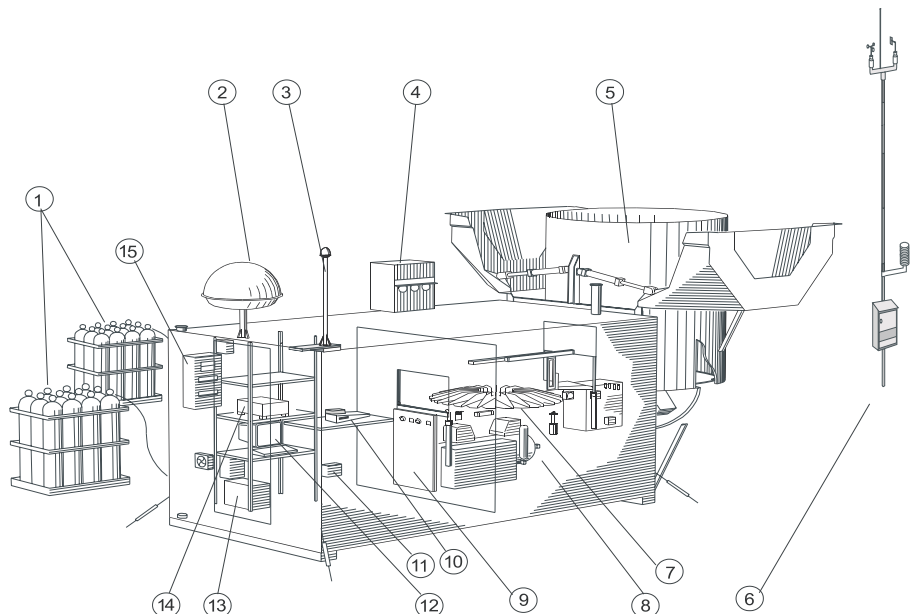
Supporting synoptic observations in Norway

The Norwegian Meteorological Institute (Meteorologisk institutt, NMI) has operated three Vaisala AUTOSONDE® systems for several years. Each Vaisala AUTOSONDE® operates automatically and performs two synoptic soundings daily. All of the systems are remotely controlled from one location. These systems operate reliably even in harsh conditions and high winds, which is crucial, since the sites are difficult to access. Regular maintenance visits are made once a year to check that everything is fine.



The sounding settings are defined in a familiar Windows® based graphical user interface that runs on the Sounding Workstation.

- 1 = Gas Banks
- 2 = UHF Antenna
- 3 = GPS Antenna
- 4 = Gas Measurement Unit
- 5 = Launcher Vessel
- 6 = Automatic Weather Station, MAWS
- 7 = Daisywheel
- 8 = Radiosonde Storage and Preparation Module
- 9 = Logic Controller
- 10 = Ground Check Set
- 11 = HMT Series Humidity/ Temperature Transmitter
- 12 = Sounding Workstation
- 13 = UPS Power Supply
- 14 = Sounding Processing Subsystem
- 15 = Mains Distribution Box



Technical information

Vaisala DigiCORA® Sounding System MW31

SOUNDING WORKSTATION

DigiCORA® Sounding software pre-installed:
Standard Software, METGRAPH software, AUTOSONDE® software
Operating system Windows 2003 Server, pre-installed
System recovery software

VAISALA SOUNDING PROCESSING SUBSYSTEM SPS311

Windfinding options: - Code correlating GPS

ANTENNAS

- Directional UHF antenna
- GPS antenna

GROUND CHECK DEVICE

UPS

VAISALA AUTOMATIC SURFACE WEATHER SYSTEM

Automatic launcher

SHELTER

Dimensions 4.9 m x 2.4 m x 2.5 m (length x width x height)
Total height with radiosonde launcher 3.7 m
Gross weight with radiosonde launcher 3 metric tons

MECHANICAL CONSTRUCTION

Shelter Sandwich construction:
2 plastic-coated steel plates (Paroc)
with 100 mm fireproof mineral wool insulation
Fire protection class EI 120
Access door with window 900 x 2100 mm
Window 600 x 800 mm

ELECTRICITY

Power consumption 230 V 50 Hz 20 A, 1-phase, or
400 V/230 V 50 Hz 20 A, 3-phase
Mains cable According to national regulations
Distribution box Inside container, 3 circuit-breakers
and fault current breakers, surge arrester(s)
Indoor cabling Inside aluminum cable channels
Wall sockets In the cable channels
Lights On the ceiling, switch near the door
Heater 2 x 800 W with thermostat
Air conditioner Standard
Air dryer Optional

LAUNCHER VESSEL

Dimensions Height 1.2 m, diameter 2 m
Construction Steel frame
Cover lids 2 pcs, optionally 4 pcs
Balloon tube Fiberglass with conductive gel inside
fixed with steel bars to the shelter, canvas bag inside,
pneumatic cylinders controlled with logic controller

LOGIC CONTROLLER

Installed in a box inside the shelter, microprocessor-based, pre-programmed,
analog inputs, on/off inputs and on/off outputs

LAUNCHER VESSEL HEATER

Equipped with thermostat, installed in a sealed metal pipe, switched off
automatically when launcher is operated

GAS MEASUREMENT

Measurement unit Installed on the roof of the shelter,
2 flexible input gas hoses, 8 m,
extendable connection to local gas
regulator to be specified,
output hose to nozzle controlled by magnetic valves
Gas flow meter With electrical current output,
automatic measurement of gas amount

BALLOON FILLING AND SIZE

Balloon nozzle connected to the balloon during loading, gas-proof balloon
nozzle connection
Balloon size 200-800 g
Balloon filling gas Hydrogen or helium

CLASSIFICATION

EC 60079-14 (1996), IEC-79-10 (1995), IEC-364-7-708 (1988)
SFS-EN 60439-1 (1990), KY 204-92

OPTIONS

Additional wind shield
Cold climate kit
Dehumidifier
Mains transformer
Filling gas regulator
Additional Remote Control Software

Remote control system

WORKSTATION

DigiCORA® Sounding software pre-installed:
Standard Software, METGRAPH software, AUTOSONDE® software
Operating system Windows XP, pre-installed
System recovery software



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