

Windsond

Product Catalogue

Windsond is a weather balloon system for an immediate view of local conditions at different altitudes. The focus on portability and low operating costs makes it perfect for frequent use in the field.



Radiosonde S1

The S1 is our current radiosonde model. It comes in reusable or single-use variants, and can be equipped with a few different sensors. These options are detailed below. The choice of sensor and reusability are added as suffixes to the part number.

No pre-flight calibration is necessary. All sondes have a styrofoam enclosure and come installed with GPS, radio transceiver and an air pressure sensor. Each sonde includes one 75mAh or 140mAh battery and one 8g or 17g balloon. For operation above 5000m AGL, the bigger battery and bigger balloon are recommended.



The low weight of Windsond enables low-altitude soundings with very small balloons, giving unprecedented mobility.

Sonde operating conditions

Temperature	-45~+45°C
Max altitude	8000 meter above ground level or 9000 meter above sea level
Weight (excluding balloon)	Configuration below 5000m: 12 gram Configuration above 5000m: 13 gram
Suggested helium consumption at 1.5 m/s rise rate	Configuration below 5000m: 30 liters Configuration above 5000m: 60liters
Simultaneous soundings per receiver	8

Telemetry

Type	Bidirectional UHF radio
Modulation	GFSK
Frequency	Configurable 400 ~ 480 MHz
Power	Configurable, max 100 mW
Range, with unobstructed view	Omni-directional receiver antenna: >15 km. Directional receiver antenna: >60 km
Measurement frequency	1 Hz
Ground station antenna connector type	SMA

Sensor characteristics

Feature	Range	Resolution	Accuracy	Unit
Air pressure	300-1100	0.02	1.0	hPa
Wind speed	0-150	0.1	ca 5%	m/s
Wind direction	0-360	0.1	Depends on GPS conditions	degrees

Absolute sensor accuracy and resolution, typical characteristics at 25 °C

Complete kits

GSA1 Mobile Ground Station



Complete, water-proof ground station with radiosondes. Comes with large hard case GC2 and includes RR2 radio receiver with telemetry and GPS, 5 S1H3-R radiosondes, antennas, balloons, helium canister and tablet TA1. The tablet comes with pre-installed software license AA-100 for data visualization and sonde control. The canister fits helium for 5 soundings.

5 kg, external size 47 x 36 X 18 cm IP67, MIL C-4150J, STANAG 4280

KIT1 Ground Station



Water-proof ground station with radiosondes. Comes with hard case GC1 and includes RR1 radio receiver with telemetry and logging, 5 S1H3-R radiosondes, antennas, balloons, tether strings and software license WS-250 or AA 100. (Helium canister and computer not included)

2 kg, external size 34 x 30 x 15 cm IP67, MIL C-4150J, STANAG 4280

S1 Sensor options

S1B Basic



Operating range

-40~ +80 °C

Temperature

Type: Thermistor
Accuracy 0.3 ~ 0.7 °C
Resolution:
0.1 ~ 0.35 °C

S1H2 Humidity



Operating range

-40~ +80 °C
0 ~ 100 %RH

Temperature

Type: Band gap
Accuracy 0.3 °C
Resolution 0.01 °C

Humidity

Type: Capacitive
Accuracy 2.0 %RH
Resolution 0.05%RH

S1H3 Extra accuracy humidity



Operating range

-40~ +80 °C
0 ~ 100 %RH

Temperature

Type: Band gap
Accuracy 0.2 °C
Resolution 0.01 °C

Humidity

Type: Capacitive
Accuracy 1.8 %RH
Resolution 0.05%RH

Absolute sensor accuracy and resolution, typical characteristics at 25 °C

Dew point is calculated from temperature and humidity with corresponding confidence levels.

Sonde add-on options

Choose number suffix to select a S1 sensor option. For example S1H3-R.

Art. number suffix	Description
*-S	Single-time use option. Saves some cost, but sonde can not be expected to be recovered and reused.
*-R	Simplifies sonde recovery: Dual cut-down mechanisms. Strobe light. Loudspeaker.

Add-on: Onboard logging

An extra memory chip on the sonde that logs all data. The log is read out by the computer after the sounding and saved to a special file.

System spare parts

BL75



Extra battery 75mAh
Rechargeable lithium-ion
battery. Weight 1.9 gram

BL140



Extra battery 140mAh
Rechargeable lithium-ion
battery for extra long flights.
Weight 3.3 gram

BA9



Spare 9 gram latex balloons for
soundings up to 5000m AGL,
using 30 liters of helium.
(Already included with sondes)

BA17



Spare 17 gram latex balloons
for higher rise speed, for
soundings 5000-9000m AGL.

CU2



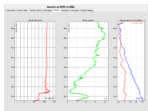
Extra USB charger for
three batteries.

Ground station and cases

The Windsond ground station consists of a radio receiver and a software license, running on a Windows device or an Android tablet or phone.

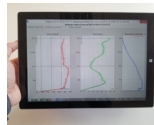
Software license

WS-250 for Windows®



Real-time sonde control, visualization and export to 10 data formats. Supports Windows XP, Vista, 7, 8 Includes one year of email support.

AA-100 for Android (coming soon)



Android ground station application for use with tablets and smartphones. Connects to the RR2 receiver with Bluetooth or USB. Similar to the Windows software, it collects measurement data from the sondes and provides control over sonde settings.

Cases

GC2 Case



Large water-proof case with helium canister. GC2 fits all Windsond components: Radiosondes, Radio receiver, Antenna, Balloons, Battery charger, Tether strings and helium canister.

5 kg, external size 47 x 36 X 18 cm
IP67, MIL C-4150J, STANAGIP67,
MIL C-4150J, STANAG 4280

GC1 Case



A water-proof case that fits the Windsond components: 5 S1 radiosondes, Radio receiver, Antenna, Balloons, Battery charger, Tether strings

2 kg, external size 34 x 30 x 15 cm
IP67, MIL C-4150J, STANAG 4280

Receivers

RR1-250 Radio Receiver



Provides bi-directional radio communication with radiosondes. Connects to a Windows computer by USB.

RR2 Radio Receiver



A definite step up from the basic RR1 USB receiver, RR2 supports wireless connection to Android and Windows devices, water-proof and much more. Built-in barometer and GPS relieves the user from checking the sonde initialization values manually and keeps track of the bearing and distance to the sondes even if the ground station moves during the sounding.

RR3 Ethernet radio receiver



The same water-proof form-factor as RR2, but communicates with the host computer using wired Ethernet. Power from built-in battery or AC/DC adapter.

All receivers include:

- Receiver antenna with magnetic base and 3m lead.
- Starter pack with battery charger and tether strings.
- Short-range stub antenna.

Customization

Sparv Embedded AB offers hardware and software customization to customer requirements. Development is done by experienced engineers with intimate knowledge of the system. Sondes can be equipped with optical cloud detection, air turbulence detection, etc.



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