

Digital Radiosonde SRS-C34

- Output of physical values, calibrated, guaranteed.
- Automatic measuring with simple ground system. (Argus 37)
- Reusable radiosonde
- Integration of various sensors

With the radiosonde SRS-C34 a radiosonde platform has been developed, which combines the best of sensors available today. Depending on its equipment the sonde can be used for research, routine operation or as a reference sonde.

Digital Data Transmission

The SRS-C34 radiosonde transmits the data digitally to the ground station. With the help of a check sum it is assured, that the measuring data can not be falsified by transmission errors. Thanks to narrow band transmission multiple sondes can work simultaneously.

GPS

The Meteolabor radiosondes can be equipped with a high quality GPS made in Switzerland. 16 parallel channels and 8192 search bins ensure a short start time. A high position accuracy is achieved even WITHOUT a differential receiver. Your advantage: low installation costs, simpler operation.

Ground System

With Argus 37 a flexible ground station, which can easily be adjusted to the needs of the user, is available. From the simple portable research system, over mobile systems, up to the inter-linked routine system with software receiver and display of data at various workstations, everything is possible. The details of the ground station can be taken from the separate brochure.

Humidity measurement

To measure humidity, two different sensors are available.

The inexpensive *Hygristor* is a conventional sensor for the measurement of relative humidity.

For higher requirements, the only commercially produced Sensor with mirror dew-point



Clouds and weather, the goal of your research



Argus 37 ground system

„SnowWhite®“, is available. It is used for more exact measurements of humidity in the troposphere. The sensor is constantly being developed further in cooperation with customers and research institutes. For the users of radiosondes from other producers, special versions of SnowWhite® are also available. Additional information can be taken from the brochure ASW35.

Temperature

Thanks to the thermo element technique, our temperature sensors are the smallest ones available on the market. With a diameter of 0.1 mm, the radiation error is reduced to a minimum. And future developments will reduce the

dimensions even further.

The deviations between the various sensors lie within a few thousandths of a degree. Therefore an extensive calibration is not necessary. The result is a thermometer with highest accuracy.

Pressure

Our *Hypsometer* measures the pressure not with a conventional measuring device, but instead through the temperature of boiling water.

Thus the measurement is based directly on physical law. Thereby a very high accuracy is achieved. Unlike with regular measuring devices, the height accuracy remains stable throughout the complete measuring range of 0-35 km.



Additional Parameters

Upon request, our sondes can be equipped with interfaces to other sensors (f.e. ozone sensors, IR-spectrometer). Own experiments can be connected through the DC voltage/current inputs or through digital inputs. A special version enables the user to access the measuring data during the flight via a RS-232 interface.

Technical Data:

Power supply: 8.5...12V with 6..7 standard alkaline or lithium batteries, according to application.

Power usage:

Telemetry + transmitter	ca. 175 mA
Hypsometer	ca. 95 mA
GPS	ca. 55 mA

Size: starting from 350 x 210 x 100 mm
 Operation time: 180...300 minutes

Weight (including batteries)

Radiosonde	620g
SnowWhite® Sensor	450g
Ozone Sensor	450g

Telemetry

Transmitter type	PLL Synthesizer
Frequency area	400...406 MHz
Frequency input	per software program
Band width	12KHz (-3dB)
Frequency stability	< 50ppm
Frequency shift	5KHz
Output power	100mW
Modulation	AFSK
Data rate downlink	2400 baud
Measuring cycle	variable

GPS Receiver

No. of channels	16
Horizontal Accuracy (CEP) ¹⁾	2.5m
Vertical Accuracy(SEP) ²⁾	5m
Cold start time	41s
Sensitivity	-140 dBm



Wind velocity	
Resolution	0.01m/s
Accuracy ³⁾	0.12m/s

Direction of Wind	
Resolution	0.1 °
Accuracy ³⁾	2 °

Thermometer

Measuring range	-100...+60 °C
Time constant 1000 hPa	<0.1s
Time constant 100 hPa	<1s
Time constant 10 hPa	<1.5s
Resolution	0.01 °C
Accuracy	0.1 °C

Barometer

Measuring range	5...1100 hPa
Response time	<1s
Resolution	0.1 hPa
Pressure accuracy	0.2%

Dew Point / Relative Humidity SnowWhite®



Measuring range TP	-80...+40 °C
Relative humidity calculated from TP and T:	
Measuring range %RH	2...100%
When detecting oversaturated water:	
	up to...110%

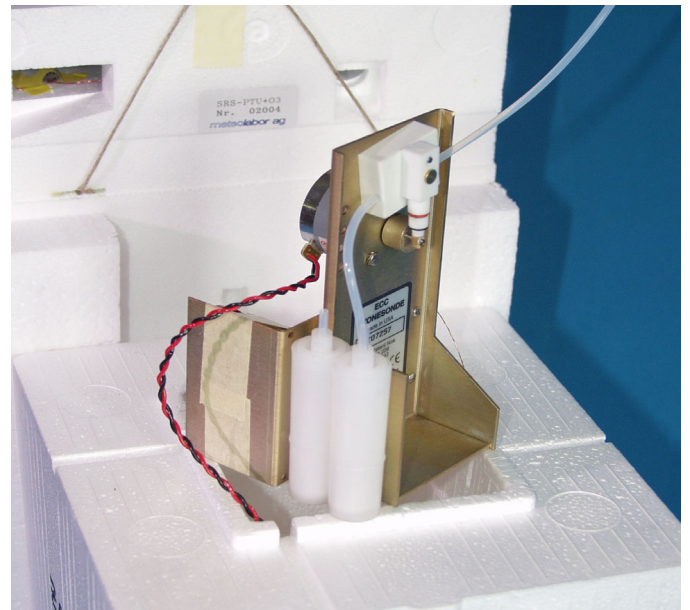
Time constant (1000 hPa, +20°C)	<1s
Time constant (1000 hPa, -40°C)	<2s
Time constant (100 hPa, -40°C)	<4s
Resolution TP	0.1°C
Resolution %RH	0.1%RH
Accuracy TP	0.2°C
Accuracy %RH	1%RH

Humidity (with Hygristor)

Sensor Type	Sippican Hygristor
Measuring range	5...100% RH
	-40...+40°C
Accuracy	2% RH (rms)
Resolution	1%RH

Ozone Sensor

Sensor Type	ECC 6A
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Operating range	0...+40°C
Accuracy	according separate specifications of ECC

IR Spectrometer

Currently the company Impres GmbH is developing an IR-Spectrometer for the Alfred-Wegener-Institute for Polar Research.
Info: http://www.awi-bremerhaven.de/Publications/Wol2004d_abstract.html

Input Ports for additional sensors:

Voltage	-4...+1mV
Accuracy	1uV
Resolution	0.1uV

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- 1) CEP *Circular Error Probability*, horizontal positioning error, radius of a circle with center on the true position, 50% of all measurements lie within this circle.
 - 2) SEP *Spherical Error Probability*, spherical positioning error, radius of a sphere with the center on the true position, 50% of all measurements lie within this sphere.
 - 3) GPS Wind velocity and directional accuracy with an integration time of 3 seconds.

The most important types of sondes at one glance:

Pres- sure	Tem- perature	Hy- gristor	SnowWhite®		GPS	Ozone	Order No.	Remarks
			Day	Night				
x	x	x			x		MRS-SRS-C34/008	Standard GPS sonde
x	x	x					MRS-SRS-C34/007	Standard PTU sonde
	x	x			x		MRS-SRS-C34/030	GPS Sonde w/o pressure
x	x		x		x		MRS-SRS-C34/003	SW Sonde, day usage
x	x			x	x		MRS-SRS-C34/022	SW Sonde, night usage
x	x		x				MRS-SRS-C34/001	SW Sonde, day usage
x	x			x			MRS-SRS-C34/002	SW Sonde, night usage
	x				x		MRS-SRS-C34/013	Wind sonde
	x						MRS-SRS-C34/012	Temperature sonde
x	x	x			x		MRS-SRS-C34/021	RS232 sonde
x	x		x			x	MRS-SRS-C34/019	Ozone sonde
x	x		x		x	x	MRS-SRS-C34/020	Ozone sonde
Additional types are available upon request							...	Additional types

