Vaisala Radiosonde RS92-KL

- **World's highest level of PTU measurement performance**
- **Offers easy transition from Loran-C windfinding**

PROVEN PTU MEASUREMENT PERFORMANCE

The PTU measurement performance of the analog Vaisala Radiosonde RS92-KL is equivalent to that of the Vaisala Radiosonde RS90 family. The RS92-KL incorporates the same fast-response PTU sensors that are used in the Vaisala Radiosonde RS90 family: the Vaisala BAROCAP® pressure sensor, the Vaisala F-THERMOCAP® temperature sensor and the Vaisala H-HUMICAP® humidity sensor.

LORAN-C WINDFINDING

By adopting the Vaisala Radiosonde RS92-KL, you can continue using Loran-C windfinding while preparing for the possible phasing out of the Loran-C network. Should this occur in future, you will have made the transition to the RS92 sounding platform. Adopting an alternative RS92 windfinding technology will be economically and technically feasible.

LOW-COST TELEMETRY

The Vaisala Radiosonde RS92-KL operates over a conventional analog telemetry link of 400 MHz. This allows a simple implementation of the Loran-C signal relay link, providing an effective windfinding method at the lowest possible cost.

VAISALA GROUND CHECK SET GC25

The Vaisala Radiosonde RS92-KL is used with the new Vaisala Ground Check Set GC25 in a stand-alone capacity. If you use the DigiCORA III Sounding System, the RS92-KL's calibration coefficients are fed into the system from a diskette or CD-rom. The GC25 is used to recondition the humidity sensor, which removes possible contaminants to ensure excellent humidity measurement accuracy.

CAL-4 CALIBRATED

The RS92-KL's PTU sensors are calibrated in the CAL-4 calibration machine. Designed by Vaisala and built in-house, CAL-4 is the world's most advanced calibration machine for the mass production of PTU sensors.

METEOROLOGICAL SENSORS

Temperature	**Vaisala F-THERMOCAP® capacitive wire**
Measurement range	+60 °C to -90 °C
Response time (63.2 %, 6m/s flow)	
1000 hPa	<0.4 s
100hPa	<1s
10 hPa	<2.5 s
Resolution	0. 1 °C
Accuracy	
Total uncertainty in sounding (*	0.5 °C
Repeatability in calibration(**	0.15 °C
Reproducibility in sounding (***	
1080 - 100 hPa	0.2 °C
100 - 20 hPa	0.3 °C
20 - 3 hPa	0.5 °C
Humidity	**Vaisala H-HUMICAP® thin film capacitor, heated twin-sensor design**
Measurement range	0 to 100 % RH
Resolution	1 % RH
Response time	
6 m/s, 1000 hPa, +20 °C	< 0.5 s
6 m/s, 1000 hP, -40 °C	< 20 s
Accuracy	
Total uncertainty in sounding (*	5 % RH
Repeatability in calibration (**	2 % RH
Reproducibility in sounding (***	2 % RH
Pressure	**Vaisala BAROCAP® silicon sensor**
Measuring range	1080 hPa to 3hPa
Resolution	0.1 hPa
Accuracy	
Total uncertainty in sounding (*	
1080 - 100 hPa	1.5 hPa
100 - 3 hPa	0.6 hPa
Repeatability in calibration(**	
1080 - 100 hPa	0.4 hPa
100 - 3 hPa	0.3 hPa
Reproducibility in sounding (***	
1080 - 100 hPa	0.5 hPa
100- 3 hPa	0.3 hPa
Measurement cycle for PTU sensors	1 s

DIMENSIONS AND WEIGHT

Dimensions	220 × 80 × 75 mm
Weight, battery-activated	ca. 250 g

BATTERY

Water-activated battery	19 V, nominal
Operation time	135 min

TELEMETRY

Transmitter type	LC-tuned
Frequency band	403 MHz
Tuning range	400 - 406 MHz
Frequency stability, 90 % probability	<+ 120 kHz
Deviation, peak-to-peak	
PTU signal nominal	40 ± 10 kHzp
Loran-C, typical	<50 kHzp (max. 160 kHzp)
Emission bandwidth	-40 dBc, typical 200 kHz
Output power (VBatt=15V)	200 mW min.
Modulation	FM
CCIR emission type	F9D

LORAN-C RECEIVER

Center frequency	100 kHz
Bandwidth, -3 dB	10 ± 4 kHz
North-east wind component (HDOP=1)	0.7 m/s
Estimates are unbiased, i.e. zero mean (****	

*) 2-sigma (k=2) confidence level (95.5 %), cumulative uncertainty including repeatability, long-term stability, effects due to measurement conditions, dynamic effects such as response time, and effects due to measurement electronics

**) Standard deviation of differences between two successive repeated calibrations, k = 2 confidence level

***) Standard deviation of differences, in twin soundings

****) Horizontal Dilution of Precision (HDOP) describes the effect of the Loran transmitter's geometry on windfinding accuracy

Note: the pressure, temperature and humidity performance specifications given above are valid only when the Vaisala Ground Check Set GC25 is used to perform the ground check, including reconditioning of the humidity sensor.

VAISALA Reliable.

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