

Vaisala Sounding Processing Subsystem SPS311



- **Features Software Defined Radio technology for outstanding telemetry link performance and bandwidth efficiency**
- **Optimum performance when used with the Vaisala Radiosonde RS92-SGP**

The Vaisala Sounding Processing Subsystem SPS311 is the new generation of the SPS-series for the Vaisala DigiCORA® Sounding System MW31. The SPS311 makes extensive use of Software Defined Radio (SDR) technology for receiving radiosonde signals. SDR technology is mature and commonly used today in a wide range of products including cellular base stations, military communication systems and public safety radios.

RADIO TECHNOLOGY PROGRAMMED IN SOFTWARE

In the SPS311, most of the radio technology is programmed in software to work with a powerful Digital Signal Processor (DSP). This greatly improves flexibility and the future upgradability of both the hardware and software. The SPS311's SDR receiver works with the Vaisala RS80 and RS92 radiosonde families. When used with the Vaisala Radiosonde RS92-SGP (all-digital with code correlating GPS), the new SPS311 offers excellent telemetry link performance and bandwidth efficiency.

As a sounding progresses, the SPS311 receives the PTU and wind data by means of the SDR receiver and local GPS antenna. The SPS311 decodes the data and relays it to the sounding workstation for processing and archiving.

TECHNICAL INFORMATION

GENERAL

Dimensions	235 x 323 x 183 mm
Power consumption	70 W max.
Mains voltage	90 ... 132 V or 175 ... 264 V
Mains frequency	47 ... 63 Hz
DC power connection	18 ... 36 VDC, 60 W max.
Weight	7.5 kg max.
Cooling system	Forced air convection, three fans

Connectors

UHF	Coaxial N-type female
GPS	Coaxial TNC-type female
VLF	Coaxial C-type female

Antenna amplifiers are powered through antenna cables

RADIO RECEIVER SYSTEM

(specifications valid with Vaisala telemetry antennas)

Modulation	GFSK, GMSK, FM, FSK
Frequency range	400.15 ... 406 MHz
Sensitivity	-120 dBm: RS92-SGP -110 dBm: RS92-K, RS80-15G
Noise figure	<2.5 dB
Image rejection	70 dB
Spurious Free Dynamic Range	90 dB with RS92-SGP
Third Order Intercept Point (IIP3)	0 dBm
Input impedance	50 Ohms

ENVIRONMENTAL CONDITIONS

Operating temperature range	0° C ... 45° C
Operating humidity	10 ... 90 % RH (non-condensing)
Storage temperature	-55° C ... 70° C
Storage humidity	5 ... 95 % RH