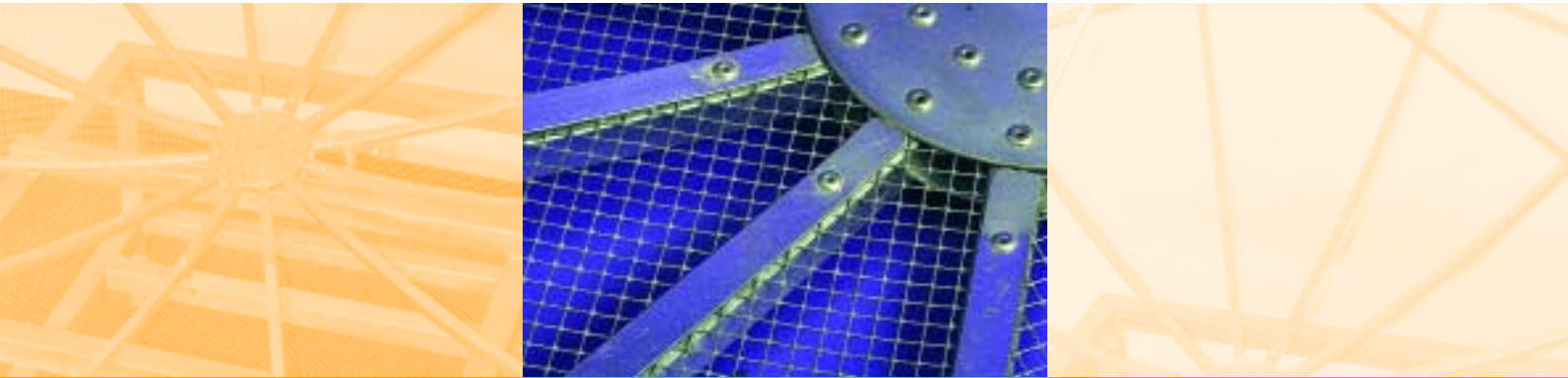


Radio Acoustic Sounding System



High Resolution Temperature Profiles
with RASS Extension for Scintec Flat Array Sodars

RASS EXTENSION RAE-1

The Scintec RAE-1 RASS Extension provides accurate temperature profiles in the atmospheric boundary layer with high spatial resolution. It is easily implemented into an existing Scintec FAS Series sodar system, replacing for meteorological towers and tethered balloons.

RAE-1

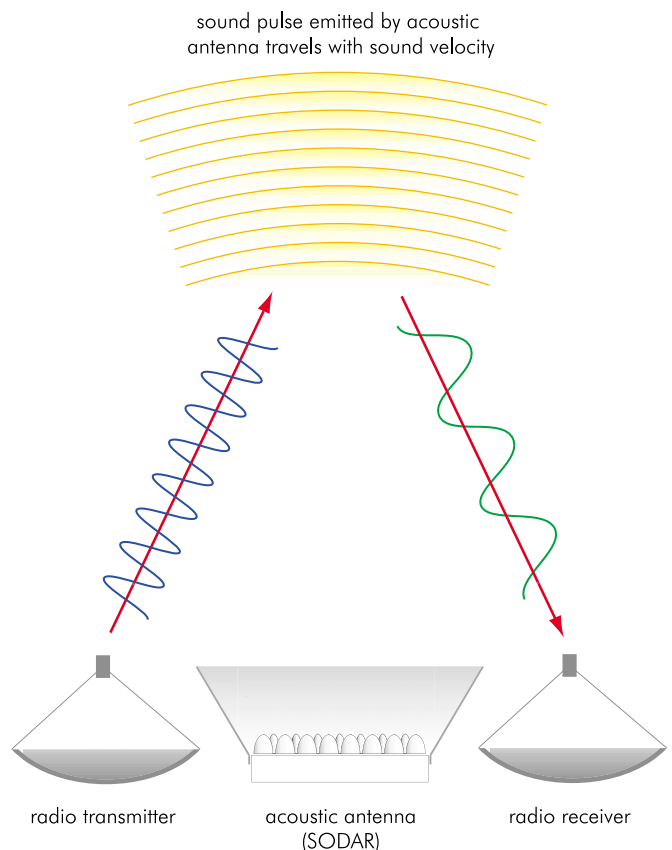
ADVANTAGES

The Scintec RAE-1 RASS Extension characteristics include:

- ultra-stable quartz based frequency synthesizer
- extremely narrow-band receiver
- longer range through extended acoustic sweep
- increased range-gating accuracy by numerical inversion procedure
- implemented geometric path correction
- compact and easy to move
- low power consumption

OPERATION PRINCIPLE

The sodar part of the RASS emits acoustic pulses into the atmosphere. Electromagnetic waves, emitted by the radio part, are scattered at the sound waves. At the reception of the scattered radio signal, a Doppler shift emerges. Making use of the dependence of the speed of sound on air temperature, the temperature profile is derived.

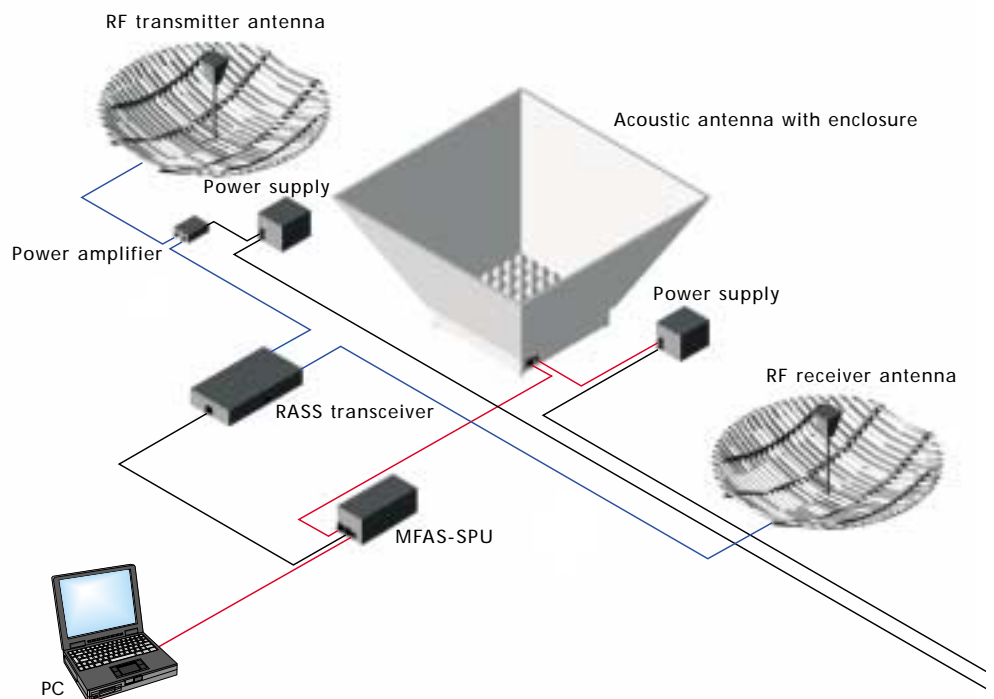


SOFTWARE

The RAE-1 operating software outputs RASS spectra and temperature profiles with 20 m height resolution. The visualization tools of Scintec FAS Sodars can be used for versatile graphical output.

SET-UP

SET-UP



Combination of a Scintec MFAS wind profiler and a RAE-1 RASS Extension.



Scintec RAE-1 Transmitter Antenna with XFA System

SPECIFICATIONS

description	RAE-1
frequency	1270-1295 MHz selectable; 915 MHz and others on request
frequency stability	<2 ppm
bandwidth (82 % of power within ± 3 dB)	0.8 MHz
harmonics	< -40 dBc
RF output power	20 W
number of antennas	2
antenna type	grid parabolic antenna
polarization	circular
antenna diameter	1.5 m
focal length	0.74 m
min. range	40 - 80 m; depending on set-up geometry
max. range with SFAS	150 - 300 m
max. range with MFAS	200 - 400 m
max. range with XFAS	300 - 800 m
vertical resolution	20 m
measurement range	-30 to +50 °C
accuracy	± 0.2 °C (typ.) ¹⁾
averaging time	1 min - 60 min
antenna weight (including mounting)	each 6 kg (32 kg)
operation temperature	-30°C to +50 °C
power requirements	220 - 240 VAC; optional 100 - 120 VAC
power consumption	110 W

Specifications are subject to change without notice.

¹⁾After calibration for virtual temperature and geometry

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