

SkySpec Compact Instrument v.250

TELESCOPE-SPECTROMETER SYSTEM FOR MOBILE PASSIVE REMOTE SENSING

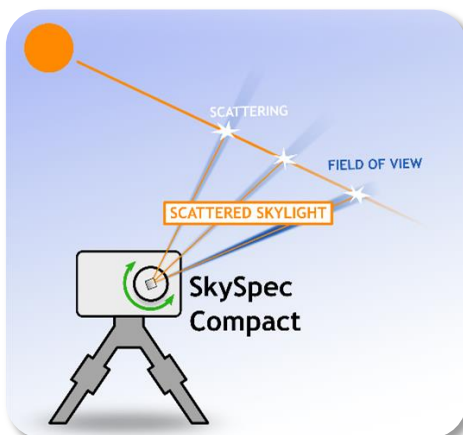


SkySpec Compact field application with tripod and LiPo battery pack (available accessories)

- Full functional self-contained telescope-spectrometer system with embedded computer
- Compact, light-weight and low power consumption; ideal for mobile applications and measurements in remote places with little infrastructure
- Optimized for UV/Vis-aerosol and trace gas remote sensing with the DOAS method
- Detectable gases: NO₂, HCHO, SO₂, O₄, O₃, H₂O, HONO, Glyoxal, BrO, IO, ...
- Customizable to meet your specific requirements
- Software packages for spectral analysis, post-processing and data visualization available

TELESCOPE:

- Motorized viewing elevation axis, fixed azimuth
- Automatic correction of telescope viewing elevation via integrated inclination sensor
- Rugged and weather-proof design with no outside moving parts
- Integrable wide angle camera for monitoring purposes



SPECTROMETER:

- High quality grating spectrometer
- Characterized and calibrated
- Active temperature stabilization
- Low straylight design
- Sub-nm spectral resolution
- High spectral sampling
- Homogenized slit illumination
- Available with Backthinned CCD detector for maximum UV sensitivity

For measurement principle, example applications and data, see SkySpec overview datasheet!

HIGHLIGHTS

Measurement accuracy

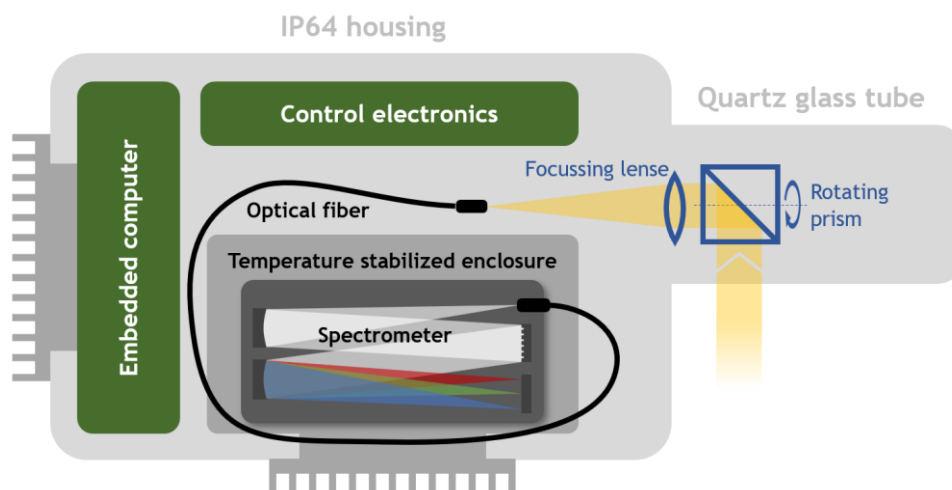
- Individual in-house spectrometer fine adjustment to optimize spectral properties
- Spectrometer characterization included: wavelength calibration, offset and dark current spectra, detector non-linearity function
- Active spectrometer temperature stabilization ensures stable properties
- High spectral sampling prevents quantization errors
- Low noise and high precision in narrow-band optical density
- Color filters and optical bench design minimize spectrometer stray-light
- Optical fiber ensures homogeneous spectrometer illumination
- Real-time correction of telescope elevation via inclination sensor, ideal for measurements on moving platforms (ships, cars) or in changing environments
- Prism deflector and optical fiber setup prevent polarization induced biases
- Small vertical field of view ($< 0.3^\circ$) optimized for vertical profiling applications

Setup, lifetime & maintenance

- Quartz glass tube design avoids outside moving parts for:
 - ▶ long lifetime even under harsh environmental conditions
 - ▶ simple cleaning
- Integrated telescope heating (activates at $< 5^\circ\text{C}$) prevents:
 - ▶ freezing of mechanical components
 - ▶ water condensation, snow and ice on quartz cylinder and other optics
- Weather proof and UV resistant IP64 housings
- 12V/DC power supply with low consumption, ideal for mobile operation via battery or car-cigarette-lighter
- Easily adaptable measurement routines
- Fast instrument power-up
- Various mounting options (tripod, rail and mast adapters available)
- Full functional self-contained system
- Access and configuration via LAN/WLAN with any web-enabled device
- Preconfigured embedded computer; measurements start after power-up

Customization

- Individual spectrometer configurations to best meet your spectral requirements



TYPICAL SPECIFICATIONS

Wavelength range	300 - 460 nm wavelength (standard) ^{*1}
Spectral resolution	< 0.7 nm FWHM (standard) ^{*1}
Optical filter	Schott BG3 or BG40 ^{*1}
Noise	< 3·10 ⁻⁴ at 10 ³ scans (=60s integration time)
Spectral sampling	> 5 points over slit function FWHM
Quantum efficiency	UV: > 50 % (UV, back-thinned detector)
Spectrometer temp./stability	Temperature: 20 °C (adjustable) Stability better than +/-0.03 °C
Wavelength calibration	Highly stable in-house calibration (typ. shifts < 0.01 nm), manual re-calibration possible with mercury (HG) lamp
Operation temperature range	-10 °C to 40 °C ^{*2}
Elevation range and accuracy	-10° to 190°, automatic correction with < 0.1° accuracy (1σ)
Field of view FWHM, vertical x horizontal	< 0.3° x 1°
GPS	Included
Telescope heating	Automatic, if temp. below 5 °C

^{*1} Custom specifications with different wavelength ranges are possible within certain boundary conditions to guarantee optimum spectroscopic measurements.

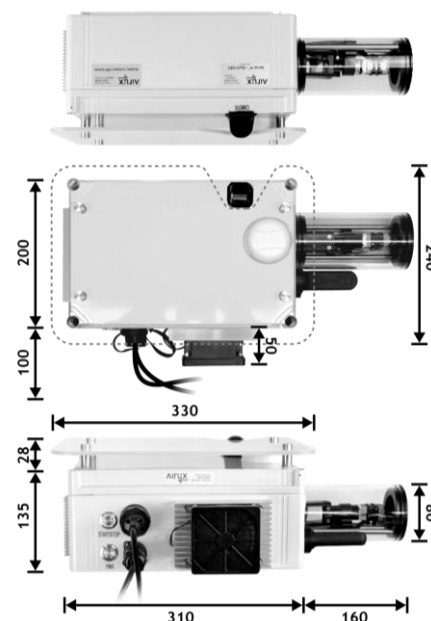
^{*2} Temperature can exceed the operation range in direct sun light. Larger temperature range possible with manual change of set spectrometer temperature.

Mechanical stability	Water proof (IP 64), sun roof, robust and simple mounting
Additional Sensors	Temperature: 1 °C accuracy, telescope, spectrometer, electronics Pressure: 0.5 % accuracy, ambient Humidity: ± 3 % accuracy in relative humidity, Sensor inside instrument
Measurement software	Included, customizable measurement routine (angles, time resolution) on embedded PC with Windows 10 Prof.
Start-up time	< 3 min
Data communication	LAN / WiFi
Power consumption	Typ. < 30 W (max. 100 W), 12 V
Weight	≈ 7 kg
Size (WxDxH)	Box: 30 x 20 x 13.2 cm ³ (box only) Quartz tube (LxD): 16 cm x 8 cm

OPTIONAL COMPONENTS & CONFIGURATIONS

- Custom spectrometer configuration and low-cost spectrometer options
- Tripod and various mounting adapters
- Handheld mercury (HG) wavelength calibration lamp
- Mobile LiPo battery in Peli case (50 Ah, 13.6 V)
- Integrated, wide FOV camera to monitor measurement conditions
- Spare parts and maintenance set
- Spectral evaluation software packages
- Online installation and support service

DIMENSIONS (in mm)



AUTHORIZED DEALER

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