

SkySpec 2D Telescope unit

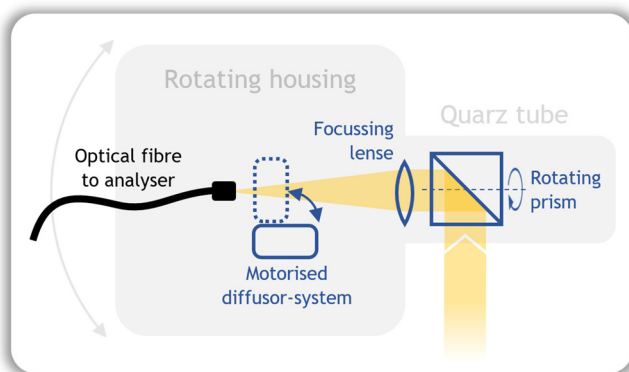
FAST AND ACCURATE POINTING FOR UV/VIS/IR REMOTE SENSING

GENERAL

- Two-axes motorised telescope
- Gathers light from arbitrary directions in the sky hemisphere and below the horizon
- Integrated inclination sensor for real-time elevation correction
- Acceptance angles down to tenths of degrees
- Optional motorised diffusor/attenuator option to switch between direct Sun and scattered skylight within seconds.
- Optional integrated spectrometer calibration lamp
- Highly customizable to meet your specific requirements and interfaces



Field application with optional tripod.



Schematic of opto-mechanics

EXAMPLE APPLICATIONS

- Passive remote detection of atmospheric trace gases (e.g. NO₂, O₃, SO₂, HCHO, H₂O, HONO, IO, BrO, Glyoxal) and aerosols under scattered light as well as direct Sun geometries.
- Measurements of surface reflection properties
- Solar induced plant fluorescence measurements

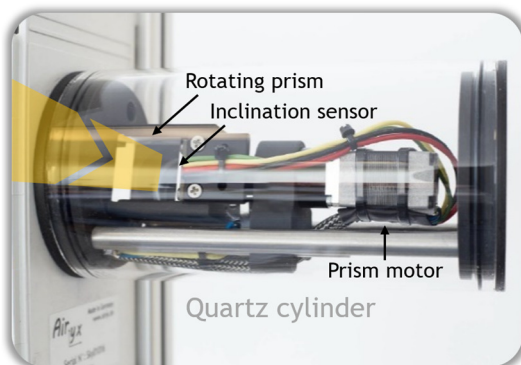
HIGHLIGHTS

BENEFITS	INNOVATION
High measurement accuracy	<ul style="list-style-type: none"> • Fused silica optical components enable large spectral range • Narrow vertical field of views possible, optimized for MAX-DOAS applications • Viewing elevation is monitored and real-time corrected by means of an integrated inclination sensor → Ideal for applications on ships or other moving platforms • Diffusor system ensures high spectral quality during direct Sun observations
Simple setup & operation	<ul style="list-style-type: none"> • Simple instrument setup and start up • Sun search routine for automatic azimuthal calibration • Low maintenance, easy cleaning of optics • Connection via optical fiber or fiber bundles for high flexibility • Monitoring of measurement conditions with optional camera systems and various internal sensors
Long lifetime	<ul style="list-style-type: none"> • Quartz cylinder construction around light entrance optics minimizes outside moving parts • Water proof with IP64, snow resistant • Designed for long term operation • Internal humidity monitoring to avoid water condensation

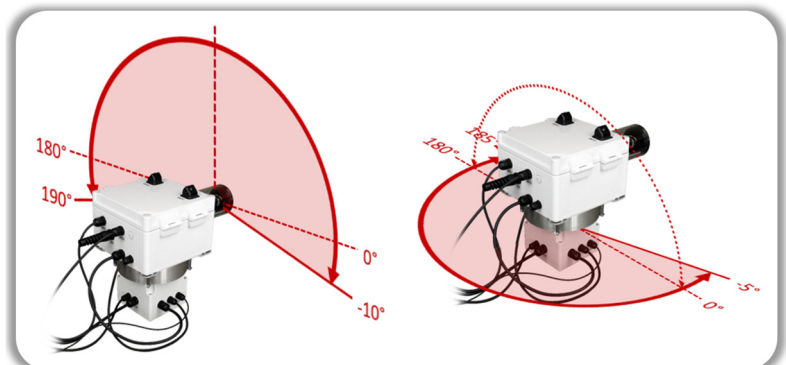
TYPICAL SPECIFICATIONS

Spectral range	200 nm to 2 µm wavelength (fused silica optical components) ¹	Mechanical stability	Robust for harsh environmental conditions, water proof (IP 64), automatic heater prevents freezing and water condensation on optics.
Operation temperature range	-30 °C to 50 °C	Additional Sensors	Temperature: 1 °C accuracy, ambient, telescope Pressure: 0.5% accuracy, ambient Humidity: ± 3% accuracy in relative humidity
Elevation range and accuracy	-10° to 190°, automatic correction with < 0.1° accuracy (1σ)	Power consumption	Typ. < 2 W (max 12 W), 12 V
Azimuth range and precision	-5° to 185°, ± 0.2° (360° virtually available due to > 180° elevation range)	Weight	≈ 7 kg
Field of view FWHM, height x width¹	Scattered light: < 0.3° x 1° Direct Sun ² : ≈ 10° x 10°	Size (WxDxH)	Box only: 20 x 20 x 29 cm ³ Tube length: 16 cm
Optical fibre connection¹	Various configurations available, (e.g. SMA, 7 x 100 µm fibre bundle, cross-sectional converter)	Start-up time	< 10 s
Focal length¹	External: infinite at 400 nm wavelength Internal: 75 mm	Mounting options	Tripod, wall mount, tripod, mast, rail
F-Number¹	f/4	Data communication¹	Telescope control: RS232 protocol (SUB-D 9) USB adapter included Camera Signals: Analogue (chinch), External Analogue-to-USB Video grabber included
Camera FOV¹	120° x 90°		

¹ Custom configuration possible, ²FOV widened due to diffusor system



Close-up of telescope entrance optics

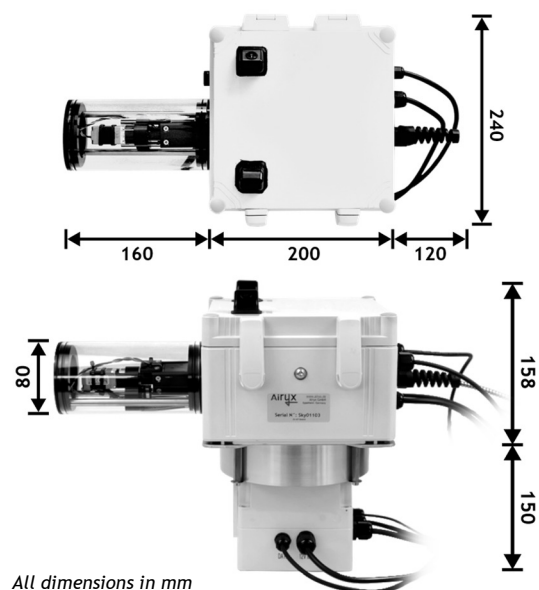


Elevation and azimuth motor ranges

OPTIONAL COMPONENTS & CONFIGURATIONS

- Custom optical fibre configuration for best compatibility with your spectrometer/analysing unit.
- Integrated, wide FOV camera (2 cameras cover the full sky) to monitor measurement conditions
- Integrated mercury (HG) wavelength calibration lamp system
- Integrated diffusor system, which enables direct-sun observations by homogenizing and attenuating the incoming radiation.
- Fibre and cable length extensions up to 20 m
- Heated Azimuth 2D motor (for low temperature operation)
- Frames, tripods and adapters for simple mounting
- Spare parts and maintenance set
- Online installation and support service

DIMENSIONS



All dimensions in mm