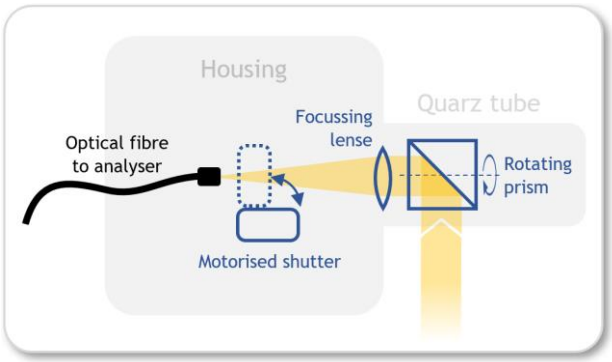
# SkySpec 1D Telescope unit v.250

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

### GENERAL

- Telescope unit with motorised viewing elevation axis
- Integrated inclination sensor for real-time elevation correction
- Acceptance angles down to tenths of degrees
- Optional integrated glow-discharge lamp and shutter for automatic calibration of connected analyser units
- Highly customizable to meet your specific requirements and interfaces


*Field application with optional tripod and mounting adapter*




*Schematic of opto-mechanics*

### EXAMPLE APPLICATIONS

- Passive remote detection of atmospheric trace gases (e.g. $NO_2$, $O_3$, $SO_2$, HCHO, $H_2O$, HONO, IO, BrO, Glyoxal) and aerosol
- Measurements of surface reflection properties
- Solar induced plant fluorescence measurements

### HIGHLIGHTS

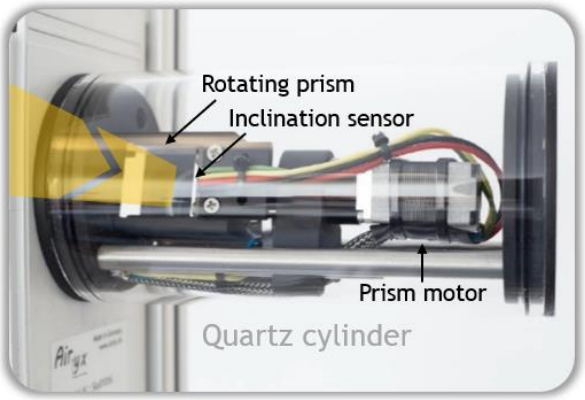
| BENEFITS | INNOVATION |
|---|---|
| **High measurement accuracy** | • Fused silica optical components enable large spectral range<br>• Narrow vertical field of views possible, optimized for MAX-DOAS applications<br>• Viewing elevation is monitored and real-time corrected by means of an integrated inclination sensor → Ideal for applications on ships or other moving platforms |
| **Simple setup & operation** | • Simple instrument setup and start up<br>• Low maintenance, easy cleaning of optics<br>• Connection via optical fiber or fiber bundles for high flexibility<br>• Monitoring of measurement conditions with optional camera systems and various internal sensors |
| **Long lifetime** | • Quartz cylinder construction around light entrance optics minimizes outside moving parts<br>• Water proof with IP64, snow resistant<br>• Designed for long term operation<br>• Internal humidity monitoring to avoid water condensation |

## TYPICAL SPECIFICATIONS

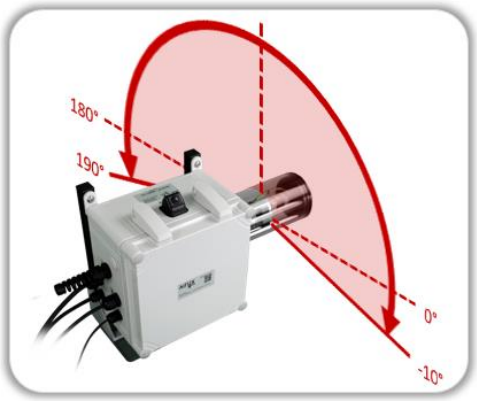
| | |
|---|---|
| **Spectral range** | 200 nm to 2 µm wavelength (fused silica optical components)[1] |
| **Operation temperature range** | -30°C to 50°C |
| **Elevation range and accuracy** | -10° to 190°, automatic correction with < 0.1° accuracy (1σ) |
| **Field of view FWHM, height x width**[1] | < 0.3° x 1° |
| **Optical fibre connection**[1] | Various configurations available, (e.g. SMA, 7 x 100 µm fibre bundle, cross-sectional converter) |
| **Focal length**[1] | External: infinite at 400 nm wavelength<br>Internal: 75 mm |
| **F-Number**[1] | f/4 |
| **Start-up time** | < 10 s |
| **Camera FOV**[1] | 120° x 90° |

| | | |
|---|---|---|
| **Mechanical stability** | | Robust for harsh environmental conditions, water proof (IP 64), automatic heater prevents freezing and water condensation on optics. |
| **Additional Sensors** | Temperature: | 1°C accuracy, ambient, telescope |
| | Pressure: | 0.5% accuracy, ambient |
| | Humidity: | ± 3% accuracy in relative humidity |
| **Power consumption** | | Typ. < 2 W (max 10 W), 12 V |
| **Weight** | | < 6 kg |
| **Size (WxDxH)** | | Box only: 20 x 13.2 x 20 cm$^3$<br>Tube length: 16 cm |
| **Mounting options** | | Tripod, wall mount, mast, rail |
| **Data communication**[1] | Telescope control: | RS232 protocol (SUB-D 9)<br>USB adapter included |
| | Camera Signals: | Analogue (chinch), External Analogue-to-USB Video grabber included |

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




*Close-up of telescope entrance optics*

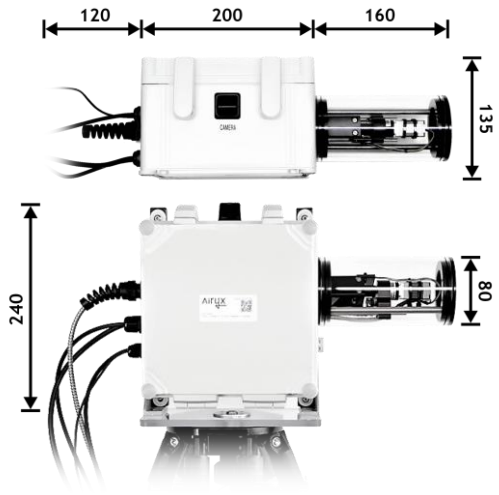



*Elevation motor range*

## 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; various mounting options/directions.
- 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*