# Product overview of Airyx GmbH

## SKYSPEC INSTRUMENTS

### *Compact series*

| Item# | Description | Comments | Related articles | Image | SkySpec (SS) Subtypes: 1D | 2D | Comp | Mini |
|---|---|---|---|---|---|---|---|---|
| **SKY-COMPACT-HGD** | SKYSPEC-COMPACT-250-SYSTEM - HIGH GRADE DETECTOR<br>> Passive UV/VIS remote sensing • Trace gas profiling from ground level to 2 km • Height resolution up to 100 m • Detectable gases: NO2, SO2, O4, HCHO, BrO, H2O, HONO, IO and CHOCHO<br>> Telescope: 1D motorised for elevation scans • Elevation range: -10° to 190° • Tilt sensor based automatic real-time elevation angle correction (0.2° pointing accuracy) • Heater for cold temperatures • FOV (~0.3°) optimised for MAX-DOAS applications • Lense focal width: 75 mm • Lense clear aperture: 22.5 mm • Weatherproof housing for outdoor application<br>> Spectrometer: high grade back thinned CCD detector • Low straylight design • Spectral range: 300 - 460 nm • Spectral resolution: ~0.6 nm • High spectral sampling: ~7 px/FWHM • Active temperature stabilisation • Dark spectra, wavelength calibration (~0.05 nm accuracy) and detector non-linearity correction included<br>> Integrated PC (Win10 system) • Integrated GPS • Software for automated measurements included • Spectral evaluation software available<br>> 12V power connection<br>> Polycarbonate IP64 housing • Dust and weatherproof (incl. weatherproof connectors) • Box dimensions: 30 x 20 x 13.2 cm³ • Optics tube length: 16 cm • Weight ~7 kg<br>> Data communication: LAN • Wi-Fi (with external adapter ACC-WIFIUSB) | **GENERAL:** Full autonomous and compact telescope-spectrometer system with embedded measurement computer for skylight spectra acquisition at arbitrary viewing elevations. Custom wavelength configurations on request.<br><br>**HIGH GRADE DETECTOR:** In contrast to [SKY-COMPACT-RGD], the [SKY-COMPACT-HGD]'s spectrometer features a highly sensitive and vertically extended back thinned CCD detector, more than doubling the photon yield compared to a regular CMOS. For measurements of UV absorbing target gases like O3, SO2, HONO, HCHO or BrO, we therefore recommend the [SKY-COMPACT-HGD] instrument. If the focus is on Vis absorbing target gases like NO2, H2O, IO or CHOCHO, consider to use the cost-efficient [SKY-COMPACT-RGD]. | **REQUIRED ARTICLES:** Measurement software [SKY-SOFT-STD] • WIFI Stick [ACC-WIFIUSB] • External power supply [ACC-PWR-8A]<br><br>**RECOMMENDED ARTICLES:** Tripod [SKY-ACC-TRIPOD] • Evaluation software [SKY-EVAL-V3-1S] • Cameras [SKY-CON-TCAMC] • Lan Data Cable IP68 [ACC-LANX] • 12 V Power Cable Extension IP68 • Spare part set [SKY-SPARE-SET-COMP] • Maintenance Set [SKY-MAINT-SET] • Tablet [ACC-TAB] • Services [SKY-SERV-INSTL] & [SKY-SERV-MT-COMP] |  | | | • | |
| **SKY-COMPACT-RGD** | SKYSPEC-COMPACT-250-SYSTEM - REGULAR GRADE DETECTOR<br>> Passive UV/VIS remote sensing • Trace gas profiling from ground level to 2 km • Height resolution up to 100 m • Detectable gases: NO2, SO2, O4, HCHO, BrO, H2O, HONO, IO and CHOCHO<br>> Telescope: 1D motorised for elevation scans • Elevation range: -10° to 190° • Tilt sensor based automatic real-time elevation angle correction (0.2° pointing accuracy) • Heater for cold temperatures • FOV (~0.3°) optimised for MAX-DOAS applications • Lense focal width: 75 mm • Lense clear aperture: 22.5 mm • Weatherproof housing for outdoor application<br>> Spectrometer: regular grade CMOS detector • Low straylight design • Spectral range: 300 - 460 nm • Spectral resolution: ~0.6 nm • High spectral sampling: ~7 px/FWHM • Active temperature stabilisation • Dark spectra, wavelength calibration (~0.05 nm accuracy) and detector non-linearity correction included<br>> Integrated PC (Win10 system) • Integrated GPS • Software for automated measurements included • Spectral evaluation software available<br>> 12V power connection<br>> Polycarbonate IP64 housing • Dust and weatherproof (incl. weatherproof connectors) • Box dimensions: 30 x 20 x 13.2 cm³ • Optics tube length: 16 cm • Weight ~7 kg<br>> Data communication: LAN • Wi-Fi (with external adapter ACC-WIFIUSB) | **GENERAL:** Full autonomous and compact telescope-spectrometer system with embedded measurement computer for skylight spectra acquisition at arbitrary viewing elevations. Custom wavelength configurations on request.<br><br>**REGULAR GRADE DETECTOR:** In contrast to [SKY-COMPACT-RGD], the [SKY-COMPACT-HGD]'s spectrometer features a highly sensitive and vertically extended back thinned CCD detector, more than doubling the photon compared to a regular CMOS. For measurements of UV absorbing target gases like O3, SO2, HONO, HCHO or BrO, we therefore recommend the [SKY-COMPACT-HGD] instrument. If the focus is on Vis absorbing target gases like NO2, H2O, IO or CHOCHO, consider to use the cost-efficient [SKY-COMPACT-RGD]. | **REQUIRED ARTICLES:** Measurement software [SKY-SOFT-STD] • WIFI Stick [ACC-WIFIUSB] • External power supply [ACC-PWR-8A]<br><br>**RECOMMENDED ARTICLES:** Tripod [SKY-ACC-TRIPOD] • Evaluation software [SKY-EVAL-V3-1S] • Cameras [SKY-CON-TCAMC]• Lan Data Cable IP68 [ACC-LANX] • 12 V Power Cable Extension IP68 • Spare part set [SKY-SPARE-SET-COMP] • Maintenance Set [SKY-MAINT-SET] • Tablet [ACC-TAB] • Services [SKY-SERV-INSTL] & [SKY-SERV-MT-COMP] |  | | | • | |

### *Mini series*

| Item# | Description | Comments | Related articles | Image | SkySpec (SS) Subtypes: 1D | 2D | Comp | Mini |
|---|---|---|---|---|---|---|---|---|
| **SKY-MINI-HGD** | SKYSPEC-MINI-250-SYSTEM - HIGH GRADE DETECTOR<br>> Passive UV/VIS remote sensing • Trace gas profiling from ground level to 2 km • Height resolution up to 100 m • Detectable gases: NO2, SO2, O4, HCHO, BrO, H2O, HONO, IO and CHOCHO<br>> Telescope: 1D motorised for elevation scans • Elevation range: -10° to 190° • Tilt sensor based automatic real-time elevation angle correction (0.2° pointing accuracy) • Heater for cold temperatures • FOV (~0.3°) optimised for MAX-DOAS applications • Lense focal width: 75 mm • Lense clear aperture: 22.5 mm • Weatherproof housing for outdoor application<br>> Spectrometer: High grade back thinned CCD detector • Low straylight design • Spectral range: 300 - 460 nm • Spectral resolution: ~0.6 nm • High spectral sampling: ~7 px/FWHM • Active temperature stabilisation • Dark spectra, wavelength calibration (~0.05 nm accuracy) and detector non-linearity correction included<br>> Software for automated measurements included • Spectral evaluation software available<br>> Connection for 12V power supply<br>> Polycarbonate IP64 housing • Dust and weatherproof (incl. weatherproof connectors) • Box dimensions: 30 x 20 x 13.2 cm³ • Optics tube length: 16 cm • Weight ~7 kg<br>> Data communication: USB 2.0<br>> 3 m USB cable with IP67 connector included | **GENERAL:** Small telescope-spectrometer system for skylight spectra acquisition at arbitrary viewing elevations. Typical detectable gases: NO2, SO2, O4, HCHO, BrO, H2O, HONO, IO and CHOCHO. Custom wavelength configurations on request. Combine with measurement laptop (see recommended articles below) to obtain a complete SkySpec measurement system. Requires an external PC for measurements.<br><br>**HIGH GRADE DETECTOR:** In contrast to [SKY-MINI-RGD], the [SKY-MINI-HGD]'s spectrometer features a highly sensitive and vertically extended back thinned CCD detector, more than doubling the photon yield compared to a regular CMOS. For measurements of UV absorbing target gases like O3, SO2, HONO, HCHO or BrO, we therefore recommend the [SKY-MINI-HGD] instrument. If the focus is on Vis absorbing target gases like NO2, H2O, IO or CHOCHO, consider to use the cost-efficient [SKY-MINI-RGD]. | **REQUIRED ARTICLES:** Measurement software [SKY-SOFT-STD] • External power supply [ACC-PWR-8A]<br><br>**RECOMMENDED ARTICLES:** Measurement computer [PC-*] • Evaluation software [SKY-EVAL-V3-1S] • Cameras [SKY-CON-TCAMC] • Tripod [SKY-ACC-TRIPOD] • Spare part set [SKY-SPARE-SET-MINI] • Maintenance set [SKY-MAINT-SET] • Services [SKY-SERV-INSTL] & [SKY-SERV-MT-MINI] |  | | | | • |

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| **SKY-MINI-RGD** | SKYSPEC-MINI-250-SYSTEM - REGULAR GRADE DETECTOR<br>> Passive UV/VIS remote sensing • Trace gas profiling from ground level to 2 km • Height resolution up to 100 m • Detectable gases: NO2, SO2, O4, HCHO, BrO, H2O, HONO, IO and CHOCHO<br>> Telescope: 1D motorised for elevation scans • Elevation range: -10° to 190° • Tilt sensor based automatic real-time elevation angle correction (0.2° pointing accuracy) • Heater for cold temperatures • FOV (~0.3°) optimised for MAX-DOAS applications • Lense focal width: 75 mm • Lense clear aperture: 22.5 mm • Weatherproof housing for outdoor application<br>> Spectrometer: Regular grade CMOS detector • Low straylight design • Spectral range: 300 - 460 nm • Spectral resolution: ~0.6 nm • High spectral sampling: ~7 px/FWHM • Active temperature stabilisation • Dark spectra, wavelength calibration (~0.05 nm accuracy) and detector non-linearity correction included<br>> Software for automated measurements included • Spectral evaluation software available<br>> Connection for 12V power supply<br>> Polycarbonate IP64 housing • Dust and weatherproof (incl. weatherproof connectors) • Box dimensions: 30 x 20 x 13.2 cm³ • Optics tube length: 16 cm • Weight ~7 kg<br>> Data communication: USB 2.0<br>> 3 m USB cable with IP67 connector included | **GENERAL:** Small telescope-spectrometer system for skylight spectra acquisition at arbitrary viewing elevations. Typical detectable gases: NO2, SO2, O4, HCHO, BrO, H2O, HONO, IO and CHOCHO. Custom wavelength configurations on request. Combine with measurement laptop (see recommended articles below) to obtain a complete SkySpec measurement system. Requires an external PC for measurements.<br><br>**REGULAR GRADE DETECTOR:** In contrast to [SKY-MINI-RGD], the [SKY-MINI-HGD]'s spectrometer features a highly sensitive and vertically extended back thinned CCD detector, more than doubling the photon yield compared to a regular CMOS. For measurements of UV absorbing target gases like O3, SO2, HONO, HCHO or BrO, we therefore recommend the [SKY-MINI-HGD] instrument. If the focus is on Vis absorbing target gases like NO2, H2O, IO or CHOCHO, consider to use the cost-efficient [SKY-MINI-RGD]. | **REQUIRED ARTICLES:** Measurement software [SKY-SOFT-STD] • External power supply [ACC-PWR-8A]<br><br>**RECOMMENDED ARTICLES:** Measurement computer [PC-*] • Evaluation software [SKY-EVAL-V3-1S] • Cameras [SKY-CON-TCAMC] • Tripod [SKY-ACC-TRIPOD] • Spare part set [SKY-SPARE-SET-MINI] • Maintenance Set [SKY-MAINT-SET] • Services [SKY-SERV-INSTL] & [SKY-SERV-MT-MINI] |  | | | | • |
| ***1D/2D series - Spectrometer systems*** | | | | | | | | |
| **SKY-SBOX-2S-MGD** | SKYSPEC SPECTROMETER UNIT - TWO SPECTROMETERS (UV/VIS) - MIXED GRADE DETECTORS<br>> Passive UV/VIS remote sensing • Trace gas profiling from ground level to 2 km • Height resolution up to 100 m • Detectable gases: NO2, SO2, O4, HCHO, BrO, H2O, HONO, IO and CHOCHO<br>> Spectrometers: Actively temperature stabilised (heating & cooling) • Color filters and bench design minimize straylight • High spectral sampling: ~7 px/FWHM • Dark spectra, wavelength calibration (~0.05 nm accuracy) and detector non-linearity correction included<br>> UV-Range: High grade back thinned CCD detector • Spectral range: 300 - 410 nm • Spectral resolution: ~0.45 nm<br>> VIS-Range: Regular grade CMOS detector • Spectral range: 405 - 550 nm • Spectral resolution: ~0.6 nm<br>> Polycarbonate IP64 housing • Box dimensions: 40 x 30 x 13.2 cm³ • Weight ~8 kg<br>> Connection for 12 V power supply<br>> Communication: USB 2.0<br>> Included: Pre-installed and adjusted 10 m (extendable) fused silica optical fibre for simple optical connection to SkySpec telescope units • 2 m USB cable with IP67 connector | **GENERAL:** Two actively temperature stabilised spectrometers (for UV & VIS spectral range) in a compact, rugged and mobile enclosure. Typical detectable gases: NO2, SO2, O4, HCHO, BrO, H2O, HONO, IO and CHOCHO. Custom wavelength configurations on request. Combine with telescope unit and measurement laptop (see recommended articles below) to obtain a complete SkySpec measurement system.<br><br>**MIXED GRADE DETECTORS:** The [SKY-SBOX-2S-MGD] is a mixture of the [SKY-SBOX-2S-RGD] and the [SKY-SBOX-2S-HGD] version. The UV spectrometer (where photon yield is of major importance) features a back thinned CCD detector, whereas the Vis spectrometer features a regular CMOS detector. This is the recommended configuration for standard applications. See comments on [SKY-SBOX-2S-HGD] and [SKY-SBOX-2S-RGD] model for more information. | **REQUIRED ARTICLES:** Measurement software [SKY-SOFT-STD], [SKY-SOFT-IMG] or [SKY-SOFT-SBOX], depending on the choice of the telescope unit [SKY-TELE-*] • External power supply [ACC-PWR-8A]<br><br>**RECOMMENDED ARTICLES:** Telescope unit [SKY-TELE-*] • Measurement computer [PC-*] • Evaluation software [SKY-EVAL-*] • Optical fibre extensions [SKY-CON-FE*] • Services [SKY-SERV-INSTL] & [SKY-SERV-MT-1D/2D] |  | • | • | | |
| **SKY-SBOX-2S-HGD** | SKYSPEC SPECTROMETER UNIT - TWO SPECTROMETERS (UV/VIS) - HIGH GRADE DETECTORS<br>> Passive UV/VIS remote sensing • Trace gas profiling from ground level to 2 km • Height resolution up to 100 m • Detectable gases: NO2, SO2, O4, HCHO, BrO, H2O, HONO, IO and CHOCHO<br>> Spectrometers: High grade back thinned CCD detectors • Actively temperature stabilised (heating & cooling) • Color filters and bench design minimize straylight • High spectral sampling: ~7 px/FWHM • Dark spectra, wavelength calibration (~0.05 nm accuracy) and detector non-linearity correction included<br>> UV-Range: Spectral range: 300 - 410 nm • Spectral resolution: ~0.45 nm<br>> VIS-Range: Spectral range: 405 - 550 nm • Spectral resolution: ~0.6 nm<br>> Polycarbonate IP64 housing • Box dimensions: 40 x 30 x 13.2 cm³ • Weight ~8 kg<br>> Connection for 12 V power supply<br>> Communication: USB 2.0<br>> Included: Pre-installed and adjusted 10 m (extendable) fused silica optical fibre for simple optical connection to SkySpec telescope units • 2 m USB cable with IP67 connector | **GENERAL:** Two actively temperature stabilised spectrometers (for UV & VIS spectral range) in a compact, rugged and mobile enclosure. Typical detectable gases: NO2, SO2, O4, HCHO, BrO, H2O, HONO, IO and CHOCHO. Custom wavelength configurations on request. Combine with telescope unit and measurement laptop (see recommended articles below) to obtain a complete SkySpec measurement system.<br><br>**HIGH GRADE DETECTORS:** In contrast to [SKY-SBOX-2S-RGD], the [SKY-SBOX-2S-HGD]'s spectrometers feature a highly sensitive and vertically extended back thinned CCD detectors, more than doubling the photon yield compared to regular CMOS detectors. For measurements of UV absorbing target gases like O3, SO2, HONO, HCHO or BrO, we therefore recommend the [SKY-SBOX-2S-HGD] instrument. If the focus is on Vis absorbing target gases like NO2, H2O, IO or CHOCHO, consider to use the cost-efficient [SKY-SBOX-2S-RGD] model. | **REQUIRED ARTICLES:** Measurement software [SKY-SOFT-STD], [SKY-SOFT-IMG] or [SKY-SOFT-SBOX], depending on the choice of the telescope unit [SKY-TELE-*] • External power supply [ACC-PWR-8A]<br><br>**RECOMMENDED ARTICLES:** Telescope unit [SKY-TELE-*] • Spectrometer non-linearity correction [SERV-NONLIN] • Measurement computer [PC-*] • Evaluation software [SKY-EVAL-*] • Optical fibre extensions [SKY-CON-FE*] • Services [SKY-SERV-INSTL] & [SKY-SERV-MT-1D/2D] |  | • | • | | |

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| **SKY-SBOX-1S-HGD** | SKYSPEC SPECTROMETER UNIT - SINGLE UV-VIS-SPECTROMETER - HIGH GRADE DETECTOR<br>> Passive UV/VIS remote sensing • Trace gas profiling from ground level to 2 km • Height resolution up to 100 m • Detectable gases: NO2, SO2, O4, HCHO, BrO, H2O, HONO, IO and CHOCHO<br>> Spectrometer: High grade back thinned CCD detector • Actively temperature stabilised (heating & cooling) • Color filters and bench design minimize straylight • High spectral sampling: ~7 px/FWHM • Dark spectra, wavelength calibration (~0.05 nm accuracy) and detector non-linearity correction included • Spectral range: 300 - 460 nm • Spectral resolution: ~0.6 nm<br>> Polycarbonate IP64 housing • Box dimensions: 40 x 30 x 13.2 cm³ • Weight ~8 kg<br>> Connection for 12 V power supply<br>> Communication: USB 2.0<br>> Included: Pre-installed and adjusted 10 m (extendable) fused silica optical fibre for simple optical connection to SkySpec telescope units • 2 m USB cable with IP67 connector | **GENERAL:** One actively temperature stabilised spectrometer (covering the UV+VIS spectral range), rugged and mobile enclosure. Typical detectable gases: NO2, SO2, O4, HCHO, BrO, H2O, HONO, IO and CHOCHO. Custom wavelength configurations on request. Combine with telescope unit and measurement laptop (see recommended articles below) to obtain a complete SkySpec measurement system.<br><br>**HIGH GRADE DETECTOR:** In contrast to [SKY-SBOX-1S-RGD], the [SKY-SBOX-1S-HGD]'s spectrometer features a highly sensitive and vertically extended back thinned CCD detector, more than doubling the photon yield compared to a regular CMOS detector. For measurements of UV absorbing target gases like O3, SO2, HONO, HCHO or BrO, we therefore recommend the [SKY-SBOX-1S-HGD] instrument. If the focus is on Vis absorbing target gases like NO2, H2O, IO or CHOCHO, consider to use the cost-efficient [SKY-SBOX-1S-RGD] model. | **REQUIRED ARTICLES:** Measurement software [SKY-SOFT-STD], [SKY-SOFT-IMG] or [SKY-SOFT-SBOX], depending on the choice of the telescope unit [SKY-TELE-*] • External power supply [ACC-PWR-8A]<br><br>**RECOMMENDED ARTICLES:** Telescope unit [SKY-TELE-*] • Measurement computer [PC-*] • Evaluation software [SKY-EVAL-*] • Optical fibre extensions [SKY-CON-FE*] • Services [SKY-SERV-INSTL] & [SKY-SERV-MT-1D/2D] |  | • | • | | |
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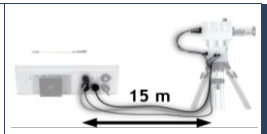
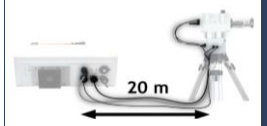
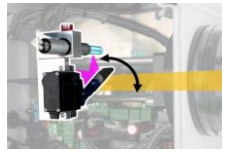
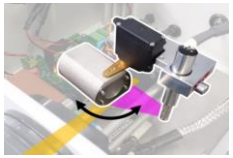
|---|---|---|---|---|---|---|---|---|
| | | | | | 1D | 2D | Comp | Mini |
| **SKY-SBOX-MINI-HGD** | SPECTROMETER UNIT - REDUCED SIZE - SINGLE UV-VIS-SPECTROMETER - HIGH GRADE DETECTOR<br>> Small scale spectrometer unit for integration in custom measurement systems for various spectroscopic applications<br>> Spectrometers: High grade back thinned CCD detector • Actively temperature stabilised (heating & cooling) • Color filters and bench design minimize straylight • High spectral sampling: ~7 px/FWHM • Dark spectra, wavelength calibration (~0.05 nm accuracy) and detector non-linearity correction included • Spectral range: 300 - 460 nm • Spectral resolution: ~0.6 nm<br>> Optical connection via mono-fiber with SMA connector • Internal cross-sectional-converter (circular to slitted shape) maximises light throughput<br>> Polycarbonate IP64 housing • Box dimensions: 30 x 20 x 13.2 cm³ • Weight ~5 kg<br>> Connection for 12 V power supply<br>> Communication: USB 2.0<br>> Included: 2 m USB cable with IP67 connector | **GENERAL:** One actively temperature stabilised spectrometer (covering the UV+VIS spectral range), rugged and mobile enclosure. Custom spectrometer and fiber configurations on request. Not intended for use with SkySpec standard telescopes!<br><br>**HIGH GRADE DETECTOR:** In contrast to [SKY-SBOX-MINI-RGD], the [SKY-SBOX-MINI-HGD]'s spectrometer features a highly sensitive and vertically extended back thinned CCD detector, more than doubling the photon yield compared to a regular CMOS detector. | **REQUIRED ARTICLES:** Specbox control software [SKY-SOFT-SBOX] • External power supply [ACC-PWR-8A]<br><br>**RECOMMENDED ARTICLES:** Spectrometer non-linearity correction [SERV-NONLIN] • Service [SKY-SERV-INSTL] |  | • | • | | |
| **SKY-SBOX-MINI-RGD** | SPECTROMETER UNIT - REDUCED SIZE - SINGLE UV-VIS-SPECTROMETER - REGULAR GRADE DETECTOR<br>> Small scale spectrometer unit for integration in custom measurement systems for various spectroscopic applications<br>> Spectrometers: regular grade CMOS detector • Actively temperature stabilised (heating & cooling) • Color filters and bench design minimize straylight • High spectral sampling: ~7 px/FWHM • Dark spectra, wavelength calibration (~0.05 nm accuracy) and detector non-linearity correction included • Spectral range: 300 - 460 nm • Spectral resolution: ~0.6 nm<br>> Optical connection via mono-fiber with SMA connector • Internal cross-sectional-converter (circular to slitted shape) maximises light throughput<br>> Polycarbonate IP64 housing • Box dimensions: 30 x 20 x 13.2 cm³ • Weight ~5 kg<br>> Connection for 12 V power supply<br>> Communication: USB 2.0<br>> Included: 2 m USB cable with IP67 connector | **GENERAL:** One actively temperature stabilised spectrometer (covering the UV+VIS spectral range), rugged and mobile enclosure. Custom spectrometer and fiber configurations on request. Not intended for use with SkySpec standard telescopes!<br><br>**REGULAR GRADE DETECTOR:** In contrast to [SKY-SBOX-MINI-RGD], the [SKY-SBOX-MINI-HGD]'s spectrometer features a highly sensitive and vertically extended back thinned CCD detector, more than doubling the photon yield compared to a regular CMOS detector. | **REQUIRED ARTICLES:** Specbox control software [SKY-SOFT-SBOX] • External power supply [ACC-PWR-8A]<br><br>**RECOMMENDED ARTICLES:** Service [SKY-SERV-INSTL] |  | • | • | | |
| ***1D/2D series - Telescope systems*** | | | | | | | | |
| **SKY-TELE-1D** | SKYSPEC TELESCOPE UNIT 250 - 1D-MOTORISED<br>> Scanner unit for passive UV/VIS remote sensing.<br>> One motorised axis: Elevation angle (-10° to 190°)<br>> Weatherproof design • Quartz glass cover • No outside moving parts<br>> Small vertical field of view (~0.3°) for MAX-DOAS applications • Lense focal width: 75 mm • Lense clear aperture: 22.5 mm<br>> Tilt sensor based real-time elevation angle correction (0.2° pointing accuracy)<br>> Angular resolution: < 0.2°<br>> Data communication: serial RS232 • USB 2.0<br>> Connection for 12 V power<br>> Polycarbonate IP64 housing • Dust and weatherproof (incl. weatherproof connectors) • Box dimensions: 20 x 20 x 13.2> Included: 10 m cables (length extendable) for easy electric & data connection to SkySpec Spectrometer boxes • RS232 to USB adapter | **GENERAL:** Small field of view, motorised telescope system to gather skylight at arbitrary viewing elevations. Stand-alone use (without spectrometer system) with third party spectrometers possible. Combine with spectrometer unit and measurement computer (see recommended articles below) to obtain complete SkySpec measurement system.<br><br>**1D-MOTORISED:** The telescope's viewing elevation axis is motorised (-10° to 190°). Azimuthal viewing direction is fixed, depending on the instrument mounting direction. Direct-sun observations or trace gas imaging applications require 2D-motorisation [SKY-TELE-2D] | **REQUIRED ARTICLES:**<br>Stand-alone use requires: Power Supply [ACC-PWR-8A] • Software [SKY-SOFT-TELE] • Stand-alone version supplied with serial to USB adapter<br><br>**RECOMMENDED ARTICLES:** Spectrometer unit [SKY-SBOX-*] • Measurement computer [PC-*] • Cameras [SKY-CON-TCAM0/180] • Shutter add-on [SKY-CON-TSHUT] or [SKY-CON-THGSHUT] • Tripod [SKY-ACC-TRIPOD] • Cable extensions [SKY-CON-FE*] • Services [SKY-SERV-INSTL] & [SKY-SERV-MT-1D] |  | • | | | |
| **SKY-TELE-2D** | SKYSPEC TELESCOPE UNIT 250 - 2D-MOTORISED<br>> Scanner unit for passive UV/VIS remote sensing.<br>> Two motorised axes: Azimuth (-5° to 185°) and elevation angle (-10° to 190°) to cover full sky<br>> Weatherproof design • quartz glass cover<br>> Small vertical field of view (~0.3°) for MAX-DOAS applications • lense focal width: 75 mm • lense clear aperture: 22.5 mm<br>> Tilt sensor based real-time elevation angle correction (0.2° pointing accuracy)<br>> Angular resolution: < 0.2°<br>> Data communication: serial RS232 • USB 2.0<br>> Connection for 12 V power<br>> Polycarbonate IP64 housing • Dust and weatherproof (incl. weatherproof connectors) • Housing dimensions: 20 x 20 x 29 cm³ • Optics tube length 16 cm • Weight ~7 kg<br>> Included: 10 m cables (length extendable) for easy electric & data connection to SkySpec Spectrometer boxes • RS232 to USB adapter | **GENERAL:** Small field of view, motorised telescope system to gather skylight at arbitrary viewing directions. Stand-alone use (without spectrometer system) with third party spectrometers possible. Combine with spectrometer unit and measurement computer (see recommended articles below) to obtain complete SkySpec measurement system.<br><br>**2D-MOTORISED:** The telescope's viewing elevation and azimuthal axis are both motorised (full hemisphere coverage), enabling direct-sun observations and trace gas imaging applications. | **REQUIRED ARTICLES:** Stand-alone use requires: Power Supply [ACC-PWR-8A] • Software [SKY-SOFT-TELE]<br><br>**RECOMMENDED ARTICLES:** Spectrometer unit [SKY-SBOX-*] • Measurement computer [PC-*] • Cameras [SKY-CON-TCAM0/180] • Diffusor add-on [SKY-CON-TDIFF] or for direct-sun observations [SKY-CON-THGDIFF] • Tripod [SKY-ACC-TRIPOD] • Cable extensions [SKY-CON-FE*] • Services [SKY-SERV-INSTL] & [SKY-SERV-MT-2D] |  | | • | | |

# Product overview of Airyx GmbH

| Item# | Description | Comments | Related articles | Image | SkySpec (SS) Subtypes 1D | 2D | Comp | Mini |
|---|---|---|---|---|---|---|---|---|
| **OPTIONAL INSTRUMENT CONFIGURATIONS (TO BE ORDERED WITH THE INSTRUMENT)** | | | | | | | | |
| SKY-CON-FCE15 | SKYSPEC SPECTROMETER TELESCOPE CONNECTION EXTENSION TO 15 m<br>All connections (optical fibre, data and power cables, by default 10 m) between telescope and spectrometerbox are replaced by 15m long versions. | Only applicable when ordering a full SkySpec measurement system consisting of spectrometer box [SKY-SBOX-*] and telescope unit [SKY-TELE-*] • For applications requiring large distances between the indoor spectrometer unit and the outdoor 1D/2D telescope • Extension applied to electrical connections as well as optical fibre • Optical fibre is fixed on spectrometer side, cables are fixed on telescope side, extension is therefore applied at Airyx GmbH before shipping • Default connections (10 m) will be replaced by the extended versions • IP68 connectors | |  | • | • | | |
| SKY-CON-FCE20 | SKYSPEC SPECTROMETER TELESCOPE CONNECTION EXTENSION TO 20 m<br>All connections (optical fibre, data and power cables, by default 10 m) between telescope and spectrometerbox are replaced by 20m long versions. | Only applicable when ordering a full SkySpec measurement system consisting of spectrometer box [SKY-SBOX-*] and telescope unit [SKY-TELE-*] • For applications requiring large distances between the indoor spectrometer unit and the outdoor 1D/2D telescope • Extension applied to electrical connections as well as optical fibre • Optical fibre is fixed on spectrometer side, cables are fixed on telescope side, extension is therefore applied at Airyx GmbH before shipping • Default connections (10 m) will be replaced by the extended versions • IP68 connectors | |  | • | • | | |
| SKY-CON-FE15 | OPTICAL FIBRE EXTENSION FOR SKYSPEC SPECTROMETER SYSTEMS TO 15 m<br>The pre-installed and adjusted 10 m optical fibre on the spectrometer system will be replaced by a 15 m long version. | Only of relevance for stand-alone use of SkySpec spectrometer systems [SKY-SBOX-*] (without dedicated SkySpec telescope system) • For applications requiring large distances between the light providing system and the analyser • On the spectrometer side, the optical fibre is pre-installed and adjusted, extensions are therefore applied at Airyx GmbH before shipping • Default optical fibre (10 m) will be replaced by the extended version | |  | • | • | | |
| SKY-CON-FE20 | OPTICAL FIBRE EXTENSION FOR SKYSPEC SPECTROMETER SYSTEMS TO 20 m<br>The pre-installed and adjusted 10 m optical fibre on the spectrometer system will be replaced by a 20 m long version. | Only of relevance for stand-alone use of SkySpec spectrometer systems [SKY-SBOX-*] (without dedicated SkySpec telescope system) • For applications requiring large distances between the light providing system and the analyser • On the spectrometer side, the optical fibre is pre-installed and adjusted, extensions are therefore applied at Airyx GmbH before shipping • Default optical fibre (10 m) will be replaced by the extended version | |  | • | • | | |
| SKY-CON-CE15 | CABLE EXTENSION FOR SKYSPEC TELESCOPE SYSTEMS TO 15 m<br>The preinstalled 10 m data and power cables on the telescope system will be replaced by 15 m long versions. | Only of relevance for stand-alone use of SkySpec telescope units [SKY-TELE-*] (without dedicated spectrometer unit) • For applications requiring large distances between telescope and light analyser • On the telescope side, cables are fixed, extensions are therefore applied at Airyx GmbH before shipping • Default connections (10 m) will be replaced by the extended versions | |  | • | • | | |
| SKY-CON-CE20 | CABLE EXTENSION FOR SKYSPEC TELESCOPE SYSTEMS TO 20 m<br>The preinstalled 10 m data and power cables on the telescope system will be replaced by 20 m long versions. | Only of relevance for stand-alone use of SkySpec telescope units [SKY-TELE-*] (without dedicated spectrometer unit) • For applications requiring large distances between telescope and light analyser • On the telescope side, cables are fixed, extensions are therefore applied at Airyx GmbH before shipping • Default connections (10 m) will be replaced by the extended versions | |  | • | • | | |
| SKY-CON-TCAM0 | SKYSPEC CAMERA FOR 1D/2D SYSTEMS - POINTING FORWARD<br>Wide FOV camera optimised for weather monitoring. Monitors the sky hemisphere in front of the instrument. | Camera with wide field of view (default is 130° x 90° (WxH), customisable on request) • Combine with a second camera SKY-CON-TCAM180 for all-sky monitoring | |  | • | • | | |

# Product overview of Airyx GmbH

| Item# | Description | Comments | Related articles | Image | SkySpec (SS) Subtypes | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | 1D | 2D | Comp | Mini |
| **SKY-CON-TCAM180** | SKYSPEC CAMERA FOR 1D/2D SYSTEMS - POINTING BACKWARD<br>Wide FOV camera optimised for weather monitoring. Monitors the sky hemisphere in the back of the instrument. | Camera with wide field of view (default is 130°x 90° (WxH), customisable on request) • This article complements SKY-CON-TCAM0 to enhance the total field of view of your telescope unit | |  | • | • | | |
| **SKY-CON-TCAMC** | SKYSPEC CAMERA FOR COMPACT/MINI SYSTEMS<br>Wide FOV camera optimised for all-sky weather monitoring | Camera with wide field of view (default is 130°x 90° (WxH), customisable on request) • Camera gets integrated into the telescope at Airyx GmbH • In SkySpec Mini/Compact instruments, only one camera can be installed. | |  | | | • | • |
| **SKY-CON-TSHUT** | SKYSPEC TELESCOPE AUTOMATIC SHUTTER<br>Enables automatic in-field dark spectra acquisition for spectrometer performance monitoring and corrections. | Servo driven shutter system, which can be integrated into SkySpec 1D and 2D telescope units.<br><br>Enables: automatic dark spectra acquisition by blocking the light between telescope lense and optical fibre entrance. | |  | • | • | | |
| **SKY-CON-THGSHUT** | SKYSPEC TELESCOPE AUTOMATIC SHUTTER WITH MERCURY LAMP<br>Enables automatic in-field dark- and mercury emission line spectra acquisition for spectrometer performance monitoring and corrections. | Combined mercury (Hg) lamp and servo driven shutter system, which can be integrated into SkySpec 1D and 2D telescope units.<br><br>Enables: Automatic dark spectra acquisition by blocking the light between telescope lense and optical fibre entrance automatic • Acquisition of mercury emission line spectra by reflecting lamp light into the optical fibre; useful for long term monitoring and drift correction of the spectrometer's wavelength calibration. | |  | • | • | | |
| **SKY-CON-TDIFF** | SKYSPEC TELESCOPE AUTOMATIC DIFFUSOR<br>> Enables direct-sun measurements (pointing directly into the Sun)<br>> Automatic in-field dark spectra acquisition for spectrometer performance monitoring and corrections. | Servo driven diffusor system (also useable as shutter), which can be integrated into SkySpec 2D telescope units.<br><br>Enables: Direct-sun measurements for retrieval of trace gas total atmospheric columns. Diffusor ensures high spectral quality by moderating the brightness and homogenising the spectrometer illumination when pointing directly into the sun • Automatic dark spectra acquisition: Diffusor/shutter blocks the light between telescope lense and optical fibre entrance. | |  | | • | | |
| **SKY-CON-THGDIFF** | SKYSPEC TELESCOPE AUTOMATIC DIFFUSOR WITH MERCURY LAMP<br>> Allow direct-sun measurements (pointing directly into the sun)<br>> Automatic in-field dark- and mercury emission line spectra acquisition for spectrometer performance monitoring and corrections. | Combined Mercury (Hg) lamp and servo driven diffusor system (also useable as shutter), which can be integrated into SkySpec 2D telescope units.<br><br>Enables: Diffusor ensures high spectral quality by moderating the brightness and homogenising the spectrometer illumination when pointing directly into the sun • Automatic dark spectra acquisition: diffusor/shutter blocks the light between telescope lense and optical fibre entrance • Automatic mercury line spectrum acquisition: diffusor reflects lamp light into the optical fibre; useful for long term monitoring and drift correction of the instrument's wavelength calibration. | |  | | • | | |

# Product overview of Airyx GmbH

| Item# | Description | Comments | Related articles | Image | SkySpec (SS) Subtypes | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | 1D | 2D | Comp | Mini |
| **SOFTWARE** | | | | | | | | |
| ***Software for SkySpec instrument control and data acquisition*** | | | | | | | | |
| **SKY-SOFT-STD** | SKYSPEC INSTRUMENT CONTROL AND DATA ACQUISITION SOFTWARE CONFIGURATION - MAX-DOAS STANDARD APPLICATIONS<br>> For Compact [SKY-COMPACT-*], Mini [SKY-MINI-*], 1D [SKY-SBOX-* + SKY-TELE-1D] and 2D [SKY-SBOX-* + SKY-TELE-2D] systems. | MS-DOAS software, configured for instrument control and data acquisition • Control of all instrument components (motors, cameras, spectrometers, temperature control, opto-mechanics) • Preconfigured and adaptable measurement routines for standard MAX-DOAS applications (elevation scans, zenith observations, direct-sun measurements, horizon scans, calibration spectrum acquisition) • Preconfigured and adaptable measurement routines for direct-sun measurement configuration • Enables implementation of own measurement routines • Logging of crucial telescope parameters (temperatures, pressure, humidity, other sensor and diagnostic parameters) | > SkySpec Mini [SKY-MINI-*], SkySpec Compact [SKY-COMPACT-*] and SkySpec 1D systems [SKY-SBOX-* + SKY-TELE-1D] require this software. It must be ordered with the instrument.<br>> SkySpec 2D systems [SKY-SBOX-* + SKY-TELE-2D] require either this software, or [SKY-SOFT-IMG]. |  | • | • | • | • |
| **SKY-SOFT-IMG** | SKYSPEC INSTRUMENT CONTROL AND DATA ACQUISITION SOFTWARE - MAX-DOAS IMAGING APPLICATIONS<br>> For SkySpec 2D systems [SKY-SBOX-* + SKY-TELE-2D] only | MS-DOAS software, configured for instrument control and data acquisition • Control of all instrument components (motors, cameras, spectrometers, temperature control, opto-mechanics) • Preconfigured and adaptable measurement routines for MAX-DOAS imaging applications • Enables implementation of own measurement routines • Logging of crucial telescope parameters (temperatures, pressure, humidity, other sensor and diagnostic parameters)<br><br>MAX-DOAS IMAGING:<br>Software is optimised to perform fast 2D scans on a user-defined angular grid • In combination with the corresponding evaluation software [SKY-EVAL-IMG], pollution images are created automatically: They consists of a panorama webcam image overlayed with the observed trace gas dSCDs in the respective directions | > Only for SkySpec 2D systems [SKY-SBOX-* + SKY-TELE-2D], which requires either this software, or [SKY-SOFT-STD].<br>> Only useful if combined with [SKY-EVAL-IMG] |  | | • | | |
| **SKY-SOFT-TELE** | SKYSPEC TELESCOPE CONTROL SOFTWARE<br>> For stand-alone use of SkySpec telescope units [SKY-TELE-*] without dedicated SkySpec spectrometer unit. | MS-DOAS software, configured for stand alone telescope control (without spectrometer unit) • Control of telescope unit and cameras (motors, cameras, temperature control, opto-mechanics) • Logging of crucial telescope parameters (temperatures, pressure, humidity, other sensor and diagnostic parameters) • Enables implementation of own measurement routines | > Only suitable and required for stand-alone use of SkySpec telescope systems [SKY-TELE-*] without dedicated SkySpec spectrometer unit. |  | • | • | | |
| **SKY-SOFT-SBOX** | SKYSPEC SPECTROMETER CONTROL SOFTWARE<br>> For stand-alone use of SkySpec spectrometer units [SKY-SBOX-*] without dedicated SkySpec telescope unit. | Minimal MS-DOAS software package for spectrometer-system control. • Control of spectrometer components (spectrometers, temperature control) • Logging of crucial telescope parameters (temperatures, pressure, humidity, other sensor and diagnostic parameters) • Enables implementation of own measurement routines | > Only suitable and required for stand-alone use of SkySpec spectrometer units [SKY-TELE-*] without dedicated SkySpec telescope unit. |  | • | • | | |

# Product overview of Airyx GmbH

| Item# | Description | Comments | Related articles | Image | SkySpec (SS) Subtypes 1D | 2D | Comp | Mini |
|---|---|---|---|---|---|---|---|---|
| ***Optional software extensions*** | | | | | | | | |
| **SKY-EVAL-V3-1S** | SKYSPEC EVALUATION SOFTWARE PACKAGE V3 - SINGLE SPECTROMETER<br>> Automatic post- and real- time processing of SkySpec spectral data<br>> Spectral analysis and post-processing<br>> Provides for all measured trace gases<br>> DSCD (Differential Slant Column Densities)<br>> VCD (Vertical Column Densities)<br>> NSC (Near Surface Concentration)<br>> Real-time result visualization in an interactive web browser interface | Evaluation package gets optimised for your specific instrument • If ordered with a SkySpec Compact or a measurement computer [PC-*], the package will be installed and configured on the computer • The number of measurable trace gases depends on the spectral range of the selected instrument. | |  | • | • | • | • |
| **SKY-EVAL-V3-2S** | SKYSPEC EVALUATION SOFTWARE PACKAGE V3 - TWO SPECTROMETERS<br>> Automatic post- and real- time processing of SkySpec spectral data<br>> Spectral analysis and post-processing<br>> Provides for all measured trace gases<br>> DSCD (Differential Slant Column Densities)<br>> VCD (Vertical Column Densities)<br>> NSC (Near Surface Concentration)<br>> Real-time result visualization in an interactive web browser interface | Evaluation package gets optimised for your specific instrument. • If ordered with a SkySpec measurement computer [PC-*], the package will be installed and configured on the computer • The number of measurable trace gases depends on the spectral range of the selected instrument. | |  | • | • | | |
| **SKY-EVAL-UPDATE** | UPDATE OF SKYSPEC EVALUATION SOFTWARE<br>from Version [SKY-EVAL-V1] or [SKY-EVAL-V2] (before 2022) to [SKY-EVAL-V3] (2022) | | |  | • | • | • | • |
| **SKY-EVAL-IMG** | SKYSPEC EVALUATION SOFTWARE PACKAGE FOR IMAGING APPLICATIONS<br>> Automatic post- and real- time processing of SkySpec spectral data<br>> Spectral analysis and post-processing<br>> Provides for all measured trace gases<br>> 2D image overlays of webcam panorama and measured DSCD's<br>> DSCD (Differential Slant Column Densities)<br>> VCD (Vertical Column Densities)<br>> NSC (Near Surface Concentration)<br>> Real-time result visualization | Evaluation package gets optimised for your specific instrument • If ordered with a measurement computer [PC-*], the package will be installed and configured on the computer • Requires SkySpec 2D instrument • Requires measurement software optimised for MAX-DOAS imaging applications (SKY-SOFT-IMG) • Characterisation and angular calibration of the system's camera against the telescope optics is included | |  | | • | | |
| **MEASUREMENT COMPUTERS** | | | | | | | | |
| **PC-DE** | MEASUREMENT COMPUTER - DESKTOP PC<br>> Windows 10 installed and optimised for Airyx instrument measurement applications<br>> Installation and configuration of measurement and (if included) evaluation software packages. | If a measurement computer is ordered with a Airyx instrument, the required measurement software (e.g. SKY-SOFT-*) will be installed and preconfigured on the computer at Airyx GmbH. Same applies if software extensions (e.g. SkySpec evaluation package SKY-EVAL-*) are ordered • The system will be pre-configured as a plug-and-play setup. | |  | • | • | | • |
| **PC-NB** | MEASUREMENT COMPUTER - NOTEBOOK<br>> Windows 10 installed and optimised for Airyx instrument measurement applications<br>> Installation and configuration of measurement and (if included) evaluation software packages. | If a measurement computer is ordered with a Airyx instrument, the required measurement software (e.g. SKY-SOFT-*) will be installed and preconfigured on the computer at Airyx GmbH. Same applies if software extensions (e.g. SkySpec evaluation package SKY-EVAL-*) are ordered • The system will be pre-configured as a plug-and-play setup. | |  | • | • | | • |
| **PC-NBHP** | MEASUREMENT COMPUTER - NOTEBOOK - HIGH PERFORMANCE<br>> Windows 10 installed and optimised for Airyx instrument measurement applications<br>> Installation and configuration of measurement and (if included) evaluation software packages. | If a measurement computer is ordered with an Airyx instrument, the required measurement software (e.g. SKY-SOFT-*) will be installed and preconfigured on the computer at Airyx GmbH. Same applies if a software extension (e.g. SKY-EVAL-*) is ordered • the system will be pre-configured as a plug-and-play setup • In the "HIGH PERFORMANCE" configuration a fast (i7 processor with 16GB RAM will be used); recommended for Open Path systems and SkySpec applications with calculation intensive data processing (going beyond the Airyx standard software packages) | |  | • | • | | • |

# Product overview of Airyx GmbH

## EXTENSIONS AND ACCESSORIES

| Item# | Description | Comments | Related articles | Image | SkySpec (SS) Subtypes | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | 1D | 2D | Comp | Mini |
| SKY-ACC-TRIPOD | SKYSPEC TRIPOD AND ADAPTER<br>> Stable tripod with adapter for simple mounting of SkySpec instruments/telescopes<br>> Tripod height adjustable: 0,91 to 169 cm • Leg distance: 80 to 135 cm<br>> weight: 3,4kg • transport length: 106cm<br>> Includes tripod spread stop | Stable tripod for simple SkySpec instrument/telescope deployment in the field • Adapter plate is included (specify the instrument type to obtain the correct plate). | |  | • | • | • | • |
| ACC-WIFIUSB | WIFI USB MODULE (Dongle) | External USB Wi-Fi module, externally connected to all ICAD variants or SKY-COMPACT-XXX instruments • Only this specific WIFI dongle is suitable for the Airyx instruments • For Wi-Fi data communication between instrument and any Wi-Fi device (e.g. [PC-*] or own device). | |  | | | • | |
| ACC-PWR-8A | EXTERNAL POWER SUPPLY - 110 TO 220 V - 12 V / 8.5 A<br>IP68 connector configured for Airyx instruments. | Power supply for Airyx instruments with IP68 connector configured for Airyx instruments • Input: 110 V to 220 V • Output: regulated 12 V / 8.5 A | |  | • | • | • | • |
| ACC-EXT-HG | HANDHELD HG (MERCURY) CALIBRATION-LAMP<br>> with SMA optical fibre connector<br>> Battery powered (4 x AA cells) | For manual acquisition of mercury emission line spectra with Airyx spectrometer systems • Useful for spectrometer wavelength calibration. | |  | • | • | • | • |
| ACC-USB2 | USB-B TO USB-A CABLE IP68 - 2 m | 2 m IP68 connector on the instrument side.<br>Only with these Usb cables the Usb connection on the IP65 Airyx instrument boxes are air and water tight. This is important to avoid humidity in the instrument. | |  | • | • | • | • |
| ACC-USB3 | USB-B TO USB-A CABLE IP68 - 3 m | 3 m IP68 connector on the instrument side.<br>Only with these Usb cables the Usb connection on the IP65 Airyx instrument boxes are air and water tight. This is important to avoid humidity in the instrument. | |  | • | • | • | • |
| ACC-USB5 | USB-B TO USB-A CABLE IP68 - 5 m | 5 m IP68 connector on the instrument side.<br>Only with these Usb cables the Usb connection on the IP65 Airyx instrument boxes are air and water tight. This is important to avoid humidity in the instrument. | |  | • | • | • | • |

# Product overview of Airyx GmbH

| Item# | Description | Comments | Related articles | Image | SkySpec (SS) Subtypes | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | 1D | 2D | Comp | Mini |
| **ACC-PWR3** | 12 V POWER CABLE EXTENSION IP68 - 3 m | 3 m extension 12 V connection between power supply and instrument • PUR outdoor cable with IP68 connectors on both sides • Can also be used to connect LiPo battery packs [ACC-BATPACK]. | |  | • | • | • | • |
| **ACC-PWR5** | 12 V POWER CABLE EXTENSION IP68 - 5 m | 5 m extension 12 V connection between power supply and instrument • PUR outdoor cable with IP68 connectors on both sides • Can also be used to connect LiPo battery packs [ACC-BATPACK]. | |  | • | • | • | • |
| **ACC-PWRX** | 12 V POWER CABLE EXTENSION IP68 - CUSTOM LENGTH<br>Price: 30 € + 5 €/m (Example price for 10 m) | Custom length extension 12 V connection between power supply and instrument • PUR outdoor cable with IP68 connectors on both sides. Flexible length, 30€ + 5€/M • Can also be used to connect LiPo battery packs [ACC-BATPACK]. | |  | • | • | • | • |
| **ACC-PWR1.5BE** | 12 V POWER CABLE IP68- 1.5 m - BLANK END | 1.5 m connection between instrument and arbitrary 12 V power supply • PUR outdoor cable with IP68 connector on the instrument side • Other end with blank wires for flexible assembly. | |  | • | • | • | • |
| **ACC-PWR3BE** | 12 V POWER CABLE IP68 - 3 M - BLANK END | 3 M connection between instrument and arbitrary 12 V power supply • PUR outdoor cable with IP68 connector on the instrument side • Other end with blank wires for flexible assembly. | |  | • | • | • | • |
| **ACC-LAN3** | LAN DATA CABLE IP68 - 3 M | 3 m LAN cable to connect Airyx instruments to an external PC • PUR outdoor cable with IP68 connector on the instrument side. | |  | | | • | |
| **ACC-LANX** | LAN DATA CABLE IP68 - CUSTOM LENGTH<br>PUR Outdoor cable CAT 7<br>Price: 40€ + 7€/m (example price for 10 m) | Custom length LAN cable to connect Airyx instruments to an external PC • PUR outdoor cable with IP68 connector on the instrument side • Flexible length, 40 € + 7 €/m | |  | | | • | |
| **ACC-PWR3CAR** | 12V POWER CABLE FOR CAR CIGARETTE LIGHTER IP68 - 3 m, plus adaptercable to connect 12V buffer battery | 3 m power cable for connection of Airyx instruments to a 12 V cigarette lighter in a car • connectable additional 12 V power source (battery) as 12V buffer to avoid power cuts when car power is off • PUR outdoor cable • IP68 connector on instrument side. | |  | • | • | • | • |
| **ACC-BAT-50Ah** | LIPO BATTERY 12 V/50.4 Ah IP67 - PELICASE<br>> Included: 5 A charger<br>> Included 1.5 m power cable for Airyx instrument connection<br>> 3.37 kg<br>> Rugged Peli 1150 case (24 x 19 x 11 $cm^3$) | Battery pack for instrument power supply in remote areas • IP67 • 3.37 kg • Allow ~15 h of ICAD operation • 3 IP67 power connectors | |  | • | • | • | • |

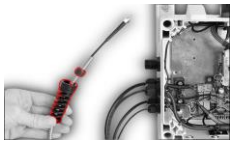
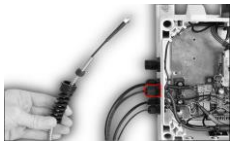
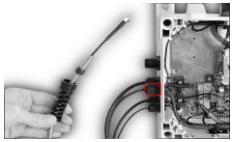
# Product overview of Airyx GmbH

| Item# | Description | Comments | Related articles | Image | SkySpec (SS) Subtypes | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | 1D | 2D | Comp | Mini |
| **MAINTENANCE EQUIPMENT AND SPARE PARTS** | | | | | | | | |
| SKY-MAINT-SET | SKYSPEC BASIC MAINTENANCE SET<br>1x silica desiccant 0.9 kg [SPARE-SILICA] • 1x optical glass cleaner suitable for UV optics • 1x basic cleaning tissue • 2x pack of special optical tissue | | |  | • | • | • | • |
| SKY-SPARE-PCEM | SKYSPEC COMPACT EMBEDDED MEASUREMENT PC<br>> Windows 10 installed and optimised for SkySpec measurement applications<br>> Installation and configuration of measurement and evaluation software (if ordered) packages included | | |  | | | • | |
| SKY-SPARE-SET-1D | SKYSPEC 1D SPARE PART SET FOR MAINTENANCE AND BASIC REPAIR<br>1x power supply 12 V, 8.5 A with configured connector [SPARE-PWR-8A] • 1x telescope calibration & shutter servo motor (programmed) • 1x telescope prism stepper motor with gearing • 1x external analog temperature sensor [SPARE-TSENS-EXA] • Digital temperature and humidity sensor for spectrometer [SPARE-TSENS-SPD] • 1x internal USB-Hub with adapted power supply setting • 1x peltier cooler [SPARE-PELTIER-V2] • 1x optical telescope camera • 1x fan 80 mm [SPARE-FAN80V3] • 2x fan filter 80 mm, washable [SPARE-FANFILT80] • 1x telescope Hg (mercury) calibration lamp [ACC-EXT-HG] • 1x telescope quartz glass tube [SKY-SPARE-TUBE] • 1x silica desiccant 0.9 kg [SPARE-SILICA] • 1x telescope box lug for mounting [SKY-SPARE-TLUG] • 4x housing lid screws • 2x weatherproof fibre cable gland with sealing [SPARE-FGLAND] • 5x weatherproof power/data cable gland with sealing [SPARE-CGLAND] | A set of spare part components for SkySpec-1D instruments. These components are not needed for normal operation. The parts are only for repairing if typical components break due to aging. | |  | • | | | |
| SKY-SPARE-SET-2D | SKYSPEC 2D SPARE PART SET FOR MAINTENANCE AND BASIC REPAIR<br>1x power supply 12 V, 8 A with configured connector [SPARE-PWR-8A] • 1x telescope calibration & direct sun servo motor (programmed) • 1x telescope prism stepper motor with gearing • 1x telescope azimuth stepper motor • 1x external analog temperature sensor [SPARE-TSENS-EXA] • Digital temperature and humidity sensor for spectrometer [SPARE-TSENS-SPD] • 1x internal USB-Hub with adapted power supply setting • 1x peltier cooler [SPARE-PELTIER-V2] • 1x optical telescope camera [SKY-SPARE-TCAM] • 1x fan 80 mm [SPARE-FAN80V3] • 2x fan filter 80 mm, washable [SPARE-FANFILT80] • 1x telescope Hg (mercury) calibration lamp [ACC-EXT-HG] • 1x telescope quartz glass tube [SKY-SPARE-TUBE] • 1x silica desiccant 0.9 kg [SPARE-SILICA] • 1x telescope box lug for mounting [SKY-SPARE-TLUG] • 4x housing lid screws • 2x weatherproof fibre cable gland with sealing [SPARE-FGLAND] • 5x weatherproof power/data cable gland with sealing [SPARE-CGLAND] | A set of spare part components for SkySpec-2D instruments. These components are not needed for normal operation. The parts are only for repairing if typical components break due to aging. | |  | | • | | |
| SKY-SPARE-SET-COMP | SKYSPEC COMPACT SPARE PART SET FOR MAINTENANCE AND BASIC REPAIR<br>1x power supply 12 V, 8 A with configured connector [SPARE-PWR-8A] • 1x telescope prism stepper motor with gearing • Digital temperature and humidity sensor for spectrometer [SPARE-TSENS-SPD] • 1x 3 m LAN cable with IP68 connector • 1x peltier cooler [SPARE-PELTIER-V2] • 1x optical telescope camera [SKY-SPARE-TCAM] • 1x fan 80 mm, IP64 [SPARE-FAN80V4] • 2x fan filter 80 mm, washable [SPARE-FANFILT80] • 1x handheld Hg (mercury) calibration lamp [ACC-EXT-HG] • 1x telescope quartz glass tube [SKY-SPARE-TUBE] • 1x silica desiccant 0.9 kg [SPARE-SILICA] • 4x housing lid screws | A set of spare part components for SkySpec-COMP instruments. These components are not needed for normal operation. The parts are only for repairing if typical components break due to aging. | |  | | | • | |
| SKY-SPARE-SET-MINI | SKYSPEC MINI SPARE PART SET FOR MAINTENANCE AND BASIC REPAIR<br>1x power supply 12 V, 8 A with configured connector [SPARE-PWR-8A] • 1x telescope prism stepper motor with gearing • 1x spectrometer temperature sensor • 1x 3 m USB cable with IP68 connector • 1x peltier cooler [SPARE-PELTIER-V2] • 1x optical telescope camera [SKY-SPARE-TCAM] • 1x fan 80 mm, IP64 [SPARE-FAN80V4] • 2x fan filter 80 mm, washable [SPARE-FANFILT80] • 1x handheld Hg (mercury) calibration lamp [ACC-EXT-HG] • 1x telescope quartz glass tube [SKY-SPARE-TUBE] • 1x silica desiccant 0.9 kg [SPARE-SILICA] • 4x housing lid screws | A set of spare part components for SkySpec-MINI instruments. These components are not needed for normal operation. The parts are only for repairing if typical components break due to aging. | |  | | | | • |
| SKY-SPARE-FIB10 | SKYSPEC 10 m FIBRE BUNDLE FOR TWO SPECTROMETERS<br>> UV quartz glass fibres<br>> Stainless steel jacket<br>> Air tight fibre ferrule<br>> With fibre cross section converter | 1x SkySpec spare fibre bundle, 10 m length, for two spectrometers (7 x 100µm UV fibres split into two branches of 6 and 1 fibres, respectively) • With water and airtight ferrule for Airyx SkySpec instruments (guarantees air tight fibre feedthrough into housing) • Bundle includes a fibre cross section converter for maximum light throughput | |  | • | • | | |
| SKY-SPARE-FIB15 | SKYSPEC 15 m FIBRE BUNDLE FOR TWO SPECTROMETERS<br>> UV quartz glass fibres<br>> Stainless steel jacket<br>> Air tight fibre ferrule<br>> With fibre cross section converter | 1x SkySpec spare fibre bundle, 15 m length, for two spectrometers (7 x 100µm UV fibres split into two branches of 6 and 1 fibres, respectively) • With water and airtight ferrule for Airyx SkySpec instruments (guarantees air tight fibre feedthrough into housing) • Bundle includes a fibre cross section converter for maximum light throughput | |  | • | • | | |

# Product overview of Airyx GmbH

| | | | | | SkySpec (SS) Subtypes | | | |
|---|---|---|---|---|---|---|---|---|
| Item# | Description | Comments | Related articles | Image | 1D | 2D | Comp | Mini |
| SKY-SPARE-FIB20 | SKYSPEC 20 m FIBRE BUNDLE FOR TWO SPECTROMETERS<br>> UV quartz glass fibres<br>> Stainless steel jacket<br>> Air tight fibre ferrule<br>> With fibre cross section converter | 1x SkySpec spare fibre bundle, 20 m length, for two spectrometers (7 x 100µm UV fibres split into two branches of 6 and 1 fibres, respectively) • With water and airtight ferrule for Airyx SkySpec instruments (guarantees air tight fibre feedthrough into housing) • Bundle includes a fibre cross section converter for maximum light throughput | |  | • | • | | |
| SKY-SPARE-TCAM | SKYSPEC SPARE TELESCOPE CAMERA<br>> 90° vertical view | 1x SkySpec spare telescope camera • Comes separate, without video grabber [SKY-SPARE-CAMCONV]. • Large vertical view of 90° to cover SkySpec scanning range from 0 to 90°. | |  | • | • | • | • |
| SKY-SPARE-HGL | SKYSPEC MERCURY WAVELENGTH CALIBRATION LIGHT BULP | 1x SkySpec telescope Hg (mercury) wavelength calibration lamp light bulb • PenRay style • Comes without motorised reflector and Hg high voltage mercury lamp power supply. | |  | • | • | | |
| SKY-SPARE-TSERVO | SKYSPEC TELESCOPE SHUTTER & DIFFUSOR SERVO MOTOR | 1x SkySpec spare servo motor for telescope diffusor and shutter systems (preconfigured and programmed at Airyx GmbH). | |  | • | • | | |
| SKY-SPARE-MOT1D | SKYSPEC TELESCOPE ELEVATION STEPPER MOTOR & GEARING | 1x SkySpec telescope 1D elevation stepper motor with gearing. For high precision elevation positioning. | |  | • | • | • | • |
| SKY-SPARE-TUBE | SKYSPEC TELESCOPE QUARTZ GLASS TUBE | 1x SkySpec telescope quartz glass tube without inner parts. | |  | • | • | • | • |
| SKY-SPARE-PRISM | SKYSPEC TELESCOPE QUARTZ PRISM | 1x SkySpec telescope quartz glass prism. | |  | • | • | • | • |
| SKY-SPARE-ESENS | SKYSPEC TELESCOPE ELEVATION SENSOR (CALIBRATED) | 1x SkySpec digital telescope elevation sensor. Calibrated and characterised at Airyx GmbH incl. Temperature correction. Comprehensive calibration is required to achieve an accuracy of 0.2°. | |  | • | • | • | • |
| SKY-SPARE-CAMCONV | SKYSPEC CAMERA VIDEO GRABBER AND CONVERTER TO USB | 1x video grabber and converter to USB for SkySpec telescope cameras • Comes without camera [SKY-SPARE-TCAM] • Each camera requires its own grabber to convert the video signal to a digital image transferred to the PC via USB. | |  | • | • | • | • |
| SKY-SPARE-TLUG | SKYSPEC TELESCOPE BOX LUGS FOR MOUNTING | 4x SkySpec mounting telescope box plastic lugs for each box corner. These lugs allow a simple mounting of the SkySpec-1D telescope, SkySpec-Comp, SkySpec-Mini to walls, rails or plates. | |  | • | | • | • |

# Product overview of Airyx GmbH

| | | | | | SkySpec (SS) Subtypes | | | |
|---|---|---|---|---|---|---|---|---|
| Item# | Description | Comments | Related articles | Image | 1D | 2D | Comp | Mini |
| SKY-SPARE-MCU-V1.5 | SKYSPEC MCU (MASTER CONTROL UNIT) BOARD V1.5 | 1x spare main instrument control board with temperature stabilisation controller and instrument firmware for your specific SkySpec instrument. | |  | • | • | • | • |
| SPARE-TSENS-EXD | EXTERNAL DIGITAL TEMPERATURE SENSOR IN WEATHERPROOF HOUSING | 1x external digital temperature sensor (ADT) for SkySpec telescopes to measure the ambient temperature • Sealed in stainless steel tubing with a 1.5 m cable • Contact Airyx to find out whether this is compatible with your instrument. | |  | • | • | | |
| SPARE-TSENS-EXA | EXTERNAL ANALOG TEMPERATURE SENSOR IN WEATHERPROOF HOUSING | 1 x external analog temperature sensor (NTC) for SkySpec telescopes to measure the ambient temperature • Sealed in stainless steel tubing with a 1.5 m cable • Contact Airyx to find out whether this is compatible with your instrument. | |  | • | • | | |
| SPARE-TSENS-SPD | DIGITAL TEMPERATURE AND HUMIDITY SENSOR FOR SPECTROMETER CONTROL | 1 x digital sensor to control spectrometer temperature and monitor humidity • On micro printed circuit board with 30 cm connection ribbon cable • Humidity monitoring to avoid water condensation on sensitive spectrometer • I2C digital address 0 • Direct connection to internal Airyx controller board. | |  | • | • | • | • |
| SPARE-TSENS-DX | DIGITAL TEMPERATURE SENSOR FOR MONITORING<br>> Digital sensor address selectable = 0, 1, 2, 3 | 1 x digital ADT temperature sensor for monitoring. Internal used in Airyx instruments • On micro printed circuit board with 30 cm connection ribbon cable • Digital I2C-adress is selectable (0, 1, 2 or 3) • Also used in older instruments (instead of [SPARE-TSENS-SPD]) to control spectrometer temperature • Direct connection to internal Airyx controller board. | |  | • | • | • | • |
| SPARE-FGLAND | WEATHERPROOF FIBRE CABLE GLAND WITH SEALING, UV | Weatherproof PG11 fibre cable gland with sealing • For a water and air tight fibre feedthrough • For outdoor use (UV resistant). | |  | • | • | | |
| SPARE-CGLAND | WEATHERPROOF M16 CABLE GLAND WITH SEALING, UV | Weatherproof M16 power and data cable gland with sealing (large size) • For a water and air tight cable feedthrough • For outdoor use (UV resistant). | |  | • | • | | |
| SPARE-TGLAND | WEATHERPROOF M12 CABLE GLAND WITH SEALING, UV | Weatherproof M12 temperature sensor cable gland with sealing (small size) • For a water and air tight cable feedthrough • For outdoor use (UV resistant). | |  | • | • | | |

# Product overview of Airyx GmbH

| Item# | Description | Comments | Related articles | Image | SkySpec (SS) Subtypes | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | 1D | 2D | Comp | Mini |
| SPARE-PCEM1 | ICAD / SKYSPEC-COMP EMBEDDED MEASUREMENT PC INCL. 256 GGB<br>> Windows 10 installed and optimised for measurement applications<br>> Installation and configuration of measurement software included<br>> Incl. 4 Gb RAM | Replacement of internal embedded PC (pITX) in Airyx instruments incl. RAM and SSD hard drive | |  | | | • | |
| SPARE-PELTIER-V2 | PELTIER COOLER AIRYX | Peltier cooler in Airyx instruments with cooling function. Peltier regulate the heating / cooling of the instrument between the heat sinks. Silicon sealed version | |  | • | • | • | • |
| SPARE-FAN80V3 | HEAT EXCHANGER FAN - 80 MM<br>Long life and high power | Fan fitting to Airyx temperature stabilisation heat exchangers. | |  | • | • | | |
| SPARE-FAN80V4 | HEAT EXCHANGER FAN - 80 MM, IP64<br>for outdoor application (water and UV resistant)<br>Long life and high power | Fan fitting to Airyx temperature stabilisation heat exchangers for SkySpec-Comp and SkySpec-Mini • IP64 weatherproof version for outdoor application | |  | | | • | • |
| SPARE-FANFILT80 | FAN FILTER - 80 MM - WASHABLE | Fan filter fitting to Airyx temperature stabilisation heat exchangers. | |  | • | • | • | • |
| SPARE-SILICA | SILICA DESICCANT - 0.9 KG (1l) | 0.9 kg silica desiccant with colour indicator (orange -> greenish) to be used in Airyx instruments and zero air filter systems (ICAD instruments). | |  | • | • | • | • |

# Product overview of Airyx GmbH

| Item# | Description | Comments | Related articles | Image | SkySpec (SS) Subtypes 1D | 2D | Comp | Mini |
|---|---|---|---|---|---|---|---|---|
| **SERVICES** | | | | | | | | |
| SKY-SERV-INSTL | ONLINE INSTALLATION AND OPERATION SUPPORT - SKY SPEC<br>SkySpec online installation and operation support via remote desktop (not on site) for 1 year. Price per instrument. | | |  | • | • | • | • |
| SKY-SERV-MT-1D | CORRECTIVE MAINTENANCE SERVICE/SUPPORT - SKYSPEC 1D<br>Corrective maintenance service and support extension for SkySpec 1D systems (after first year). Price per year and instrument. | This is analogue to a longer warranty for this instrument. This does not include shipping costs if required. Required to be ordered with a new instrument. | |  | • | | | |
| SKY-SERV-MT-2D | CORRECTIVE MAINTENANCE SERVICE/SUPPORT - SKYSPEC 2D<br>Corrective maintenance service and support extension for SkySpec 2D systems (after first year). Price per year and instrument. | This is analogue to a longer warranty for this instrument. This does not include shipping costs if required. Required to be ordered with a new instrument. | |  | | • | | |
| SKY-SERV-MT-COMP | CORRECTIVE MAINTENANCE SERVICE/SUPPORT - SKYSPEC COMPACT<br>Corrective maintenance service and support extension for SkySpec Compact systems (after first year). Price per year and instrument. | This is analogue to a longer warranty for this instrument. This does not include shipping costs if required. Required to be ordered with a new instrument. | |  | | | • | |
| SKY-SERV-MT-MINI | CORRECTIVE MAINTENANCE SERVICE/SUPPORT - SKYSPEC MINI<br>Corrective maintenance service and support extension for SkySpec Mini systems (after first year). Price per year and instrument. | This is analogue to a longer warranty for this instrument. This does not include shipping costs if required. Required to be ordered with a new instrument. | |  | | | | • |
| **RENTAL / TRAINING / MEASUREMENT SERVICE** | | | | | | | | |
| | **Airyx provide a large range of Measurement services, instrument rental and training. Please contact Airyx for more details.** | | | | • | • | • | • |
| **SHIPPING / PACKING CUSTOMS (REGULAR)** | | | | | | | | |
| SHIP-D-S2 | SHIPPING TO GERMANY - SIZE 2 | 5 kg - 20 kg | |  | • | | • | • |
| SHIP-D-S3 | SHIPPING TO GERMANY - SIZE 3 | > 20 kg | |  | | • | | |
| SHIP-EU-S2 | SHIPPING TO EU COUNTRIES - SIZE 2 | 5 kg - 20 kg<br>EU countries excl. Germany | |  | • | | • | • |
| SHIP-EU-S3 | SHIPPING TO EU COUNTRIES - SIZE 3 | > 20 kg<br>EU countries excl. Germany | |  | | • | | |
| SHIP-W1-S2 | SHIPPING TO WORLD 1 DISTANCE COUNTRIES - SIZE 2 | 5 kg - 20 kg<br>incl. export customs, Europe excl. EU | |  | • | | • | • |
| SHIP-W1-S3 | SHIPPING TO WORLD 1 DISTANCE COUNTRIES - SIZE 3 | > 20 kg<br>incl. export customs, Europe excl. EU | |  | | • | | |
| SHIP-W2-S2 | SHIPPING TO WORLD 2 DISTANCE COUNTRIES - SIZE 2 | 5 kg - 20 kg<br>incl. export customs, non-Europe countries | |  | • | | • | • |
| SHIP-W2-S3 | SHIPPING TO WORLD 2 DISTANCE COUNTRIES - SIZE 3 | > 20 kg<br>incl. export customs, non-Europe countries | |  | | • | | |