Version: 1.19 from 08.07.2024

### Product overview of Airyx GmbH



OpenPath (OP) Subtypes

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Item#	Description	Comments	Related articles	Image	LED
Instruments					
OpenPath Ins	truments				
OP-UV2-LED3-200R	OPEN PATH REMOTE SENSING INSTRUMENT LED  > Trace gass measurements along open pathway between 0.2 km up to 3 km (long path DOAS method)  > Trace gass: Nitrogen dioxide (NO2), Sulphur dioxide (SO2), Ozone (O3), Formaldehyde (HCHO), Nitrous acid (HONO), Bromine Monoxide (BrO)  > Time resolution up to 2 seconds  TELESCOPE: Focal length 800 mm • Diameter 200 mm • UV/VIS mirrors (aluminium coated) • Closed telescope (IP64) with front quartz glass window for UV application • Automatic light path adjustment on retro reflector • Light transmission with optical quartz glass fibre bundles • Length of fibre bundles 5 m • Automatic reference measurement • Optical camera with zoom objective for monitoring • Integrated telescope heating • Telescope unit size (approximately): 110x40/36 cm <sup>3</sup> CONTROLLER UNIT WITH LED LIGHT SOURCE AND ANALYZER (SEPERATE):  Light source: 3 high-power UV LEDs @ 275 mm, 310 mm and 370 mm • Light merged with a fibre bundle • Controller • UV Spectrometer (270 - 385 nm) with back-thinned detector for high UV sensitivity • Temperature stabilised (better 0.1°C) • Analyser unit size: 40 x 40 x 13.2 cm³ • Data analysis software for gases providing average concentrations along the light path.	5m long cables.  This version uses several high power LEDs as light source.		ALTER J.	
OP-UV2-LDLS-200R	OPEN PATH REMOTE SENSING INSTRUMENT LDLS  > Trace gas measurements along open pathway between 0.2 km up to 3 km (long path DOAS method)  > Trace gases: Nitrogen dioxide (NO2), Sulphur dioxide (SO2), Ozone (O3), Formaldehyde (HCHO), Nitrous acid (HONO), Bromine Monoxide (BrO)  > Time resolution up to 2 seconds  TELESCOPE: Focal length 800 mm • Diameter 200 mm • UV/VIS mirrors (aluminium coated) • Closed telescope (IP64) with front quartz glass window for UV application • Automatic light path adjustment on retro reflector • Light transmission with optical quartz glass fibre bundles • Length of fibre bundles 5 m • Automatic reference measurement • Optical camera with zoom objective for monitoring • Integrated telescope heating • Telescope unit size (approximately): 110x40x36 cm³  CONTROLLER UNIT AND ANALYZER (SEPERATE):  Controller • UV Spectrometer (270 - 385 mm) with back-thinned detector for high UV sensitivity • Temperature stabilised (better 0.1°C) • Analyser unit size (approximately): 40x44x13 cm³ • Data analysis software for gases providing average concentrations along the light path  LDLS LIGHTSOURCE: High power broad band LDLS (laser driven light source) ISTEQ XWS-30 (250 - 700 nm) • Light coupling to fibre with optical UV lense, adjustable • Motorised fitcer according to the measurement wavelength range • Integrated shutter • Integrated Controller • for 24V power supply • Lamp lifetime 10.000 h • Laser and unit lifetime - 25.000h to 50.000 h	GENERAL: Open path instruments measure trace gases along a measurement path of several 100 meters to few kilometres. The built in light source enables non-stop 24h measurements. The system is self-aligning for constant high precision and light throughput. We recommend to use multiple retro reflector arrays for longer light paths above 1 km or if, on average, the viewing distance (and loss of light due to scattering) is decreased by fog or dust. The system consists of an IP64 rated telescope and an analyser unit, the latter is meant to be set up indoors sheltered from weather and direct sunlight and requires a control PC/Notebook which is not included and needs to be ordered separately. The two componentents are connected by 5m long cables.  This version uses a laser driven xenon light sources with extremely high luminosity in the UV/range.	RECOMMENDED ARTICLES: Open Path azimuth & elevation extension [OP-UV2-LED3-200REA] • Open Path tripod [ACC-OP-TP] • Open Path	* virk *	
OP-UV2-LED3- 200REA	OPEN PATH AZIMUTH & ELEVATION EXTENSION Extension of OP-telescope for motorised elevation and azimuth rotation > Azimuth rotation of telescope by -150" to 130" > Elevation of telescope between approximately 0" - 30" > Motors protected by a cover to protect mechanics from dust and rain > Accuracy of elevation and azimuth rotation for light paths up to 4 km > Motors controlled by OP system	This extension allow to realise several Open Path measurement paths to different reflectors. Further, in contrast to the basic Open Path version, the extension allows an easy and flexible set up of the telescope since the fine alignment on the retro reflector(s) can be done automatically using the telescope motors.		ATTX }	
OP-RETRO20UV	OPEN PATH RETRO REFLEKTOR ARRAY  > Each array with 20 x 1 inch fused silica corner cube reflectors  > Material fused silica (LOST) suitable for UV (190nm) to NIR (2μm)  > Beam deviation < 9 arcsec > In weatherproof housing (IP67)  > With desiccant and changeable reservoir > size 14,1 x 20,5 cm², thickness 3,5cm > weight 1.320 g	Retro reflector are used to reflect the light of the Open Path system back to the telescope. recommended are min. two arrays for each light path up to 1 km. More Retro reflector arrays increase the reflected light and allow shorter measurement times. Measurements in the deep UV require more reflectors than in the visible spectral range.  Mounted with 4 x M5 screws from the back side if the reflector array. Reflectivity for reflector – 90% (250-1000nm). Reflective surface cover – 30% of front.		# # # # # #	
OP-RETRO20VIS	> Weight 1:2.08 g  > Respire 1:2.08 g  > Each array with 20 x 1 inch fused silica corner cube reflectors  > Material glass (H-K9L) suitable for visible (350nm) - NIR (2µm)  > Beam deviation < 9 arcsec  > In weatherproof housing (IP67)  > With desliccant and changeable reservoir  > size 14,1 x 20,5 cm², thickness 3,5cm  > weight 1:230 g	Retro reflector are used to reflect the light of the Open Path system back to the telescope. recommended are min. two arrays for each light path up to 1 km. More Retro reflector arrays increase the reflected light and allow shorter measurement times. Measurements in the deep UV require more reflectors than in the visible spectral range. Mounted with 4 x M5 screws from the back side if the reflector array. Reflectivity for reflector – 90% (390-1000nm), Reflective surface cover – 30% of front.			•

# Product overview of Airyx GmbH



					OpenPath (OP) Subtypes
Item#	Description	Comments	Related articles	Image	LDLS
OP-LDLS-UV	OPEN PATH LIGHT SOURCE LDLS  - Light source: high power broad band LDLS (laser driven light source) ISTEQ XW5-30 (250 nm - 700 nm)  - Light coupling to fibre with optical UV lense, adjustable  - Motorised focal length adjustment for optimal light coupling and chromatic wavelength filtering  - Motorised filter wheel with pre-selected filters according to the measurement wavelength range  - Integrated shutter  - With 24 V power input  - Lamp lifetime 10.000 h  - Laser and unit lifetime - 25.000 h to 50.000 h	Ultra high intensity in UV for short and fast exposure times. An IR laser powers a xenon arc lamp with extra high radiation density and high spectral stability.	External Power Supply - 110 to 220 V - 24 V [ACC-PWR24-9A]		•
MEASUREM	ENT COMPUTERS				
PC-DE	MEASUREMENT COMPUTER - DESKTOP PC  > Windows 10 or 11 Pro installed and optimised for Airyx instrument measurement applications  - Installation and configuration of measurement and (if included) evaluation software packages.  > Robust Dell tower PC with min 8GB RAM, min 512GB Harddrive and min. Intel i5 Processor  > Delivered with keyboard, but without monitor	If a measurement computer is ordered with a Airyx instrument, the required measurement software (e.g. SKY-50FT-1) 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 > Windows 10 or 11 installed and optimised for Airyx instrument measurement applications > Installation and configuration of measurement and (if included) evaluation software packages. > Robust Dell Notebook with min. 8GB RAM, SSD Harddrive	If a measurement computer is ordered with a Airyx instrument, the required measurement software (e.g. SKY-50FT-1) will be installed and preconfigured on the computer at Airyx GmbH. Same applies if software extensions (e.g. Sky5pec 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 > Windows 10 or 11 Pro installed and optimised for Airyx instrument measurement applications > Installation and configuration of measurement and (if included) evaluation software packages. > Robust Dell Notebook with min. 8GB RAM, min. 512GB SSD Harddrive and min. Intel 15 Processor	If a measurement computer is ordered with an Airyx instrument, the required measurement software (e.g. SKY-50FT-1) will be installed and preconfigured on the computer at Airyx GmbH. Same applies if a software extension (e.g. SKY-EVAL-1) is ordered • the system will be preconfigured 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)			
EXTENSION	IS AND ACCESSORIES				
ACC-PWR-11A	EXTERNAL POWER SUPPLY - 110 TO 230 V - 12 V / 11.5 A IP68 connector configured for Airyx instruments with higher power consumption.	Power supply for Airyx instruments with IP68 connector configured for Airyx instruments • Input: 110 V to 220 V • Output: regulated 12 V / 11.5 A		8	
ACC-PWR24-9A	EXTERNAL POWER SUPPLY - 110 TO 230 V - 24 V / 9.2 A for LDLS light source	Power supply for Airyx LDLS light source • Input: 110 V to 220 V • Output: regulated 24 V / 9.2 A		89	
ACC-EXT-HG	HANDHELD HG (MERCURY) CALIBRATION-LAMP > with SMA optical fibre connector > 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. 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. 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. 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-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].			

# Product overview of Airyx GmbH



			_		(OP) Subtypes
Item#	Description	Comments	Related articles	Image	LDLS
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 LIP0 battery packs [ACC-BATPACK].		Q	
ACC-PWRX	12 V POWER CABLE EXTENSION IP68 - CUSTOM LENGTH Price: $40 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	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].		Q	
ACC-PWR1.5BE	12 V POWER CABLE IP68- 1.5 m - BLANK END suiteable for connection of 12V battery or 12V power supply	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 suiteable for connection of 12V battery or 12V power supply	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-LAN2	LAN DATA CABLE IP68 - 2 M	2 m LAN cable to connect Airyx instruments to an external PC • PUR outdoor cable with IP68 connector on the instrument side. Not for ICAD instruments in the rack, there a normal LAN cable is included and sufficient.		Q	•
ACC-LANX	LAN DATA CABLE IP68 - CUSTOM LENGTH PUR Outdoor cable CAT 7 Price: $60\varepsilon$ + $7\varepsilon/m$ (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, $40 \ \varepsilon + 7 \ \varepsilon / m$ Not for ICAD instruments in the rack, there a normal LAN cable is included and sufficient.		Q	
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.		00	
ACC-BAT-50Ah	LIPO BATTERY 12 V/50.4 Ah IP67 - PELICASE  > Included: 5 A charger  > Included 1.5 m power cable for Airyx instrument connection (shipped separately)  > 3.37 kg  > Rugged Peli 1150 case (24 x 19 x 11 cm²)  > This item will be shipping from battery manufacturer directly  > This trem is only available in Europe	Battery pack for instrument power supply in remote areas • IP67 • 3.37 kg • Allow -15 h of ICAD operation • 3 IP67 power connectors • Battery is directly shipped from the company producing the battery for Airyx • Batteries can only be sold within Europe due to transport restrictions.		0	•
ACC-OP-TP	OPEN PATH TRIPOD for setting up Open Path telescopes on flat surface. Stability for high weight. Including OPEN PATH TRIPOD FLOOR MOUNT [OP-TPFM]	This tripod can carry any Open Path telescope configuration. Floor mount [OP-TPFM] required for application of hard surfaces (e.g., asphalt, metal).	OPEN PATH TRIPOD FLOOR MOUNT [OP-TPFM]	o] Arryx ]o	

### Product overview of Airyx GmbH



Item# Description Comments Related articles Image MAINTENANCE EQUIPMENT AND SPARE PARTS 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 SPARE-TSENS-DX DIGITAL TEMPERATURE SENSOR FOR MONITORING 1 x digital ADT temperature sensor for monitoring. Internal used in Airyx instruments • On > Digital sensor address selectable = 0, 1, 2, 3 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-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). OP-SPARE-SET-LED SPARE PART SET WITH LEDS FOR OP-UV2-LED3-200R 3 high-power UV LEDs @ 275nm, 310nm and 370nm > Mounted on electronic board with connection cable COMPATIBLE WITH: OPEN PATH REMOTE SENSING INSTRUMENT LDLS OP-SPARE-SET-LDLS | SPARE PART SET WITH SPARE LDLS LIGHT BULB [OP-UV2-LDLS-200R] or OPEN PATH LIGHT SOURCE LDLS [OP-LDLS-UV] Spare light bulb for replacement in open path light source LDLS > lamp lifetime 10.000h 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 Fan fitting to Airyx temperature stabilisation heat exchangers. Long life and high power SPARE-FANFILT80 FAN FILTER - 80 MM - WASHABLE Fan filter fitting to Airyx temperature stabilisation heat exchangers. SPARE-SILICA SILICA DESICCANT - 0.9 KG (11) 0.9 kg silica desiccant with colour indicator (orange -> greenish) to be used in Airyx instruments and zero air systems (ICAD instruments).

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					OpenPath (OP) Subtypes
Item#	Description	Comments	Related articles	lmage	LED
RVICES					
C-SERV-OP-LED	POST WARRANTY MAINTENANCE SERVICE EXTENSION - OPEN PATH REMOTE SENSING INSTRUMENT LED Optional extension package • Starts after expiring of warranty • Price per year and OP system • Consumption parts like lamps, LEDs, filters and pumps not included.	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.		X	•
-SERV-OP-LDLS	POST WARRANTY MAINTENANCE SERVICE EXTENSION - OPEN PATH REMOTE SENSING INSTRUMENT LDLS Optional extension package • Starts after expiring of warranty • Price per year and OP system • Consumption parts like lamps, LEDs, filters and pumps not included.	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.		X	•
RV-NONLIN	SPECTROMETER NON-LINEARITY CHARACTERISATION Spectrometer non-linearity • Quantification and analysis • Protocol (per spectrometer)	Included when buying an Airyx instrument		X	
-SERV-INSTL	ONLINE INSTALLATION AND OPERATION SUPPORT - OPEN PATH Open Path online installation and operation support via remote desktop (not on site) for 1 year. Price per instrument.			X	
NTAL / TR	RAINING / MEASUREMENT SERVICE				
	Airyx provide a large range of Measurement services, instrument rental and training. Please contact Airyx for more details.				
CC-RENT-BAT-50Ah VEEK	WEEKLY RENTAL OF AIRYX INSTRUMENT LIPO BATTERY 12 V/50.4 Ah IP67 - PELICASE  Included: 5 A charger  Included 1.5 m power cable for Airyx instrument connection  3.37 kg  Rugged Peli 1150 case (24 x 19 x 11 cm³)  Including extra shipping fees for batteries in EU	Battery pack for instrument power supply in remote areas • IP67 • 3.37 kg • Allow –15 h of ICAD operation • 3 IP67 power connectors		0	• •
OP-RENT- IETRO20UV	MONTHLY RENTAL - OPEN PATH RETRO REFLEKTOR ARRAY  > Each array with 20 x 1 inch fused silica corner cube reflectors  > Material fused silica (JGS1) suitable for UV (190nm) to NIR (2µm)  > Beam deviation < 9 arcsec  > In weatherproof housing (IP67)  > With desiccant and changeable reservoir  > size 14,1 x 20,5 cm², thickness 3,5 cm	Rental for customer measurement or testing projects. Airyx provide 75% of rental fee reimbursement, if within 3 months after the rental the same or similar type of instrument is purchased.		୍ଟିଲ୍ଲ ବ ୍ବର୍ଗ କ୍ରହ ଜନ୍ମ ଜନ୍ମ ଜନ୍ମ ଜନ୍ମ ଜନ୍ମ ଜନ୍ମ ଜନ୍ମ ଜନ୍ମ	
P-RENT- ETRO20VIS	MONTHLY RENTAL - OPEN PATH RETRO REFLEKTOR ARRAY > Each array with 20 x 1 inch fused silica corner cube reflectors > Material glass (H-K9L) suitable for visible (350nm) - NIR (2μm) > Beam deviation < 9 arcsec > In weatherproof housing (IP67) > With desiccant and changeable reservoir > size 14,1 x 20,5 cm², thickness 3,5 cm	Rental for customer measurement or testing projects. Alryx provide 75% of rental fee reimbursement, if within 3 months after the rental the same or similar type of instrument is purchased.		· · · · · · · · · · · · · · · · · · ·	
HIPPING / P	PACKING CUSTOMS (REGULAR)				
SHIP-D-S1	SHIPPING TO GERMANY - SIZE 1, including shipping insurance	< 5 kg e.g. Spare Parts			
SHIP-D-S4	SHIPPING TO GERMANY - SIZE 4, including shipping insurance	> 40 kg e.g. OPENPATH			
HIP-EU-S1	SHIPPING TO EU COUNTRIES - SIZE 1, including shipping insurance	< 5 kg EU countries excl. Germany e.g. e.g. Spare Parts			
HIP-EU-S4	SHIPPING TO EU COUNTRIES - SIZE 4, including shipping insurance	> 40 kg, large Size EU countries excl. Germany e.g. OPENPATH			
HIP-W1-S1	SHIPPING TO WORLD 1 DISTANCE COUNTRIES - SIZE 1, including shipping insurance, export custom documents	< 5 kg incl. export customs, Europe excl. EU e.g. Spare Parts		•	
HIP-W1-S4	SHIPPING TO WORLD 1 DISTANCE COUNTRIES - SIZE 4, including shipping insurance, export custom documents	> 40 kg, large size incl. export customs, Europe excl. EU e.g. OPENPATH		•	
HIP-W2-S1	SHIPPING TO WORLD 2 DISTANCE COUNTRIES - SIZE 1, including shipping insurance, export custom documents	< 5 kg incl. export customs, non-Europe countries e.g. Spare Parts		*	
SHIP-W2-S4	SHIPPING TO WORLD 2 DISTANCE COUNTRIES - SIZE 4, including shipping insurance, export custom documents	> 40 kg, large size incl. export customs, non-Europe countries e.g. OPENPATH		*	