

PRODUCT INFORMATION

EndoSTROBE P System

Universal. Innovative. Future-proof



- 4K⁺
Full HD
- 3D
- PIET

See more than others.



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EndoSTROBE P System – advanced multifunctional ENT endoscopy for tomorrow

- Rigid and flexible ENT video endoscopy for the office, ambulance and operating room
- Video microscopy
- Stroboscopy
- Swallowing diagnostics
- Electroglottography
- Voice diagnostics

The system components of the EndoSTROBE P form a compact unit and offer excellent convenience with optimal quality.



XION's innovative EndoSTROBE P System is specially designed for ENT medicine. This system distinguishes itself with high image quality, ease of use and user-friendly acquisition, processing and storage of data.

The universal EndoSTROBE P System now makes it possible to optimally perform all endoscopic applications in ENT surgery or ENT outpatient treatment using one and the same equipment system.

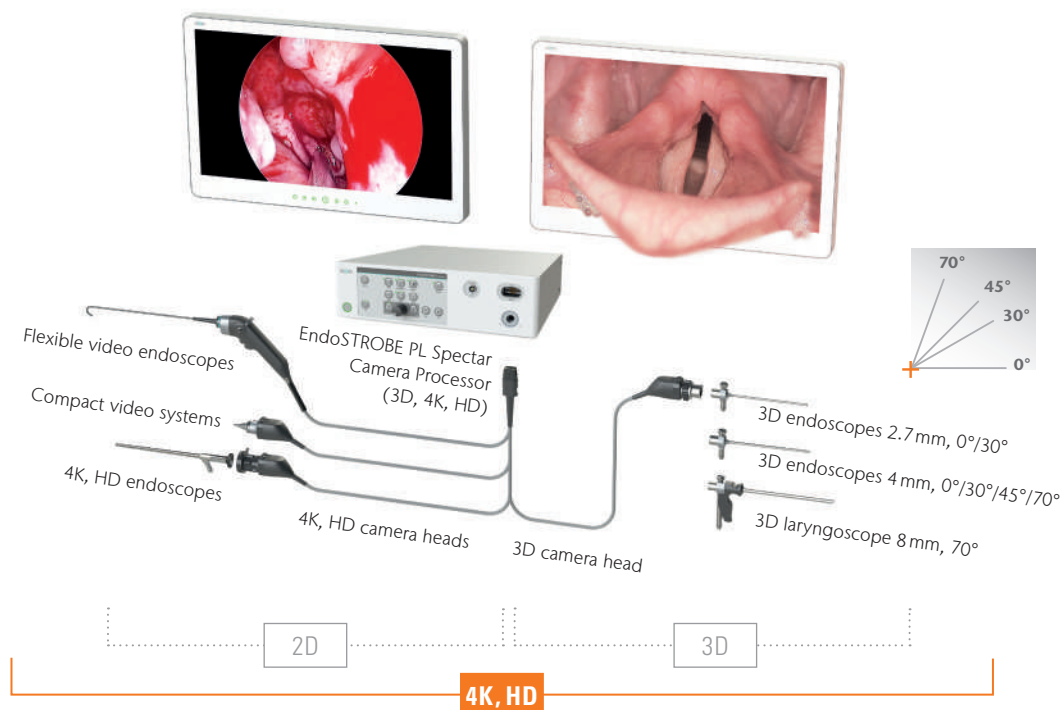
EndoSTROBE PL Spectar

The universal camera processor with an integrated light source, for highest demands in ENT endoscopy.

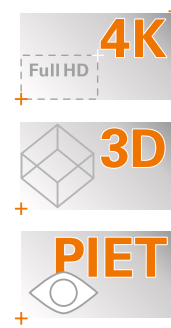
The revolutionary Spectar camera technology, newly developed by XION, forms the basis of the EndoSTROBE PL processor, which meets all requirements of modern ENT endoscopy.

The EndoSTROBE PL Spectar processor provides the features necessary to operate all current and future camera heads, as well as all rigid and flexible video endoscopes. It has been designed both for native sensor resolutions up to 4K (4 x HD), as well as for demanding 3D endoscopic applications. Based on decades of experience in endoscopy, this concept offers completely new possibilities, while maintaining the now familiar ease of handling.

- Universal camera processors for 2D and 3D-endoscopy with native sensor resolutions up to 4K
- Excellent image quality by means of innovative, proprietary image processing routines
- Noiseless, flicker-free stroboscopy in 4K, HD and 3D
- Improved tissue differentiation using PIET Image Enhancement
- A patented light intensity control prevents burns
- Picture on picture function
- Real-time EEG (electroglottography) can be overlaid on to the live image
- Minimum image latency
- Consistent and future-proof Spectar-connector for all 2D and 3D camera heads and video endoscopes
- Minimal noise even at full power (<30dB at a distance of 1m)
- Support for exclusive XION functionalities such as built-in microphones, integrated LED illumination and integrated pre-heating for optics
- XION module housing system for optimal integration in XION device environments, i.e. direct mounting in XION trolleys or EndoDESK systems without the use of storage shelves
- XION PowerControl – Central power-on control in the XION trolley
- Clearly arranged, intuitive keypad
- System settings via an easy to control on screen display (OSD)
- Extensive device settings via the DiVAS software
- Programmable keys on the camera heads and video endoscopes
- Programmable, OR-compatible, non-battery wireless footswitch
- Highest patient safety by means of laser-optical galvanic isolation within the camera processor
- XION safety concept avoids loss of monitor image in the event of a computer crash
- USB service interface for device diagnostics and firmware updates
- Kensington lock on the rear panel of the device



EndoSTROBE PL Spectar Camera Processor

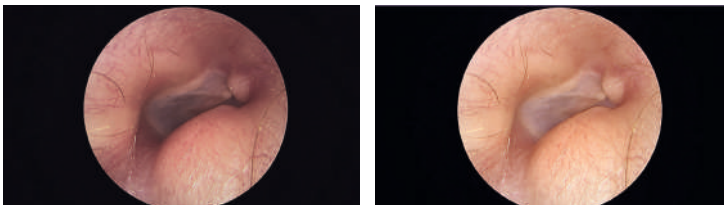


329 122 001

EndoSTROBE PL Spectar Camera Processor with built-in LED light source
SD / Full HD / 4K
3D functionality in combination with 3D application parts
stroboscopy, EGG
PIET Professional Image Enhancement Technology

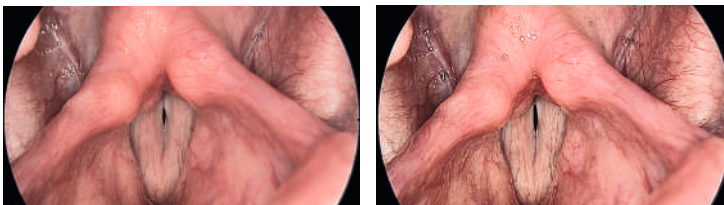
Advanced diagnostic options with PIET

XION's professional image enhancement technology (PIET) extends the system by adding three situational visualization technologies. Modes PIET lumino, PIET chromo and PIET spectro are available in all resolutions (HD, 4K) as well as in 2D and 3D endoscopy.



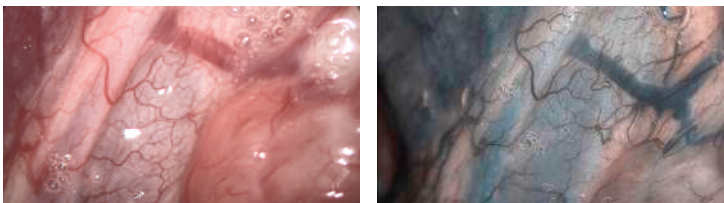
PIET lumino

Both bright as well as dark areas are equally well represented



PIET chromo

Details are highlighted, and the colour contrast is intensified



PIET spectro

By shifting the colour spectrum, tissue structures are displayed in a more differentiated manner

Documentation

All 2D and 3D images / video data can be archived and edited at any time in conjunction with the XION DiVAS software. The system can be connected to KIS and PACS via standard interfaces such as HL7 and DICOM. Unrestricted communication and data compatibility is thus assured.

Technical Data	
Type of protection	IP20
Protection class	I
Power consumption	max. 150 W
Power supply	AC IN: 100 – 240 V / 50 Hz – 60 Hz
Dimensions (W x H x D)	350 mm x 108 mm x 365 mm
Operating temperature	+10°C to +40°C
Camera output interfaces	
Video	2 x DVI-D: Output formats 2D: 1080p@60Hz Output formats 3D: 1080p@60Hz (Interleaved) 1080p@60Hz (side by side) 1080p@60Hz (frame by frame)
	4 x 3G-SDI: Output formats 2D: 1080p@60Hz 4K Output formats 3D: 1080p@60Hz (Interleaved) 1080p@60Hz (side by side) 1080p@60Hz (frame by frame)
Audio	1 x line out, 3.5 mm stereo jack
Controlling external recording devices	2 x 3.5 mm mono jack
Camera input interfaces	
Application parts	1x Spectar application part (camera head / video endoscope) 1 x EGG electrodes, ext. Microphone
Audio	1x Audio
Control	1x Foot switchresp. wireless footswitch receiver
LED light source unit	
Lamp output	max. 72 W
Service life	approx. 60,000 h
Colour temperature	approx. 6,500 K
Fiber-optic cable interface	Light exit type XION / STORZ Optional change-adapter for WOLF, OLYMPUS and PENTAX types
Stroboscopy function	
Frequency range	approx. 80 ... 1,000 Hz, +- 2Hz
Sound level	50–110 dB(A) +-2dB(A)
QOQ-tolerance (quasi open quotient)	0.01
Applied standards	DIN EN 60601-1-1-2, DIN EN 15223-1 DIN EN 1041, DIN EN ISO 14971 DIN EN 62366, MEDDEV 2.7.1 DIN VDE 0404-3 / DIN VDE 0752 /

Spectar – Highest level 2D-endoscopy

Spectar Camera Head 4K

In conjunction with the EndoSTROBE PL Spectar, the high resolution 4K sensor of the Spectar Camera Head provides extremely detailed, crisp, sharp, bright, low-noise images. The 4 times higher resolution compared to HD, plus the extended colour space, make it possible to detect very fine vessels and tissue structures much more easily – even when enlarged in a zoomed display. This provides greater precision and safety for the surgeon.



- Razor sharp, extremely detailed images
- Higher sensitivity and reduced noise
- Even the finest tissue structures can be reliably identified with the electronic zoom
- Better visibility and ease of use, more precision and safety
- Natural colour reproduction for a wide range of different applications
- Lightweight, compact, ergonomic Soft-Touch design
- Two customizable keys
- Coupler for standard eyepieces in compliance with DIN
- Spectar Connector

329 216 001 Spectar Camera Head 4K

320 080 050 Sterile adapter for Spectar Camera Head 4K 329 216 001

Technical Data

Resolution.....	4K
Lens.....	Focal length f = 22 mm
Coupler.....	For standard eyepieces in compliance with DIN 58105
Plug connector	Spectar Universal Connector
Dimensions (L x W x H)	112 mm x 45 mm x 50 mm
Weight	217 g without cable / 513 g with cable
Storage and operating temperature	+10°C through +40°C
Transport temperature	-20°C through 60°C
Cable length	3 m
Keys	Two keys, freely programmable
Reprocessing.....	Immersible, can be gas-sterilized, can be plasma sterilized
Digital zoom	1.4 x, 2 x, 2.8 x)
Type of protection.....	IP 67
Application class.....	BF

Spectar Camera Head HD

The highly sensitive Full HD sensor of the Spectar Camera Head provides detailed image reproduction. The extremely compact, ergonomic Soft-Touch design and low weight make the Spectar Camera Head very easy to handle. Both of the ergonomically arranged function keys can be freely programmed by the user.



- Lightweight, ergonomic Soft-Touch design
- Two customizable keys
- Coupler for standard eyepieces in compliance with DIN
- Spectar Connector
- Particularly well suited for stroboscopy

329 208 001 Spectar Camera Head HD Strobe

Spectar Camera Head HD Zoom

An optical Parfocal Zoom (f = 16 through 32mm) allows the image size to be individually adapted without compromising quality and without the need for refocusing.



- Lightweight, ergonomic Soft-Touch design
- Two customizable keys
- Integrated Parfocal zoom lens
- Coupler for standard eyepieces in compliance with DIN
- Spectar Connector

329 200 001 Spectar Camera Head HD Zoom

320 080 050 Sterile adapter for Spectar Camera Head HD Zoom

Technical Data

Resolution	Full HD
Coupler.....	For standard eyepieces in compliance with DIN 58105
Plug connector	Spectar Universal Connector
Storage and operating temperature	+10°C – +40°C
Transport temperature	-20°C – +60°C
Keys	Two keys, freely programmable
Reprocessing	Immersion, can be gas-sterilized, can be plasma sterilized
Type of protection	IP 67
Application class	BF

Camera Head HD

Lens	Fixed focal length f = 22 mm
Dimensions (L x W x H)	112 mm x 45 mm x 50 mm
Weight	217 g without cable / 513 g with cable
Cable length	2 m

Camera Head HD Zoom

Lens	Parfocal zoom, 2x (16 mm – 32 mm)
Dimensions (L x W x H)	112 mm x 45 mm x 50 mm
Weight	217 g without cable / 513 g with cable
Cable length	3 m

Spectar Camera Head C-mount for microscopy

The compact Spectar Camera Head C-mount can be easily mounted on any surgical microscope. This ensures highest-quality for video recordings and for co-observation.



- Connection to microscopes
- 2 variants: HD and 4K
- Easy integration
- Extremely compact
- Accurately detailed, sharp images with natural colour rendition
- Spectar Connector

329 200 002 Spectar Camera Head HD C-mount

329 216 002 Spectar Camera Head 4K C-mount

Technical Data

Resolution	4K resp. FullHD
Plug connector	Spectar Universal Connector
Dimensions (L x W x H).....	50 mm x 39 mm x 33 mm (Length 150mm incl. kink protection)
Weight	130 g without cable / 570g with cable
Storage and operating temperature	+10°C through +40°C
Transport temperature	-20°C through +60°C
Cable length.....	6 m
Reprocessing.....	Immersible, can be gas-sterilized, can be plasma sterilized
Type of protection.....	IP 67
Application class.....	BF

Endoscopes for ENT

XION develops and manufactures 2.7 mm and 4 mm optics for endoscopy of the nose and the nasal sinuses. Designed on the basis of extensive experience in the development and production of optical systems, XION endoscopes provide crystal clear, distortion-free images. Our designs and developments are highly focused on ergonomics, safety, durability and resistance to aggressive sterilization processes.

130 303 xxx

HD endoscope, diameter 2.7 mm,
different application lengths,
direction of view 0° and 30°



125 304 4xxU

ultra endoscope, diameter 4 mm,
different application lengths,
direction of view 0°, 30°, 45° and 70°



Laryngoscopes

XION offers a wide range of high-end laryngoscopes with integrated fibre-optic light conductors. Included are both standard laryngoscopes with fixed magnification, as well as zoom laryngoscopes. The 4 mm and 7 mm laryngoscopes make the examination more comfortable for patients, particularly for children and adolescents. The zoom laryngoscopes offer two levels of magnification. In both levels the control ring provides easy focussing.

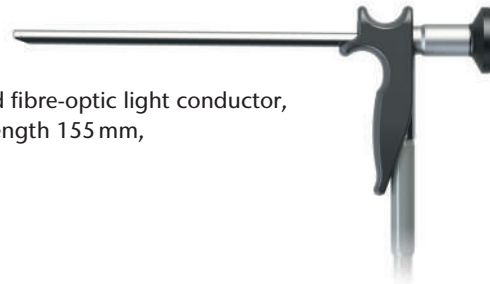
130 307 417

Laryngoscope with integrated fibre-optic light conductor, diameter 7 mm, application length 105 mm, direction of view 70°



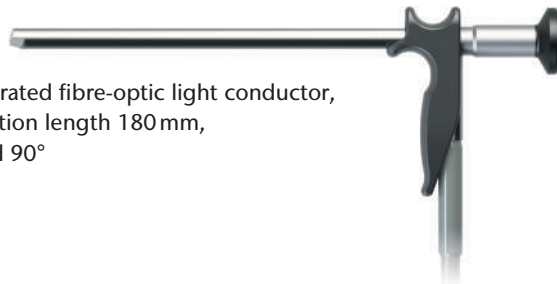
130 307 427

Laryngoscope with integrated fibre-optic light conductor, diameter 7 mm, application length 155 mm, direction of view 70°



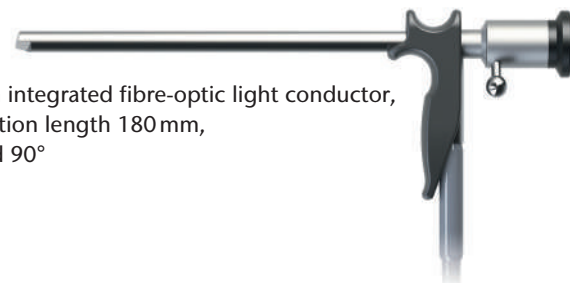
130 310 32x

Laryngoscope with integrated fibre-optic light conductor, diameter 10 mm, application length 180 mm, direction of view 70° and 90°



130 310 62x

Zoom laryngoscope with integrated fibre-optic light conductor, diameter 10 mm, application length 180 mm, direction of view 70° and 90°



Spectar – 3D Endoscopy

Spectar 3D Camera Head

In conjunction with XION 3D Endoscope attachments, the extremely compact, lightweight Spectar 3D Camera Head provides brilliant 3D images with endoscope outer diameters upwards from 2.7 mm. The modular overall concept of the Spectar camera platform and the economic endoscope attachments make it possible to expand the EndoSTROBE PL processor to a highly advanced 3D endoscopy system at just moderate cost. By means of Spectar 3D endoscopy, it is now for the first time also possible to perform 3D stroboscopy.

The XION sterile adapter between the 3D camera head and the endoscope attachment ensures that the endoscope is held securely and sterile camera drapes can be attached easily. It is therefore possible to easily change the optics under sterile conditions.



- Lightweight, ergonomic Soft-Touch design
- Two customizable keys
- Easy switching from 3D to 2D
- Sterile adapter for efficient draping and easy changing of lenses under sterile conditions
- Spectar Connector
- Now introducing 3D stroboscopy



329 204 001 Spectar 3D Camera Head HD



130 600 000 3D sterile adapter for Spectar 3D Camera Head HD 329 204 001



130 600 002 3D sterile adapter for Spectar 3D, turned for Spectar 3D Camera Head HD 329 204 001

Technical Data

Resolution	Full HD
Lens	3D special lens
Coupler	Connector for XION 3D Sterile Adapter
Plug connector	Spectar Universal Connector
Dimensions (L x B x H)	100 mm x 40 mm x 45 mm
Weight	150 g without cable / 446 g with cable
Storage and operating temperature	+10°C through +40°C
Transport temperature	-20°C through 60°C
Cable length	3 m
Keys	Two keys, freely programmable
Reprocessing	Immersible, can be gas-sterilized, can be plasma sterilized
Type of protection	IP 67
Application class	BF

3D Endoscope Attachments

Different lenses for different applications are available for the EndoSTROBE P 3D Endoscopy System.

130 603 1xx

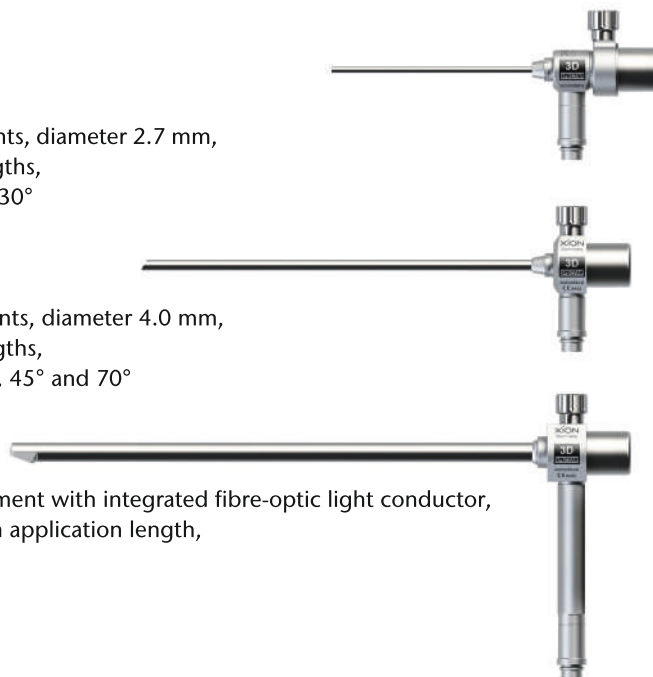
3D endoscope attachments, diameter 2.7 mm, different application lengths, direction of view 0° and 30°

130 614 1xx

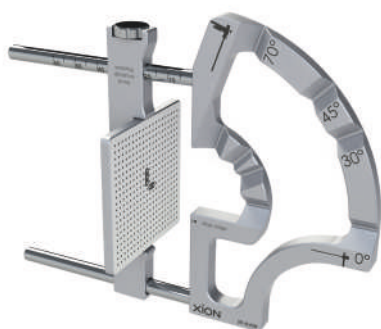
3D endoscope attachments, diameter 4.0 mm, different application lengths, direction of view 0°, 30°, 45° and 70°

130 618 157 L

3D laryngoscope attachment with integrated fibre-optic light conductor, diameter 8 mm, 185 mm application length, direction of view 70°



3D Align



Only a finely tuned stereo image provides the means for optimal stereoscopic playback and thus fatigue-free working.

The 3D-Align adjustment aid automates the image adjustment process for the two channels and for setting the optimal working distance. The user just needs to insert the endoscope into the mount in the corresponding direction of view. After the user presses the left camera button, the system is measured out in just one second, and the successful adjustment is confirmed on the monitor. By combining this process with the usual white balance procedure, the time required for handling the equipment is reduced to a minimum.

130 600 010

3D-Align, tool for automatically aligning 3D endoscopes

Spectar 3D Microscope Camera 4K

XION's Spectar 3D Microscope Camera enables 3D co-observation of the microscope image on a 3D monitor as well as 3D video recording. It is a useful extension of the Matrix Spectar System and can be combined with most Carl Zeiss OPMI® surgical microscopes. The Spectar 3D Microscope Camera is mounted between the binocular tube and the surgical microscope. The beam splitter integrated in the microscope camera transmits a bright and clear microscope image to the binocular tube and to the high-resolution image sensor. This facilitates highest quality visual observation and on-screen viewing.

The Spectar 3D Microscope Camera empowers users to perform combined 3D microscopy and 3D or 2D endoscopy work, thanks to the rapid-switching feature for changing between endoscopic and microscopic image capture on an image processor used jointly for both methods. There is no need for separate image processing systems in the operating room, and so there is no time-consuming switching of device orders for changing between microscopy and endoscopy. This not only saves time, costs and space in the operating room, a great feature is now that the image data from microscopy and endoscopy can be processed, displayed and stored on one and the same device. This provides a better overview and more effective working.



- Connection to OR microscopes
- Easy integration
- Co-observation and recording of image data in 3D and 2D
- Accurately detailed, sharp images in 3D, with natural colour rendition
- Quick and easy switching between 3D microscopy and 3D or 2D endoscopy
- Improved workflow in the operating room
- Great potential for saving time and thus costs in the OR
- Spectar Connector

329 220 100

Spectar 3D Microscope Camera 4K, for ZEISS OR microscopes

Technical Data

Resolution	4K resp. FullHD
Plug connector.....	Spectar Universal Connector
Dimensions (L x W x H)	125 mm x 70 mm x 45 mm
Storage and operating temperature	+10°C through +40°C
Transport temperature.....	-20°C through +40°C

Spectar – flexible video endoscopes

Spectar Video Nasopharyngoscope XN HD and XN P

The unique and innovative technology of the Spectar camera platform facilitates operating flexible HD video endoscopes. The features provided facilitate more exact reproduction of surface structures and more precise treatment.

The Spectar flexible video endoscopes deliver high-resolution, homogeneously illuminated, high-contrast images with excellent depth of field. They are characterised by a combination of highest resolution and convenient handling.



- Highest image resolution and convenient handling
- Extremely clear, bright, high-contrast, high-resolution images facilitate a detailed representation
- Camera sensor, light source, optics, microphone and control keys are integrated in a single instrument and connected to the Spectar Camera Processor by means of just a single cable
- Electronic magnifications of 1.2 x and 1.5 x are possible (Spectar Video Nasopharyngoscope XN HD)
- Integrated LED-lighting – No separate light source required!
- Excellent, homogeneous illumination of the endoscopic image
- Ergonomically formed handle
- Symmetrically designed for left and right-handed users
- Programmable function keys
- Suitable for both machine and/or manual reprocessing

329 309 401 Spectar Video Nasopharyngoscope XN HD

329 309 301 Spectar Video Nasopharyngoscope XN P, paediatric

Technical Data	Video Nasopharyngoscope XN HD	Video Nasopharyngoscope XN P
Field of view	80°	120°
Direction of view	0°	0°
Focal range.....	5 mm – 50 mm	5 mm – 50 mm
Working length.....	320 mm	320 mm
Shaft diameter.....	3.6 mm / 3.9 mm distal	2.5 mm / 2.7 mm distal
Bending angle up / down ...	130° / 130°	130° / 130°
Min. bending radius.....	8 mm	8 mm
Function keys.....	Two keys, programmable	Two keys, programmable
Stroboscopy.....	Integrated microphone compatible with XION Spectar Stroboscopy Systems	Integrated microphone compatible with XION Spectar Stroboscopy Systems
Plug connector.....	Spectar Universal Connector	Spectar Universal Connector
Cable length.....	1.5 m	1.5 m
Weight (without cables).....	320 g	320 g
Type of protection	IP 67	IP 67
Application class.....	BF	BF

MATRIX DS Data Station

Digital management, evaluation and archiving with DiVAS



The MATRIX DS Data Station with integrated DiVAS software, which is approved for use in the medical environment, forms the basis for digitally recording, managing and evaluating patient, image, video, audio and measurement data in XION Endoscopy Systems. It is an integral part of the archiving and analysis systems as well as all integrated operating room solutions from XION.

An essential requirement for making fast and efficient findings is a powerful software component that digitally records, assesses, documents and archives various diagnostics and therapy data. The modular structure of the DiVAS software facilitates adaptation of the function range to current requirements and leaves open all future extension options.

The DiVAS software module Base/Patient Management is always an integral part of the MATRIX DS data station.

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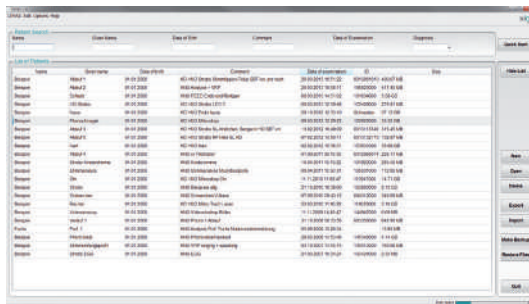
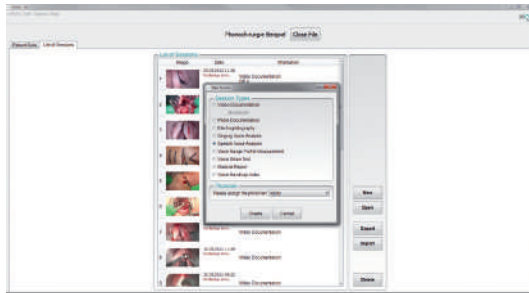
MATRIX DS, multilingual data station including WIN10 - 64-bit, DiVAS Base/Patient Management module, HD/4K grabber

Technical Data

Processor	Intel Core i5
Chipset	Intel Q87 Express Chipset
Main memory	4 GB
Slots	4 x 1.5V DDR3 DIMM, upgradable up to 32GB
Onboard graphics	Integrated graphics processor, HD4600. 1 x VGA Sub D port 1 x DVI-D port, resolution up to 1920 x 1200 1 x Display port, V1.2
External ports	1 x LAN RJ45 (10/100/1000 MBit) 2 x USB front-side, 4 x USB rear-side (USB 2.0/1.1) 2 x USB rear-side (USB 3.0 3.0/2.0) 2 x PS2 AUDIO IN/OUT (3x jack 3.5 mm)
Power supply	100–240V AC / 50–60Hz
Power Consumption	Max. 2.5 A
Dimensions (W x H x D)	350 mm x 172 mm x 363 mm
Weight	approx. 8.6 kg
Operating temperature	+10°C – +40°C
Protection class	Class I
Degree of protection	IP 20

Recording, archiving and analysis with DiVAS

DiVAS Base / Patient Management module



Essential characteristics

- Physician management: Creating and managing physician data
- Patient management: Viewing patient data, search and sorting functions
- Creating new sessions and managing existing sessions
- Data backup: It is possible to backup either all data or only the new data records. In addition, inadvertently deleted data can be restored.
- Comprehensive data import/export functions, such as individual sessions, complete patient records, export with time masks, exporting data – for example, from multiple sessions – into a medical report, importing medical reports
- Cleaning data carriers: Previously saved data (videos images etc.) can be deleted. However, the information about the session is maintained, and when the session is accessed, all deleted data can be restored with a mouse-click.
- Support for Microsoft Office 2003, 2007, 2010)
- Support for DICOM, HL7 and GDT/BDT interfaces
- The simple and intuitive user interface can be adapted to the individual user needs by means of shortcuts and context menus.

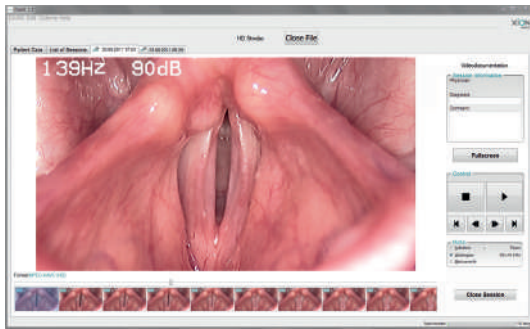
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DiVAS Base/Patient Management module

The Base / Patient Management module in conjunction with one further optional module is the essential minimum requirement for using DiVAS. This Base module contains the physician management software and the patient database. The information in the individual patient records includes name, address, date of birth, gender, identification and comment as well as the personal session list, which is used for managing the examinations performed, findings and other patient-specific files. The patient data can be entered manually, or by transfer from an existing database via the HL7, DICOM or GDT interface. The number of possible physician and patient records is not limited by DiVAS. Depending on the DiVAS modules installed, a wide range of examination and evaluation forms can be selected from the session list.

The examination results – in the form of image, video, measurement or audio data, tables or office documents – are saved digitally and can be archived on a regular basis on any storage media, depending on the configuration. Examination data can be exported from sessions and also imported into them, so that they are available for external evaluations, scientific papers and publications.

DiVAS Video Documentation module



350 020 010 DiVAS Video Documentation module

350 020 019 DiVAS Full HD/4K Video module, supplement to 350 020 010 Video Documentation module

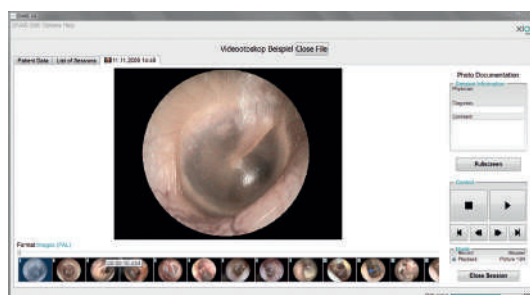
350 020 025 DiVAS 3D Video module, supplement to 350 020 010 Video Documentation module

While the video image is being displayed live on the monitor, the data can be recorded in background at the resolution that is provided by the camera (e.g. Full HD 1,080p). The video format used is H.264 (MPEG4). The videos can be subsequently viewed individually or in parallel, and the images can be individually analysed, cut, archived or exported.

Essential characteristics

- Support from two video sources at the same time
- Live preview on up to 4 monitors, picture-in-picture functionality, support for dual screen mode with full-screen video on the 2nd monitor
- Video playback, also frame by frame (image by image)
- Loss-free, non-destructive cutting of video recordings. To save memory space, destructive (final) cutting can be performed later in background.
- Print function for individual images (frames)
- Images (frames) can be pulled over into Microsoft Word documents by drag and drop, and the clipboard or external file can be exported.
- Videos can be exported to WMV format for presentations.
- The QUICK-START function enables fast video diagnoses without the need to first create a patient file. Sessions that were created in this way, can subsequently be supplemented with the necessary data or they can be discarded.
- Video data can be exported to the dysphagia, strobokymography, electroglottography and stroboscopy modules for evaluation
- Diagnostic input
- PACS export via DICOM/HL7
- Worklist import from KIS via DICOM/HL7
- Programming of camera head keys and device settings

DiVAS Photo Documentation module



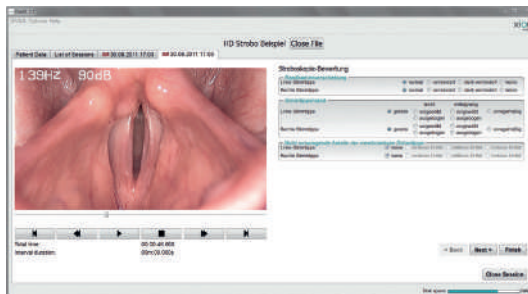
350 020 011 DiVAS Photo Documentation module

An unlimited number of photos can be created during a session. Next, these can be evaluated, compared, deleted, exported, archived or printed individually or in the form of a slideshow.

Essential characteristics

- Photo recording
- Playback, also as a slide show
- Print function for individual images
- Export of individual images as external files into Microsoft Word documents or via the clipboard
- The QUICK-START function enables fast photo diagnoses without the need to first create a patient file. Sessions that were created in this way, can subsequently be supplemented with the necessary data or they can be discarded.
- Diagnostic input
- PACS export via DICOM/HL7

DiVAS Stroboscopy Analysis module



350 020 022

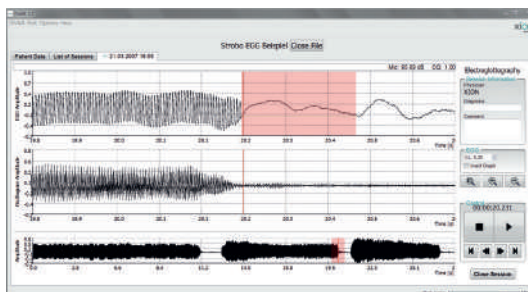
DiVAS Stroboscopy-
Analysis module

To ensure efficient, safe and comfortable analysis of findings, the recorded video examination and an evaluation form can be shown in parallel. A video can at any time be navigated in any manner, assessed using the standard form, and images relevant to the finding can be additionally dragged and dropped into the form. The result of the analysis is then automatically documented in a medical report.

Essential characteristics

- Assessment of an existing video recording using a standardized stroboscopy form
- Export as a text report. The document is created automatically on the basis of the entries made by the user
- Text modules can be modified for creating reports
- Automatic check for completeness and plausibility

DiVAS Electroglottography module



350 020 012

DiVAS Electroglottography
module

352 009 003

Electrode set for
electroglottography

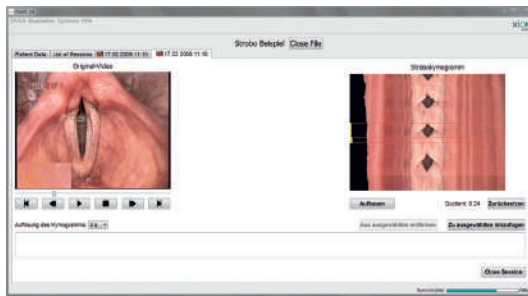
The EndoSTROBE P system can be used for performing electroglottography synchronized to the video stroboscopy and audio recording. This creates new diagnostic possibilities.

The EGG curve is overlaid in the stroboscopic live image. After the examination, the recorded signal can be analysed in detail – oscillation for oscillation.

Essential characteristics

- Recording and presentation of the EGG and voice signal in real-time
- Setting option for CL (Criteria Level)
- Calculation of CQ (Close Quotient) and the sound pressure level for individual periods
- Zoom function
- The EGG display can be inverted by the click of a mouse
- Exporting the results as an image
- Diagnostic input
- Print function

DiVAS Strobokymography module



350 020 015

DiVAS Strobokymography module

A strobokymogram is used to specifically assess stroboscopic findings. One image line is taken from each of a sequential series of images of a video-stroboscopic recording; these lines are then arranged one below the other in an overall image. The vertical axis of the kymogram represents the variation in time. The kymogram thus provides a view of the wave motion of the vocal folds during phonation. The amplitude and phase differences as well as deviations in symmetry and periodicity of the vocal folds are more easily recognized and quantified.

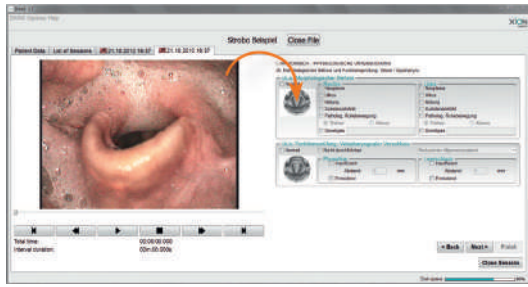
The position and rotation of the line to be evaluated are adjustable. Intelligent image processing minimizes the effect of motion artefacts.

Essential characteristics

- Setting the kymographic resolution
- Setting and storing the position of the scan line for each kymogram
- Setting and storing kymograms, representation as thumbnails in the film strip
- Calculating a closing and opening quotient.
- Exporting individual images as external files, in Microsoft Word documents or via the clipboard
- Print function
- Support for image stabilization and image alignment to reduce motion artefacts (only SD resolution, not for HD)

DiVAS Swallowing Diagnostics

DiVAS Swallowing Diagnostics module (FEES)



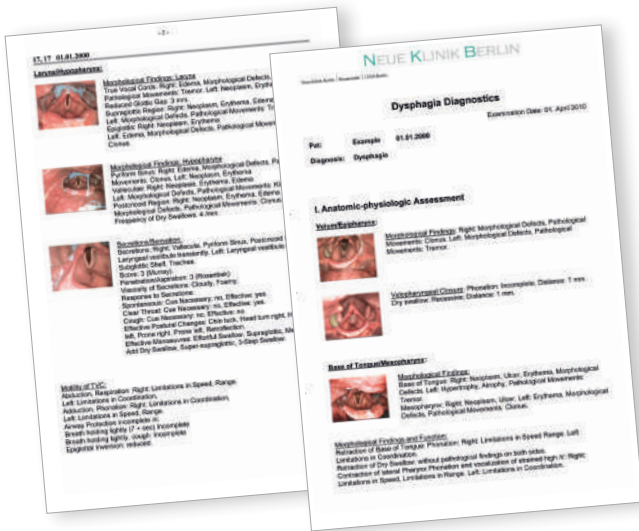
The DiVAS Swallowing Diagnostics module/FEES (Flexible Endoscopic Evaluation of Swallowing) provides an effective way to perform standardized evaluation and documentation of the endoscopic swallowing examination. It follows international standards and stands for highest quality examination and diagnosing.

A detailed individual-frame representation of the swallowing processes and slow-motion playback of the video makes it easier for an objective assessment and evaluation according to the following criteria:

- Change in morphological structures
- Speed and coordination of the movement processes
- Proof of residues, penetration and aspiration.

The simultaneous presentation of the examination video and the evaluation makes analysis easier, saves time, and unifies the findings. Expressive individual images can easily be dragged & dropped into the evaluation.

By automatically generating a summary in the form of a medical report, all assessed parameters, the image material and the diagnostic results with individual remarks and therapy recommendations are comprehensively documented.



350 020 017

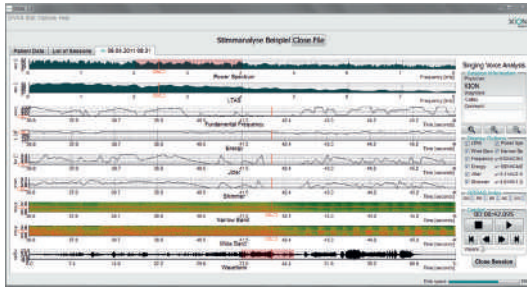
DiVAS Swallowing Diagnostics module

Essential characteristics

- Assessment of an existing video recording using a standardized evaluation form
- Saving entries and checking for completeness and plausibility before exporting
- Exporting as a text report (Microsoft Word)
- The document is created automatically, based on the entries made by the user.
- Support for different evaluation forms, which can be dynamically loaded
- Text modules can be modified for creating reports

DiVAS Voice Diagnostics

DiVAS Singing-Voice Analysis module



350 020 013

DiVAS Singing Voice Analysis module

352 009 010

Microphone headset for DiVAS Voice Diagnostics with USB port

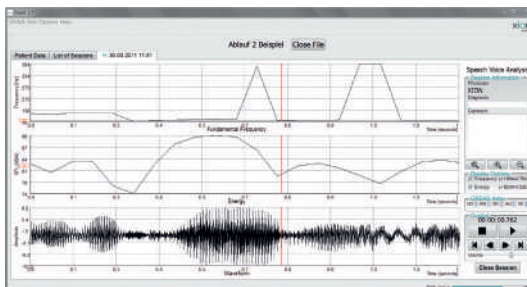
The voice analysis is particularly suitable for objectivizing auditive findings and measuring specific aspects, because its data is not filtered by subjective processes of perception.

Furthermore, the singer's formant is displayed in the power spectrum. The singer's formant represents the quality of an un-amplified singing voice.

Essential characteristics

- Recording and presenting the voice signal in real-time (oscillogram)
- Determining and representing different analyses:
 - Fundamental frequency (F0)
 - Level
 - LTAS
 - FFT
 - Wide Band spectrogram
 - Narrow-band spectrogram
 - Shimmer
 - Jitter
- Zoom function
- Calculating the mean value (median) and the deviation for displayed zoom ranges for F0, level, shimmer and jitter
- Creating and printing a summary evaluation
- Printing individual analyses
- Exporting individual analyses
- PACS export via HL7 as a PDF
- Diagnostic input

DiVAS Speaking-Voice Analysis module



350 020 024

DiVAS Speaking Voice Analysis module

352 009 010

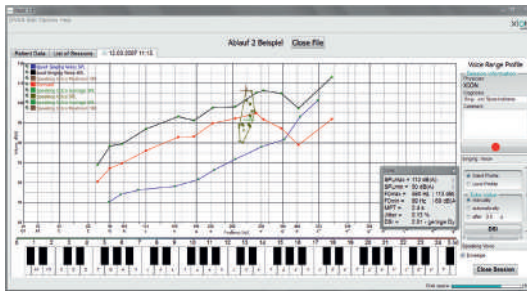
Microphone headset for DiVAS Voice Diagnostics with USB port

The purpose of measuring speaking-voice profiles includes determining how much the speaking voice intensity level can be raised and how much of an increase in vocal pitch is necessary to do so. Due to the minimum methodological effort required, recording speaking-voice profiles for the documentation of findings and for monitoring therapies is especially suitable for daily practice.

Essential characteristics

- Same functionality as in the singing voice analysis; however only the fundamental frequency and the level are calculated and displayed diagrams. The mean values are only determined for these two parameters.
- Export of audio data to a voice-field session, in the form of a scatter plot
- Input of RBH (optionally GRBAS) values
- PACS export via HL7 as a PDF

DiVAS Voice Range Profile module



350 020 014

DiVAS Voice Range Profile module

352 009 010

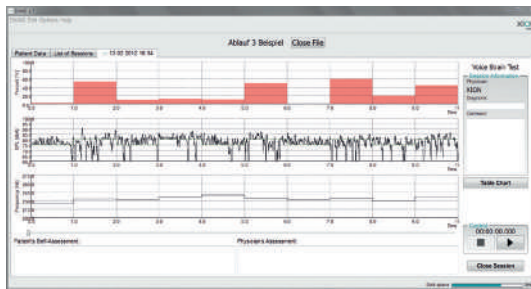
Microphone headset for DiVAS Voice Diagnostics with USB port

Measuring the voice range profile is important on the one hand to evaluate the capability of a voice and on the other hand to check the progress of phonosurgical and logopaedic therapies. The loud and quiet singing voice and speaking voice are recorded with a microphone. The diagram displays the voice range profile as a normalized sound-pressure level over the voice frequency. The holding period can be displayed, the Dysphonia Severity Index (DSI) can be calculated, and the envelope of the voice range can be displayed.

Essential characteristics

- Measuring vocal range and dynamic width of the voice
- Measuring speaking voice field and singing voice field in real-time
- Measuring the soft and loud voice, and representation of the measurement points for the entire level and for the singer's formant part
- Measuring the speaking voice, and representation of the measured values in the form of a scatter plot or as 2 crosses: Mean and maximum value
- Determining the minimum and maximum sound pressure level and frequency in real time
- Determining the maximum phonation time (MPT) in real time
- Calculating the Dysphonia Severity Index (DSI) – additional possibility for calculating MPT and jitter
- Predetermining a sound by means of a piano keyboard
- Drawing the envelope of the singing-voice field
- Importing comparative voice fields
- Optional colour coding of the phonation time
- Printing the voice field
- Exporting the voice field as an image
- Exporting the voice field as a voice-field file
- Exporting the voice field to the voice analysis
- PACS export via HL7 as a PDF

DiVAS Voice Strain Test module



350 020 016 DiVAS Voice Strain Test module

352 009 010 Microphone headset for DiVAS Voice Diagnostics with USB port

The voice strain test is a method for determining the performance of a voice, especially for persons who are professionally exposed to severe voice strains.

For this purpose, the test persons are requested to read a text at changing and timed levels of loudness, whereby the loudness must not fall short of a minimum level. The level is recorded and evaluated.

Besides a test run to prepare the patient, DiVAS offers a standard test and a user-configurable test.

Essential characteristics

- Recording and analysing the loudness of the speaking voice during the course of the test
- Predefined alternation test (10 periods, each 1 minute, with varying level 75 or 80 dB(A))
- User-defined test (all parameters are freely adjustable)
- Optional test run before the test as an exercise for patients
- Calculating the average fundamental frequency for each evaluation period
- Presenting the measurement results in spreadsheet form and exporting to Microsoft Excel
- PACS export via HL7 as a PDF

DiVAS Voice Handicap Index module



350 020 023 DiVAS Voice Handicap Index module

To properly record the intrapsychic, communicative and social significance of a dysphonia, the patient should also be requested to make a self-assessment. This task can be systematically accomplished by presenting to the patient the problems that exist or can arise with the use of the voice; the patient is then requested to state how much he or she is affected by these problems.

Using the Voice Handicap Index enables standardized and comparable results in the diagnosis of dysphonias.

Essential characteristics

- Loading, completing and saving the VHI-9 protocol
- Exporting data to a medical report from other sessions

Monitors

4K, Full HD, 3D

XION provides a variety of high-quality monitors that are approved for medical applications, to always ensure optimum quality for the most diverse areas of application.



- 330 027 001 27"- Full HD medical LCD monitor
- 330 027 002 27"- Full HD medical LCD monitor (greater brightness, optimized image contrast)
- 330 031 001 31"- 4K medical LCD monitor
- 330 055 001 55"- 4K medical LCD monitor
- 330 026 101 26"- Full HD/ 3D medical LCD monitor
- 330 031 101 31"- 4K/3D medical monitor

XION Equipment Trolley

A unified design concept for the entire system



XION's compact and space-saving trolleys offer the highest level of stability, flexibility and variety of equipment options. Due to their modular structure, they can be configured for the widest range of applications, and can subsequently also be adapted to changing requirements again and again.

- Optimal ease of operation provided by the central power control for all devices
- Maximum patient safety provided by the integrated isolation transformer and earth leakage monitor
- The XION Module housing system facilitates direct and space-saving mounting of the devices in the trolley
- IF-award winning, unified and functional design of the overall system comprising the trolley, device system and accessories such as drawers or mounting systems
- Intelligent, OR-compatible ventilation concept
- External connection box for connecting peripheral video sources or temporary second monitors, isolated 1GB/s network connection for HIS/PACS
- Exemplary cable management
- Integration of components such as speakers, monitor power supplies, optics preheaters
- Integrated receiver for wireless foot switch
- Flexible mounting for additional monitor arms on both side rails or centrally
- Versatile system of holders for camera heads, rigid and flexible endoscopes and fibre-optic light conductors
- Optional cable suspenders

Equipment		
	BASIC	PREMIUM
Available heights	1,350 mm, 1,190 mm, 1,030 mm	1,350 mm, 1,190 mm, 1,030 mm
Base area	550 mm x 620 mm	550 mm x 620 mm
Width of trays resp. clear width	360 mm	360 mm
Rear panel, removable without tools	●	●
Rollers	4, of which 2 are lockable	4, of which 2 are lockable
Circumferential edge protection	●	●
Protection class	I	I
Input voltage	115 V/230 V	115 V/230 V
Output voltage	as input voltage	230 V
Integrated isolating transformer	400 VA	1,500 VA
Power output jacks, electrically separated	4	12
Power output jacks, not electrically separated	4	○
Integrated Insulation monitors with error display and test mode	○	●
Central on/off control based on priorities	○	●
Device power consumption is monitored, with priority-based automatic shut-off in the event of overload	○	●
Temperature of isolating transformer is monitored, with priority-based automatic shut-off in the event of overload	○	●
Externally accessible BNC (FBAS/SDI) and S-VIDEO inputs/outputs	○	●
USB connector	○	●
Connector for navigation camera (optional)	○	●
Integrated receiver for XION Wireless Footswitch	○	●
Drawer	Optional	●
Handle	Optional	●
Central conduit for monitor holder	●	●
Lateral cable conduit	Both sides	Both sides

Everything from one source: Endoscopy systems since 1991

XION develops and manufactures devices, endoscopes and instruments for the minimal invasive diagnostics and therapy. In close cooperation with leading hospitals, XION creates practical and user-friendly system solutions. Well-established and interdisciplinary expertise in the fields of precision mechanics, optics, electronics and software are our basis for setting new standards in endoscopy. All products are manufactured at XION headquarters in Berlin, Germany and sold worldwide through an international network of branch offices and dealers.

