XION medical

Spectar

The camera platform for all endoscopic applications

See more than others.

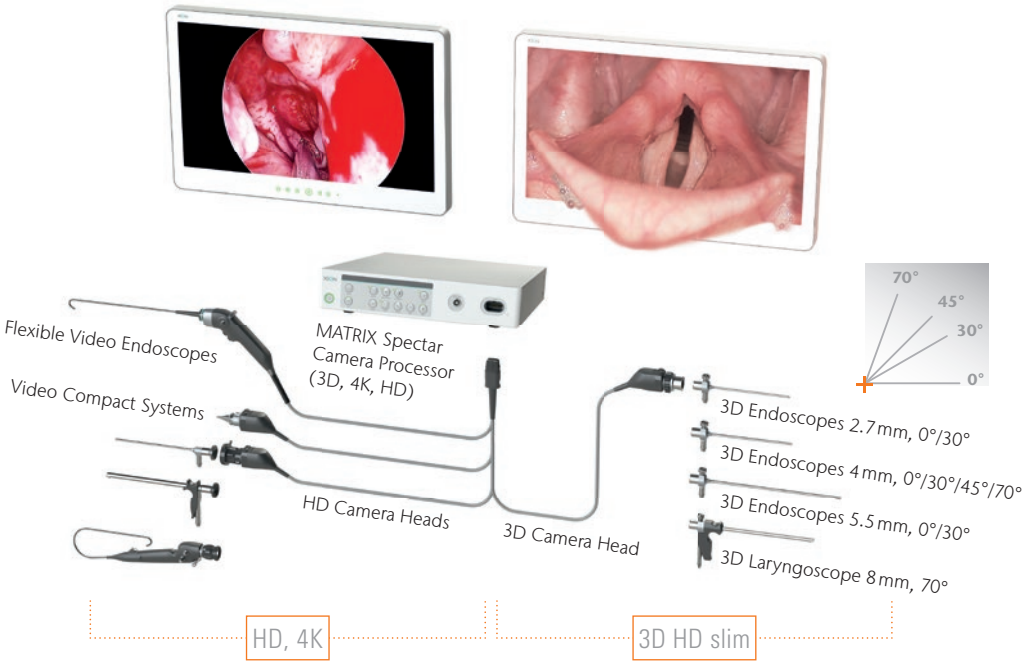
Spectar

The future-oriented concept for rigid and flexible endoscopy

A revolutionary camera technology, newly developed by XION, forms the basis of the XION Spectar camera platform, which meets all requirements of modern endoscopy.

The Spectar camera platform has been designed to operate all current and future camera heads, rigid and flexible video endoscopes as well as video compact systems.The XION Spectar has been prepared both for native sensor resolutions up to 4K (4X 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.

The Spectar camera platform will open up new areas of application and opportunities for therapy. Instrumentation is made much easier and safer.



Modular, cost-effective, future-proof

- Multifunctional, future-proof camera platform
- In the long term, expandable for a wide range of 2D and 3D applications
- A unique, universal connector that enables interchangeability of all camera heads and video endoscopes within the Spectar platform
- Predictable investments for expanding the system
- Financial benefits resulting from compatibility of the individual components and unrestricted expandability – expensive new purchases of individual solutions is no longer necessary
- High investment security

Optimum patient safety, highest level of efficiency

- Uniform operating concept
- Standardization options across multiple disciplines
- Customizable settings for efficient work processes
- Detailed and clear on-screen display

MATRIX Spectar

The universal camera processor for highest demands

- Universal camera processors for 2D and 3D endoscopy with native sensor resolutions up to 4K/UHD
- Excellent image quality by means of innovative, proprietary image processing routines
- Improved tissue differentiation using PIET Image Enhancement
- Minimum image latency
- Consistent and future-proof Spectar-connector for all 2D and 3D camera heads and video endoscopes
- Fanless and thus completely noiseless operation
- Supported by exclusive XION functionalities such as built-in microphones, integrated LED lighting and integrated optics pre-heating
- XION module housing system for the 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 adjustment options for 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 laser-optical isolation within the camera processor
- XION safety concept prevents 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

Functions on the control unit

- White balance
- Mode (size of the assessment window)
- Brightness
- Contrast
- Freeze (memory image)
- PIET lumino
- PIET chromo
- PIET spectro
- 3 user-specific settings

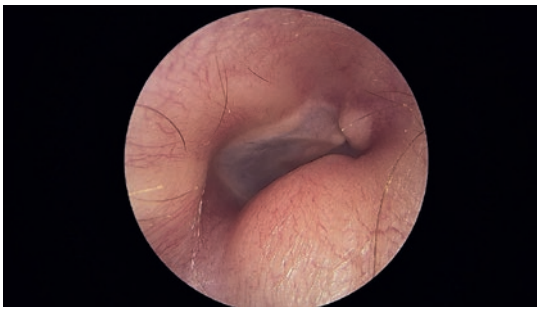
Functions on camera heads and video endoscopes

The keys on the camera heads and video endoscopes are freely configurable via the OSD of the processor, or in conjunction with the DiVAS software.
In addition to the functions of the video processor, the following functions are available:

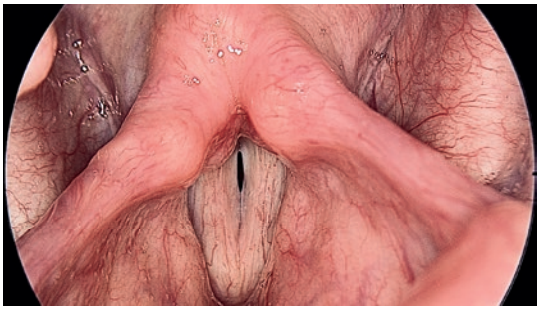
- Start/Stop/video recording
- PIET lumino
- PIET chromo
- PIET spectro
- Digital zoom (1.4x, 2x, 2.8x)

Advanced diagnostic options with PIET

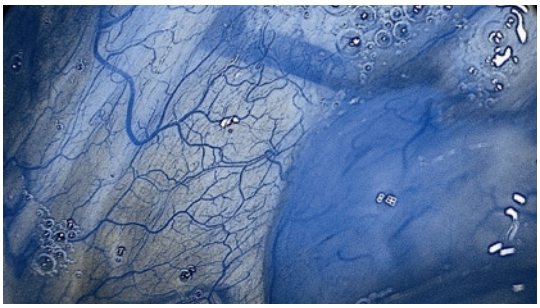
XION's professional image enhancement technology (PIET) extends the system by adding three situational visualization technologies. Modes PIET lumino, PIET chromo and PIET spectro are available in all resolutions (HD, 4 K) as well as in 2D and 3D endoscopy.



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 as well as video data can be archived 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		MATRIX P Spectar	MATRIX E Spectar
Degree of protection	IP20	•	•
Protection class	I	•	•
Power supply	100 V–240 V 50/60 Hz	•	•
Weight	3.5 kg	•	•
Dimensions (W x H x D)	350 mm x 76 mm x 365 mm	•	•
Operating temperature	+10°C – 40°C	•	•
Storage and transport temperature	-20°C – 60°C	•	•
Output interfaces			
Video	2 x DVI-D, 4 x 3G-SDI		
	Video format 2D		
	1080p@60Hz	•	•
	4K (only via 4 x 3G-SDI)	•	o
	Video formats 3D:		
	1080p@60Hz (Interleaved)	•	o
	1080p@60Hz (side by side)	•	o
	1080p@60Hz (simultaneous)	•	o
Audio	1x line out, 3.5 mm stereo jack	•	•
Controlling external recording devices	2x 3.5 mm mono jack	•	•
Controlling a XION LED light source	2x 3.5 mm stereo jack	•	•
Input interfaces			
Application parts	1x Spectar application part (camera head / video endoscope)	•	•
Audio	1x Audio	•	•
Control	1x Foot switch resp. wireless foot switch receiver	•	•
Power supply	IEC 60320 plug	•	•
Other			
Controller, service	1 x USB type B	•	•
Potential equalization		•	•
Applied standards		•	•
DIN EN 60601-1		•	•
DIN EN 60601-1-1		•	•
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 /		•	•

Camera Processor Variants

A wide range of equipment levels make sure that Spectar camera processors can used taking account individual needs and budgets, without compromising image quality and flexibility.

The latest image-processing routines developed by XION feature optimized colour reproduction, minimized image noise and homogeneous illumination to facilitate always highest image quality.

MATRIX P Spectar

The MATRIX P Spectar camera processor provides all necessary features to operate both, all current and future:

- 2D camera heads (HD, 4K)
- 3D camera heads
- Flexible video endoscopes (SD, HD)
- Rigid video endoscopes (HD)
- Compact camera systems (HD)

329 122 001 **MATRIX P Spectar** Camera Processor
SD / Full HD / 4K / UHD
Professional Image Enhancement Technology (PIET)
3D functionality in conjunction with 3D application parts

MATRIX E Spectar

Spectar HD camera heads as well as rigid and flexible video endoscopes (SD, HD) can be connected to the MATRIX E Spectar camera processor.

329 102 001 **MATRIX E Spectar** Camera Processor
SD / Full HD

Spectar – Highest Level 2D Endoscopy

Spectar Camera Head with HD Zoom

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. An optical parfocal zoom (f = 16 through 32 mm) 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 zoom lens 2x.
- Coupler for standard eyepieces in compliance with DIN
- Spectar connector

329 200 001 Spectar Camera Head HD Zoom

Sterile Adapter

Made of titanium, the XION sterile adapter makes it possible to change the optics under sterile conditions. The camera cover can be fixed easily and securely. The sterile adapter is extremely light and highly resistant to various sterilization methods.

320 080 050 Sterile Adapter

Technical Data

Image sensor	1/3" Full HD, 1,920 x 1,200
Lens	Parfocal zoom, 2x (16-32 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
Type of protection	IP 67
Application class	BF

Spectar Camera Head 4K

The high resolution 4K sensor of the Spectar camera head provides extremely detailed, crisp, sharp, bright, low-noise images in conjunction with the MATRIX P Spectar camera processor. The 4x resolution compared to HD, and the extended colour space make it possible to detect very fine vessels and tissue structures much more easily – even when enlarged in zoomed display. This provides greater precision and safety for the surgeon. In addition, visibility and ease of use are greatly enhanced.

- 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

329 218 001	Spectar Camera Head 4K
320 080 050	Sterile Adapter

Technical Data

Image sensor	1/3" 4K / UHD; 4,096 x 2,180 / 3,840 x 2,160
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	1,4x, 2x, 2,8x
Type of protection	IP 67
Application class	BF

Spectar Video Nasopharyngoscope XN HD

The unique and innovative technology of the Spectar camera platform facilitates operating flexible HD video endoscopes with an outer diameter of 4 mm. The features provided facilitate more exact reproduction of surface structures and more precise treatment.

The Video Nasopharyngoscope XN HD delivers high-resolution, homogeneously illuminated, high-contrast images with excellent depth of field. The XN HD is 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
- 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 Flexible Video Nasopharyngoscope XN HD

Technical Data

Image sensor	CCD
Field of view	80°
Direction of view	0°
Focal range	5 mm – 50 mm
Working length	320 mm
Shaft diameter	4 mm
Bending angle up / down	130° / 130°
Min. bending radius	8 mm
Function keys	Two keys, programmable
Stroboscopy	Integrated microphone compatible with XION stroboscopy systems
Plug connector	Spectar universal connector
Cable length	1.5 m
Weight (without cables)	320 g
Type of protection	IP 67
Application class	BF

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 MATRIX P Spectar processor to a state-of-the-art 3D endoscope system at just moderate cost.

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

329 204 001	Spectar Camera Head 3D HD
130 600 000	Sterile Adapter for 3D Camera Head 329 204 001

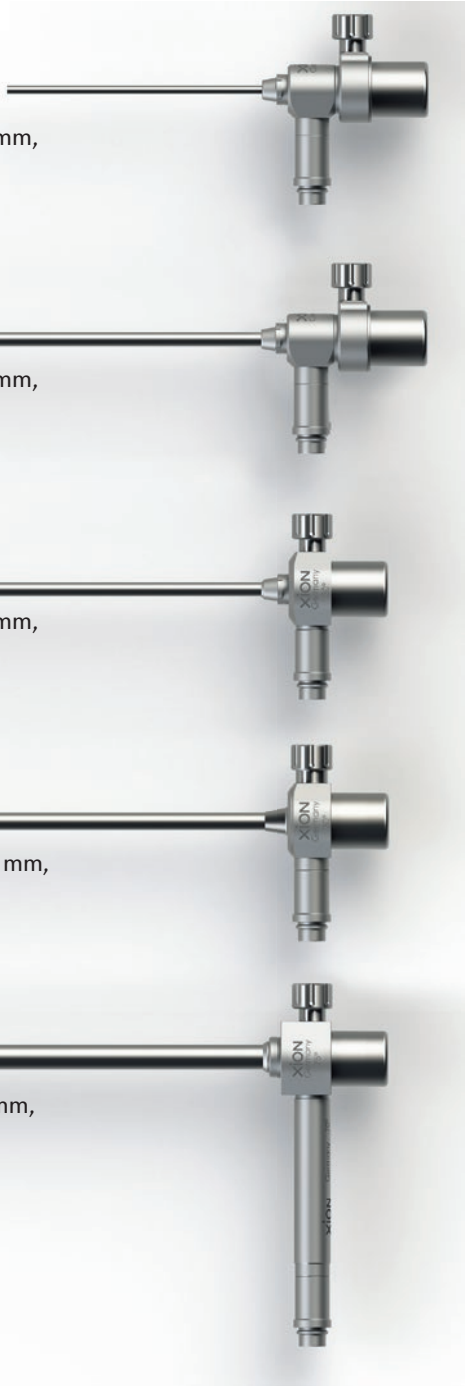
Technical Data

Image sensor	1/3" Full HD, 1,920 x 1,080
Lens	3D special lens
Coupler	Connector for XION 3D sterile adapter
Plug connector	Spectar universal connector
Dimensions (l x w 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 Spectar 3D endoscopy system. Two different design forms, each with specific design features can be distinguished:

Single-channel endoscope attachments	Dual-channel endoscope attachments
One optical system	Two parallel arranged optical systems
Easy construction	More complex construction
Side-viewing optics, rotatable	Fixed viewing direction
High quality images	Best image quality
Good stereo effect	Optimum stereo effect and depth estimation for surgical work
Ideal for extreme close-up range	Ideal for working common distances
Very small endoscope diameter possible	



130 603 1xx **3D endoscope attachments, diameter 2.7 mm,**
different application lengths,
direction of view 0° and 30°

130 604 1xx **3D endoscope attachments, diameter 4.0 mm,**
different application lengths,
direction of view 0°, 30°, 45° and 70°

130 615 1xx **3D endoscope attachments, diameter 4.5 mm,**
different application lengths,
direction of view 0° and 30°

130 616 1xx **3D laparoscope attachments, diameter 5.5 mm,**
different application lengths,
direction of view 0° and 30°

130 618 157 **3D laryngoscope attachment, diameter 8 mm,**
185 mm application length,
direction of view 70°

3D-Align

Optimum playback of stereoscopic images and fatigue-free working are possible only when the stereo image is precisely set. The 3D-Align alignment aid provides the user with a tool with which he can easily perform an automatic alignment. 3D-Align consists of a dot matrix with an attachment mount for all common XION stereo endoscopes. The stereo endoscope is placed in the attachment mount; next the camera key on the left is pressed within one to two seconds and the endoscope is aligned. Successful alignment is displayed on the monitor screen.

By combining this process with the white balance procedure that is familiar to all users, the time required for doing this is reduced to a minimum.

130 600 010	**3D-Align,** Tool for automatically aligning 3D endoscopes

Everything from one source: Endoscopy systems since 1991

XION develops and manufactures devices, endoscopes and instruments for ENT, arthroscopy, laparoscopy and hysteroscopy. 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.

XION GmbH • Pankstr. 8–10 • 13127 Berlin • Germany
Fon +49(0)30-47 49 87-0 • Fax +49(0)30-47 49 87-11 • Email info@xion-medical.com
www.xion-medical.com