

Synergy^{UHD4}

UHD 4K Video Imaging, High Output LED Light Source and Image Management System, Synergized in One...

Synergy^{UHD4} 4K Imaging Platform



Synergy^{UHD4} is the first endoscopic 4K camera system on the market. The console integrates three devices into one and revolutionizes endoscopic visualization and image management. The Synergy^{UHD4} combines the latest technology, true 4K camera heads, LED lighting, image management and integration with an intuitive tablet controller. One console and one unique tablet interface simplifies uses, and programmable individual surgeon/procedure preferences enhance the user experience. The 4K image displayed on the monitor has four times the resolution of standard HD.

Synergy^{UHD4} Console

Product Description	Item Number
Synergy ^{UHD4} console	AR-3200-0021
Synergy ^{UHD4} console with matrix encoder	AR-3200-0020
Synergy ^{UHD4} digital documentation tablet	AR-3200-1007

Light Source

- Technology: LED (cold light source)
- Lifespan: at least 30,000 operating hours
- 7-year-warranty on the LED light source
- Light output/light flux: 1,800 Lumens (typical)
Note: Power consumption (in Watts) is not an applicable specification for the LED light engine and can therefore not be provided. Power consumption is meaningless because the Synergy LED light engine does not have its own power supply and the much more appropriate measurement for the performance of LED technology is Lumens.
- Color temperature: 5,500 – 8,500 K nominal
- Color rendering index (CRI): 70 typ. / 60 min.
- Light color: white
- Spare lamp: N/A (LED technology)
- Automatic light output control: synchronized pulse width modulated light output
- Light guide port turret for connecting the following cable standards: ACMI™, Storz™, Wolf™, Olympus™
- Ready to use in < 1 sec.
- User interface
 - CCU button (on/off)
 - Programmable camera buttons (on/off)
 - Tablet graphical user interface (on/off, enable/disable automatic light output control, set max. light output in three steps)

Camera Control Unit / Video Processing – General Information

- 4K UHD-capable, 2D-capable
- Applied part type CF (cardiac floating)
- Defibrillation proof
- White balance button on device
- Image mirror or image rotation
- Video outputs:
 - 2 x DisplayPort 1.1/1.2, MST/SST [2160p max., 10-bit-color, 59.94 Hz]
 - 4 x 3G-SDI [1080p, 8-bit-color] or 1 x Quad-SDI 2SI [2160p, 10-bit-color, 59.94 Hz]
 - 2 x DVI-D [1080p, 8-bit-color, 59.94 Hz]; one of the two DVI outputs also functions as laser connection for the Synergy Laser Light Source
- Video input: 1 x DVI-D (1080p, 59.94 Hz)
- Picture-in-picture (PiP) functionality of video input
 - PiP window size on HD monitor: 480 x 270 px
 - PiP window size on 4K monitor: 960 x 540 px
- Gain settings: Low (0 dB), Medium (+9 dB), High (+ 18 dB)
- Augmented reality imaging, including:
 - BioOptico (Spectral Mode, Texture Mode)
 - Color Filters (RED+, RED-)
 - Highlight (dynamic range filter)
- Near-infrared fluorescence imaging support
 - 3 different fluorescence imaging display modes:
 - COLOR (visible light imaging in color with NIR overlay)
 - MONOCHROME (visible light imaging in B/W with NIR overlay)
 - NIR ONLY (NIR imaging only, without visible light information)
 - 7 different NIR overlay colors to choose from (Green, Cyan, Blue, Magenta, Red, Yellow, White), customizable/programmable per surgeon and procedure
 - Ability to adjust dedicated NIR image settings: NIR Brightness, NIR Contrast, NIR Background; customizable/programmable per surgeon and procedure

Image Management / Documentation System – General Information

	Resolution	File size	File type	Comment
Photo (HD)	1920 x 1080	1.1 ± 0.3 MB	JPEG	
Photo (4K)	3840 x 2160	3.5 ± 1.0 MB		
Photo (RAW)	1920 x 1080	6.1 MB	RAW	Only via DICOM
Video (standard)	640 x 360	9 ± 2 MB/minute	MP4	Video codec: H.264 MPEG-4 AVC image refresh rate: 30 Hz; Secondary capture video qualities only "standard" and "medium"
Video (medium)	1280 x 720	24 ± 3 MB/minute		
Video (high)	1920 x 1080	44 ± 4 MB/minute		
PDF	corr. photos	≈ photos total	PDF	

- Possibility to annotate photos at the end of case
- ACC (accessory) ports: 2 x 3.5 mm mini stereo jacks, usable as output or input:
 - Input: allow for control of the Camera Control Unit (CCU) with a footswitch
 - Output: allow for controlling external devices using the camera head buttons
- Audio-In: Mini Stereo Connector
- Parallel documentation of two video sources and audio; video recording of 2nd source (DVI input) in qualities „standard“ or „medium“ (cf. table)
- Ethernet connector RJ45 isolated 10/100/1000 MB/s
- Integrated Wi-Fi (Client or Hotspot)
 - Frequency and standard: 2.4 GHz or 5 GHz, 802.11 ac/a/b/g/n
 - Technology: Wireless LAN (IEEE 802.11)
 - Encryption modes: WPA-PSK, WPA2, WPA2-Enterprise
 - Encryption standards: WPA with TKIP, WPA2 with AES
 - WPA2-Enterprise certificates supported: ".p7b" and ".cer"
- 3 x USB 2.0 connectors (1 x front, 2 x back)
- 3 x USB 3.0 connectors (1 x front, 2 x back)
- USB connector for tablet: 1 x
- RS-232 connector, isolated
- Internal storage: 128 GB SSD
- Automatic or manual export: USB, iPad® / iPhone®, File server, PACS (DICOM)
- MFi certified (Apple®)
- Possibility to export to the Synergy Surgeon2 app
- Supported USB formatting: VFAT / FAT32, NTFS, HFS-PLUS / HFS+
- Pre-installed printer driver for Sony UP-DR80MD
- DICOM 3.0, EDP link digitally via Ethernet or Wi-Fi, incl. the following functionalities:
 - DICOM Storage (Send/Receive)
 - DICOM Storage Commitment
 - DICOM Worklist Management
- Fileserver export using Samba protocol SMBv1, SMBv2.0 and SMBv2.1

Network Streaming and Communication Functions

- Password-protected access to camera live stream and captured images
- WebRTC, HTML5-based
- Streaming codec: H.264 with MPEG4 container at 30 Hz
- Streaming quality levels:
 - Standard (640x360 px. at 1 Mbit/s)
 - Medium (896x504 px. at 2,5 Mbit/s)
 - High (1920x1080 px. at 6 Mbit/s)
- Audio streaming
- Remote access via web browser (IP based)