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The 4KlearTM Camera and Recorder

First to market as a c-mount Medical Grade Microscope native 4K camera with a wide BT2020 Color Gamut, 12G-SDI output and 4K recording capability.

BT2020 - 10bit 4:2:2 live video produces the best possible color representation to the human eye which allows for near perfect duplication of the optical pathway of a surgical microscope.

The state-of-the-art 1/2" back-illuminated 4K CMOS chip produces more light per pixel for light sensitive operations and reduces noise in the video all designed to give the surgeon and staff critical clarity for the surgical environment.

MEDICAL CERTIFICATIONS

IEC 60601-1:2012 (Ed 3.1)
IEC 60601-1-2:2014 (Ed 4.0)
No. U8 18 05 74193 030

BT2020 Color Gamut
10bit 4:2:2 color @60Hz

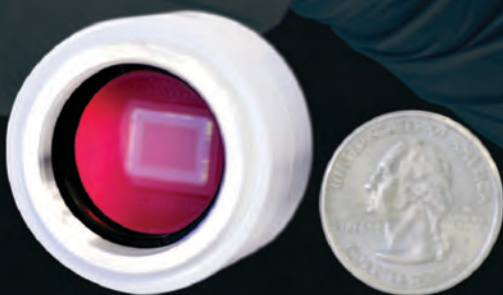
CAMERA FEATURES

CAMERA FUNCTION

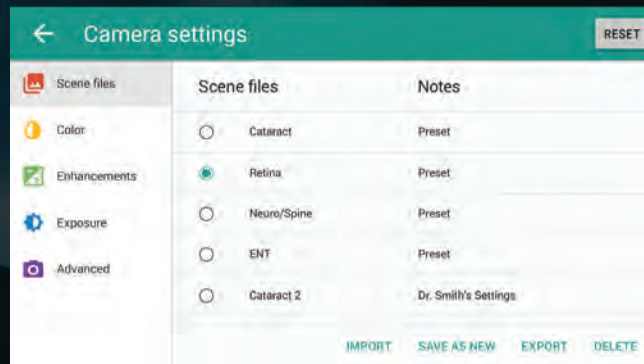
Frame Rate	• 4K 60fps: 50/60Hz
Exposure Shutter	• 1/60 – 1/30000 (Auto and Manual mode)
Exposure Level (Fine Tuning Exposure Histogram)	• 0-1000 (Auto, One-Shot, Manual Mode)
Sensor Gain	• 0.0 – 27.0 dB (Auto and Manual mode)
Binning Cross Gain	• Auto and Manual mode
Binning Diagonal Gain	• Auto and Manual mode
Sharpness	• 0-3180 (Default is 1500)
Sharpness Floor	• 0-512 (Default is 32)
White Balance	• Auto mode
Hue	• -15 to +15 (Default is 0)
Brightness	• -50 to +50 (Default is 0)
Contrast	• -50 to +50 (Default is 0)
Saturation	• -125 to +125 (Default is 0)
Flare Composition	• 0-12 (Default is 0)
Noise Filter	• Allowed values of: 0 (off), 1 (low), 3 (max)
Output Colorspace	• RGB 4:4:4, YUV 4:2:2 or YUV 4:4:4
Mirror/Flip Feature	• Options are Mirror, Flip or Mirror & Flip
Scene Files	• Preset files loaded (Ability to add unlimited user scene files)



MedXStream Plus (Compatible iOS app)



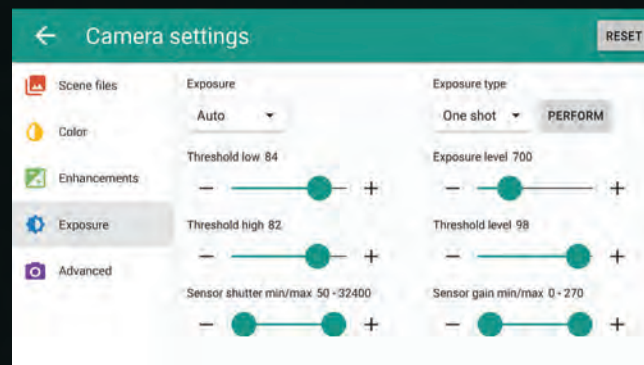
C-Mount Microscope Camera Head (Actual Size)



Camera settings tab > Scene files sub tab



Camera settings tab > Color sub tab



Camera settings tab > Exposure sub tab

RECORDING FEATURES

FULL 4K UHD & HD VIDEO/STILL IMAGE RECORDING

- 3840 X 2160P 30/50/60Hz
- 4K UHD recorded/captured files: H.264, .mp4, JPEG, PNG
- Record 4K UHD video and still images simultaneously with integrated 12.7cm touch screen
- Record to internal hard drive
- Record up to 2 USB 3.0 locations at the same time
- Record to network locations/DICOM
- 1 x 3G-SDI input for recording of external HD camera
(future software update)

INTEGRATED 12.7CM TOUCH LCD SCREEN

- Control entire software from integrated touch screen
- Multi-touch/swipe interface
- Duplicate the internal 12.7cm touch screen to any HID touch monitor via VGA

PATIENT DATA ENTRY/WORKFLOW

- Enter patient data, sort patients and start cases
- Append to completed cases

DICOM INTEGRATION

- Automatic DICOM c-store (PACS storage) & c-find (MWL)

LIVE VIDEO STREAMING OVER IP

Live stream camera video over IP via RTSP protocol

PRINTING/PLAYBACK/COPY/REVIEW

- Review completed cases
- Playback video/stills and copy to external USB/Network
- Auto print to Sony UPDR80MD medical grade printer

STORAGE, SETTINGS, OTHER

- 1 TB internal storage
- Networking, media and printing settings
- Simple USB software updates
- HIPAA Compliance encryption, auditing, logs, user/admin roles
- CyberSecurity compliance
- 6 - USB 3.0 ports
- Mic audio input port
- 2 - Gigabit network ports



MEDXSTREAM PLUS iOS APP

- Wirelessly control Camera settings & some recorder functions
- Encrypted WiFi connection
- Wireless/wired (lightening cable) transmission of still images/videos



LIVE VIDEO



WORK LIST



REVIEW



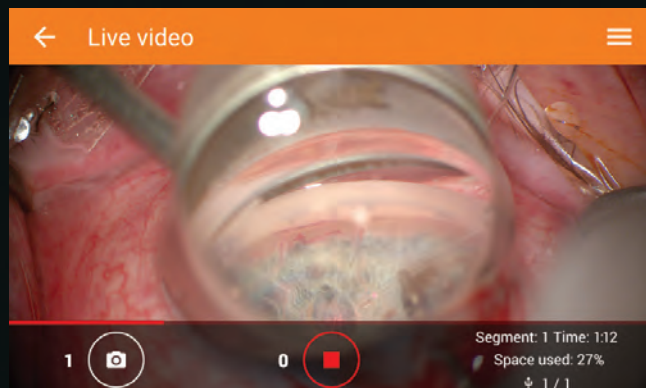
SYSTEM SETTINGS



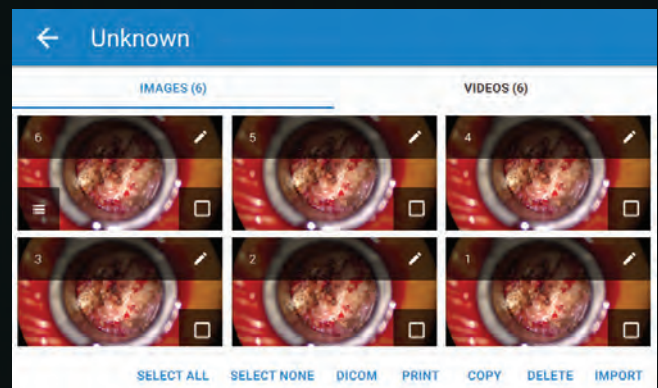
USER SETTINGS



CAMERA SETTINGS



Live video tab



Review tab

SPECIFICATIONS

Image Sensor

- Native 1/2" 4K CMOS Chip

Lens Mount

- C-Mount

Output Signals

- HDMI 2.0 4K UHD, Full HD 1080p 50/60hz
- Quad-SDI 4K UHD
- 12G-SDI 4K UHD
- 6G-SDI
- 3G-SDI, Full HD 1080p 50/60Hz
- DP 1.2 (future)

Input Signals

- 3G-SDI (future)

Camera Cable

- 3m, 6m, 9m or 15m

Dimensions

- Camera Head:
36mm (Round) x 27.5mm (H)
- Camera Control Unit:
205mm (L) x 214mm (D) x 105mm (H)

Weight

- Camera Head: 49g (1.72oz)
- Camera Control Unit: 2.72kg (6lbs)

Power Requirement

- 12V 6.67A

Power Consumption

- 100-240VAC, 1.3-0.6A, 50-60Hz

Safety Certifications

- IEC 60601-1-2:2014 (Ed.4.0)
- IEC 60601-1:2012 (Ed. 3.1)
- No. U8 18 05 74193 030



PERFORMANCE

Resolution

- 1900+ lines

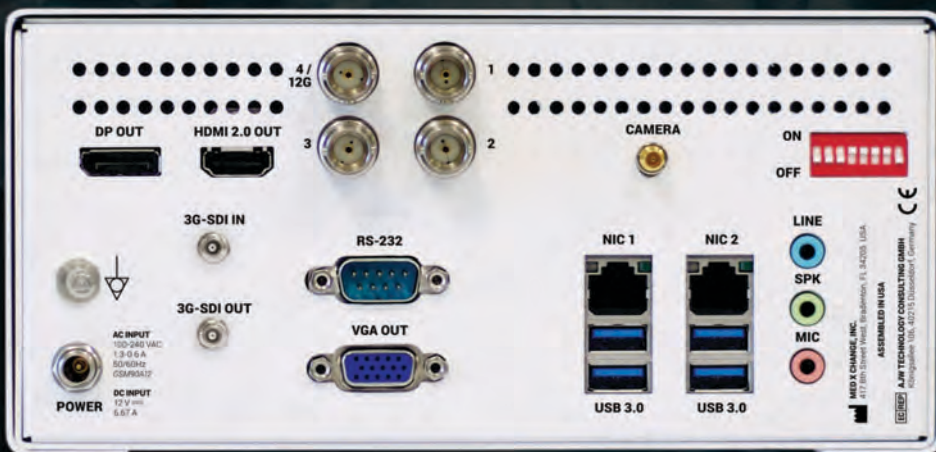
Sensitivity

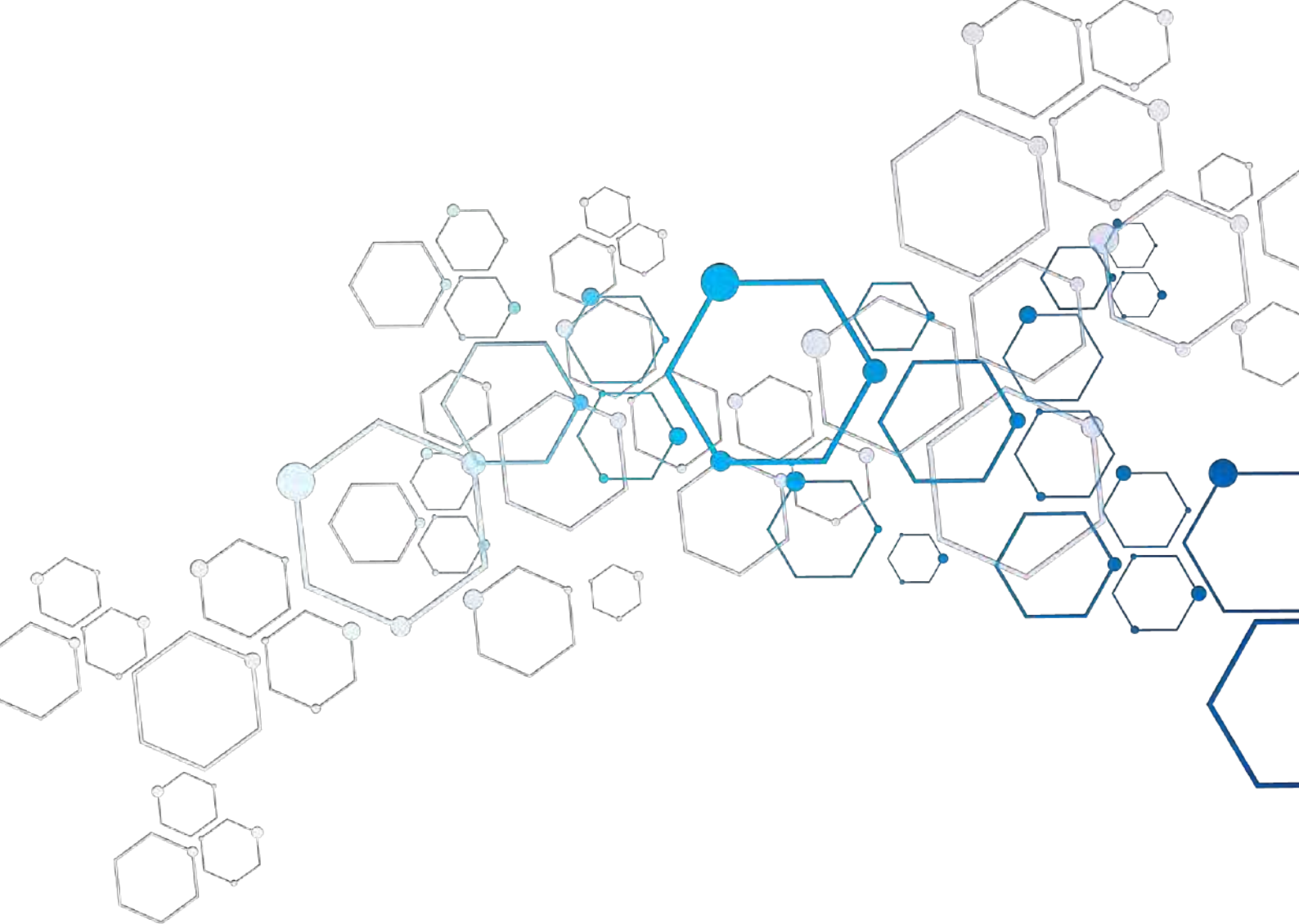
- Sensitivity can change drastically; positively or negatively, based on the optics being used, therefore adding a value for this specification is irrelevant and misleading to the microscope user.

Sound to Noise Ratio

- (SNR1s) 0.95 lx

Note: SNR1s (lx) is a new index proposed by SONY® for picture quality at low illumination





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