SONY

NU-IP3T

IP Converter/Transmitter for NUCLeUS™

Overview

Transmits 4K, HD, SD, and 3D video signals as low-latency IP data stream

The NU-IP3T converts video signals—including 4K, HD, SD, and 3D resolutions—into a visually lossless or uncompressed[*1] IP data stream for networked transmission from a variety of medical equipment at less than 1 frame latency[*2].

The IP data comprises native video as a primary output and bandwidth-optimized video (proxy stream) as a secondary output. This allows medical teams to view high-resolution, uncompressed images within the OR during surgery, as well as transmitting the same video content optimized for lower network bandwidth outside the OR for recording, live video distribution, and other applications.

The compact NU-IP3T is easily installed on a medical trolley, with its chemical-resistant exterior housing making it suitable for use in the OR. The NU-IP3T is complemented by the NU-IP3R, which receives IP streams, converting them to 4K or HD visually lossless video data with low latency of less than 1 frame[*2] for viewing on a surgical video monitor.

Note: This product is available as part of the NUCLeUS platform only, not to be sold separately.

*1. Uncompressed video requires 10G fiber network interfaces. Availability may vary depending on the country. For further information please contact your nearest Sony dealer.
*2. This is for native stream. Based on Sony's internal testing. Latency varies depending on usage conditions.

Features

Flexible network architecture

The NU-IP3T transmits any video stream from a connected medical device over a CAT5e or higher-specification network cable, as well as fiber network cables. Thus, it can easily be integrated with existing network infrastructures due to its low network load outside the OR.

KVM Function

In addition to video signal conversion, the NU-IP3T can send keyboard and mouse signals via a USB cable to a connected device. When the NU-IP3T's IP stream is transmitted to an NU-IP3R, a keyboard and mouse connected to that receiver can be used to remotely control the device connected to the source transmitter without extra hardware or cabling. As OR staff switch from one source to another, their keyboard and mouse will be able to control different devices in the OR, providing flexible control and simplified workflow.

Modality control

The NU-IP3T is equipped with a GPIO interface to receive start/stop and other commands from connected modalities, enabling surgeons to concentrate on their tasks without having to operate other equipment for video recording and still-image capture.

Data Safety

Data and command interfaces to the NU-IP3T are encrypted using SSL, while video is secured with AES-128 encryption used

with a GCM rolling key scheme. This prevents third-party eavesdropping, spoofing, and other tampering to ensure the integrity of data between the transmitter, receiver, and server.

User Feedback

The NU-IP3T provides valuable visual feedback for clinical teams in the operating room. A status LED confirms power and correct system unit operation, while blinking patterns indicate loss of network connection or absence of an IP address.

A variety of video formats

The NU - IP3T supports SD via HD, up to 4K 3D @60p 4:4:4 [*3] video input. Furthermore, 4K 3D and HD 3D videos can be converted to 2D/3D in both line by line and top & bottom depending on the output signals. NU-IP3T now supports end-to-end transmission of non-16:9-aspect-ratio images that are frequently encountered in interventional radiology environments. Dot-by-dot transfer mode avoids unwanted scaling of video streams, guaranteeing native image quality with cath lab and hybrid OR radiology modalities.

An optional license is available to upgrade to NU-IP3T to support 4K resolution. The upgrade license can be applied remotely without having to change hardware and cabling, even if implemented after initial installation.

For details of the supported resolutions and signals, please contact a Sony dealer.

*3 For details of the supported signal types, resolutions and frequencies, please refer to the Instruction Manual.

Compliance with medical standards

This product is distributed to the US as a medical device and to the EU as an accessory for medical devices, and satisfies product safety standards (e.g. IEC60601-1).

Specifications

Video Specifications	
Inputs	Up to 4K 3D[*1] @ 60 fps 4:4:4[*2]
Outputs	Native and proxy streams
Primary Output	3G-SDI safety line / SMPTE 424M

Connectivity	
USB	USB Type A (Reserved for future use) (1) USB Type B (Reserved for future use) (1)
Control and Data	SFP+ (Ethernet network) (2) [*3] RJ-45 (Ethernet network) (1) RJ-45 (for serial control) (1) RJ-11 GPIO 5pin, GND 1pin (1)
Video Connectors (in)	3G-SDI (4K/HD) (4), DVI-I (1), Display Port 1.2 (1), HDMI 2.0 (1) VGA[*4] / Component[*4] / YC[*4] / Composite video[*4]
Power	Medical grade power supply (AC-82MD) is optional
Device Control	RS-232 (RJ-45) serial interface for

	control to other devices

Functions

Encryption	SSL + AES128 with GCM rolling key scheme*5

General

Power Requirements	+24 V DC
Input Current	2 A
Operating Temperature	0 °C to 40 °C (32 °F to 104 °F)
Operating Humidity	30% to 85% (No condensation allowed)
Operating Pressure	700 hPa to 1,060 hPa
Storage and Transport Temperature	-20 °C to +60 °C (-4 °F to 140 °F)
Storage and Transport Humidity	20% to 90%
Storage and Transport Pressure	700 hPa to 1,060 hPa
Noise Level	28 dBA (20 °C (68 °F), 1 m)

Mass	1.0 kg (2 lb. 3.2 oz)
Dimensions (W × H × D (excluding projection))	approx. 189 × 47 × 157 mm (approx. 7 1/2 x 1 7/8 x 6 1/4 in)
Supplied Accessories	NUA-AA10 (Analog adapter) (1), HDMI Cable Clamper (1), Before Using This Unit (1), CD-ROM (1), Service Contact List (1)

Notes

*1. Optional license is required for 4K
*2. Support signal type, resolution, and frequency are limited.
*3. Optional SFP+ module is required.
*4. Exchange adapter is required.
*5. For proxy stream only.

Gallery

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