

## 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<sup>\*1</sup> IP data stream for networked transmission from a variety of medical equipment at less than 1 frame latency<sup>\*2</sup>.

The IP data comprises native video as a primary output and bandwidth optimised 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 optimised 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 that receives IP streams, converting them to 4K or HD visually lossless video data with low latency of less than 1 frame<sup>\*2</sup> 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 fibre 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 conversation 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<sup>\*3</sup> 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 the detail of the supported resolutions and signals, please contact 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 <sup>*1</sup> @ 60 fps 4:4:4 <sup>*2</sup> |
| Outputs        | Native and proxy streams                               |
| Primary Output | 3G-SDI safety line / SMPTE 424M                        |

### Connectivity

|                       |   |
|-----------------------|---|
| USB                   | USB Type A (Reserved for future use) (1)<br>USB Type B (Reserved for future use) (1)  |
| Control and Data      | SFP+ (Ethernet network) (2) <sup>*3</sup><br>RJ-45 (Ethernet network) (1)<br>RJ-45 (for serial control) (1)<br>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)<br>VGA <sup>*4</sup> / Component <sup>*4</sup> / YC <sup>*4</sup> / Composite video <sup>*4</sup> |

## Connectivity

|                |  |
|----------------|--|
| 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 <sup>*5</sup> |
|------------|--|

## 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 x H x D (excluding projection)) | approx. 189 x 47 x 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 adaptor is required.
- \*5. For proxy stream only.



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