

# NUCLEUS

The smart digital imaging platform for medical environments



## Overview

### **Manage, share and store HD, 4K, and 3D\* video content across hospital networks and improve workflows**

NUCLEUS™ is the scalable, future-proof and modality-neutral platform that streamlines the aggregation, management and distribution of video content, up to 4K resolution, across a hospital's network.

Developed in consultation with leading surgeons, NUCLeUS guides clinical staff through the planning, recording and sharing of any type of video, still images and other patient-related data in the Operating Room. The system can be applied in other spaces as well including Cath labs, pathology labs, classrooms and lecture halls, physician offices - anywhere across the hospital campus and beyond. Seamlessly linking devices, applications, video and most importantly, people, NUCLeUS focuses on hospital staff requirements- adding value to imaging workflows, enabling new possibilities and supporting decisions by all stakeholders. The focus is patient care.

The intuitive interface that is accessed via a touch screen, lets clinical staff route video from any source to any destination, display information on surgical monitors and large displays within the OR or send images elsewhere on site. Multiple video feeds from endoscopes, surgical microscopes, C-Arms, room cameras, ultrasound, and anaesthesia systems and other sources can be recorded simultaneously in any combination of formats and resolutions. NUCLeUS also offers simple video editing functions as a part of the workflow, with no need for external editing software or special skills.

NUCLEUS also gives surgeons the ability to share live video with their peers as well as other team physicians, doctors and staff. Captured content can be associated with other patient records stored centrally (on a secure basis) and accessed from anywhere across the hospital-wide IP-network for secondary use e.g. consultations, conferences and educational purposes.

\* 3D is available in Side by Side format in 4K/HD resolution.

*Note: Image shown above represents Sony NUCLeUS™ software GUI displayed on a touch panel monitor that is manufactured by a 3rd party. Touch panel monitor is available for purchase from Sony.*

## Features

### **Seamless, intuitive image workflow**

NUCLEUS features an intuitive touch interface that simplifies imaging workflow and reduces the operation steps, which is helpful for clinical staff who want to concentrate

on the surgery. Users can route any image source to any destination, with no need to unplug and reconnect equipment, and record multiple video sources simultaneously while maintaining the highest quality in real time.

In addition, for even greater flexibility, NUCLeUS supports the application Mobile Monitor which allows surgical staff to access the streaming data via an iPad in virtually real time within the OR. They can view images from any modalities on the iPad. This will enable medical staff in the OR to follow the intervention on their handheld device.

### **Scalable, modality neutral and future-proof**

NUCLeUS is device, format and resolution-agnostic - handling 4K, HD and Standard definition video and still image sources from any modality. Live video and audio streams are distributed over secure, standard IP connections outside the OR networks. As a platform, NUCLeUS is designed so that functionality can be easily expanded to utilise a growing number of powerful NUCLeUS 'Smart Applications'.

### **Compatible with medical image sources**

NUCLeUS provides surgeons and clinicians direct, fingertip control over a wide range of medical image sources including live video signals from endoscopes, ultrasound scanners, in-light cameras, PACS workstations and many more.

### **User-focused video editing**

NUCLeUS integrates video editing functions commonly used in clinical environment - such as trim/cut, create still images from video and adding annotations. With NUCLeUS, making a video-clip based on a specific part of a surgery is simple compared to other systems where third-party software and hardware are required.

### **Flexible display options**

NUCLeUS offers a wide range of display modes and customised screen layouts, including switching to multiple monitors in full screen, picture-in-picture or multi-split (quad view) modes on any specified display. This flexibility supports improved workflow; designed to suit the needs of all types of surgeons, physicians and staff - through all phases of a surgical procedure.

### **Scalable NUCLeUS Smart Applications**

A growing range of apps add powerful image processing features to assist surgeons and clinical staff. For example, rotation correction enables the surgeon to stabilise the 'horizon' in an endoscopic video feed while rotating the scope.

### **Teaching, training and knowledge sharing**

NUCLeUS supports live video streaming, with two-way audio communication plus annotation - via Telestration function - with no need to use a mobile phone for communicating with colleagues. With simple touch-panel control, NUCLeUS is ideal for streaming surgical procedures to students or anywhere else as needed.

### **Streamlined information management**

NUCLeUS integrates with Hospital Information Systems (HIS), for a seamless workflow. Multiple image sources used during surgery can be integrated with patient information gained through HIS/RIS, PACS and EMR to create comprehensive, easily accessible patient records. NUCLeUS communicates with EMR using HL7 standards with our HIS Integration feature, sending multimedia archives with the patient information gaining through the EMR to the PACS server.

In addition, for hospitals that still print surgical images, printer integration enables the user to print recorded still images on an UP-DR80MD A4 printer directly via the NUCLeUS touch panel either during or after the intervention which enhances the documentation workflow as well.

**Flexible integration and remote support**

NUCLEUS offers hospital IT departments the benefit of low maintenance and peace of mind. Facilities can rest easy knowing that any hardware, software, or network issues are monitored by Sony around the clock allowing for remote system maintenance to prevent costly OR downtime interruptions. Add on features and enhancements can also be installed remotely, without ever sending a technician into the room.

**Open for developers**

Open API (Application Program Interface) protocols simplify rapid integration with modality manufacturers' OR controllers and other hospital systems. This offers an attractive environment for modality makers, Integrators and/or developers to create their own specific applications that can be hosted on the NUCLEUS platform. Integrating the system at this level can provide a unique experience for an end user working within the confines of a specific system as needed - such as Interventional Radiology Systems, Robotic surgery systems and a number of other possibilities.









**Reducing patient anxiety in the OR**

Many patients are likely to feel very anxious when entering the operating room. Especially useful in paediatrics and obstetrics cases, surgical staff can use the Patient Distraction function thus helping to reduce patient anxiety. Music tracks and video imagery can be played in the OR to create a more relaxing and comfortable atmosphere. By programming items in advance, staff can easily select the most suitable content for each patient and there are even 5 pre-sets for both music and video - for quick and easy playback.

**Protecting patient privacy**

Privacy Mode enables surgical staff to stop recording or broadcasting content to protect patient privacy when there is a risk that the patient can be identified. Recording and broadcasting can be quickly disabled with one button.

Related products

			
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## Gallery

