



# PRODUCT CATALOGUE

4K ICG PLATFORM



**Surgery, Simplified.**

[www.smartsurgn.com](http://www.smartsurgn.com)

AirSurgN Insufflator unit is under FDA review and not released for commercial sale.

# INTRODUCTION TO 4K ICG PLATFORM

## Unparalleled clarity, Immersive surgery.

Designed to simplify complex workflow and offer more information during surgery, the SmartSurgN 4K ICG platform delivers a truly immersive visualisation experience.

The presence of a dedicated IR camera sensor allows for real-time overlay of ICG fluorescence over white-light images in 4K Ultra-HD resolution.

- ✓ 4K resolution video
- ✓ Four Imaging Modalities
- ✓ Three Video Color Modes
- ✓ Integrated Laser & LED Light Source
- ✓ Customizable Camera Buttons
- ✓ Future updates via communication ports (SSNet)



4K ICG Platform

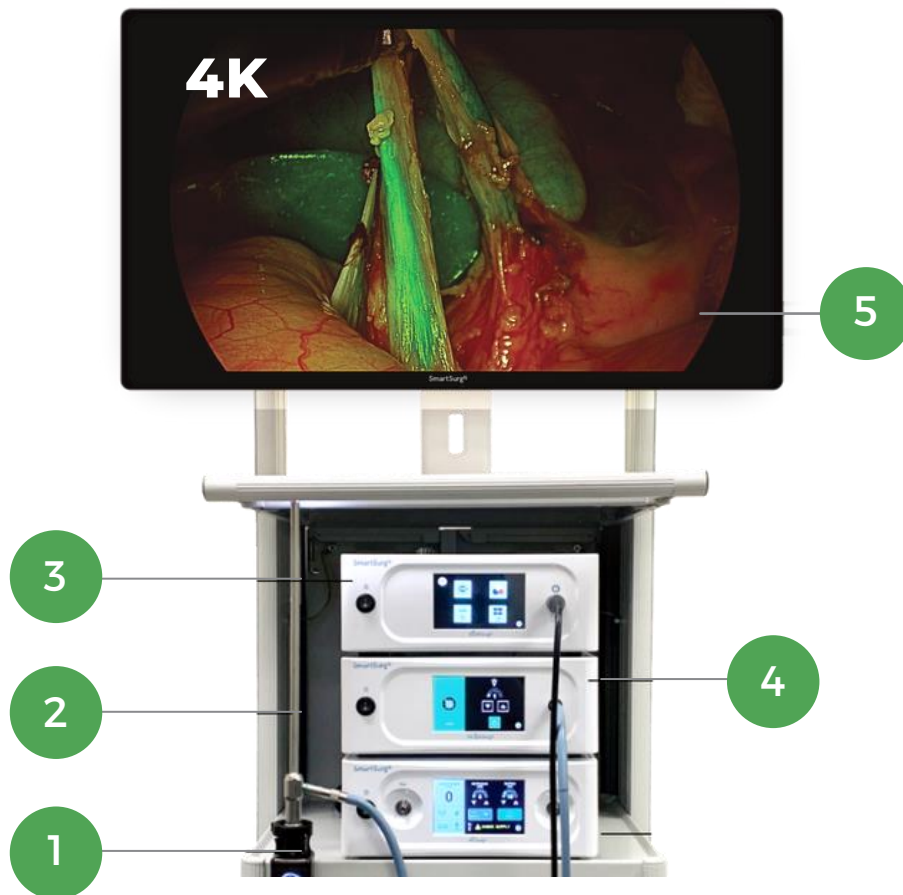
### A SmartSurgN & Ikegami Collaboration

SmartSurgN aims to make high-quality medical products more accessible by leveraging the state-of-the-art imaging technology of Japanese camera manufacturer Ikegami.



## Purpose-built for superior and reliable performance

All components seamlessly integrate to provide superb visibility, color reproduction and reliable performance.



### 01 EyeRSurgN Camera Head

Camera head visualizes regular and fluorescence images in stunning 4K Ultra HD resolution. Easily access functions with a touch of a button.

### 02 ICG Laparoscope

Clearly examine organs in the abdomen with rigid laparoscopes in 0 and 30 degree field of view.

### 03 EyeRSurgN Camera Console

Make easy visual adjustments and customize camera button configuration on a 5-inch LCD Touchscreen.

### 04 IRLightSurgN Light Source

Clearly assess vessels, blood flow and tissue perfusion with the integrated laser and long-life LED Light Source.

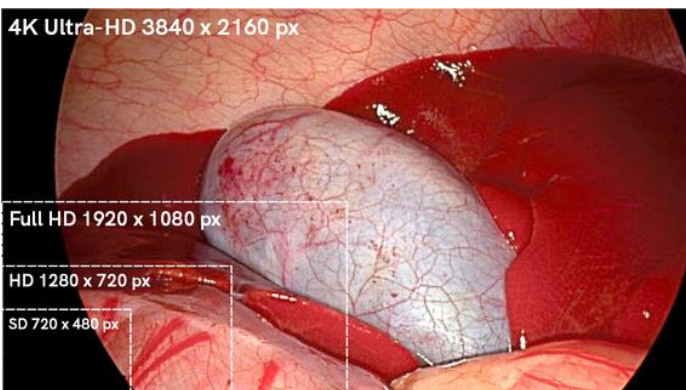
### 05 View4KSurgN Monitor

Stunning 4K resolution video with wide gamut colors on a 32-inch LCD display.

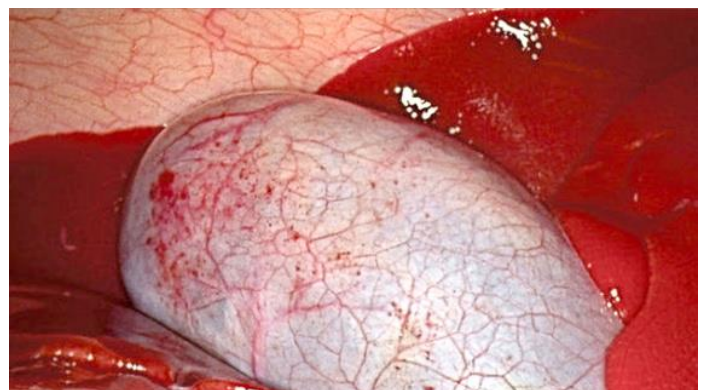
# BENEFITS

## Maximize visual potential with four times more detail

4 CMOS camera sensors deliver stunning video in 4K Ultra-HD (3840x2160) resolution. View vivid images with four times more visual information than full HD (1920x1080). The camera is capable of up to 2.3x optical zoom when attached to a zoom coupler, making for a truly immersive surgical experience at a closer distance without compromising on the resolution.



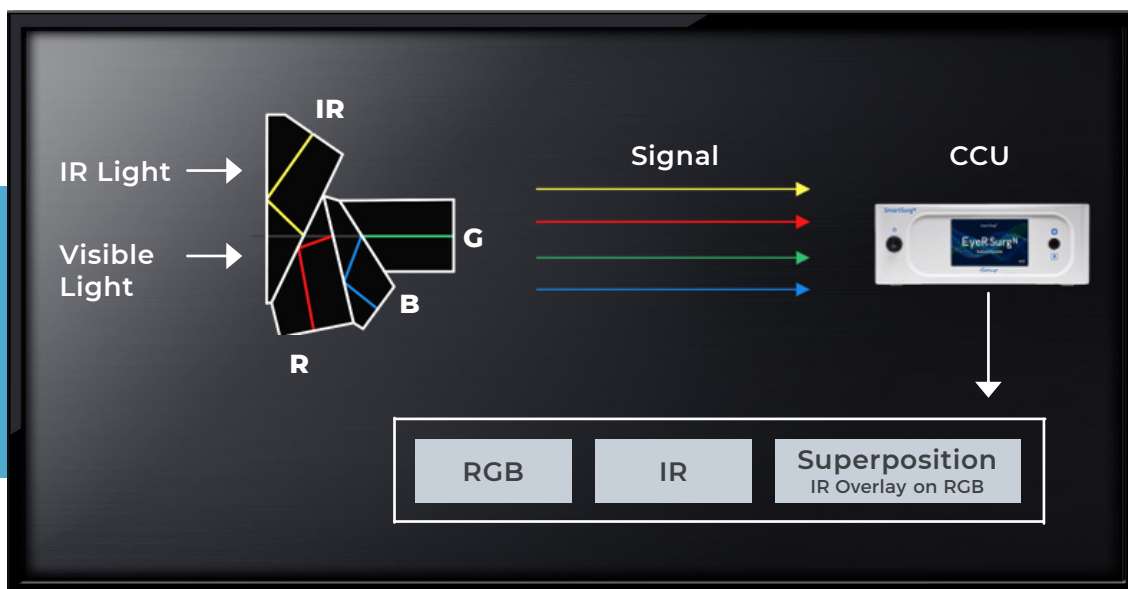
Four times more information than HD



No loss of details when zoomed in

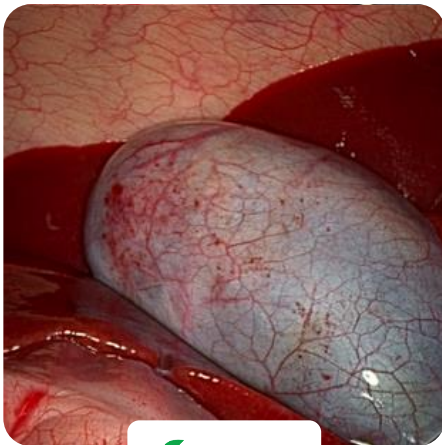
## See beyond the norm with real-time fluorescence overlay in 4K

The main component of the platform is the presence of a dedicated fourth sensor, which is capable of processing laser (IR) and visible light to render real-time fluorescence overlay on RGB video in 4K Ultra-HD resolution.



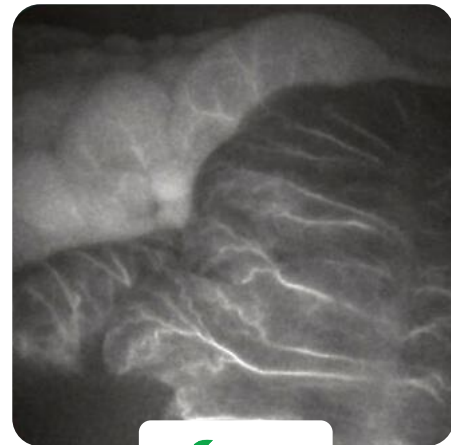
## Navigate clearly with four stunning video modalities

Visualize vessels, blood flow and related tissue perfusion effectively with one visible-light and three fluorescence overlay modes. IR Intensity control ensures optimal fluorescence imaging, regardless of camera angle or distance.



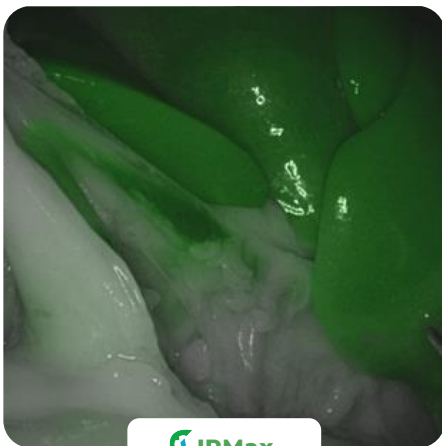
 **Regular**

4K RGB Video with  
no fluorescence overlay



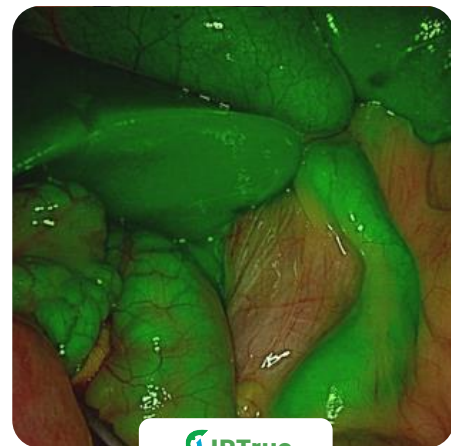
 **IRFlo**

4K Fluorescence displayed  
in high-contrast black and white



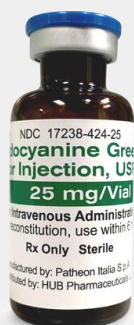
 **IRMax**

4K Grayscale Video with  
fluorescence in green



 **IRTrue**

4K RGB Video with  
fluorescence in green



## Fluorescence Imaging - How it works

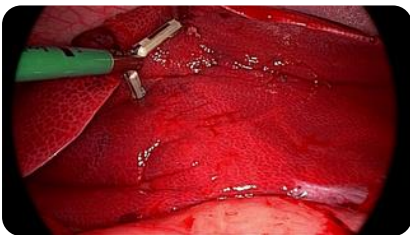
To make the infrared spectrum visible, Indocyanine Green (ICG) dye is injected intravenously into the bloodstream. The dye particles bind to plasma proteins and are excited by a laser to produce a real-time fluorescence image overlay, that is captured by the dedicated IR sensor.



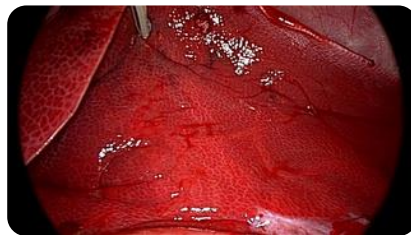
## Make quick video adjustments with intuitiveness

The 5-inch LCD touchscreen provides an ergonomic experience for making visual adjustments. Tweak the brightness and sharpness, toggle between color modes, change overlay color and easily change the IR intensity level based on preference.

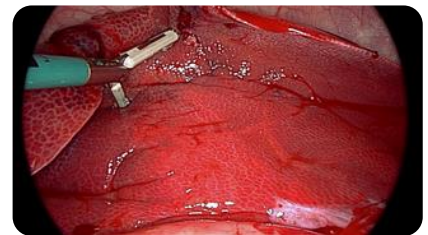
### Video color



Hot



Warm



Cold

### IR Intensity



Level 1



Level 3



Level 6



### Overlay color



Green



Blue



Purple

## Gain more control and flexibility with one-touch convenience

Access all important platform features with a press of an illuminated button. Customize the button configuration as per convenience and improve workflow.

Customizable Button Mapping  
(up to 8 functions)

### EyeRSurgN Camera System

- White Balance
- Video Mode Selection
- Sharpness
- Overlay color
- Brightness
- IR Intensity

### IRLightSurgN Light Source

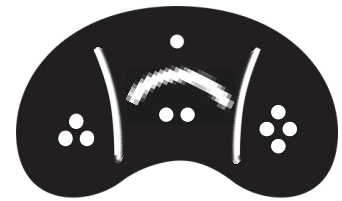
- Light Source On/Off

### AirSurgN Insufflator

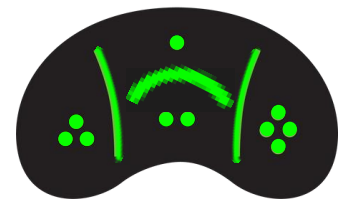
- Insufflation On/Off
- Smoke Evacuation On/Off



Illuminated Button  
based on video mode status



Illuminated button pad  
is white by default.



Color changes to green when  
fluorescence mode is active.

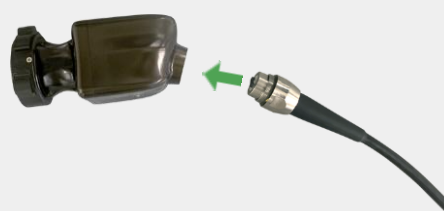
## Feel the benefits of hassle-free cable replacement

Repeated use of the camera head during surgery can lead to inevitable damage to the cable. Simply replace the cable on-site with ease by detaching it and fixing in the new one.

**Step 1** | Detach damaged camera cable.



**Step 2** | Attach replacement camera cable.

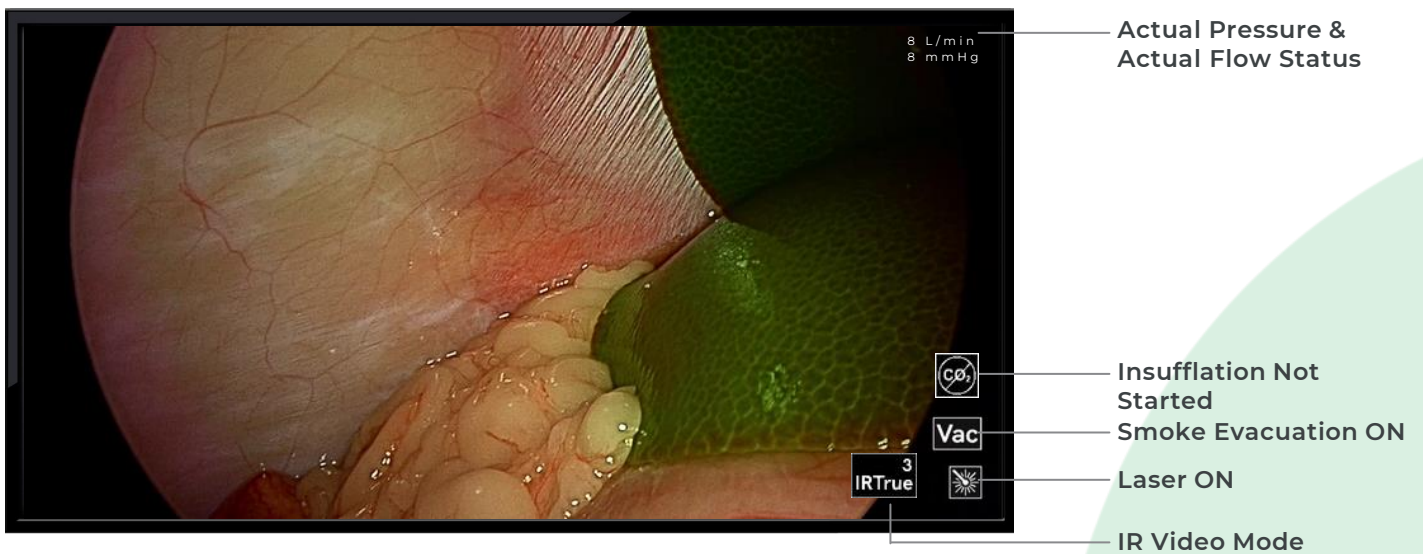


**Step 3** | Complete!



## Glance on-screen information to drive better decisions

Real-time information on the monitor gives an insight into the status of different functions on each device such as insufflation, vacuum, laser, and video mode.



\* Post 510k features. For Illustration Purposes Only.

## Long life laser performance

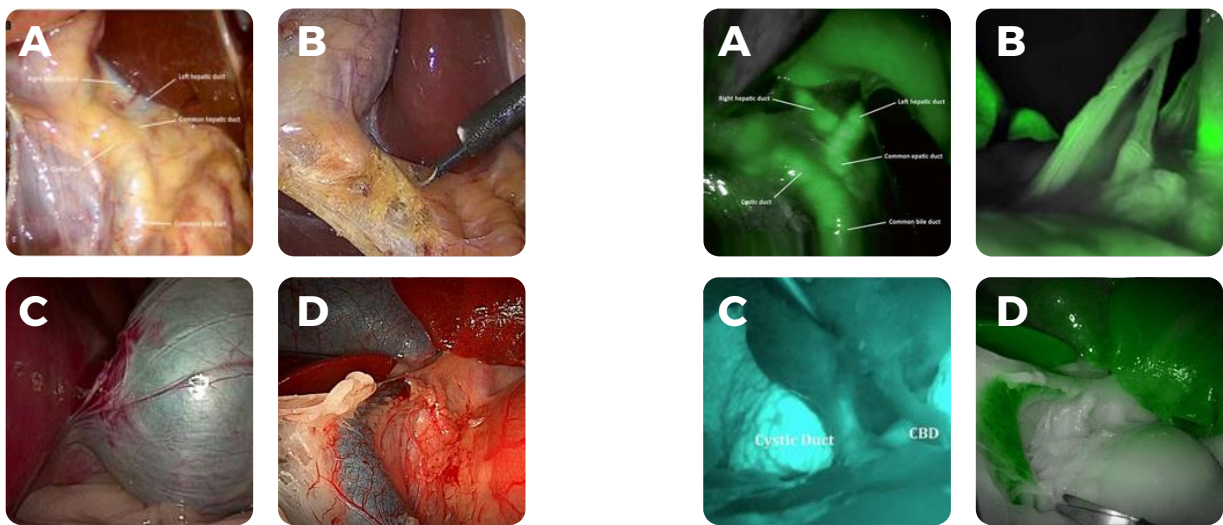
The IRLightSurgN Light Source hermetic packaging of the laser diode provides extended life at a higher rate of performance.



# SURVEY & FEEDBACK

## Superior image quality acknowledged by expert surgeons from around the world

According to 2020 survey that was conducted in Singapore, Malaysia and Saudi Arabia, 8 in 10 physicians rated the 4K Platform's white-light and fluorescence image quality (Image D) as the best amongst the market leaders.



### Appreciation from the community:

- 4K image quality is comparable to the competition.
- Camera button program is nice to control all devices.
- Smoke evacuation and insufflation system simplifies the surgical site.



- I am impressed with this very good image
- The image quality will be good for liver cancer procedure, where you see liver details.



- I thought HD image was good enough for surgery. However this 4K image obviously provides more information on the display.
- Cost is higher than HD system? It's worth investing.



- Fantastic 4K Image. I definitely have no problem performing surgery with this system.



# COMPONENTS OVERVIEW



## IRLightSurgN Light Source

### Technical Specifications

<b>Input</b>	5" Touch Screen
<b>Lightsource type</b>	LED (white and red) and laser (808nm)
<b>Communication</b>	SSNet x1
<b>Size</b>	12" x 12" x 4.5" (30 x 30 x 11 cm)
<b>Weight</b>	10lbs (4.5 kg)
<b>Service life</b>	5 years (based on two surgeries per week)
<b>Operating conditions</b>	Temperature: 10C to 30C (50F to 86F) Relative humidity: 25-75%
<b>Transmission Spectrum</b>	Visible + NIR
<b>Ingress Protection</b>	IPX0



## EyeRSurgN Camera Console

### Technical Specifications

<b>Input</b>	5" Touch Screen
<b>Video Output</b>	1xHDMI 2.0, 60fps, 3840x2160 pixels, 10-bit color processing, 4xSDI (Quad 4K/12G switchable)
<b>Communication</b>	SSNet x 3
<b>Size</b>	12" x 12" x 4.5" (30 x 30 x 11cm)
<b>Weight</b>	9 lbs (4 kg)
<b>Service Life</b>	5 years (based on two surgeries per week)
<b>Operating Conditions</b>	Temperature: 10C to 30C (50F to 86F) Relative Humidity: 25-75%
<b>Ingress Protection</b>	IPX0



## EyeRSurgN Camera Head

### Technical Specifications

<b>Optics</b>	20mm focal length integrated optics
<b>Size</b>	1.9" x 1.9" x 3.9" (4.8 x 4.8 x 9.9 cm)
<b>Operating Conditions</b>	Temperature: 17C to 24C (64F to 75F)
<b>Cable Length</b>	3m or 10ft
<b>Weight</b>	1lb (0.5kg)
<b>Service Life</b>	5 years (based on two surgeries per week)
<b>Ingress Protection</b>	IPX7



## View4KSurgN Monitor

### Technical Specifications

<b>Communication</b>	HDMI x 2
<b>Display Details</b>	32-inch LED Monitor
<b>Resolution</b>	4K Ultra-HD (3840x2160)
<b>Refresh Rate</b>	60 Hz
<b>Size</b>	28.7" x 9.2" x 18" (72.9 x 23.62 x 45.72 cm)
<b>Weight</b>	15.69 lbs (7.12 kg)
<b>Service Life</b>	10 years (based on two surgeries per week)
<b>Operating Conditions</b>	Temperature: 10C to 30C (50F to 86F) Relative Humidity: 25-75%

## Product Order Number:

Order No.	Components
10010	EyeRSurgN
10040	EyeRSurgN Camera Head
10020	IRLightSurgN
10070	View4KSurgN
FG1122	10mm ICG Laparoscope (0 )
FG1123	10mm ICG Laparoscope (30 )
FG1150	Storz Scope Adapter

Order No.	Accessories
10022	Power Cable, US
10025	HDMI Cable
10026	SSNet Communication Cable
10028	SDI Cable
10050	Fluorescence Imaging test target

# ABOUT SMARTSURGN

## We Simplify Surgery & Augment Intelligence for Surgeons

SmartSurgN Inc. is a Silicon Valley based medical technology company that is focused on addressing complex surgical workflow problems that dominate today's surgical procedures (Open & MIS) through surgical visualisation solutions. Our vision is to integrate the accumulated wisdom and experience of professional surgeons into creating high-tech medical devices that simplify surgery, increase accuracy and improve patient outcomes.



**Yanpeng Ng**  
Founder & CEO

20+ years experience in R&D and supply chain management of the endoscope business.



**Ron Plantz**  
Chairman

Experienced sales leader, negotiator and innovator with a successful track record in the medical industry.

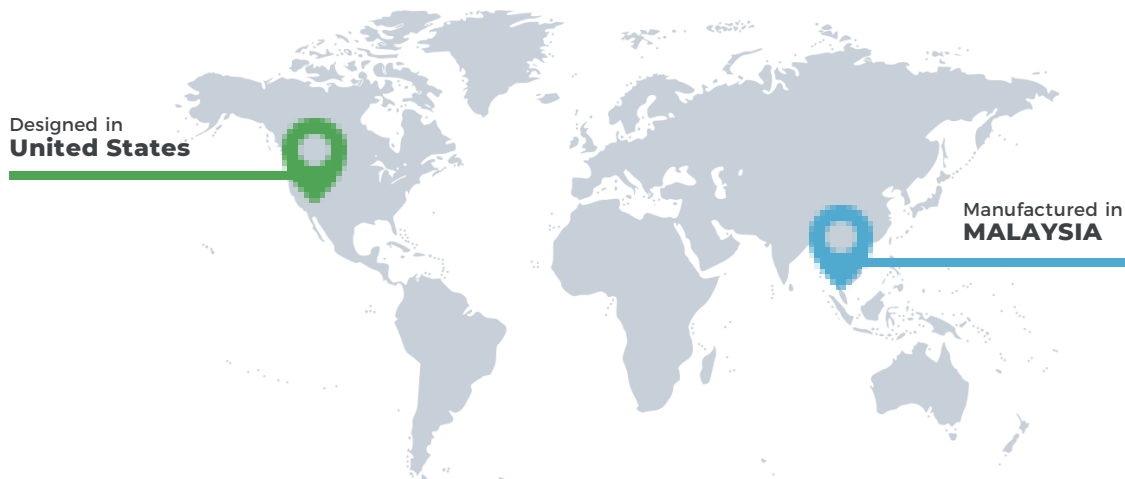


**Vasudev Nambakam**  
Founder & CTO

18+ years experience researching and developing innovative surgical technologies.

## We bring together the best minds to create innovative visualisation solutions

Our engineering core consists of over 50 passionate experts in mechatronics, photonics, design and software. Assisted by a unique global supply chain involving USA and Malaysia, the team develops big impact solutions that challenge the status quo.



## Witness our state-of-the-art Malaysia facility

Spread over 5000 sq ft, the SmartSurgN factory in Malaysia will provide a highly equipped space for R&D and medical device manufacturing. All important quality control regulations are in place for smooth operation, along with a Centre of Excellence for showcasing future innovations.



## Get in touch and experience the next-generation of minimally-invasive surgery

SmartSurgN helps surgeons speed up decisions, minimize risks and focus on providing the best care to patients with high-quality products that are safe, reliable and affordable. If you're interested in the 4K platform, we would be happy to setup a demonstration to see it in action.

### SmartSurgN Inc. HQ



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### SmartSurgN Sdn Bhd



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Malaysia

# Surgery, Simplified.

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