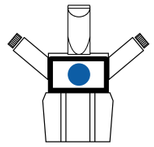
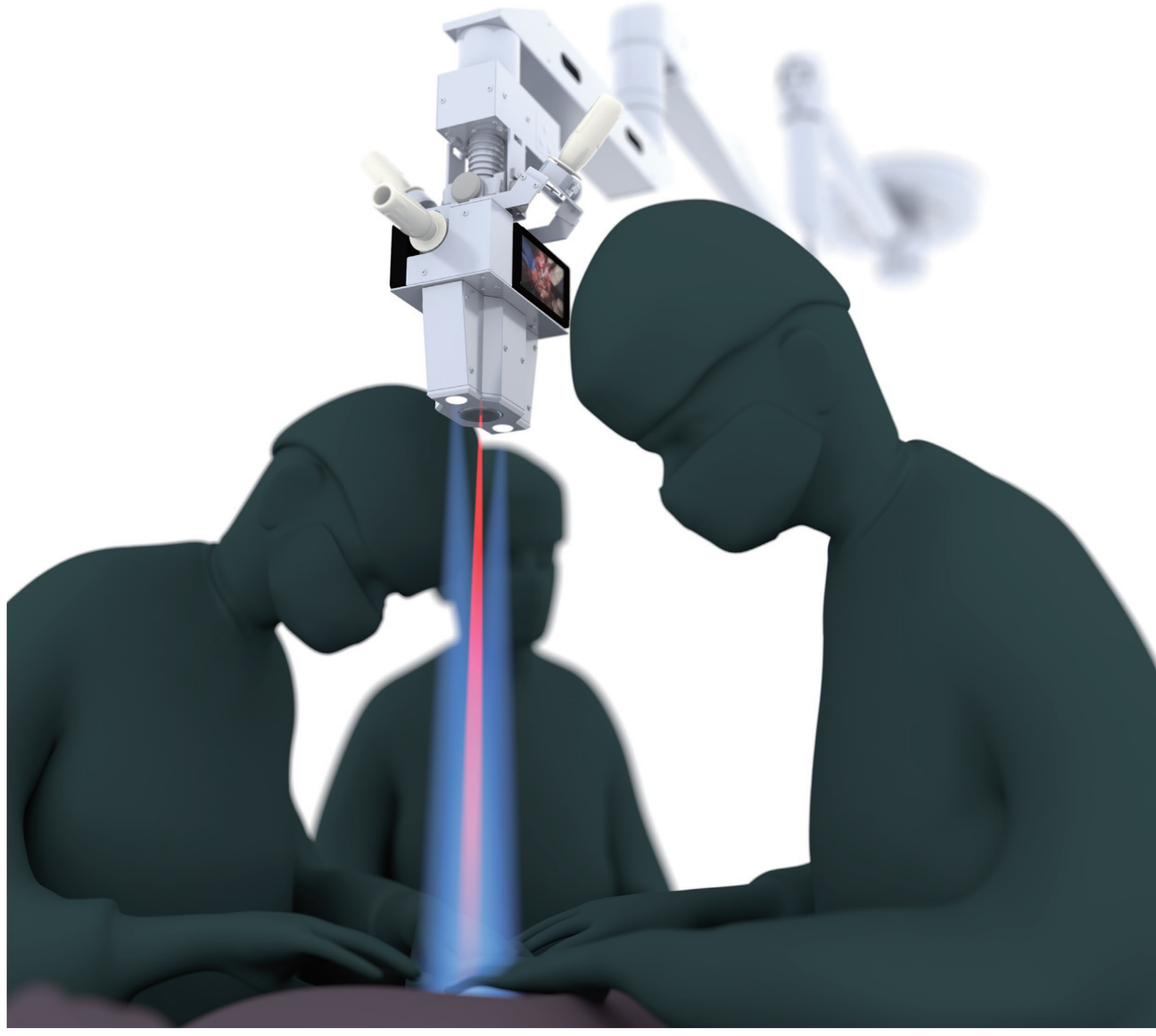
SKYLUX®
VAMADA SHADOWLESS LAMP CO.,LTD.



SSLR

Surgical camera with spot lights

Guaranteed recording of a high-quality 4K video unobstructed
by the surgeons' heads and obtainable by a clean surgeon
without assistance



SKYLUX® VAMADA SHADOWLESS LAMP CO.,LTD.
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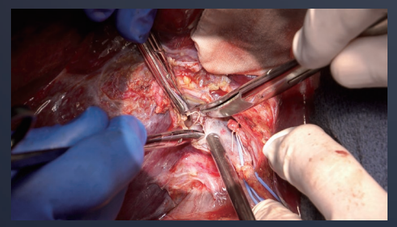
Simply by directing the spot light
to the surgical field,
a clean surgeon can record
a clear image unobstructed
by heads



Recorded image

Unshakeable sharp light unobstructed by heads constantly illuminates the surgical field. By attaching an external monitor, the images can be shared with staff members in the operating room.

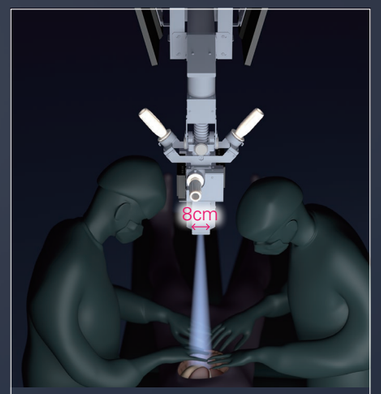
*Angle from the side of the bed

A clean surgeon can operate the positioning handle and the camera buttons

By positioning these handles over the surgeon's head, they are less likely to be contaminated and a clean surgeon can operate them easily.

Small-sized, thin head

The lower portion of the head is thin—approx. 8cm in width. Its size and shape make it unlikely to get in the way even if placed between the surgeon's and the 1st surgical assistant's heads.



Depiction of the positioning
*Angle from the head of the bed

The light axis from the spot light and the video image axis align

The focus of the illuminating spot light is the focus of the camera's shooting angle.
The spot light acts as a guide for video position adjustments.

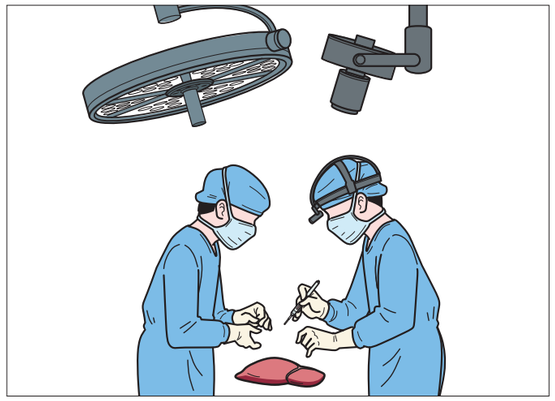
Mobile stand type

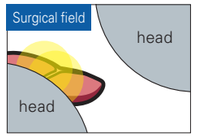
Characteristics

Issues with conventional open surgery recording / lighting

Recording with a camera placed above the head of the surgeon

Case where the camera arm is on a different axis

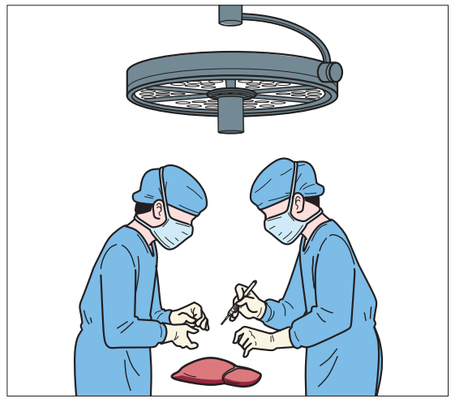


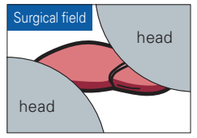


The surgeon's headlight would shake, resulting in poor illumination during the surgery and in the recorded images.

- Because the camera is placed above the surgeons' heads, their heads would often obstruct the view.
- The surgeon can't focus on how well the surgical field camera is recording video.
- An external videographer must be there to adjust positioning while watching a monitor.
- Illumination from surgical light is insufficient, so use of a headlight is necessary.

Case where the camera is equipped with the center of surgical light



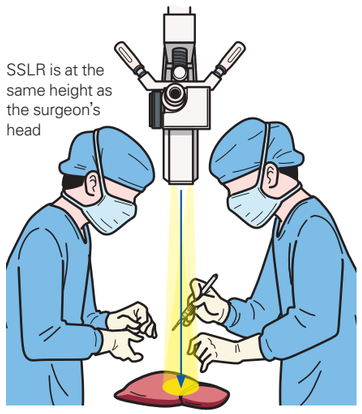


Recording is only possible from an angle straight above.

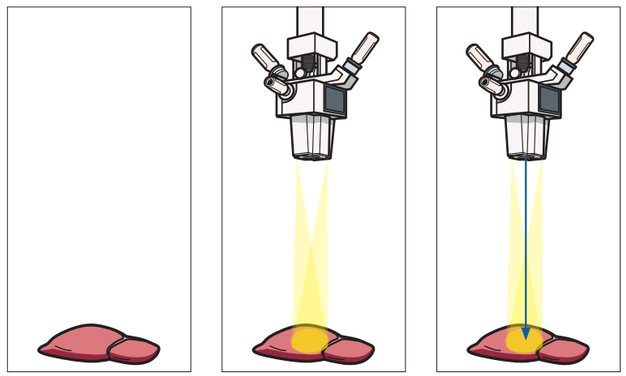
- Heads are an obstruction.
- Illumination from surgical light can be insufficient.
- The illuminated field of the surgical light is wide, so it can't act as a guide to the center of the surgical field.
- Because the camera is placed above the surgeons' heads, their heads would often obstruct the view. It's not possible to make minor adjustments to the camera position.

SSLR solves these issues

Because the SSLR is fixed at the same height as the surgeon's head, you can achieve an unshaking light field and images unobstructed by surgeons' heads.
The spot light acts as a guide to the image range, so it's not necessary to check the image with a monitor.

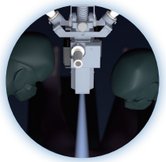


Mechanism for viewing with the SSLR



SSLR Characteristics

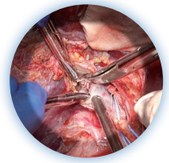
The position illuminated by the spot light and the scope of the image being recorded are the same!



A product that does not get in the way
even if placed at the same height as the surgeon's head

A clean surgeon can, without assistance, achieve lighting that is unobstructed by the surgeons' heads and always illuminates the center of the surgical field, and capture high quality open surgery videos!

A clean surgeon can align the position and operate the device because the sterilizable handles have been set to a position and shape that makes them unlikely to be contaminated



High-quality images with assured lighting

SSLR Benefits

Sharing images within the operation theater

Realtime learning, contributing to safer treatments

2nd and 3rd surgical assistants, as well as medical students, who cannot normally see the surgical field can now observe it with an external monitor.

Video recording

The SSLR is intended for video recording for the following purposes

- Conference presentations
- Training for resident physicians
- Review of surgical procedures
- Specialists training in specific fields and specialist certificateion acquisition
- Telemedicine

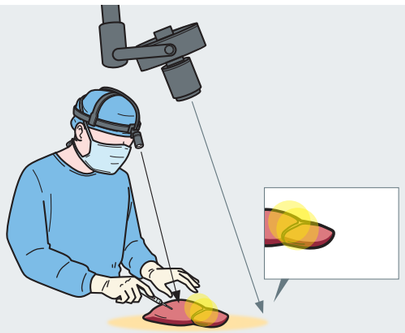
Are you having trouble taking good surgical video?

With the SSLR, a clean surgeon can, without assistance, achieve lighting that is unobstructed by the surgeons' heads and always illuminates the center of the operating field, and capture high quality open surgery videos!

Point 1

A spot light with an unshakeable light field
The light's scope is the same as the camera's scope!

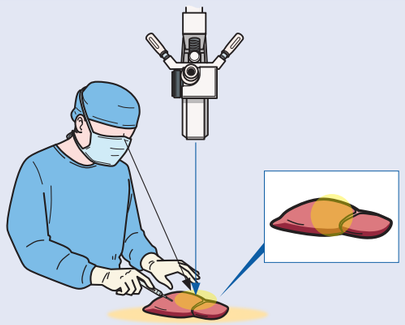
Conventional



Surgeon's headlight would shake, resulting in poor illumination during the surgery and in the recorded images.

Also, the camera was on a different axis and had to be operated separately.

SSLR



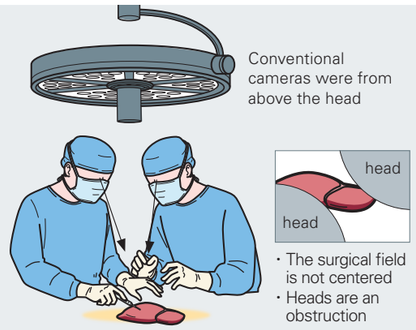
The light field does not shake.

Additionally, the video field of view is on the same axis, so the surgical field can be captured just by moving the light field.

Point 2

Because the device can be placed below the surgeon's head, it is possible to record a clear video with no obstructions

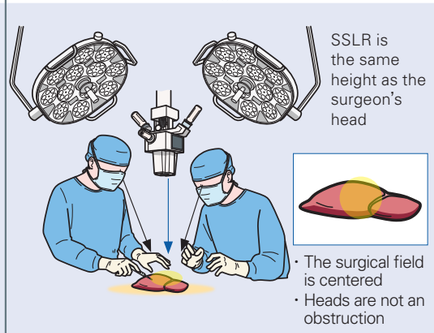
Conventional



Lights from the surgical light were often obstructed by the surgeon's head and could not often effectively illuminate the surgical field.

Also, the surgeon's head often obstructed video, too.

SSLR



Even when placed at the same height as the surgeon's head, the size and shape prevent it from getting in the way, and it results in proper lighting and a video recording unobstructed by heads.

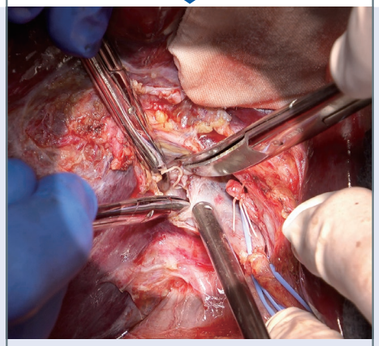
Point 3

High-quality images in the video assuredly illuminated by the spot light

Conventional

Images recorded when the lighting is not properly directed are often dark and low quality.

SSLR

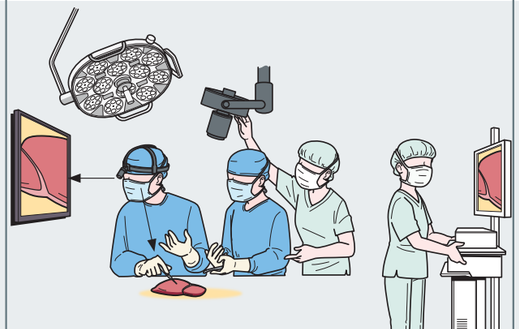


A properly illuminated high quality image

Point 4

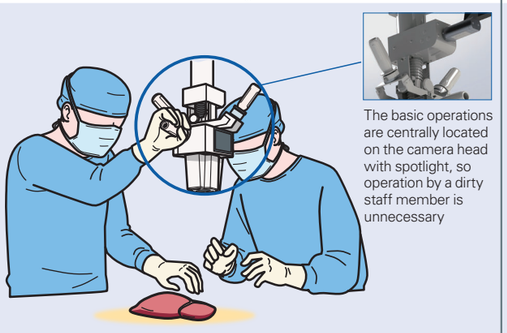
A clean surgeon can do the positioning, so there is no need for a camera staff

Conventional



It was necessary for staff members (assistant surgeon, nurse) other than a clean surgeon to adjust the camera's position.

SSLR

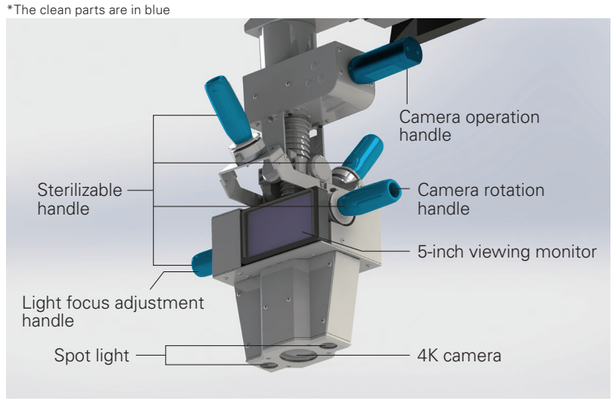


A clean surgeon can, without assistance, align the position because the sterilizable handles have been set to a position that makes them unlikely to be contaminated.

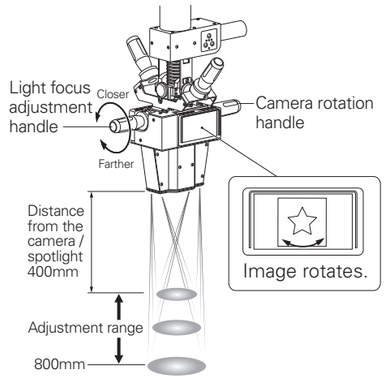
Operation / Functions

Overview of the camera head with spotlight

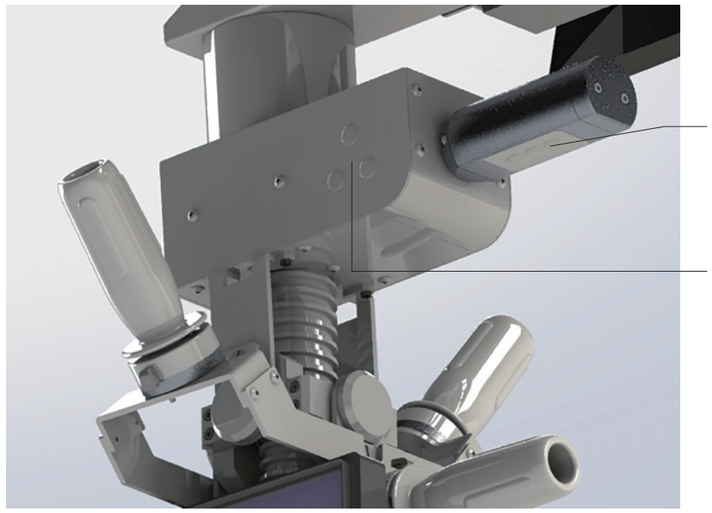
*The clean parts are in blue

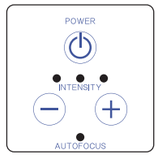


How to operate



Controller of camera and spotlight

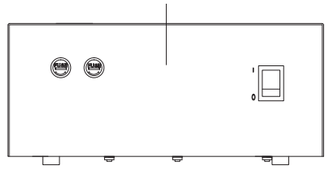




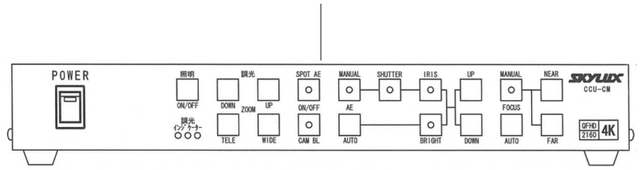
*The camera operation handles should be covered with disposable handle covers so a clean surgeon can operate them.

Others

Power unit



Camera / Spot light control unit



Lineup

SSLR ceiling-mounted type

For these cases…

- You want to keep the floor uncluttered.
- You want to record from various positions.

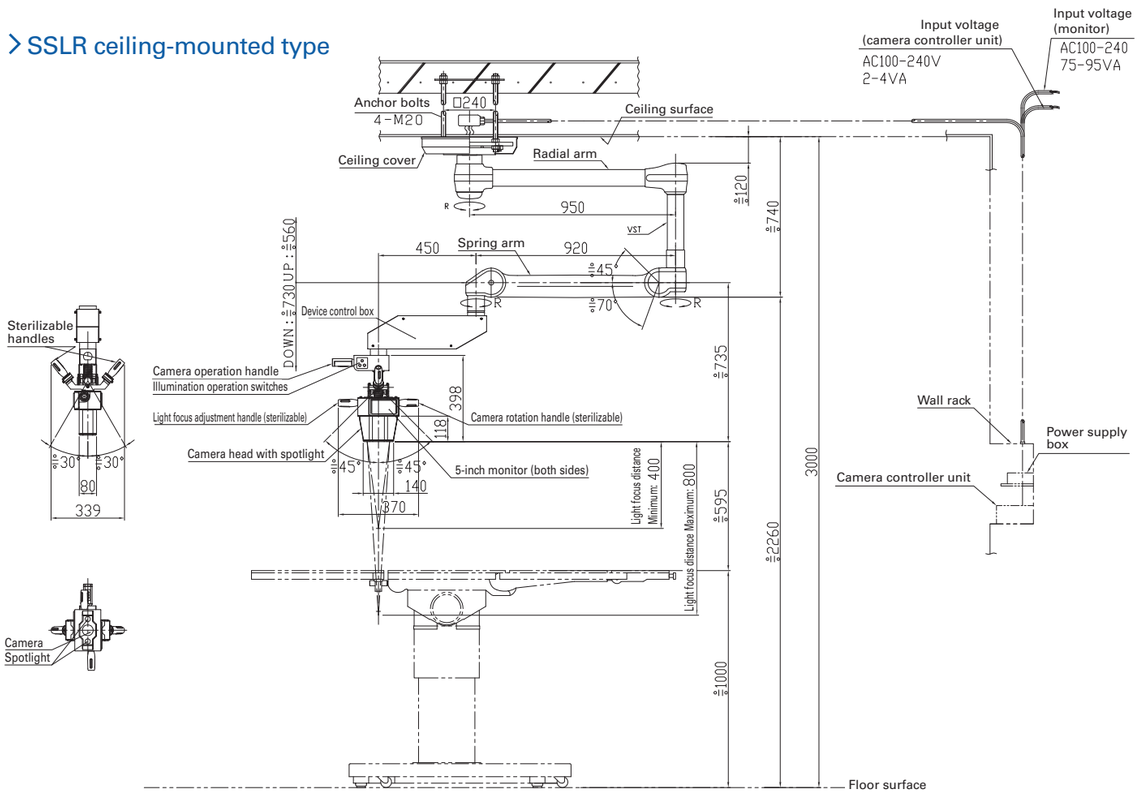
SSLR mobile stand type

For these cases…

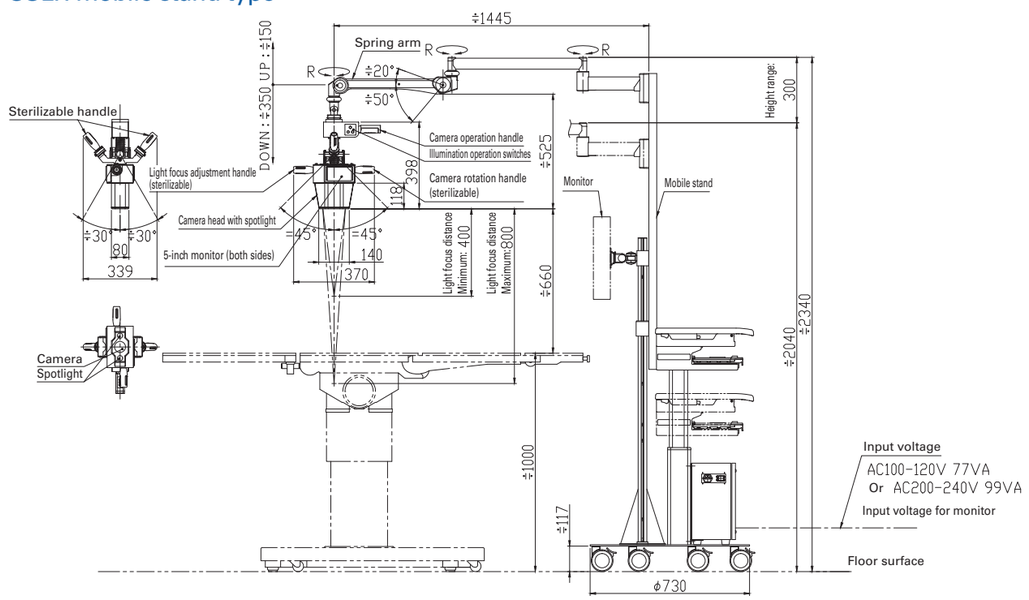
- You are not planning to use it every time and want to store it somewhere when not in use.
- You want to use it in multiple operation theaters.

Drawing

SSLR ceiling-mounted type



SSLR mobile stand type



Specifications

Items	SSLR ceiling-mounted type	SSLR mobile stand type
Intended use	Video recording of the surgical field	
Product configuration	Camera head (camera, spot light, viewer monitor), camera control unit, suspension arms, power unit	Camera head (camera, spot light, viewer monitor), camera control unit, suspension arms, mobile stand, power unit
Dimensions of camera head with spotlight (including handles)	W370 × D339 × H398 mm	
Dimensions of tip of the camera head	W140 × D80 × H118 mm	
Weight of camera head	Approx. 4.9 Kgs. (excluding cables)	
Total weight	Approx. 80 Kgs.	Approx. 90 Kgs.
Working distance (WD[*1])	400 ～ 800mm	
Spotlight		
Light source	LED	
Number of units	2	
Central illuminance (WD700mm)	Approx. 30,000 Lux	
Light field diameter (WD700mm)	Approx. Φ90mm	
Dimming	3 levels (MIN: 25% MID: 50% MAX: 100%)	
Light focus	Possible (WD400 ～ WD800mm)	
Camera and Camera / Spotlight controller		
Image sensor (effective resolution)	1/2.5 type Exmor R CMOS sensor (Approx. 8.51 million pixels)	
Output resolution	3,840 × 2,160 pixels	
Video signal format	2,160p / 29.97	
Lens	Optical 20x zoom lens	
Digital zoom	2x (maximum 40x when combined with optical zoom)	
Camera functions	ZOOM TELE/WIDE, SPOT AE ON/OFF, CAM BL ON/OFF, AE MANUAL/AUTO, SHUTTER, IRIS, BRIGHT, FOCUS MANUAL/AUTO, FOCUS NEAR/FAR	
Video output	4K	
Video terminal	HDMI 2.0	
Camera / Spotlight controller dimensions	W320 × D44 × H200 mm	
Viewing monitor		
Panel	LCD panel	
Product dimensions	136 × 76 × 26 mm	
Screen size / Aspect ratio	5-inch IPS panel / 16:9	
Resolution	1,920 × 1,080 pixels	
Electrical ratings *does not include optional accessories		
Rated input voltage	AC100-240V 50/60Hz	
Power consumption	SSLR: 75-95VA, Camera / Spotlight controller: 2-4VA	
Others		
Use environment	Temperature: 5-35℃ Humidity: 30-70% Air pressure: 800 ～ 1,060hPa	
Included accessories		
Disposable handle covers, sterilizable handles		
Optional accessories		
Monitor, distributor (in case of connection with several monitors), recorder		

*1 "WD" refers to the distance from the light to the surface of surgical field.
*It is not a guaranteed value because it depends on the use status and conditions.
*Please note in advance that partial changes in the design and specifications may be made without prior notice.

*This product is not a medical device. It is not designed for use in surgeries performed while viewing a monitor, unlike microscopes or exoscopes.

*The spotlight is intended solely to assist with camera imaging and does not function as a surgical light.