Panasonic

BUSINESS

Remote Head Camera

GP-UH532 Series
GP-UH332 Series

Visibility means certainty.

4K PROFESSIONAL

Panasonic
GP-UH532
4K

MENU   IE   AWC   AE
PROFILE   SEL   RED   BLUE   LEVEL
USB   PAGE

GP-UH532 Series

With Panasonic, visibility means certainty.

Drawing on our many years of 3 sensor camera experience, Panasonic has developed a new image processor and unique optical design to achieve clear, outstanding, ultra high definition pictures.
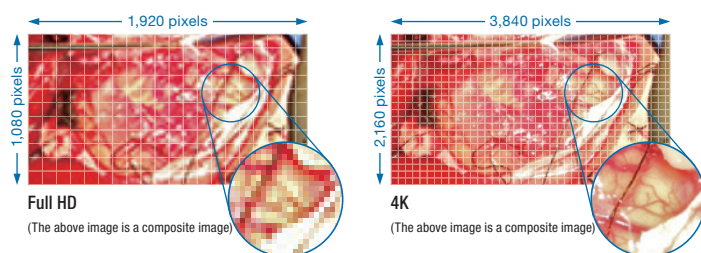The GP-UH532 series supports 4K, and the GP-UH332 series supports Full HD.
Our design features a new level of operational ease which is ideal for the medical environment.

▶ High quality, high definition video

Realistic 4K ultra high definition GP-UH532 series

This product supports 4K resolution (3840 x 2160), which provides four times the resolution of Full HD, and a horizontal resolution of 1600 TV lines. Support for 59.94p/50p also provides smooth images. Our unique technology refined over many years enables amazing ultra high definition and faithful color reproduction.
Additionally, it also supports ITC-R BT.2020, making it able to reproduce nearly all colors in the specified color reproduction range.

1,920 pixels — 1,080 pixels
Full HD
(The above image is a composite image)

3,840 pixels — 2,160 pixels
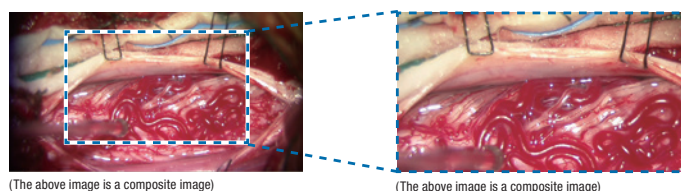4K
(The above image is a composite image)

12-axis image adjustment function

In addition to the six axes for RGB and CyMgYe, intermediate colors can be manually adjusted to perform detailed tuning according to the user and intended application.

R-Ye, R, Mg-R, Ye, Mg, Ye-G, B-Mg, G, B, G-Cy, Cy-B, Cy
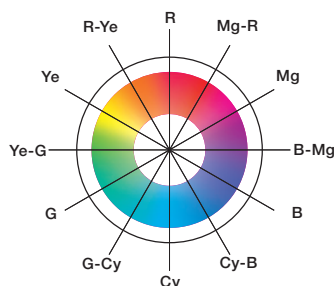
Digital Zoom function

The zoom can be set between 1x to 2.5x in steps of 0.1x.

(The above image is a composite image)

(The above image is a composite image)

Unique Panasonic 3MOS

Our technology enables accurate color separation of the three primary colors of light (Red, Green, and Blue) using the same technology as professional cameras in broadcasting stations. A specialized sensor is used to process each color resulting in excellent color reproduction.

■ Overview of color analysis

■ 1MOS sensor

Sensor

Color Filter

(Photographed using our 1MOS model)

■ 3MOS sensor

Sensor

Prism

Sensor

Sensor
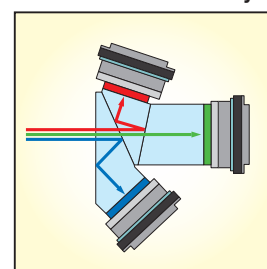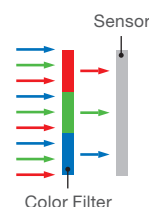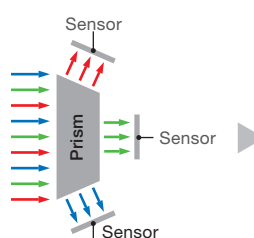
(Photographed using our 3MOS model)

▶ Compact

Ultra compact and light camera head

Whether 4K or HD, the camera heads are the same compact size. This allows the head to be used in many situations requiring a small profile.

42.5 (1-43/64") 27 (1-1/16")
30 (1-5/32")
7 (9/32")
4K PROFESSIONAL
Unit: mm (inches) (To scale)

▶Image enhancement functions

WDR (Wide Dynamic Range)

The dynamic range expansion function brightens dark areas while controlling the amount of overexposure.

Before correction

After correction

Dark Area Correction

The adaptive black stretch function brightens dark areas.
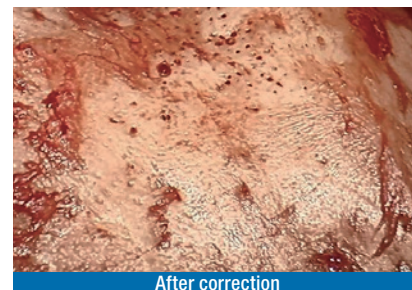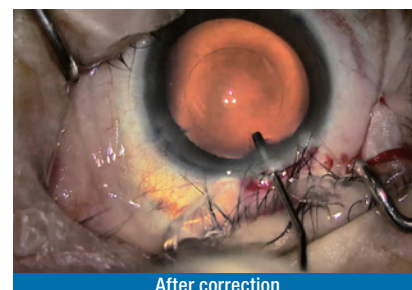
Before correction

After correction
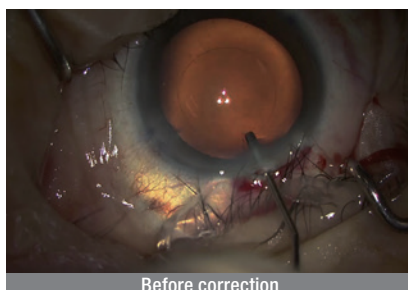
Overexposure Reduction

The exposure correction function controls the amount of overexposure.

Before correction

After correction
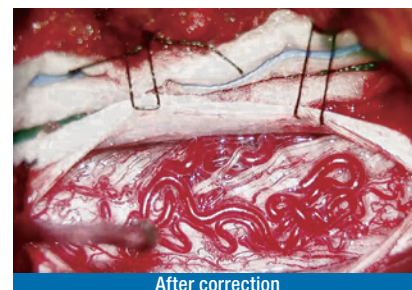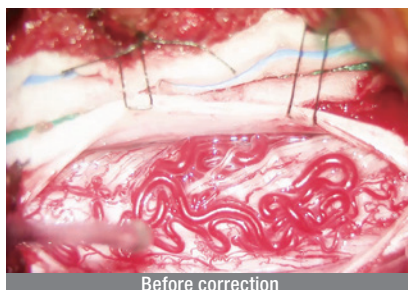
Smoke Correction

The smoke correction function clears white blur.

Before correction

After correction
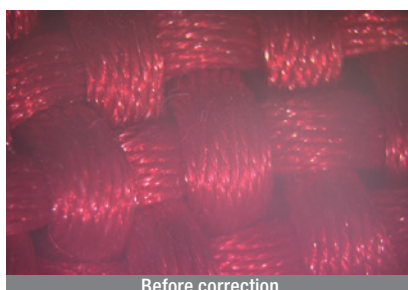
Color Enhancement

The color enhancement function enhances the selected color.

Before correction

After correction
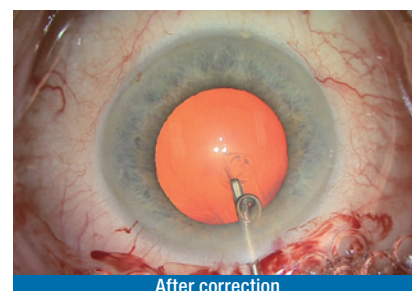
Fluorescent Image

Set the image quality suitable for each fluorescent image capture mode.

* It can be adjusted in detail.

Before correction

After correction
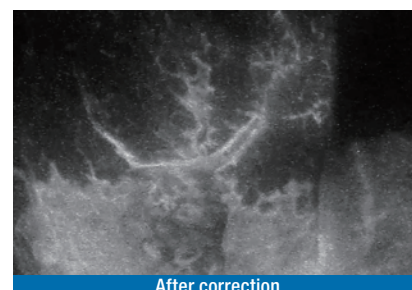
▶ High quality

Chemical-resistant coating

The chassis is treated with a chemical-resistant coating to prevent deterioration when using disinfectants and cleansers.

Complies with medical safety standards

- IEC60601-1 (3rd Edition)
- IEC60601-1-2 (3rd Edition)

* When using the designated AC adapter MPU60A-105.

▶ Efficient

Designed for medical environments

Ease of operation has been achieved through the highly visible layout design and easy to handle button shapes. Rotary volume dials are adopted and can be used to move the cursor during menu operation in addition to adjusting the red, blue, and brightness. In addition, the dials can also be stored to prevent operation mistakes and the flat panel allows for easy cleaning after use.

Rotary volume dials

Simultaneous 4K output   GP-UH532 series

Simultaneous monitoring and recording with high image quality is possible due to the ability to output two 4K signals simultaneously using HDMI and SDI. In addition to 4K images, Full HD images (1080p/1080i) can be output at the same time for use with Full HD monitors and recorders. Extra devices are not necessary and smooth migration from existing environments is possible.

4K
(3G-SDI×4)

Full HD
(3G-SDI)

4K
(HDMI 2.0)

4K or Full HD
(HDMI 2.0)
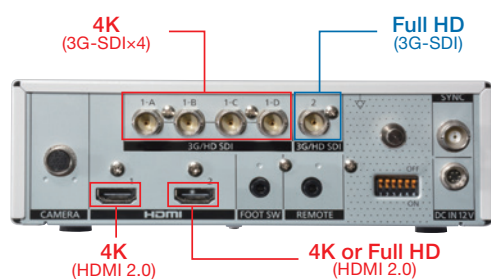
User profile function

The included user profile function supports six profiles on-board. It is possible to change the user configuration by simply inserting a USB memory drive and using the save/load functions.
PROFILE 1 to PROFILE 4 are templates for each application.
These template profile settings are based on actual surgeries, but they can be modified as necessary.
The settings appropriate for fluorescent image capturing are preset in PROFILE 5 and PROFILE 6.

USB terminal for user profiles

Profile No	Application & setting
1	Anterior (Cataract)
2	Posterior (Retina)
3	Neurological
4	ENT(Ear, Nose, Throat)
5	FLUORESCENCE2 (UH532) FLUORESCENCE3 (UH332)
6	FLUORESCENCE1
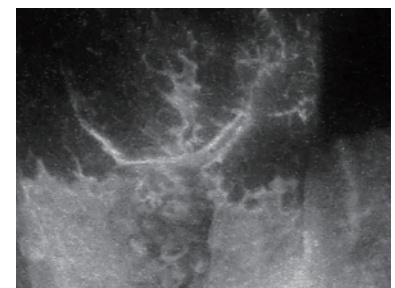
* This photo is for illustrative purposes.

Foot switch

Even when you cannot use your hands, the camera can be operated with ease by connecting the foot switch. Using the foot switch to switch profiles, freeze, flip, mirror and zoom in/out the camera allows smooth operation in medical environments. The foot switch can be assigned two functions using CH1/CH2.

Camera cable

The lineup includes 3, 6 and 15 m cables, and changes to the cable length are automatically detected, which eliminates the need to change settings.

▶ Lineup

4K model

GP-UH532   4K Ultra HD 3MOS camera - boasts four times the resolution of Full HD.

Simultaneous output of 4K and Full HD

- Simultaneous outputs of Full HD also possible
- Simultaneous 4K output possible using a combination of HDMI and SDI

Video format

- 3840×2160/59.94p, 3840×2160/50p
  1920×1080/59.94p, 1920×1080/59.94i
  1920×1080/50p, 1920×1080/50i

■ Other

- User profile function (six profiles on-board)
- 12-axis image adjustment function
- Foot switch compatible
- Compliance with medical safety and EMC standards
  (IEC 60601-1 and IEC 60601-1-2)

Image sensor: 1/3" type 3MOS	Screen resolution: 3840×2160	Horizontal resolution: 1600 TV lines at center (when 2160p output)

System example

4K UHD Camera

Microscope — Adapter — Camera Head (GP-UH532H) — Camera Cable 6m (GP-UC532G06) — Camera Control Unit (GP-UH532C)

BNC (4 cables) 3840 × 2160/59.94p → 4K monitor for medical use

HDMI (1 cable) 3840 × 2160/59.94p/ 1920 × 1080/59.94p → 4K / HD Recorder

HDMI or BNC (1 cable) 1920 × 1080/59.94p → HD monitor for medical use

Full HD model
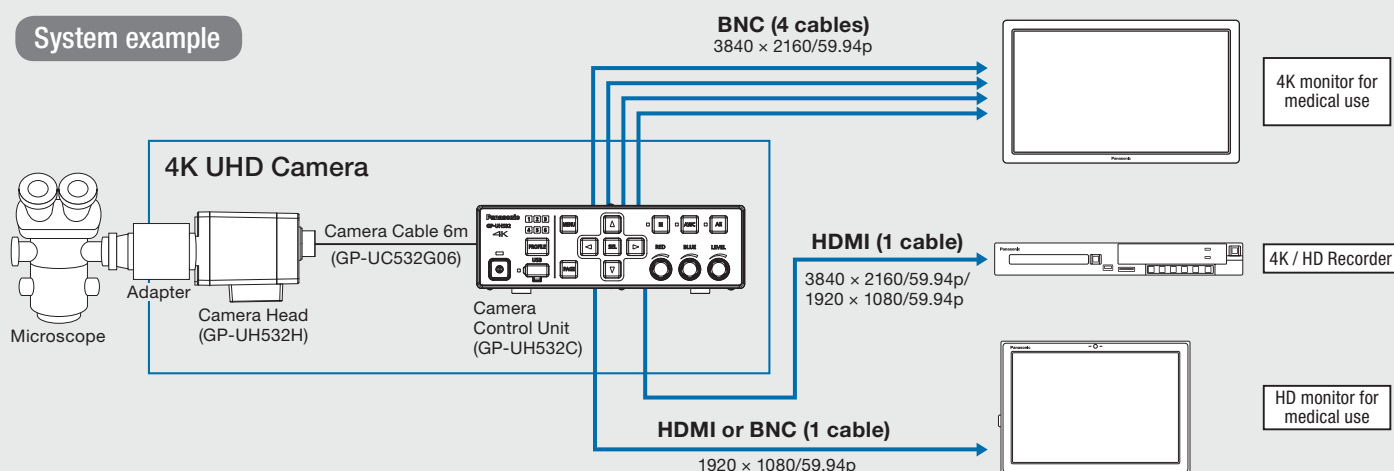
GP-UH332   3MOS Full HD camera for use with surgical microscopes.

Diverse video output

- Video output: HDMI x 2, SDI x 5

Video format

- 1920×1080/59.94p, 1920×1080/59.94i
  1920×1080/50p, 1920×1080/50i

■ Other

- User profile function (six profiles on-board)
- 12-axis image adjustment function
- Foot switch compatible
- Compliance with medical safety and EMC standards
  (IEC 60601-1 and IEC 60601-1-2)
- Sync type: Internal sync and external sync

Supporting the move to 4K

Only possible when the GP-UH532C camera control unit is purchased.

Image sensor: 1/3" type 3MOS	Screen resolution: 1920×1080	Horizontal resolution: 1000 TV lines at center (when 1080p output)

▶ Single HEAD 2K3D (UH532 Only)

■ **Value provided**   Provide FULL-HD 3D image with single camera head.

■ **How**   Using Binocular Microscope Camera Adapter, FULL HD 3D image can be provided with single camera head's left eye and right eye parallax.

■ **Panasonic's unique technology**

Before

4K/2K Two Head 3D system

Two CCUs

G/L SYNC

Two camera heads

Realize 3D by synchronizing two systems.

✓ Microscope
✓ Beam splitter
✓ Cam adapter are necessary.

After

L R Side-by-Side

L R Simultaneous

3D monitor for medical use

GP-UH532 (1pc)

Provide FULL-HD 3D image with single camera head.
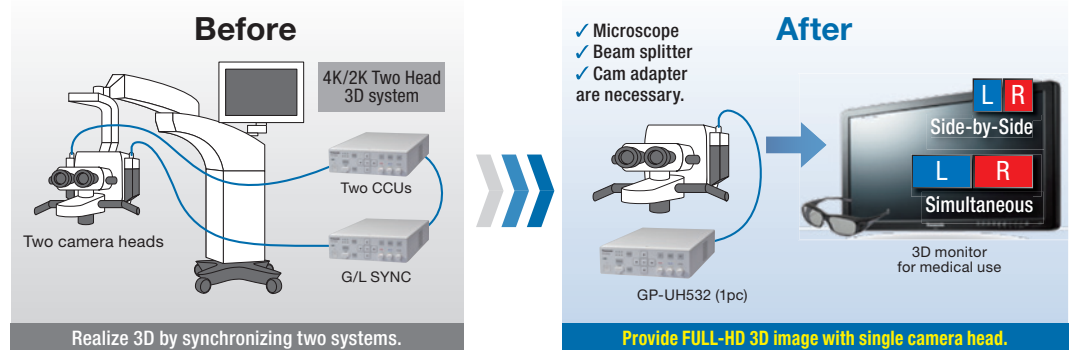
The following 3D function modes can be selected:

     SIMULTANEOUS   : Performs 3D output (simultaneous) from SDI1/2 output terminal and HDMI1/2 output terminal. Uses two cables to connect with the monitor.
     SIDE-BY-SIDE   : Performs 3D output (side by side) from SDI1 output terminal or HDMI1 output terminal. Uses one cable to connect with the monitor.

Important:
• To use the 3D functions, peripheral 3D optical devices are required. Therefore, this function is only for medical manufacturers because 3D optical lens & devices should be developed additionally.
• If considering using them, contact your sales representative.

▶ Introduction of 4K OEM Module

Panasonic provides a 4K GP-UH532 series module for various applications such as industrial, broadcasting and medical.
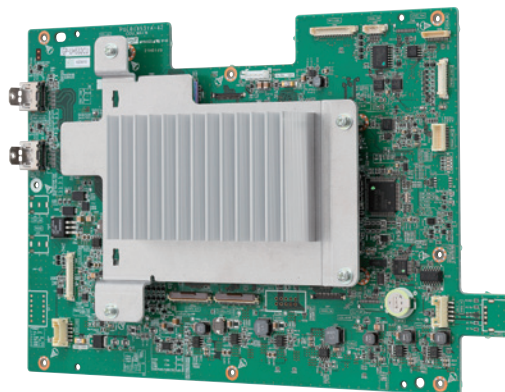
▌ 4K Camera Head Module

- ➤ 1/3" type 3MOS
- ➤ F8 (2000 lx)
- ➤ Ultra compact and light camera head
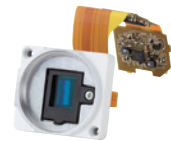
▌ Camera Control Board

- ➤ HDMI terminal x 2 (for 4K/Full HD)
- ➤ External control

▌ GP-UH532JU Option Kit

- ➤ Connector board for camera head
- ➤ Connector board for camera control board
- ➤ 3G/HD-SDI board
- ➤ FPC cable
- ➤ Coaxial wire x 2

GP-UH532JU is an optimized parts kit that connects the 4K camera head module to the camera control board, helping reduce both development risk and time.

System example

3G/HD-SDI board

Camera Control Board
GP-UH532CU

Coaxial wire

4K Camera Head Module
GP-UH532HU

FPC cable

Image signal →
← Control signal
← Power supply

Connector board for camera head

Coaxial wire

Connector board for camera control board

Items in blue are included in the GP-UH532JU option kit

Note: - The cable between the connector board for the camera head and the connector board for the camera control board is not included.
- Original cables such as GP-UC532G03/06/15 are not supported due to their cable connection type.
- The illustration is a conceptual diagram.

Other Features

Complies with medical safety and EMC standards

The Panasonic GP-UH532 series/GP-UH332 series of remote head cameras complies with IEC 60601-1 (basic safety and essential performance of medical electrical equipment) and IEC 60601-1-2 (EMC requirements for medical devices).

AE function	External sync function	Binning
Flip & mirror	Supports external command control	Removable IR-cut filter
HDMI output switching	Equipotential terminal	Made in Japan

▶ Specifications

		GP-UH532 series	GP-UH332 series
General			
Power supply		12 V DC ± 10%	
Power consumption		Approx. 40 W (including camera head)	
Dimensions	Camera head	27 mm (W) x 30 mm (H) x 42.5 mm (D) (1-1/16 inches (W) x 1-5/32 inches (H) x 1-43/64 inches (D)) (excluding tripod mount base and protrusions)	
	Camera control unit	185 mm (W) x 57 mm (H) x 270 mm (D) (7-9/32 inches (W) x 2-1/4 inches (H) x 10-5/8 inches (D)) (excluding rubber feet and protrusions)	
Weight	Camera head	Approx. 65 g (0.14 lbs.)	
	Camera control unit	Approx. 2 kg (4.41 lbs.)	
Coating		Chemical-resistant coating (sail white)	
Ambient operating temperature		0°C to 40°C (32°F to 104°F)	
Ambient operating humidity		30% to 90% (without condensation)	
Ambient operating pressure		700 hPa to 1060 hPa	
Transport and storage temperature		−10 °C to +60 °C (14 °F to 140°F)	
Transport and storage humidity		10% to 90%	
Transport and storage pressure		700 hPa to 1060 hPa	
Safety Standards		IEC60601-1 (3rd Edition), IEC60601-1-2 (3rd Edition), UL60065, EN55032	
Connector			
Video output	HDMI output	HDMI terminal x 2 (for 4K and 4K/Full HD)	HDMI terminal x 2 (for Full HD)
	SDI output	BNC terminal x 5 (4 for 4K and 1 for Full HD)	BNC terminal x 5 (for Full HD)
Foot switch		3.5 mm diameter stereo mini jack (2 inputs)	
External control		3.5 mm diameter stereo mini jack (3-pole serial, RS232C signal compliant)	
Equipotential terminal		Available	
USB		USB 2.0 (for USB Memory)	
Sync signal input/output terminal		BNC connector x 1 (Three value sync)	
Image			
Video format	HDMI output	3840×2160/59.94p, 3840×2160/50p 1920×1080/59.94p, 1920×1080/59.94i 1920×1080/50p, 1920×1080/50i	1920×1080/59.94p, 1920×1080/59.94i 1920×1080/50p, 1920×1080/50i
	SDI output	3840×2160/59.94p, 3840×2160/50p 1920×1080/59.94p, 1920×1080/59.94i 1920×1080/50p, 1920×1080/50i	1920×1080/59.94p, 1920×1080/59.94i 1920×1080/50p, 1920×1080/50i
Image sensor		1/3" type 3MOS	
Standard illumination		Default: 2000 lx (3200 K, F8)	Default: 2000 lx (3200 K, F16), LINE MIX
S/N		54dB (GAIN OFF, HEAD GAIN OFF)	54dB (GAIN OFF, HEAD GAIN -6dB)
Horizontal resolution		1600 TV lines center (When 2160p output)	1000 TV lines center (When 1080p output)
Function/Setting			
Exposure	AE (Automatic exposure)	Auto/Level (0~63)	
	Shutter (Electronic shutter)	AUTO/MANUAL(FIX)/MANUAL(VAL) [59.94Hz] 1/60, 1/100, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000 [50Hz] 1/50, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000	
	Binning	OFF/LINE MIX/PIX MIX/P/L MIX	
	Gain	OFF/AUTO/MANUAL(FIX)/MANUAL(VAL)	
	Long exposure	OFF/AUTO/MANUAL(FIX)/FIX(x1) [MANUAL (FIX)] OFF/×2/×4/×8	
	Area selection	ALL/S CIRCLE/M CIRCLE/L CIRCLE/MANU/AUTO	
	Head gain	-9dB/-6dB/-3dB/OFF (0dB)/+3dB/+6dB/+9dB	
Picture	White balance mode	AWC, R gain/B gain: 0~255/MANUAL, R gain/B gain: 0~255	
	Detail band	OFF/SOFT/MEDIUM SHARP/SHARP/SHARPEST	
	Digital noise reduction	0~10	
	Pedestal level	68~95	
	Flare compensation	ON/OFF	
	Hue	B-Mg/Mg/Mg-R/R/R-Ye/Ye/Ye-G/G/G-Cy/Cy/Cy-B/B	
	Gamma correction mode	NORMAL/S-CURVE	
	Gamma correction level	0.35~0.55/OFF	
	KNEE mode	MANUAL/AUTO *It can be set to KNEE POINT and KNEE SLOPE	
	Fluorescent image capture mode	OFF/MODE1/MODE2/MODE3	
	White shading correction	AUTO(SET)/MANUAL	
	Horizontal/vertical position of the screen	Horizontal (right/left), vertical (up/down)	
Image enhancement	WDR	0~255	
	Shadow reduction	0~255	
	Overexposure reduction	0~255	
	Smoke correction	0~255	
	Color enhancement	0~255, RED/YELLOW/RED&YELLOW	
Flip & mirror		OFF/VERTICALLY/HORIZONTALLY/VERTICALLY AND HORIZONTALLY	
Color bar output		Available	
Foot switch		OFF/FREEZE/FLIP+MIRROR/FLIP/MIRROR/ZOOM-IN-OUT/CHANGE PROFILE *1	
Digital zoom		1x - 2.5x up to 0.1x increments	
HDMI output signal		[2160p] YPbPr (420) 8BIT, YPbPr (422) 10BIT [1080p]/[1080i] YPbPr (422), YPbPr (444), RGB (LIMITED), RGB (FULL)	[1080p]/[1080i] YPbPr (422), YPbPr (444), RGB (LIMITED), RGB (FULL)
Synchronizing signal input/output connector		IN/OUT	
Single camera head 3D		OFF/ON(SIMULTANEOUS)/ON(SIDE BY SIDE)	N/A
Clock	Time adjustment	"MONTH/DAY/YEAR" and "HOUR/MINUTE"	
User profile		Six profiles supporting save/load functions *2 PROFILE 1: Anterior For Cataract PROFILE 2: Posterior For Retina PROFILE 3: Neurological PROFILE 4: ENT (Ear, Nose, Throat) PROFILE 5: FLUORESCENCE2 PROFILE 6: FLUORESCENCE1	Six profiles supporting save/load functions *2 PROFILE 1: Anterior For Cataract PROFILE 2: Posterior For Retina PROFILE 3: Neurological PROFILE 4: ENT (Ear, Nose, Throat) PROFILE 5: FLUORESCENCE3 PROFILE 6: FLUORESCENCE1
BT.2020 color space support (only 4K)		Available	N/A

*1. It can be assigned two functions within the foot switch setting.

*2. These template profile settings are based on actual surgeries, but they can be modified as necessary.

▶ GP-UH532 series 4K PROFESSIONAL

GP-UH532 Components

3MOS 4K Ultra HD camera head
GP-UH532H

UHD camera cable
GP-UC532G03 (3m)
GP-UC532G06 (6m)
GP-UC532G15 (15m)

GP-UC532G03A (3m)
GP-UC532G06A (6m)
GP-UC532G15A (15m)

4K Ultra HD camera control unit
GP-UH532C

Black cables will be available soon.

Names and Functions

- Image quality correction switch button [IE]
- Auto white balance setting button [AWC]
- Select button [SEL]
- Auto exposure correction button [AE]
- Menu button [MENU]
- User profile selection button [PROFILE]
- Power switch
- Brightness adjustment volume
- USB terminal for user profiles
- Blue gain adjustment volume
- Red gain adjustment volume
- Menu page switch button [PAGE]
- Up/down/left/right buttons [△/▽/◁/▷]

- SDI output terminal [3G/HD SDI 1-A/B/C/D]
- SDI output terminal [3G/HD SDI 2]
- Equipotential terminal
- Camera cable connection terminal [CAMERA]
- Sync signal input/output terminal [SYNC]
- 12 V DC power supply input terminal [DC IN 12V]
- HDMI output terminal [HDMI 1]
- Function setting switch
- External control terminal [REMOTE]
- HDMI output terminal [HDMI 2]
- Foot switch input terminal [FOOTSW]

▶ GP-UH332 series

GP-UH332 Components

HD camera head
GP-UH332H

UHD camera cable
GP-UC532G03 (3m)
GP-UC532G06 (6m)
GP-UC532G15 (15m)

GP-UC532G03A (3m)
GP-UC532G06A (6m)
GP-UC532G15A (15m)
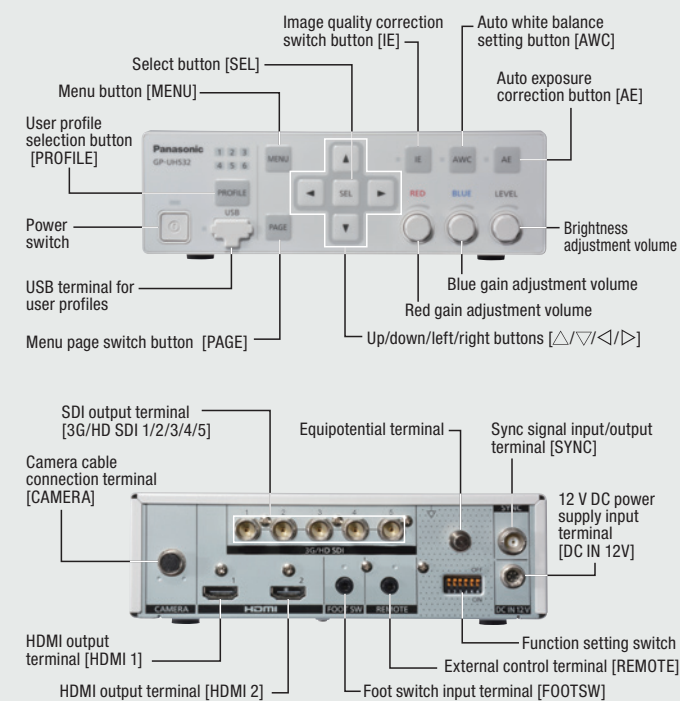
HD camera control unit
GP-UH332C

Black cables will be available soon.

Names and Functions

- Image quality correction switch button [IE]
- Auto white balance setting button [AWC]
- Select button [SEL]
- Auto exposure correction button [AE]
- Menu button [MENU]
- User profile selection button [PROFILE]
- Power switch
- Brightness adjustment volume
- USB terminal for user profiles
- Blue gain adjustment volume
- Red gain adjustment volume
- Menu page switch button [PAGE]
- Up/down/left/right buttons [△/▽/◁/▷]

- SDI output terminal [3G/HD SDI 1/2/3/4/5]
- Equipotential terminal
- Camera cable connection terminal [CAMERA]
- Sync signal input/output terminal [SYNC]
- 12 V DC power supply input terminal [DC IN 12V]
- HDMI output terminal [HDMI 1]
- Function setting switch
- External control terminal [REMOTE]
- HDMI output terminal [HDMI 2]
- Foot switch input terminal [FOOTSW]

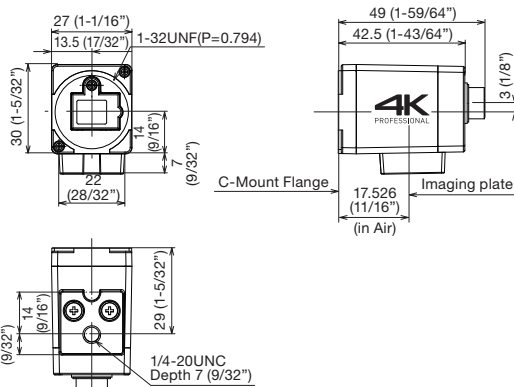**HDMI** HDMI, the HDMI logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing, LLC.

Appearance

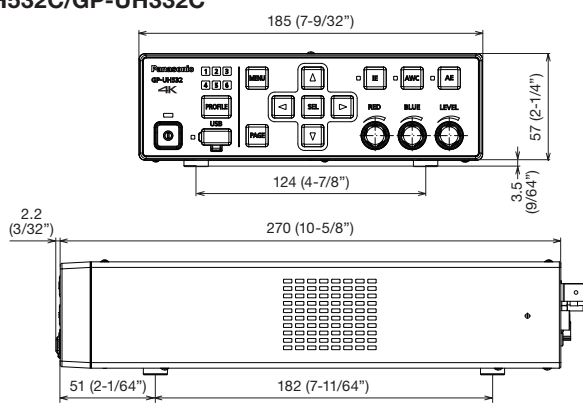### GP-UH532H/GP-UH332H

27 (1-1/16")
13.5 (17/32") 1-32UNF(P=0.794)
49 (1-59/64")
42.5 (1-43/64")
3 (1/8")
30 (1-5/32")
14 (9/16")
7 (9/32")
22 (28/32")
C-Mount Flange
17.526 (11/16")
(in Air)
Imaging plate
14 (9/16")
7 (9/32")
29 (1-5/32")
1/4-20UNC Depth 7 (9/32")

Unit: mm (inches) * 4K logo is only on GP-UH532H.

GP-UH532C/GP-UH332C

185 (7-9/32")
57 (2-1/4")
124 (4-7/8")
3.5 (9/64")
2.2 (3/32")
270 (10-5/8")
51 (2-1/64")
182 (7-11/64")

Unit: mm (inches) * 4K logo is only on GP-UH532C. Other marks vary depending on the model.

Important
– Safety Precaution: Carefully read the Important Information, Installation Guide and operating instructions before using this product.
– This product is intended for usage in general electronics applications.
  Usage of this product for special purposes, such as traffic control instruments, transportation instruments, and medical instruments, may be prohibited without authorization under the applicable laws and regulations of each country or region where this product is in practical use. Arrangement for authorization shall be made under the customer's or user's own responsibility.

• Masses and dimensions are approximate.
• Specifications are subject to change without notice.

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