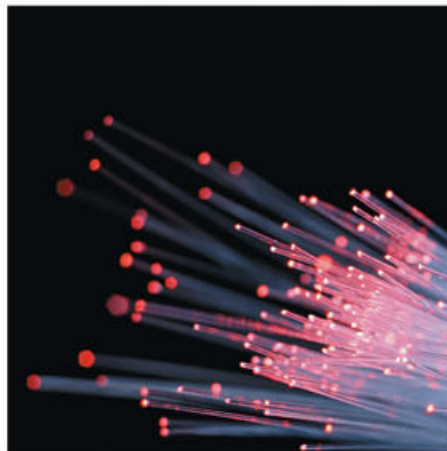


# Panasonic

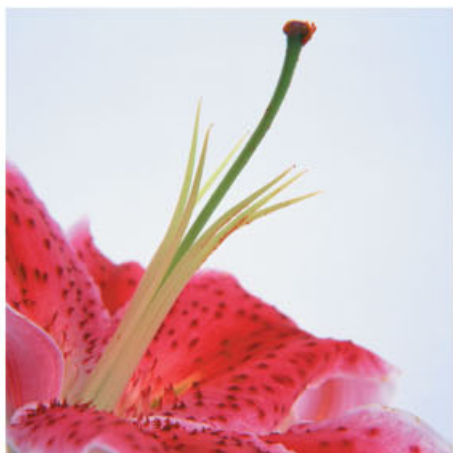
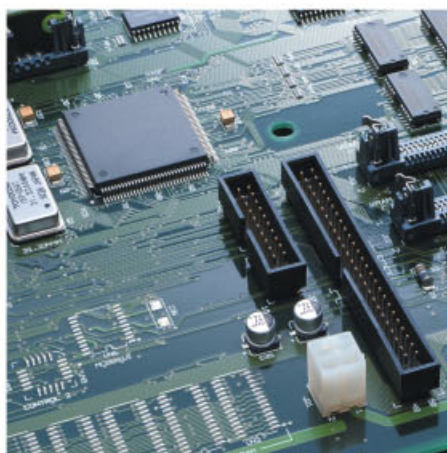
ideas for life

3CCD HD Camera  
Camera head  
**GP-US932H**  
Camera control unit  
**GP-US932CU**  
**GP-US932CUS**

(Lenses and camera cables are optional.)



**High-Definition Camera Solution  
for Wide Range of Applications**



# HD HIGH DEFINITION

*Broadening the possibilities of video expression*

*1920 x 1080 True HD 3CCD camera*

*Panasonic's 3CCD camera with true 16 x 9 multi format high definition delivers sharp, pure color images.*

*The camera is an ideal solution for microscopy, industrial endoscopy, special effects, and many other applications.*



\* Recommended lenses are optionally available.

## True multi-format HD

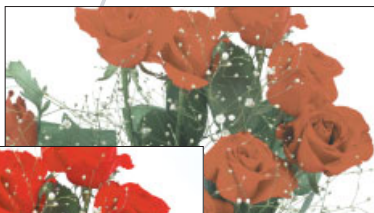
In addition to the 1080i (1920 x 1080) true HD mode, 720p (1280 x 720), 480p and 480i (720 x 480) modes are selectable for sharp, high resolution flicker-free images.

## True-to-life colors Twelve independently adjustable axis

In particular, the excellent red-color reproducibility is suited for biological and medical applications.



GP-US932 image

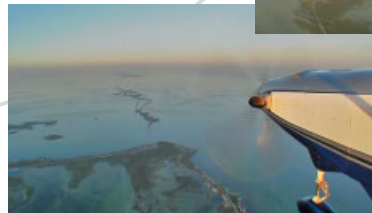


Conventional image

\*The images are samples.

## Expanded dynamic range

Detail in the bright areas and contrast in the dark areas are reproduced as a well-balanced image. (The two images to the right are actual pictures using the expanded dynamic range function.)

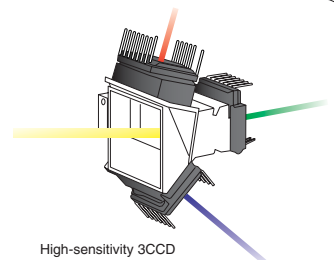


### New high-sensitivity progressive CCD

The new 1/3-type progressive CCD features exceptionally high sensitivity with a large light-receiving area for each pixel. Balanced high resolution and S/N ratio is achieved from the combination of high-performance image processing technology implemented by a new digital signal processor (DSP).

### Newly developed DSP with 14-bit A/D conversion and 19-bit processing functions

Progressive capture is followed by 14-bit A/D conversion and newly developed DSP for 19-bit internal processing. The result is extraordinary high-precision 1920 x 1080 true HD image output.



High-sensitivity 3CCD

# Panasonic technology enables high definition image quality covering a wide range of applications

## Excellent color performance

Beautiful, true-to-life colors are reproduced. Each of the 12 axis can be independently adjusted without affecting the adjacent color vector. The excellent red-color reproduction is ideal for biological and medical applications.



GP-US932 image



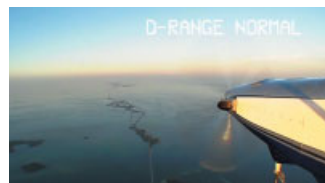
Conventional image \*The images are samples.

## Proprietary expanded dynamic range function

The new proprietary expanded dynamic range function expands the contrast of the dark areas while maintaining detail in the bright areas. Objects with high contrast can be represented as natural images.



Expanded dynamic range image



Conventional image \*Actual camera images

## 14-bit A/D conversion and 19-bit processing DSP

The functions provide high-precision true HD outputs.

## HDMI output model lineup

The lineup includes HDMI output and HD-SDI/SD-SDI output models for different applications and purposes.



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

## High-resolution native progressive scan

A higher-level vertical resolution is obtained from P/I conversion, line conversion, and down conversion of native images with high vertical resolution from full-frame 59.94 fps progressive scanning. High image quality unparalleled by electronically interpolated interlace scanning is obtained.

## Easy set-up menu

Simply select the appropriate functions from the list of camera functions displayed on the monitor screen to complete the setting. Images can be adjusted easily and efficiently while observing the images.



## Three scene files

Each of the three independent scene files has twelve parameters that can be customized to suit any applications.

### <Parameters>

- Detail
- Red detail
- Gamma
- Knee
- Black stretch
- Dynamic range
- White clip
- Flare compensation
- Digital noise reduction
- Color matrix
- Chroma gain
- Total pedestal

### Other features

- Electronic zoom up to 2.5x** Electronic zoom up to 2.5x allows checking finer detail.
- Freeze function** Motionless video images can be displayed while capturing video.
- White balance** ATW (auto-tracking white balance) mode, AWC (automatic white balance) mode, or manual white balance mode can be selected according to the illumination of the scene.
- Electronic shutter** ELC mode (automatic shutter speed control according to the object's amount of light), STEP mode (selection from 1/100, 1/250, 1/500, 1/1000, 1/2000, 1/4000, or 1/10000 to obtain the optimal setting), or select MANU mode.
- Gain control** AUTO (automatic gain control) will provide automatic adjustment of sensitivity. Manual adjustment of sensitivity is also available.

## Recommend Lenses

Fujinon\* HD lens

**HAF4.8DA-1**      **XA4x7.5DA-1**

Fujinon\* SD lens

**TF2.8DA-8**      **TF4DA-8**

**TF8DA-8**      **TF15DA-8**

## Specifications of Recommend Lenses

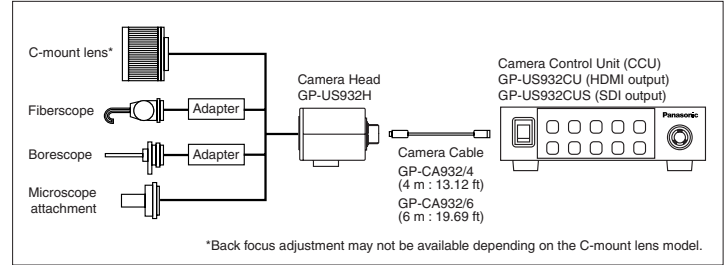
Model No.	HD Lenses		SD Lenses			
	HAF4.8DA-1	XA4x7.5DA-1	TF2.8DA-8	TF4DA-8	TF8DA-8	TF15DA-8
Manufacturer	Fujinon*	Fujinon*	Fujinon*	Fujinon*	Fujinon*	Fujinon*
Focal Length (mm)	4.8	7.5 - 30	2.8	4	8	15
Zoom Ratio		4				
Maximum Aperture Ratio	2.2	2.8	2.2	2.2	2.2	2.2
Angle of View (°) Horizontal	57.07°	38.38° - 9.94°	85.98°	66.25°	36.14°	19.74°
Vertical	34.05°	22.18° - 5.61°	55.40°	40.36°	20.82°	11.19°
Minimum Object Distance (m / ft)	0.1 / 0.33	0.45 / 1.48	0.1 / 0.33	0.1 / 0.33	0.1 / 0.33	0.1 / 0.33
Filter Thread	M55	M52	N/A	M27 x 0.5	M25.5 x 0.5	M25.5 x 0.5
Mount	C	C	C	C	C	C
Focus	Manual	Manual	Manual	Manual	Manual	Manual
Iris	Manual	Manual	Manual	Manual	Manual	Manual
Length (from focal plane) (mm / inch)	53.126 / 2.092 (in air)	178.926 / 7.044 (in air)	64.025 / 2.521 (in air)	63.025 / 2.481 (in air)	56.526 / 2.225 (in air)	56.526 / 2.225 (in air)
Full Aperture (mm / inch)	ø42 / ø1.654	ø54 / ø2.126	ø34 / ø1.339	ø29 / ø1.142	ø29 / ø1.142	ø29 / ø1.142
Weight (g / lbs)	95 / 0.21	500 / 1.1	75 / 0.17	70 / 0.15	60 / 0.13	60 / 0.13

\* Fujinon Lenses: Please contact to your distributor

### 3CCD Camera Lineup

Camera Control Unit <b>GP-US932CU</b> (HDMI output) <b>GP-US932CUS</b> (SDI output)	Camera Head <b>GP-US932H</b>	Camera Cable <b>GP-CA932/4</b> (4 m : 13.12 ft) <b>GP-CA932/6</b> (6 m : 19.69 ft)

### System Block Diagram



### Part Names and Functions

### Specifications

<b>Scan Frequency</b>	59.94 Hz (NTSC for SD)
<b>Power Source</b>	12 V DC
<b>Power Consumption</b>	15 W (including camera head)
<b>Pick-up System</b>	Micro prism system
<b>Image Sensor</b>	1/3-type 3CCD, interline transfer (IT) equipped (progressive scanning supported)
<b>Synchronization</b>	Internal or external synchronization
<b>Video Output</b>	
<b>Video Output</b>	BNC Connector x 1, 1.0 V [P-P] / 75 Ω
<b>S-Video Output</b>	S-Video connector x 1 Y: 0.714 V [P-P] / 75 Ω C: 0.286 V [P-P] / 75 Ω
<b>RGB/YpPr Output</b>	D-sub 9-pin connector x 1 R, G, B: 0.7 V [P-P] / 75 Ω Y: 0.7 V [P-P] / 75 Ω Pb, Pr: 0.525 V [P-P] / 75 Ω SYNC: 0.6 V [P-P] / 75 Ω (at output using 1 080i or 720p) 0.3 V [P-P] / 75 Ω (at output using 480p or 480i) VIDEO: 1.0 V [P-P] / 75 Ω
<b>HDMI Output</b>	HDMI connector x 1 (GP-US932CU only)
<b>SDI Output</b>	BNC connector x 2 (GP-US932CUS only)
<b>Video Format</b>	
<b>Video Output</b>	480/59.94i
<b>S-Video Output</b>	480/59.94i
<b>RGB/YpPr Output</b>	1 080/59.94i, 720/59.94p, 480/59.94p, 480/59.94i
<b>HDMI Output</b>	1 080/59.94i, 720/59.94p, 480/59.94p (GP-US932CU only)
<b>SDI Output</b>	1 080/59.94i, 720/59.94p, 480/59.94i (GP-US932CUS only)
<b>Required Illumination</b>	2 000 lux (3 200 K, F5.6)
<b>Minimum Illumination</b>	40 lux (0.4 fc) (F2.8, GAIN: HIGH, 30 % output, at center)
<b>Signal-to-Noise Ratio</b>	54 dB (at output using 1 080i)
<b>Horizontal Resolution</b>	700 TV lines at center (when 1 080i output)
<b>Color Bar</b>	SMPTE color bar with 0 % set-up
<b>Functions</b>	Camera title, ELC, electronic shutter, gain adjustment, electronic sensitivity enhancement, output signal, scene file, white balance, black balance, synchronization, electronic zoom, image freezing
<b>External Control</b>	RS-232C D-sub 9-pin connector x 1
<b>Ambient Operating Temperature</b>	0 °C to 40 °C (32 °F to 104 °F)
<b>Ambient Operating Humidity</b>	30 % to 90 %
<b>Dimensions</b>	170 (W) x 44 (H) x 229 (D) mm (6-11/16" (W) x 1-3/4" (H) x 9-1/16" (D))
<b>GP-US932CU</b>	(excluding rubber feet and protruding portions)
<b>GP-US932H</b>	37 (W) x 47 (H) x 60 (D) mm (1-7/16" (W) x 1-7/8" (H) x 2-3/8" (D))
<b>GP-US932H</b>	(excluding tripod socket and protruding portions)
<b>Weight</b>	GP-US932CU 1.3 kg (2.9 lbs.) GP-US932CUS 1.45 kg (3.2 lbs.) GP-US932H 150 g (0.3 lbs.)
<b>Finish</b>	Ivory color coating

### Important

- Safety Precaution: carefully read the operating instructions and installation manual before using this product.
- These products do not have medical standard approvals.

### Appearance

Unit: mm (inches)

- All TV pictures/menu are simulated.
- Weights and dimensions are approximate.
- Specifications are subject to change without notice.
- These products may be subject to export control regulations.

### DISTRIBUTED BY:

