

Panasonic®

GP-KS162

Industrial Color CCD Micro-Camera

digital
processing

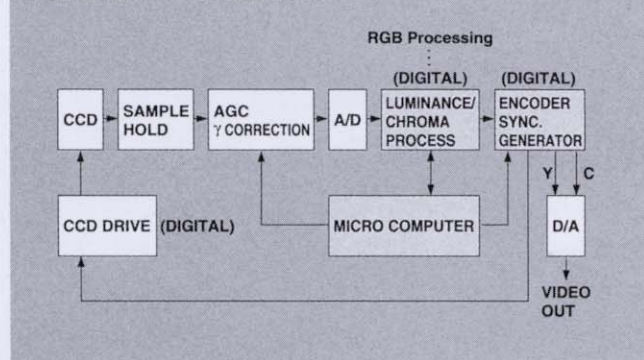


Announcing the GP-KS162, Panasonic's Digital Signal Processing 1/2" Color CCD Micro Camera.

Panasonic presents a highly advanced digital signal processing 1/2" CCD color camera, GP-KS162, to meet the demands from industrial/medical markets.

GP-KS162 incorporates Panasonic's digital processing technology which has been proven in the field world-widely. The micro-sized camera head and camera control unit (CCU) have full compatibility to meet your specific requirement. Camera heads are interchangeable without any modification. The GP-KS162 also incorporates the 2nd generation digital signal processing (DSP) IC which provides excellent color reproduction with its internal RGB signal processing. Center-weighted ATW function can detect white automatically even when GP-KS162 connected to endoscopes. Advanced 1/2" IT CCD provides 480-line horizontal resolution and 50dB of signal-to-noise ratio. Panasonic GP-KS162 gives you the edge of user-oriented high technology.

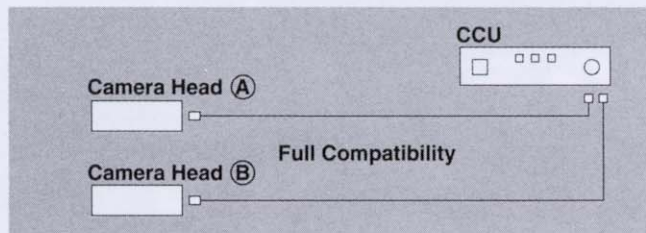
■ Digital Signal Processing Diagram



Quality Engineering Features

- 1/2" Interline Transfer CCD with 768 (H) × 494 (V) pixels
- 480-line horizontal resolution
- 50dB signal-to-noise ratio
- Min. illumination: 3 lux at F1.4
- Full compatibility between camera head and CCU

GP-KS162CU (CCU) can accept any GP-KS162H (Camera Head). So no adjustment is necessary whenever new camera head is connected to the CCU.

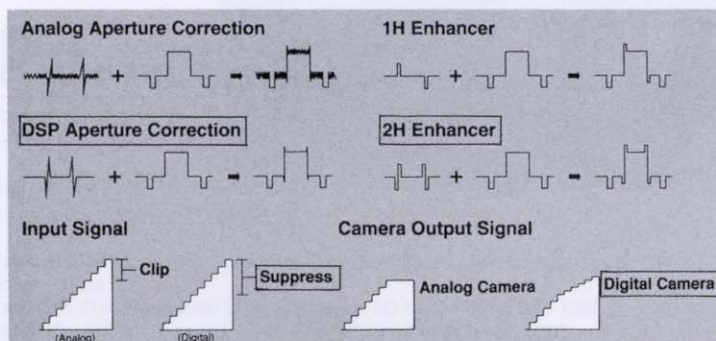


● Excellent color reproduction

For crisper natural image, digital RGB signal processing provides well-balanced color reproduction which is beyond the comparison with other micro cameras.

● Sharp and crisp picture

DSP features 2H enhancer, aperture correction and knee circuit in its digitized circuit.



● Fine adjustable AWC/ATW

For your specific requirement, GP-KS162 accepts fine color adjustment while Auto White Control (AWC) or Auto Tracing White (ATW) are engaged.

● Auto Gain Control (AGC)

● Electronic Light Control (ELC)

ELC functions controls incoming light to the CCD continuously.

● Auto Light Control

Auto Light Control keeps constant video signal level by controlling AGC function and ELC function automatically.

● Adjustable Video Signal Level

GP-KS162 features adjustable video signal level function which is suitable to adjust video signal level whenever optical iris is not available - in medical application such as endoscopic use, etc.

● Backlight Compensation (BLC)

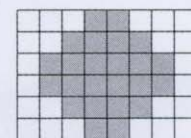
Bright backlight lighting may reduce the clarity of center-of-the-scene object. To overcome this problem, GP-KS162 features digital backlight compensation function. This function has three kinds of image sensing patterns - small sensing zone, wide sensing zone and auto detective sensing zone. Especially, auto detective sensing zone function is suitable to be used with endoscope which provides a picture with optical shading.



BLC Preset Area 1



BLC Preset Area 2



Automatic Area [Example]

Automatic Sensing Zone

The Automatic Sensing Zone setting works effectively against the optical shading around the screen in an optical instrument use.

In this case, this camera sets the sensing zone automatically when the AWC has been set with the white objects.

● Versatile output signals: composite × 2, Y/C × 1

To avoid cross-color, GP-KS162 features Y/C (S-Video) output which provides well-balanced colors.

● Reliable single-board-designed CCU

● Easy key access

● Wide line-up optional lens

Accepts optional 3mm super-wide-angle, 7.5mm wide-angle, 12mm pinhole and 15mm/24mm telephoto lenses. Optional C-mount adaptor GP-AD22TA enables to use with C-mount lenses.

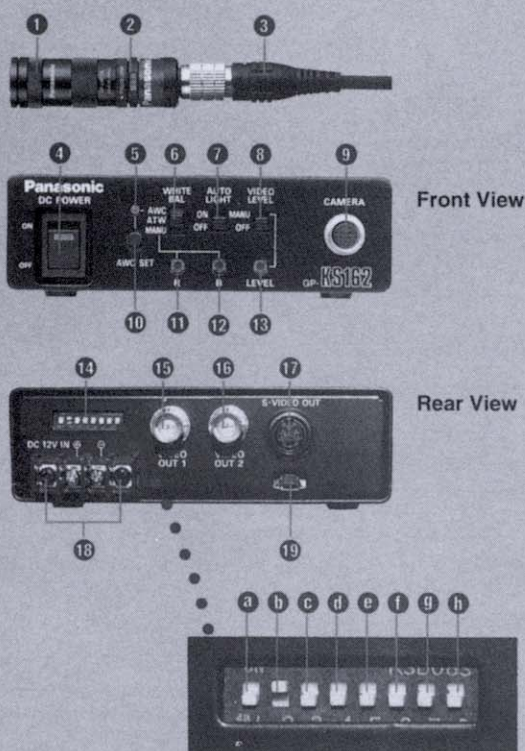
● Cable length

Cable length between GP-KS162H and GP-KS162CU with optional cables:

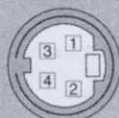
- GP-CA162/2: 6.6ft (2m)
- GP-CA162/3: 9.8ft (3m)
- GP-CA162/38: 12.5ft (3.8m)
- GP-CA162/10: 33ft (10m)



Major Operating Controls



S-Video (female)



No.	CONTENTS
1	Y Ground
2	C Ground
3	Y Signal Output
4	C Signal Output

- ① Lens (Optional)
- ② Focus Lock Ring
- ③ Cable (Optional)
- ④ Power On/Off Switch
- ⑤ AWC LED
- ⑥ White Balance Switch
- ⑦ Auto Light On/Off Switch
- ⑧ Video Level Switch
- ⑨ Camera Input Connector
- ⑩ AWC Set Switch
- ⑪ White Balance Volume. (RED)
- ⑫ White Balance Volume. (Blue)
- ⑬ Video Level Volume
- ⑭ 8p DIP Switch

- a Electronic Light Control (ELC) On/Off switch
- b AGC On/Off Switch

When shooting the objects under the low light condition, the video level can be controlled by the gain of the video amplifier.

This switch is used to disable the AGC function. Normally, turn on this switch.

In the Auto Light On mode, the setting mode is difference by the combination of ELC On/Off switch and AGC On/Off switch as shown below.

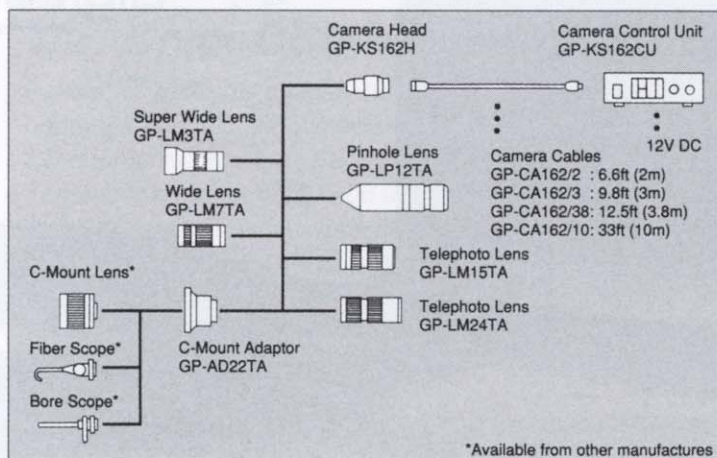
		ELC On/Off Switch (14)	
		On	Off
AGC On/Off Switch (15)	On	ELC On AGC On	ELC Off AGC Off
	Off	ELC On AGC Off	Auto Light Function is disable

- c White Balance Offset On/Off Switch
 - d 2-Memory AWC Mode On/Off Switch
 - e/f Back Light Control (BLC) Mode Selection Switch
- The back light sensing zone can be set in the Auto Light On mode.
- 00: BLC OFF (All of the screen)
 - 01: BLC Preset 1 (Pattern 1 Sensing Zone)
 - 10: BLC Preset 2 (Pattern 2 Sensing Zone)
 - 11: Automatic Area Set for AWC
- g Aperture Level Selection Switch
 - h Cable Selection Switch
 - 15 Video Out 1 Connector
 - 16 Video Out 2 Connector
 - 17 S-Video Connector
 - 18 DC 12V In Terminal
 - 19 EVR Connector



Lens/Cable: Optional

System Block Diagram



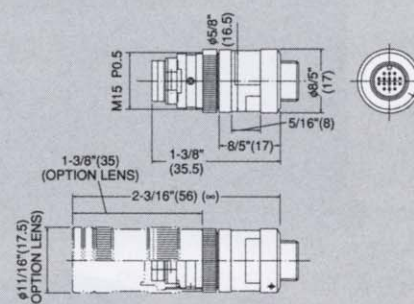
Camera Head	Camera Control Unit	Camera Cable		
GP-KS162H 	GP-KS162CU 	GP-CA162/2 : 6.6ft (2m) GP-CA162/3 : 9.8ft (3m) GP-CA162/38 : 12.5ft (3.8m) GP-CA162/10 : 33ft (10m) 		
Super-Wide Angle Lens	Wide-Angle Lens	Pinhole Lens	Telephoto Lenses	C-Mount Adaptor
GP-LM3TA 	GP-LM7TA 	GP-LP12TA 	GP-LM15TA GP-LM24TA 	GP-AD22TA 

Specifications

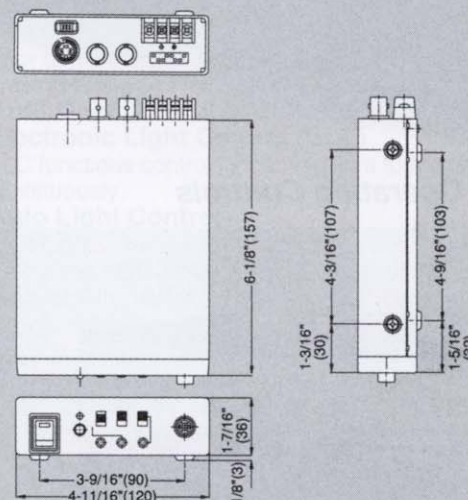
Camera system	NTSC
Pick-up device	768 (H) × 494 (V) pixels, Interline Transfer CCD
Scanning area	6.5 (H) × 4.8 (V) mm (Equivalent to 1/2" Tube)
Scanning	525 Lines/60 Fields/30 Frames Horizontal 15.734kHz, Vertical 59.94Hz
Scanning system	2:1 interlace
Synchronization	Internal
Horizontal Resolution	480 TV lines (typ.)
S/N ratio	50dB (min.) (luminous S/N) (at AGC OFF)
Mini. Illumination	3lx (typ.) (F1.4 AGC ON 30IRE)
Auto Light	ON/OFF (ELC and AGC is set independently)
Video Level	ON/OFF
White balance	MANUAL/AWC/ATW
Power source	DC 12V ± 10%
Power consumption	300mA (typ.)/DC12V input
Dimensions	CAMERA HEAD $\phi 17$ (W) × 35.5 (D) mm CCU 120 (W) × 36 (H) × 157 (D) mm
Cable	2m, 3m, 3.8m, 10m (Option)
Ambient Operating temperature	14°F ~ 122°F (−10°C ~ 50°C)
Humidity	Operating range less than 90%RH

Dimensional Drawings

GP-KS162H: Camera Head



GP-KS162CU: Camera Control Unit



Applications

Industrial

- Sensor for checking completed printed circuit boards
- Internal inspection of engines and precision machinery
- Visual sensor for factory robots, etc.

Medical

- Microscopic camera observation of microorganisms and bacteria
- Use as an endoscopic camera, eyepiece etc.

Scientific

- Time-lapse observation and surveillance of experiments

Educational

- Monitor display of teaching materials, etc.

Special Applications

- Peripheral supervision of production machinery and factory robots
- Filming and observation of hazardous areas from the air via radio-controlled helicopter

Other Applications

- Sporting events and other broadcast applications
- Assistance with installation and maintenance of machinery

Weights and dimensions shown are approximate.
Specifications are subject to change without notice.
These products may be subject to export control regulations.

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