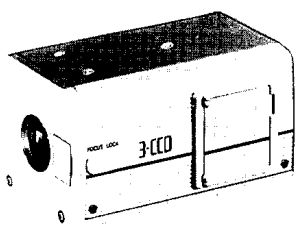
JVC Instructions

3-CCD COLOR VIDEO CAMERA KY-F55B



For Customer Use:
Enter below the Serial No. which is located on the bottom of the body.
Retain this information for future reference.

Model No. KY-F55B

Serial No.

CAUTION
RISK OF ELECTRIC SHOCK. DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulatd "dangerous voltage" within the product's enclosure that may be sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within a equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

POWER SYSTEM
This color video camera should be used with 12 V DC only.

CAUTION:
To prevent electric shocks and fire hazards, do NOT use other than specified power source.

Due to design modification, data given in this instruction book are subject to possible change without prior notice.

WARNING:
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

AVERTISSEMENT:
POUR EVITER LES RISQUES D'INCENDIE OU D'ELECTROCUTION, NE PAS EXPOSER L'APPAREIL A L'HUMIDITE OU A LA PLUIE.

Information for USA
This device complies with Part 15 of the FCC Rules.
Changes or modifications not approved by the original manufacturer could void the user's authority to operate the equipment.

Information for CANADA
This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the interference causing equipment standard entitled "Digital Apparatus", ICES-003 of the Department of Communications.

Renseignement pour CANADA
Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Classe B prescrites dans la norme sur le matériel brouilleur; "Appareils Numériques", NMB-003 édictée par le ministre des Communications.

Changes or modifications not approved by JVC could void the user's authority to operate the equipment.

Thank you for purchasing the JVC KY-F55B Color Video Camera.
To gain maximum benefit from the use of the KY-F55B, it is suggested that you study this booklet carefully.

CONTENTS

FEATURES

- **High-performance 3-CCD camera**
  Thanks to a newly developed 1/3-inch 380,000 pixel for NTSC, 440,000 pixel for PAL CCD with on-chip lens, the KY-F55B delivers a superb, high-quality picture with an S/N ratio of 60 dB for NTSC, 58 dB for PAL and sensitivity as high as 2000 lux at F5.6. High-precision bonding technology and new circuitry incorporated in the CCD assure horizontal resolution of 750 lines.

- **Compact and lightweight**
  Incorporating a C-type lens mount, 1/3-inch optical system, and a newly developed IC chip with high-density mounting technology, the KY-F55B's design is remarkably compact and lightweight.

- **Comprehensive functions**
  To simplify setup and operation, the KY-F55B incorporates a comprehensive range of automatic functions including automatic level control (ALC), continuously variable electronic shutter (EEI), and full-time auto white balance (FAW). For added convenience, the C-type lens mount features a back focus adjustment function. Four optional lenses are available — 10X, 15X, 16X power zoom lenses (HZ-610MD, HZ-615MD, HZ-616MD) and the HZ-G6350 variable focal lens. A remote control input connector is also provided (for the optional RM-LP55 remote control unit).

- **Comprehensive signal outputs**
  Outputs for composite video, Y/C, RGB and composite sync signal are provided.

FEATURES

- **Random trigger function**
  By using the optional remote control unit (RM-LP55), output signals are synchronized with the external trigger. Useful for factory automation.
- **Slow shutter function**
  The optional remote control unit (RM-LP55) will store several frames of pictures in memory and output them. Effective for use as a night vision camera.
- **High-resolution function**
  Enhances the vertical resolution.
- **Electronic shutter**
  Only with the camera, EEI can be used. Using the optional remote control unit (RM-LP55) makes it possible to use 1/100 for NTSC, 1/120 for PAL, 1/250, 1/500, 1/1000, 1/2000, V. SCAN and slow shutter functions. (Usable functions differ depending on the remote control unit used.)
- **Automatic internal sync/external sync switching**
  The KY-F55B incorporates an automatic internal sync/external sync switching system which is especially useful when switching camera images in multi-camera systems or when upgrading the system.
- **Built-in SMPTE type color bars generator**
  SMPTE type color bars signal can be generated for easy and precise color adjustment on a monitor.

PRECAUTIONS

Safety Precautions

- Use the AC-C712 (for NTSC), AC-C722 (for PAL) AC Adapter.
- Do not modify the unit or operate it without cover panel to prevent danger.
- When there is any abnormality (abnormal noise, smell, smoke, etc.) with the unit, immediately turn the power off and contact your nearest JVC-authorized service agent.
- If the camera is not going to be used for an extended period of time, leave the power cord disconnected for reasons of safety.

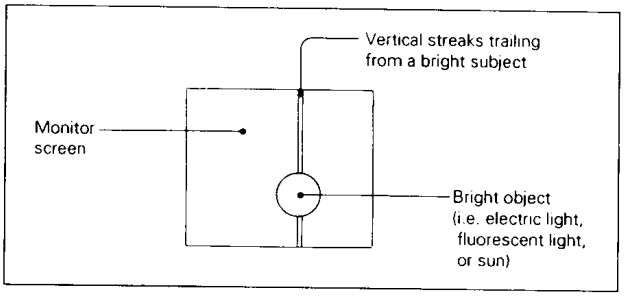
Handling Precautions

- **Supply voltage**
  Make sure that the power is between 10.5 V and 15 V DC. If the power voltage is too low, abnormal color and increased noise could occur. Do not exceed 15 V DC in any case, or the unit could be damaged.
- **Ambient temperature**
  Do not operate the camera outside a –5°C to +40°C (23°F to 104°F) temperature range.
- Where there are strong electromagnetic waves or magnetism, for example near a radio or TV transmitter, transformer, motor, etc., the picture may contain noise and the colors may be incorrect.
- When a wireless microphone or wireless microphone tuner is used near the camera, the tuner could pick up noise. In such a case, select another channel.
- **Cleaning the body**
  Wipe body with a dry, soft cloth (such as cheesecloth). When it is extremely dirty, soak the cloth in a solution of neutral detergent, wring it out and then wipe.
  To prevent deformation of the body, etc. and to avoid operation hazards, do not allow volatile liquids such as benzine and thinner to touch the body.
  If the quipment is soiled with water, oil, solvent, etc., wipe over with soft cloth or cotton first, then clean with gauze, etc. soaked in denatured alcohol.
- **Installation of the camera**
  Be sure to set up the camera firmly and correctly.

Characteristics of CCDs

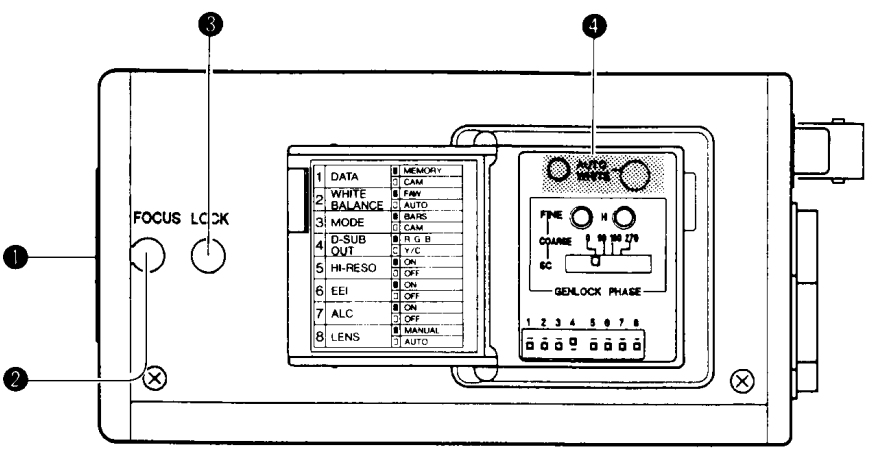
The appearance of the following phenomena on pictures is due to the characteristics of CCD image sensors. These are not malfunctions.

- **CCD Smear and blooming**
  Due to the physical structure of the CCDs in this camera it is possible to induce vertical streaking or smear when shooting an extremely bright light source.
  Another effect is the expansion of light around a bright light or object called Blooming.
  Just as you protect your image against lens flare (internal lens reflections); please be careful when shooting a bright light source.



- **Moire or Aliasing**
  Shooting stripes, checks, or other alternating patterns may cause jagged or banding in fine mesh patterns.
- **White dots**
  White dots may appear on the screen when the camera is operated in a high-temperature environment.

CONTROLS, CONNECTORS AND INDICATORS

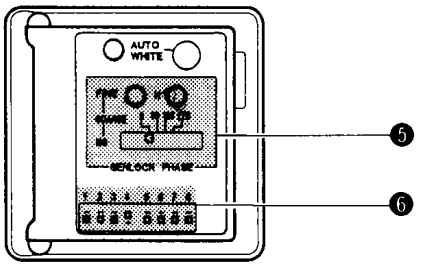


❶ Lens mount
Attach the lens here.

❷ [FOCUS] back focus adjustment screw
Preset at the factory to cover the widest range of applications. Readjust as necessary depending on the combination of lenses used.

❸ [LOCK] Back focus locking screw
Use to lock the back-focus adjustment mechanism.

❹ [AUTO WHITE] Auto white button and operation indicator LED
Press this button to start the auto white balance adjustment. The display section illuminates during adjustment and goes out when the operation is completed. If adjustment cannot be completed, the display section will flash for 5 seconds then go out.



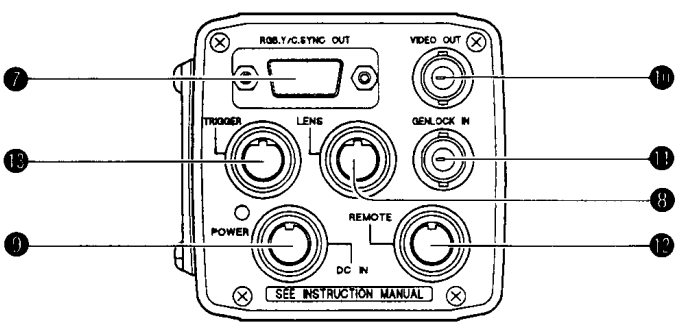
❺ [GENLOCK PHASE] Genlock phase adjustment
Adjusts the horizontal sync phase and color sync phase of the camera's video output signal for the external sync signal input to this camera.
SC COARSE : Coarse adjustment switch for SC phase which allows approximate phase adjustment in 0°, 90°, 180°, and 270° steps.
SC FINE : Fine-adjustment of SC phase.
H : Control of horizontal sync phase.

❻ [1 to 8] Setting switches

No.	Name	Up	Down	Function	Details
1	DATA	MEMORY	CAM	Switches between the REMOTE mode, used to maintain the conditions set by the remote control unit, and the CAM mode used with the conditions set on the camera. (CAM when shipped)	Page 14 [1]
2*	WHITE BALANCE	FAW	AUTO	Switches between the full-time auto white and auto white modes. (AUTO when shipped)	Page 14 [2]
3	MODE	BARS	CAM	Switches between the color bar and camera video output. (CAM when shipped)	Page 15 [3]
4	D-SUB OUT	RGB	Y/C	Selects the output signal from the D-SUB terminal. (RGB when shipped)	Page 15 [4]
5*	HI-RESO	ON	OFF	Switches the HI-RESO mode which enhances a vertical resolution on and off. (OFF when shipped)	Page 16 [5]
6*	EEI	ON	OFF	Switches the continuously variable electronic shutter on and off when using a manual iris lens, etc. (OFF when shipped)	Page 16 [6]
7*	ALC	ON	OFF	Switches on and off the mode which continuously amplifies the sensitivity when a video signal level becomes low. (OFF when shipped)	Page 17 [7]
8	LENS	MANUAL	AUTO	Selects a manual iris lens or auto iris lens for use. (AUTO when shipped)	Page 17 [8]

Note: If the DATA switch [1] set to "MEMORY", switches marked by an asterisk (*) become inoperative.

CONTROLS, CONNECTORS AND INDICATORS



❼ [RGB. Y/C. SYNC OUT] D-SUB connector
Outputs the RGB or Y/C signal (selectable using D-SUB OUT switch ❻-4) and the video signal/sync signal.

❽ [LENS] Lens connector
Connector for a lens cable when using an optional electronic zoom lens or variable focal lens.

❾ [POWER, DC IN] Power indicator LED and DC power input socket
Connect with an optional AC adapter (AC-C712 for NTSC, AC-722 for PAL) using the cable provided with this camera. When power is input, the power indicator LED will light.

❿ [VIDEO OUT] Composite video signal output connector
Outputs the composite video signal.

⓫ [GENLOCK IN] External sync signal input connector
The reference signal input connector for use in genlocking the KY-F55B. Input either a composite video signal or black burst signal.

⓬ [REMOTE] Remote connector
Connector for the remote control unit (optional: RM-LP55).

⓭ [TRIGGER] Trigger connector
Connector for input and output signals to operate the random trigger and slow shutter.

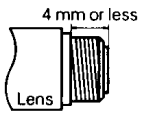
Note:
When the remote control unit is connected, priority is given to those functions selected via the remote control unit.

■ Mounting the lens

The KY-F55B is not provided with a lens. The optional HZ-610MD, HZ-615MD, HZ-616MD (power zoom lens) and HZ-G6350 (variable focal lens) can be used.

Cautions:

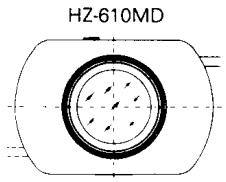
- Keep in mind that auto functions of lenses other than those mentioned above cannot be controlled via the KY-F55B's lens connector.

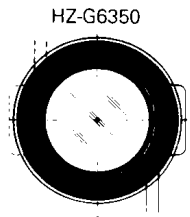


- Use a lens that is 4 mm or less from the lens mount; otherwise, the camera may be damaged.
- The use of some lenses may lower the resolution.
- When using lenses other than those specified;
  - Picture angle may vary.
  - Resolution may be reduced.
  - Ghosting, flaring, or shading (color irregularities) may occur.
- Firmly secure the lens. If it is not properly mounted, complete back focus cannot be obtained and the lens may fall out and break.

- **Installing the HZ-610MD or HZ-G6350**

1. Remove the cap from the lens mount. Make sure no dirt or dust enters the mount.
2. Screw the lens clockwise into the lens mount of the KY-F55B until it locks in place.
3. If the lens is turned beyond the point where it locks in position, the mount will slip and start rotating idly.
4. Turn the lens in this slipping idle state and re-adjust the lens position.



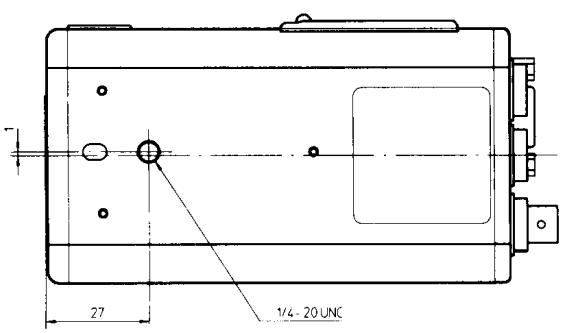


5. Connect the lens cable to the "LENS" connector on the back of the KY-F55B.

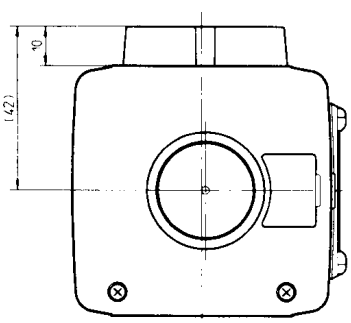
■ Mounting on a tripod stand, fixing unit or pan/tilt unit

- As shown below, a 1/4-inch fixing hole is provided on the bottom of the KY-F55B.
- For ceiling installations and other setups requiring top of camera mounting, attach the provided camera mounting bracket to the top of the camera using three screws.
- If the fixing hole on the bottom of the camera cannot be used because an optional lens such as the HZ-610MD etc., is being used, attach the camera mounting bracket to the bottom of the camera and then fix the camera to the tripod, fixing unit, or pan/tilt unit.

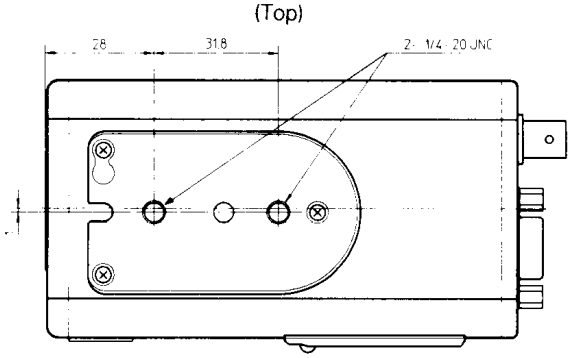
(Bottom)



- Mounting bracket installed on top of the camera.



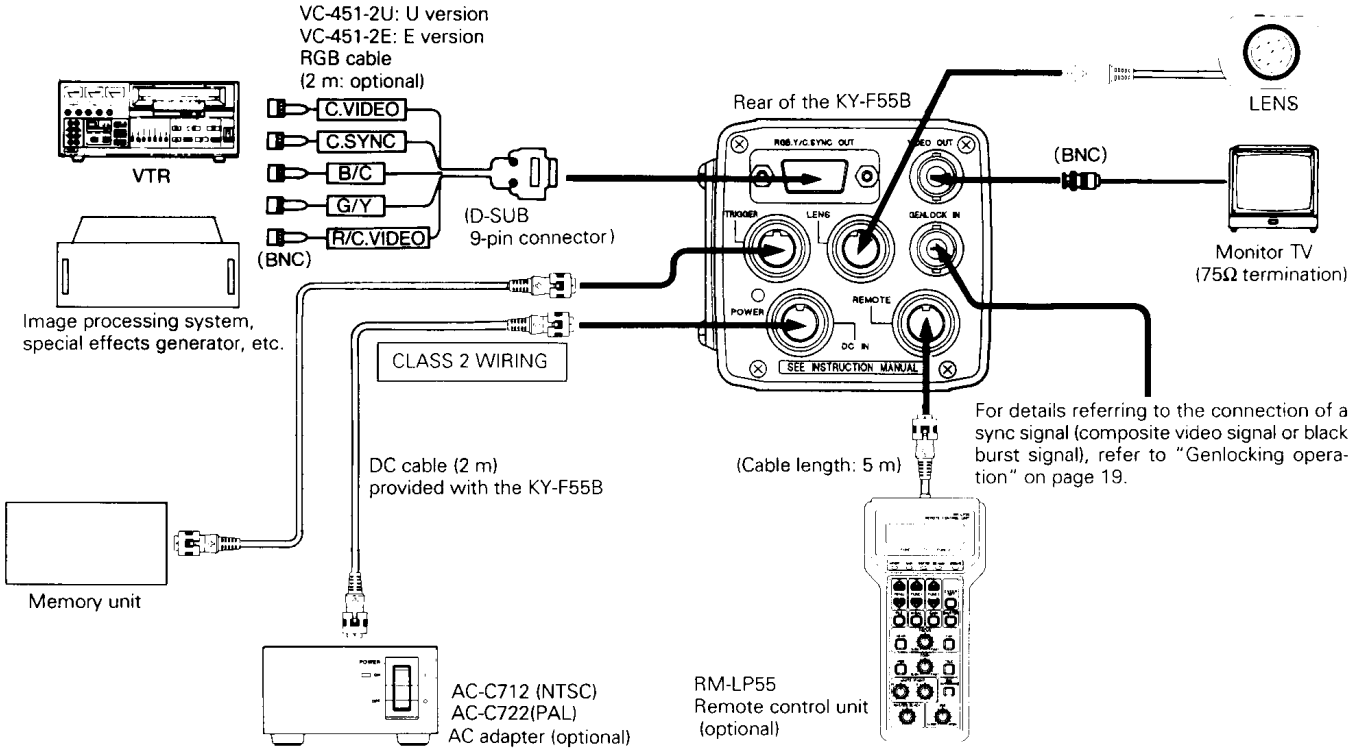
(Top)



CONNECTIONS

- Before making any connections, be sure that any equipment being connected is also OFF.

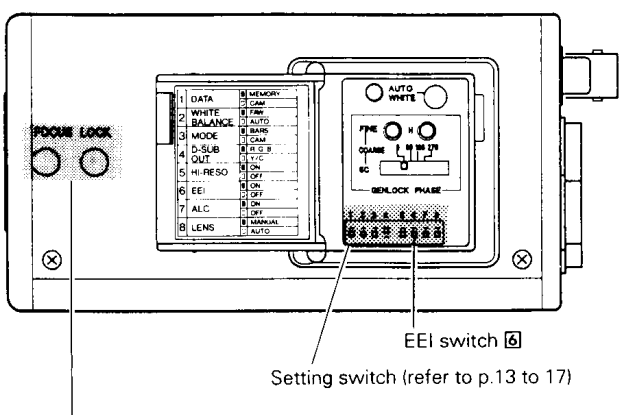
Note:
This installation should be made by a qualified service person and should conform to all local codes.



SETUP

To ensure that you get the clearest pictures and correct color tone when shooting, you must first adjust the back focus and white balance.

- Back focus adjustment normally needs to be performed only once — at the time you install the lens. As long as you don't change the lens, subsequent adjustment should not be necessary.
- The white balance must be adjusted each time you shoot.



1. Prior to adjustment, make all necessary connections (see "Connections", p.10), then set the switches of this camera as shown on the left.
2. Connect the power plug of the AC adapter (optional AC-C712 for NTSC, AC722 for PAL) to an AC outlet and set the power switch to "ON". The power LED indicator will light up.

Note:
An overcurrent detection circuit is provided with this camera to protect the electric circuitry. Therefore, when this detection circuit activates due to a variation in power voltage, no picture will appear. To restore the operation, turn the AC adapter's power switch to OFF and then ON again.

3. Aim the camera at an appropriate subject, operate the lens focus and zoom, and confirm that the picture is satisfactory using a monitor TV.

■ Back focus adjustment

Perform this adjustment while referring to a monitor TV.

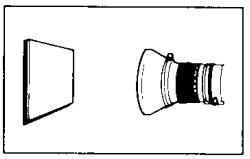
- For more accurate adjustment. the subject and camera should be at least 3 meters apart.
- When using the HZ-610MD, HZ-615MD, HZ-616MD or HZ-G6350
- For the adjustment, it is necessary optional RM-LP55.

1. Loosen the back focus fixing screw (LOCK) by turning it counterclockwise with a screwdriver.
2. Open the lens iris.
3. If the illumination is too strong, set the EEI mode. When using only the camera, set the [6] EEI switch to ON (upper position).
4. Set the lens' zoom to the maximum telephoto position.
5. Adjust lens focus.
6. Set the lens' zoom to maximum wide angle.
7. Turn the back focus adjust screw (FOCUS) to the optimum focus.
8. Repeat steps 4 to 7.
9. Turn the back focus fixing screw (LOCK) clockwise to secure it.

■ White balance adjustment

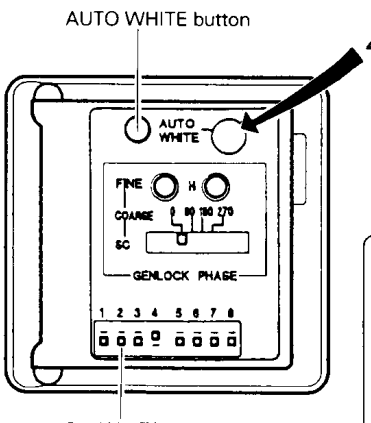
- If the color temperature of the light source (natural light, for example) changes during shooting, the white balance must be readjusted.

1. Flip down the WHITE BALANCE switch [2] to AUTO.
2. Shoot a white subject (white paper, white wall, etc.) so that it fills the whole screen.



3. Press the AUTO WHITE button.

Note:
The preset white paint data will be reset if it was set with the remote control.



4. This LED lights while the auto white balance is adjusting. When the LED goes out, white balance adjustment is complete.

Note:
When the operation indicator LED goes out after flashing, it means that white balance adjustment is incomplete. To fully adjust white balance, insert a color temperature conversion filter in front of the lens.

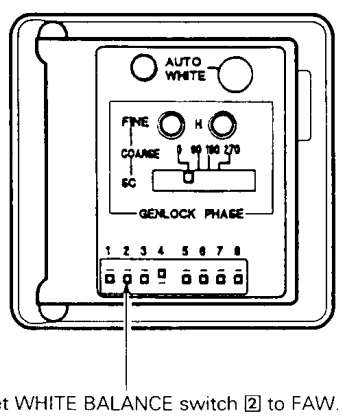
SETUP

■ Full-time auto white balance (automatic color temperature maintenance)

- Full-time auto white balance automatically adjusts white balance if lighting conditions change to maintain optimum balance at all times. (See "Full-time auto white balance", page 23)

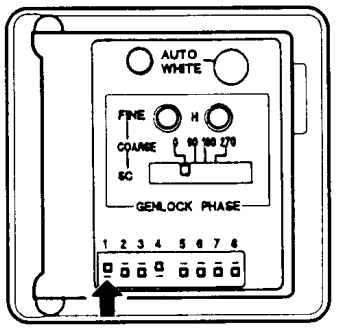
1. Flip up the WHITE BALANCE switch [2] to FAW.

Note:
If the overall screen has a mono color tone or a vividly colored subject is shot, optimum balance adjustment is not possible. This is not a malfunction. If this happens, adjust white balance again as described in "White balance adjustment", p. 12.



1 DATA switch

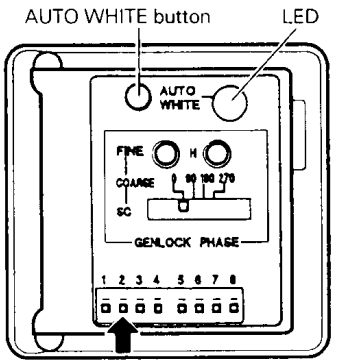
- **To maintain the conditions set up by the RM-LP55**



1. Flip up the DATA switch 1 to MEMORY.
2. Set the camera operation mode as desired using the remote control and transfer the data to the camera. The set data will be stored in the camera.
   (For details, refer to the RM-LP55's Instructions.)
3. Even when the RM-LP55 is removed and the power switch is set to "ON" or "OFF", the conditions set by the RM-LP55 are maintained.

2 WHITE BALANCE switch

- **White balance adjustment**

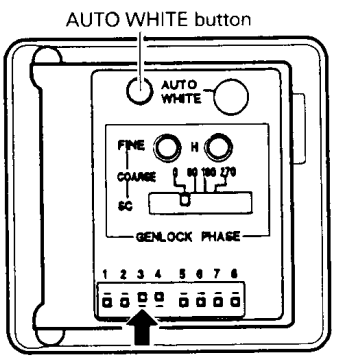


1. Set the 2 WHITE BALANCE switch to "AUTO" (lower position).
2. Shoot a white subject (white paper or white wall) or gray scale chart in full screen.
3. Press the AUTO WHITE button.
4. The auto white LED is lit. When the LED goes out, the adjustment is complete.

For details, refer to "White balance adjustment" on page 12.

3 MODE switch

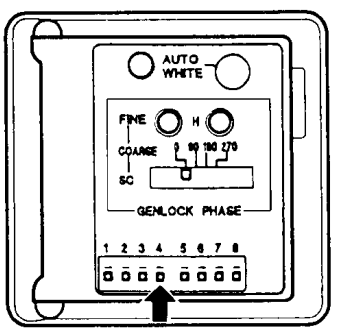
- **Setting the color bars mode/setup data display**



1. Flip up the MODE switch 3 to BARS to output the color bars signal from the video output connector.
2. Press the AUTO WHITE button to display setup data on the monitor.
3. Press the AUTO WHITE button again to turn the display setup data off.

4 D-SUB OUT switch

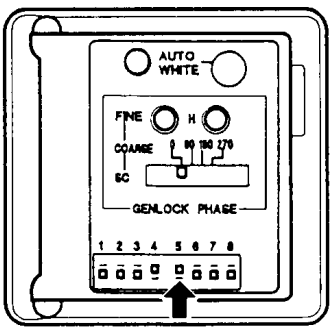
- **Selecting the signal output from the D-SUB connector**



1. When 4 the D-SUB OUT switch is flipped down to "Y/C" (lower position), Y/C 358 signals are output to the D-SUB OUT terminal.
   - This switch is factory-preset to the RGB signal output (upper position)
2. To output the RGB signal, flip up the D-SUB OUT switch 4 to RGB.
   (For D-SUB connector specifications, refer to "Connectors" on page 21.)

5 HI-RESO switch

- **Setting the HI-RESO mode**

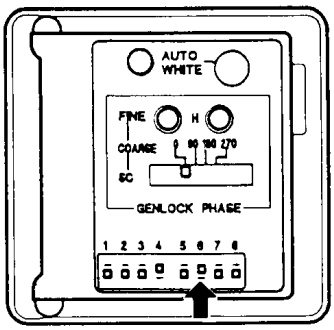


- Flip up the HI-RESO switch 5 to ON.

Note:
When using the RM-LP55, if the HI-RESO mode and V. SCAN mode 1/60.0 for NTSC, 1/50.0 for PAL are selected simultaneously, the HI-RESO mode has priority so the 1/30 sec for NTSC, 1/25 sec for PAL. shutter is in effect.

6 EEI switch

- **Setting the EEI (shutter iris) mode**



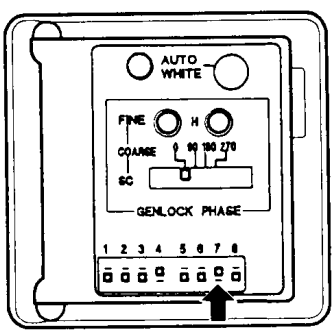
- Flip up the EEI switch 6 to ON.
(For the detail of EEI, refer to "ALC and EEI operations" on page 23.)

Note:
If the EEI mode is used under a fluorescent lamp, flicker may be generated. In this case, flip down the EEI switch to OFF.

OPERATION

7 ALC switch

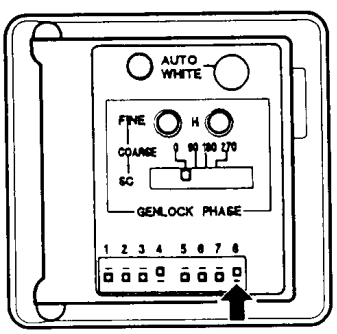
- **Setting the ALC (automatic level control) mode**



- Flip up the ALC switch 7 to ON.
(For the detail of ALC, refer to "ALC and EEI operations" on page 23.)

8 LENS switch

- **Setting the LENS mode**



1. To engage the manual iris mode, flip up the LENS switch 8 to MANUAL. When using a manual iris lens, set to MANUAL.

2. When using an auto iris lens, flip down the switch to AUTO.

■ Optional remote control functions

Function	Operation from KY-F55B	Operation from RM-LP55
MODE	○ BARS/CAM	○ BARS/CAM
CONTOUR	X	○ ON (LEVEL) / OFF
GAMMA	X	○ ON / OFF
MASTER BLACK LEVEL	X	○
IRIS	○ AUTO / MANUAL	○ AUTO (LEVEL) / MANU
IRIS DETECT	X	○ NORMAL / PEAK / AVG
WHITE BALANCE	○ AUTO / FAW	○ PRESET/MANUAL/AUTO1/AUTO2/FAW
WHITE PAINT	X	○ AUTO1/AUTO2
GAIN	○ 0dB / ALC	○ 0dB / +6dB / +9dB / +12dB / +18dB / ALC / ALC+EEI
SHUTTER (for NTSC)	○ NORMAL , EEI	○ NORMAL , 1/100 , 1/250 , 1/500 , 1/1000 , 1/2000 , V. SCAN , EEI
SHUTTER (for PAL)	○ NORMAL, EEI	○ NORMAL, 1/120, 1/250,1/500, 1/1000, 1/2000, V. CAN , EEI
TITLE INDICATION	X	○ ON / OFF
TITLE INDICATION LOCATION	X	○
TITLE SETTING	X	○
DATA	○ REMOTE / CAM	X
FILE	X	○ FILE (READ, SAVE, RM DATA TO CAM)
D-SUB OUT	○ Y/C, RGB	X
H. PHASE	○	○
SC COARSE	○ 0° / 90° / 180° / 270°	○ 0° / 90° / 180° / 270°
SC FINE	○	○
ZOOM	X	○ (SPEED)
FOCUS	X	○ (SPEED)
RANDOM TRIGGER	X	○ ON/OFF 1/60(NTSC), 1/50(PAL), 1/100(NTSC), 1/120(PAL), 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000
HI-RESO	○ ON/OFF	○ ON/OFF

○ : Function available
X : Function not available

GENLOCKING OPERATION

When pictures from more than one camera are to be processed (fade in, fade out, and mix wipe), by a special effects generator (SEG), genlocking is used to synchronize the various camera pictures with the SEG. In the example below, a simplified method which does not require the use of measuring instruments is described. Here, an SEG is genlocked to the KY-F55B which acts as the main signal source.

- H and SC phase can be adjusted from optional RM-LP55 (remote control unit).

1. Set the MODE switch [3] to BARS (upper position), and output the color bars signal.

2. Set the SEG's built-in color bars signal to the SEG's program output. (Refer to the SEG's Instructions.)

■ Adjusting horizontal sync phase

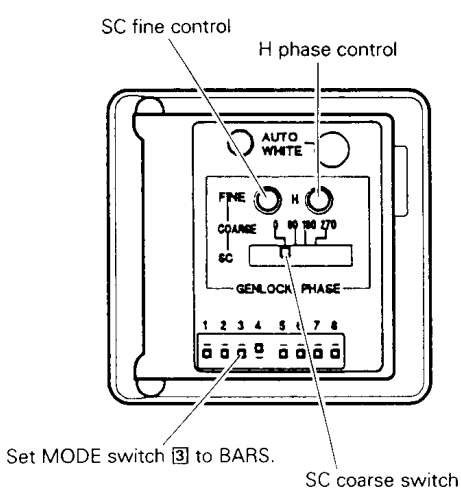
3. While monitoring the SEG's program output on the underscan monitor TV, alternately switch between the SEG's built in color bars and the KY-F55B's color bars on the program bus, then turn and adjust the horizontal phase adjustment control so that the horizontal phase of the two color bars does not drift.

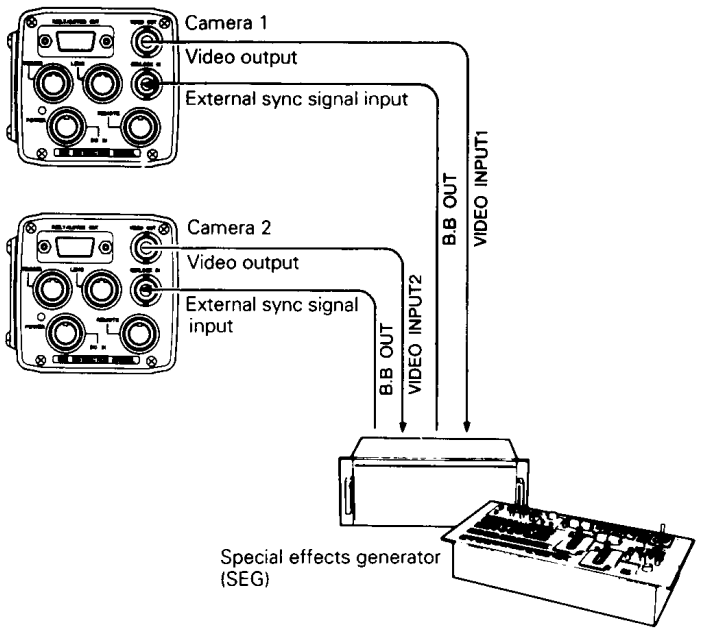
■ Adjusting the SC phase

- In the same way as in horizontal sync phase, perform adjustment so that the color phase of the SEG's built- in color bars and that of the KY-F55B's color bars match each other.

4. Perform coarse adjustment using the SC coarse switch (0°, 90°, 180° and 270°).

5. Perform fine adjustment by turning the SC fine control.





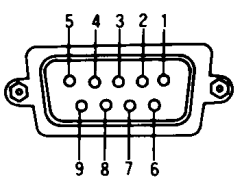
Notes:

- If a vector scope and a waveform monitor are available, these adjustments can be performed accurately.
- A VTR playback signal cannot be used as a sync signal. Be sure to use a TBC (time base corrector).
- Be sure to use an underscan monitor as a monitor.

CONNECTORS

■ D-SUB connector

(9-pin, female)

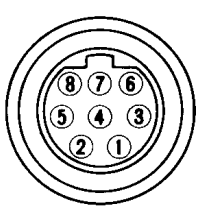


(Viewed from front)

Pin No.	Signal (RGB signal selected)	Signal (Y/C signal selected)
1	Ground	Ground
2	Ground	Ground
3	R (RED) signal output	Composite video signal output
4	G (GREEN) signal output	Y signal output
5	B (BLUE) signal output	C signal output
6	Composite video signal output	Composite video signal output
7	Composite sync signal output	Composite sync signal output
8	Ground	Ground
9	Ground	Ground

■ Lens connector

(8-pin, female)

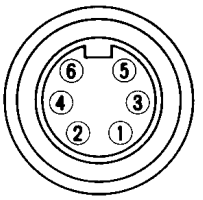


(Viewed from front)

Pin No.	Signal
1	IRIS mode select
2	Ground
3	IRIS control
4	+12 V DC output
5	—
6	ZOOM control
7	FOCUS control
8	Y signal output

■ Remote connector

(6-pin, female)

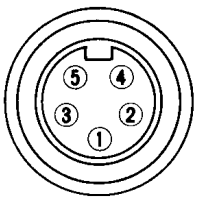


(Viewed from front)

Pin No.	Signal
1	Ground
2	$\overline{\text{OPERATE}}$
3	Ground
4	SID2
5	SID1
6	+9 V DC input

■ TRIGGER connector

(5-pin, female)

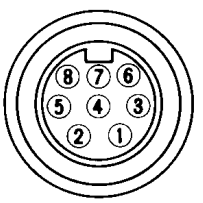


(Viewed from front)

Pin No.	Signal
1	$\overline{\text{SI}}$
2	$\overline{\text{TRG}}$
3	Ground
4	$\overline{\text{WEN}}$
5	—

■ DC input connector

(8-pin, female)



(Viewed from front)

Pin No.	Signal
1	—
2	Ground
3	—
4	—
5	Ground
6	+12 V DC input
7	—
8	+12 V DC input

TECHNICAL INFORMATION

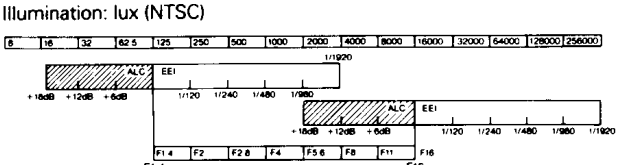
■ ALC and EEI operations

ALC refers to automatic level control and EEI to shutter iris control. The video circuit of the KY-F55B employs a system that maintains the video level at a constant level through a combination of the lens's auto iris, continuously variable electronic shutter (EEI), and automatic level (sensitivity) control circuit (ALC).

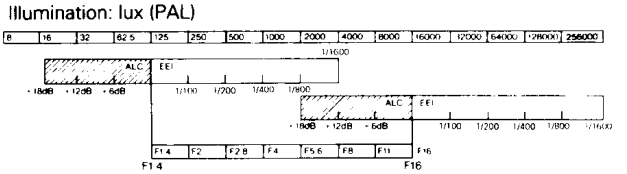
In low-light conditions, the automatic level control circuit is activated while, in brighter light, the electronic shutter operates. Moreover, if the iris is set to auto, the sensitivity, iris, and electronic shutter will all vary continuously to automatically ensure the optimum signal level at all times.

In the ALC mode, sensitivity (gain) is increased between 0 dB and +18 dB. In the EEI mode, the electronic shutter automatically operates at a range from 1/60 to 1/1920 second (NTSC), 1/50 to 1/1600 second (PAL) depending on the strength of the lighting. This means that in dark conditions, the signal level will be adjusted by 3 stops of the iris whereas in bright situations, it will be adjusted by a range of 5 stops. If the iris is manually set, the sensitivity and electronic shutter will vary continuously while the iris setting remains the same. The advantage of this is that it allows you to shoot in situations where illumination changes without changing the depth of field.

Illumination: lux (NTSC)



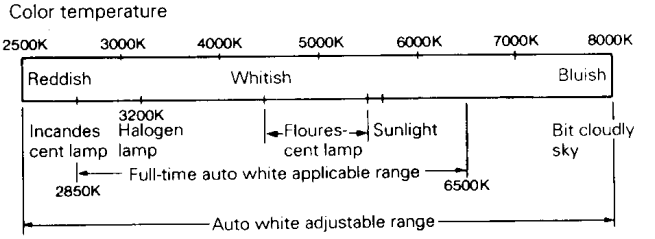
Illumination: lux (PAL)



■ Full-time auto white balance

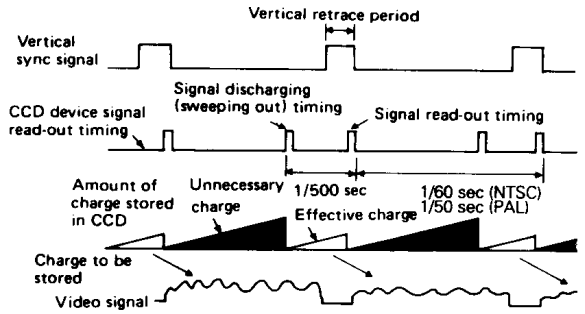
Full-time auto white balance is a function which automatically and continuously adjusts white balance as necessary. In some cases — such as when there is a single color on the screen, when the subject is wearing a vivid color, or when the color temperature of the light source changes etc., — correct white balance may not be obtained. If this occurs, we recommend you adjust the white balance by referring to "White balance adjustment" on p.12.

Color temperature



■ Operation principle of the electronic shutter (Example: 1/500 sec)

Electric charge is stored in a CCD image device for only 1/500 second before the signal is read out from the CCD device and the electric charges stored prior to that are discharged (swept out) in order to achieve a shutter speed of 1/500 second.



Cautions in the use of the electronic shutter mode

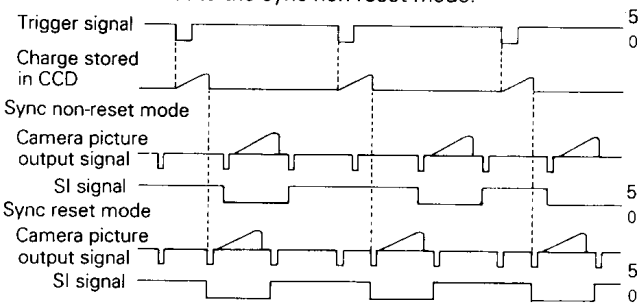
- The motion of the subject will be seen as strobescopic motion on the monitor TV screen as a 1/500 second picture is extracted every 1/60 second (NTSC), 1/50 second (PAL).
- As flicker results under a periodic lighting such as a fluorescent lamp, it is necessary to use lighting which is free from excessive periodic changes such as an incandescent lamp.
- As the storage time of the CCD device is decreased to approximately 1/8(NTSC), 1/10 (PAL), the drop in the amount of light will be by a factor of 1/8(NTSC), 1/10 (PAL) of that in the normal mode. In shooting, it is necessary to increase the illumination by 8 times(NTSC), 10 times (PAL) or increase light intensity by opening the lens aperture by 3 stops (NTSC), 3-1/2 stops (PAL) if there is sufficient light.

■ Operation of the random trigger

Used to recognize the picture by detecting an object. When the trigger signal for object detection is input, a charge is stored in the CCD pickup element of the camera to be output through synchronization with the next sync signal. This is used by latching it in memory with an SI signal which is output simultaneously. When viewing it on the monitor, the movement of the subject is stroboscopic. 2 modes are available for selection by the output timing on the camera for a trigger input signal.

1. Sync non-reset mode
   The timing of the camera is output as is, regardless of the trigger signal. When the camera is genlocked, output occurs with timing synchronized with the GENLOCK IN input signal.
2. Sync reset mode
   The camera's timing is output through synchronization with the trigger input signal. In this case, while setting up the system as the trigger signal becomes a reference signal, the genlock function does not activate.

The camera is set to the sync non-reset mode.



Note:

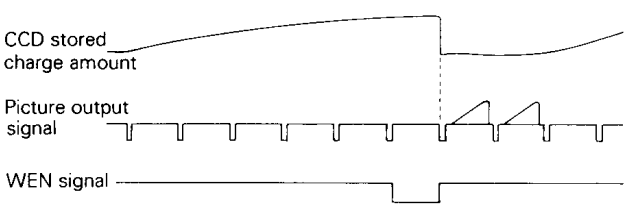
Input the grounded pulses of the GND terminal as a trigger signal into the external trigger terminal. The trigger signal should be a negative-polarity signal with a pulse width of 20 µs to 5 ms and a pulse interval of 40 ms or more. If this signal contains noise (chattering), a malfunction may occur, making the picture disappear. When such a case occurs, turn the power off then on again.

TECHNICAL INFORMATION

■ Slow shutter function

Used to shoot in dark places. This function does not increase the gain electrically, but takes a long time to store the charge in the CCD pickup element so that a higher charge can be obtained, allowing higher sensitivity pictures to be obtained even under a small amount of light.

The time for storage is up to 240 frames (approx. 8 sec.). As one frame is output for several frames, it is latched in memory by outputting WEN signals at the same time. When watching it on the monitor, the movement of the subject is stroboscopic.



- In the Auto Iris mode, use with a normal video signal level is not possible. So, close the iris in the manual iris mode.
- Switching the HI-RESO mode allows selection of the field output or frame output.

Note:

When the number of frames is increased, noise may increase. Therefore, set it to the appropriate value.

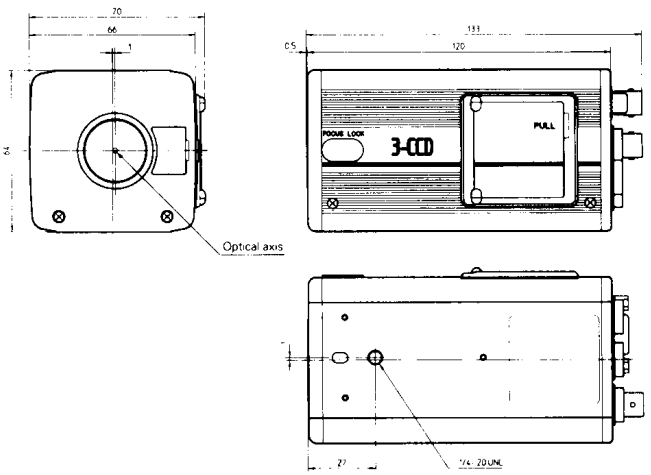
SPECIFICATIONS

Pickup device	: 1/3-inch interline CCD × 3
Effective number of pixels	: 380,000 pixels (for NTSC) 440,000 pixels (for PAL)
Color separation optical system	: F1.4, RGB 3-color separation prism
Lens mount	: C-mount
Color system	: wideband R-Y, B-Y encoder
Sync system	: Internal/external
Sensitivity	: F5.6, 2000 lux
S/N ratio	: NTSC: 60 dB (typical), PAL: 58 dB (typical)
Horizontal resolution	: 750 TV lines (Y signal) 580 TV lines (RGB signal)
Registration	: 0.05 % (excluding lens characteristics)
Contour correction	: Horizontal; dual-edged Vertical; single-edged
Electric gain	: +18 dB (ALC)
Electronic shutter speed	: NTSC: Normal (1/60 sec) PAL: Normal (1/50 sec)
External sync signal input	: Composite video signal 1 V(p-p), 75 ohm or black burst signal 0.43 V(p-p)(NTSC), 0.45 V(p-p)(PAL), 75 ohm
Color bars	: Built-in SMPTE type color bars signal
Output signals	
• Composite video signal	: 1 V(p-p), 75 ohm BNC connector one channel, D-SUB 9-pin connector one channel

• Y/C signal	Y	: 1 V(p-p), 75 ohm (including sync)
	C	: 0.286 V(p-p)(NTSC), 0.3 V(p-p)(PAL), 75 ohm (burst)
		D-SUB 9-pin connector one channel (switchable between RGB signal)
• RGB signal		: 0.7 V(p-p), 75 ohm (without sync) each D-SUB 9-pin connector one channel (switchable between Y/C signal)
• Composite sync signal		: 2 V(p-p), 75 ohm D-SUB 9-pin connector one channel
• Trigger connector	TRG	: 5 V(p-p) (Negative polarity)
	SI	: 5 V(p-p) (Negative polarity)
	WEN	: 5 V(p-p) (Negative polarity)
Lens connector		: Applicable to the HZ-610MD, HZ-615MD, HZ-616MD, HZ-G6350
Remote connector		: Applicable to the RM-LP55
Power supply		: 12 V DC (10.5 to 15 V)
Power consumption		: 10 W
	Camera head	7.5 W
	HZ-610MD	0.5 W
	RM-LP55	2.0 W
Ambient temperature range		: –5°C to 40°C (23°F to 104°F)
Weight		: 490 g
Accessories		: DC cable (VC462-2: 2 m) × 1
		Camera mounting bracket × 1
		Screw (CM46969-00B) × 3

Design and specifications are subject to change without prior notice.

■ Dimensions (unit: mm)



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