SANYO

INSTRUCTION MANUAL
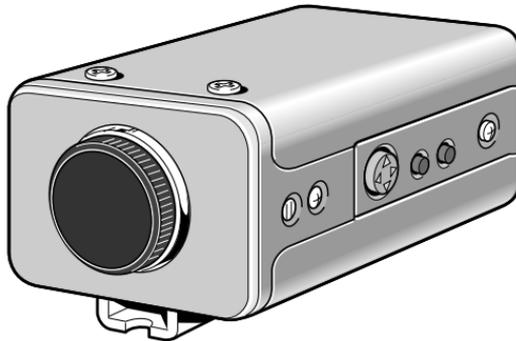
VCC-5974

COLOR CCD Camera

About this manual
- Before installing and using the camera, please read this manual carefully. Be sure to keep it handy for later reference.

SANYO INDUSTRIAL VIDEO
COLOR VIDEO CAMERA LIMITED WARRANTY

OBLIGATIONS

In order to obtain warranty service, the product must be delivered to and picked up from an Authorized Sanyo Service Center at the user's expense, unless specifically stated otherwise in this warranty. The names and addresses of Authorized Sanyo Service Centers may be obtained by writing to SFS Corporation, SFC's warranty administrator, at any of the addresses listed below, or by calling (toll-free) 1-800-421-5013.

New Jersey Office
210 Riser Road
Little Ferry, NJ 07643

Depending on the conditions of use, installation and environment, please be sure to make the appropriate settings and adjustments. If you need help with installation and/or settings, please consult your dealer.

CONTENTS

ACCESSORIES

① C mount adaptor (5 mm).....................1 pc.

  The C mount adaptor must be used to be able to install a C mount lens on the camera.

② Lens iris plug (4-pin)............................1 pc.
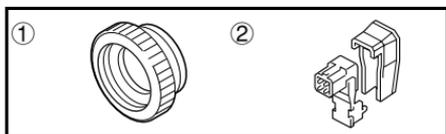
FEATURES

- Built-in interline transfer method 1/3" CCD, approx. 410,000 picture elements

- Low smear, anti-blooming, low lag, no burning and no geometric distortion using the CCD solid state image device.

- 100% solid state components giving excellent immunity to shock and vibration

- Not subject to interference from magnetic or electrostatic fields

- High sensitivity, minimum required illumination is 0.9 lux (F1.2, AGC Gain: High, incandescent lighting)

- Horizontal resolution, more than 470 TV lines

- Power supply: 24 V AC operation

INFORMATION TO USER

Safety Guard

⚠️ **THIS SYMBOL INDICATES THAT THERE ARE IMPORTANT OPERATING AND MAINTENANCE INSTRUCTIONS IN THE LITERATURE ACCOMPANYING THIS UNIT.**

WARNING:

TO PREVENT THE RISK OF FIRE OR ELECTRIC SHOCK , DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

For the customers in Canada

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Pour la clientèle canadienne

Cet appareil numerique de la Classe B respecte toutes les exigences du Reglement sur le material brouilleur du Canada.

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

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

– Reorient or relocate the receiving antenna.

– Increase the separation between the equipment and receiver.

– Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

– Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by **Sanyo** may void the user's authority to operate this camera.

PRECAUTIONS

In case of problem

Do not use the camera if smoke or a strange odour comes from the unit, or if it seems not to function correctly. Disconnect the power cord immediately, and consult your dealer (or a Sanyo Authorized Service Centre).

Do not open or modify

Do not open the cabinet, as it may be dangerous and cause damage to the unit. For internal settings and repairs, consult your dealer (or a Sanyo Authorized Service Centre).

Do not put objects inside the unit

Make sure that no metal objects or flammable substance get inside the camera. If used with a foreign object inside, it could cause a fire, short-circuits or damages.

If water or a liquid gets inside the camera, disconnect the power cord immediately, and consult your dealer (or a Sanyo Authorized Service Centre). Be careful to protect the camera from rain, sea water, etc.

Be careful when handling the unit

To prevent damages, do not drop the camera or subject it to strong shock or vibration.

Install away from electric or magnetic fields

If installed close to a TV, radio transmitter, magnet, electric motor, transformer, audio speakers the magnetic field they generate will distort the image.

Protect from humidity and dust

To prevent damages to the camera, do not install it where there is greasy smoke or steam, where the dampness may get too high, or where there is a lot of dust.

Protect from high temperatures

Do not install close to stoves, or other heat generating devices, such as spotlights, etc., or where it could be subject to direct sunlight, as that could cause deformation, discoloration or other damages.

Be careful when installing close to the ceiling, in a kitchen or boiler room, as the temperature may raise to high levels.

Install where the temperature range will stay between –10˚C and 50˚C.
(no condensation)

Cleaning

- Dirt can be removed from the cabinet by wiping it with a soft cloth. To remove stains, wipe with a soft cloth moistened with a soft detergent solution and wrung dry, then wipe dry with dry soft cloth.

- Do not use benzine, thinner or other chemical product on the cabinet, as that may cause deformation and paint peeling. Before using a chemical cloth, make sure to read all accompanying instructions. Make sure that no plastic or rubber material comes in contact with the cabinet for a long period of time, as that may cause damage or paint peeling.

PARTS NAMES
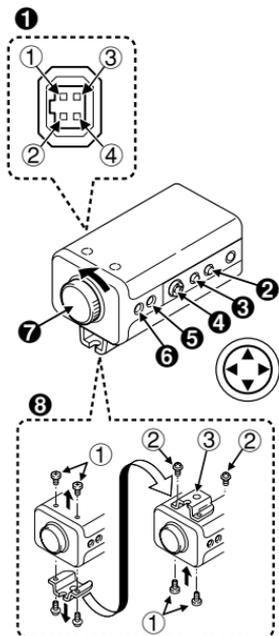
① **Shorter screws: M3 x 4**

② **Longer screws: M3 x 6**

③ **Camera mounting screw hole: 1/4"-20 UNC**

❶ **Lens iris output connector (4 pin)**

This 4-pin connector is used to send the DC control signal and power supply to an auto-iris type lens.

❷ **Auto white balance push lock button (AWB LOCK)**

❸ **Menu setting button (SET)**

Connect the camera to the monitor, then press the **SET** button for about 3 seconds to display the on-screen menu.

❹ **Cursor button (CURSOR)**

▲: Press this button to move the cursor up.

▶: Press this button to move the cursor to the right, or to turn the settings ON/OFF etc.

◀: Press this button to move the cursor to the left, or to turn the settings ON/OFF.

▼: Press this button to move the cursor down.

❺ **Flange-back lock screw (FLANGE BACK LOCK)**

❻ **Flange-back adjustment screw (FLANGE BACK ADJ.)**

❼ **Lens mount cap**

The cap is installed to protect the lens mount section.

Remove the lens mount cap before installing a lens (sold separately).

❽ **Camera installation bracket**

The bracket can be fixed at the top or bottom of the camera. When fixing the bracket, be sure to use the longer screws and install the shorter screws on the opposite side to seal the openings.

> **CAUTION:**
> **When installing the camera support, select a location that can support the total weight of the camera and accessories.**

PARTS NAMES
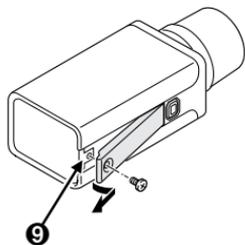
### ❾ Camera setup section (under the cover)

This unit factory settings are as indicated below. These settings are for when using a 1/3 inch CS mount **DC** (without **EE** internal amplifier) type lens. However, if due to installation conditions or environment the settings may need to be modified for best results (see "**SETTINGS**"). To access the controls, remove the cover fixing screw, then remove the cover.
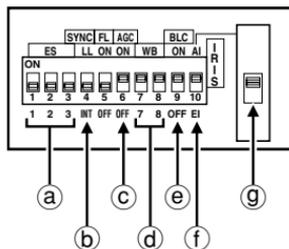
	Control name	Position
ⓐ	**High speed electronic shutter switches (ES)**	**All OFF: 1/60 sec**
ⓑ	**Internal/Line lock switch (SYNC)**	**INT**
ⓒ	**Auto gain control switch (AGC)**	**ON**
ⓓ	**White balance switch (WB)**	**all ON: ATW**
ⓔ	**Backlight compensation switch (BLC)**	**ON**
ⓕ	**Electronic iris (EI)/ Auto iris (AI) switch**	**AI**
ⓖ	**Auto-iris lens switch (A.I. LENS)**	**DC**

Notes:

• When using a 1/2 or 2/3 inch C mount **VIDEO** (with **EE** internal amplifier) auto-iris type lens, set the **A.I. LENS** switch to the **VIDEO** position.

The settings entered in the camera setup section can be displayed using the on-screen menu.

• If not using an auto-iris lens, make sure the BLC switch is set to **OFF**.
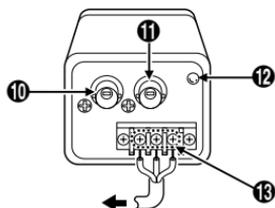
❿ Video output connector (VIDEO OUT: BNC type)

Connect this connector to a device such as a VCR or monitor with a **VIDEO IN** connector.

⓫ External sync composite video signal input connector (VBS IN: BNC type)

Connect to this connector the synchronizing signal output from a synchronizing signal device or the composite signal of a video distributor.
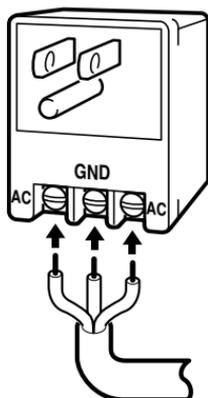
⓬ Power indicator (POWER)

Comes on when the power to the camera is on.

⓭ 24 V AC input terminal (24 V AC, GND)

With this camera use only the 24 V AC power adaptor model No. **VPT-115** available from Sanyo.
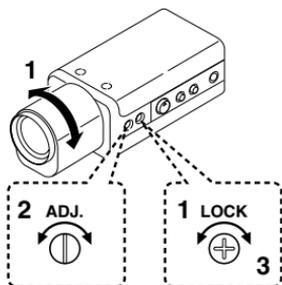
■ Power supply connections

Use a 3 wire grounded cable (22 AWG or more), and connect as shown by the illustration.

CAUTION:

- To prevent camera and/or AC adaptor failure, pay close attention to polarity when making the connections.
- To prevent fire hazard any UL listed wire rated VW-1, should be used for the 24 V AC cable input terminal.


PARTS NAMES

■ Flange-back adjustment

If the pick-up surface is not correctly positioned with relation to the lens focal point, the picture will be out of focus (in particular when using auto-iris power zoom lenses, sold separately). If that is the case, adjust the flange-back position as described below.

1 Using a **+** screwdriver, loosen the **FLANGE BACK LOCK** screw (**M2:+**).
Set the zoom lens to the maximum telephoto position, set the focus using the focus ring on the lens.

2 Set the zoom lens to the maximum wide angle position, set the focus using the **FLANGE BACK ADJ.** screw.

3 Repeat steps 2 and 3, until the image stays in focus when changing from a telephoto shot to a wide angle shot.
When the setting is complete, tighten the **FLANGE BACK LOCK** screw.

MOUNTING THE LENS
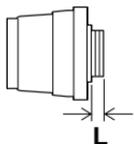
Check the lens mount

Do not use a lens if the length "**L**" is more than **5** mm. That may damage the camera and prevent proper installation.

■ Installation of a DC type auto-iris lens (sold separately)

A 1/3 inch CS mount type lens without EE amplifier circuit that only uses a DC power source. This camera can receive (the **A.I. LENS** switch to the DC type) a CS mount type lens without the need of an adaptor.

If the lens plug shape or wiring does not correspond, please install the supplied plug as indicated in the pin layout table.

MOUNTING THE LENS

2 (A)

(B)

3

4
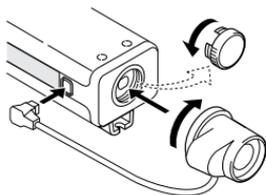
■ Installation of a VIDEO type auto-iris lens (sold separately)

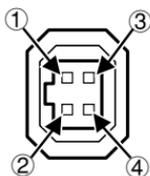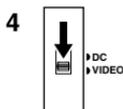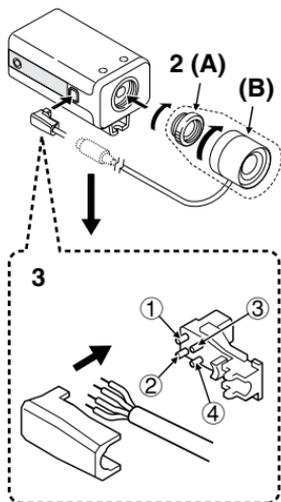A 1/2 or 2/3 inch C mount type lens with EE amplifier circuit that uses the video signal and a DC power source.

1 Remove the lens mount cap.

2 Attach the supplied **C mount adaptor (A)** to the auto-iris lens **(B)**, then install the assembly on the camera.

3 Connect the lens plug to the **LENS** connector on the side of the camera.

If the lens plug shape or wiring does not correspond to the specifications below, connect the supplied plug as indicated.

- When using lenses from other makers, make sure that the pins connections in the plug correspond to the ones of the camera.

   Refer to the lens specifications to check the pins connections in the plug.

- If they are different than indicated, remove the original plug and connect the supplied plug according to the diagram.

4 Set the **A.I. LENS** switch in the camera setup section to the **VIDEO** position.

Pin layout

|	DC type lenses	VIDEO type lenses
①	Brake coil (−)	+12 V DC (50 mA max.)
②	Brake coil (+)	Not used
③	Drive coil (+)	Video output (1.0 Vp-p, high impedance)
④	Drive coil (−)	Ground (for video signal and DC power)

MOUNTING THE LENS

Compatible auto-iris lenses

1/3 inch Sanyo DC type lens	1/2 or 2/3 inch VIDEO type lens
VCL-CS8LY: Standard angle, f= 8 mm	Standard angle, f= 9 mm
VCL-CS4LY: Wide angle, f= 4 mm	Telephoto angle, f= 12 mm
VCL-CS2LY: Ultra-wide angle, f= 2.8 mm	More telephoto angle, f= 16 mm

If using a VIDEO type auto-iris lens

- Set the **ALC** and **LEVEL** controls on the lens to adjust the iris. Normally the **ALC** volume should be turned all the way to **Av** (Average).

- Depending on the type of lens used, the lens may not perform properly. In such a case, adjust the **LEVEL** volume on the lens casing to correct.

CONNECTIONS

(Video signal connections)
⋙ : VIDEO IN
⧩ : VIDEO OUT
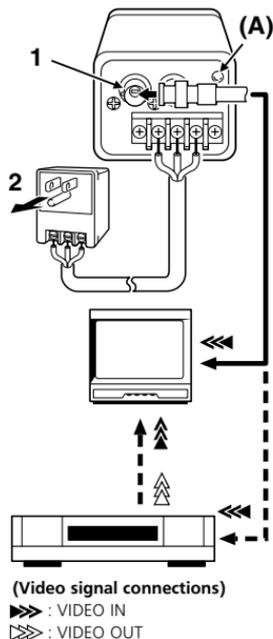
Basic connection for monitoring or recording

The peripheral devices (VCR, monitor, lens, etc.) and cables are sold separately.

1 Make the video signal connection between the camera and the monitor or time lapse VCR.

2 Insert the plug of this power cord into a wall outlet.
The **POWER** indicator **(A)** will light. Adjust the picture on the monitor using the Brightness and Contrast controls.

### Coaxial cable type and maximum length

- Cable type RG-59U (3C-2V), 250 m maximum.
- Cable type RG-6U (5C-2V), 500 m maximum.
- Cable type RG-11U (7C-2V), 600 m maximum.

CAUTION:

- The RG-59U type cable should not be run through electrical conduits or through the air.
- Using CCTV/Video-grade coaxial cable.

SETTINGS

The illustration shows the factory default settings for the switches in the camera setup section. Depending on the camera installation location and conditions of use, it may be necessary to select other settings, without having to make adjustments. The selected settings can be confirmed using the on-screen menu. If adjustments are required, they can be entered using on-screen adjustment sub-menus (see **ADJUSTMENTS**, page **14**).
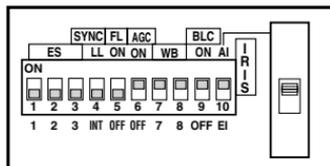
■ High speed electronic shutter (ES) setting

Normally, the three speed setting switches (1, 2 and 3) for the high speed electronic shutter are all set to the **OFF** position. This sets the electronic shutter speed to 1/60 sec. The three switches in the camera setup section can be set as indicated in table **A** to select one of the 8 speeds available.

Notes:

- When using the high speed electronic shutter, the **BLC** switch must be set to the **OFF** position.
- Using the high speed electronic shutter indoors with low lighting, will give darker pictures. In such a case, add some lights to make sure the lighting is sufficient. If the lighting is very bright, pay attention to the light angle in order to avoid or minimize the smear phenomenon effect.
- If IRIS is set to **EI** (electronic iris mode), then the high speed electronic shutter speed will not correspond to the set speed.

SETTINGS

Automatic Gain Control (AGC) setting

The automatic gain control can be turned **ON** or **OFF** using the
AGC ON/OFF switch (6) in the camera setup section.

ON
OFF

ON: Auto gain control function on (setting used under
normal conditions) (see page **23**).

GAMMA: ON (0.45), OFF (1)
AGC GAIN: NORMAL (30 dB), HIGH (36 dB)

OFF: Fixed gain

Note:

When the **AGC** switch is set to **OFF**, the **GAMMA** and backlight
compensation are automatically set to **OFF**, and the IRIS is set to
AI.

White balance (WB) setting

Under normal conditions, the white balance is set to **ATW** (Auto
Tracing White-Balance). However, depending on the camera
installation location and conditions of use, the white balance
mode can be set using the two **WB** switches (7 and 8) in the
camera setup section (see table 1).

Table 1

ATW	7 8	
LOCK	7 8	→ AWB LOCK
PRESET	7 8	
MANUAL	7 8	

ATW: Initial setting. The initial value cannot be changed.

LOCK: The white balance is done automatically while the AWB
LOCK button is pressed, then it is locked when the button is
released.

PRESET: The white balance is done according to one of the three
preset modes. The preset modes can be adjusted manually in the
adjustment sub-menu (see page **21**).

MODE 1: Setting for incandescent lighting (2660 ˚K).
MODE 2: Setting for indoors, fluorescent lighting (5100 ˚K).
MODE 3: Can be set for outdoors, sunlight (5100 ˚K).

MANUAL: Set to the initial value. The value can be changed
manually in the adjustment sub-menu (see page **22**).

■ Backlight compensation (BLC) setting

The backlight compensation **ON/OFF** is set using the **BLC ON/OFF** switch (9) in the camera setup section.

ON: Default setting, backlight compensation function on. However, depending on the camera installation location and conditions of use, if the backlight compensation function need to be set, with the **BLC** switch set to **ON**, press the **SET** button to select one of PRESET (1, 2) or MANUAL (1, 2) modes indicated below.

- **PRESET 1** (Basic setting, see **Fig. 1**)

    When the subject is dark and moving within the image, the brightness control is done independently for the 5 windows (W 0-4). This setting is recommended when the subject will be moving across or within the image.

- **PRESET 2** (Basic setting, see **Fig. 2**)

    The windows are regrouped in 2 sections (W 1 and 4; and W 0, 2 and 3) and the lens iris is set automatically so that the backlight correction is optimum for the section composed of windows W 1 and 2. This setting is recommended when the subject will be centred in the image.

- **MANUAL 1** (or **MANUAL 2**) (**Fig. 1, 3**)

    The size and position of window W 4, and the windows (W 0 - 4) distribution (WINDOW WEIGHTING) can be set manually to control a bigger area of the screen (e.g. when the subject will be moving in the screen area) and stored under one of the two manual settings.

OFF: Fixed backlight compensation

Notes:

- The backlight compensation will operate when using an auto-iris lens (DC or VIDEO type).
- If in the "**MENU FOR ADJUSTMENT**", **AGC** is set to **OFF**, the backlight compensation will not operate.

■ Iris level setting

The iris is set using the **IRIS AI** (Auto-Iris)/**EI** (Electronic Iris) switch (10) in the camera setup section.

AI: Initial setting. When using a DC type auto-iris lens, the iris level settings can then be entered in the adjustment sub-menu (see page **17**).

EI: Electronic iris mode setting.

Note: If the **AGC** switch is set to **OFF**, setting the **IRIS** switch to **EI** will not set the electronic iris mode.

ON
OFF

Fig. 1

	W0=1	
W2=10	W4=15	W3=10
	W1=5	

Fig. 2

	W0=0	
W2=0	W4=15	W3=0
	W1=15	

Fig. 3

```
WINDOW WEIGHTING

W0                    1
W1                    1
W2                    3
W3                    3
W4 (FIX)             15

PRESET            OFF
MENU END          END
```
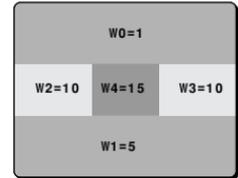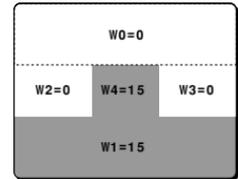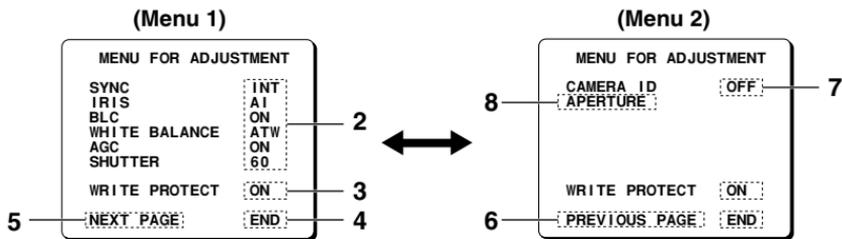
AI
EI

USING THE ON-SCREEN MENUS

(Menu 1)

```
    MENU FOR ADJUSTMENT
  SYNC              INT
  IRIS              AI
  BLC               ON
  WHITE BALANCE     ATW
  AGC               ON
  SHUTTER           60

  WRITE PROTECT     ON

  NEXT PAGE         END
```

(Menu 2)

```
    MENU FOR ADJUSTMENT
  CAMERA ID         OFF
  APERTURE



  WRITE PROTECT     ON

  PREVIOUS PAGE     END
```

1 To display the menu
Press the **SET** button for about 3 seconds. The "**MENU FOR ADJUSTMENT**" is displayed.

2 To switch between menus and selection
When the setting of a switch in the camera setup section is changed, the corresponding sub-menu is displayed. To adjust the values or settings, press the **CURSOR** (◀ or ▶) button to select the desired value or setting, then press the **SET** button.

3 Initial values protection (**WRITE PROTECT**)
ON: Default setting. The initial values cannot be modified.
OFF: Press the **CURSOR** (◀ or ▶) button to select **OFF**, then press the **SET** button. The write protection is cancelled and the initial values can then be changed.

4 To exit the menu
Press the **CURSOR** (▲ or ▼) button to select **END** (get it flashing), then press the **SET** button.

5 To switch to the second page of the "**MENU FOR ADJUSTMENT**"
Press the **CURSOR** (▲ or ▼) button to select **NEXT PAGE** (get it flashing), then press the **SET** button.

6 To switch back to the first page of the "**MENU FOR ADJUSTMENT**"
Press the **CURSOR** (▲ or ▼) button to select **PREVIOUS PAGE** (get it flashing), then press the **SET** button.

7 To enter a camera **ID** (**CAMERA ID**)
(See page **24**).

8 Aperture display (**APERTURE**)
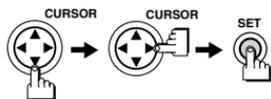(See page **25**).
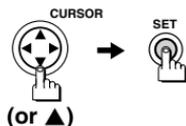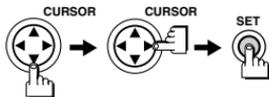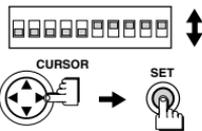
ADJUSTMENTS

To enter settings or adjustments for the camera it must be connected to a monitor. The settings and adjustments are made by ways of on-screen displays.

```
┌─────────────────────────────┐
│  MENU  FOR  ADJUSTMENT      │
│                             │
│  SYNC              INT      │
│  IRIS              AI       │
│  BLC               ON       │
│  WHITE  BALANCE    ATW      │
│  AGC               ON       │
│  SHUTTER           60       │
│                             │
│  WRITE  PROTECT    OFF ◀┄   │
│                             │
│  NEXT  PAGE        END      │
└─────────────────────────────┘
```

■ Concerning the WRITE PROTECT function

In order to protect the settings and adjustments the **WRITE PROTECT** function is set to **ON**. If it is necessary to enter new settings or adjustments, press the **CURSOR** (▲ or ▼) button to select the **WRITE PROTECT** function setting, then press the **CURSOR** (◄ or ►) button to select **OFF**, then press the **SET** button.

CURSOR → CURSOR → SET
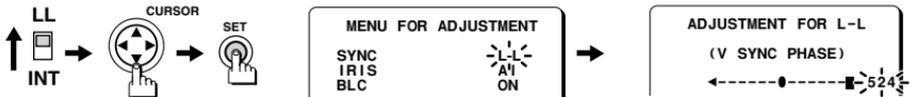
CONTENTS OF ADJUSTMENTS

ADJUSTMENTS

1. SYNC
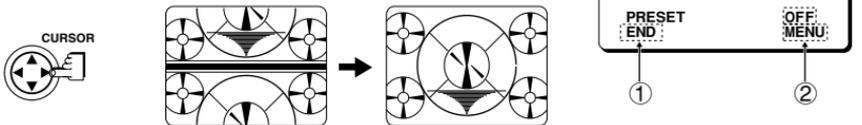
1-1. V sync phase adjustment

When using a camera switcher to connect 2 cameras or more to one monitor, there may be a vertical roll of the images when switched. In such a case, set as described below.

1 Set the **SYNC** switch (4) to **L-L**.

The on-screen setting will automatically switch to **L-L**. Press the **CURSOR** (▲ or ▼) button to select the on-screen **L-L** setting (get it flashing), then press the **SET** button. The adjustment sub-menu "**ADJUSTMENT FOR L-L**" will be displayed.


```
        LL                    CURSOR          SET
        ▯ ◼  ➡    (◉)    ➡   (◉)
        ▲                                              MENU  FOR  ADJUSTMENT
        INT                                            SYNC          -'L-L'-
                                                       IRIS          -A''-
                                                       BLC            ON
```

```
ADJUSTMENT  FOR  L-L
( V  SYNC  PHASE )
◄------●------◼ 524
```

2 Switch the display on the monitor from camera 1 to camera 2. Press the **CURSOR** (◄ or ►) button until the vertical sync phase is obtained. The on-screen marker (◼) will move and the adjustment value will flash according to the vertical sync phase setting.


```
ADJUSTMENT  FOR  L-L
( V  SYNC  PHASE )
◄------●---◼--► 415
         ◄———►
PRESET                    OFF
END                      MENU
  ①                        ②
```

Note:

When an adjustment is made, the **PRESET** setting will automatically switch to **OFF**. To return to the initial value, just return the **PRESET** setting to **ON**, then press the **SET** button.

3 When finished.

① Press the **CURSOR** (▲ or ▼) button to select **END** (get it flashing), then press the **SET** button to return to the normal camera display, or

② Press the **CURSOR** (▲ or ▼) button to select **MENU** (get it flashing), then press the **SET** button to return to the "**MENU FOR ADJUSTMENT**" display.

1-2. VBS phase adjustment

1 Connect a **VBS** signal source to the **VBS IN** connector on the camera.
The on-screen setting will automatically switch to **VBS**. Press the **CURSOR** (▲ or ▼) button to select the on-screen VBS setting (get it flashing), then press the **SET** button. The adjustment sub-menu "**ADJUSTMENT FOR VBS**" will be displayed.


```
                              MENU FOR ADJUSTMENT         ADJUSTMENT FOR VBS
  CURSOR                                                        (PHASE)
           SET            SYNC              -VBS-
                          IRIS              -A!-      H  ◄------●-■----►-280
                          BLC               ON        SC ◄----■-●------► 90
```

2 Press the **CURSOR** (◄ or ►) button to adjust the horizontal phase (**H**). The on-screen marker (■) will move and the adjustment value will flash according to the horizontal phase setting.
When finished setting the horizontal phase (**H**), press the **CURSOR** (▼) button to select the sub-carrier (**SC**) phase.

3 Press the **CURSOR** (◄ or ►) button to adjust the sub-carrier (**SC**) phase. The on-screen marker (■) will move and the adjustment value will flash according to the sub-carrier phase setting.

Note:

When an adjustment is made, the PRESET setting will automatically switch to **OFF**. To return to the initial values, just return the PRESET setting to **ON**, then press the **SET** button.
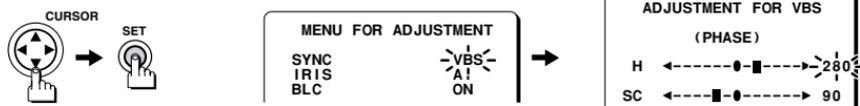
4 When finished.
(Refer to step **3** on page **15**.)

Note:

If using a VS sync signal, the H sync phase adjustment is made by following the same method as described for the "VBS phase adjustment".
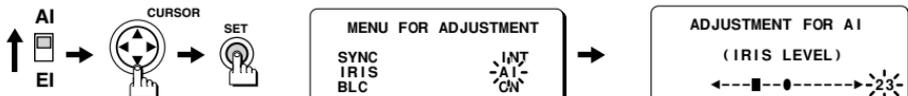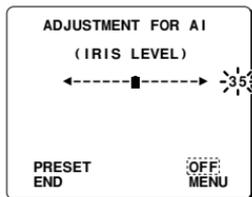
ADJUSTMENTS

2. IRIS

2-1. Auto-iris level adjustment

1 Set the **IRIS** switch (10) to **AI**.
The on-screen setting will automatically switch to **AI**. Press the **CURSOR** (▲ or ▼) button to select the on-screen AI setting (get it flashing), then press the **SET** button. The adjustment sub-menu "**ADJUSTMENT FOR AI**" will be displayed.

2 Press the **CURSOR** (◄ or ►) button until the desired iris level is obtained. The on-screen marker (■) will move and the adjustment value will flash according to the iris level setting.

Note:

When an adjustment is made, the PRESET setting will automatically switch to **OFF**. To return to the initial value, just return the PRESET setting to **ON**, then press the **SET** button.

3 When finished.
(Refer to step **3** on page **15**.)

Notes:

• If IRIS is set to **EI** (electronic iris mode), the SHUTTER setting function will not operate.

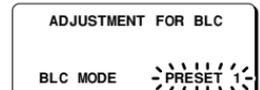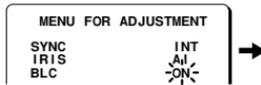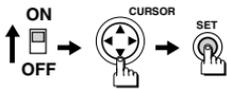• When the **AGC** switch is set to **OFF** the **IRIS** cannot be set to **EI.**

Example:

When the image is dark, press the **CURSOR** (◄ or ►) button to move the on-screen marker close to the position indicated above.

3. BLC

3-1. Setting the light measuring area characteristics (size, position and distribution) for the MANUAL 1 setting
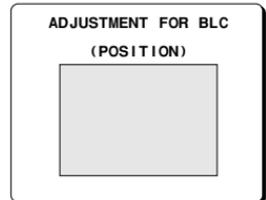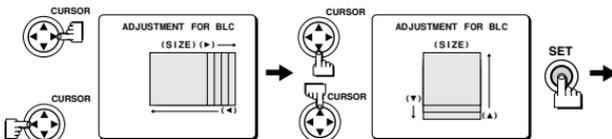
1 Set the **BLC** switch (9) to **ON**. The on-screen setting for **BLC** will automatically switch to **ON**. Press the **CURSOR** (▲ or ▼) button to select the on-screen **ON** setting (get it flashing), then press the **SET** button. The adjustment sub-menu "**ADJUSTMENT FOR BLC**" will be displayed.

```
ON                CURSOR      SET
  ▯       →       →
OFF
```

```
MENU FOR ADJUSTMENT

SYNC              INT
IRIS
BLC               ON
```

```
ADJUSTMENT FOR BLC


BLC MODE      PRESET 1
```

2 Press the **CURSOR** (◀ or ▶) button until **MANUAL 1** is selected, then press the **SET** button. The adjustment sub-menu "**SIZE**" will be displayed.

```
ADJUSTMENT FOR BLC


BLC MODE      MANUAL1
```

PRESET1 → PRESET2 → MANUAL1 → MANUAL2

```
ADJUSTMENT FOR BLC
(SIZE)
```
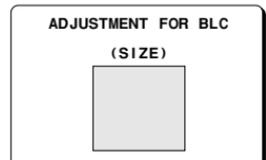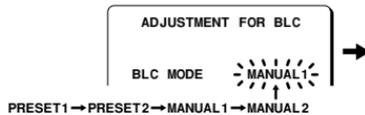
3 Press the **CURSOR** buttons to set the size of the area, then press the **SET** button. The adjustment sub-menu "**POSITION**" will be displayed.

```
CURSOR          ADJUSTMENT FOR BLC          ADJUSTMENT FOR BLC
                     (SIZE) (▶)                  (SIZE)          SET

CURSOR                                  CURSOR
                                                  (▼)    (▲)
```

```
ADJUSTMENT FOR BLC
(POSITION)
```

4 Press the **CURSOR** buttons to move (up, down, right, left) the area to the desired position, then press the **SET** button. The adjustment sub-menu "**WINDOW WEIGHTING**" will be displayed.

```
ADJUSTMENT FOR BLC
(POSITION)
```
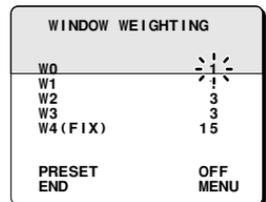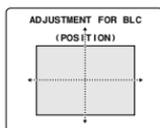
Note:

The WINDOW WEIGHTING default values are W0 : 1, W1 : 1, W2 : 3, W3 : 3, W4 : 15 (the value for W4 is fixed to 15 and cannot be modified).

```
WINDOW WEIGHTING

W0                    1
W1                    1
W2                    3
W3                    3
W4(FIX)              15

PRESET              OFF
END                 MENU
```

ADJUSTMENTS

5 Press the **CURSOR** (▲ or ▼) button to select the desired
window (get its value flashing), then press the **CURSOR** (◄
or ►) button to set the desired value (maximum 15) for each
of the 4 windows 0, 1, 2 and 3.

■ **Example:** W0 : 5, W1 : 5, W2 : 10 and W3 : 10
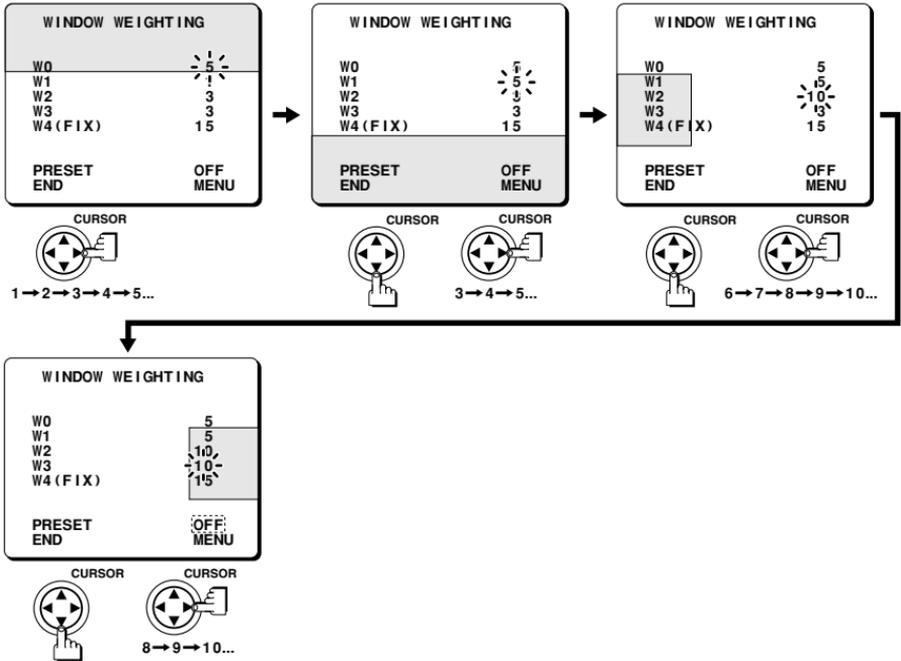
Note:

When an adjustment is made, the **PRESET** setting will
automatically switch to **OFF**. To return to the initial value, just
return the **PRESET** setting to **ON**, then press the **SET** button.

6 When finished.
(Refer to step **3** on page **15**.)

3-2. BLC level adjustment for the PRESET 1 setting

1 Set the **BLC** switch (9) to **ON**. The on-screen setting for **BLC** will automatically switch to **ON**. Press the **CURSOR** (▲ or ▼) button to select the on-screen **ON** setting (get it flashing), then press the **SET** button. The adjustment sub-menu "**ADJUSTMENT FOR BLC**" will be displayed.

```
ON
 █ →  CURSOR  →  SET
OFF
```

```
MENU  FOR  ADJUSTMENT

SYNC              INT
IRIS
BLC             ·ON·
```
→
```
ADJUSTMENT  FOR  BLC


BLC MODE      ·PRESET1·
```

2 Press the **CURSOR** (◄ or ►) button until **PRESET 1** is selected.

3 Press the **CURSOR** (▼) button to select **BLC LEVEL** (get it flashing), then press the **SET** button. The adjustment sub-menu "**BLC LEVEL**" will be displayed.

```
ADJUSTMENT  FOR  BLC


BLC MODE        PRESET1

·BLC LEVEL·
```
→
```
ADJUSTMENT  FOR  BLC
(BLC LEVEL)

◄------■------►·15·
```

4 While looking at the image on the monitor, press the **CURSOR** (◄ or ►) button until the **BLC** level is obtained. The on-screen marker (■) will move and the adjustment value will flash according to the **BLC** level setting.

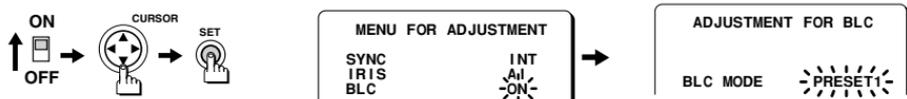**Note:**

When an adjustment is made, the PRESET setting will automatically switch to **OFF**. To return to the initial value, just return the PRESET setting to **ON**, then press the **SET** button.
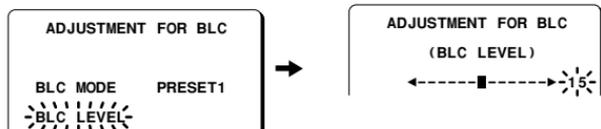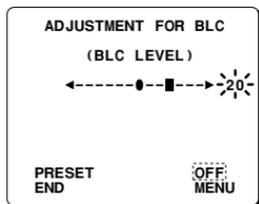
5 When finished.
(Refer to step **3** on page **15**.)

Note:

The **BLC** level adjustments should be entered under the **PRESET 1** or **MANUAL 1** settings. The **BLC** level adjustments entered under the **PRESET 2** or **MANUAL 2** settings will not be effective.

```
ADJUSTMENT  FOR  BLC
(BLC LEVEL)

◄------●--■---►·20·



PRESET              ·OFF·
END                  MENU
```

Example:

If the backlight compensation (BLC) correction is insufficient, press the **CURSOR** (◄ or ►) button to move the on-screen marker close to the position indicated above.

ADJUSTMENTS

4. WHITE BALANCE

4-1. PRESET MODE 2 (indoors, fluorescent lighting) setting adjustment

1 Set the **WB** switches to the PRESET mode (switch 7 to **OFF** and switch 8 to **ON**).
The on-screen setting for **WHITE BALANCE** will automatically switch to PRESET. Press the **CURSOR** (▲ or ▼) button to select the on-screen PRESET setting (get it flashing), then press the **SET** button. The adjustment sub-menu "**ADJUSTMENT FOR WB**" will be displayed.


```
WB                CURSOR              MENU  FOR  ADJUSTMENT        ADJUSTMENT  FOR  WB
 7  8                         SET     SYNC            INT
                                      IRIS            AI            WB  PRESET    ⇒MODE  1⇐
                                      BLC             ON
                                      WHITE  BALANCE  ⇒PRESET⇐
                                      AGC             ON
```

2 Press the **CURSOR** (◄ or ►) button until **MODE 2** is selected, then press the **SET** button. The adjustment sub-menu "**OFFSET**" will be displayed.

```
ADJUSTMENT  FOR  WB


WB  PRESET    ⇒MODE  2⇐
```

```
ADJUSTMENT  FOR  WB
        (OFFSET)

R  ◄■-----●------►  29

B  ◄------●---■--► 189

PRESET                OFF
END                   MENU
```

3 Press the **CURSOR** (◄ or ►) button to adjust the **R** (red) offset. The on-screen marker (■) will move and the adjustment value will flash according to the red offset setting. When finished setting the red offset, press the **CURSOR** (▼) button to select **B** (blue).
Press the **CURSOR** (◄ or ►) button to adjust the **B** (blue) offset. The on-screen marker (■) will move and the adjustment value will flash according to the blue offset setting.

Note:

When an adjustment is made, the PRESET setting will automatically switch to **OFF**. To return to the initial values, just return the PRESET setting to **ON**, then press the **SET** button.

4 When finished.
(Refer to step **3** on page **15**.)

Note:

The **OFFSET** settings for **MODE 1** and **MODE 3** are made by following the same method as described for **MODE 2**.

4-2. MANUAL setting adjustment

1 Set the **WB** switches to the **MANUAL** mode (both switches 7 and 8 to **OFF**).
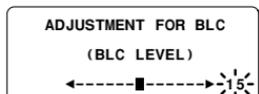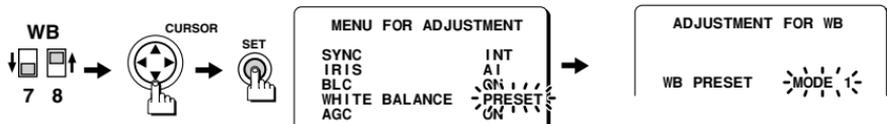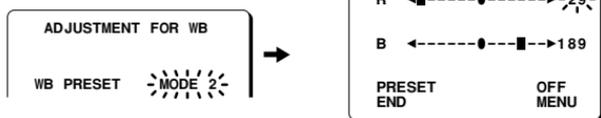
ADJUSTMENTS

5. AGC

1 Set the **AGC** switch (6) to **ON**.
The on-screen setting for **AGC** will automatically switch to
ON. Press the **CURSOR** (▲ or ▼) button to select the
on-screen **ON** setting (get it flashing), then press the **SET**
button. The adjustment sub-menu will be displayed.

2 Setting the **GAMMA**
Press the **CURSOR** (◄ or ►) button to select **ON** or **OFF**,
according to the conditions described below.

    ON (0.45): For natural looking images. The image signal is
                 compressed and this setting is recommended
                 under normal conditions.

    OFF (1): The image signal is not compressed. This setting is
              recommended when processing the images.

When finished setting the gamma, press the **CURSOR** (▼) button

6. CAMERA ID

1 Press the **CURSOR** (▲ or ▼) button to select **NEXT PAGE** (get it flashing), then press the **SET** button. The second page of the "**MENU FOR ADJUSTMENT**" will be displayed. (Refer to page **13**.)
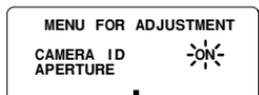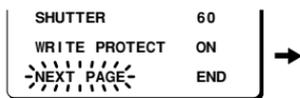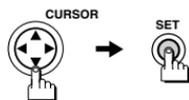
2 With the **CAMERA ID ON** setting flashing, press the **SET** button. The sub-menu "**CAMERA ID SETTING**" will be displayed.
The camera ID will be displayed. If no ID has been previously entered, ?????? will be displayed.
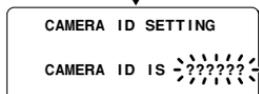
3 To change or enter a camera ID, press the **SET** button again. The input sub-menu "**CAMERA ID SETTING**" will be displayed.

4 **Example:** To enter the camera ID **S123AB**
Press the **CURSOR** buttons to select the desired alphanumeric character or symbol (i.e. S), then press **SET**. The first ? or character in the camera ID will change to "**S**".
Repeat the same method to enter the desired camera ID (maximum of 6 characters or symbols).
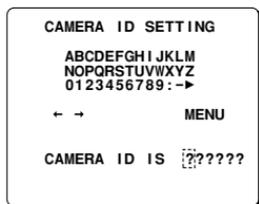
Note:

The symbol ▶ indicates a blank space. When entered in a camera ID, it will be displayed as a blank space.

5 When finished entering the camera ID.
Press the **CURSOR** (◀ or ▶) button to select **MENU** (get it flashing), then press the **SET** button to return to the "**MENU FOR ADJUSTMENT**" display.

6 To correct the entered camera ID, repeat steps 2 to 5.

7 When finished.
Press the **CURSOR** (▲ or ▼) button to select **END** (get it flashing), then press the **SET** button to return to the normal camera display.

ADJUSTMENTS

7. APERTURE

1 Press the **CURSOR** (▲ or ▼) button to select **NEXT PAGE** (get it flashing), then press the **SET** button. The second page of the "**MENU FOR ADJUSTMENT**" will be displayed.

```
        CURSOR              SET         ┌─────────────────────────┐       ┌─────────────────────────┐
                                        │ SHUTTER          60     │       │  MENU  FOR  ADJUSTMENT   │
          ↑                             │                         │       │                         │
        ← ● →      →       ◉      →     │ WRITE  PROTECT   OFF    │   →   │  CAMERA  ID        ON    │
          ↓                             │ NEXT PAGE        END    │       │  APERTURE               │
                                        └─────────────────────────┘       └─────────────────────────┘
```
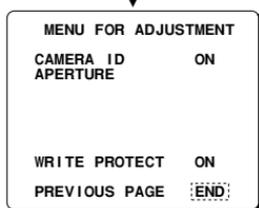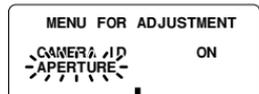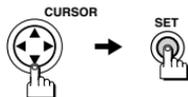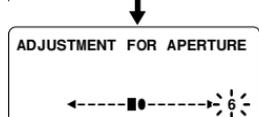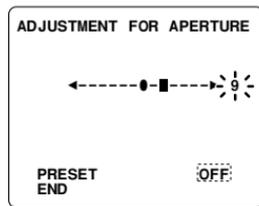
2 Press the **CURSOR** (▲ or ▼) button to select **APERTURE** (get it flashing), then press the **SET** button. The adjustment sub-menu "**ADJUSTMENT FOR APERTURE**" will be displayed.

```
                    ┌─────────────────────────┐
                    │ ADJUSTMENT  FOR  APERTURE│
                    │                         │
                    │   ◄─────■●──────► 6      │
                    │                         │
                    └─────────────────────────┘
```

3 Press the **CURSOR** (◄ or ►) button to adjust the aperture setting (0 to 15 range). The on-screen marker (■) will move and the adjustment value will flash according to the aperture setting.

At this time the menu display will be cancelled, and you cannot return from this display to the menu display. (This happens even if the PRESET setting is set to **ON**.) To return to the camera display, use the **CURSOR** buttons to select **END** (get it flashing), then press the **SET** button.

A higher setting value will give a sharp pictures, a lower setting value will give a soft pictures.

```
                    ┌─────────────────────────┐
                    │ ADJUSTMENT  FOR  APERTURE│
                    │                         │
                    │   ◄─────●─■────► 9       │
                    │                         │
                    │ PRESET           OFF    │
                    │ END                     │
                    └─────────────────────────┘
```

Note:

When an adjustment is made, the PRESET setting will automatically switch to **OFF**. To return to the initial values, just return the PRESET setting to **ON**, then press the **SET** button.

4 When finished.
(Refer to step **3** on page **15**.)

TROUBLESHOOTING

Before taking the camera for repairs, please check below to make sure that the camera is used correctly. If it still does not perform correctly, please consult your dealer or a Sanyo Authorized Service Centre.

■ No picture on the monitor screen

- Is the power turned on to all connected devices? Is the voltage correct?
- Are all the signal connecting cables correctly connected?
- Is the lighting sufficient?
- Has the lens cap been removed?
- Is the lens type (**DC** or **VIDEO**) correctly selected?
  Depending on the type of lens, the **A. I. LENS** switch must be set accordingly.
- Is the iris control correctly set?
  A: When using a **DC** type lens, the **CORSOR** button should be adjusted.
  B: When using a **VIDEO** type lens, the **LEVEL** volume (on the lens) should be adjusted.

■ The picture is not clear

- Is the monitor correctly adjusted?
- Is the flange-back position correctly set?
- Is the lens focus correctly adjusted?
- Are the lens surfaces clean?
  If there is dust or finger prints on the lens, the image quality will deteriorate. To clean the lens use a soft cloth or a commercially available lens cleaning set.

SERVICE

This camera is a precision instruments and if treated with care, will provide years of satisfactory performance. However, in the event of a problem, the owner is advised not to attempt to make repairs or open the cabinet. Servicing should always be referred to your dealer or Sanyo Authorized Service Centre.

MENU DISPLAY
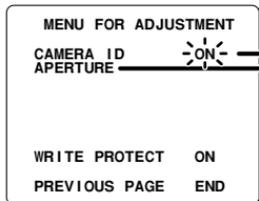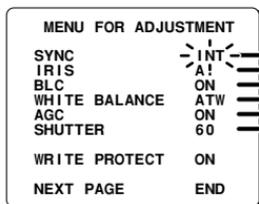
■ SYNC ADJUSTMENT
☞ SW4: LL/INT

INT ◄ - - - ► VBS (insert VBS signal)
- - ► VS (insert VS signal)
- - ► L-L

```
MENU FOR ADJUSTMENT

SYNC            INT
IRIS            AI
BLC             ON
WHITE BALANCE   ATW
AGC             ON
SHUTTER         60

WRITE PROTECT   ON

NEXT PAGE       END
```

■ IRIS ADJUSTMENT
☞ SW10: AI/EI

AI ◄ - - - ► EI

```
ADJUSTMENT FOR AI

    (IRIS LEVEL)

◄---■--●------► 23
```
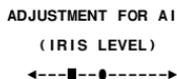
■ BLC ADJUSTMENT
☞ SW9: ON/OFF

ON ◄ - - - ► OFF

```
MENU FOR ADJUSTMENT

CAMERA ID       ON
APERTURE




WRITE PROTECT   ON

PREVIOUS PAGE   END
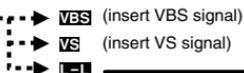```

### ■ WHITE BALANCE SETTING
☞ SW7, 8: all ON

ATW ◄ - - - ► LOCK (ON/OFF)
- - ► PRESET (OFF/ON)
- - ► MANUAL (all OFF)

```
ADJUSTMENT FOR WB

WB PRESET      MODE1 ◄ - -
```

```
ADJUSTMENT FOR WB

    (GAIN)

R ◄----■-●------► 86

B ◄---■--●------► 72
```
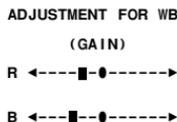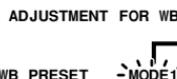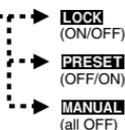
■ AGC SETTING
☞ SW6: ON/OFF

ON ◄ - - - ► OFF

■ SHUTTER SETTING
☞ SW1, 2, 3: all OFF 1/60 sec.

60 ◄ - - ► 100 (OFF/OFF/ON) - - ► 2000 (ON/OFF/ON)
- - ► 250 (OFF/ON/OFF) - - ► 4000 (ON/ON/OFF)
- - ► 500 (OFF/ON/ON) - - ► 10000 (ON/ON/ON)
- - ► 1000 (ON/OFF/OFF)
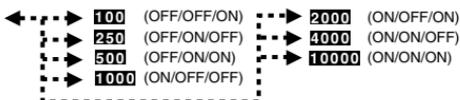
■ CAMERA ID SETTING
☞ CURSOR button: ON/OFF

ON ◄ - - - ► OFF

■ APERTURE ADJUSTMENT
☞ SET button: push

APERTURE

```
ADJUSTMENT FOR VBS          ADJUSTMENT FOR VS           ADJUSTMENT FOR L-L
    (PHASE)                  (H SYNC PHASE)               (V SYNC PHASE)

H  ◄------●-■----► 280      ◄------●-■----► 280         ◄------●------■ 518
SC ◄----■-●------► 90
```

```
ADJUSTMENT FOR BLC                              ADJUSTMENT FOR BLC
                                                    (SIZE)
BLC MODE   ⇟PRESET1⇟ ◄┈┈ PRESET2
⇟BLC LEVEL⇟          ┈┈► MANUAL1
                     ┈┈► MANUAL2
```

```
ADJUSTMENT FOR BLC                              ADJUSTMENT FOR BLC
   (BLC LEVEL)                                     (POSITION)

◄------■------► 15
```

```
              (OFFSET)                          WINDOW WEIGHTING

R ■------●------► 0                              W0          ⇟1⇟
                                                W1           1
MODE2                                           W2           3
B ◄------●------■ 255                           W3           3
                                                W4(FIX)      15
              (OFFSET)

MODE3    R ◄■-----●------► 29

         B ◄----●---■-► 189

              (OFFSET)

         R ■------●------► 7

         B ◄------●------■ 255
```

```
GAMMA      ⇟ON⇟                    GAMMA      ⇟OFF⇟
AGC GAIN   NORMAL ◄┈►HIGH          AGC GAIN   NORMAL ◄┈►HIGH
```

```
CAMERA ID SETTING                   CAMERA ID SETTING

CAMERA ID IS ⇟???????⇟               ABCDEFGHIJKLM
                                     NOPQRSTUVWXYZ
                                     0123456789:-►

                                     ←  →         MENU

ADJUSTMENT FOR APERTURE              CAMERA ID IS ⇟???????⇟

◄-----■■------► 6
```

SPECIFICATIONS

■ **Camera:**

Scaning system :	NTSC standard TV system (525 TV lines, 30 frames/sec.)
Interlace :	PLL 2:1 interlace
Image device :	1/3 inch solid state image device CCD
Picture elements :	811 (H) x 508 (V)
Effective picture elements :	768 (H) x 494 (V)
Synchronizing system :	Internal sync, Line lock manually switchable/External sync
External sync :	VBS or VS signal (Genlock, Automatic switching)
Resolution :	470 TV lines horizontally, 350 TV lines vertically
Video output level :	1.0 Vp-p/75 ohms, composite
Video S/N ratio :	More than 48 dB (AGC switch ON: Normal), More than 50 dB (AGC switch OFF)
Minimum required illumination : (incandescent lighting)	Approx. 2 lux with a F 1.2 lens (AGC ON: Gain Normal, 50 IRE), Approx. 0.9 lux with a F 1.2 lens (AGC ON: Gain High, 50 IRE)
Backlight compensation :	Manual ON/OFF switching, Active-zone light measuring system (Active when using an auto-iris lens)
Iris function :	Manual Electric iris (EI)/Auto iris (AI) switching
Electronic iris range :	2 lux to 100,000 lux (F 1.2, lens) 2.7 lux to 130,000 lux (F 1.4, lens)
Electronic shutter :	8 speeds, selectable by switches: (1/60, 1/100, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000 sec.)
Flange-back :	12.5 mm ± 0.5 mm
White balance :	ATW/AWB LOCK/PRESET/MANUAL switching
Gain control :	Manual ON (Normal: 30 dB, Hi: 36 dB)/OFF switching
Gamma correction :	Manual ON (γ = 0.45)/OFF (1) switching
Lens mount :	CS mount (or C mount with the supplied adaptor)
Environmental conditions :	Temperature: −10˚C ~ +50˚C Humidity: less than 90% (no condensation)
Power supply :	24 V AC (± 4 V), 60 Hz
Power consumption :	Approx. 3.4 W
Weight :	Approx. 330 g (without lens)

■ **Dimensions: mm**
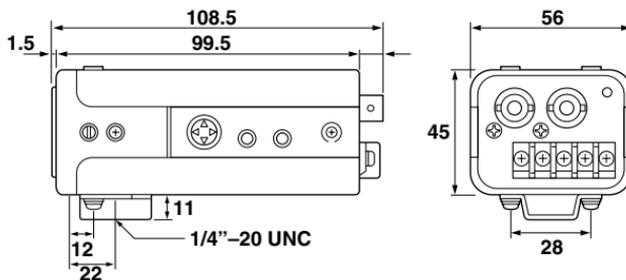
Features and specifications are subject to change without prior notice or obligations.

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