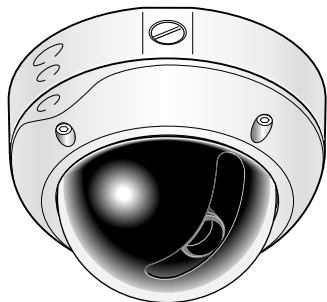


# SANYO

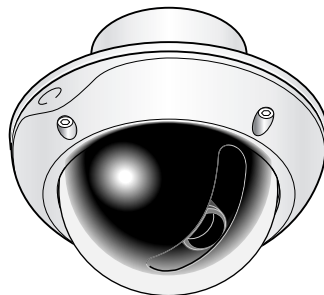
## INSTRUCTION MANUAL

### COLOR CCD CAMERA

VDC-D1184VA  
VDC-D2184VA



VDC-D1184VA (SURFACE TYPE)



VDC-D2184VA (IN-CEILING TYPE)

### About this manual

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

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

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## ACCESSORIES

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### **VDC-D1184VA**

- Hexagonal Wrench (Big)..... 1 pc.
- Hexagonal Wrench (Small) ..... 1 pc.
- Cushioning sheet..... 1 pc.

### **VDC-D2184VA**

- Hexagonal Wrench (Big)..... 1 pc.
- Cushioning sheet..... 1 pc.

## FEATURES

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- The optical filter is switched automatically to color image or black and white image according to the subject brightness.
- Built-in interline transfer method 1/4" CCD, approx. 470,000 picture elements.
- Equipped with a DSP (Digital Signal Processor).
- Horizontal resolution, more than 520 TV lines.
- High sensitivity, minimum required illumination is 0.06 lux (F1.4 B/W mode).
- Two types of backlight compensation functions (multi-spot photometry and center-focus photometry.)
- Dual power supply 12 – 15 V DC or 24 V AC.

# 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 complies with Canadian ICES-003.

### **Pour la clientèle canadienne**

Cet appareil numérique de la Classe B est conforme à la norme NMB-003 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

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## ■ In case of malfunction

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 supply immediately, and consult your dealer (or a Sanyo Authorized Service Center).

## ■ 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 Center).

## ■ Do not put objects inside the unit

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

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

## ■ Be careful when handling the unit

To prevent damage, 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, or audio speakers the magnetic field they generate will distort the image.

## ■ Protect from humidity

To prevent damage to the camera, do not install it where there is greasy smoke or steam or where the dampness may get too high.

## ■ 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 damage.

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

Install where the temperature range will stay between  $-10^{\circ}\text{C}$  and  $50^{\circ}\text{C}$ . (no condensation)

## ■ Cleaning

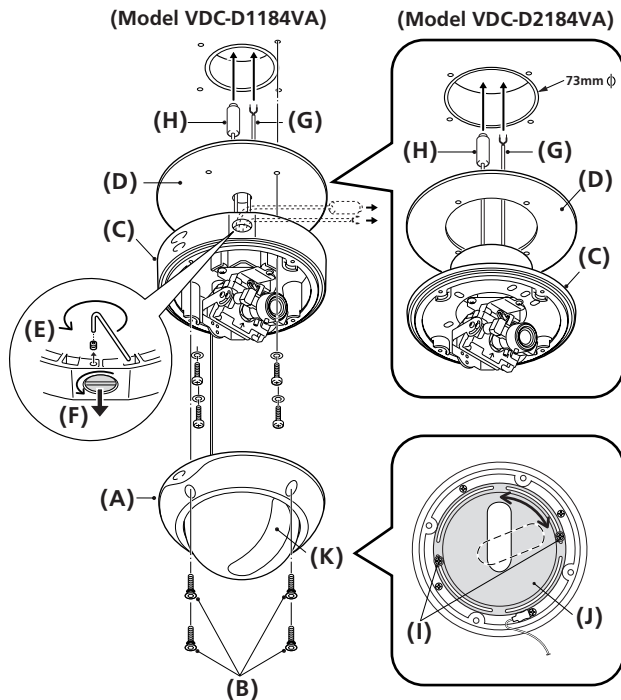
Dirt can be removed from the housing by wiping it with a soft cloth. To remove stains, wipe with a soft cloth moistened with a soft detergent solution and wrung dry, then wipe dry with a dry soft cloth.

Do not use benzine, thinners or other chemical products on the housing, as they 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 into contact with the housing for a long period of time, as that may cause damage or paint peeling.

## ■ Mounting Surface

The mounting surface material must be strong enough to secure the camera. Plaster- board without a backing plate is not recommended.

# INSTALLATION



**Note:** When setting up this camera, make sure that it is installed securely. If it is not installed correctly, it may fall down. In addition, do not touch the camera in places except where settings and adjustments are necessary.

## ■ 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.

## ■ Installing the Model VDC-D1184VA

- 1 Use the supplied hexagonal wrench to remove the four fixing screws (B) of dome cover (A).
- 2 Make screw holes and a cable hole in the cushioning sheet (D) that attaches to the back of the camera unit (C).
- 3 Attach the cushioning sheet (double-sided tape) to the back of the camera unit.
- 4 Align the camera unit with the surface of the ceiling, make marks on the ceiling in the places where the screw holes are to be drilled, and then drill the four holes.
- 5 Cut a hole in the ceiling for routing the cables.

**Note:** When routing the cables in the ceiling, use the accessory hexagonal wrench (small) to loosen the cable cover fixing screw (E) at the rear of the unit, and then remove the cable cover screw (F).

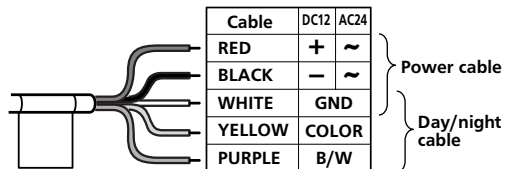
**The following step differs only when installing the Model VDC-D2184VA**

Make a cable hole with a diameter of 73 mm.

# INSTALLATION

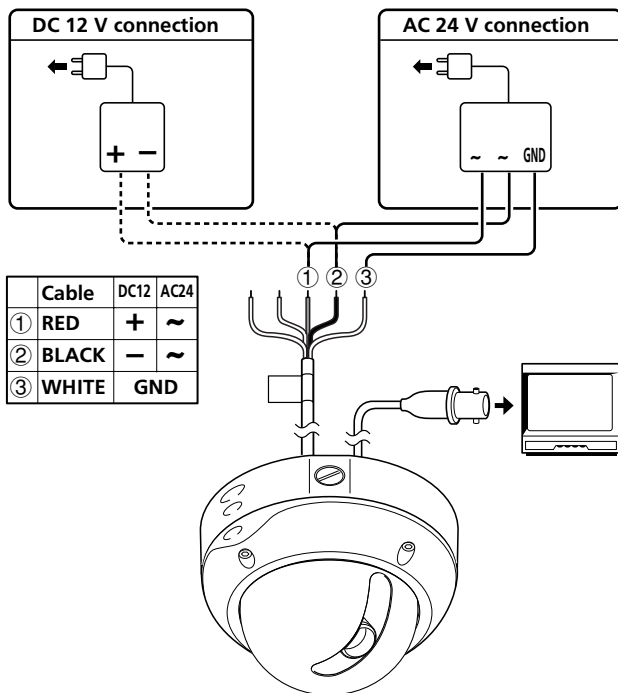
- 6 Pass the power cable/day-night cable (G) and video cable (H) from the camera unit through the cable hole in the ceiling.

## (Power cable/day-night cable)



- 7 Align the four screw holes in the camera unit (C) with the screw holes in the ceiling, and then secure the camera in place by tightening the screws.
- 8 Carry out the settings and adjustments for the camera. Refer to p. 6 for camera settings and adjustments, and to p. 11 for lens adjustments.
- 9 If the dome liner is secured in place, loosen the screw (I). Adjust the dome liner (J) so that the dome camera's lens is visible from the camera window (K), and then use a hexagon wrench to fix the dome cover.

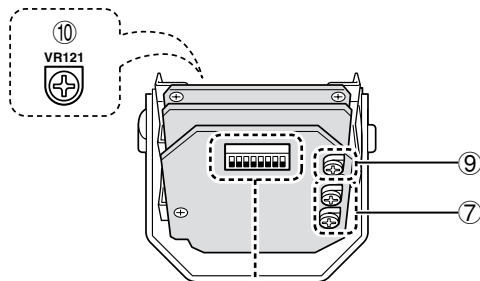
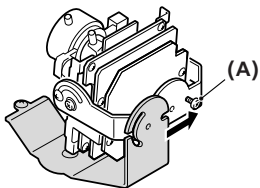
## Connections



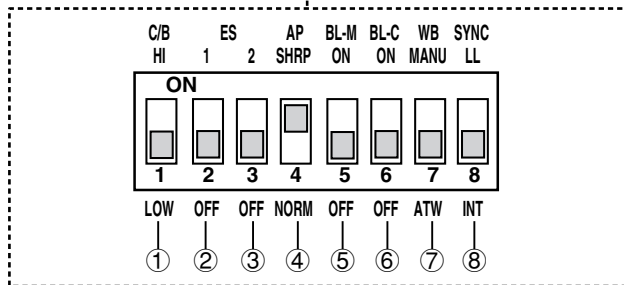
# SETTINGS

The illustration shows the factory default settings for the switches in the camera setup section.

When changing the settings and adjustments for this camera, loosen the camera unit screw (A) and remove the lens unit in the direction of the arrow. When changing the DIP switch settings, take care when making the settings and adjustments because power is still being supplied to the camera.



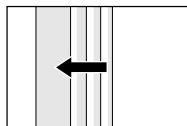
Control name		Position
①	Color and Black/White level switch (C/B) (Normal: LOW/High sensitivity: HI)	LOW
②③	High speed electronic shutter setting (ES)	1/60 sec.
④	Aperture compensation setting (AP) (Sharp: SHRP/Normal: NORM)	SHRP
⑤	Backlight compensation setting (BL-M) (ON (MULT)/OFF)	OFF
⑥	Backlight compensation setting (BL-C) (ON (CENT)/OFF)	OFF
⑦	White balance switch (WB) and color (R or B) adjustment volume	ATW
⑧	Synchronization setting (SYNC)(LL/INT)	INT
⑨	Line phase adjustment (PHASE)	adjustable
⑩	Lens iris level adjustment	adjustable



# SETTINGS

## ■ C • B/W (color/black and white) switch setting

This switch lets you select the timing of the automatic switching of the optical filter to color image or black and white image, according to the subject brightness. The default setting is down (**LOW**). Set the switch according to the brightness.



(Fig. 1)

**H:** for a brighter setting than **LOW**

**L:** Standard setting

### Notes:

- After the power has been turned off, switching will restart from color, when the power is restored.
- A sound may be heard when the color image or black and white image is switched. Also, the image will be distorted as shown in **Fig. 1**, this is normal and does not indicate a problem.
- When using infrared lighting, if there is a strong reflection on the subject, the optical filter may switch from black and white to color mode. Use only enough infrared lighting so that the mode is not switched.
- The focus setting may be different in black and white mode and color mode. Please check the focus setting in both modes.





## ■ High speed electronic shutter setting

Normally, the speed setting switches for the high speed electronic shutter are all set to the down (**OFF**) position. This sets the electronic shutter (**ES 1, 2**) speed to 1/60 sec. The switches can be set as indicated in table **A** to select one of the **4** speeds available.

### CAUTION:

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.

**Table A (switch 2 ~ 3)**

① 1/60	② 1/100	③ 1/1000	④ 1/2000
			

(Unit: sec.)

## ■ Aperture

If you would like to emphasize the contours of the object, set the switch **4 (AP)** to the up (**SHRP**) position.

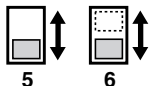




# SETTINGS

## ■ Backlight compensation setting

This camera has two different backlight compensation functions: Normally backlight compensation switch **5 (BL-M)** and **6 (BL-C)** are set to the down (**OFF**) position. Change the backlight compensation switch settings depending on the conditions.

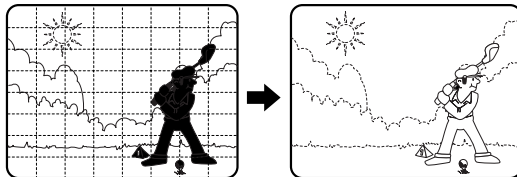


- **BL-M mode:** Use this position when applying backlight (**Multi-spot**) compensation to the whole of the screen.
- **BL-C mode:** Use this position when applying backlight (**Center-focus**) compensation to only the central portion of the screen.

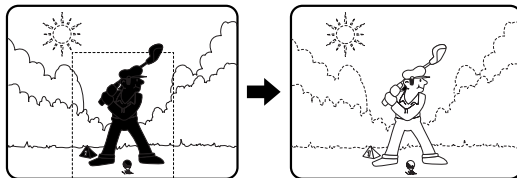
### Note:

- If switches **5** and **6** are set to the up (**ON**) position at the same time, the **BL-M** setting will have priority.
- When **BL-M** mode is set, scenes with no backlighting may appear extremely dark and the object may appear over-exposed. If this happens, set to **BL-C** mode.

(BL-M mode: 64 sections)



(BL-C mode)



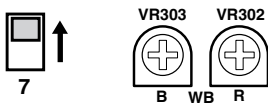
# SETTINGS

## ■ White balance adjustment

Normally the switch **7 (WB)** is set to the down (**ATW**: auto white balance) position and the white balance is adjusted automatically. If a manual white balance adjustment is necessary, follow the steps below.

Set the switch **7 (WB)** to the up (**MANU**: manual) position, then adjust the color.

- Turn **R** (VR302) to set the red ratio and/or **B** (VR303) to set the blue ratio.



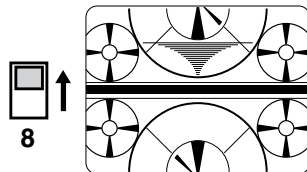
## ■ Synchronization settings

The default setting is internal synchronization (**INT**). You can change the power supply synchronization by moving switch **8** to the up (**LL**) position. Refer to “**Line phase adjustment**” for details.

## ■ Line 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 switch **8 (SYNC)** to the up (**LL**) position.
- 2 Switch the display on the monitor from camera 1 to camera 2. Adjust the **PHASE** volume on camera 2 until the vertical roll of the image stops.  
If more than two cameras are used, please repeat this procedure for all the cameras.



### CAUTION:

If the vertical roll cannot be corrected by setting the **PHASE** volume on camera 2, try setting the **PHASE** volume on camera 1. If it still cannot be corrected, please check that the polarity of the power cords of all connected devices is correct.

# SETTINGS

## Manual color/black and white setting

Connect each cable as indicated below, to set the image to black and white or color as desired.

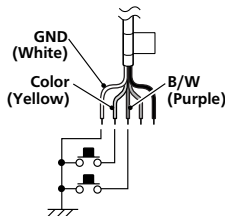
### Color image setting

Connect the **Color** (yellow) and the **White** (ground) cables.

### Black and white setting

Connect the **B/W** (purple) and the **White** (ground) cables.

Day/night cable		Image
Color	B/W	
OFF	OFF	Auto
OFF	ON	Black and white
ON	OFF	color
ON	ON	Auto



**ON** : Close

**OFF** : Open

### Notes:

- The maximum length of cable for CONTROL terminal is 600 m (AWG 24).
- During optical filter switching, even if the manual switching operation is done, you cannot determine if the image is black and white or color. Manual switching will have to be done one more time.

## Lens iris adjustment

You will need to set the **LEVEL** (VR121) volume when shooting in the conditions described below.

VR121



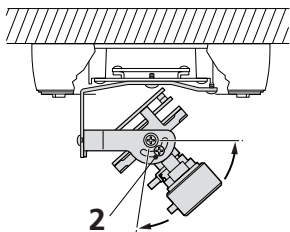
**Counterclockwise:** To decrease the contrast

**Clockwise:** To increase the contrast

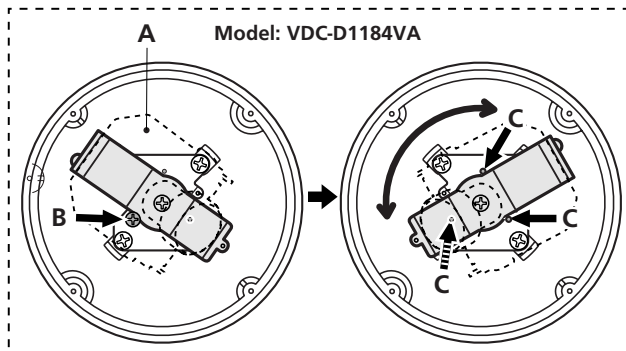
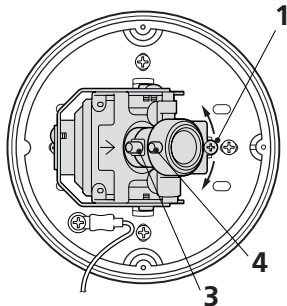
- If shooting simultaneously in a dark room and through a bright window.
- If the subject background is extremely bright or dark.
- If the brightness of the picture on the monitor is not correct.

# ADJUSTMENT

## ■ Adjusting the lens



Model: VDC-D2184VA



Model: VDC-D1184VA

Once the camera has been installed, adjust the lens section.

- 1 Tighten the pan adjustment screw.

### Model: VDC-D2184VA

Loosen the pan adjustment screw, adjust the panning position of the lens and then re-tighten the screw.

### Model: VDC-D1184VA

Remove the lens unit **A** from the pan chassis, loosen the pan adjustment screw **B**, turn the chassis to adjust the panning position to a position where one of the three screw holes **C** is visible, and then re-tighten the screw.

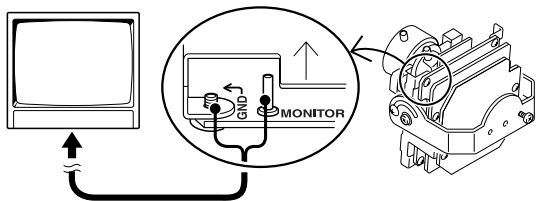
- 2 Loosen the tilt adjustment screw, adjust the tilting position of the lens and then re-tighten the screw.
- 3 Loosen the zoom lever screw, turn the zoom lever counterclockwise to determine the zoom position while viewing the camera images on the monitor, and then re-tighten the screw.
- 4 Loosen the focus lever screw, turn the focus lever counterclockwise to determine the focus position while viewing the camera images on the monitor, and then re-tighten the screw.

**Note:** Be careful not to touch the lens section when changing the angle of the camera.

## ADJUSTMENT

### MONITOR output pin

When setting up the camera, connect a monitor to this video output pin and to the GND screw using alligator clip cables, then using the image displayed on the monitor, set the surveillance angle and range, the lens focus, etc.



## 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 Center.

### ■ 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?

### ■ The picture is not clear

- Is the monitor correctly adjusted?
- 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

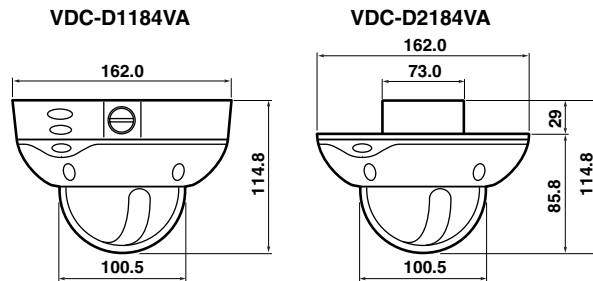
This camera is a precision instruments and if treated with care, will provide years of satisfactory performance. However, in the event of a problem, the owner is advised not to attempt to make repairs or open the cabinet. Servicing should always be referred to your dealer or Sanyo Authorized Service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

# SPECIFICATIONS

<b>Scanning system</b>	: NTSC standard TV system (525 TV lines, 30 frames/sec.)
<b>Interlace</b>	: PLL 2:1 interlace
<b>Image device</b>	: 1/4 inch solid state image device CCD
<b>Picture elements</b>	: 811 (H) x 508 (V)
<b>Effective picture elements</b>	: 768 (H) x 494 (V)
<b>Synchronizing system</b>	: Internal sync, Line lock
<b>Resolution</b>	: 520 TV lines horizontally, 350 TV lines vertically
<b>Video output level</b>	: 1.0 Vp-p/75 ohms, composite
<b>Video S/N ratio</b>	: More than 48 dB
<b>Minimum required illumination (incandescent lighting)</b>	: Approx. 0.06 lux (F 1.4 B/W mode), Approx. 1.2 lux (F 1.4 color mode)
<b>Power and Day/night cable</b>	: Manual color/black and white setting
<b>Backlight compensation</b>	: Manual ON (Multi-spot photometry, Center-focus photometry)/OFF switching (Active when using an auto-iris lens)
<b>Electronic shutter</b>	: 4 speeds, selectable by switches: (1/60, 1/100, 1/1000, 1/2000 sec.)
<b>White balance</b>	: ATW/Manual switching
<b>Pan/Tilt adjustment</b>	: Manual Pan: $\pm 180$ degree, Tilt: 115 degree
<b>Lens</b>	: $f = 2.8 - 5.8$ mm, F1.4 - F1.8

<b>Environmental conditions</b>	: Temperature: $-10^{\circ}\text{C} \sim +50^{\circ}\text{C}$ Humidity: less than 90% (no condensation)
<b>Power supply</b>	: 24 V AC, 60 Hz and 12 - 15 V DC
<b>Power consumption</b>	: 2.9 W
<b>Weight</b>	: VDC-D1184VA: Approx. 1,350 g VDC-D2184VA: Approx. 1,015 g

## ■ Dimensions (mm)



Features and specifications are subject to change without prior notice or obligations.

**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 calling the toll-free number listed below.

For product operation, authorized service center referral, service assistance or problem resolution, call

**CUSTOMER INFORMATION 1-800-421-5013**

**Weekdays 8:30 AM – 5:00 PM Pacific Time**

For accessories and/or parts, call

**PARTS ORDER INFORMATION 1-800-726-9662**

**Weekdays 8:30 AM – 5:00 PM Pacific Time**

THIS WARRANTY IS VALID ONLY ON SANYO PRODUCTS PURCHASED OR RENTED IN THE UNITED STATES OF AMERICA, EXCLUDING ALL U.S. TERRITORIES AND PROTECTORATES. THIS WARRANTY APPLIES ONLY TO THE ORIGINAL RETAIL PURCHASER OR END-USER. THE ORIGINAL DATED BILL OF SALE, SALES SLIP OR RENTAL AGREEMENT MUST BE SUBMITTED TO THE AUTHORIZED SANYO SERVICE CENTER AT THE TIME WARRANTY SERVICE IS REQUESTED.

Subject to the OBLIGATIONS above and EXCLUSIONS below, SANYO Fisher Company warrants this SANYO product against defects in materials and workmanship for the periods specified below. SFC will repair or replace (at its option) the product and any of its parts which fail to conform to this warranty. The warranty period commences on the date the product was first purchased or rented at retail.

LABOR	PARTS	IMAGE DEVICE
3 YEARS	3 YEARS	3 YEARS

**EXCLUSIONS**

This warranty does not cover (A) the adjustment of customer-operated controls as explained in the appropriate model's instruction manual, or (B) the repair of any product whose serial number has been altered, defaced or removed.

This warranty shall not apply to the cabinet or cosmetic parts, batteries or routine maintenance.

This warranty does not apply to uncrating, setup, installation, removal of the product for repair or reinstallation of the product after repair.

This warranty does not apply to repairs or replacements necessitated by any cause beyond the control of SFC including, but not limited to, any malfunction, defect or failure caused by or resulting from unauthorized service or parts, improper maintenance, operation contrary to furnished instructions, shipping or transit accidents, modification or repair by the user, abuse, misuse, neglect, accident, incorrect power line voltage, fire, flood or other Acts of God, or normal wear and tear.

The foregoing is in lieu of all other expressed warranties and SFC does not assume or authorize any party to assume for it any other obligation or liability.

SFC DISCLAIMS ALL OTHER WARRANTIES EXPRESS OR IMPLIED, WITH REGARD TO THIS PRODUCT (INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS). IN NO EVENT SHALL SFC BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING FROM THE OWNERSHIP OR USE OF THIS PRODUCT OR FOR ANY DELAY IN THE PERFORMANCE OF ITS OBLIGATIONS UNDER THIS WARRANTY DUE TO CAUSES BEYOND ITS CONTROL. SFC'S LIABILITY FOR ANY AND ALL LOSSES AND DAMAGES RESULTING FROM ANY CAUSE WHATSOEVER, ARISING OUT OF OR IN CONNECTION WITH THE SALE, USE OR OWNERSHIP OF THIS PRODUCT INCLUDING WARRANTOR'S NEGLIGENCE, ALLEGED DAMAGED OR DEFECTIVE GOODS, WHETHER SUCH DEFECTS ARE DISCOVERABLE OR LATENT, SHALL IN NO EVENT EXCEED THE PURCHASE PRICE OF THE PRODUCT.

**ATTENTION**

For your protection in the event of theft or loss of this product, please fill in the information below for you own personal records.

**Model No.** \_\_\_\_\_

**Serial No.** \_\_\_\_\_

**(Located on back or bottom side of unit.)**

**Date of Purchase** \_\_\_\_\_

**Purchase Price** \_\_\_\_\_

**Where Purchased** \_\_\_\_\_

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L5AK4/US, L5AL4/US (0403KP-CZ)

**SANYO**

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Printed in Japan