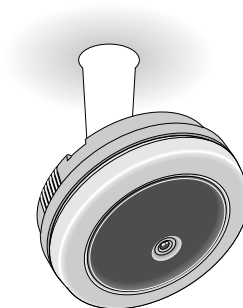


# SANYO

## VCB-9324

## INSTRUCTION MANUAL

B/W 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 B/W 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  
201-641-3000

California Office  
1200 W. Artesia Blvd.  
Compton, CA 90220  
310-537-5830

Illinois Office  
900 N. Arlington Heights Rd.  
Itasca, IL 60143  
708-775-1414

THIS WARRANTY IS VALID ONLY ON SANYO PRODUCTS PURCHASED OR RENTED IN THE UNITED STATES OF AMERICA, EXCLUDING HAWAII AND ALL U.S. TERRITORIES AND PROTECTORATES. THIS WARRANTY APPLIES ONLY TO THE ORIGINAL RETAIL 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 (USA) CORPORATION 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	5 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, antenna, knobs, batteries or image burns to projection or picture tubes caused by electronic devices or games.

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.

THE DURATION OF ANY WARRANTIES WHICH MAY BE IMPLIED BY LAW (INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS) IS LIMITED TO THE TERM OF THIS WARRANTY. IN NO EVENT SHALL SFC BE LIABLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING FROM 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.

SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS AND/OR DO NOT ALLOW THE EXCLUSION OR LIMITATION OF CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS AND EXCLUSIONS MAY NOT APPLY TO YOU.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS. YOU MAY HAVE OTHER RIGHTS, WHICH VARY FROM STATE TO STATE.

## 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 \_\_\_\_\_

1AC6P1P1829--  
L73E4/US (1098NI)

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# 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.

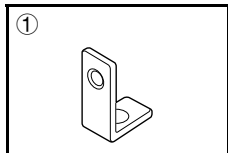
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## Accessories

① Vertical holder plate .....	1 pc.
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# FEATURES

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- Built-in interline transfer method 1/3" CCD, approx. 270,000 picture elements
- Low smear, anti-blooming, low lag, no burning and no geometric distortion using the CCD solid state image device
- Built-in fixed focal lens, F=2.0, f=3.8 mm
- 100% solid state components giving excellent immunity to shock and vibration
- Not subject to interference from magnetic or electrostatic fields
- Built-in IR. LED by very required minimum illumination is approx. 0 lux at 4.5 m
- Horizontal resolution, more than 400 TV lines
- Power supply: 24 V AC operation

# PRECAUTIONS

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## ■ 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  $-10^{\circ}\text{C}$  and  $50^{\circ}\text{C}$ . (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 AND FUNCTIONS

## ⑥ Camera mounting screw hole (1/4"–20 UNC)

When mounting the camera to the mounting bracket, use this installation hole.

## ⑦ Lens cover fixing screw

## ⑧ GND (ground) terminal screw

Loosen the GND terminal screw, insert the coaxial cable into the clamp and tighten the GND terminal screw.

## ⑨ VIDEO OUT terminal screw

Align the centre wire of the coaxial cable with the VIDEO OUT terminal, then first tighten the cable clamp and then the VIDEO OUT terminal screw.

- Cable type RG-6U (5C-2V)

## ⑩ Line phase volume

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.

**Switch the display on the monitor from camera 1 to camera 2.**

**Adjust the LINE 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 **LINE PHASE** volume on camera 2, try setting the **LINE 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.

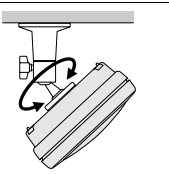
The view angle of this camera is as follows:

Horizontal: 71°

Vertical: 53°

Diagonal: 90°

To adjust the camera angle, use the camera mounting bracket (sold separately).



# CONNECTIONS AND INSTALLATION

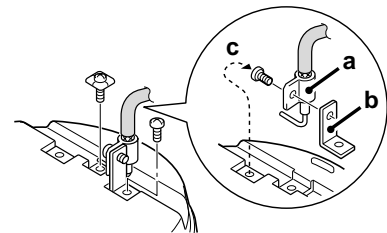
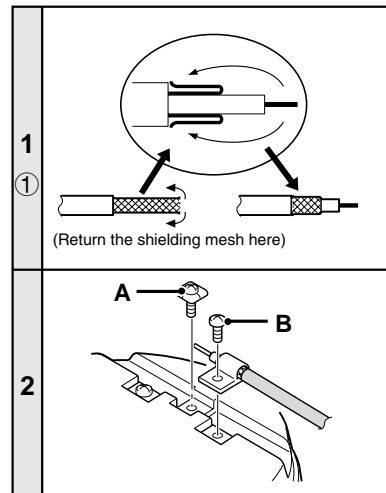
## ■ Connecting the coaxial cable horizontally

- 1 Cut and prepare the extremity of the coaxial cable (sold separately), as illustrated.
- 2 Attach the coaxial cable to the base.

Loosen the VIDEO OUT terminal screw (A) and the GND terminal screw (B), then insert the center wire of the coaxial cable in the VIDEO OUT terminal and make sure the shielding mesh part of the cable is located into the GND cable clamber, then tighten both screws (A and B) to attach the cable.

## ■ Connecting the coaxial cable vertically (using the vertical holder plate)

- ① Cut and prepare the extremity of the coaxial cable (sold separately), as illustrated.
- ② Loosen the VIDEO OUT terminal screw and remove the GND terminal screw.
- ③ Insert the coaxial cable into the GND terminal clamp (a), then attach the clamp to the supplied vertical holder plate (b) using the screw (c) from the second GND terminal.
- ④ Attach the vertical holder plate to the GND terminal using the terminal screw, then insert the centre wire of the coaxial cable into the VIDEO OUT terminal and tighten the terminal screw.





# CONNECTIONS AND INSTALLATION

## ■ Installing the BNC plug (sold separately)

To connect the camera to peripheral devices, use a coaxial cable with BNC plug.

### 1 Cut the extremity of the coaxial cable (sold separately), as illustrated.

- Cable type RG-6U (5C-2V), 500 m maximum.

If the type of peripheral devices connected, the type of cable used and/or the cable length are not as specified, the image and synchronization signals may not be transmitted correctly.

#### CAUTION:

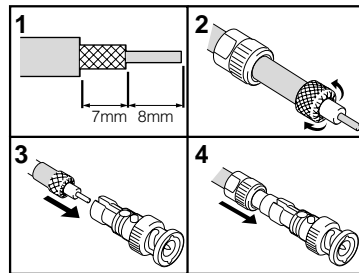
Use CCTV/Video grade coaxial cable. Due to its construction, an RG-59U cable will not transmit the signal properly when installed through conduits or through the air, and therefore cannot be used.

### 2 Insert the cable through the adaptor, then turn the shielding mesh over.

### 3 Loosen the center wire securing screw of the plug, then install the cable in the BNC plug, so that the center wire is threaded through the plug center opening.

Before tightening the center wire securing screw, make sure the center wire comes out through the plug center opening.

### 4 Screw the adaptor onto the plug.

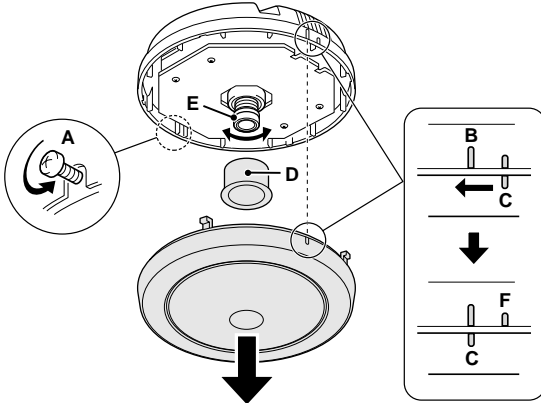




# SETTINGS AND ADJUSTMENTS

## ■ Adjusting the focus

- 1 Loosen the lens cover fixing screw (A).
- 2 Turn the cover counterclockwise to align the tab (C) on the lens cover with the tab (B) on the base and remove the cover.
- 3 Remove the hood lens (D), then while watching the image on the monitor turn the focus ring (E) to adjust the focus.
- 4 When finished, install the hood lens, then align the tab (C) on the lens cover with the tab (B) on the base and turn the cover clockwise until the tab (F) on the cover is aligned with the tab (B) on the base. Tighten the lens cover fixing screw (A).



# 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, it 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.

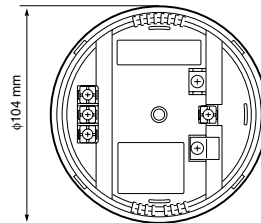
# SPECIFICATIONS

TV system	EIA standard (525 TV lines, 30 frames/sec.)
Scanning system	525 TV lines, 60 field/sec., 2:1 interlace
Image device	Interline transfer method, 1/3 inch solid state CCD
Picture elements	537 (H) × 505 (V)
Effective picture elements	510 (H) × 492 (V)
Synchronization system	Line lock
Resolution	400 TV lines horizontally, 350 TV lines vertically
Video output signal level	1.0 V(p-p)//75Ω (screw-on terminal)
S/N ratio	More than 50 dB
Minimum required illumination	0 lux
Electronic iris range	1/60 to 1/80,000 sec.
Iris system	Electronic iris
Gain control	Automatic
Lens	Built-in, F2.0, f=3.8 mm, fixed focal lens, focus adjustment
Angle of view	Horizontally: Approx. 71° Vertically: Approx. 53° Diagonal: Approx. 90°
Operational environmental conditions	Temperature: -10°C ~ +50°C Humidity: less than 90% RH

Storage environmental conditions	Temperature: -20°C ~ +60°C Humidity: less than 70% RH
Power supply	24 V AC
Power consumption	2.1 W
Weight	Approx. 160 g

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

## ■ DIMENSIONS



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