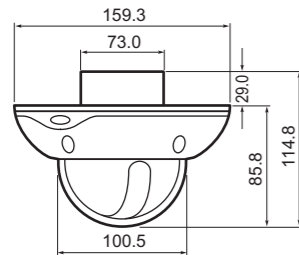


About this manual

- Before installing and using the camera, please read this manual carefully. Be sure to keep it handy for later reference.
- This instruction manual covers for use in the following models. Any difference among the three models is indicated when necessary.
VDC-C2174VA (Color High Resolution)
VDC-C2124V (Color Standard Resolution)
VDC-M2124V (Black and white Standard Resolution)

Dimensions: mm



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.

TROUBLESHOOTING

Before sending the camera out for repair, check the items below. If the problem persists after checking these items, contact your place of purchase or a Sanyo Authorized Service Center.

■ If no image appears

- Is the coaxial cable attached securely?
- Are the power and voltage normal?
- Has the iris of the lens inside the camera for VDC-C2174VA been adjusted correctly (with the level volume)?
- Is there adequate illumination?

■ If the image is unclear

- Is the lens in focus?
- Is the lens dirty?
Dirt or fingerprints on the lens can adversely affect the image. Gently wipe any dirt or fingerprints off the lens with a soft cloth or lens cleaning paper and cleaning fluid (commercially available).
- Is the monitor adjusted correctly?

SERVICE

The camera is a precision instrument. Handle it carefully and always follow the safety precautions. If the camera requires service, never try to repair it yourself or open the casing. For servicing, maintenance, or repairs, contact your place of purchase or a Sanyo Authorized Service Center.

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.

SPECIFICATIONS

Scanning system	: NTSC standard TV system (525 TV lines, 60 fields/sec.)
Interlace	: PLL 2:1 interlace
Image device	: 1/3 inch solid state image device CCD
Number of effective pixels	: 768 (H) × 494 (V), 380 K (VDC-C2174VA) 510 (H) × 492 (V), 250 K (VDC-C2124V/M2124V)
Synchronizing system	: DC 12 V user : Internal sync AC 24 V user : Line-lock
Resolution	: 460 TV lines horizontally (VDC-C2174VA) 330 TV lines horizontally (VDC-C2124V) 380 TV lines horizontally (VDC-M2124V)
Video output level	: 1.0 V(p-p)/75 Ω, composite
Video S/N ratio	: More than 46 dB at AGC down (VDC-C2174VA/C2124V) More than 50 dB at AGC down (VDC-M2124V)
Minimum required illumination (incandescent lighting)	: (AGC ON) Approx. 1.5 lx at F2.0 lens (VDC-C2174VA) Approx. 1.0 lx at F2.0 lens (VDC-C2124V) Approx. 0.1 lx at F2.0 lens (VDC-M2124V)
Pan/Tilt adjustment	: Pan : 360 degrees, Tilt : ±80 degrees
Lens	: Built in variable focal lens, f=4 - 8 mm, F2.0 - 2.8
Operational conditions	: Temperature: -10°C - +50°C (14°F-122°F) Humidity: less than 90%RH (no condensation)
Power supply	: DC 12-15 V/AC 24 V ±10%, 60 Hz
Power consumption	: 3.7 W (VDC-C2174VA) 3.5 W (VDC-C2124V) 2.5 W (VDC-M2124V)
Weight	: Approx. 1.3 kg
Accessories	: Hexagon wrench (large) ... 1 Hexagon wrench (small) ... 1 Cushioning sheet 1 Monitor checking cable 1

Appearance and specifications are subject to change without prior notice.

PRECAUTIONS

■ In case of malfunction

Do not use the camera if smoke or strange odors come from the unit, or if it seems not to function correctly. Turn off the power immediately, and consult your dealer or a Sanyo Authorized Service Center.

■ Do not open or modify

Do not open the cabinet, except during maintenance and installation, as it may be dangerous and cause damage to the unit. For 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 fire, short-circuits or damage.

■ 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 and dust

To prevent damage to the camera, do not install it where there is greasy smoke or steam, where the humidity 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. Be careful when installing close to the ceiling, in a kitchen or boiler room, as the temperature may raise to high levels.

■ Cleaning

- Dirt can be removed from the cabinet by wiping it with a soft cloth. To remove stains, use a soft cloth moistened with a soft detergent solution and wrung dry, then dry by wiping with a soft dry cloth.
- Do not use benzine, thinner or other chemical products on the cabinet, 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 in contact with the cabinet for extended periods, as that may cause damage or paint peeling.

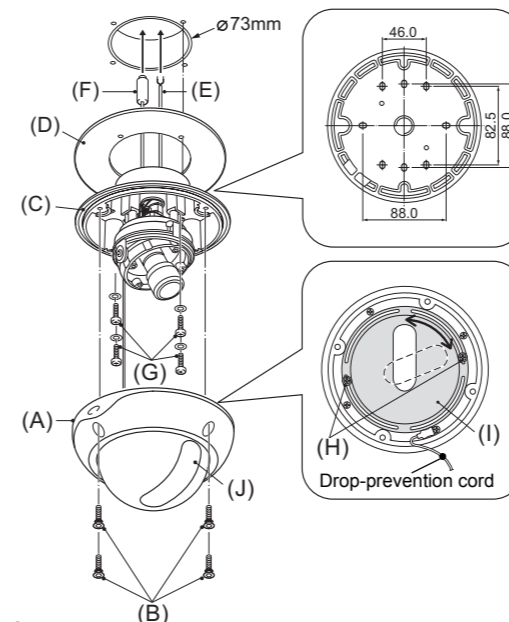
■ Approvals: IP66

This camera has been certified to IP66 standards when properly installed. Use only an IP66 certified enclosure or an electrical box. Ensure all openings in enclosure are sealed as per manufacturer's instructions.

■ Mounting Surface

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

INSTALLATION



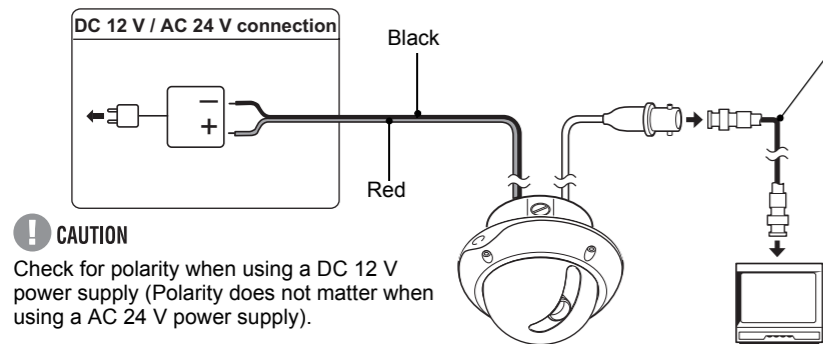
! CAUTION

- When installing the camera to the ceiling or the wall, make sure to properly perform waterproofing for the holes in the ceiling or the wall.
- When setting up this camera, make sure that it is installed securely. Check that the installation location is strong enough to bear the camera before proceeding. Install to the ceiling or the wall with no unevenness in its surface. And be sure to embed the screws at least 35 mm and ϕ 3.5 - 5 mm into the ceiling or the wall. If the screw holes are too shallow, the camera may fall down. In addition, do not touch the camera unit except when settings and adjustments are necessary.
- Install where the temperature range will stay between -10°C (14°F) and 50°C (122°F). (no condensation)

- 1 Use the supplied hexagon wrench (large) to remove the four fixing screws (B) of dome cover (A).
- 2 Make screw holes and a cable hole in the supplied cushioning sheet (D) that attaches to the back of the camera unit (C).
- 3 Attach the cushioning sheet (single-sided tape) to the back of the camera unit.
- 4 Align the camera unit with the surface of the ceiling or the wall, make marks on the ceiling or the wall in the places where the screw holes are to be drilled, and then drill the four holes.
- 5 Cut a hole (diameter:73mm) in the ceiling or the wall for routing the cables.
- 6 Pass the power cable (E) and video cable (F) from the camera unit through the cable hole in the ceiling or the wall.
- 7 Align the four screw holes in the camera unit (C) with the screw holes in the ceiling or the wall, and then secure the camera in place by tightening the four or more screws (G) through the washers.
- 8 Secure the dome cover (A) by tightening the screws (B).
- 9 Carry out the settings and adjustments for the camera. Refer to "CONNECTIONS AND SETTINGS" for camera settings and lens adjustments.
- 10 If the dome liner (I) is secured in place, loosen the screw (H). Adjust the dome liner (I) so that the dome camera's lens is visible from the camera window (J), and then use a phillips screwdriver to fix the dome cover.

CONNECTIONS AND SETTINGS

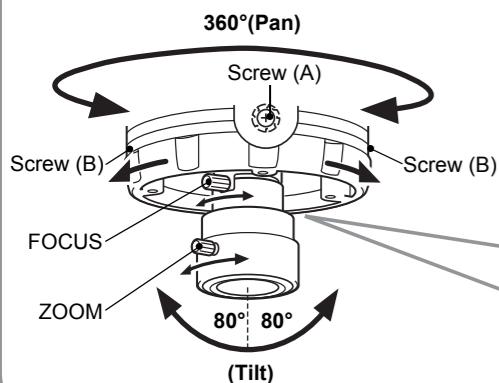
CONNECTIONS



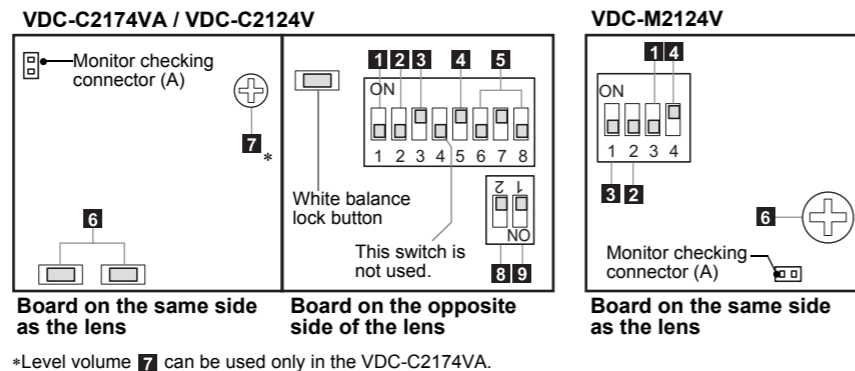
Supported coaxial cables
 You can use any of the following coaxial cables:
 ● RG-59U (3C-2V) Length: 250 m max.
 ● RG-6U (5C-2V) Length: 500 m max.
 ● RG-11U (7C-2V) Length: 600 m max.

CAUTION
 ● When using an RG-59U (3C-2V) cable, do not use it on piping or air wiring.
 ● Select the cable according to the distance between the devices you wish to connect.
 ● If you use a cable other than the types above, the image or sync signal will be attenuated and will not be transmitted correctly.

LENS ADJUSTMENTS



CAMERA SETTINGS



*Level volume **7** can be used only in the VDC-C2174VA.

CHECKING THE CAMERA IMAGE

You can use the monitor checking cable to display an image on a monitor when setting up the camera to check the surveillance angle and range, lens focus, etc.
 Connect the connector of the monitor checking cable to the monitor checking connector (A) on the circuit board and connect the jack of the monitor checking cable to the monitor.

LENS ADJUSTMENTS

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

CAUTION

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

- Adjust the pan position (360°) and the tilt position (±80°).**
 ● Loosen the screw (A) with a Phillips head screwdriver before adjusting the tilt position.
- Loosen the zoom lever screw, turn the zoom lever to the right/left to determine the zoom position while viewing the camera images on the monitor, and then re-tighten the screw.**
- Loosen the focus lever screw, turn the focus lever to the right/left to determine the focus position while viewing the camera images on the monitor, and then re-tighten the screw.**

NOTE on image direction:

- If the monitor image is misaligned, follow the steps below to adjust.
 ① Loosen the screws (B) with the supplied hexagon wrench (small).
 ② Turn the indented dial to adjust the image direction.
 ③ Tighten the screws (B) after adjustments are finished.

CAMERA SETTINGS

The camera comes pre-adjusted and ready to install at time of factory shipment, but you may want to make settings to adapt to the operating conditions or installation environment.
 If you have trouble adjusting the camera, consult your dealer or a Sanyo Authorized Service Center.
 (◆=Factory default setting)

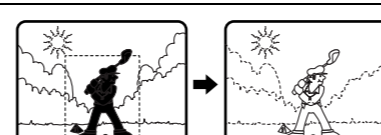
Correcting flicker **1**

ON	Corrects screen flickering that occurs when positioned under fluorescent lights that use a 50 Hz power supply frequency.
Down ◆	Normal setting

NOTE:

- To set flickerless in the VDC-M2124V, the Iris setting **3** must be "ON".
- Even if flickerless is set in the VDC-C2124V/M2124V, the electronic iris setting (fixed iris lens) will be off, and the iris function will be fixed.

Compensating for backlight **2**

ON	Compensates for backlighting with the center-weighted metering mode.	
Down ◆	Normal setting	

NOTE:

If backlight compensation is not corrected in the VDC-C2174VA when **2** is set to "ON", you can correct by adjusting level volume **7**.

Confirming the iris setting **3**

ON	The default setting for VDC-C2174VA (color high resolution camera) DC-type auto-iris lens is installed.
Down	The default setting for VDC-C2124V (color standard resolution camera) or VDC-M2124V (black and white resolution camera) Fixed-iris lens is installed.

NOTE:

The iris setting is pre-adjusted as the best condition for use at time of factory shipment, so it is not necessary to change the setting.

Setting gain control (AGC) **4**

For adjusting the sensitivity of the camera. Use this setting for shooting in dark environments.

ON ◆	Normal setting
Down	Set this when there is excessive noise.

NOTE:

VDC-C2174VA/C2124V : The gain control value for default setting is 26 dB. The gain control value is 20 dB when set to the down position.
 VDC-M2124V : The gain control value for default setting is 31 dB. The gain control value is 24 dB when set to the down position.

Setting white balance (color compensation) **5** (VDC-C2174VA / VDC-C2124V)

Adjusts the balance of colors. Basically AUTO TRACKING WHITE BALANCE is default setting. When this function does not work properly, select other settings.

Settings	SW 6	SW 7	SW 8	Contents
AUTO TRACKING WHITE BALANCE ◆	Down	ON	Down	Normal setting
AUTO WHITE BALANCE	Down	Down	Down	Automatically adjusts the white balance when the object is near.
MANUAL WHITE BALANCE	Down	Down	ON	Fine-tune the white balance manually. Adjust the color using 5 buttons (Left:Red, Right:Blue). If an AC 24 V adapter user sets MANUAL WHITE BALANCE, sync adjustment cannot be performed. To perform sync adjustment, do it with button 6 before setting MANUAL WHITE BALANCE.
WHITE BALANCE LOCK	Down	ON	ON	Adjusts the white balance when the brightness is constant. After setting the switch at left, keep pressing the white balance lock button and release it to set it.
INDOOR SETTING (LIGHT 1)	ON	Down	Down	Set for inside, when the room is lit by fluorescent or incandescent lights (3200° K).
INDOOR SETTING (LIGHT 2)	ON	Down	ON	Set for inside, when the room is lit by fluorescent lights (4200° K).
INDOOR SETTING (LIGHT 3)	ON	ON	Down	Set for inside, when the room is lit by fluorescent lights (4700° K).
OUTDOOR SETTING	ON	ON	ON	Set for outside light (6500° K).

Setting monitor synchronization **6** (AC 24V adaptor users)

Vertical sync disturbance may occur when a selector is used to switch between multiple cameras connected to one monitor. To prevent vertical sync disturbance, adjust **6**.

VDC-C2174VA / VDC-C2124V	Press each button to eliminate sync disturbances when needed.
VDC-M2124V	Adjust the volume 6 to eliminate sync disturbance.

NOTE:

- When using the DC 12 V adapter, sync setting is set to internal sync.
- If MANUAL WHITE BALANCE is set, sync adjustment cannot be performed. Change to a different white balance setting.

Adjusting level volume **7** (VDC-C2174VA)

If the entire image is too dark or bright, or the backlight compensation is not correct even after **2** is set to "ON", you need to adjust the level volume.

Left (Low)	Closes the lens iris, making the entire image darker.
Right (High)	Opens the lens iris, making the entire image brighter.

Adjusting gamma compensation **8** (VDC-C2174VA / VDC-C2124V)

For adjusting the gamma compensation, use this setting to adjust the signal correction/contrast so that the image looks natural.

ON	Gamma is set to 0.6. Makes the gamma compensation stronger than with the normal setting.
Down ◆	Normal setting (gamma is set to 0.45).

Setting the electronic shutter speed **9, 1 2 3** (VDC-C2174VA / VDC-C2124V)

The electronic shutter speed can be adjusted after setting "ON" for this setting (**9**).

ON	Changes the switch settings for 1 , 2 , and 3 to change the electronic shutter speed. At this time the actual Flickerless and Backlight Compensation are ignored. • Because the electronic iris setting (fixed-iris lens) turns off in the VDC-C2124V, the iris function will be fixed.
Down ◆	Normal setting

When the electronic shutter mode is set to "ON", a combination of the following three settings can be used to set up to eight speed levels.

Shutter speed	SW1 (Flickerless 1)	SW2 (Backlight compensation 2)	SW3 (Iris setting 3)
1/60	Down	ON	Down
1/100	ON	ON	Down
1/250	Down	Down	Down
1/500	ON	Down	Down
1/1000	Down	ON	ON
1/2000	ON	ON	ON
1/4000	Down	Down	ON
1/10000	ON	Down	ON

SANYO INDUSTRIAL VIDEO B/W-COLOR CCD 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 uncuring, 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 WARRANTY RANTOR'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 your own personal records.

Model No. _____ Serial No. _____
 (Located on back or bottom side of unit.)
 Date of Purchase _____ Purchase Price _____
 Where Purchased _____