

# Network Camera

## Installation Manual

Before operating the unit, please read this manual thoroughly and retain it for future reference.

## SNC-DH120/DH220/DH120T/DH220T SNC-EM520/EM521/ZM550/ZM551



<http://www.sony.net/>

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## Owner's Record

The model and serial numbers are located on the bottom. Record these numbers in the spaces provided below. Refer to these numbers whenever you call upon your Sony dealer regarding this product.

Model No. \_\_\_\_\_ Serial No. \_\_\_\_\_

## Overview

This Installation Manual gives instructions for multiple types of Network Cameras: SNC-DH120/DH220/DH120T/DH220T are PoE-type HD models, SNC-EM520/EM521 are PoE-type SD models, and SNC-ZM550/ZM551 are HD model IPELA HYBRID cameras.

## WARNING

**To reduce a risk of fire or electric shock, do not expose this product to rain or moisture.**

**To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.**

## WARNING

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

## IMPORTANT

The nameplate is located on the bottom.

## Power Supply

### Caution for U.S.A. and Canada (SNC-ZM550/ZM551)

The Model operates on 24 V AC or 12 V DC. The Model automatically detects the power. In the USA, this product shall be powered by a UL listed Class 2 Power Supply Only. In Canada, this product shall be powered by a CSA Certified Class 2 Power Supply Only.

### Caution for other countries (SNC-ZM550/ZM551)

The SNC-ZM550/ZM551 operates on 24 V AC or 12 V DC. The SNC-ZM550/ZM551 automatically detects the power. Use a power supply rated 24 V AC or 12 V DC which meets the requirements for SELV (Safety Extra Low Voltage) and complies with Limited Power Source according to IEC 60950-1.

### CAUTION for LAN port

For safety reason, do not connect the LAN port to any network devices that might have excessive voltage.

### CAUTION for LAN port (SNC-DH120/DH220/DH120T/DH220T/EM520/EM521)

The LAN port of this unit is to be connected only to the devices whose power feeding meets the requirements for SELV (Safety Extra Low Voltage) and complies with Limited Power Source according to IEC 60950-1. Use IEEE802.3af standard compliant devices.

### For customers in the U.S.A.

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.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

All interface cables used to connect peripherals must be shielded in order to comply with the limits for a digital device pursuant to Subpart B of Part 15 of FCC Rules.

### For customers in Canada

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

### For the customers in Europe

The manufacturer of this product is Sony Corporation, 1-7-1 Konan, Minato-ku, Tokyo, Japan. The Authorized Representative for EMC and product safety is Sony Deutschland GmbH, Hedelfinger Strasse 61, 70327 Stuttgart, Germany. For any service or guarantee matters please refer to the addresses given in separate service or guarantee documents.

### For the customers in Europe, Australia and New Zealand

## WARNING

This is a Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures. In the case that interference should occur, consult your nearest authorized Sony service facility. This apparatus shall not be used in the residential area.

## ATTENTION

The electromagnetic fields at specific frequencies may influence the picture of the unit.

## Notes on Use

### Before Use

- If you find condensation when you open the package, turn on the power after the condensation disappears.
- Remove the static electricity before operation or when touching the inside parts of the camera.

### Data and security

- You should keep in mind that the images or audio you are monitoring may be protected by privacy and other legal rights, and the responsibility for making sure you are complying with applicable laws is yours alone.
- Access to the images and audio is protected only by a user name and the password you set up. No further authentication is provided nor should you presume that any other protective filtering is done by the service. Since the service is Internet-based, there is a risk that the image or audio you are monitoring can be viewed or used by a third-party via the network.
- SONY IS NOT RESPONSIBLE, AND ASSUMES ABSOLUTELY NO LIABILITY TO YOU OR ANYONE ELSE, FOR SERVICE INTERRUPTIONS OR DISCONTINUATIONS OR EVEN SERVICE CANCELLATION. THE SERVICE IS PROVIDED AS-IS, AND SONY DISCLAIMS AND EXCLUDES ALL WARRANTIES, EXPRESS OR IMPLIED, WITH RESPECT TO THE SERVICE INCLUDING, BUT NOT LIMITED TO, ANY OR ALL IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR THAT IT WILL OPERATE ERROR-FREE OR CONTINUOUSLY.
- Always make a test recording, and verify that it was recorded successfully. SONY WILL NOT BE LIABLE FOR DAMAGES OF ANY KIND INCLUDING, BUT NOT LIMITED TO, COMPENSATION OR REIMBURSEMENT ON ACCOUNT OF FAILURE OF THIS UNIT OR ITS RECORDING MEDIA, EXTERNAL STORAGE SYSTEMS OR ANY OTHER MEDIA OR STORAGE SYSTEMS TO RECORD CONTENT OF ANY TYPE.
- Always verify that the unit is operating properly before use. SONY WILL NOT BE LIABLE FOR DAMAGES OF ANY KIND INCLUDING, BUT NOT LIMITED TO, COMPENSATION OR REIMBURSEMENT ON ACCOUNT OF THE LOSS OF PRESENT OR PROSPECTIVE PROFITS DUE TO FAILURE OF THIS UNIT, EITHER DURING THE WARRANTY PERIOD OR AFTER EXPIRATION OF THE WARRANTY, OR FOR ANY OTHER REASON WHATSOEVER.
- If you lose data by using this unit, SONY accepts no responsibility for restoration of the data.

### Personal information

- The images taken by the system using this device can identify individuals and thus they fall under "personal information" stipulated in the "Act on the Protection of Personal Information". Please handle the video data appropriately according to law.
- Information recorded using this product may also be "personal information". Upon disposal, transfer, repair, or any other occasion where this product or storage media is passed on to a third party, practice due care in its handling.

### Operating or storage location

Do not shoot an extremely bright object (an illumination, the sun, etc.). Also, avoid operating or storing the camera in the following locations, as these can be a cause of a malfunction.

- Extremely hot or cold places (Operating temperature: -10°C to +50°C [14°F to 122°F])
- Exposed to direct sunlight for a long time, or close to heating equipment (e.g., near heaters)
- Close to sources of strong magnetism
- Close to sources of powerful electromagnetic radiation, such as radios or TV transmitters
- Locations subject to strong vibration or shock
- Humid or dusty locations
- Locations exposed to rain
- Locations under the influence of fluorescent light or reflection of a window
- Under an unsteady light (the image will flicker.)

### Ventilation

To prevent heat buildup, do not block air circulation around the camera.

### Power supply (SNC-DH120/DH120T/DH220/DH220T/EM520/EM521)

- The power of this model is supplied by network cable.
- Use the network cable UTP, category-5.
- Damage to the network cable may result in fire or electric shock.

### Transportation

- Always turn off the power when carrying.
- When transporting the camera, repack it as originally packed at the factory or in materials of equal quality.

### Cleaning

- Use a blower to remove dust from the lens.
- Use a soft, dry cloth to clean the external surfaces of the camera. Stubborn stains can be removed using a soft cloth dampened with a small quantity of detergent solution, then wipe dry.
- Do not use volatile solvents such as alcohol, benzene or thinners as they may damage the surface finishes.

### Note on laser beams

Laser beams may damage image sensors. You are cautioned that the surface of image sensors should not be exposed to laser beam radiation in an environment where a laser beam device is used.

## Phenomena Specific to Image Sensors

The following phenomena that may occur in images are specific to image sensors. They do not indicate a malfunction.

### White flecks

Although the image sensors are produced with high-precision technologies, fine white flecks may be generated on the screen in rare cases, caused by cosmic rays, etc. This is related to the principle of image sensors and is not a malfunction.

The white flecks especially tend to be seen in the following cases:

- when operating at a high environmental temperature
- when you have raised the gain (sensitivity)
- when using the slow shutter

### Aliasing

When fine patterns, stripes, or lines are shot, they may appear jagged or flicker.

## About the Supplied Manuals

### Installation Manual (this document)

This Installation Manual describes the names and functions of parts and controls of the Network Camera, gives connection examples and explains how to set up the camera. Be sure to read the Installation Manual before operating. The pictures of SNC-DH120T are mainly used in explanatory examples.

### User's Guide (stored in the CD-ROM)

The User's Guide describes how to set up the camera and how to control the camera via a Web browser. After installing and connecting the camera correctly, operate referring to this User's Guide.

## Using the CD-ROM Manuals

The supplied CD-ROM disc includes the User's Guides for this unit in PDF format.

### Preparations

The Adobe Reader Version 6.0 or higher must be installed on your computer in order to use the guides stored in the CD-ROM disc.

### Note

If Adobe Reader is not installed, it may be downloaded from the following URL: <http://www.adobe.com/>

### Reading the manual in the CD-ROM

#### 1 Insert the CD-ROM in your CD-ROM drive.

A cover page appears automatically in your Web browser. If it does not appear automatically in the Web browser, double-click on the index.htm file on the CD-ROM.

#### 2 Select and click on the manual that you want to read.

This opens the PDF file of the manual. Clicking an item in the Table of Contents allows you jump to the relevant page.

### Notes

- The files may not be displayed properly, depending on the version of Adobe Reader. In this case, install the latest version, which you can download from the URL mentioned in "Preparations" above.
- If you have lost or damaged the CD-ROM, you can purchase replacement. Contact your Sony service representative.

## Smartphone viewer

This product is equipped with a Smartphone viewer. With Smartphone viewer, you can display an image from a network camera, pan, tilt and zoom that camera, on your smartphone.

For more details, see "Smartphone viewer User's Manual" at the following URL: <http://www.sony.net/ipeila/snc>

## Location and Function of Part

The figure shows the camera without the dome casing.

## Side

- Cable **Ⓐ** is not connected when the unit comes from the factory.
- ① **Power input/output cable (supplied, factory-connected) (SNC-ZM550/ZM551)**  
Connect to a AC 24 V/DC 12 V power supplying device. The screws on the connector tip at the end of the cable can be used to attach an extension cable.
- ② **I/O (Input/Output) cable (supplied) (SNC-DH120T/DH220T/EM521/ZM551)**  
This cable is provided with a sensor input and an alarm output. The wires of the cable control the following signals.

Color of wire	Name
Red	Sensor In +
White	Sensor In – (GND)
Black	Alarm Out 1 +
Yellow	Alarm Out 1 –
Brown	Unused
Green	Unused

- ◆ For details on each function and required settings, see the User's Guide stored in the supplied CD-ROM.
- ◆ For the wiring, see "Connecting the I/O cable."

### ③ Camera head holder

### ④ Lens

### ⑤ BNC cable (supplied, factory-connected) (SNC-ZM550/ZM551)

Outputs SLOC (IP coaxial transfer) signals and video signals.

### ⑥ LAN cable (RJ-45) (supplied and connected to the camera at the factory) (SNC-DH120/DH120T/DH220/DH220T/EM520/EM521)

Use the network cable (UTP, category-5) for network communications and PoE\* power supply.

- ◆ See "Connect to the Network" for connection.

(\* PoE: The acronym for Power over Ethernet. IEEE 802.3af standard compliant devices.)

### ⑦ Wiring cover

When you wire indoors, remove this cover and feed the cables through it.

## Caution

Take care not to trap the cables between the camera and the ceiling or the wall. If the cable is trapped, it may cause a fire or electric shock due to breaking.

## Inside

- ③ **Camera unit**
- ④ **EXT CTRL (external control input/output) connector (SNC-DH120T/DH220T/EM521/ZM551)**  
Connect the supplied I/O cable to this connector.
- ⑤ **SLOC (IP coaxial transfer/video output) port (VIDEO OUT) (SNC-ZM550/ZM551)**  
Connect the supplied BNC cable. Use this port when connecting the unit to a network using a coaxial cable. When using a composite signal, set the network connection change switch to LAN.
- Also use this port to output composite video signals from this unit. A connection to compatible equipment is necessary when connecting to a network using a coaxial cable.
- For connection details, refer to the instruction manuals of the equipment on the receiving end.

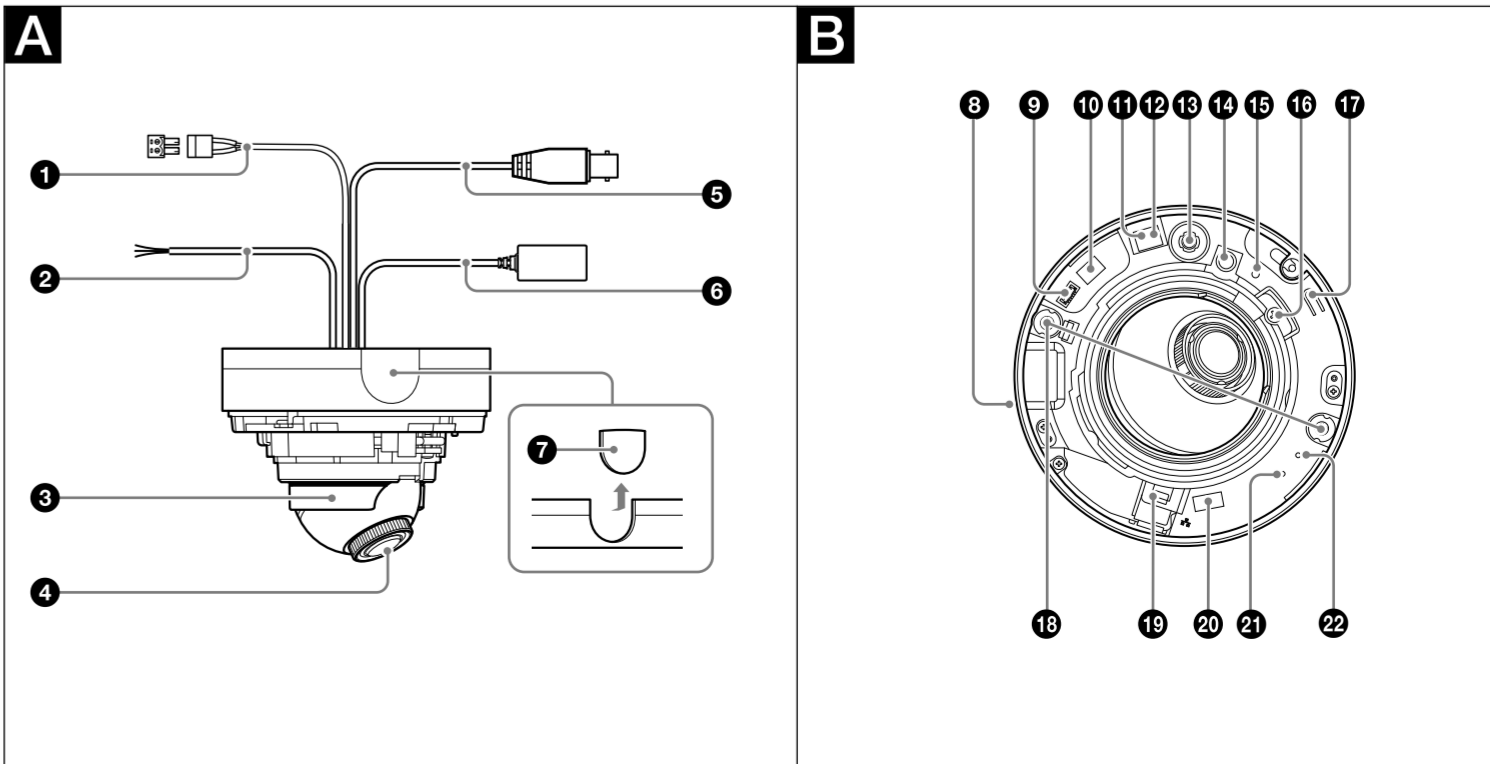
Note
The output analog image may not display correctly, depending on the video format and image size settings. <ul style="list-style-type: none"> <li>• The image may not display properly in the horizontal and/or vertical plane.</li> <li>• The image may be reduced.</li> </ul>

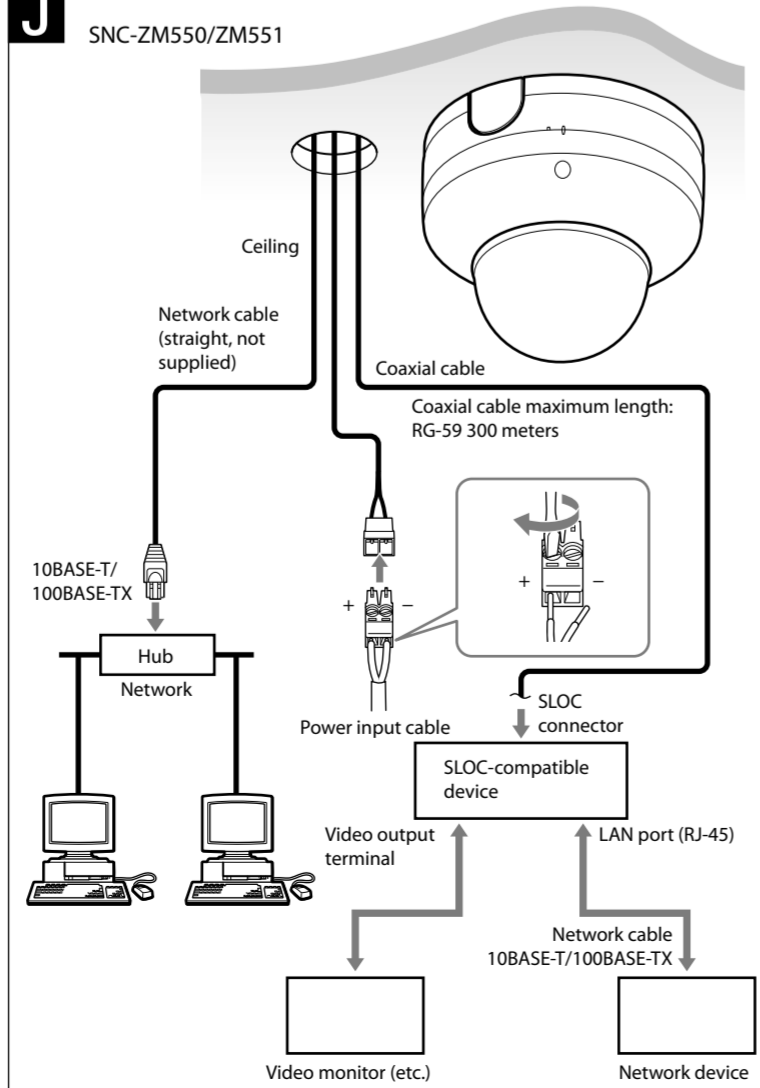
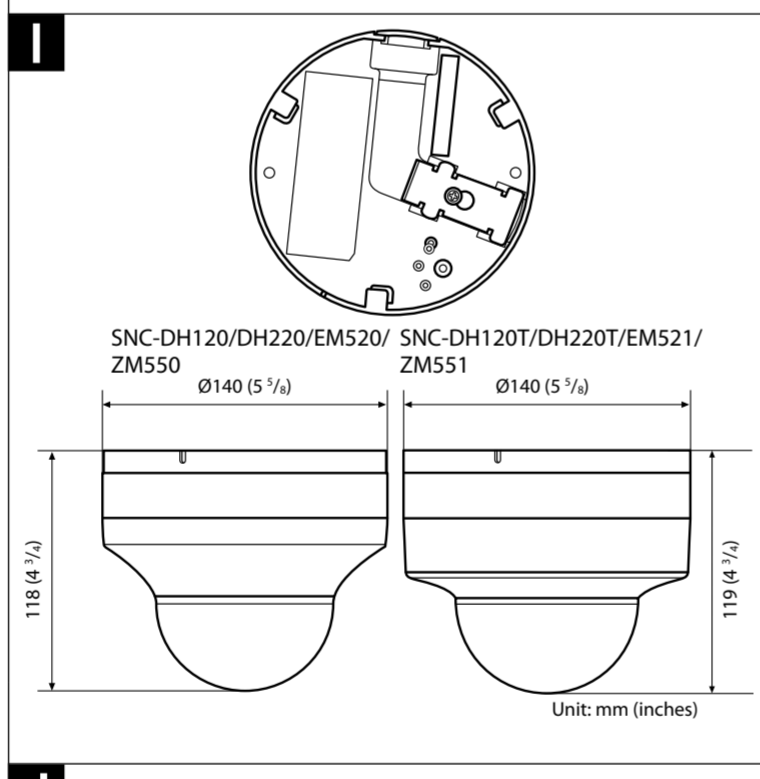
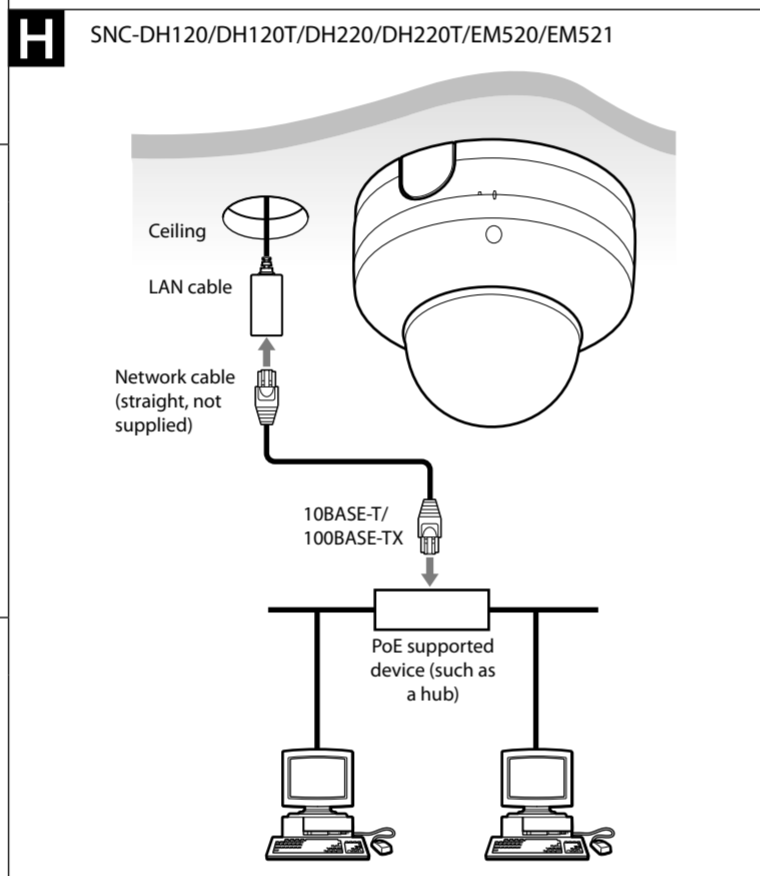
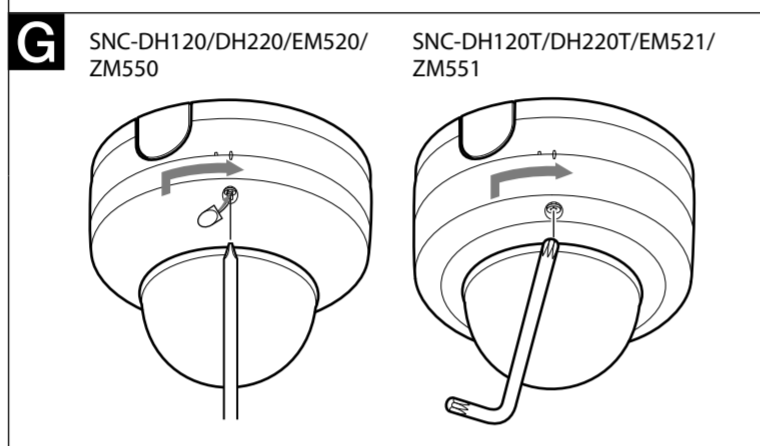
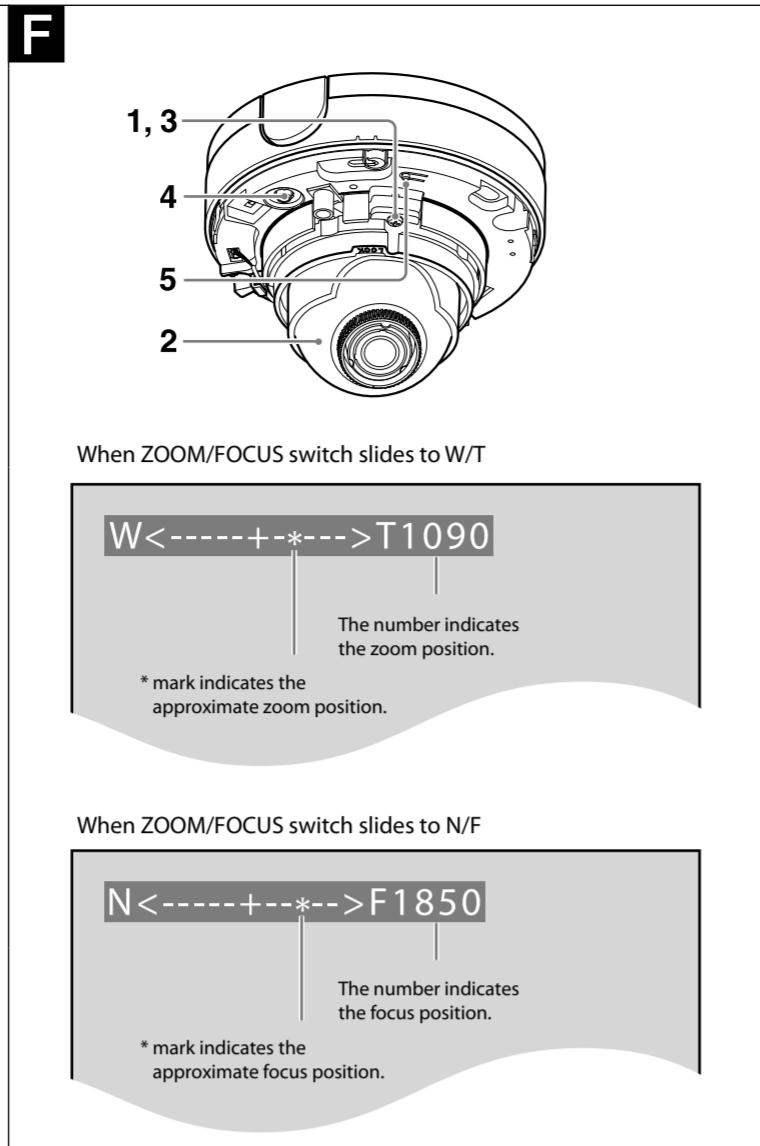
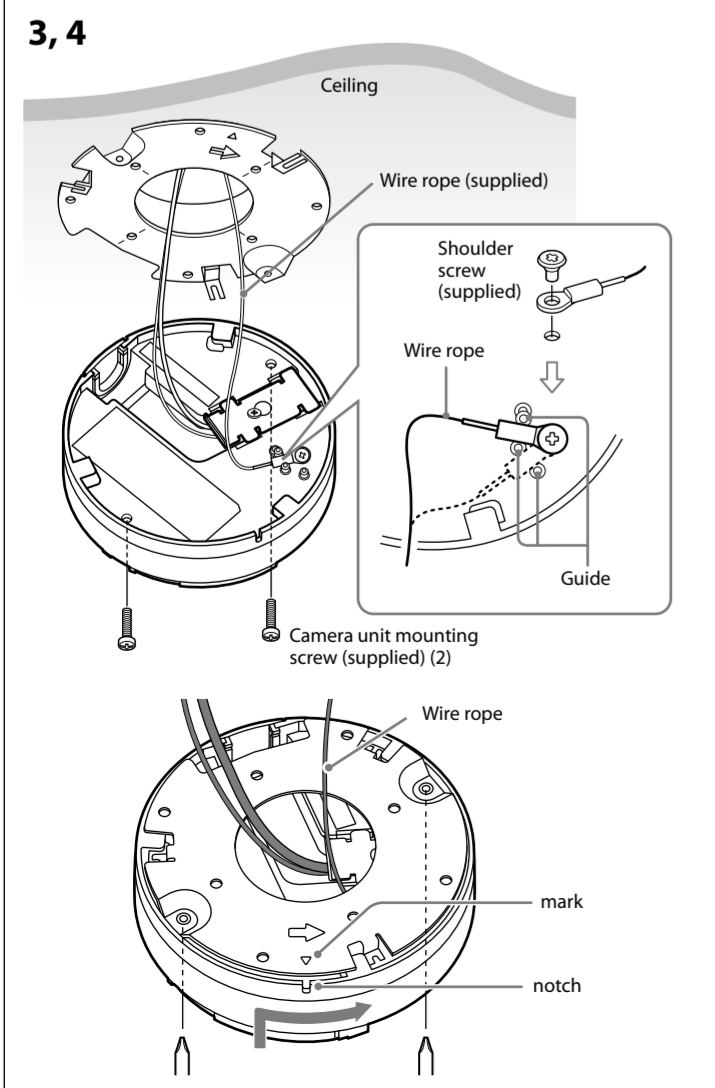
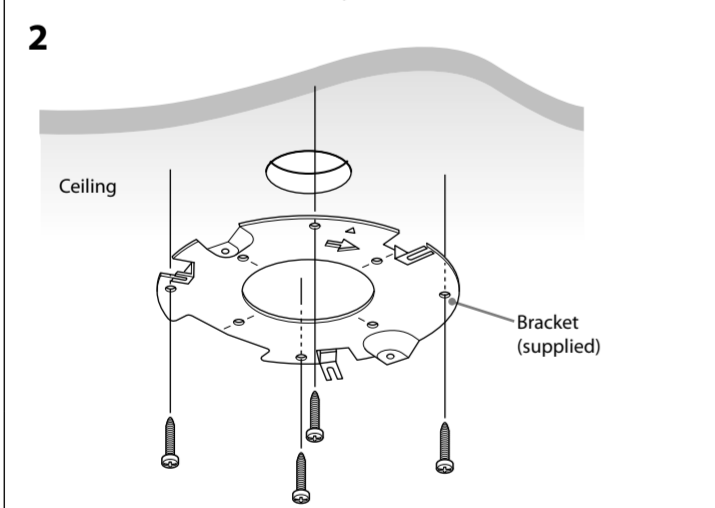
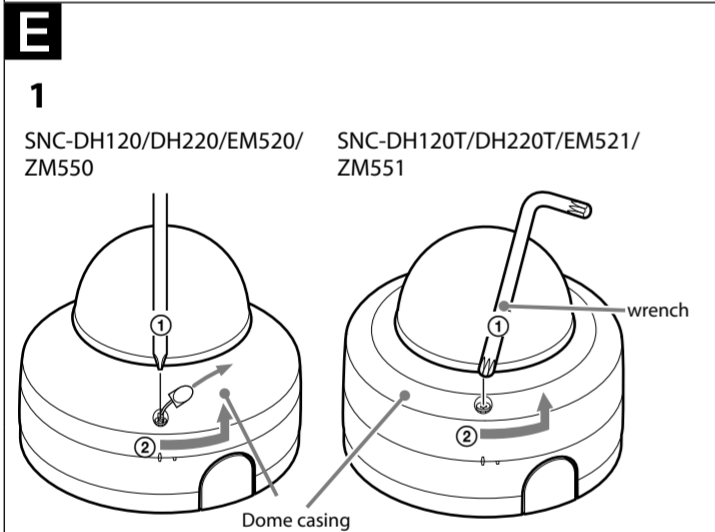
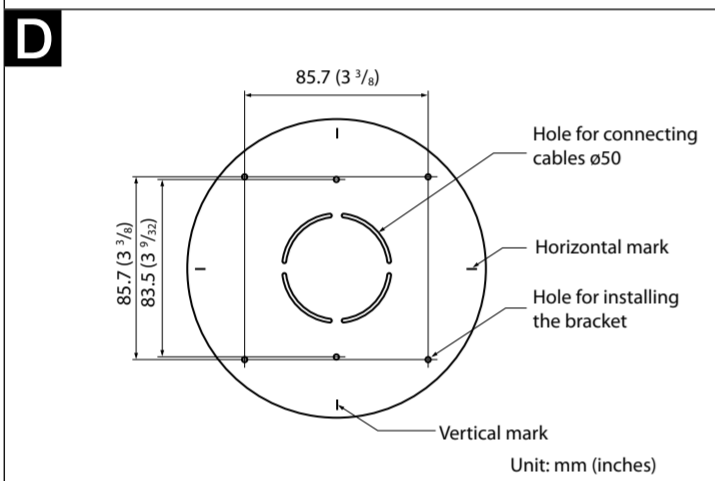
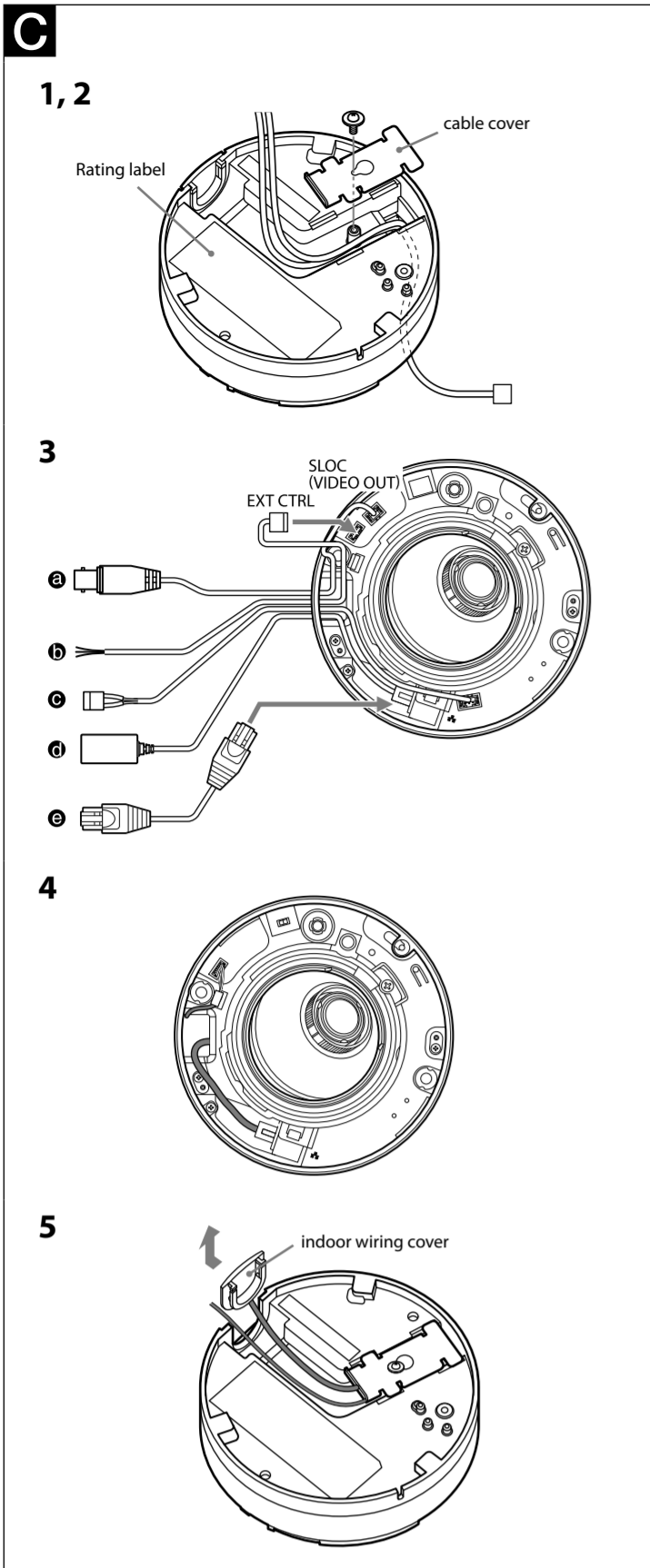
- ⑥ **Network connection change switch (SNC-ZM550/ZM551)**  
Use this switch to change between a network connection to a LAN (network port (RJ-45) and a network connection using a coaxial cable.
- ⑦ **NTSC/PAL switch**  
Switching the video output.
- ⑧ **ZOOM/FOCUS switch**  
Use this switch to adjust lens' zoom and focus. Slide the switch lever to select the desired function.
  - [W] WIDE: Zoom out
  - [T] TELE: Zoom in
  - [N] NEAR: Focus on a nearby subject
  - [F] FAR: Focus on a distant subject
- ⑨ **MONITOR output jack**  
Output the composite video signal from the camera. Monitor out is used when you adjust the angle of view. After usage, disconnect the video cable.

Notes
<ul style="list-style-type: none"> <li>• Do not connect to the video cable until the POWER indicator lights up.</li> </ul>
<b>SNC-DH120/DH120T/DH220/DH220T/EM520/EM521:</b> <ul style="list-style-type: none"> <li>• Be aware that the system performance may be influenced, if monitor out is set to on. Be sure to set it to off and disconnect the video cable when you do not use it.</li> <li>• When using this jack, turn on monitor out in the system settings. After usage, turn the setting off and disconnect the video cable.           <ul style="list-style-type: none"> <li>◆ For details on system settings, see the User's Guide.</li> </ul> </li> </ul>

- ⑩ **Reset switch**  
To reset the camera to the factory default settings, hold down this switch with a point and supply the power to the camera.
- ⑪ **Camera head fixing screw**  
First loosen the screw and face the camera head to the desired direction, then tighten the screw to fix it.
- ⑫ **Easy Focus button**  
Press this button to automatically adjust the focus easily.
- ⑬ **Camera installation hole (2 positions)**  
Make sure to tighten the screws securely when installing the camera.
- ⑭ **LAN (network) port (RJ-45)**  
Connect the supplied LAN cable.
- ⑮ **~AC/DC (power input) terminal (SNC-ZM550/ZM551)**  
Connect the supplied power input cable.
- ⑯ **NETWORK indicator (Green/Orange)**  
The indicator lights up or flashes when the camera is connected to the network. The indicator is off when the camera is not connected to the network. When 100BASE-TX is connected, the indicator turns green. When 10BASE-T is connected, the indicator turns orange. The indicator also turns green when SLOC (IP coaxial transfer) is selected. (SNC-ZM550/ZM551)
- ⑰ **POWER indicator (Green)**  
When the power is supplied to the camera, the camera starts checking the system. If the system is normal, this indicator lights up.

(continued on the reverse side)





## Preparations

### Connecting the Cables to the Camera

- Before installation, connect the supplied cables to the camera as required for your usage and wire them.
- Remove the screw on the bottom of the camera unit to detach the cable cover.
  - Pass the cables through the hole on the bottom of the camera unit.
  - Connect the cables to the connectors on the camera unit.
    - BNC cable: Connected to the SLOC port (SNC-ZM550/ZM551)
    - I/O cable: to EXT CTRL connector (SNC-DH120T/DH220T/EM521/ZM551)
    - Power input cable: Connected to the  $\sim$ AC/DC (power input) terminal (SNC-ZM550/ZM551)
    - LAN cable: Connected to the LAN port (SNC-DH120/DH120T/DH220/DH220T/EM520/EM521)
    - Network cable (not supplied): Connect to the LAN port (SNC-ZM550/ZM551)
  - Wire the cables along the cable guides on the camera unit. Position the cables under the cable clamps.
 

**Note**

To prevent the cables from being trapped by the dome casing, be sure to wire them using the cable guides and clamps.
  - Pull the cables gently from the bottom of the camera unit to take in the slack, and fix the cable cover with the screw.
 

To install the camera for indoor wiring, push the indoor wiring cover outwards and then remove it and pass the cables through it.

## Installation

- Caution**
- If you attach the camera in a high location such as wall or ceiling, etc., entrust the installation to an experienced contractor or installer.
  - If you install the camera in a high location, ensure that the ceiling is strong enough to withstand the weight of the camera plus mounting brackets and screws, and then install the camera securely. If the ceiling is not strong enough, the camera may fall and cause serious injury.
  - To prevent the camera from falling, make sure to attach the supplied wire rope.
  - If you attach the camera to the ceiling, check periodically, at least once a year, to ensure that the connection has not loosened. If conditions warrant, make this periodic check more frequently.

### Deciding the Installation Location of the Camera

- After deciding the direction in which the camera will shoot, make the required hole ( $\phi$  50 mm (2 inches)) for the connecting cables using the supplied template. Then decide the two or four mounting hole positions to install the bracket.
- Mounting screws**
- The supplied bracket is provided with  $\phi$  4.5 mm ( $7/16$  inch) mounting holes. Install the bracket on a ceiling or wall with screws through two or four mounting holes: two 83.5 mm ( $3 3/8$  inches)-pitched holes or four 85.7 mm ( $3 3/8$  inches)-pitched holes. The required mounting screws differ depending on the installation location and its material. (Mounting screws are not supplied.)
- Steel wall or ceiling:** Use M4 bolts and nuts.
- Wooden wall or ceiling:** Use M4 tapping screws. The panel thickness must be 15 mm ( $5/8$  inch) or more.
- Concrete wall:** Use anchors, bolts and plugs suitable for concrete walls.
- Junction box:** Use screws to match the holes on the junction box.

- Note**
- Use the supplied screws to install the unit. Using other screws may cause damage inside the unit.

### Installing the Camera

- Remove the dome casing.
  - SNC-DH120/DH220/EM520/ZM550
    - Pull out the screw cover and loosen the screw with a screwdriver.
    - Turn the dome casing to the curved mark position on the camera unit, and remove the dome casing from the camera unit. When the screw catches on the screw hole, pull up the screw.
  - SNC-DH120T/DH220T/EM521/ZM551
    - Loosen the screw with the wrench (supplied).
    - Turn the dome casing to the curved mark position on the camera unit, and remove the dome casing from the camera unit. When the screw catches on the screw hole, pull up the screw.
- Install the supplied bracket on the ceiling or wall.
 

Refer to "Mounting screws" for screws to be used.
- Fix the supplied wire rope to the camera unit and the ceiling or wall.
  - Fix the wire rope with the supplied shoulder screw to the hole in the wire rope on the bottom of the camera unit. Pass the wire rope between the wire rope guides.
  - Fix the wire rope to the ceiling or wall.
- Attach the camera unit to the bracket.
  - Insert the supplied two camera unit mounting screws into the two mounting holes of the camera.

The screws have a fall-prevention mechanism. The screws inserted into the screw holes of the camera unit do not fall even if you turn the camera unit upside down.
- Align the notch on the camera with the  $\Delta$  mark on the bracket.
- Turn the camera unit in the direction of the arrow.
- Tighten the camera unit mounting screws.

- Notes**
- Use the supplied screws for installation. Otherwise, you may not install the camera unit properly, even a falling may occur.
  - If you cannot use screws on a ceiling or wall, or if you want to make the camera less conspicuous, use the YT-ICB45/YT-ICB140 in-ceiling bracket (optional) with which you can mount the camera on the ceiling. For this model, install the camera to the  $\square$  position on the side brackets of YT-ICB45/YT-ICB140. Refer to the Installation Instructions of YT-ICB45/YT-ICB140 for detail information.

### Adjusting the Camera Direction and Coverage

- Loosen the camera head fixing screw.
- Adjust the camera to turn the lens in the desired direction.
- Tighten the camera head fixing screw to fix the camera.
- Slide the ZOOM/FOCUS switch to W/T to adjust the zoom.
 

The zoom indicator is displayed on the monitor.
- Press the Easy Focus button to automatically adjust the focus.
- Repeat steps 1 to 5 until the coverage and the focus are determined.

- Notes**
- When you adjust the camera head angle without loosening camera head fixing screw, an internal part may be damaged.
  - When the lens is not put in the slit of the camera head holder, the moving range of the camera head is limited.
  - If the camera head is too heavy to be adjusted, loosen the camera head fixing screw until it moves freely.
  - When adjusting the angle, be sure that the TOP mark on the camera head section faces the ceiling. If the camera is installed with the TOP mark facing the floor, the image appears upside down.
  - If you cannot achieve satisfactory focus with the Easy Focus button due to the shooting environment, slide the ZOOM/FOCUS switch level to N/F to focus manually. The focus indicator is displayed on the monitor.
  - Poor focus may also be caused by the dome case assembly. Readjust the focus using the system menu. For details, refer to the User Guide of the equipment.

- Note**
- Do not turn the lens more than 360 degrees, as this may damage the wiring inside, which may cause failure on video output.

### Attaching the Dome Casing

- Align the curved mark on the dome casing with that on the camera unit, and turn the dome casing in the direction of the arrow.
- Secure the screw. Only the SNC-DH120/DH220/EM520/ZM550 cover should be attached.
- Remove the protecting film on the dome cover.

## Connection

### Connect to the Network

- SNC-DH120/DH120T/DH220/DH220T/EM520/EM521**
- Connect the LAN connector of the camera to a PoE\* supported device (such as a hub) using the network cable (straight, not supplied). The electrical power is supplied through the network cable. For details, refer to the instruction manuals of the PoE supported devices. (\* PoE: The acronym for Power over Ethernet. IEEE 802.3af standard compliant devices.)
- SNC-ZM550/ZM551**
- Connect to a network using a coaxial cable or LAN.
- Connecting via a coaxial cable
 

When the network connection change switch is set to SLOC, connect to a network via a coaxial cable. The maximum coaxial cable length is RG-59 300 m.

- Notes**
- The high-frequency characteristics of coaxial cables may differ, even if the cables are of the same classification. Use a high-quality, high-frequency coaxial cable with this unit.
    - For details, refer to the instruction manual of the connecting SLOC device. For further details, please consult an authorized Sony dealer.
  - When connecting with a coaxial cable, do not connect a network cable to this unit.

- Connecting via LAN
 

When the network connection change switch is set to LAN, use a network cable (straight, not supplied) to connect this unit's LAN port to the network's router or hub.
- Connecting to a computer
 

Use a network cable (crossover, not supplied) to connect this unit's LAN port to the computer's network connector.

### Connecting to 12 V DC or 24 V AC source

- SNC-ZM550/ZM551**
- Connect the power input cable of the camera to a 12 V DC or 24 V AC source.
- Use a 12 V DC or 24 V AC source isolated from 100 to 240 V AC. Each usable voltage ranges are as follows.
    - 12 V DC: 10.8 V to 13.2 V
    - 24 V AC: 21.6 V to 26.4 V
  - In the USA, the product shall be powered by a UL Listed Class 2 Power Supply Only.
  - In Canada, the product shall be powered by a CSA certified Class 2 Power Supply Only.
  - Use UL cable (VW-1 style 10368) for these connections.

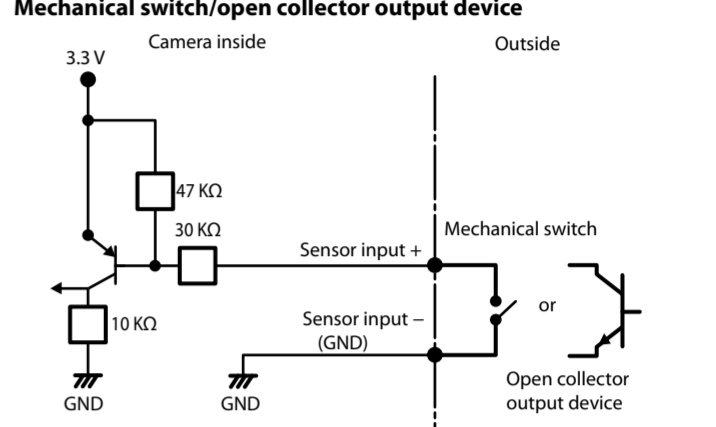
**recommended cable**

CABLE(AWG)	DC12 V:			AC24 V:		
	#26	#24	#22	#26	#24	#22
Max. length(m)	4	10	18	27	43	73

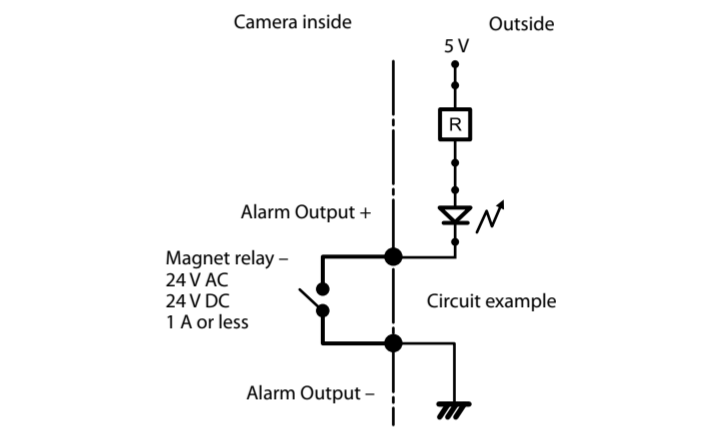
### Connecting the I/O Cable

Connect the wires of the I/O cable as follows:

#### Wiring diagram for sensor input



#### Wiring diagram for alarm output



## Specifications

- Compression**
- Video compression format: JPEG/MPEG4/H.264  
 Maximum frame rate: SNC-DH120/DH120T/ZM550/ZM551: H.264: 30 fps (1280 x 720)  
 SNC-DH220/DH220T: H.264: 30 fps (1920 x 1080)  
 SNC-EM520/EM521: H.264: 30 fps (800 x 600)

- Camera**
- Signal system: NTSC color system/PAL color system (switchable)  
 Image device: SNC-DH120/DH120T/EM520/EM521/ZM550/ZM551 1/3 type CMOS (Exmor)  
 Effective picture elements: Approx. 1,390,000  
 SNC-DH220/DH220T 1/2.8 type CMOS (Exmor)  
 Effective picture elements: Approx. 3,270,000
- Synchronization: Internal synchronization  
 Minimum illumination: SNC-DH120/DH120T/EM520/EM521/ZM550/ZM551: 0.01lx (15IRE, F1.2, slow shutter)  
 SNC-DH220/DH220T: 0.014 lx (15IRE, F1.2, slow shutter)

- Lens**
- Focal length: 3.1 mm to 8.9 mm  
 Maximum relative aperture: F1.2 to F2.1  
 View angle: SNC-DH120/DH120T/ZM550/ZM551: 1280 x 1024  
 Vertical: 67.4° to 25.0° Horizontal: 85.4° to 31.2°  
 SNC-DH220/DH220T: 1920 x 1440  
 Vertical: 65.2° to 24.2° Horizontal: 88.5° to 32.3°  
 SNC-EM520/EM521: 800 x 600  
 Vertical: 67.4° to 25.0° Horizontal: 85.4° to 31.2°

- Minimum object distance: 300 mm

- Interface**
- LAN (PoE)\*: 10BASE-T/100BASE-TX, auto negotiation (RJ-45)  
 \*The PoE power supply feature is not available on SNC-ZM550/ZM551.

- I/O port (SNC-DH120T/DH220T/EM521/ZM551 only)  
 Sensor input: x 1, make contact, break contact  
 Alarm output: x 1, 24 V AC/DC, 1 A (mechanical relay outputs electrically isolated from the camera)

- BNC (SLOC port) (SNC-ZM550/ZM551 only)  
 1.0 Vp-p, 75 ohms, unbalanced, sync negative (during video output)

- Others**
- Power: SNC-DH120/DH120T/DH220/DH220T/EM520/EM521: IEEE802.3af compliant (PoE system)  
 SNC-ZM550/ZM551: DC 12V/AC 24V  
 SNC-DH120/DH120T/DH220/DH220T/EM520/EM521: 6.0 W max.  
 SNC-ZM550/ZM551: 7.0 W max.

- Operating temperature: Start temperature: 0°C to 50°C (32°F to 122°F)  
 Working temperature: -10°C to +50°C (14°F to 122°F)

- Storage temperature: -20°C to +60°C (-4°F to +140°F)  
 Operating humidity: 20% to 80%  
 Storage humidity: 20% to 95%

- Dimensions (diameter/height): SNC-DH120/DH220/EM520/ZM550: 140 mm x 118 mm (5 1/2 inches x 4 1/4 inches)  
 SNC-DH120T/DH220T/EM521/ZM551: 140 mm x 119 mm (5 1/2 inches x 4 3/4 inches)  
 SNC-DH120/DH220/EM520/ZM550: Approx. 715 g (1 lb 9.2 oz), not including the cables and bracket  
 SNC-DH120T/DH220T/EM521: Approx. 945 g (2 lb 1.3 oz), not including the cables and bracket  
 SNC-ZM551: Approx. 965 g (2 lb 2.0 oz), not including the cable and bracket

- Supplied accessories: CD-ROM (User's Guides, and supplied programs) (1), Bracket (1), Template (1), Wire rope (1), Camera unit mounting screws (2), Shoulder screw M4 (1), Wrench (SNC-DH120T/DH220T/EM521/ZM551) (1), I/O cable (SNC-DH120/DH220/EM521/ZM551) (1), LAN cable (1) (SNC-DH120/DH120T/DH220/DH220T/EM520/EM521), BNC cable (SNC-ZM550/ZM551), Power input cable (SNC-ZM550/ZM551), Installation Manual (this document) (1 set)

- Optional accessory**
- In-ceiling bracket YT-ICB45\*, YT-ICB140\*  
 \*Using the fixture position  $\square$  on the bracket.

Design and specifications are subject to change without notice.

- Recommendation of Periodic Inspections**
- In case using this device over an extended period of time, please have it inspected periodically for safe use. It may appear flawless, but the components may have deteriorated over time, which may cause a malfunction or accident. For details, please consult the store of purchase or an authorized Sony dealer.

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