



by **Schneider** Electric

I N S T A L L A T I O N

IS50/IS51 Series Camclosure® 2 Integrated Camera System



**Super Dynamic 5 (SD5)™, Day/Night,
and Color Models;
Flush Mount, Surface Mount**

C3473M-C (10/10)

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Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Clean only with dry cloth.
6. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
7. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
8. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
9. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
10. Only use attachments/accessories specified by the manufacturer.
11. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.



12. Unplug this apparatus during lightning storms or when unused for long periods of time.

The product and/or manual may bear the following marks:



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

CAUTION:
RISK OF ELECTRIC SHOCK. DO NOT OPEN.

UL LISTED MODELS

IS51-DWSV8S
IS51-DWSV8F
IS50-DWSV8S
IS50-DWSV8F
IS51-DNV10S
IS51-DNV10F
IS50-DNV10S
IS50-DNV10F
IS51-CHV10S
IS51-CHV10F
IS50-CHV10S
IS50-CHV10F

WARNINGS

- This apparatus must be earthed.
- This apparatus shall be connected to a mains socket outlet with a protective earthing connection.
- The mains plug or an appliance coupler shall remain readily operable.
- All work related to the installation of this product should be made by qualified service personnel or system installers.
- The connections should comply with local electrical code.

We declare under our sole responsibility that the product to which this declaration relates is in conformity with the standards or other normative documents following the provisions of Directives 2006/95/EC and 2004/108/EC.

Wij verklaren als enige aansprakelijke, dat het product waarop deze verklaring betrekking heeft, voldoet aan de volgende normen of andere normatieve documenten, overeenkomstig de bepalingen van Richtlijnen 2006/95/EC en 2004/108/EC.

Vi erklærer os eneansvarlige for, at dette produkt, som denne deklaration omhandler, er i overensstemmelse med standarder eller andre normative dokumenter i følge bestemmelserne i direktivene 2006/95/EC og 2004/108/EC.

Vi deklarerar härmed vårt fulla ansvar för att den produkt till vilken denna deklaration hänvisar är i överensstämmelse med standarddokument, eller andra normativa dokument som framställs i direktiv nr. 2006/95/EC och 2004/108/EC.

Ilmoitamme yksinomaissella vastuullamme, että tuote, jota tämä ilmoitus koskee, noudattaa seuraavia standardeja tai muita ohjeellisia asiakirjoja, jotka noudattavat direktiivien 2006/95/EC ja 2004/108/EC säädöksiä.

Vi erklærer oss alene ansvarlige for at produktet som denne erklæringen gjelder for, er i overensstemmelse med følgende normer eller andre normgivende dokumenter som følger bestemmelsene i direktivene 2006/95/EC og 2004/108/EC.

Wir erklären in alleiniger Verantwortung, daß das Produkt, auf das sich diese Erklärung bezieht, mit den folgenden Normen oder normativen Dokumenten übereinstimmt. Gemäß den Bestimmungen der Richtlinie 2006/95/EC und 2004/108/EC.

Nous déclarons sous notre propre responsabilité que le produit auquel se réfère la présente déclaration est conforme aux normes spécifiées ou à tout autre document normatif conformément aux dispositions des directives 2006/95/CE et 2004/108/CE.

Nosotros declaramos bajo nuestra única responsabilidad que el producto a que hace referencia esta declaración está conforme con las normas u otros documentos normativos siguiendo las estipulaciones de las directivas 2006/95/CE y 2004/108/CE.

Noi dichiariamo sotto nostra esclusiva responsabilità che il prodotto a cui si riferisce la presente dichiarazione risulta conforme ai seguenti standard o altri documenti normativi conformi alle disposizioni delle direttive 2006/95/CE e 2004/108/CE.

Regulatory Notices

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.

RADIO AND TELEVISION INTERFERENCE

This equipment has been tested and found to comply with the limits of 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.

Changes and Modifications not expressly approved by the manufacturer or registrant of this equipment can void your authority to operate this equipment under Federal Communications Commission's rules.

In order to maintain compliance with FCC regulations shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio and television reception.

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.

Precautions

1. Refer installation work to the dealer. Installation work requires technique and experience; otherwise, injury or damage to the product may result. Be sure to consult the dealer.
2. Do not insert objects inside the product. If water or metallic items enter the product, it may cause fire or electric shock. Turn the power off immediately and contact qualified service personnel for service.
3. Do not attempt to disassemble or modify the product. Failure to observe this may cause fire or electric shock. Consult the dealer for the repair or inspections.
4. Stop operation immediately when something is wrong with the product. If smoke or the smell of smoke comes from the product, continued use will result in fire, injury, or damage to the product. Turn the power off immediately and contact qualified service personnel for service.
5. Select an installation area that can support the total weight. Selecting an inappropriate installation surface may cause the product to fall down or topple over, resulting in injury. Installation work shall be started after sufficient reinforcement.
6. Periodic inspections shall be conducted. Rust on the metal parts or screws may cause the product to fall down resulting in injury. Consult the dealer for the inspections.
7. This product shall be installed in a vibration-free location. Failure to observe this may cause screws and bolts to be loosened and consequently to fall resulting in injury.
8. Install this product high enough to ensure that people do not hit their heads. Failure to observe this may cause a drop resulting in injury or accidents.
9. Do not strike or give a strong shock to this product. Failure to observe this may cause injury or fire.
10. Be sure to turn off the power before wiring. Failure to observe this may cause electric shock. A short circuit or wrong wiring may cause fire.
11. Do not use the product in an atmosphere of flammable gases. Failure to observe this may cause injury by explosion.
12. Avoid installing the product in locations where it is subject to damage by salt or corrosive gas; otherwise, the mounting fixtures will deteriorate, causing the product to fall down resulting in injury.
13. Use the specified mounting bracket. Failure to observe this may cause the product to fall down resulting in injury.
14. Do not rub the edges of metal parts with your hand. Failure to observe this may cause injury.
15. Tighten screws and mounting fixtures to the specified torque. Failure to observe this may cause a drop resulting in injury or accidents.
16. This product has no power switch. Turn the power off when cleaning the product.
17. Parts of this product may deteriorate and it may shorten the lifetime of this product when used in locations subject to high temperatures and high humidity. (Recommended operating temperature: +35 °C [95 °F] or lower). Do not expose this product to direct heat sources such as a heater.
18. Handle this product with care. Do not abuse this product. Avoid striking, shaking, and so forth. The product could be damaged by improper handling or storage. If a strong shock or vibration is applied to the enclosure, it may cause damage or allow water to enter this product.
19. Do not touch the dome cover with your bare hands. A dirty dome cover causes deterioration of picture quality.
20. When continuously viewing a bright light source such as a spotlight, the color filter of the CCD may have deteriorated and it may cause discoloration. Even when changing the fixed viewing direction after continuously viewing a spotlight for a certain period, the discoloration may remain.
21. Do not aim this product at strong light sources. A light source such as a spot light causes a blooming (light bleeding) or a smear (vertical lines).

22. Turn the power off when cleaning the product. Do not use strong abrasive detergent when cleaning this product as this may cause discoloration. When using a chemical cloth for cleaning, read the caution provided with the chemical cloth product.
23. When dirt is hard to remove, use a mild detergent and wipe gently. Then, wipe off the remaining detergent with a dry cloth.
24. If OVER HEAT appears on the display, the inside of the camera has become extremely hot. Immediately turn off the power of the camera and contact your dealer.
25. (*Applies to Super Dynamic 5 (SD5)TM models only.*) This product has a dehumidifying device to keep the inside at a low moisture level, preventing condensation. Dew may be produced depending on the conditions of temperature, humidity, winds, and rain, and it may take time to dehumidify. Never seal the surfaces of the dehumidifying device.

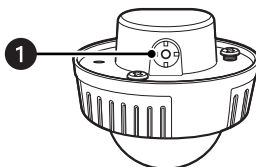


Figure 1. Dehumidifying Device

1 Dehumidifying Device

26. Installation work shall be performed in accordance with the technology standard of the electric installation.
27. The product is designed to be installed under eaves. Keep the product out of direct sunlight.
28. Contact your dealer for assistance if you are unsure of an appropriate site in your particular environment. Make sure that the installation area is strong enough to hold the product, such as a concrete ceiling. Install the camera in the foundation area of the architecture or where sufficient strength is assured. If a ceiling board, such as plaster board, is too weak to support the total weight, the area shall be sufficiently reinforced.
29. Avoid installing this product in the following locations:
 - Locations where a chemical agent is used such as a swimming pool (indoor and outdoor).
 - Locations subject to steam and oil smoke such as a kitchen.
 - Locations near flammable gas or vapor.
 - Locations where radiation or x-ray emissions are produced.
 - Locations where corrosive gas is produced, Locations where it may be damaged by briny air such as seashores.
 - Locations where the temperature is not within -10°C to 50°C (14°F to 122°F). When using the heater unit, the product can be used at temperatures within -30°C to 50°C (-22°F to 122°F) and humidity below 90%.
 - Locations subject to vibrations. (This product is not designed for on-vehicle use.)
30. Avoid installing this system in moist or dusty places; otherwise, the lifetime of the internal parts may be shortened.
31. Avoid installing the camera in a location with a high level of noise. Installation near an air conditioner, an air cleaner, a vending machine, or the like causes noise.
32. Be sure to remove this product if it is not in use.
33. Keep the camera cable away from the lighting cable. Failure to observe this may cause noise.

34. When the camera is used near a TV/radio antenna, strong electric field, or magnetic field (near a motor or a transformer), images may be distorted and audible noise may be produced. In such a case, route the camera cable through specialized steel conduit tubes.
35. Screws are not supplied with this product and must be locally procured. Prepare the screws according to the material, structure, strength and other factors of the mounting area and the total weight of objects to be mounted.
36. The mounting screws and bolts must be tightened with an appropriate tightening torque according to the material and strength of the installation area. Do not use an impact driver. Failure to observe this may cause overtightening and damage to the screws. When a screw is tightened, position the screw at a right angle to the surface. After tightening the screws or bolts, perform a visual check to ensure adequate tightening and there is no backlash.
37. Do not remove or loosen any of the seven screws on the rear of the camera; otherwise, water exposure may cause damage or malfunction of the camera, or it may cause the camera to drop resulting in injury.

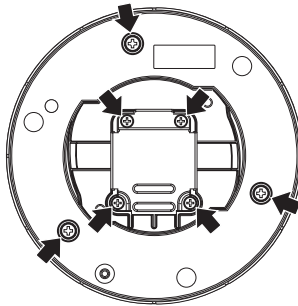


Figure 2. Screws on the Rear of the Camera

FLUSH MOUNT INSTALLATIONS ONLY: ADDITIONAL PRECAUTIONS

(Recommended for indoor installations only)

1. Select a strong ceiling area. Make sure that the installation area is strong enough to hold the total weight of the camera assembly before installation.
2. The installation area shall have 210 mm (8.25 inches) or more space behind the ceiling.
3. The thickness of the ceiling board for installation can range from 9 to 40 mm (0.38 to 1.56 inches).
4. Avoid installing in the following locations.
 - Locations where it may get wet from rain or water splash
 - Locations where a chemical agent is used such as a swimming pool (indoor and outdoor)
 - Locations subject to steam and oil smoke such as a kitchen
 - Locations where radiation or x-ray emissions are produced
 - Locations where it may be damaged by briny air such as seashores
 - Locations where the temperature is not within $-30\text{ }^{\circ}\text{C}$ to $+50\text{ }^{\circ}\text{C}$ ($-22\text{ }^{\circ}\text{F}$ to $122\text{ }^{\circ}\text{F}$).
 - Locations subject to vibrations. (This product is not designed for on-vehicle use.)
 - Locations where the temperature may rapidly change such as the peripheral areas of the air outlets of air conditioners or doors facing outside. (If a camera is installed in such a location, the dome cover may become foggy or condensation may occur on the cover.)
5. The screws and bolts must be tightened with an appropriate tightening torque according to the material and strength of the installation area. After tightening the screws or bolts, perform a visual check to ensure adequate tightening and there is no backlash. Required pullout capacity of a single screw/bolt is 196 N (44.1 lbf) or more.
6. Do not rub the edges of metal parts with your hand. Failure to observe this may cause injury.
7. Be sure to remove this apparatus if it is not in use.
8. Be sure to install the safety wire.
9. Periodic inspections shall be conducted. Rust on the metal parts or screws may cause the product to fall, resulting in injury.

Limitation of Liability

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1. ANY DAMAGE AND LOSS, INCLUDING WITHOUT LIMITATION, DIRECT OR INDIRECT, SPECIAL, CONSEQUENTIAL OR EXEMPLARY, ARISING OUT OF OR RELATING TO THE PRODUCT;
2. PERSONAL INJURY OR ANY DAMAGE CAUSED BY INAPPROPRIATE USE OR NEGLIGENT OPERATION OF THE USER;
3. UNAUTHORIZED DISASSEMBLE, REPAIR OR MODIFICATION OF THE PRODUCT BY THE USER;
4. INCONVENIENCE OR ANY LOSS ARISING WHEN IMAGES ARE NOT DISPLAYED, DUE TO ANY REASON OR CAUSE INCLUDING ANY FAILURE OR PROBLEM OF THE PRODUCT;
5. ANY PROBLEM, CONSEQUENTIAL INCONVENIENCE, OR LOSS OR DAMAGE, ARISING OUT OF THE SYSTEM COMBINED BY THE DEVICES OF THIRD PARTY.

Description

The IS50/IS51 Series Camclosure® 2 Camera System integrates a camera and lens package into a small versatile rugged enclosure that can be mounted directly to, or recessed into, a ceiling or wall. The IS50/IS51 Series features a three-axis camera and lens positioning system that is capable of a wide variety of pan and tilt angles.

The IS50/IS51 Series offers three high resolution camera options suitable for a variety of outdoor environments: Super Dynamic 5 (SD5)™ day/night wide dynamic range (WDR), Day/night, and Color.

The Super Dynamic 5 (SD5)™ models feature a high resolution (650 TVL) color camera with auto iris, varifocal lens, and auto back focus. Application examples include environments that require extremely high sensitivity and motion detection.

Day/night models feature a high resolution (540 TVL) color camera with auto iris and varifocal lens. Application examples include environments that require monochrome images at night and color images during the day.

Color models feature a high resolution (540 TVL) color camera with auto iris and varifocal lens. Application examples include all general-purpose environments.

MODELS

IS51-DWSV8S	Super Dynamic 5 (SD5)™, clear dome, surface mount, NTSC
IS51-DWSV8F	Super Dynamic 5 (SD5)™, clear dome, flush mount, NTSC
IS50-DWSV8S	Super Dynamic 5 (SD5)™, smoked dome, surface mount, NTSC
IS50-DWSV8F	Super Dynamic 5 (SD5)™, smoked dome, flush mount, NTSC
IS51-DNV10S	Day/Night, clear dome, surface mount, NTSC
IS51-DNV10F	Day/Night, clear dome, flush mount, NTSC
IS50-DNV10S	Day/Night, smoked dome, surface mount, NTSC
IS50-DNV10F	Day/Night, smoked dome, flush mount, NTSC
IS51-CHV10S	Color, clear dome, surface mount, NTSC
IS51-CHV10F	Color, clear dome, flush mount, NTSC
IS50-CHV10S	Color, smoked dome, surface mount, NTSC
IS50-CHV10F	Color, smoked dome, flush mount, NTSC
IS51-DWSV8SX	Super Dynamic 5 (SD5)™, clear dome, surface mount, PAL
IS51-DWSV8FX	Super Dynamic 5 (SD5)™, clear dome, flush mount, PAL
IS50-DWSV8SX	Super Dynamic 5 (SD5)™, smoked dome, surface mount, PAL
IS50-DWSV8FX	Super Dynamic 5 (SD5)™, smoked dome, flush mount, PAL
IS51-DNV10S	Day/Night, clear dome, surface mount, PAL
IS51-DNV10F	Day/Night, clear dome, flush mount, PAL
IS50-DNV10S	Day/Night, smoked dome, surface mount, PAL
IS50-DNV10F	Day/Night, smoked dome, flush mount, PAL
IS51-CHV10S	Color, clear dome, surface mount, PAL
IS51-CHV10F	Color, clear dome, flush mount, PAL
IS50-CHV10S	Color, smoked dome, surface mount, PAL
IS50-CHV10F	Color, smoked dome, flush mount, PAL

PARTS LIST

The following parts are supplied:

SURFACE MODELS

Qty	Description
1	Camera module
1	Camera attachment
5	Phillips screws
1	Mounting base and base cover
1	Bit for tamperproof screw
1	Butyl tape
1	Installation manual
1	Operation manual (CD-ROM)

FLUSH MODELS

(Recommended for indoor installations only)

Qty	Description
1	Camera module
1	Camera attachment
5	Phillips screws
1	Flush mount kit
1	Ceiling mount bracket
1	Safety wire
1	Safety wire angle
1	Template A
1	Template B
1	Ceiling mount cover
1	Bit for tamperproof screw
1	Butyl tape
1	Installation manual
1	Operation manual (CD-ROM)

FEATURES OF ALL MODELS

Adaptive Black Stretch

Adaptive black stretch technology increases the visibility of subjects in dark areas of a video scene without degrading image quality in the brighter areas. This is accomplished by analyzing the illumination map/signal level distribution and adjusting the gamma correction for each area separately. This results in clear, more visible images.

Factory-Installed Heater for Outdoor Installations

The heater turns on automatically when the temperature inside the camera drops below +10 °C (50 °F) and turns off when the temperature rises. A small fan inside the heater minimizes condensation on the surface of the enclosure caused by changes in ambient temperature unless temperatures change too rapidly.

NOTES:

- When using a 12 V DC power supply, the heater is unavailable.
- Turning the heater on and off may disturb the camera images.
- The power supply of the camera shall be turned off when mounting or dismounting the heater.
- When servicing, pay attention to high temperatures on the surface of the heater. Disconnect the harness and wait until the heater cools.
- When the camera is installed and operated in low temperatures below –10 °C (14 °F), normal images may not be obtained immediately after startup. In such a case, wait approximately 60 minutes or more.

FEATURES OF THE SUPER DYNAMIC 5 (SD5)[™] MODELS

High Resolution CCD

The new CCD has 976 horizontal pixels and a horizontal resolution as high as 650 TV lines (typ.).

Auto Back Focus (ABF)

Automatically adjust the back focus using the operation button or the setup menu.

The auto back focus function also allows users to correct the focus when changing between color and black-white images.

High Sensitivity with Noise Reduction

The introduction of low noise circuit design has achieved extremely high sensitivity, resulting in the minimum illuminance of 0.1 lux in the color mode and 0.01 lux in the black-white mode.

Night Monochrome Image Activation

No operation is required at night because the image automatically changes from the color mode to the black-white mode at low illuminance.

Intelligent VMD (i-VMD): Motion Detection, Object Abandonment/Removal Detection, and Scene Change Detection

The intelligent motion detection function allows the camera to detect motion of an object, appearance or disappearance of an object, or interference with the camera. When one of these types of motion is detected, a frame is displayed on the screen.

Scene change detection provides an alert if interference with the camera is detected. For example, if the camera is covered with a cloth or a cap, or if the direction of the camera is changed.

NOTE: The i-VMD is not an infallible method of preventing thefts, fires, and so forth. Pelco is not responsible for any accidents or damages occurring in these instances.

Super Dynamic 5 (SD5)[™]

Integration of Super Dynamic 5 (SD5)[™] * into the CCD and signal processing circuit has achieved approximately 128 times higher dynamic range compared to conventional cameras.

In scenes with high contrast between the bright and dark areas, the dark areas become less visible because the camera adjusts the iris in accordance with the bright areas. Conversely, adjusting the lens brightness for the darker areas causes the brighter areas to become washed out.

The Super Dynamic 5 (SD5)[™] function digitally combines an image that is configured for brighter areas with an image that is configured for darker areas, creating a final image that preserves overall detail.

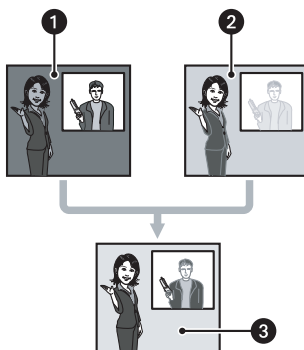


Figure 3. Super Dynamic 5 (SD5)[™]

- ❶ The Subject in the Dark Area is Hard to Notice
- ❷ The Subject in the Light Area is Hard to Notice
- ❸ A Clearer Image is Created by Digitally Combining Images

*The Super Dynamic 5 (SD5)[™] logo is a registered trademark of Panasonic Corporation in the United States and/or other countries.

Product Overview

SUPER DYNAMIC 5 (SD5)TM MODEL

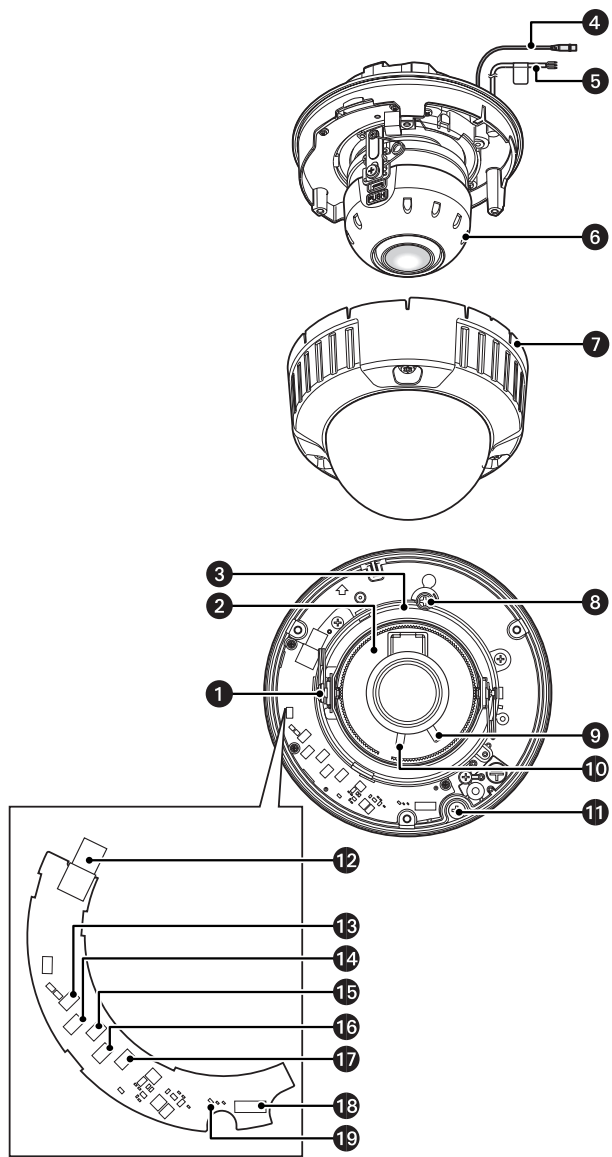


Figure 4. Super Dynamic 5 (SD5)TM Model Product Overview

- ❶ **Tilting Lock Screw:** Locks the tilt position.
- ❷ **Tilt Adjusting Table:** Adjust the azimuth angle of the image.
- ❸ **Panning Table:** Rotate this table to adjust the panning angle of the camera.
- ❹ **Video Output Cable**
- ❺ **Power Cord**
- ❻ **Inner Dome**
- ❼ **Enclosure**
- ❽ **Panning Lock Screw:** Fixes the panning table.
- ❾ **Focus Lock Knob:** Locks the focal point.
- ❿ **Zoom Lock Knob:** Locks the zoom point.
- ⓫ **Camera Fixing Screw:** Fixes the attachment on the camera body.
- ⓬ **Monitor Output Connector:** Connects the monitor for adjustment to this output connector.
- ⓭ **Right Button [(RIGHT), FAR]:** Moves the cursor to the right, selects the mode and adjusts some levels.
- ⓮ **Left Button [(LEFT), NEAR]:** Moves the cursor to the left, selects the mode and adjusts some levels.
- ⓯ **Up Button [(UP)]:** Moves the cursor upward and selects items in the setup menu.
- ⓰ **Down Button [(DOWN), ABF1]:** Moves the cursor downward and selects items in the setup menu.
- ⓱ **Setting Button [(SET), ABF2/MENU]:** Confirms the setting contents.
- ⓲ **Heater Output Connector:** Connects to the heater unit.
- ⓳ **ABF Operation Indicator:** Indicates the status of ABF operation.

DAY/NIGHT AND COLOR MODELS

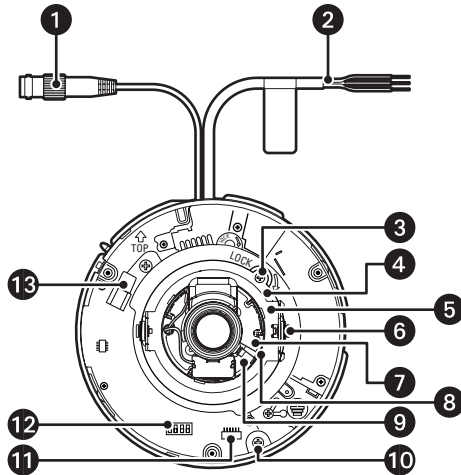
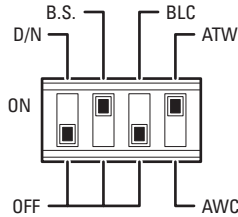


Figure 5. Day/Night and Color Model Product Overview

- ❶ **Video Output Cable:** Transmits composite video signals.
- ❷ **Power Cord:** Supplies 24 V AC or 12 V DC from an external power source.
- ❸ **Panning Table Lock Screw (LOCK):** Fixes the panning table.
- ❹ **Panning Table:** Adjusts the panning position of the camera.
- ❺ **Tilting Table:** Adjusts the tilting position of the camera.
- ❻ **Tilting Lock Screws (left and right):** Fixes the tilting position.
- ❼ **Azimuth Adjuster:** Adjusts the azimuth angle of the camera.
- ❽ **Zoom Lock Lever:** Fixes the zoom position after adjusting.
- ❾ **Focus Lock Lever:** Fixes the focus position after adjusting.
- ❿ **Camera Fixing Screw:** Fixes the attachment on the camera body.
- ⓫ **Heater Output Connector:** Connects to the heater unit.

- 12 Dip Switch:** Turns ON/OFF the day/night mode, adaptive black stretch, backlight compensation, and white balance.



Simple day/night mode selector (D/N) for color models:

ON: Selects the black-white mode if the picture is dark; it selects the color mode if the picture is bright enough.

OFF (default): Displays the color picture normally.

NOTE: The simple day/night function is established by using the SENSE UP function for black-white images. The IR filter is secured.

Day/night mode selector [D/N] for day/night models:

ON: Selects the black-white mode if the picture is dark; it selects the color mode if the picture is bright enough. When set to ON, the camera switches from color to black-white images when the ambient brightness (illuminance) of the camera is approximately 0.6 lux or less.

OFF (default): Displays the color picture normally.

NOTES:

- To obtain color images, a sufficient level of illuminance (approximately 30 lux or more) is required.
- The switching illuminance level varies depending on subjects and light sources.
- The switching illuminances described above are reference values. The switching illuminance shall be decided based on the actual installation environment.

Adaptive black stretch selector (B.S.):

ON (default): Corrects the dark area of an object automatically to lighten it.

OFF: Does not compensate.

NOTE: When set to "ON," noise may be increased in the dark area of the object.

In addition, darkness and brightness may be emphasized in the vicinity of the boundary between the dark and bright areas.

Backlight compensation selector (BLC):

ON: Compensates the background automatically if it is brighter than the object.

OFF (default): Uses this mode when the front of the object is extremely bright.

NOTE: Under some conditions, such as extremely strong backlight, the desired compensation effect may not be achieved even if the mode is set to ON to detect the backlight level.

White balance selector (ATW/AWC):

ATW (default): Activates the automatic color temperature tracking mode. The camera continuously measures the color temperature of the light source and automatically adjusts the white balance. The adjustment of the color temperature ranges from approximately 2700 K to 6000 K.

AWC: Activates the automatic white balance control mode. This adjustment is suitable for a location where a light source is stable. The adjustment of the color temperature ranges from approximately 2000 K to 10000 K.

- 13 Monitor Output Jack (RCA jack):** Connects the LCD monitor and such devices for checking images.

Installation

When installing the camera on a wall or a ceiling, there are three methods: using a 2-gang junction box, surface mounting using the surface mount kit, or flush mounting using the flush mount kit (recommended for indoor installations only).

Refer to all work related to the installation of this product to qualified service personnel or system installer.

NOTES:

- Prepare the mounting screws according to the material of the area where the camera attachment (supplied) is to be installed. In this case, wood screws and nails should not be used. For mounting a camera on a concrete ceiling, use an anchor bolt (M4 or appropriate, not supplied) or an AY plug bolt (M4 or appropriate, not supplied) for securing. The recommended tightening torque is M4: 1.6 N·m (1.18 lbf·ft).
- When using the camera attachment (supplied), make sure that one of the two arrow marks face upward.
- The required pullout capacity of a single screw/bolt is 196 N (44.06 lbf) or more.
- If a ceiling board (such as plaster board) is too weak to support the total weight, the area shall be sufficiently reinforced.
- When using an optional mounting bracket, refer to the operating instructions of the bracket in use.

Table A. Recommended Mounting

Installation Site	Applicable Mounting Bracket	Recommended Screws	Number of Screws	Minimum Pullout Strength (per 1 pc.)
Ceiling/wall	2-gang junction box	M4 or appropriate	4 pcs	196 N (44.06 lbf)
Ceiling/wall (surface mount)	Mounting base, approx. 350 g (0.77 lbs)	M4 or appropriate	4 pcs	196 N (44.06 lbf)
Ceiling (flush mount)	Ceiling mount bracket, approx. 700 g (1.55 lbs)	—	—	*

*Make sure that the installed mount bracket can support more than five times the weight of the camera.

USING A 2-GANG JUNCTION BOX

1. Mount the camera attachment (supplied) to the junction box installed on the wall or ceiling using the four Phillips screws (supplied). The recommended tightening torque is 0.78 N·m (0.58 lbf·ft). Refer to Figure 6.

NOTES:

- For wall mounting, be sure that the TOP mark on the camera attachment faces upward.
- For ceiling mounting, the front side of the camera (indicated by the Pelco logo) shall be aligned in the direction of the arrow and the FRONT mark on the camera attachment.

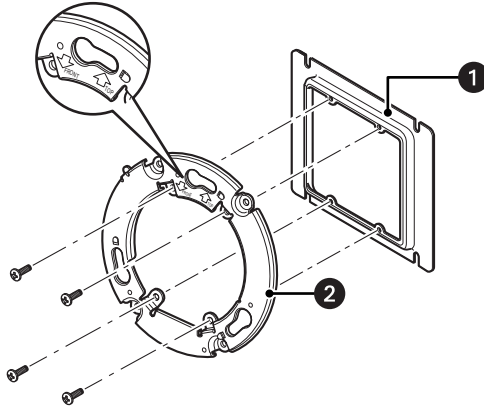


Figure 6. Mounting the Camera Attachment to a 2-Gang Junction Box

- ① 2-Gang Junction Box
- ② Camera Attachment

2. Mount the camera (refer to Figure 7 on page 23):
 - a. Connect the power cord and the video output cable (refer to *Wiring* on page 47).
 - b. Align the OPEN mark on the camera with the protrusion on the camera attachment.

- c. Engage the camera's attachment mounting screws with the mounting holes on the camera attachment, and then rotate the camera in the direction of the arrow to the LOCK position to secure the camera to the camera attachment without any backlash.

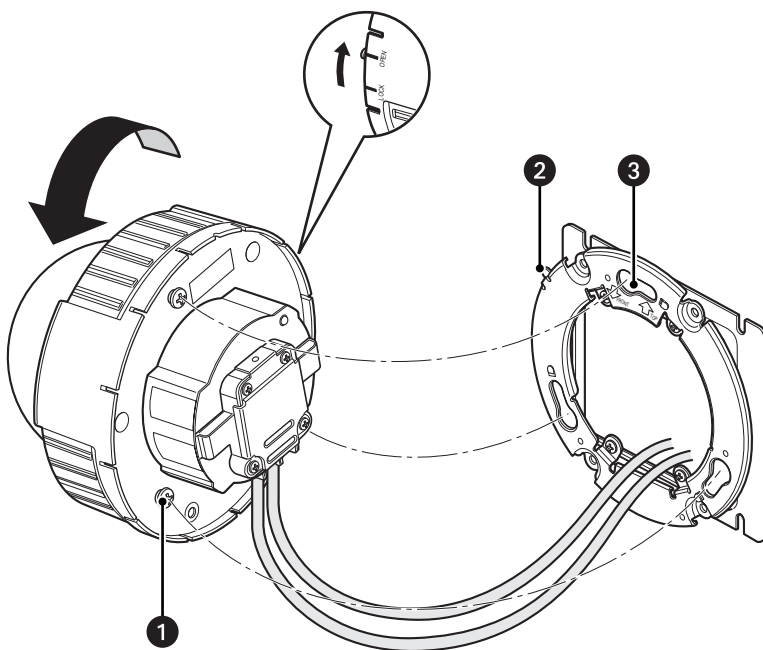


Figure 7. Mounting the Camera on a 2-Gang Junction Box

- ❶ Attachment Mounting Screw
- ❷ Protrusion
- ❸ Camera Mounting Hole

3. Remove the enclosure and inner dome (refer to *Removing the Enclosure and Inner Dome* on page 36).
4. Make adjustments to the camera (refer to *Adjusting the Camera: Super Dynamic 5 (SD5)™ Models* on page 37).
5. Reattach the enclosure and inner dome (refer to *Mounting the Enclosure and Inner Dome* on page 45).

SURFACE MOUNTING

The camera can be mounted on a wall or ceiling either where cable holes are already provided or where exposed wiring is used with conduit.

1. Loosen the captive screws that attach the mounting base to the base cover using the bit for tamperproof screws (supplied).
2. If you are installing the camera in a location with conduit, use a hexagon wrench (not supplied) to remove the cap from the conduit hole on the mounting base.

When installing the camera using conduit, the female thread on the mounting base conforms to ANSI NPSM (parallel pipe threads), 0.75-inch (refer to *Connecting Conduit* on page 48).

3. Install the mounting base on the wall or ceiling (refer to Figure 8).

NOTE: Only the same type of holes, A or B, shall be used for mounting (refer to Figure 9 on page 25).

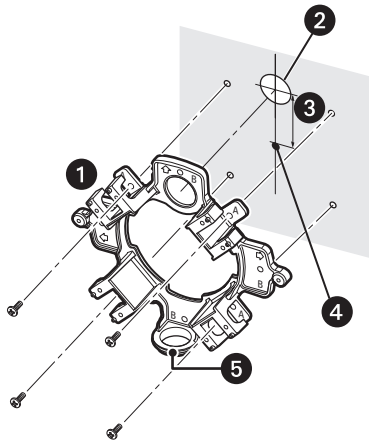


Figure 8. Installing the Mounting Base

- ① Mounting Base
- ② Cable Access Hole
- ③ 51 mm (2 inches) Between the Center of the Cable Access Hole and the Center of the Mounting Base
- ④ Center of Mounting Base
- ⑤ Conduit Hole

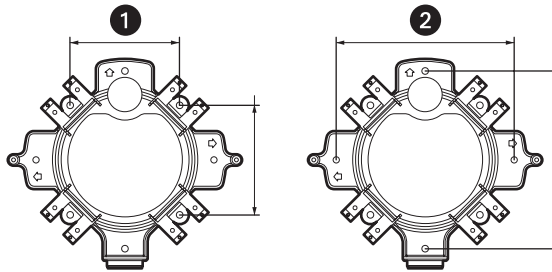


Figure 9. Mounting Holes

- ① Type A Mounting Holes
- ② Type B Mounting Holes

4. Bring the cables from the wall or ceiling through the cable access hole in the mounting base.
5. Mount the camera attachment onto the mounting base using the four Phillips screws (supplied). The recommended tightening torque is 0.78 N-m (0.58 lbf-ft).

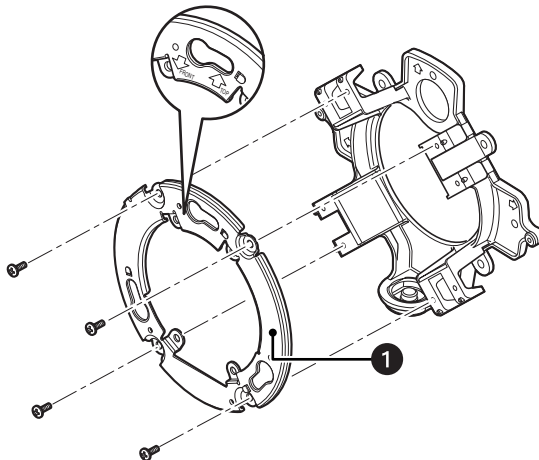


Figure 10. Mounting the Camera Attachment to the Mounting Base

- ① Camera Attachment

NOTES:

- For wall mounting, be sure that the TOP mark on the camera attachment faces upward.
- For ceiling mounting, the front side of the camera (indicated by the Pelco logo) shall be aligned in the direction of the arrow and the FRONT mark on the camera attachment.
- Ensure that any one of the arrows on the mounting base is aligned with the arrow and TOP mark on the camera attachment.

6. Route the cables between the camera attachment and the mounting base (refer to Figure 11). Cable routing as shown in Figure 11 is an example. Cable routing depends on the installation environment.

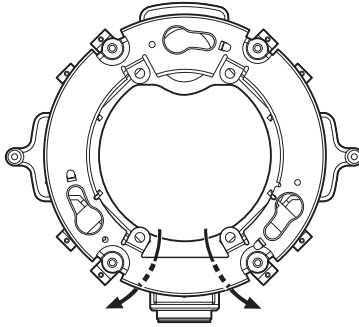


Figure 11. Routing the Cables

7. Mount the camera.
 - a. Attach the camera onto the camera attachment while aligning the OPEN mark on the camera with the protrusion on the camera attachment (refer to Figure 12).

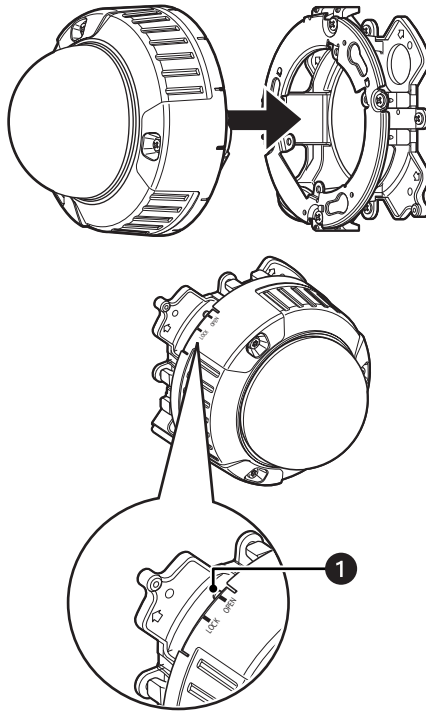


Figure 12. Attaching the Camera to the Camera Attachment (Surface Mount)

1 Protrusion

- b. Engage the camera's attachment mounting screws with the mounting holes on the camera attachment, and then rotate the camera in the direction of the arrow to the LOCK position to secure the camera to the camera attachment without any backlash (refer to Figure 13).

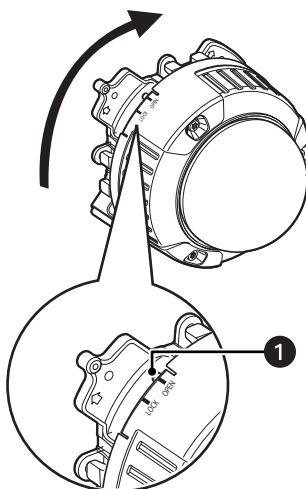


Figure 13. Securing the Camera to the Camera Attachment (Surface Mount)

1 Protrusion

8. Connect the power cord and the video output cable at the side of the mounting base (refer to Figure 14 and *Wiring* on page 47).
9. Apply waterproof treatment to the connected section (refer to *Waterproof Treatment for the Cable Joint Sections* on page 47).

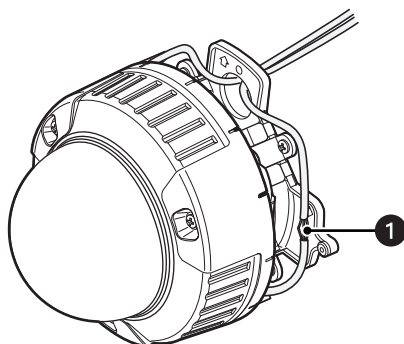


Figure 14. Making Cable Connections

1 Cable Connections

10. Accommodate the connected cables inside the cable guide of the mounting base (refer to Figure 15).

NOTE: To prevent the cables from being caught when the cover is attached, keep the cables inside the cable guide.

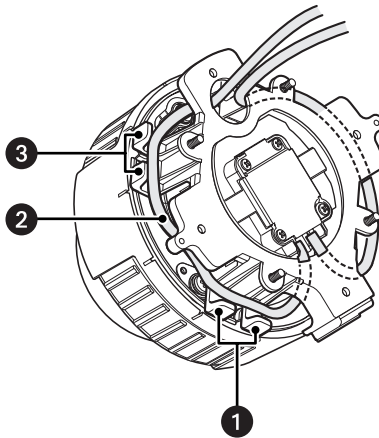


Figure 15. Routing the Cables

- 1 Cable Guide
- 2 Connected Cable
- 3 Cable Guide

11. Mount the base cover (supplied) on the mounting base (refer to Figure 16).

NOTE: To prevent the cables from being caught when the base cover is attached, keep the cables inside the cable guide.

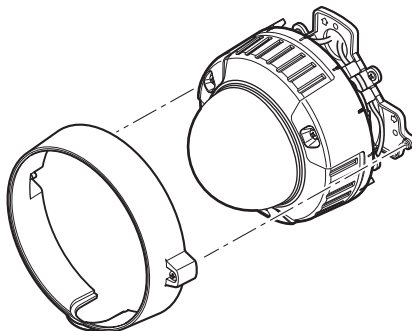


Figure 16. Installing the Base Cover

12. Use the bit for tamperproof screws (supplied) to tighten the captive fixing screws on both sides of the base cover. The recommended tightening torque is 0.78 N-m (0.58 lbf-ft).

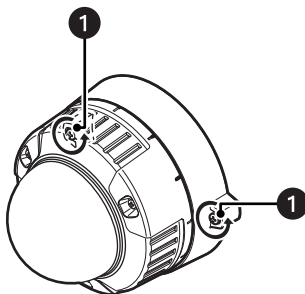


Figure 17. Tightening the Base Cover Fixing Screws

1 Base Cover Fixing Screws

13. Remove the enclosure and inner dome (refer to *Removing the Enclosure and Inner Dome* on page 36).
14. Make adjustments to the camera (refer to *Adjusting the Camera: Super Dynamic 5 (SD5)™ Models* on page 37).
15. Reattach the enclosure and inner dome (refer to *Mounting the Enclosure and Inner Dome* on page 45).

FLUSH MOUNTING

(Recommended for indoor installations only)

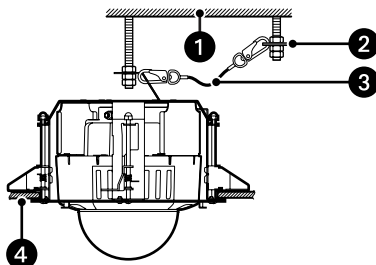


Figure 18. Installing Flush Mount Models

- 1** Roof Space
- 2** Safety Wire Angle
- 3** Safety Wire
- 4** Roof Space

1. Place Template A (supplied) against the ceiling and cut the appropriate holes.
 - a. Drill four 12 mm (0.5 inch) diameter holes.
 - b. Remove the large circular cutout from the template.
 - c. Cut a 180 mm (7.06 inch) diameter hole in the ceiling.
2. Install two anchor bolts (not supplied, M10 recommended) into the concrete ceiling (refer to Figure 19).
 - a. Install an anchor bolt in the center of the hole made in step 1.
 - b. Determine the anchor bolt length using Template B (supplied).
 - c. Use Template B to decide the nut position, and then mount the nut so that the distance between the bottom surfaces of the nut and the ceiling is 134 mm (5.25 inches).

NOTE: If there is already an anchor bolt installed, it can be used as a second anchor bolt. Make sure that the distance between the first and second anchor bolts is 1000 mm (3.28 feet) or less before use.

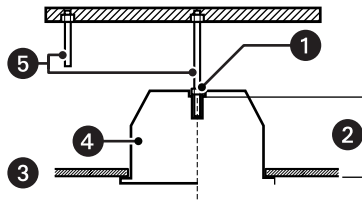


Figure 19. Installing the Anchor Bolts

- 1 Nut
- 2 134 mm (5.25 inches) Between the Bottom of the Nut and the Ceiling
- 3 Ceiling
- 4 Template B
- 5 Anchor Bolts

3. Mount the safety wire angle (supplied) on the second anchor bolt and connect the safety wire (supplied) to the angle (refer to Figure 20 on page 32).
 - a. Disconnect the safety wire from the safety wire angle.
 - b. Engage the bottom of the safety wire angle with the anchor bolt.
 - c. Bend the top of the safety wire angle.

- d. Reconnect the safety wire to the safety wire angle.

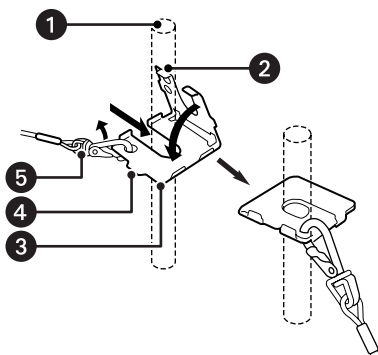


Figure 20. Mounting the Safety Wire Angle

- ❶ Anchor Bolt
- ❷ Top Side
- ❸ Safety Wire Angle
- ❹ Bottom Side
- ❺ Safety Wire

NOTE: When using an anchor bolt that was already installed, the use of two spacer nuts (not supplied) is recommended (refer to Figure 21).

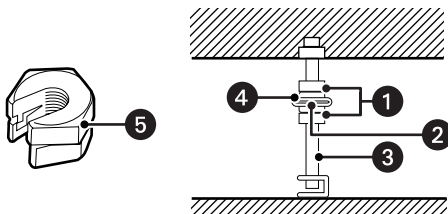


Figure 21. Using Spacer Nuts

- ❶ Spacer Nuts
- ❷ Safety Wire Angle
- ❸ Existing Anchor Bolt
- ❹ Safety Wire
- ❺ Spacer Nuts

4. Connect the safety wire to the ceiling mount bracket (refer to Figure 22).

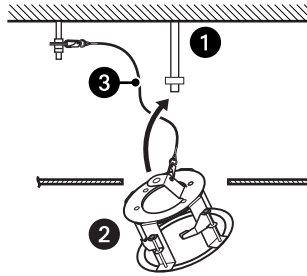


Figure 22. Connecting the Mount Bracket to the Safety Wire

- ❶ Anchor Bolt
- ❷ Ceiling Mount Bracket
- ❸ Safety Wire

5. Insert the mount bracket into the hole in the ceiling, and then insert the first anchor bolt into the mounting hole of the mount bracket (refer to Figure 23).

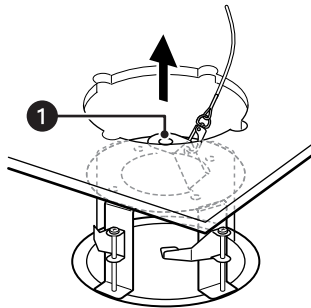


Figure 23. Installing the Mount Bracket

- ❶ Mounting Hole

6. Secure the mount bracket to the ceiling board with the four captive ceiling board fixing screws.

Turning the ceiling board fixing screws clockwise secures the mount bracket by tightening the ceiling board between the bottom of the mount bracket and the ceiling board fixing bracket (refer to Figure 24). The recommended tightening torque is 0.78 N·m (0.58 lbf·ft).

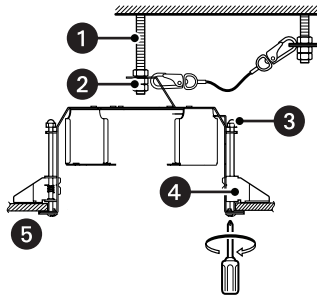


Figure 24. Secure the Mount Bracket to the Ceiling

- ① First Anchor Bolt
- ② Double Nuts
- ③ Ceiling Board Fixing Screw
- ④ Ceiling Board Fixing Bracket
- ⑤ Ceiling Board

7. Attach double nuts (not supplied) to secure the mount bracket to the first anchor bolt (refer to Figure 24).

8. Mount the camera attachment (supplied) onto the ceiling mount bracket using the four Phillips screws (supplied). The recommended tightening torque is 0.78 N-m (0.58 lbf-ft).

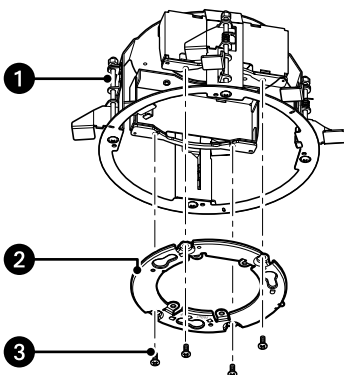


Figure 25. Attaching the Camera Attachment to the Camera Mount Bracket

- 1 Ceiling Mount Bracket
- 2 Camera Attachment
- 3 Screws

9. Connect the camera cables (refer to *Wiring* on page 47).
10. Mount the camera.
 - a. Attach the camera onto the camera attachment while aligning the OPEN mark on the camera with the protrusion on the camera attachment (refer to Figure 26).

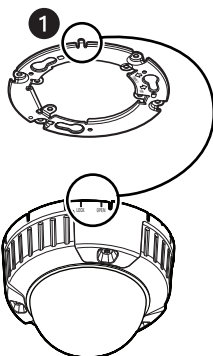


Figure 26. Attaching the Camera to the Camera Attachment (Flush Mount)

- 1 Protrusion

- b. Engage the camera's attachment mounting screws with the mounting holes on the camera attachment, and then rotate the camera in the direction of the arrow to the LOCK position to secure the camera to the camera attachment without any backlash (refer to Figure 27).

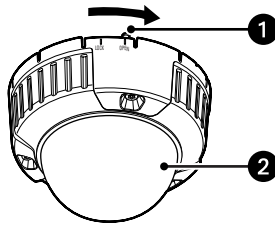


Figure 27. Securing the Camera to the Camera Attachment (Flush Mount)

- 1 Protrusion
- 2 Enclosure

11. Remove the enclosure and inner dome (refer to *Removing the Enclosure and Inner Dome* on page 36).
12. Make adjustments to the camera (refer to *Adjusting the Camera: Super Dynamic 5 (SD5)™ Models* on page 37).
13. Reattach the enclosure and inner dome (refer to *Mounting the Enclosure and Inner Dome* on page 45).
14. Mount the ceiling mount cover onto the ceiling mount bracket.
 - a. Align the projection on the ceiling mount cover with the hooks on the ceiling mount bracket (refer to Figure 28).
 - b. Turn the ceiling mount cover clockwise and press upward until the cover clicks into place.

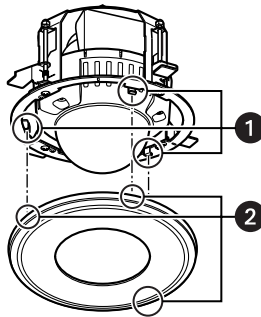



Figure 28. Attaching the Ceiling Mount Cover

- 1 Hooks
- 2 Projection

ADJUSTING THE CAMERA: SUPER DYNAMIC 5 (SD5)™ MODELS

 **WARNING:** Do not hold the inner dome when carrying the camera; otherwise, the camera part may fall and it may damage the camera.

1. After the unit has been mounted, remove the enclosure and inner dome to make camera adjustments.
 - a. Loosen the three fixing screws using the bit for tamperproof screws (supplied).
 - b. Detach the inner dome while pushing the sides with the PUSH marks (refer to Figure 29).

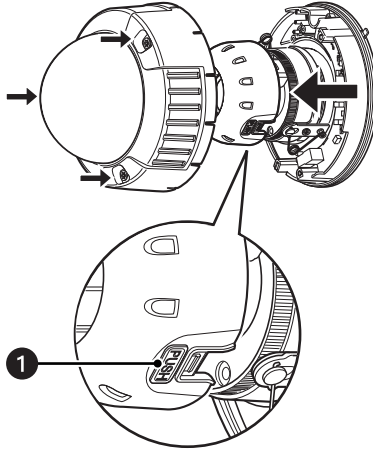



Figure 29. Detaching the Inner Dome

 Push Marks



WARNING: The camera fixing screw must be securely tightened to prevent water exposure. Water exposure may cause damage or malfunction of the camera, or the camera may fall and result in injury.

2. Secure the camera to the camera attachment with the camera fixing screw (red). Refer to Figure 30. The recommended tightening torque is 0.78 N·m (0.58 lbf·ft).

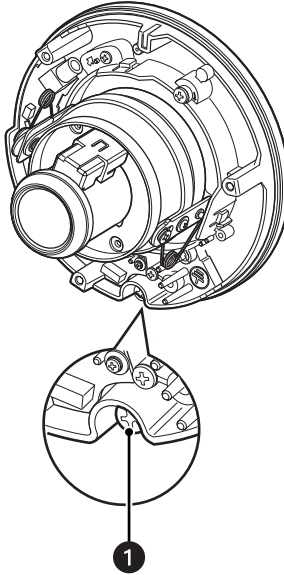


Figure 30. Tightening the Camera Fixing Screw



Camera Fixing Screw (red)

3. Remove the transport protection screw (blue) using a Phillips screw driver.

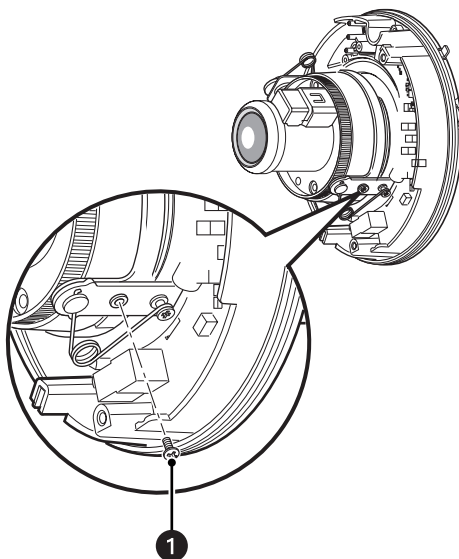


Figure 31. Removing the Transport Protection Screw

1 Transport Protection Screw (blue)

4. Adjust the camera angle (refer to Figure 32 on page 40):
 - a. Connect a monitor for adjustment (for example, a small LCD [not supplied]) to the monitor output connector, and adjust the camera angle while watching the monitor.
NOTE: The video output to the BNC connector will be interrupted while an adjusting monitor is connected to the monitor output connector.
 - b. Loosen the panning lock screw, rotate the camera head horizontally to adjust panning, and then tighten the panning lock screw.
 - c. Loosen the two tilting lock screws, rotate the camera head vertically to adjust tilting, and then tighten the tilting lock screws.

NOTE: The panning lock screw and the tilting lock screw must be securely tightened. The recommended tightening torque is 0.59 N·m (0.44 lbf·ft).

- d. Rotate the tilt adjusting table to adjust the azimuth angle of the image.

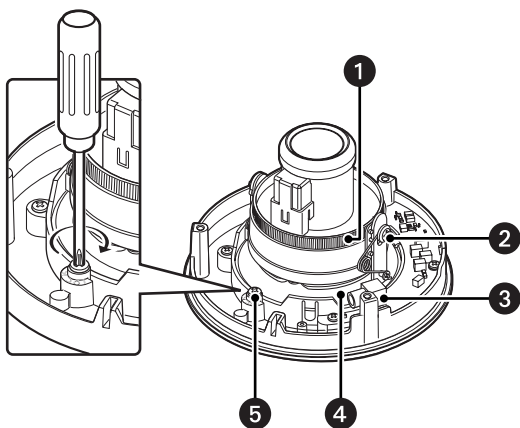


Figure 32. Adjusting the Camera Angle

- ① Tilt Adjusting Table
- ② Tilting Lock Screw
- ③ Monitor Output Connector (RCA)
- ④ Panning Table
- ⑤ Panning Lock Screw

5. Adjust the focus:
 - a. Loosen the zoom lock knob and move the knob between TELE and WIDE to obtain the appropriate angle of view, and then tighten the zoom lock knob.
 - b. Loosen the focus lock knob, make coarse adjustment of the focus, and then tighten the focus lock knob.
 - c. Perform major adjustment of the back focus by following steps 5, 6, and 7 below or using the setup menu (refer to the supplied operation manual).

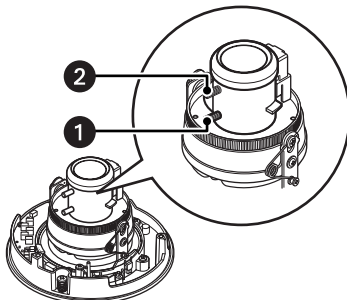


Figure 33. Adjusting the Focus

- 1 Zoom Lock Knob
- 2 Focus Lock Knob

6. Reset the back focus position to the CS mount default position using one of the following methods:
 - Hold down the right and left buttons simultaneously for 2 seconds or more.
 - Move the cursor to MANUAL-ADJ of BACK-FOCUS SETUP in the setup menu, and then press the right and left buttons simultaneously for 2 seconds or more.
7. Adjust the view angle while watching the monitor.
8. Press the ABF1 button to perform auto back focus.

The ABF operation indicator lights, the focus position is displayed in the lower part of the screen, and the back focus is automatically adjusted.

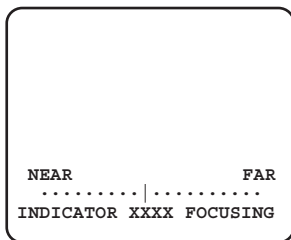


Figure 34. Focus Position Screen

9. Perform fine adjustment of the back focus using the right or left buttons.

NOTES:

- No operation for 10 seconds or more automatically clears the focus position indicator.
- You can change the angle of view by moving the zoom adjustment ring, and you can move the focus lock knob to adjust the focus.
- The originally adjusted focus may be slightly off depending on the iris state resulting from the focal depth of the lens. In such a case, open the aperture by darkening the subject as much as possible, and then adjust the focus. This will prevent defocus.
- Use of ABF or BACK-FOCUS in the setup menu allows users to adjust the focus optimally in the range of the capability to automatically follow the variation in illuminance.
- The out-of-focus level in a near-infrared light region may be higher than that in a visible light region.

Setting C/L-B/W of BACK-FOCUS SETUP to AUTO or PRESET in the setup menu allows users to adjust the focus in both the near-infrared light and visible light regions (the variation in illuminance is not followed after focus adjustment).

ADJUSTING THE CAMERA: COLOR AND DAY/NIGHT MODELS



WARNINGS:

- Do not touch the iris motor.
 - Do not hold the camera by the lens unit when adjusting pan, tilt, or azimuth.
1. Rotate the panning table (320-degree range) to adjust the panning position of the camera (refer to Figure 35). The adjusting range is from +180 degrees (clockwise) to -140 degrees (counterclockwise).
 2. Tighten the panning table lock screw.

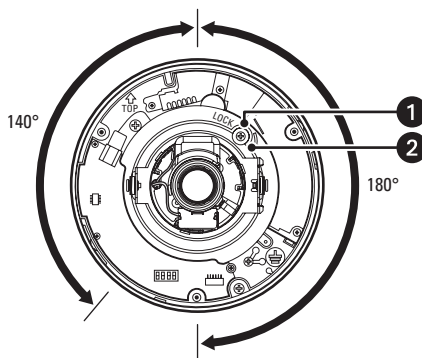


Figure 35. Adjusting the Panning Position

- 1 Panning Table Lock Screw
- 2 Panning Table

3. Rotate the tilting table (± 75 -degree range) to adjust the tilting position of the camera (refer to Figure 36).

NOTES:

- This lens can also be rotated in the reverse direction, but the image azimuth is reversed. In such a case, turn the panning table to the 180-degree side to correct the azimuth image.
- When used at an angle that is close to horizontal, the shadow of the dome cover may be projected.

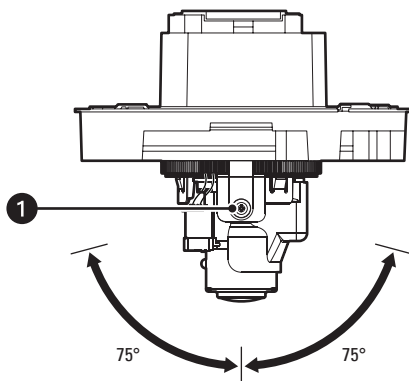


Figure 36. Adjusting the Tilting Position (Day/Night Model Shown)

1 Tilting Lock Screw

4. Tighten both the panning table lock screw and the tilting lock screws on both sides after adjusting the tilt position of the camera. The recommended tightening torque is 0.59 N·m (6 kgf·cm).
5. Rotate the azimuth adjuster (± 100 -degree range) to adjust the azimuth angle of the image (refer to Figure 37).

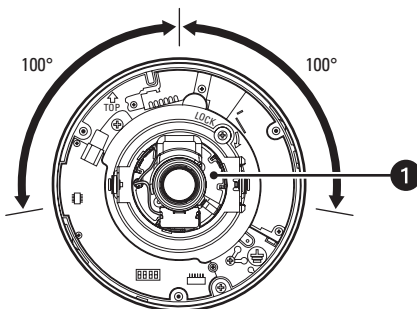


Figure 37. Adjusting the Azimuth Angle (Color Model Shown)

1 Azimuth Adjuster

6. Loosen the zoom lock lever and move the lever between TELE and WIDE to obtain the appropriate angle of view (refer to Figure 38).
7. Tighten the zoom lock lever.
8. Loosen the focus lock lever and move the lever between FAR and NEAR to obtain the optimum focus.
9. Tighten the focus lock lever.

NOTE: You can change the angle of view by moving the zoom lock lever, and you can move the focus lock lever to adjust the focus.

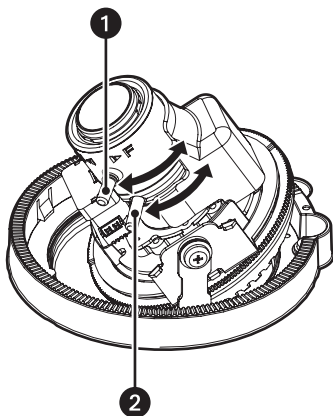


Figure 38. Adjusting the Zoom and Focus

- ① Focus Lock Lever
- ② Zoom Lock Lever

REMOVING THE HEATER

NOTES:

- When using 12 V DC power supply, the heater is unavailable.
- If the camera is installed in a location with temperatures between -10°C and 50°C (14°F to 122°F), the heater may be removed to conserve energy.



WARNING: Do not remove the heater if the camera is installed in a location with temperatures below -10°C (14°F).

1. While the camera's enclosure and inner dome are uninstalled, disconnect the heater cable from the camera's heater output connector.
2. Remove the screw that secures the heater (refer to Figure 39).

3. Remove the heater from the camera.

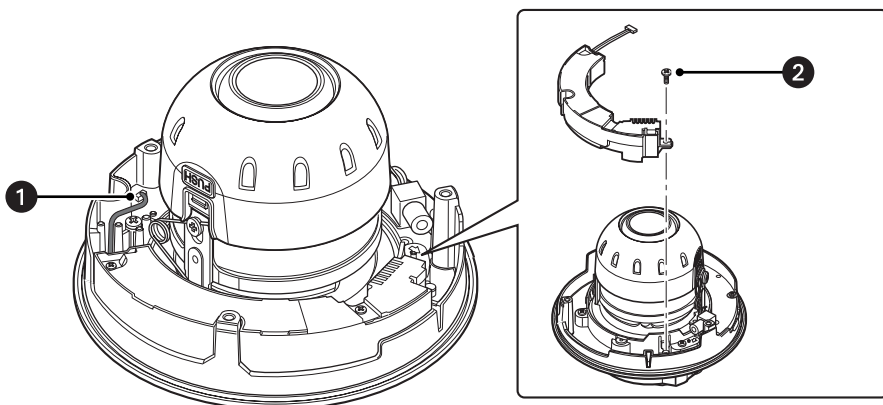


Figure 39. Removing the Heater

- ❶ Heater Output Connector
- ❷ Screw

MOUNTING THE ENCLOSURE AND INNER DOME

1. Attach the inner dome carefully to avoid changing the lens direction.
2. Ensure that the tabs of the inner dome are secure.
3. Remove the pink cushioning from the inside of the dome and the protection sheet from the outside of the dome.
4. Perform a back focus adjustment to correct any defocus that may have occurred when the enclosure was reinstalled.
 - a. Press the [ABF2] button. The ABF operation indicator starts blinking.
 - b. While the indicator is blinking (for approximately 3 minutes), reattach the enclosure.

- (1) Align the cutout on the enclosure with the groove on the outside edge of the camera assembly.

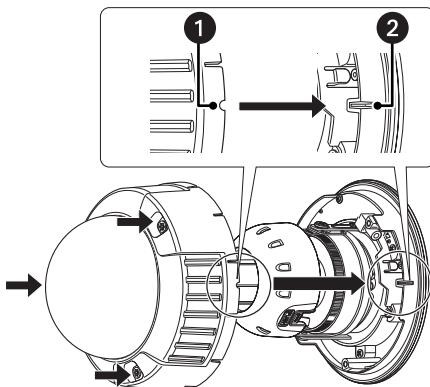


Figure 40. Reattaching the Enclosure

- ① Cutout on the Enclosure
- ② Groove on the Camera Assembly

- (2) Tighten the three captive screws on the enclosure using the bit for tamperproof screws (supplied). The recommended tightening torque is 0.78 N·m (0.58 lbf·ft).
- c. When the indicator stops blinking and remains lit, back focus is adjusted automatically. After the back focus is adjusted, the indicator turns off.

NOTES:

- Do not aim the camera at continuously moving objects.
- If, after changing to a steady light, the indicator blinks again, back focus adjustment may have failed. In this case, check the back focus on the monitor.

Wiring

WATERPROOF TREATMENT FOR THE CABLE JOINT SECTIONS

WARNING: Be sure to use the supplied butyl tape at the connection parts of the power cord and video output cable to apply waterproof treatment. Stretch the tape to approximately twice its length and wind it around the cable. Failure to observe this may cause water leakage resulting in malfunction.

Adequate waterproof treatment is required for the cables when a camera with exposed cables is installed using the mounting base, or when it is installed under the eaves of a structure. The camera body is waterproof, but the cable ends are not waterproof.

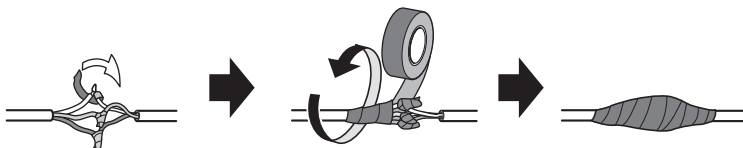


Figure 41. Using Butyl Tape to Waterproof Power Cable

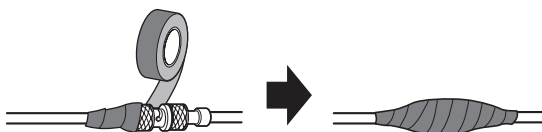


Figure 42. Using Butyl Tape to Waterproof Video Output Cable

NOTES:

- To install this product outdoors, be sure to waterproof the cables. The camera body is waterproof (IEC IP66 or equivalent) only when the installation specified in this document and appropriate waterproofing are properly performed. The bracket is not waterproof.
- The cable must be wound with butyl tape in a half-overlapping manner.

CONNECTING CONDUIT

If open wiring is conducted, be sure to route the cables through conduit to protect the cables from direct sunlight. When the conduit is connected at the side or bottom position, one of the arrow marks on the mounting base must be the top position (refer to Figure 43).

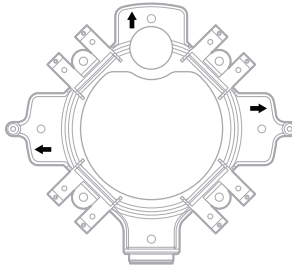


Figure 43. Using Conduit from the Bottom

When the conduit is connected from the top, the arrow mark on the camera attachment shall be either in the right or left position (refer to Figure 44).

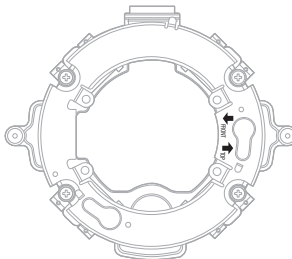


Figure 44. Using Conduit from the Top

NOTES:

- When installing the camera on a wall, do not connect the dehumidifying device at the upper side. This will prevent water from entering and being stored in the dehumidifying device. If water remains inside, the dehumidifying device cannot function properly.
- Properly install the camera to ensure that water does not enter into the architecture through the conduit joints.

CONNECTING WIRING



WARNINGS:

- Only connect the camera to a 24 V AC or 12 V DC Class 2 power supply.
- Be sure to connect the grounding lead to the GND terminal.

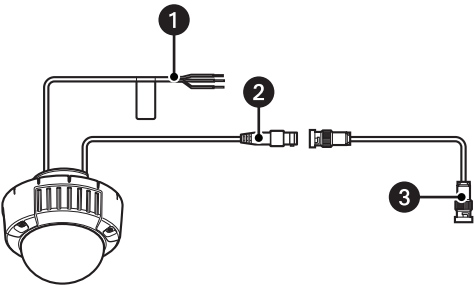


Figure 45. Wiring Diagram

- 1 Power Cord
- 2 Video Output Cable
- 3 BNC Connector to Video-In

VIDEO OUTPUT CONNECTION

The video output connector is connected to the monitor or other system devices with a coaxial cable (not supplied).

Table B. Maximum Extensible Cable Length

Type of Coaxial Cable		RG-59/U (3C-2V)	RG-6/U (5C-2V)	RG-11/U (7C-2V)	RG-15/U (10C-2V)
Recommended Maximum Cable Length	m	250	500	600	800
	ft	825	1650	1980	2640

POWER CONNECTION



WARNINGS:

- The following connections should be made by qualified service personnel or system installers in accordance with NEC 725-51.
- Be sure to connect the GND (grounding) lead of the camera and grounding terminal of the power supply when using a 24 V AC power source.
- Shrinking the cable-entry seal is a onetime procedure. Do not shrink the cable-entry seal until the unit is functioning.
- Only connect to a 24 V AC or 12 V DC Class 2 power supply.
- The voltage supplied to the camera should be as follows:
 - **24 V AC:** Between 19.5 V AC and 28 V AC
 - **12 V DC:** Between 10.8 V DC and 16 V DC

Table C. Camera Power Cord Wire Colors and Functions

Wire Color	24 V AC	12 V DC
Brown	24 V AC (L)	Positive
Blue	24 V AC (N)	Negative
Green/Yellow	To GND	—

Table D. 24 V AC Recommended Wire Gauge

Copper Wire Size (AWG)		#24 (0.22 mm ²)	#22 (0.33 mm ²)	#20 (0.52 mm ²)	#18 (0.83 mm ²)
Length of Cable (approx.)	m	20	30	45	75
	ft	66	100	150	250

Table E. 12 V DC Recommended Wire Size and Resistance (68 °F [20 °C])

Copper Wire Size (AWG)	#24 (0.22 mm ²)	#22 (0.33 mm ²)	#20 (0.52 mm ²)	#18 (0.83 mm ²)
Resistance (Ω/m)	0.078	0.050	0.03	0.018
Resistance (Ω/ft)	0.024	0.015	0.009	0.005

Use the formula below to calculate the power cord and power supply.

"L", "R", "VA", "I" shall satisfy the inequality below.

$$10.8 \text{ V DC} \leq \text{VA} - 2 (R \times I \times L) \leq 16 \text{ V DC}$$

L = Cord length (m or ft)

R = Resistance of copper wire (Ω/m or Ω/ft)

VA = DC output voltage of power supply unit

I = DC current consumption (A). Refer to *Specifications* on page 52.

NOTE: When using a 12 V DC power supply, the heater is unavailable.

Troubleshooting

If the following instructions fail to solve your problem, contact Pelco Product Support at 1-800-289-9100 (USA and Canada) or +1-559-292-1981 (international) for assistance. Be sure to have the serial number available when calling. Do not try to repair the unit yourself. Leave maintenance and repairs to qualified technical personnel only.

Table F. Troubleshooting the IS50/IS51 Series

Problem	Possible Cause	Suggested Solution
No image displayed	Power cord and coaxial cable are not connected appropriately	Check whether the connection is appropriately established.
	Monitor disconnected	Check whether connection is established.
	Monitor brightness or contrast inappropriately adjusted	Check whether the monitor settings are appropriate.
	Shock absorbers in the dome were not removed	<i>(Applies to Super Dynamic 5 (SD5)™ models only.)</i> Confirm whether the shock absorbers have been removed.
Blurred image	Dome cover is contaminated or flawed	Check the dome cover.
	Focus is incorrectly adjusted	Check whether the focus is adjusted correctly.
	Camera lens is dirty	Check whether the lens of the camera is clean.
Damaged power cord sheathing	The power cord and connector are damaged	Turn off the power immediately and request repair from your dealer. Use of the damaged cord or connector may cause electric shock or fire.
Heated portion of power line consisting of power cord during use		
Warmed power cord or loosened connection by bending or stretching during use		

Specifications

SUPER DYNAMIC 5 (SD5)[™] MODELS

GENERAL

Power Source	
NTSC	24 V AC 60 Hz, 12 V DC
PAL	24 V AC 50 Hz, 12 V DC
Power Consumption	
24 V AC	3.4 W (without heater);14 W (with heater)
12 V DC	280 mA*
Ambient Operating Temperature	
With Heater	−10 °C to 50 °C (14 °F to 122 °F)
Without Heater	−30 °C to 50 °C (−22 °F to 122 °F)
Ambient Operating Humidity	Less than 90% (no condensation)
Water Resistance	Camera: IEC60529 (IP66) [†]
Shock Resistance	50J, IEC60068-2-75
Video Output	1.0 V p-p/75Ω, NTSC/PAL composite, BNC connector
Weight	
Main Body	1.35 kg (2.98 lb), including camera attachment 100 g (0.22 lb)
Mounting Base	350 g (0.78 lb)
Ceiling Mount Bracket	700 g (1.55 lb)
Finish	
Main Body	Aluminum die cast, light gray
Dome Cover	Polycarbonate resin

*When using 12 V DC power supply, the heater is not available.

[†]Applicable only when the installation and waterproof process are done properly.

CAMERA

Image Sensor	1/3 inch interline transfer CCD
Effective Pixels	
NTSC	976 (H) x 494 (V)
PAL	976 (H) x 582 (V)
Scanning Area	4.8 (H) x 3.6 (V) mm (0.19" x 0.14")
Scanning System	2:1 interlace
Scanning Frequency	NTSCPAL
Horizontal	15.734 kHz15.625 kHz
Vertical	59.94 Hz50.00 Hz
Synchronization	INT (internal sync)/LL [‡] (power supply synchronization)
Resolution	
Horizontal	650 TV lines typ. (color mode), 700 TV lines or more (black-white mode),
Vertical	350 TV lines or more (NTSC, at center); 400 TV lines or more (PAL, at center)

[‡]Phase adjustable

Minimum Illumination	
Clear Dome	
Color Mode	0.1 lux (0.01 footcandle) at F1.4 WIDE; 0.003 lux (0.0003 footcandle), sensitivity up x32 at F1.4 WIDE*
Black-White Mode	0.01 lux (0.001 footcandle) at F1.4 WIDE; 0.0003 lux (0.00003 footcandle), sensitivity up x32 at F1.4 WIDE*
Smoked Dome	
Color Mode	0.2 lux (0.02 footcandle) at F1.4 WIDE; 0.006 lux (0.0006 footcandle), sensitivity up x32, at F1.4 WIDE*
Black-White Mode	0.02 lux (0.002 footcandle) at F1.4 WIDE; 0.0006 lux (0.00006 footcandle), sensitivity up x32, at F1.4 WIDE*
Signal-to-Noise Ratio	50 dB (AGC off)
Dynamic Range (Super Dynamic 5 ON)	
NTSC	52 dB typ.
PAL	54 dB typ.
Monitor Output	1.0 V p-p/75 Ω , NTSC/PAL composite, RCA jack

*Converted value

FUNCTIONS

Camera Title	Up to 16 characters (alphanumeric characters, marks)
Light Control Mode Setting	ALC/ALC+
Super Dynamic 5	ON/ON (i-VMD)/OFF
Electronic Shutter Speed	NTSC: OFF (1/60), 1/100, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000 s PAL: OFF (1/50), 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000 s
AGC	ON (HIGH, MID, LOW)/OFF
Sensitivity Up	OFF/AUTO (x2, x4, x6, x10, x16, x32)/FIX (x2, x4, x6, x10, x16, x32)
White Balance	ATW1/ATW2/AWC
Digital Noise Reduction	HIGH/LOW
Color/Black-White	AUTO1/AUTO2/ON/OFF
Intelligent VMD (i-VMD)	Motion detection, object abandonment/removal detection, and scene change detection
Number of Scene File	2
Privacy Zone	ON (1)/ON (2)/OFF
Image Stabilizer	ON/OFF
Electronic Zoom	ON (Up to 2x)/OFF
Image Flip	ON/OFF
Auto Back Focus	ABF/MANUAL/switching between color and black-white interlocking
Display Language	English, French, Spanish, German, Portuguese, Russian

LENS

Type	2x variable focal lens
F-Number	F1.4 WIDE to F1.8 TELE
Focal Length	3.8 mm~8.0 mm
Focus Range	∞ to 1.2 m

Angle of View	
Horizontal	35.6 ° (TELE) to 73.6 ° (WIDE)
Vertical	26.6 ° (TELE) to 53.4 ° (WIDE)
Adjusting Angle	
Panning range	±170 °
Tilting Range	±75 °
Azimuth Range	±100 °

COLOR AND DAY/NIGHT MODELS

GENERAL

Power Source	
NTSC	24 V AC 60 Hz, 12 V DC
PAL	24 V AC 50 Hz, 12 V DC
Power Consumption	
24 V AC	3.4 W (without heater);14 W (with heater)
12 V DC	280 mA*
Ambient Operating Temperature	
With Heater	−10 °C to 50 °C (14 °F to 122 °F)
Without Heater	−30 °C to 50 °C (−22 °F to 122 °F)
Ambient Operating Humidity	Less than 90% (no condensation)
Water Resistance	Camera: IEC60529 (IP66) [†]
Shock Resistance	50J, IEC60068-2-75
Video Output	1.0 V p-p/75Ω, NTSC/PAL composite, BNC connector
Weight	
Main Body	1.05 kg (2.31 lb), including camera attachment
Mounting Base	100 g (0.22 lb)
Ceiling Mount Bracket	350 g (0.78 lb)
	700 g (1.55 lb)
Finish	
Main Body	Aluminum die cast, light gray
Dome Cover	Polycarbonate resin

*When using 12 V DC power supply, the heater is not available

[†]Applicable only when the installation and waterproof process are done properly

CAMERA

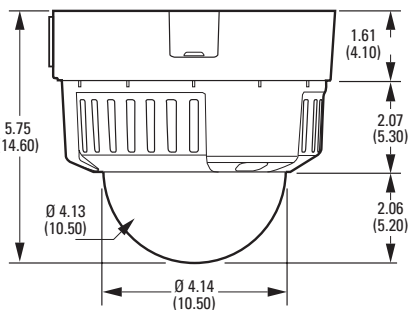
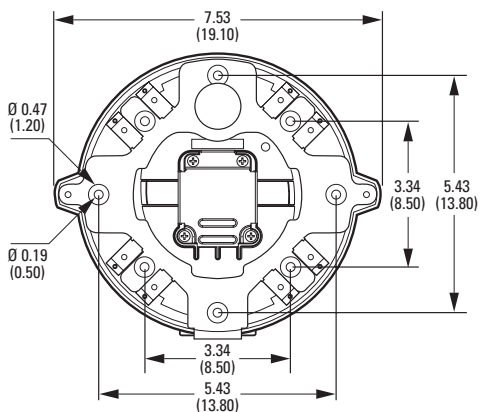
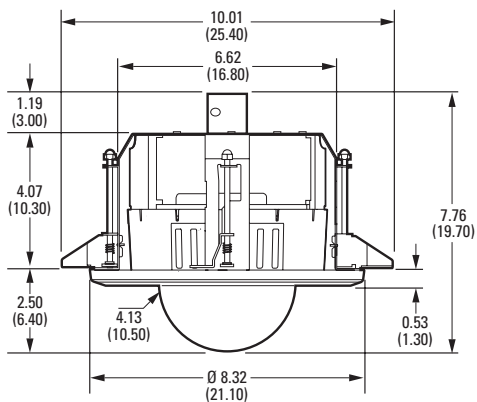
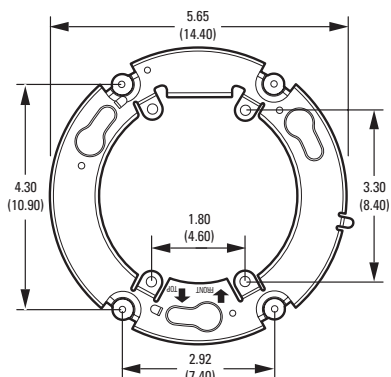
Image Sensor	1/3 inch interline transfer CCD	
Effective Pixels		
PAL	752 (H) x 582 (V)	
NTSC	768 (H) x 494 (V)	
Scanning Area	4.9 (H) x 3.7 (V) mm (0.19" x 0.15")	
Scanning System	2:1 interlace	
Scanning Lines		
PAL	625 lines	
NTSC	525 lines	
Scanning Frequency	PAL	NTSC
Horizontal	15.625 kHz	15.734 kHz
Vertical	50.00 Hz	59.94 Hz
Synchronization	Internal	
Resolution		
Horizontal	540 TV lines (at center)	
Vertical	400 TV lines (PAL, at center); 350 TV lines (NTSC at center)	

Minimum Illumination	
Clear Dome	
Color Mode	0.6 lux at F1.3 WIDE
Black-White Mode	0.05 lux (day/night models), 0.4 lux (color models)
Smoked Dome	
Color Mode	1.7 lux at F1.3 WIDE
Black-White Mode	0.15 lux (day/night models), 1.1 lux (color models)
Signal-to-Noise Ratio	50 dB (equivalent to AGC Off, weight On)
Switch Function	Day/night mode selector (ON/OFF), adaptive black stretch selector (ON/OFF), backlight compensation selector (ON/OFF), white balance selector (ATW/AWC)

LENS

Type	3.6X variable focal lens	
F-Number	F1.3 WIDE to F3.1 TELE	
Focal Length	2.8 mm~10.0 mm	
Focus Range	∞ to 1.2 m	
Angle of View	Horizontal	Vertical
Day/Night Models	100°50' (WIDE) to 27°39' (TELE)	73°51' (WIDE) to 20°45' (TELE)
Color Models	100°18' (WIDE) to 27°39' (TELE)	73°33' (WIDE) to 20°45' (TELE)
Adjusting Angle		
Panning range	+180° to -140°	
Tilting Range	±75°	
Azimuth Range	±100°	

(Dimensions and weight indicated are approximate; specifications are subject to change without notice.)



NOTE: VALUES IN PARENTHESES ARE CENTIMETERS; ALL OTHERS ARE INCHES.

**Information on disposal for users of waste electrical and electronic equipment (private households)**

This symbol on the products and/or accompanying documents means that used electrical and electronic products should not be mixed with general household waste.

For proper treatment, recovery and recycling, please take these products to designated collection points, where they will be accepted on a free of charge basis. Alternatively, in some countries you may be able to return your products to your local retailer upon the purchase of an equivalent new product.

Disposing of this product correctly will help to save valuable resources and prevent any potential negative effects on human health and the environment which could otherwise arise from inappropriate waste handling. Please contact your local authority for further details of your nearest designated collection point.

Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.

For business users in the European Union

If you wish to discard electrical and electronic equipment, please contact your dealer or supplier for further information.

Information on disposal in other countries outside the European Union

This symbol is only valid in the European Union.

If you wish to discard this product, please contact your local authorities or dealer and ask for the correct method of disposal.

PRODUCT WARRANTY AND RETURN INFORMATION

WARRANTY

Pelco will repair or replace, without charge, any merchandise proved defective in material or workmanship **for a period of one year** after the date of shipment.

Exceptions to this warranty are as noted below:

- Five years:
 - Fiber optic products
 - Unshielded Twisted Pair (UTP) transmission products
 - CC3701H-2, CC3701H-2X, CC3751H-2, CC3651H-2X, MC3651H-2, and MC3651H-2X camera models
- Three years:
 - Pelco-designed fixed network cameras and network dome cameras with Sarix™ technology.
 - Pelco-branded fixed camera models (CCC1390H Series, C10DN Series, C10CH Series, and IP3701H Series)
 - EH1500 Series enclosures
 - Spectra® IV products (including Spectra IV IP)
 - Camclosure® Series (IS, ICS, IP) integrated camera systems
 - DX Series digital video recorders (except DX9000 Series which is covered for a period of one year), DVR5100 Series digital video recorders, Digital Sentry® Series hardware products, DVX Series digital video recorders, and NVR300 Series network video recorders
 - Endura® Series distributed network-based video products
 - Genex® Series products (multiplexers, server, and keyboard)
 - PMCL200/300/400 Series LCD monitors
 - PMCL5xx Series FHD monitors
- Two years:
 - Standard varifocal, fixed focal, and motorized zoom lenses.
 - DF5/DF8 Series fixed dome products
 - Legacy® Series integrated positioning systems
 - Spectra III™, Spectra Mini, Spectra Mini IP, Esprit®, ExSite®, and PS20 scanners, including when used in continuous motion applications.
 - Esprit Ti and TI2500 Series thermal imaging products
 - Esprit and WW5700 Series window wiper (excluding wiper blades).
 - CM6700/CM6800/CM9700 Series matrix
 - Digital Light Processing (DLP®) displays (except lamp and color wheel). The lamp and color wheel will be covered for a period of 90 days. The air filter is not covered under warranty.
 - Intelli-M® eIDC controllers
- One year:
 - Video cassette recorders (VCRs), except video heads. Video heads will be covered for a period of six months.
- Six months:
 - All pan and tilts, scanners, or preset lenses used in continuous motion applications (preset scan, tour, and auto scan modes).

Pelco will warrant all replacement parts and repairs for 90 days from the date of Pelco shipment. All goods requiring warranty repair shall be sent freight prepaid to a Pelco designated location. Repairs made necessary by reason of misuse, alteration, normal wear, or accident are not covered under this warranty.

Pelco assumes no risk and shall be subject to no liability for damages or loss resulting from the specific use or application made of the Products. Pelco's liability for any claim, whether based on breach of contract, negligence, infringement of any rights of any party or product liability, relating to the Products shall not exceed the price paid by the Dealer to Pelco for such Products. In no event will Pelco be liable for any special, incidental, or consequential damages (including loss of use, loss of profit, and claims of third parties) however caused, whether by the negligence of Pelco or otherwise.

The above warranty provides the Dealer with specific legal rights. The Dealer may also have additional rights, which are subject to variation from state to state.

If a warranty repair is required, the Dealer must contact Pelco at (800) 289-9100 or (559) 292-1981 to obtain a Repair Authorization number (RA), and provide the following information:

1. Model and serial number
2. Date of shipment, P.O. number, sales order number, or Pelco invoice number
3. Details of the defect or problem

If there is a dispute regarding the warranty of a product that does not fall under the warranty conditions stated above, please include a written explanation with the product when returned.

Method of return shipment shall be the same or equal to the method by which the item was received by Pelco.

RETURNS

To expedite parts returned for repair or credit, please call Pelco at (800) 289-9100 or (559) 292-1981 to obtain an authorization number (CA number if returned for credit, and RA number if returned for repair) and designated return location.

All merchandise returned for credit may be subject to a 20 percent restocking and refurbishing charge.

Goods returned for repair or credit should be clearly identified with the assigned CA or RA number and freight should be prepaid.

2-10-10

REVISION HISTORY

Manual #	Date	Comments
C3473M	6/10	Original version.
C3473M-A	7/10	Added dimension drawings.
C3473M-B	9/10	Added color and day/night models.
C3473M-C	10/10	Revised Figure 35, 36, and 37. Made minor style changes.

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