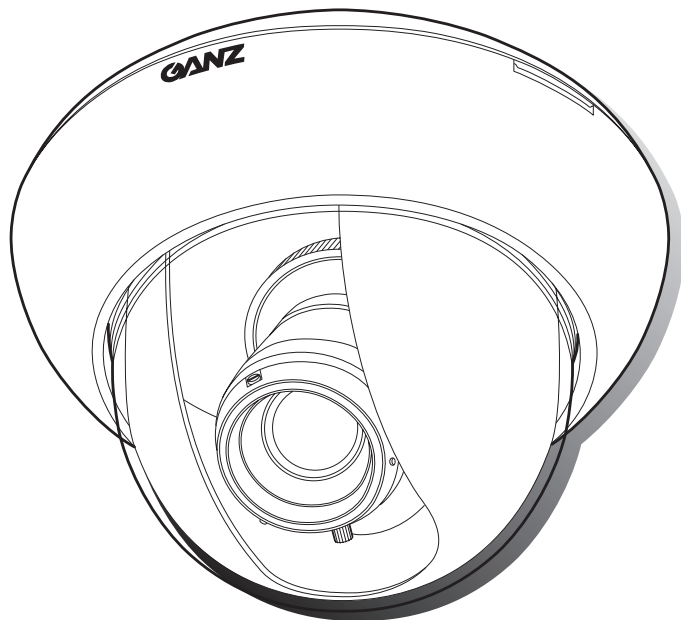


NETWORK MINI DOME CAMERA

ZN-D9000 SERIES

INSTRUCTION MANUAL



Digital Day & Night

ZN-D9024NHA
ZN-D9312NHA
ZN-D9922NHA

Mechanical Day & Night

ZN-DN9312NHA
ZN-DN9922NHA



ENGLISH
ESPAÑOL
繁体字 中文
日 本 語

Thank you for your purchase of this product.

- Before operating the product, please read this instruction manual carefully to ensure proper use of the product.
- Please store this instruction manual in a safe place for future reference.
- This camera is a surveillance camera that functions through the network. Install a software included, or sold separately, before using this product.
- For details of the installation and usage of the software or the camera, please refer to the instruction manual (PDF) in the CD-ROM included.

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PRODUCT FEATURES

- High resolution surveillance camera with a built-in 1/4- type CCD.
- Integrated varifocal lens allows for versatile application and easy installation.
- The day and night function provides high quality color picture in the normal lighting conditions (day mode) and high sensitivity black and white picture in the low light conditions (night mode).
- Surface or embedded installation.
- Manual pan/tilt/rotation mechanism.
- For power source, you can use not only 12 V DC / 24 V AC but also the PoE power source through the LAN cable.
- The simultaneous stream of the MPEG-4/MJPEG images is available at 30 fps maximum.
- You can compress image/audio signals, one channel for each, to be transmitted through a single LAN cable.
- Audio signals are bi-directional.
- With a slot provided for a microSD card, JPEG still images can be recorded by using a microSD card that is sold separately.
- A channel is provided for each of the alarm and the audio input/output.

SAFETY PRECAUTIONS

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

WARNING

This symbol indicates that there is a possibility of death or damage to operator or others.
To prevent fire or electric shock, do not expose this product to rain or moisture.

CAUTIONS

This symbol indicates that there is a possibility of injury or damage to equipment.

- (1) Use only 24 V AC power supply marked class 2 or +12 V DC regulated power supply marked class 2.
- (2) To prevent fire or electrical shock, UL listed class 2 wiring should be used for the 12 V DC or 24 V AC input terminal.
- (3) Be sure to connect each lead to the appropriate terminal. Wrong connection may cause malfunction and / or damage to the video camera.
- (4) Do not attempt to aim the camera at the sun or other extremely bright objects that cause smear to appear irrespective of whether the camera is operating or not. This can damage the CCD (Charge Coupled Device).
- (5) Do not place the camera in the following locations.
 - ① Locations subject to extremely high or low temperatures.
(Operating temperature range: -10°C to +50°C {14°F to 122°F})
(Storage temperature range: -20°C to +60°C {-4°F to 140°F})
 - ② Locations subject to high levels of humidity and dust.
(Operating humidity range: max 85% {No condensation})
(Storage humidity range: max 95% {No condensation})
 - ③ Locations where there are large amounts of water vapor and steam.
- (6) Ensure the location selected is sufficiently strong enough to support the weight of the camera and is free from vibration.
- (7) When this camera is installed near equipment that emits a strong electromagnetic field, some irregularity such as noise on the monitor screen may happen.

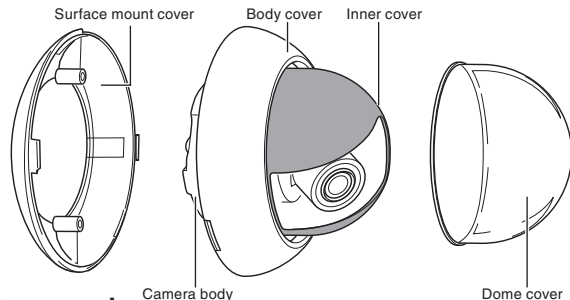
- (8) Be sure to use screws suitable for the type of material to which the camera is being mounted.
- (9) Do not allow the camera to be subjected to strong impacts or shocks. The camera could be damaged by improper handling or storage.
- (10) Never attempt to disassemble or modify the camera.
- (11) If an abnormality should occur, immediately turn off the power and consult your dealer.
- (12) When inserting or extracting a microSD card, be sure to turn off the power for safety's sake.
- (13) When using the PoE power source, be sure to use a IEEE802.3af supported hub or a power unit.

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.

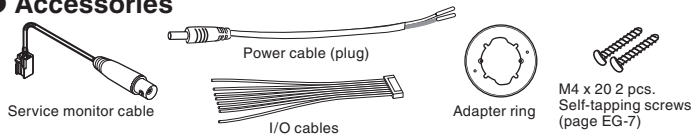
WARNING-TO REDUCE A RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN MOISTURE.

PARTS DESCRIPTION

● Exterior

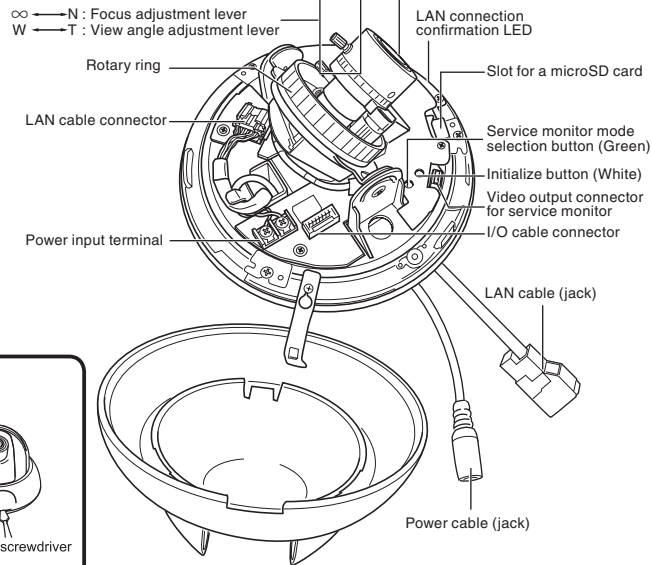


● Accessories



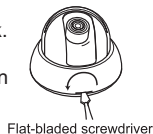
● Camera body interior

Positioning of the lens body angle/focus lever varies depending on the lens. The levers are marked with the following guides. Please refer to these marks for operation when using the product.



Removing and attaching the cover

- Dome cover
 - To remove : Pull the cover away.
 - To attach : Insert the cover and push it gently until you hear a click.
- Body cover
 - To remove : Insert a flat-bladed screwdriver into the groove between the camera body and the body cover, then twist the screwdriver.
 - To attach : Align the corrugations on the camera body and body cover, then push until you hear a click.



INSTALLATION AND ADJUSTMENT

● Attaching the unit

You can use the following three methods to attach the unit. Please use the method that best fits the conditions of the area in which you want to install the unit.

Attaching to the surface of the ceiling or wall



Use this method to attach the unit to the surface of the ceiling or wall (right of this page).

Embedding in the ceiling or wall



Use this method to attach the unit by embedding it in the ceiling or wall (page EG-6).

- Be sure to use the adapter ring to attach the camera.

Attaching to a 4S junction box

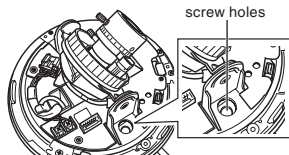


Use this method to attach the unit when a 4S junction box is available (page EG-7).

- Be sure to use the adapter ring to attach the camera.

■ Before attaching the unit

When attaching (or removing) the unit, turn the camera body to bring together the two screw holes as shown in the drawing below.



● Attaching to the surface of the ceiling or wall

This section explains how to install the unit where cables are running through the interior of the ceiling or wall. When running cables on the exterior surface of the ceiling or wall, please drill holes in the ceiling or wall as directed in step 1, then refer to “Running cables on the exterior surface of the ceiling or wall” (page EG-6).

1 Drilling holes in the ceiling or wall

Use the template included to mark out the position on the ceiling or wall where you want to install the unit.

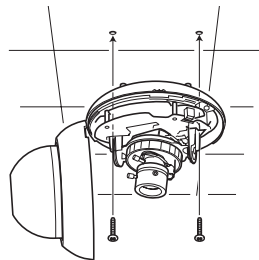
- When running cables through the interior of the ceiling or wall
Use the template, and drill three holes. Two for screws (Screw A) used to attach the camera body and one for the cables (Cables).
- When running cables on the exterior surface of the ceiling or wall
Use the template, and drill two holes for screws (Screw A) used to attach the camera body.

2 Connecting the cables

For details of the cable connection, refer to “Connecting the cables” (page EG-8).

3 Attaching the camera body

- ① Remove the body cover.
 - ② Attach the camera body to the ceiling or wall.
- Please use fixing screws suitable for the material of the ceiling or wall when attaching the camera body. We recommend using screws with 4 mm diameter.

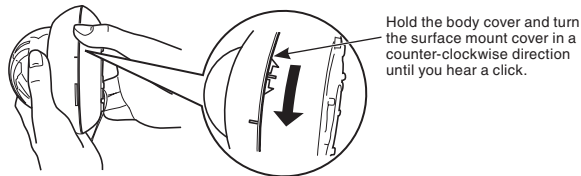


➡ When you finish attaching the camera, refer to page EG-8.

■ Running cables on the exterior surface of the ceiling or wall

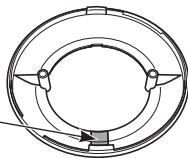
To run cables on the exterior surface of the ceiling or wall, use the following procedure to attach the camera body.

- ① Remove the surface mount cover from the camera body.



- ② Remove the section of the surface mount cover indicated in the drawing and then drill a hole through which the cable is passed.

Bend and remove this area.

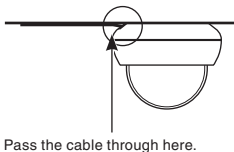


- ③ Attach the surface mount cover to the camera body.

- ④ Remove the body cover.

- ⑤ Attach the camera body to the ceiling or wall.

- Pass the cable through the holes you prepared in Step 2 above.
- Please use fixing screws suitable for the material of the ceiling or wall when attaching the camera body. We recommend using screws with 4 mm diameter.



● Embedding in the ceiling or wall

Be sure to use the adapter ring when embedding the unit in the ceiling or wall.

1 Drilling holes in the ceiling or wall

Use the template included to mark out the position on the ceiling or wall where you want to install the unit.

- Use the template, drill two holes for screws (Screw B) used to attach the adapter ring. Then, follow the perforations on the template and cut out a hole to embed the camera body.



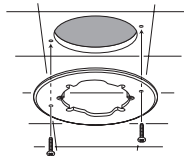
Attention

- Double check to make sure that the sizes and positions of the holes are appropriate BEFORE drilling the holes.

2 Attaching the adapter ring

Attach the adapter ring to the ceiling or wall to which you want to attach the camera body.

- Please use fixing screws suitable for the material of the ceiling or wall when attaching the camera body. We recommend using screws with 4 mm diameter.

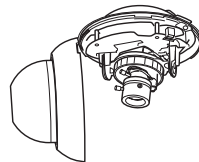


3 Connecting the cables

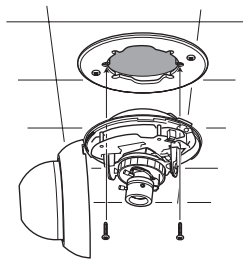
For details of the cable connection, refer to "Connecting the cables" (page EG-8).

4 Attaching the camera body

- ① Remove the surface mount cover from the camera body.
- ② Remove the body cover.



- ③ Attach the camera body to the adapter ring.
- Please use the self-tapping screws included. Do not use any other screws.



■■■ When you finish attaching the camera, refer to page EG-8.

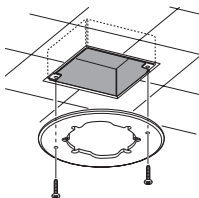
● Attaching to a 4S junction box

Be sure to use the adapter ring to attach the camera body when embedding it in the 4S junction box.

1 Attaching the adapter ring

Attach the adapter ring to the 4S junction box.

- Please use screws that are suitable for the 4S junction box.



Attention

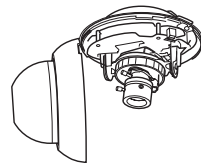
- Do not tighten the screws to the extent that the adapter ring is bent.

2 Connecting the cables

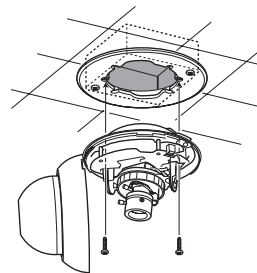
For details of the cable connection, refer to "Connecting the cables" (page EG-8).

3 Attaching the camera body

- ① Remove the surface mount cover from the camera body.
- ② Remove the body cover.



- ③ Attach the camera body to the adapter ring.
- Please use the self-tapping screws included. Do not use any other screws.



■■■ When you finish attaching the camera, refer to page EG-8.

● Connecting the cables

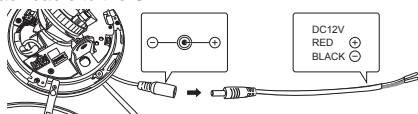
Connect the power cable and the LAN cable.

👉 Attention

- Check if the power supply is “OFF.”

1 Connecting the power supply cable.

- ① Connect the power cable (plug) included to the power source. In the case of 12 V DC, connect the red cable to 12 V DC and the black cable to the GND.



- ② Connect the power cable (plug) connected in Step 1 above to the power cable (jack) of the camera body.

👉 Attention

- When connecting the power source directly to the power input terminal of the camera body without using the power cable (plug) included, be sure to use a heat-resistant cable (resistant to the temperature higher than 75°C).
- When connecting the 12 V DC power directly to the power input terminal of the camera body without using the power cable (plug) included, be sure to align “+12 V DC” with “GND” that are displayed near the terminal of the board.

2 Connecting the LAN cable.

Connect the LAN cable to the LAN cable (jack) of the camera body.

When the LAN cable is connected, the LAN cable connection confirmation LED (orange) lights up. The LED (yellow) or (green) is flashing according to Receive and Transmit.

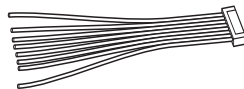


👉 Attention

- When the power is supplied at the same time from the PoE power source and the power cable, the power cable line is used.
- When the PoE power source is used, the connection of the power cable is not required.
- Use CLASS 2 power supply when you use 24 V AC.
- Be sure to check that the cables are connected correctly before turning the power on.
- Turning on the power when the cables are connected with incorrect polarity may damage the camera.
- Be sure to use a LAN cable of category 5 or above.

● Connection of I/O cables

When using an alarm and/or a speaker, connect the I/O cables to the I/O cable terminals provided on the camera body.



Wiring of I/O cable

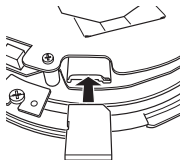
1	(Brown) Input	5	(Green) Speaker (Output)
2	(Red) GND	6	(Blue) GND
3	(Orange) Output	7	(Purple) Microphone (Input)
4	(Yellow) Output	8	(Grey) GND

👉 Attention

- “1” is an alarm input terminal with no-voltage make-contact input (3.3 V DC pull-up resistor built-in, short circuit current is 0.4 mA).
- “3” and “4” are alarm output terminals with contact output (30 V DC, 1 A - 125 V AC 0.3 A).

● Installation of a microSD card

When a microSD card that is sold separately is used to save images, insert it into the microSD card slot.

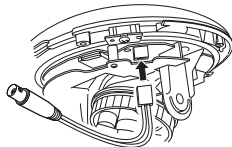


Attention

- Be sure to FAT-format a microSD card with Windows® before using it.
- When inserting or extracting a microSD card, be sure to turn off the power source.
- The upper limit of the microSD card is 2 GB, SDHC memory card is not supported.

● Attaching the service monitor

Use the service monitor cable to check and adjust camera direction, focus, and angle on a service monitor.

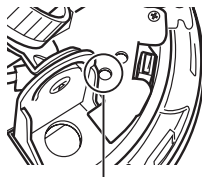


The service monitor is not supplied in the cell. Please have one ready.

● Switching to the service monitor mode

When using a service monitor, keep the service monitor mode selection button (green) pressed for 2 seconds.

- To cancel the service monitor mode, keep the service monitor mode selection button pressed for 2 seconds.
- While in the service monitor mode, the delivery of signals to the network is stopped.

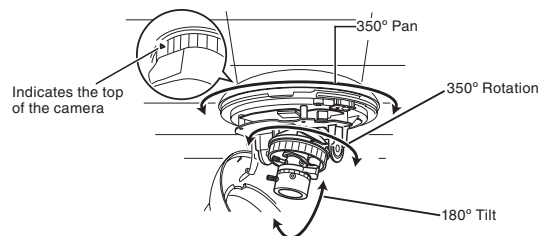


Service monitor mode selection button (Green)

● Adjusting the camera direction

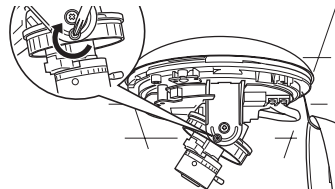
The camera body is set in a tri-axial mounting allowing movement in the pan, tilt, and rotational planes.

- ① Adjust the direction of the lens so it faces the subject.



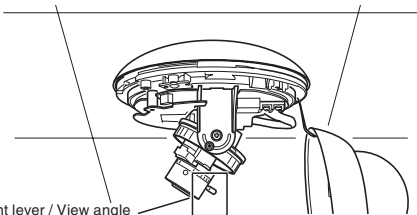
Attention

- Using the camera in a near-horizontal position will show the camera cover on screen.
 - Forcibly adjusting the camera to point in directions beyond the limits of the mounting may cause the cable to catch on internal components and damage the camera.
 - When adjusting the rotation or vertical direction of the camera, be sure to hold the rotary ring, not the lens. When holding the lens for adjustment, normal images cannot be obtained.
- ② When you have finished adjusting the direction of the lens, tighten the locking screw with a screwdriver.



● Adjusting the view angle and focus

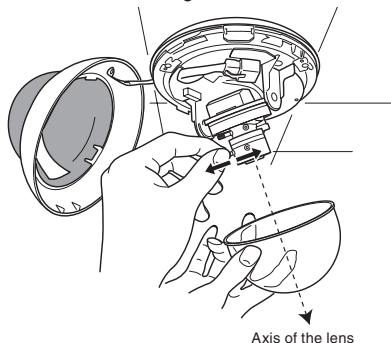
Move the lever to adjust focus and angle of view.



Focus adjustment lever / View angle adjustment lever

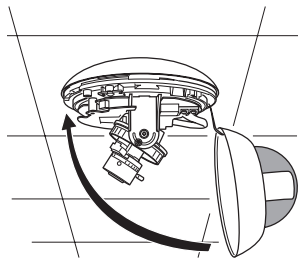
■ When using ZN-D9922 or ZN-DN9922

Adjust the focal point while attaching the dome cover so that the optical axis of the lens passes through at the center of the dome cover as shown in the drawing below.

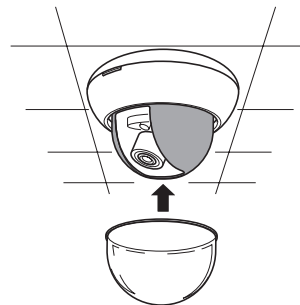


● Installation and adjustment complete

① Attach the body cover.



② Turn the inner cover. Then align the slit with the lens before attaching the dome cover.



● Initialization of the settings

Keeping the initialize button (white) pressed for 8 seconds returns the settings to the factory default setting.

● The factory default IP address is 192.168.0.250.

SPECIFICATIONS

		Digital Day/Night model			Mechanical Day/Night model	
Model No.	NTSC system (Service monitor output)	ZN-D9024NHA	ZN-D9312NHA	ZN-D9922NHA	ZN-DN9312NHA	ZN-DN9922NHA
Focal length (Wide to Tele)		2 mm - 4 mm	3.3 mm - 12 mm	9 mm - 22 mm	3.3 mm - 12 mm	9 mm - 22 mm
Max. aperture ratio		1 : 1.2	1 : 1.4	1 : 1.4	1 : 1.4	1 : 1.4
Iris		F1.2 - F360C (DC auto iris)	F1.4 - F360C (DC auto iris)	F1.4 - F360C (DC auto iris)	F1.4 - F360C (DC auto iris)	F1.4 - F360C (DC auto iris)
Angle of view (Wide to Tele)	D	134.5° - 66.8°	82.7° - 22.4°	29.8° - 12.2°	82.7° - 22.4°	29.8° - 12.2°
	H	105.1° - 53.2°	63.6° - 17.9°	23.3° - 9.8°	63.6° - 17.9°	23.3° - 9.8°
	V	77.4° - 39.8°	46.5° - 13.5°	17.2° - 7.3°	46.5° - 13.5°	17.2° - 7.3°
Image sensor		1/4- type interline transfer CCD				
Effective pixels		659 (H) x 494 (V) 330,000 pixels				
Scanning system		Progressive				
Gamma characteristic		0.45				
Minimum subject illuminance	Slow shutter OFF (1/30 sec.)/ Color	1.3 lx	1.7 lx	1.7 lx	1.7 lx	1.7 lx
	Slow shutter OFF (1/30 sec.)/ B/W	0.8 lx	1.0 lx	1.0 lx	0.22 lx	0.22 lx
Luminance signal 126 (8 bits)	Slow shutter ON (1 sec.)/ Color	0.05 lx	0.06 lx	0.06 lx	0.06 lx	0.06 lx
	Slow shutter ON (1 sec.)/ B/W	0.027 lx	0.033 lx	0.033 lx	0.008 lx	0.008 lx
AGC High		Low / Middle / High				
Backlight compensation		OFF / ON				
Electronic zoom		12 times, maximum (x 2, x 4, x 8, x 12)				
White balance		AUTO / WIDE / MANUAL				
Iris control		DC iris / AES 1/30 to 1/15,000 sec. linear shutter (DC iris full open fixed)				
Electronic sensitivity up		Maximum accumulation time x 2 (1/15 s), x 4 (1/7.5 s), x 6 (1/5 s), x 8 (1/3.75 s), x 12 (1/2.5 s), x 30 (1 s)				
Flickerless		OFF / 50 Hz (1/50 sec. integral multiple shutter) / 60 Hz (1/60 sec. integral multiple shutter)				
Image compression		MPEG-4 / MJPEG				
Image resolution		VGA (640×480) / CIF (352×288) / QVGA (320×240) / QCIF (176×144)				
Bit rate		Maximum 8000 kbps (MPEG-4)				
Frame rate		Maximum 30 fps				
Audio compression		ITU-T G.711				
Supported protocol		TCP/IP, UDP/IP, HTTP, RTP/RTCP/RTSP, FTP, SMTP, DHCP, DNS, DDNS, NTP				
Audio function	Input	Impedance 10k Ω plug-in power method, 2.6 V supplied				
	Output	32 Ω, maximum 30 mW				

		Digital Day/Night model			Mechanical Day/Night model	
Model No.	NTSC system (Service monitor output)	ZN-D9024NHA	ZN-D9312NHA	ZN-D9922NHA	ZN-DN9312NHA	ZN-DN9922NHA
Alarm function	Input	1 line: No-voltage make contact input (3.3 V DC pull-up resistor built-in - short circuit current 0.4 mA)				
	Output	1 line: Relay contact output (Maximum 30 V DC, 1 A - 125 V AC 0.3 A)				
Switch function		Service monitor mode selection button/Initialize button				
External memory		Supporting the microSD card (Upper limit: 2 Gbytes, SDHC memory card is not supported)				
Power source		12 V DC $\pm$ 10% 24 V AC $\pm$ 10% (50 Hz / 60 Hz $\pm$ 1 Hz) PoE (IEEE802.3af) power supply				
Power consumption		12 V DC : 540 mA or less 24 V AC : 580 mA or less (6.2 W or less)				
Ambient temperature		Operational limits: -10°C to +50°C / Storage limits: -20°C to +60°C				
Ambient humidity (No condensing)		Operational limits: RH 85% or less / Storage limits: RH 95% or less				
External dimensions		144 (ϕ) mm x 110 (H) mm				
Weight		470 g	460 g	460 g	460 g	470 g
Accessories		Cable for service monitor, Power cable (plug), I/O cables, Adapter ring, Self-tapping screws (M4 x 20: 2pcs.), Template, Application software (CD), Instruction manual (this document)				

* The specifications and/or appearance of the product may change without a prior notice.



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