

1/2.8" Compact High Sensitivity Network Camera





WAT-2400S (Color)/**WAT-933** (B&W) **Operation Manual**

Thank you for purchasing the "1/2.8" Compact High Sensitivity Camera **WAT-2400S** / **WAT-933**" (referred to as the "product" or "camera" in this manual). This operation manual covers safety, functions, installation and the correct operating procedure for the camera. First, we ask you to read this operation manual thoroughly, then install and operate the product as advised. For future reference, we also advise safekeeping of this manual. Not understanding the contents of the operation manual may cause damage to the camera, personal belongings and/or result in injury. Watec is not responsible for any inconvenience or the attendant damages to the video and monitoring recording equipment caused by misuse, miss-operation or improper wiring of our equipment. If you do not understand the installation, operation or safety instructions expressed in this manual, please contact the distributor or dealer from where the camera was purchased.

To Use This Product Safely

Watec cameras are designed to be used safely. If not used safely, it may lead to a physical accident caused by fire and electric shock. Therefore, please keep and read the "Cautions for safety" (P.2) for protection against accidents.

Guide to the Safety Symbols

 DANGER	"Danger" indicates a compulsorily prohibition to prevent accidents.
 WARNING	"Warning" may lead to a serious accident such as death or injury caused by fire or electric shock.
 CAUTION	"Caution" may incur injury and cause damage to peripheral objects in the immediate surroundings.
 NOTICE	"Notice" indicates instructions which must be completed.

Power Supply

Power for the camera can either supplied by the PoE (Power over Ethernet) or DC power supply.

- **PoE (Power over Ethernet)**

Use the PoE hub or NVR supporting IEEE802.3af for the PoE power supply.

- **DC power supply**

Use a stabilized power adaptor designed for DC+12-36V with a current capacity of more than 500mA.

Wiring of the connector must be exact (see "Description of Parts" (P.4) "⑨4P Cable").

Utilize the option **SWI12-12-N-P5** (Power supply adaptor), **CB-06**, **CB-07** and/or **CB-09** (Cable with connectors).

When PoE and DC power are supplied at the same time, the priority is given to PoE. When PoE power supply is interrupted during PoE power supply due to such as cable disconnection, it will automatically switch to DC power supply. When PoE power supply is restored, it will automatically switch back to PoE power supply. The power supply priority cannot be changed.

Failure to observe the precautions above may result in damage to the camera, power adaptor and fire.

Cautions for Safety

Please read and understand the “Cautions for safety” below to ensure the correct use of the product.

DANGER

- **Do not disassemble and/or modify the camera.**
- **Do not operate the camera with wet hands.**

WARNING

- **Use the camera within the range of the power supply voltage specifications**

The recommended voltage is DC+12 - 36V (DC+12V recommended). Also, we advise the use of an “inline fuse” power line to protect the camera and peripheral equipment, where applicable.

- **Do not expose the camera to wetness or high moisture conditions.**

The camera is designed and approved for indoor use only.

The camera is not water-resistant or waterproof.

- **Protect the camera from condensation.**

Keep the camera dry at all times during storage and operation.

- **Should the camera not work properly, unplug the power immediately.**

Check the camera according to the “Problems and Trouble Shooting” (P.6) section.

CAUTION

- **Avoid the striking of hard objects or dropping the camera.**

The camera use high quality electrical parts and precision components and may inadvertently be damaged if not cared for properly.

- **Do not install the camera in a position subject to direct sunlight.**

Sunlight shining directly onto the camera lens can cause damage to the sensor.

- **Select a stable place for installation of the camera.**

Use an appropriately rated mount durable and strong for all installation position.

- **Do not move the camera with the cables connected.**

Before moving the camera, always remove any cables from the rear of the camera first.

- **Avoid using the camera near any strong electro-magnetic field.**

In the event of exposure to electromagnetic waves (causing the monitored image to become distorted) we recommend the camera be shielded by an appropriate protective casing.

NOTICE

- Since the camera may become hot during operation, please provide a sufficient space around the camera for heat dissipation. When you remove the camera, please let time pass for heat dissipation as well.
- Unplug the camera when unused for long periods of time.
- Turn off the power of the camera before inserting or removing the microSD/SDHC/SDXC.

Notes on Use

- Use an image that you have recorded on the product without authorization, there is a case where the conduct of the disclosure, etc. it becomes infringement of copyright and portrait rights.
- In the video and sound to be taken using the camera, which can identify the individual will be personal information. Publishing the video and sound will be necessary to obtain a pre-approval, it will be the responsibility of those who operate the system.
- Because the use at the place of high temperature and humidity adversely affects an internal parts, and life shortens by deterioration, please be careful about use enough. We recommend use less than 30°C.
- About the damage such as the losses of the data which occurred because of blackouts, we do not take responsibility.
- The camera has aim to use by factories, commercial facilities and general households. Operating the camera close to a radio and/or television may lead to interference, and then use the camera after change the installation position and/ or wiring.

Security Cautions

When using the camera, take appropriate measures to avoid the following security breaches.

- Disclosure of private information via the camera
- Unauthorized use of the camera by a third party
- Interference or suspension of the use of the camera by a third party

You are responsible for the security of the camera and its use. Take the following measures to avoid security breaches.

- To prevent unauthorized access, disclosure of private information, interference, information of suspension of access to the camera, make sure the firmware of the camera is up to date.
- Do not reveal the user names and passwords required to access the camera to an unknown party.
- When sending the camera for service or transferring it to another party, reset it to its factory default settings.

EMC Information

The camera is in conformity with standards carried out by authorized organization in Japan.

FCC Part15 Class B


EN61000-6-3 / EN50130-4


FCC Notice “Declaration of Conformity Information”


The camera has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

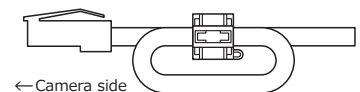
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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 **DANGER** Do not modify the camera. A modified camera may not conform to EMC standards.

 **CAUTION** Please use an auxiliary power supply (eg: UPS) to this camera to comply with EN50130-4 of EMC standards. Compatibility of EMC will have tested using the accessories and options.

 **NOTICE** Use the supplied clamp filter by passing the LAN cable (with shield) as close as possible to the connector on the camera side at least twice, as shown in the figure on the right.

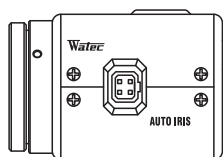


Contents

Referring to the illustration below, confirm all parts are present upon receipt of camera.



Lens Mount Cap



WAT-2400S / WAT-933 (Camera)



4P Cable (300mm)



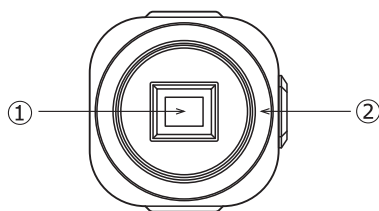
Hexagon Wrench



Clamp Filter

Description of Parts

Front



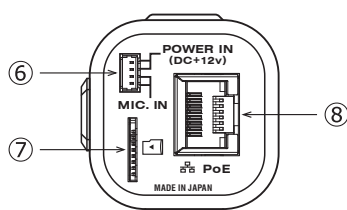
① IMAGE SENSOR / Sensor Window

The light receiving face of the image sensor. Dirt, water or oil deposits on the image sensor will cause an unclear picture on the monitor. Attach the lens cap to protect the lens and the sensor from contamination and damage.

② LENS MOUNT

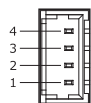
Mount for the lens (CS-mount)

Rear



⑥ 4P Connector

The terminal for POWER IN / MIC. IN signal input. Use the attached "⑨ 4P Cable" for this purpose.



Pin No.	Cable Color	Function
1	Blue	MIC. IN (+)
2	Yellow	MIC. IN (-)
3	Black	GND
4	Red	POWER IN (DC+12-36V)

⑦ microSD Card Slot

Turn the power off before inserting the microSD card.

Insert the card until it clicks into the slot.

Recommended Operating Conditions

- SDHC / SDXC standard
- MLC type or high durability model
- SD Speed Class CLASS 10 or more
- Capacity of 256GB or less

*The exact performance is not guaranteed for all SD cards meeting the requirement described above.

*Format the SD card with the camera each time inserting.

⑧ LAN Connector (RJ45)

Connect the LAN cable (Commercially available product).

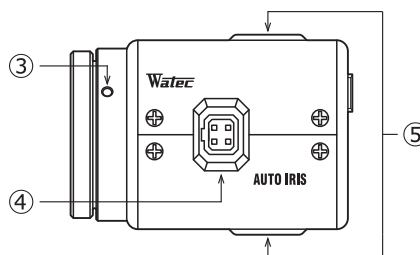
Check the mac address on the bottom of the body.

Recommended Operating Conditions

CAT5e or more / Cable length 100m or less / Shielded cable

*The supplied clamp filter should be passed through the LAN cable at least twice as close as possible to the connector on the camera side.

Side



③ CS MOUNT SET SCREWS (BACK FOCUS)

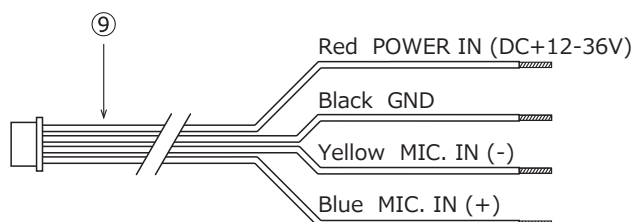
3 adjustable hexagonal screws are placed at intervals of 120 degree around for focusing of the lens. Use the supplied hexagon wrench for adjusting the back focus.

④ AUTO-IRIS SOCKET

This socket is for the DC auto-iris lens cable connector.

⑤ TRIPOD MOUNTING SCREW HOLES

Mounting holes for stands. The size of these threads are 1/4", 20 threads, 4.5±0.2mm, which is the same as any standard camera tripod (U1/4").



⑨ 4P Cable

Wiring of the connector must be exact. Be careful not to touch the other terminal while wiring. Protect the wiring portion by using insulation tape after wiring.

Set-up and Operation

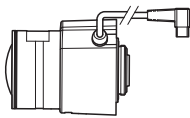
- 1) Ensure that the power to the camera and the peripheral equipment is turned off before making any connections.
- 2) Remove the lens mount cap from the camera and attach the CS-mount lens on “②LENS MOUNT” .
Use the option **30CMA-R** (C-mount adaptor) when a C-mount lens is used.
- 3) Connect a LAN cable (shielded cable recommended) to the local network or the Internet. With the DC power supply, refer to the “Description of Parts” (P.4) “⑨4P Cable” , please be connected to the “⑥4P Connector” with the attached 4P cable.
Utilize the option **CB-06**, **CB-07** and/or **CB-09** (Cable with connectors).
- 4) Turn on the power to the camera, monitor and all other allied equipment. When a picture cannot be obtained on the monitor, or a problem occurs, check and follow the procedure mentioned in the “Problems and Trouble Shooting” (P.6).
- 5) Adjust the focus and iris until optimal image clarity though the lens is achieved. If the picture is still out of focus, loosen “③CS MOUNT SET SCREWS” with the supplied hexagon wrench to move the lens forwards until a fully focused is obtained.

Lens Type	Operation
Manual Lens	Adjust the focus and iris to the best position on the lens.
Motorized Zoom Lens	Back focus adjustment is required via CS Mount. Adjust the iris level on the camera, then adjust the focus on the lens.
DC Auto-iris Lens	Set the DC iris operation setting on the browser, then adjust the focus on the lens.

- 6) When detailed settings are required or a clear image is not obtained, set the various function of the camera with a PC.

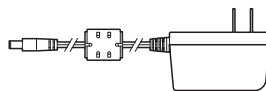
Options

This product exerts the optimum performance with our recommended options. Please take a look at our website and catalog introducing more options. Contact the distributor or dealer for purchase.



VARIOUS LENSES

We offer lenses maximizing the performance of the camera.



SW112-12-N-P5

A power supply adaptor (DC+12V) supporting the camera.



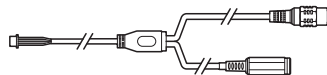
30CMA-R

This lens mount adaptor is used to convert a CS-mount to a C-mount.



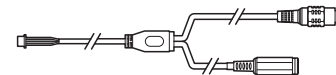
CB-06 (POWER IN / LINE IN)

Utilize when connecting the LINE output.



CB-07 (POWER IN / MIC. IN)

Utilize when connecting the MIC. which is a plug-in power type.



CB-09 (POWER IN / MIC. IN)

Utilize when connecting the CTIA / AHJ compatible mic.



MS50

With the coupler structure, the camera can be adjusted to any desired angle.

Problems and Trouble Shooting

Trouble Shooting:

Disconnect the camera immediately should any of the following occur:

- An optimal picture cannot be obtained, after checking that all the cables and connections are correctly in place
- Smoke or any unusual odor emerges from the camera
- An object becomes embedded or a quantity of liquid seeps into the camera housing
- More than the recommended voltage and/or amperage has been applied to the camera by mistake
- Anything unusual occurring to any equipment connected to the camera

Required Action:

- 1) Turn off the main power supply to the camera.
- 2) Remove the power cables (LAN and/or DC power supply) connected to the camera.
- 3) Contact the distributor or dealer from which the camera was purchased.

After-sales Service

Warranty

All Watec products before being shipped to our customers are tested and inspected to ensure that our products are not faulty and are of the highest quality as directed by our Watec Quality-control System. Watec camera have a 3-year warranty, and the board camera units and peripherals have a 1-year warranty, provided that the products have been operated in accordance with our operation manual and have not been altered in any way.

Note: The Watec 3-year warranty does not cover image sensor repair or replacement caused by white blemish phenomena. For more details about the white blemish, please refer to the "After-sales Service" on our website or catalog.

Repair Service

Watec makes it a policy to repair Watec products first hand with the appropriate charge in accordance with the detailed defect information supplied by you. All repairs in the Watec workshop are quickly and precisely dealt with and returned after the shortest repair period possible.

Contact information

Design and specifications are subject to change without notice. If for any reason the camera does not work properly, or if you have any questions regarding installation or operation, contact the distributor or dealer from which the camera was purchased.

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