



1/4" Miniature Color camera

WAT-240E/FS

Operation Manual

This operation manual covers safety, camera functions, installation and the correct operating procedure for the WAT-240E/FS. First, we ask you to read this operation manual thoroughly, then install and operate the WAT-240E/FS as advised. In addition, for future reference, we also advise safe keeping of this manual.

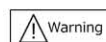
Please contact the distributor or dealer from which the WAT-240E/FS was purchased, if you do not understand the installation, operation or safety instructions laid out in this manual. Not understanding the contents of the operation manual sufficiently may cause damage to the camera.

Guide to the Safety Symbols

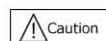
The definitions of the symbols used in this operation manual are:



"Danger", may lead to a serious accident such as death or injury caused by fire or electric shock.



"Warning", may cause severe damage such as a physical injury.



"Caution", may incur injury and cause damage to peripheral objects in the immediate surroundings.

Cautions for Safety

WAT-240E/FS is designed to be used safely, however it may lead to a physical accident caused by fire and electric shock if not used correctly. Therefore, please keep and read the "Cautions for Safety" for protection against accidents.



- Do not disassemble and/or modify the WAT-240E/FS.
- Do not operate the WAT-240E/FS with wet hands.



- Use a stabilized power adaptor designed for DC+6V, with a current capacity of more than 300mA for the WAT-240E/FS.
The recommended voltage is DC+4.6~6.6V.
- Do not expose the WAT-240E/FS to wetness or high moisture conditions.
The WAT-240E/FS is designed and approved for indoor use only. The WAT-240E/FS is not water-resistant or waterproof. If the location of the camera is outdoors or in an outdoor like environment, we recommend that you use an outdoor camera housing.
- Protect the WAT-240E/FS from condensation.
Keep the WAT-240E/FS dry at all times during storage and operation.
- Should the camera not work properly, switch off the power immediately. Then check the camera according to the "Problems and Trouble Shooting" section.



- Avoid the striking of hard objects or dropping the WAT-240E/FS.
The WAT-240E/FS uses high quality electrical parts and precision components.
- Do not wire the WAT-240E/FS with any monitor using a video/power single transmission terminal. The WAT-240E/FS is not designed for use with this type of equipment. We also advise you to read the operation manual of the monitor you plan to use before any connections are made.
- Do not install the WAT-240E/FS in a position subject to direct sunlight.
Sunlight shinning directly onto the WAT-240E/FS lens can cause damage to the image sensor.
- Select a stable place for installation of the WAT-240E/FS.
Use a support of durable strength around an installation position on a ceiling or wall when a camera stand or tripod is used.

- Do not move the WAT-240E/FS with the cables connected.
Before moving the WAT-240E/FS, always remove the video cable and power cable from the rear of the camera first.
- Avoid using the WAT-240E/FS near any strong electromagnetic field.
After installing into main equipment, if the WAT-240E/FS is exposed to electromagnetic waves causing the monitored image to become distorted, we recommend the camera be shielded by appropriate protective casing.

Problems and Trouble Shooting

If any of the following problems occur when using the WAT-240E/FS,

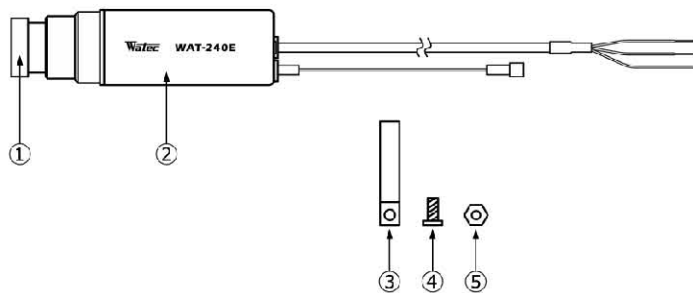
- An optimal picture cannot be obtained, after checking that all the cables and connections are correctly in place.
- Smoke or any unusual odor emerges from the WAT-240E/FS.
- An object becomes embedded or a quantity of liquid seeps into the camera housing.
- More than the recommended voltage or/and amperage has been applied to the WAT-240E/FS by mistake.
- Anything unusual occurring to any equipment connected to the WAT-240E/FS.

Disconnect the camera immediately according to the following procedures:

- ① Switch off the main power supply to the camera.
- ② Remove the power and video cables connected to the WAT-240E/FS.
- ③ Contact the distributor or dealer from which the WAT-240E/FS was purchased.

Contents

Using the contents figures below, check to make sure all parts are present before use.

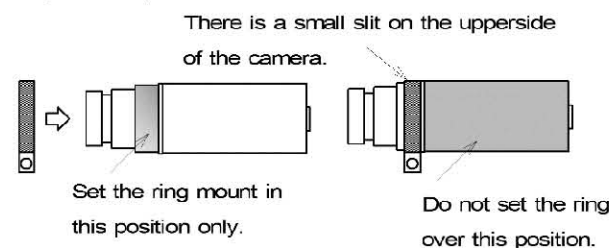


- ① Lens (Upper: Type G3.8)
- ② WAT-240E/FS
- ③ Installation ring mount
- ④ Screw for ring mount (M2.6 x 8mm)
- ⑤ Nut for ring mount (M2.6)

Assembly and Setting Up

■ When using the ring mount

【Setting of the ring mount】



Fix the mount by passing the ring over the lens of the camera, and then attach the thread and nut.

※ Fix the ring on the housing with appropriate force and then check to make sure the camera is fixed firmly and squarely. Improper setting might cause damage to the camera cover.

Power Supply

Use a stabilized power adaptor designed for DC+6V, with a current capacity of more than 300mA. Use the optional DC plug if the shape or polarity of the DC plug of the power adaptor to be used is not compatible with the camera.

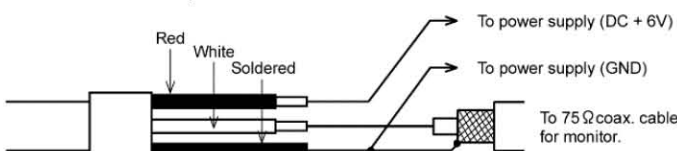
The wiring on the connector must be exact.

Be careful not to touch the other terminals while wiring. Protect the wired portion by using insulation tape after wiring. If the above care and attention is not adhered to, damage to the WAT-240E/FS and power adaptor may occur and may also cause fire.

【Diagram of output cable】



【Connection of output cables】



Set-up and Operation

- ① Refer to the【Connection of output cables】and the wiring must be exact.
- ② Join the video out cable with the video in cable of the monitor or peripheral equipment.
- ③ Join the power supply using the correct procedure.
- ④ Make sure that a picture can be seen on the monitor
- ⑤ To focus, turn the lens clockwise or counterclockwise while observing the picture on the monitor. Take care when focusing not to scratch or damage the lens.

Options

Remote Controller (AVM-USB2)

AVM-USB2 is a compact controller with USB connection for the WAT-240E/FS. Function settings can be changed by the user according to the environment from the PC. For setting up and operation of the camera remote control, please read and download the "User Manual" from Watec website.

Holder (H002)

H002 is used for mounting the WAT-240E/FS with ring mount. This holder has a U1/4"thread in the center and a M2 thread in the four corners for mounting on stands.

MS-50 (Mini Stand)

A convenient stand for the WAT-240E/FS. With this stand, the camera can be adjusted to any desired angle.

Specifications

Model	WAT-240E/FS (NTSC)	WAT-240E/FS (PAL)
Pick-up Element	1/4 inch C-MOS image sensor	
Number of Total Pixels	652(H) × 504(V)	
Number of Effective Pixels	648(H) × 488(V)	
Unit Cell Size	5.6μm(H) × 5.6μm(V)	
Imaging system	RGB primary color bayer arrangement mosaic filters on chip	
Sync. System	Internal	
Scanning System	Progressive	
Video Output	Composite video, 1.0 V(p-p) 75Ω (Unbalanced)	
Resolution (H)	More than 480TVL (Center)	
Minimum illumination	0.3 lx. F2.0 (AGC ON=42dB)	
S/N	More than 52dB (AGC=0dB, γ=1.0)	
AE MODE	1/60 - 1/100000 sec.	1/50 - 1/100000 sec.
White Balance	ATW (2500K~9000K)	
AGC	0 - 42dB	
Gamma Characteristics	γ ≒ 0.45	
Back Light Compensation	ON	
Power Supply	DC +4.6 - 6.6V	
Power Consumption	0.66W (DC6.0V 110mA)	
Operating Temperature	-10 - +50℃	
Operating Humidity	Less than 95% RH (Without condensation)	
Storage Temperature	-30 - +70℃	
Storage Humidity	Less than 95% RH (Without condensation)	
Lens mount	M12 P=0.5	
Standard Lenses	3820BC-12 (f3.8 F2.0)	
Size	G3.8: φ 18 × 63 (mm)	
Cable Length	330 (mm)	
Weight	Approx. 23g	

- Design and specifications are subject to change without notice.
- Watec is not responsible for any inconvenience or the attendant damages to the video and monitoring recording equipment caused by misuse, mis-operation or improper wiring of our equipment.
- If for any reason the WAT-240E/FS does not work properly, or if you have any questions regarding installation or operation, please contact the distributor or dealer from which it was purchased.

Contact information



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