

**WAT-660MD** (Standard)  
**WAT-660MDB** (Ceiling type)  
**WAT-660MDWB** (Wall type)

**Operation Manual**

This Operation Manual covers safety, camera functions, installation and the correct operating procedure for the WAT-660MD/MDB/MDWB. First, we ask you to read this Operation Manual thoroughly, then install and operate the WAT-660MD/MDB/MDWB as advised. In addition, for future reference, we also advise safekeeping of this manual.

Please contact the distributor or dealer from which the WAT-660MD/MDB/MDWB 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:

- When you do not adhere to or take notice of the "Danger" sign, it may lead to a serious accident such as death or injury caused by fire or electric shock.
- When you do not adhere to or take notice of the "Warning" sign, it may cause severe damage such as a physical injury.
- When you do not adhere to or take notice of the "Caution" sign, it may incur injury and cause damage to peripheral objects in the immediate surroundings.

**Cautions for Safety**

The WAT-660MD/MDB/MDWB 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-660MD/MDB/MDWB.**  
**Do not operate the WAT-660MD/MDB/MDWB with wet hands.**
- Use only the AD502-120/230 or equivalent power adaptor for the WAT-660MD/MDB/MDWB.**  
 The recommended voltage is DC+9V ±10%.  
**Do not expose the WAT-660MD/MDB/MDWB to wetness or high moisture conditions.**  
 The WAT-660MD/MDB/MDWB is designed and approved for indoor use only. The WAT-660CD/CDB/CDWB 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-660MD/MDB/MDWB from condensation.**  
 Keep the WAT-660MD/MDB/MDWB 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-660MD/MDB/MDWB.**  
 The WAT-660MD/MDB/MDWB uses high quality electrical parts and precision components.  
**Do not connect any power supply directly to the video out terminal of the unit.**  
 Do not wire the WAT-660MD/MDB/MDWB with any monitor using a video/power single transmission terminal. The WAT-660MD/MDB/MDWB 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-660MD/MDB/MDWB in a position subject to direct sunlight.**  
 Sunlight shining directly onto the WAT-660MD/MDB/MDWB lens can cause damage to the CCD.  
**Select a stable place for installation of the WAT-660MD/MDB/MDWB.**  
 Use a support of durable strength around an installation position on a ceiling or wall.

- Do not move the WAT-660MD/MDB/MDWB with the cables connected.**  
 Before moving the WAT-660MD/MDB/MDWB, always remove the video cable and power cable from the rear of the camera first.
- Avoid using the WAT-660MD/MDB/MDWB near any strong electromagnetic field.**  
 Avoid emission sources of electromagnetic waves when the WAT-660MD/MDB/MDWB is installed into main equipment.

**Problems and Trouble Shooting**

If any of the following problems occur when using the WAT-660MD/MDB/MDWB,

- 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-660MD/MDB/MDWB
- 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-660MD/MDB/MDWB by mistake
- Anything unusual occurring to any equipment connected to the WAT-660MD/MDB/MDWB

Disconnect the camera immediately according to the following procedures:

- ① Switch off the main power supply to the camera.
- ② Contact the distributor or dealer from which the WAT-660MD/MDB/MDWB was purchased.

**About EMC**

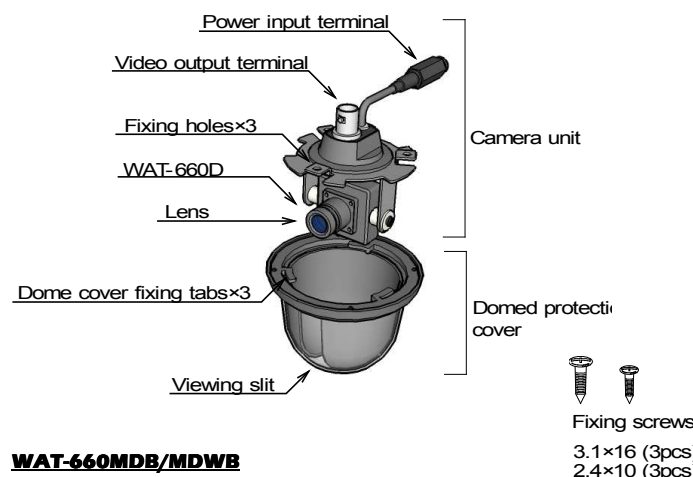
The WAT-660MD/MDB/MDWB is in conformity with EMC test standards carried out by authorized organizations in Japan.

E I A FCC Part15 class B  
 CCIR EN61000-6-3/EN50130-4

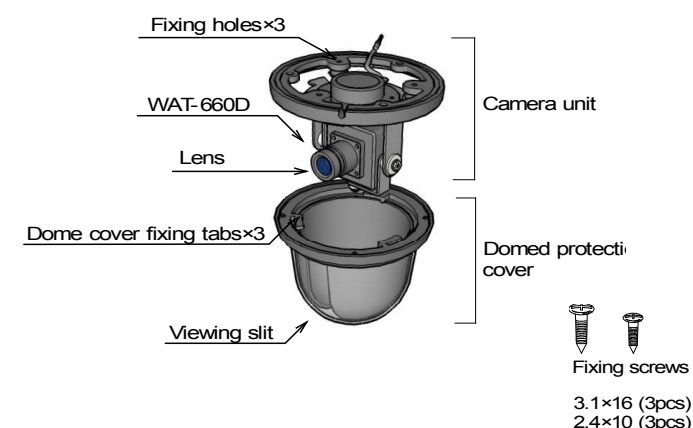
- Do not modify the WAT-660MD/MDB/MDWB. A modified camera may not conform to EMC test standards.

**Description of Parts**

**WAT-660MD**



**WAT-660MDB/MDWB**

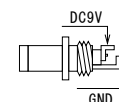


**Power Supply And Wiring**

If any other power adaptor besides the AD502-120/230 is used, please use a stabilized power adaptor designed for DC+9V ±10%, with a current capacity of more than 150mA.

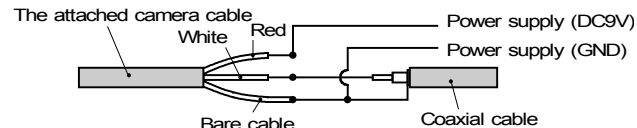
**WAT-660MD**

When any equivalent power adaptor is used for the WAT-660MD, use the WPDC9 optional power plug. Wire the plug as shown in the figure on the right. Furthermore, protect the soldered connection with tape or tubing etc.



**WAT-660MDB/MDWB**

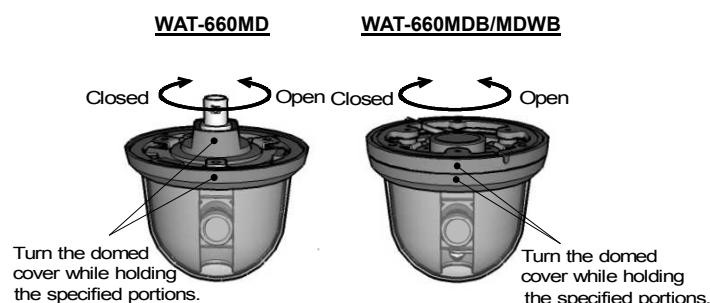
The wiring for the power input and outputs are required by you. Then, wire as shown in the under-mentioned figure. In addition protect the soldered connection with tape or tubing etc.



**Set-up and Operation**

- 1) Ensure that before any connections or fixings are made to the WAT-660MD/MDB/MDWB the power is switched OFF.
- 2) Refer to the [Power Supply And Wiring] and the must be exact, after the domed cover is removed from the WAT-660MDB/MDWB in the following procedure.
- 3) The camera unit is fixed to the installation surface with screws. Make a hole with a diameter between 32 to 40mm when the WAT-660MD is installed.
- 4) Connect the video output terminal to peripheral equipment such as a monitor, using a coaxial cable with 75Ω impedance such as 3C-2V(RG5U) or 5C-2V(RG11U).
- 5) Connect the power supply to the WAT-660MD/MDB/MDWB.
- 6) Make sure that a picture can be seen on the monitor.
- 7) Set the required viewing angle. Subsequently, make the focusing adjustment by turning the lens.
- ※When mounting the domed cover over the camera unit, you may feel that the focusing will become a little vague. In this case, repeat the focusing adjustment procedure.
- 8) After mounting the domed cover over the camera unit in the under mentioned procedure, align the viewing slit of the domed cover to the lens of the camera.

**<Mounting and removing of the domed cover>**



**Option**

Contact the distributor or dealer of Watec Co., Ltd. when the following options are required.

**AC adaptor (AD502-120/230)**

This is the recommendable power adaptor for the WAT-660MD/MDB/MDWB, which incorporates a stabilizing circuit. When the output current varies, this adapter adjusts the voltage to DC9V for safe usage.

**DC plug (WPDC9)**

To be used when the power plug of your power supply in hand is different from the power input terminal of the WAT-660MD/MDB/MDWB.

**Specifications**

**EIA**

Model	WAT-660MD	WAT-660MDB	WAT-660MDWB
Number of Total Pixels	537(H) × 505(V)		
Number of Effective Pixels	510(H) × 492(V)		
Unit Cell Size	7.15 μm(H) × 5.55 μm(V)		
AE (Auto-exposure)	1/60-1/100000 sec.		

**CCIR**

Model	WAT-660MD	WAT-660MDB	WAT-660MDWB
Number of Total Pixels	537(H) × 597(V)		
Number of Effective Pixels	500(H) × 582(V)		
Unit Cell Size	7.3 μm(H) × 4.7 μm(V)		
AE (Auto-exposure)	1/50-1/100000 sec.		

**EIA/CCIR**

Model	WAT-660MD	WAT-660MDB	WAT-660MDWB
Pick-up Element	1/4 inch interline transfer CCD image sensor		
Sync. System	Internal		
Scanning System	2:1 interlace		
Video Output	Composite video, 1.0 V(p-p) 75 Ω (Unbalanced)		
Resolution (H)	More than 400TVL (Center)		
Minimum Illumination	0.06 lx. F2.0		
S/N	More than 50dB (AGC=5dB, γ=1.0)		
AGC	5-32dB		
Gamma Characteristics	γ ≒ 0.45		
Back Light Compensation	ON		
Power Supply	DC+9V ±10%		
Power Consumption	0.86W (95mA)		
Operating Temperature	-10 - +40°C (Without condensation)		
Operating Humidity	Less than 95%RH		
Storage Temperature	-30 - +70°C (Without condensation)		
Storage Humidity	Less than 95%RH		
Lens Mount	M13 P=1.0		
Standard Lenses	G3.8(Glass f3.8 F2.0) / P3.7(Pinhole f3.7 F4.5)		
Size(φ × H)	78 × 83 (mm)	79 × 65 (mm)	
Weight	Approx. 170g	Approx. 115g	Approx. 125g

- 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-660MD/MDB/MDWB 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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