

This operation manual covers safety, camera functions, installation and the correct operating procedure for the WAT-230V2/CS. First, we ask you to read this operation manual thoroughly, then install and operate the WAT-230V2/CS as advised. In addition, for future reference, we also advise safekeeping of this manual.

Please contact the distributor or dealer from which the WAT-230V2/CS 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

Symbols used in this operation manual:

- "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

The WAT-230V2/CS is designed to be used safely; however, 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" below for protection against accidents.

- Do not disassemble and/or modify the WAT-230V2/CS.**
- Do not operate the WAT-230V2/CS with wet hands.**

- Use a stabilized power adaptor designed for DC+4.6 - +14V, with a current capacity of more than 250mA for the WAT-230V2/CS.**

The recommended voltage is DC+4.6 - +14V

- Do not expose the WAT-230V2/CS to wetness or high moisture conditions.**

The WAT-230V2/CS is designed and approved for indoor use only. The WAT-230V2/CS 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-230V2/CS from condensation.**  
Keep the WAT-230V2/CS 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-230V2/CS.**

The WAT-230V2/CS 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 connect the WAT-230V2/CS with any monitor using a video/power single transmission terminal. The WAT-230V2/CS 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-230V2/CS in a position subject to direct sunlight.**

Sunlight shinning directly onto the WAT-230V2/CS lens can cause damage to the CCD.

- Select a stable place for installation of the WAT-230V2/CS.**

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-230V2/CS with the cables connected.**

Before moving the WAT-230V2/CS, always remove the video cable and power cable from the rear of the camera first.

- Avoid using the WAT-230V2/CS near any strong electro-magnetic field.**

After installing into main equipment, if the WAT-230V2/CS 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-230V2/CS

- 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-230V2/CS
- 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-230V2/CS by mistake
- Anything unusual occurring to any equipment connected to the WAT-230V2/CS

**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-230V2/CS.
- ③ Contact the distributor or dealer from which the WAT-230V2/CS was purchased.

### About EMC

The WAT-230V2/CS is in conformity with EMC test standards carried out by authorized organizations in Japan.

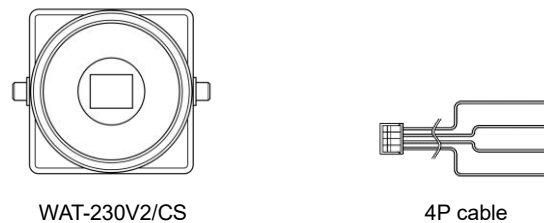
NTSC FCC Part15 class B  
P A L EN61000-6-3/EN50130-4

- ※ Please use an auxiliary power supply (eg: UPS) to this camera to comply with EN50130-4 of EMC standards.

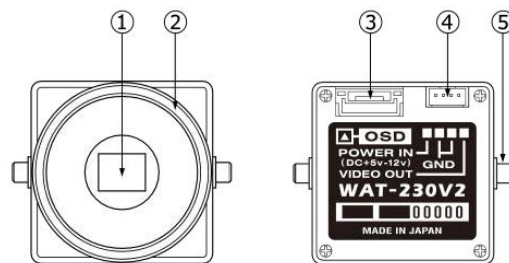
- Do not modify the WAT-230V2/CS. A modified camera may not conform to EMC test standards.

### Contents

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



### Description of Parts

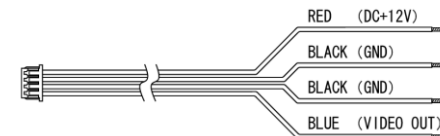


- ① IMAGE SENSOR FRONT FACE  
The light receiving face of the Image sensor (Dirt, water or oil deposits on the image sensor will cause an unclear picture on the monitor. Attach the lens cap to protect the lens and the sensor from contamination and damage.)
- ② LENS MOUNT  
Mount of the lens (CS-mount)
- ③ OSD (On Screen Display) CONNECTOR  
The terminal designed for connection with the remote control for setting the function of the screen.
- ④ POWER IN/VIDEO OUT  
The terminal for power input and video signal output. Use the attached power and video cable for this purpose.
- ⑤ CAMERA MOUNTING FEATURES  
These mounting features are used to mount the camera.

### Power Supply

Use a stabilized power adaptor designed for DC+4.6 - +14V, with a current capacity of more than 250mA.

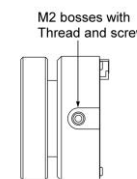
The wiring on the connector must be exact. Be careful not to touch the other terminals while wiring. Protect the wired portion by using insulation tape after wiring. If the above care and attention is not adhered to, damage to the WAT-230V2/CS and power adaptor may occur and may also cause fire.



### Mounting

The WAT-230V2/CS has two bosses on both sides featuring M2 thread and screws.

Use these if the camera is to be mounted to the B001 bracket.



### Set-up and Operation

- 1) Ensure that the power to the WAT-230V2/CS and the peripheral equipment is turned off before making any connections.
- 2) Remove the lens cap from the WAT-230V2/CS and attach the CS-mount lens. Use the optional C-mount adaptor (30CMA-R) when a C-mount lens is used.
- 3) Join the power supply using the correct procedure.
- 4) Make sure that a picture can be seen on the monitor. When a picture cannot be obtained on the monitor, or a strong smell of burning is present, or smoke is visible, check and follow the procedure mentioned in the "Problems and Trouble Shooting" section.
- 5) To bring a camera in to focus for an appropriate image.
- 6) When detailed settings are required or an adequate image is not obtained, connected the remote control to ③ REMOTE CONTROL TERMINAL, then set the functions on the screen.

### Options

To purchase these options, please contact the distributor or dealer from which you purchased the WAT-230V2/CS.



#### C-mount Adaptor (30CMA-R)

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



#### Remote Controller (RC-01)

Remote control for controlling the On Screen Display menu to change camera settings.



#### Cable with BNC, Socket and connector (CB-01)

The cable with BNC/DC socket. (Cable Length: 1m)



#### Mounting Bracket (B001)

B001 is used for mounting the WAT-230V2/CS to stands and surfaces. The base has a U1/4" thread for mounting on stands, and through holes on both sides.



#### Mini Stand (MS50)

A convenient stand for the B001. With this stand, the camera can be adjusted to any desired angle.

### Specifications

Model	WAT-230V2/CS (NTSC)	WAT-230V2/CS (PAL)
Pick-up Element	1/4 inch interline transfer CCD image sensor	
Number of Total Pixels	1020(H)×508(V)	1020(H)×596(V)
Number of Effective Pixels	976(H)×494(V)	976(H)×582(V)
Unit Cell Size	3.75µm(H)×5.56µm(V)	3.75µm(H)×4.69µm(V)
Imaging system	Ye, Cy, Mg, and G complementary color mosaic filters on chip	
Sync. System	Internal	
Scanning System	2:1 interlaced	
Video Output	Composite video, 1.0 V(p-p), 75Ω(Unbalanced)	
Resolution (H)	More than 650TVL (Center)	
Minimum Illumination	0.05 lx F1.2	
S/N	More than 50dB	
Function settings	OSD(On Screen Display) operated by optional remote controller	
AE Mode	Fixed	1/60, 1/100 sec. 1/50, 1/120 sec.
	EI	1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000 sec.
AGC	0 - 45dB	
MGC	8steps (Selectable)	
Gamma Characteristics	γ ≒ 0.45	
Video Level	0 - 255 (BRIGHTNESS)	
White Balance	ATW/PUSH/USER1/USER2/ ANTI CR/MANUAL/PUSH LOCK	
Noise Reduction	2DNR ON(Level selectable) / OFF	
Back Light Compensation	OFF/BLC/HLC	
Privacy Mask	8masks	
Mirror Image	OFF / ON(H-FLIP)	
White Blemish Correction	Max 64 dots	
Output switching	AUTO/COLOR/BW	
Sharpness	0 - 255(SHARPNESS)	
Power Supply	DC+4.6 - +14V	
Power Consumption	0.78W/155mA (DC+5V)	
Operating Temperature	-10 - +50°C	
Operating Humidity	Less than 95% RH (Without condensation)	
Storage Temperature	-30 - +70°C	
Storage Humidity	Less than 95% RH (Without condensation)	
Lens mount	CS mount	
Cable Length	300mm	
Size	35.5(W)×29.5(H)×21.5(D) (mm)	
Weight	Approx. 28g	

- 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-230V2/CS 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

**Watec Watec Co., Ltd.**

Add.: 254-2 Nihonkoku, Daihoji, Tsuruoka- Shi, Yamagata-Ken, 997-0017 Japan  
TEL: +81-235-23-4400 FAX: +81-235-23-4409  
Email: info-o@watec.co.jp  
URL: http://www.watec.co.jp

# Quick guide for the WAT-230V2 OSD(On Screen Display) menu

Remote control unit RC-01(option) enables to control the OSD menu and change camera settings.

SETUP MENU 1/2		SETUP MENU 2/2	
SHUTTER/AGC	<input type="radio"/> AUTO <input type="radio"/> MANUAL	ATR	<input type="radio"/> OFF <input type="radio"/> ON
WHITE BAL	<input type="radio"/> ATW <input type="radio"/> PUSH <input type="radio"/> USER1 <input type="radio"/> USER2 <input type="radio"/> ANTI CR <input type="radio"/> MANUAL <input type="radio"/> PUSH LOCK		PRIVACY <input type="radio"/> OFF <input type="radio"/> ON
BACKLIGHT	<input type="radio"/> OFF <input type="radio"/> BLC <input type="radio"/> HLC		DAY/NIGHT <input type="radio"/> AUTO <input type="radio"/> COLOR <input type="radio"/> B/W
PICT ADJUST			NR
			CAMERA ID <input type="radio"/> OFF <input type="radio"/> ON
			CAMERA RESET
			BACK
			EXIT
			SAVE ALL

※  : Default setting

## SETUP MENU

### SHUTTER/AGC

Set the operation mode of the exposure control.

AUTO : Automatically control the shutter speed and the gain according to lighting condition of the object.

MANUAL : Select the shutter speed and Gain level from 8 set values.

### WHITE BAL (WHITE BALANCE)

Switch the WHITE BALANCE MODE.

ATW : Automatically correct the white balance when the color temperature of the object is in the range of the specified correction value.

PUSH : Automatically correct the white balance regardless the range of the specified correction value

USER1 : correct the image at 5100K.

USER2 : correct the image at 6300K.

ANTI CR : Suppress the color rolling.

MANUAL : Set the correction value manually.

PUSH LOCK : Set the corrected value following the actual color temperature of the illumination of the object. Imaging the object that color is achromatic at the full screen, and the press the [Enter]. The corrected value is set.

### BACKLIGHT

Switch the operation modes of backlight.

OFF : Disable.

BLC : Correct the luminance of the darkened object again the backlight (center-weighted metering).

HLC : Mask processing ageing the bright light source.

### PICT ADJUST

Adjust the image quality

MIRROR : Flip the image at left/right (H)

BRIGHTNESS : Adjust the brightness of the image.

CONTRAST : Adjust the contrast of the image.

SHARPNESS : By emphasizing the contoured part, resolution is improved.

HUE : Adjust the HUE

GAIN : Adjust the GAIN

DEFOG : Improve a low contrast image captured in poor weather condition such as fog.

### ATR (Adaptive Tone-Curve Reproduction)

Correct the contrast and suppress the overexposure and underexposure.

### PRIVACY

Mask processing to the required area on the screen.

### DAY/NIGHT

Switch the output

COLOR : Color image

B/W : Monochrome image

AUTO : Automatically switch output image (color or monochrome) depending on the ambient brightness.

### NR (Noise Reduction)

Suppress the noise in a low light condition by image processing.

### CAMERA ID

Set the camera ID

### CAMERA RESET

Restore the factory setting.

### NEXT

Move to next page of SETUP MENU 2/2

### BACK

Move to previous page of SETUP MENU 1/2

### EXIT

Close the OSD menu

### SAVE ALL

Save the changed camera setting.

### \*White blemish correction

Close the OSD menu, press and hold LEFT key of

Remote control unit RC-01 and White blemish correction menu is displayed. Cover the lens completely then press ENTER key. By automatically detection, blemish pixels are corrected.