

# ***Watec***

## **704R**

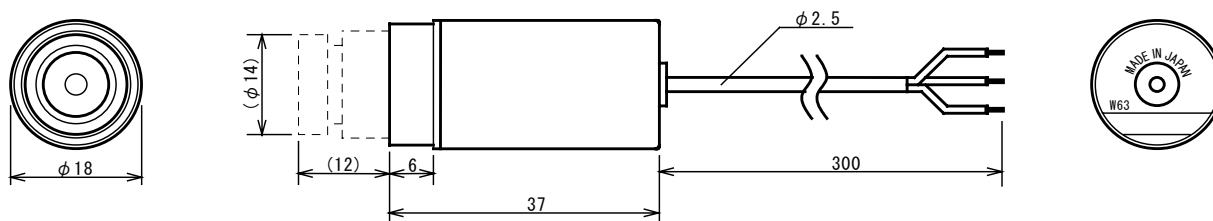


# WAT-704R Monochrome camera

## 【SPECIFICATIONS】

Model	WAT-704R (EIA, CCIR)
Pick-up element	1/4inch Interline transfer CCD image sensor
Number of total pixels	537(H) × 505(V) (EIA); 537(H) × 597(V) (CCIR)
Number of effective pixels	510(H) × 492(V) (EIA); 500(H) × 582(V) (CCIR)
Unit cell size	7.15 $\mu$ m(H) × 5.55 $\mu$ m(V) (EIA); 7.3 $\mu$ m(H) × 4.7 $\mu$ m(V) (CCIR)
Scanning system	2:1 interlace
Synchronizing system	Internal
Video output	Composite Video, 1Vp-p, 75ohm Unbalanced
Resolution(Horizontal)	380TV lines(Glass f3.8mm lens, center)
Minimum illumination	0.08 lx. F2.0 (Glass f3.8mm lens)
Gamma correction	$\gamma \cong 0.45$
AGC	5~32dB
S/N Ratio	46dB(AGC OFF)
Electronic iris	1/60~1/100000 sec. (EIA), 1/50~1/100000 sec. (CCIR)
Standard lens	(Glass, f3.8mm, F2.0) or (Pin Hole, f3.7mm, F4.5)
Power supply	DC +9.0~9.9V
Current	max. 110mA
Operating temperature	-10°C ~ +40°C
Storage temperature	-30°C ~ +70°C
Dimensions	18.0( $\phi$ ) × 37.0(L)mm + lens
Weight	Approx. 25g (With G3.8)
Accessories	Holder ring set

## 【DIMENSIONS】 (mm)



# Installation and Operation Instructions

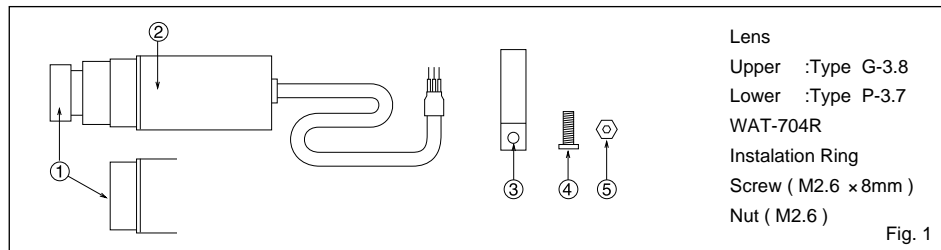
## CCD CAMERA WAT-704R

● Your reading through and understanding of the following "IMPORTANT" are much appreciated before use.

### Important:

1. USE ONLY +9.0~+9.9V DC POWER SOURCE WITH CORRECT POLARITY.
2. FOR INDOOR USE ONLY, DO NOT ALLOW THE WAT-704R CAMERA TO GET WET.
3. DO NOT DROP OR STRIKE THE WAT-704R CAMERA.
4. DO NOT OPEN CAMERA. There are no serviceable parts inside the camera and opening it will void all warranties.  
Attempting to repair or change circuit, or applying incorrect power to circuits will damage the camera and void the warranty.
5. Aiming the camera toward spotlighted areas, areas of high contrast or intense light MAY CAUSE SMEARING on the monitor image and never aim the camera directly to the sun.
6. Camera is equipped with electronic iris shutter circuit, therefore use under fluorescent or incandescent lamp MAY CAUSE FLICKERING to occur on monitor image.
7. NEVER CONNECT THE WAT-704R CAMERA TO A ONE LINE SYSTEM WHICH SUPPLIES DIRECT CURRENT TO THE VIDEO SIGNAL TERMINAL. DOING SO WILL DESTROY THE CAMERA!  
Carefully read All instructions before connecting the WAT-704R Camera to monitor.
8. Be sure not to apply AC,DC power source to the VIDEO OUT cable (white) of the WAT-704R.
9. Operating instructions should be read carefully prior to connecting power source.
10. If camera does not work properly, review soldering instructions to insure proper operation.

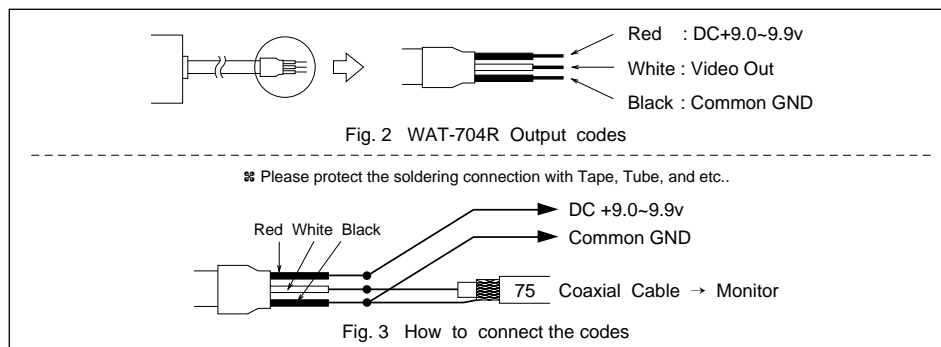
### Structure:



### Installation:

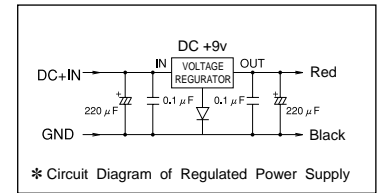
● Before installation of the WAT-704R check all power supplies of your system turned off.

1) Connect power source and video output as shown in the following figure.



※ Only connect to a DC+9.0~9.9V over 150mA power source of correct polarity. Especially, higher voltage (over DC+9.9V) will make the WAT-704R damaged.

※ Check if your own power supply will be corresponded to the left circuit diagram, when it is arranged by yourself.

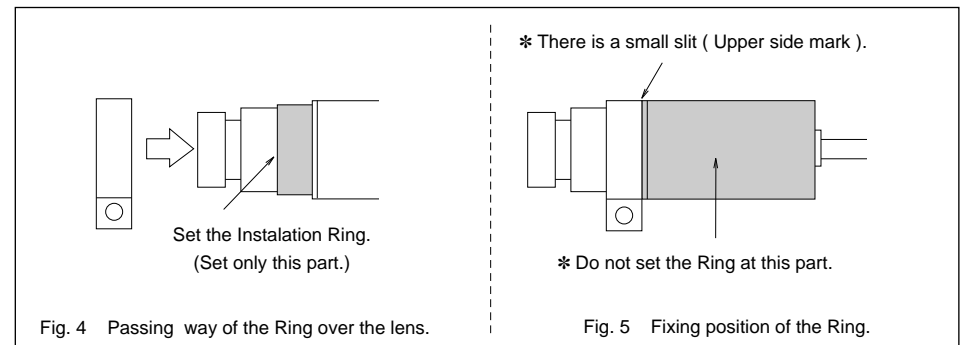


● Use the "HEAT SINK" according to your selected voltage regulator.

※ When extension of the cable required, be sure to use the core line terminated at 75 ohm for the white line of the WAT-704R. Be sure to use the sealed (outer brass) line of the WAT-704R.

※ When extension of the cable required, be sure to use the cable of 3C2V or 5C2V terminated at 75 ohm. And also when a CRT display monitor required, be sure to terminate the cable with an impedance of 75 ohm.

2) Fixing the Ring, Screw and Nut on the WAT-704R.



● The WAT-704R housing is of aluminium, the intense shock may cause the housing distorted.

Be careful of the WAT-704R housing on installation, accordingly. (When the WAT-704R housing is distorted, it may induce the "SHORT - CIRCUIT", leading to a breakage.

3) Turn on all the power supplies for the WAT-704R and Monitor.

● Turn off all the power supplies immediately, when the WAT-704R does not work properly.

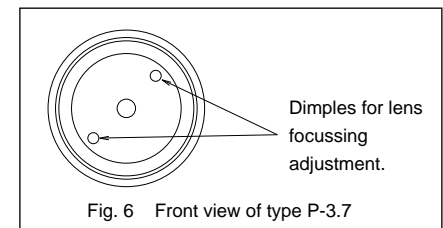
※ And review the connections of the power source and video out.

● If any question or further information on power supply and /or video out is required, please contact your dealer which you have purchased the WAT-704R.

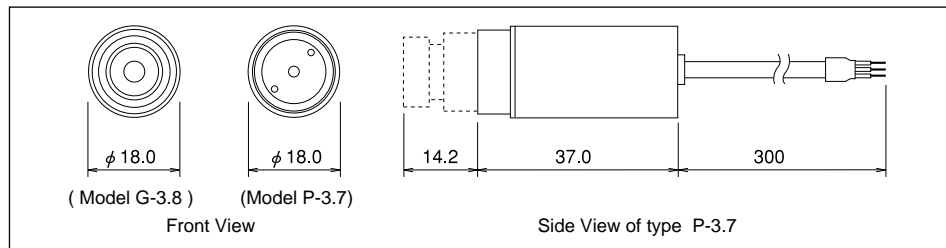
4) Focus on while looking at the monitor.

※ Bring into focus by turning the lens clockwise or counter-clockwise. Focussing adjustment of the pin-hole lens (type : P-3.7) can be done by turning the lens clockwise or counter-clockwise while placing a pair of tweezers in the focussing adjustment dent as shown in the left fig. 6.

● Be careful to make focussing adjustment not so as to scratch the lens on the surface.



### Dimensions (in millimeters):



### Technical Specifications:

MODEL	WAT-704R (EIA)	WAT-704R (CCIR)
Pick-up element	1/4 inch Interline Transfer CCD image sensor	
Number of pixels	537(H) $\times$ 505(V)	537(H) $\times$ 597(V)
Unit cell size	7.15 $\mu$ m(H) $\times$ 5.55 $\mu$ m(V)	7.3 $\mu$ m(H) $\times$ 4.7 $\mu$ m(V)
Sync. System	Internal	
Scanning system	2:1 Interlace	
Video output	1Vp-p 75 ohm (Unbalanced)	
S/N Ratio	More than 46dB (AGC OFF)	
Electronic iris	1/60 ~ 1/100,000 sec.	1/50 ~ 1/100,000 sec.
Gamma characteristic	0.45	
AGC	More than 18dB	
Power supply	DC +9.0 ~ +9.9v	
Current	Max. 100mA	
Storage temperature	-30 ~ +70	
Operating temperature	-10 ~ +40	
Weight	Approx. 25g 0.89oz (With G-3.8)	

	Lens	
Specification of lens	G-3.8	P-3.7
Type	Glass	Pin hole
Focal length	3.8mm	3.7mm
F Point	F 2.0	F 4.5
Angular view (H $\times$ V) °	51 ° $\times$ 40 °	52 ° $\times$ 41 °
Resolution (Horizontal)	Over 380 TV lines (Center)	Over 350 TV lines (Center)
Minimum Illumination	0.8 Lux	4 Lux

※ We reserve the right to change the design and specifications without notice.

※ Please direct further enquiries to the local dealer where you purchased your WAT-704R camera.

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### 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.

### Important:

The camera mentioned above does not comply with this regulation, if it is modified at your disposal.