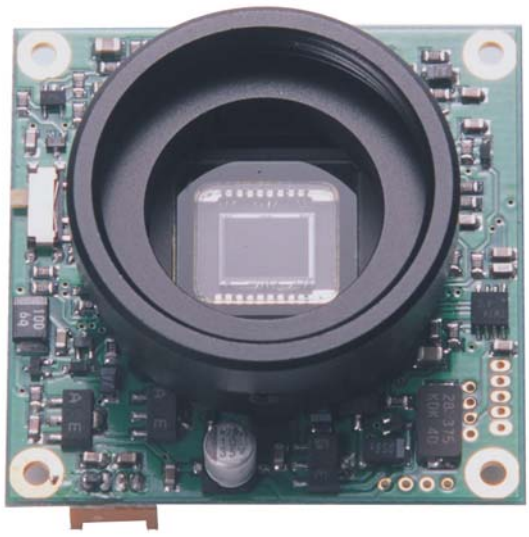
Watec

902HB2S

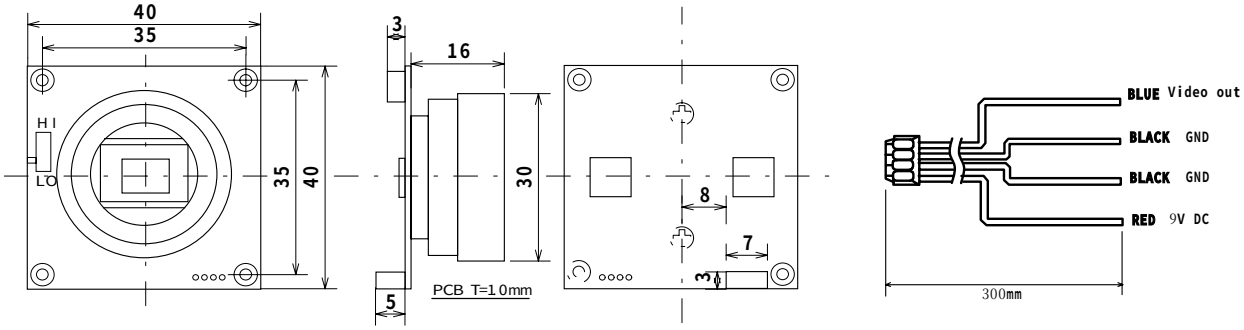


WAT-902HB2S Board Type Camera

【SPECIFICATIONS】

Model	WAT-902HB2s (EIA, CCIR)
Pick-up element	1/2inch interline transfer CCD image sensor
Number of total pixels	811(H)×508(V) (EIA) / 795(H)×596(V) (CCIR)
Number of effective pixels	768(H)×494(V) (EIA) / 752(H)×582(V) (CCIR)
Unit cell size	8.4μm(H)×9.8μm(V) (EIA) 8.6μm(H)×8.3μm(V) (CCIR)
Scanning system	2:1 interlace
Synchronizing system	Internal
Video output	Composite video, 1V p-p, 75Ω unbalanced
Resolution (Horizontal)	570 TVL (center)
Minimum illumination	0.0003 lx. F1.4
Gamma correction	γ 0.45(ON) (option: γ 1.0(OFF))
AGC	HI: 5～50dB, LO: 5～32dB (option: OFF=5dB)
S/N ratio	50dB (AGC OFF)
AE mode	EI=(1/60～1/100,000(EIA) or 1/50～1/100,000(NTSC)), (Option: ES=OFF(1/60(EIA), 1/50(CCIR)), FL, 1/250, 1/500, 1/1000, 1/2000, 1/5000, 1/10000, or 1/100000)
Back light compensation	ON/OFF
Lens mount	CS-mount
Connection terminal	Power, Video out, GND
Power supply	DC10V～14V (DC12V±15% recommended)
Current	160mA (Max.190mA w/ AI lens)
Operating temperature	-10℃ ～ +40℃ (w/o condensation)
Storage temperature	-30℃ ～ +70℃ (w/o condensation)
Dimensions	40.0(W)×40.0(H)×17.0(D)mm (projections not included)
Weight	Approx. 25g
Accessories	K-59 (connector & cables), Hex key wrench

【DIMENTIONS】(mm)



WAT-902HB, WAT-902H Supreme, & WAT-902H Ultimate series

Relative Response Chart

Features

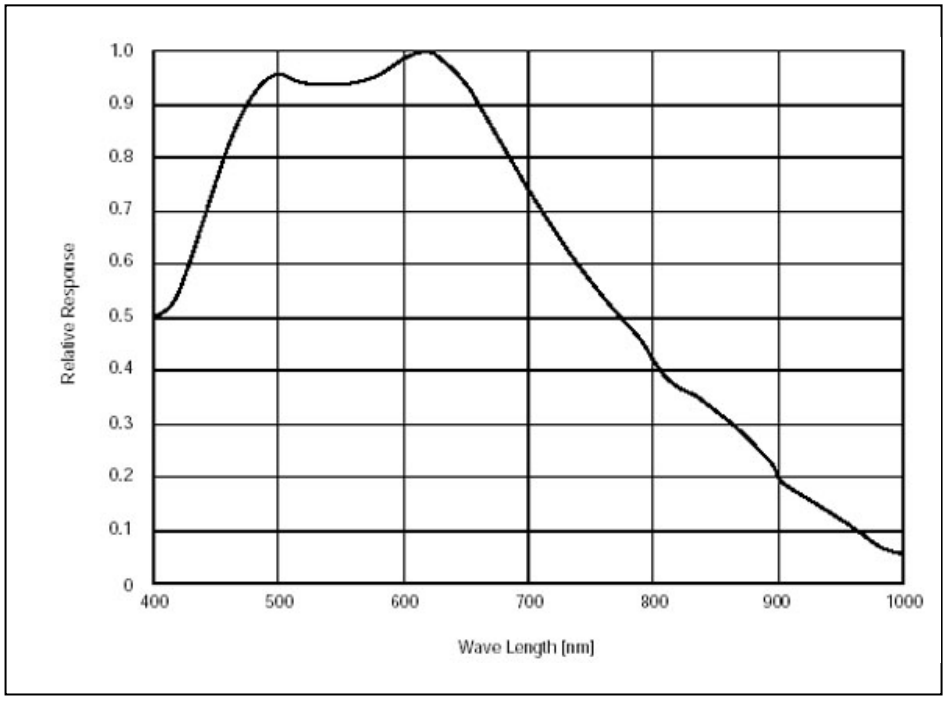
1. 2.5 times more sensitive in the visible ray wavelength.
2. 3 times more sensitive in the near-infrared wavelength
3. Smear reduced by -10dB.
4. Signal amplifier has been increased to improve the S/N ratio.

Comparing the WAT-902H with the WAT-902A.

5. Visibility is assured in conditions with a minimum illumination of 0.0003 lux (F1.4)
6. Sensitive to 940nm. An infrared illuminator (700nm~950nm) can be used to monitor an object in absolute darkness.
7. High resolutions of 380K(EIA), 440K(CCIR) pixels (570 horizontal TV lines).

CCD Response

Visibility is assured in conditions with a minimum illumination of 0.0003 lux (F1.4).



WAT-902H SUPREME, WAT-902H ULTIMATE, & WAT-902HB Series
CCD Imager Sensitivity

OPERATION MANUAL

WAT-902HB

MONOCHROME BOARD TYPE CCD CAMERA

INTRODUCTION:

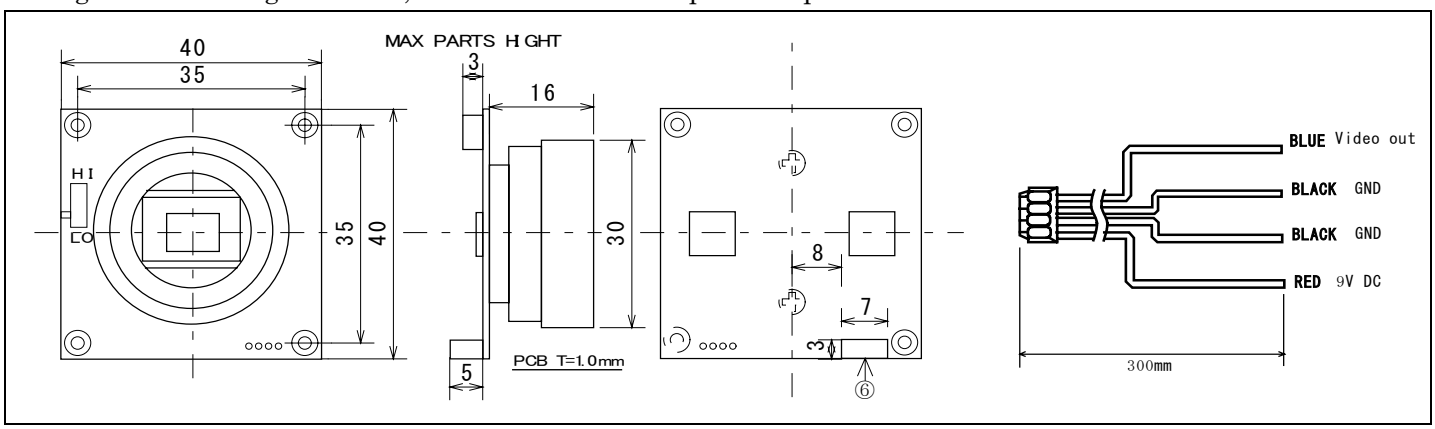
Thank you for choosing our WAT-902HB B/W CCD P.C.B. camera.
Watec hopes that both the quality and design satisfy your requirements.
Before proceeding to operate the WAT-902HB, please read the contents of the Operation Manual thoroughly to ensure proper usage and understanding of our product. For future reference we also advise safekeeping of this manual.

CAUTIONS:

1. It is recommended that you use only the AD-502A or equivalent 9V DC regulated power adaptor for the WAT-902HB. Power supplied without voltage stabilization and/or the voltage range not maintained between +7.5V～14V DC. may cause damage.
2. Do not expose the WAT-902HB or any of its component parts or accessories to wetness or high moisture conditions. The WAT-902HB is designed and approved for indoor use only. If the location of the camera is outdoors in an outdoor like environment, we recommend that you use an outdoor camera housing.
3. Avoid the striking of hard objects or dropping the unit.
4. Do not disassemble and/or modify the WAT-902HB or any of its component parts or accessories. Watec can not be held responsible for equipment operation failure or any damage and/or trouble caused by such action.
5. Do not install the WAT-902HB near heat sources, such as radiators or heating air ducts, or in a position subject to excessive dust, mechanical vibration or shock or direct sunlight. Sunlight shining directly onto the camera lens can cause damage to the CCD.
6. When installing the WAT-902HB in an industrial or commercial environment (i.e. within equipment housing, near other electronic device, etc.) makes sure to avoid any strong electromagnetic field, otherwise the video output may be distorted and monitor clearness compromised.
7. Do not connect any power supply directly to the VIDEO OUT terminal of the unit. This may cause damage.
8. This camera is not designed for use with a video/power single transmission cable. It has to be used with a separate power cable and separate video cable. In addition, please check your monitor specifications to make sure it doesn't use a power/video single cable transmission.
9. Do not make connections and/or operate the WAT-902DM with wet hands.
10. Should the WAT-902HB not work properly, switch off the power and then, check that power and video terminals are properly connected.

CONTENT:

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



SETTING UP AND OPERATION OF THE WAT-902HB:

NOTE: Ensure that the power to the WAT-902HB and the monitor are set to OFF before making any connections.

1. Wire the power supply and the video output, based on the detailed diagram as above.
2. Set up of the WAT-902HB.
   NOTE: It is possible to install the WAT-902HB using the 4 holes located near the corners. (Size of holes: 2.2mm)

3. Insert the attached cables with the connector into the WAT-902HB.
4. Switch on the WAT-902HB, monitor and all other allied equipment.
   Note: When a picture does not appear on the monitor screen, switch off all equipment at once and check for correct connections to all the appliances.

SPECIFICATIONS:

Model		WAT-902HB2S		WAT-902HB3S	
TV version		EIA	CCIR	EIA	CCIR
Pick-up element		1/2″ CCD image sensor		1/3" CCD image sensor	
Total number of pixels		811(H)×508(V)	795(H)×596(V)	811(H)×508(V)	795(H)×596(V)
Sensing area		768(H)×494(V)	752(H)×582(V)	768(H)×494(V)	752(H)×582(V)
Unit cell size		8.4μm(H)×9.8μm(V)	8.6μm(H)×8.3μm(V)	6.35μm(H)×7.4μm(V)	6.5μm(H)×6.25μm(V)
Sync. system		Internal			
Scanning system		2:1 Interlaced			
Video output		1Vp-p 75Ω(Unbalanced)			
Horizontal resolution		570TV Lines (Center)			
Minimum illumination		0.0003 lx. F1.4		0.0006 lx. F1.4	
S/N Ratio		50dB(AGC off, γ=1)			
AE	E.I. (Electronic Iris)	1/60～1/100,000sec	1/50～1/100,000sec	1/60～1/100,000sec	1/50～1/100,000sec
AE	E.S. (Electronic Shutter)	OFF(1/60:EIA1/50:CCIR), FL, 1/250, 1/500, 1/1000, 1/2000, 1/5000, 1/10000, 1/100000 *As option			
AE	FLICKERLESS	1/100sec	1/120sec	1/100sec	1/120sec
AGC	AGC HIGH	5～50dB			
AGC	AGC LOW	5～32dB			
AGC	AGC OFF	5dB *Option			
Gamma characteristic		γ≒0.45 (ON)/1.0 (OFF) *Off is as option			
Back light compensation		On/Off selectable			
Power supply		9V DC (a range of 7.5V-14V DC) *Recommended 9V to 12V DC			
Current consumption		Max 190mA at 14V DC (a range of 150mA-161mA)			
Power consumption *Typical value	Volts	7.5V ---------- 9V ---------- 12V ---------- 14V			
	Amps	150mA ---------- 153mA ---------- 158mA ---------- 161mA			
	Watts	1.125W ---------- 1.377W ----------1.896W ---------- 2.254W			
Storage temperature		-30℃～+70℃			
Operating temperature		-10℃～+40℃			
Weight		Approx. 25g			

Note: a. Power consumption is stated as above, within a range of 7.5V-14V DC.
b. Settings upon shipment and optional settings are set out below;

	Settings upon shipment	Optional settings
AE (auto exposure)	E.I. (electronic iris)	E.S.(electronic shutter), F.L. (Flicker less)
AGC	AGC ON	AGC OFF
Gamma characteristic	Gamma ON (0.45)	Gamma OFF (1.0)

Design and specifications are subject to change without notice.
Watec is not responsible for any inconvenience or the attendant damages to the video or audio and monitoring recording equipment, caused by misuse, miss operation or incorrect wiring of our equipment.
If for any reason the WAT-902HB 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.

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