

1/3" High Resolution Color / Monochrome Board Camera

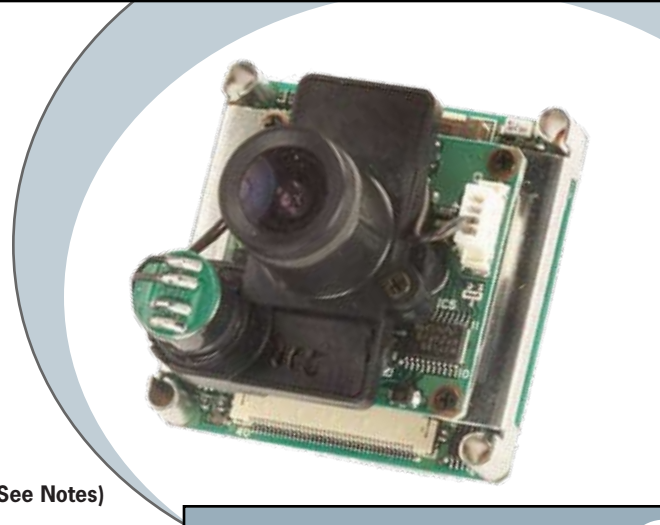
RHPC-790BDN

- 1/3" Color CCD
- 42x42mm Dual Board
- Y/C (S-Video) & Composite Output
- Switches From Color to B&W In Low Light
- IR Cut Filter Removed When In B&W Mode
- Internal or External Synchronization
- 6 to 15 Volt DC Operation

Various Parameters & Settings Controllable Via: *Software or Resistive Jumpers (See Notes)

- Gain
- Shutter Speed
- White Balance
- Negative/Positive Image
- Sensitive Near Infra-Red Region
- 4x Digital Zoom
- Back Light Compensation
- Ext. Sync Phase Adj.

*RHPC-RE-300 Interface Required For Software Control



RHPC-790BDN (NTSC)
 RHPC-795BDN (PAL)

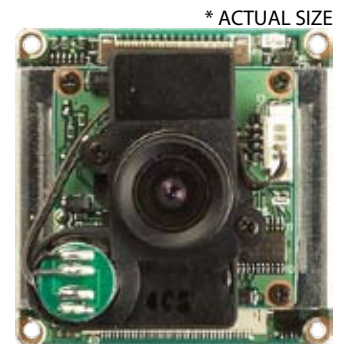
Specifications

RHPC-790BDN (NTSC)

RHPC-795BDN (PAL)

Dimensions 42x42mm

Specifications	RHPC-790BDN (NTSC)	RHPC-795BDN (PAL)
Image Sensor	1/3" Inter-line Type CCD Image Sensory / SONY	
Scanning System	2 : 1 Interlace	
Total Number of Pixels	811 (H) x 508 (W)	811 (H) x 596 (W)
Effective Pixel Elements	768 (H) x 494 (W) Approx. 370k Pixels	752 (H) x 582 (W) Approx. 440k Pixels
Lens - Standard	Fixed Iris Mini-Lens 5.6mm, F3 - Other Lens Options Available	
Synchronization	Internal or External	
Ext. Sync	V.S. (Video Sync)	
Video Output	Composite / 1 Vp-p 75 Ω	
Horizontal Resolution	More than 450 Lines	
Min. Illumination	Less than 0.01 Lux (Video Output 50%, AGC=ON +39dB, f1.4)	
S/N Ratio	Better than 50 dB or Better (AGC=OFF)	
Electronic Iris (Auto)	1/60 ~ 1/30,000 Sec.	1/50 ~ 1/30,000 Sec.
Electronic Iris (Manual)	Flickerless & Fixed Shutter Speeds Selectable Via Resistive Jumpers or Software	
Horizontal Drive Freq.	15.734 kHz	
Vertical Drive Freq.	59.94 Hz	
Gamma Characteristics	0.45	
AWB (Auto White Balance)	Fixed, Auto or Manual Selectable Via Resistive Jumpers or Software	
AGC (Auto Gain Control)	ON/OFF/Manual Selectable Via Resistive Jumpers or Software	
BLC (Back Light Comp.)	ON/OFF Selectable Via Resistive Jumpers or Software	
Auto Iris lens Output	Not Available / Used For IR Cut Filter	
Power Requirements	DC +6 to +15V	
Current Consumption	150 mA at 12 Volts DC	
Storage Temp. Humidity	25°C ~ +60°C - Max. (R/H 20% to 80%)	
Operating Temp. Humidity	0°C ~ +40°C - Max. (R/H 20% to 80%)	
Dimensions	42(W) x 42(L) x 16.3(H) + 32(W) x 32(L) x 16.3(H)	
Weight	Approx. 35g	



* ACTUAL SIZE

42 mm

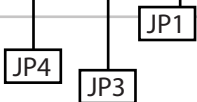
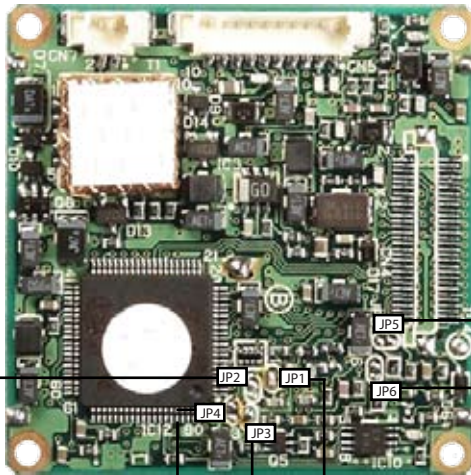


42 mm

* Actual photo size may vary depending on print scaling

** Specifications and availability of products are subject to change without notice

RHPC-790BDN - Connections



CN5 - Function Connector (#BM07B-SRSS-TB)

- CN5-1 - Y OUT (White)
- CN5-2 - C OUT (White)
- CN5-3 - IRIS OUT (Yellow)
- CN5-4 - EXT SYNCH/HD (Blue)
- CN5-5 - GND (Black)
- CN5-6 - EXT VD/LL (Blue)
- CN5-7 - GND (Black)
- CN5-8 - VIDEO OUT (White)
- CN5-9 - GND (DC) (Black)
- CN5-10 - DC +12Volt IN (Red)

CN7 - Pin Assignment (for Remote Control)

- CN7-1 - GND (REM)
- CN7-2 - REMOTE

AGC / Fixed Gain Mode Setting JP1

JP1	AGC	
Open	ON: Standard Mode Analog +24dB/Digital +15dB	Max +39dB
Short	ON: Analog Only	Max +24dB
470K Ω Mount	ON: High Sensitive Mode Analog +24dB/Digital +24dB	Max +24dB
220K Ω Mount	Fixed Gain by Analog	+24dB Fixed
120K Ω Mount	Fixed Gain by Analog	+18dB Fixed
82K Ω Mount	Fixed Gain by Analog	+12dB Fixed
47K Ω Mount	Fixed Gain by Analog	+06dB Fixed
22K Ω Mount	OFF	+ 0dB Fixed

< Note: The Chip Value on JP1 can be changed in factory. Contact us for more details. >

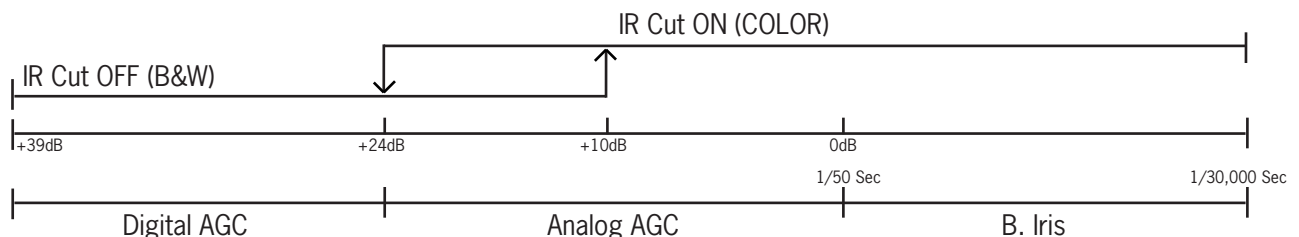
A) At AGC ON, the analog gain works prior to the digital gain - digital gain is effective after analog gain reaches max.

B) At Max gain 48dB, chroma gain is reduced to zero and the picture becomes monochrome.

< Remarks > E/E Mode selectable by Pin No. 6 Available as OEM version, instead of EXT VD/LL. OEM version can select E/E ON/OFF by Pin No. 6

New Function:

this new camera equips the new function to set the IR-Cut filter ON or OFF automatically by detecting the illumination of object.



RHPC-790BDN - Connections

Electronic Shutter (ES) Mode Setting JP2

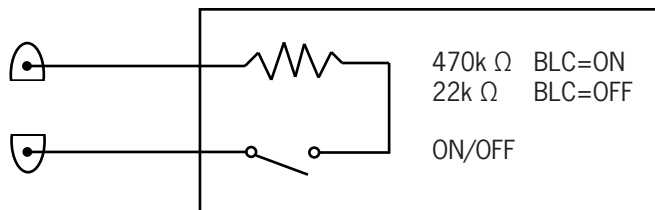
JP2	AGC
Open	Electronic Iris: ON (1/60 to 1/30,000 Sec. Auto)
470k Ω Mount	1/4,000 Sec. Fixed
220k Ω Mount	1/2,000 Sec. Fixed
120k Ω Mount	1/1,000 Sec. Fixed
82k Ω Mount	1/500 Sec. Fixed
47k Ω Mount	1/250 Sec. Fixed
22k Ω Mount	Flicker-less Mode (1/100 Sec. Fixed)
Short	Electronic Iris: OFF (1/60 Sec. Fixed)

White Balance & BLC Mode Settings JP3

JP3	White Balance	BLC (Back Light Compensation)
Open	ATW (2600 to 9000 °K)	OFF (Whole Area Measuring)
470k Ω Mount	ATW LOCK <See Remarks>	OFF (Whole Area Measuring)
220k Ω Mount	5600 °K Fixed	OFF (Whole Area Measuring)
120k Ω Mount	3200 °K Fixed	OFF (Whole Area Measuring)
82k Ω Mount	3200 °K Fixed	ON (Center Measuring)
47k Ω Mount	5600 °K Fixed	ON (Center Measuring)
22k Ω Mount	ATW LOCK <See Remarks>	ON (Center Measuring)
Short	ATW (2600 to 9000 °K)	ON (Center Measuring)

< Remarks >

- A) ATW LOCK: Fix the White Balance while the ATW is working
- B) In order to activate the "ATW Lock", please prepare simple circuits as mentioned below ;

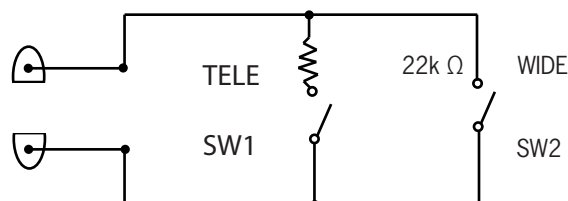


- C) The Center measuring area is located in the center of picture at 1/5 H x 1/5 V
 (H: Horizontal width of picture, V: Vertical width of picture). <See item (9) mentioned below>

Digital Zoom Function Setting JP4

JP4	Function
Open	Zooming Stop
22k Ω Mount	Zooming Toward TELE side (Max 4x)
Short	Zooming Toward WIDE side

< Remarks > In order to activate Zoom, please prepare simple circuits as mentioned below ;



RHPC-790BDN - Connections

Synchronization Mode Select <Pin 4 & 6 of CN5>

Pin No. of CN5	No. 4	No. 6
Mode	EXT_HD/SYNC terminal	EXT_VD/LL terminal
INT MODE	No input	No input
EXT SYNC MODE	Input ext. SYNC pulse	No input
EXT_HD/VD MODE	Input ext. HD pulse	Input ext. VD pulse
Line Lock MODE	No input	Input ext. L/L pulse

< Remarks >

- A) The camera automatically detects and fixes the type of external synchronization by the received signal.
- B) Do not put any signal except the above combination.

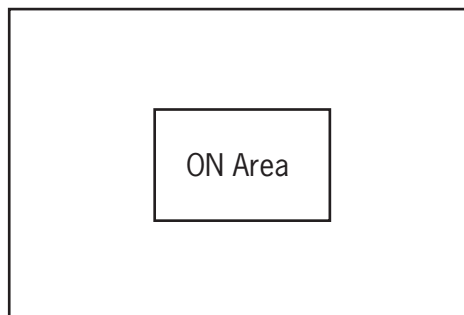
Input Impedance setting to External Sync. terminals < JP5 & JP6 >

	JP5	JP6
Input Impedance	EXT_HD/SYNC (Pin4 of CN5)	EXT_VD/LL (Pin 6 of CN5)
4.7k Ω	Open	Open
75 Ω	Short	Short

Summary of Jumper-Land Setting < JP1 & JP4 >

	JP1	JP2	JP3	JP4
Resistor Mount	AGC/Gain	Shutter	WB/BLC	Digital Zoom
Open	ON / +39dB	E. Iris ON	ATW ON/OFF	Stop
470k Ω Mount	ON / +48dB	1/4,000 Sec. Fixed	ATW LOCK/OFF	-
220k Ω Mount	+24dB Fixed	1/2,000 Sec. Fixed	5,600k Fixed/OFF	-
120k Ω Mount	+18dB Fixed	1/1,000 Sec. Fixed	3,200k Fixed/ON	-
82k Ω Mount	+12dB Fixed	1/500 Sec. Fixed	3,200k Fixed/ON	-
47k Ω Mount	+6dB Fixed	1/250 Sec. Fixed	5,600k Fixed/ON	-
22k Ω Mount	OFF	Flicker-less Mode (1/100 Sec. Fixed)	ATW LOCK/ON	Tele Side
Short	ON / +24dB	E. Iris: OFF (1/60 Sec. Fixed)	ATW ON/ON	Wide Side

BLC Measuring Area: Following "ON Area" is the measuring area at "BLC = ON" setting.



Measuring Area:

Center 1/5 of Vertical Width
 Center 1/5 Horizontal Width

RHPC-790BDN - Connections

Factory Settings

JP1	JP2	JP3	JP4	JP5	JP6
Open	Open	Open	Open	Open	Open
AGC ON	E. Iris ON	ATW ON	Digital Zoom	EXT_HD/SYNC	EXT_VD/LL
39dB Max.		BLC OFF	Stop	Imped. 4.7k	Imped 4.7k

External Synchronization Specifications

Input Signal Level	A) VS/VBS or SYNC	0.3V +/- 3dB or 2-5V to terminal EXT HD/SYNC
	B) HD/VD	HD 2-5V to terminal EXT_HD/SYNC VD 2-5V to terminal EXT_VD/LL
	C) Line Lock	2-5V Pulse to terminal EXT_VD/LL
Input Signal Frequency	A) SYNC or HD/VD	Horizontal Frequency NTSC: 15.73426 KHz +/- 1% PAL: 15.62500 KHz +/- 1%
	B) Line Lock (LL Pulse)	NTSC: 60KHz +/- 1% PAL: 50KHz +/- 1%
Phase Adjust by Phase VR by Phase VR or Remote Adj.	A) SYNC or HD/VD	Horizontal phase shall vary more than +/- 1.0 μ against a horizontal phase of external sync signal.
	B) Line Lock (LL Pulse)	Vertical phase of VBS output shall vary more than 300° against LL pulse.