

1/3" High Resolution Color Board Camera

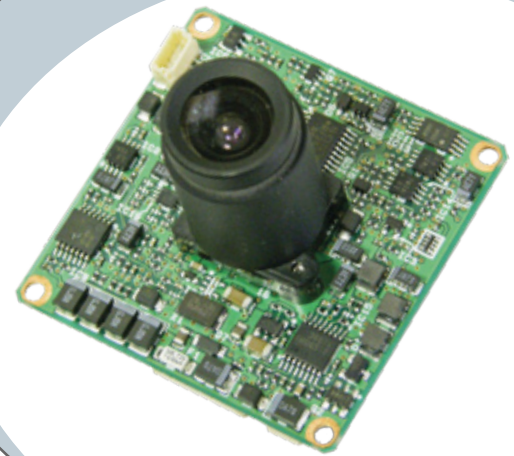
RHPC-890A/895A

1/3" Color CCD
42 x 42mm Single Board
Y/C (S-Video) & Composite Output
Internal & External Synchronization
10.5 - 15 Volt DC Operation
0.5 Lux Sensitivity
4X Digital Zoom

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

Gain	— Back Light Compensation
Shutter Speed	— External Synchronization
White Balance	— Phase Adjustment
4X Digital Zoom	

* RHPC-RE-600 Interface Required for Software Control



RHPC-890A (NTSC)
RHPC-895A (PAL)

Specifications	RHPC-890A (NTSC)		RHPC-895A (PAL)	Dimensions 42x42mm
Image Sensor	1/3" Inter-line Type CCD Image Sensory / SONY			* ACTUAL SIZE  42 mm  42 mm * Actual photo size may vary depending on print scaling ** Specifications <i>and availability of products are subject to change without notice</i>
Scanning System	2 : 1 Interlace			
Total Number of Pixels	811 (H) x 508 (W)		N/A	
Effective Pixel Elements	768 (H) x 494 (W) Approx. 370k Pixels		N/A	
Lens - Standard	f=5.6mm F3			
Synchronization	External Sync			
Ext. Sync	1) VBS: 1.0Vp-p or SYNC - 2) HD/VD			
Video Output	Composite / 1 Vp-p 75 Ω			
Horizontal Resolution	More than 450 Lines			
Min. Illumination	0.5 Lux or less at F1.4, AGC ON (Standard +39dB) (A_AGC = +24dB and D_AGC = +15dB Total +39dB)			
S/N Ratio	48dB at Aperature=OFF; γ=OFF; Gain=0dB, Measuring band width from 100KHz to 5.2MHz * S/N Meter Setting: SC TRAP ON			
Electronic Iris (Auto)	1/60 ~ 1/30,000 Sec.		1/50 ~ 1/30,000 Sec.	
Electronic Shutter	OFF / Flicker less / EI /Other (Standard: Auto) * Setting by Software or Resistive Jumper			
Horizontal Drive Freq.	15.734 kHz			
Vertical Drive Freq.	59.94 Hz			
Gamma Characteristics	0.45			
AWB (Auto White Balance)	3200/5600/ATW/Other (Standard: ATW) * Setting by Software or Resistive Jumper			
AGC (Auto Gain Control)	OFF/ON/Other (Standard: ON) * Setting by Software or Resistive Jumper			
BLC (Back Light Comp.)	Adjustable via Software			
Auto Iris lens Output	DC (galvano) Iris Lens / CN2			
Power Requirements	DC +10.5V to +15V			
Current Consumption	N/A			
Storage Temp. Humidity	Operation Guarantee: -5° to +50°C * (Humidity 20-80% without Condensation)			
Operating Temp. Humidity	Performance Guarantee: 0° to +40°C * (Humidity 20-80% without Condensation)			
Dimensions	42(W) x 42(L)mm			
Weight	Approx. 13g			

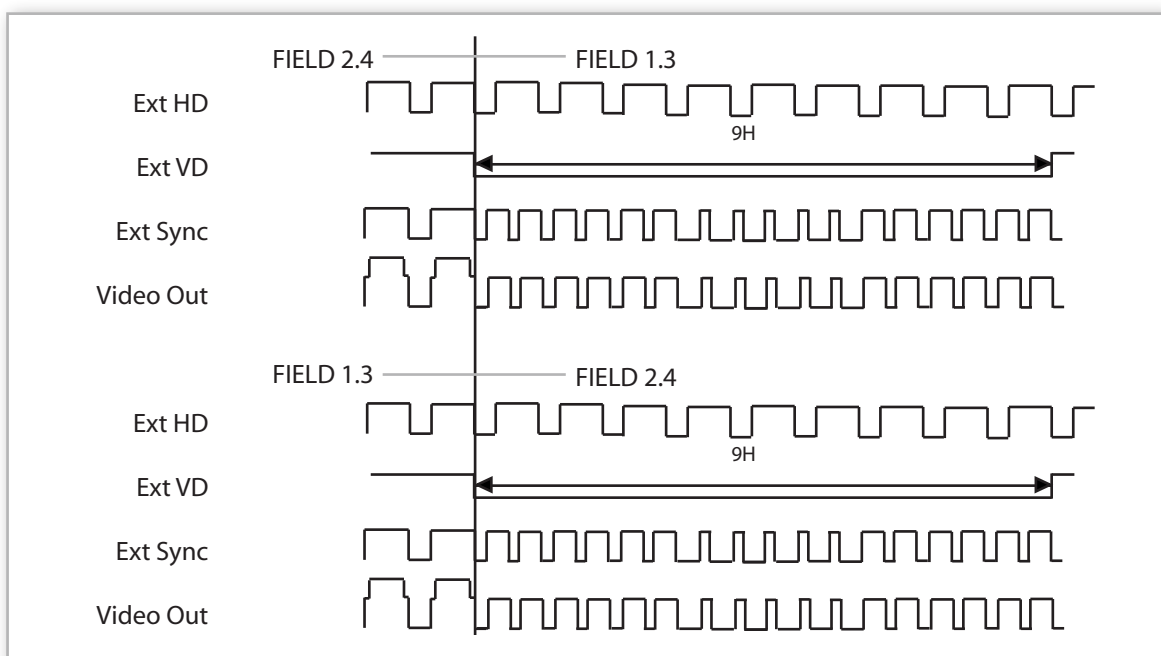
REV: A

RHPC-890A/895A - External Sync

Input Signal Level	a) VS, VBS or SYNC: 0.3 Vp-p +/- 3dB or 2 to 5V at EXT HD/SYNC terminal b) HD/VD: HD: 2 to 5V at EXT_HD/SYNC terminal VD: 2 to 5V at EXT_VD terminal	
Input Frequency	Sync or HD/VD 15.73426KHz +/- 12ppm (Horizontal Freq. at HD/VD)	
Phase Adjustment	Adjusted by Remote Control Sync or HD/VD: Output VBS horizontal phase is changeable more than +/- 1.0 μ s against a horizontal phase of external sync. signal.	Adjustment by remote control

Timing Chart (Reference)

NTSC (SYNC / HD-VD)

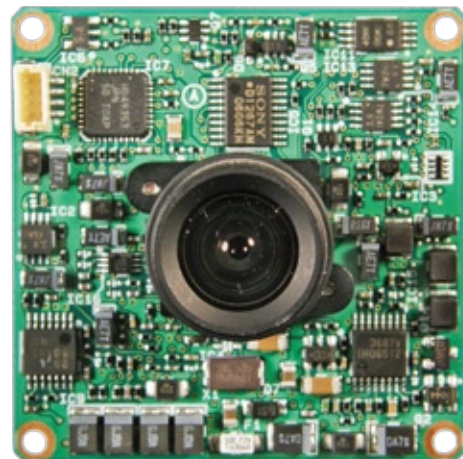


Camera Signal Specifications

Item	Standard	Remarks
White clip level	120 +/- 8 IRE	
Setup Level	5 +/- 4 IRE	at AGC=OFF
Sync. Level	40 +/- 4 IRE	
Sync. Signal Frequency	15.73426 KHz +/- 12 ppm	Incl. Temperature Drift
Sub-carrier Frequency	3.579545 MHz +/- 12 ppm	Incl. Temperature Drift
Gamma Compensation	Approx. 0.45	
Burst Level	40 +/- 4 IRE	

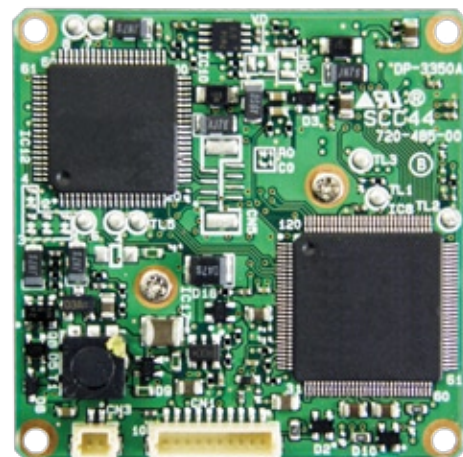
Mode Settings

JP1	Gain Selection
Open	AGC ON Max Gain 39dB (Analog 24dB and Digital 15dB)
470KΩ	AGC ON Max Gain 48dB (Analog 24dB and Digital 24dB)
220KΩ	+24dB fix (Analog Gain)
120KΩ	+18dB fix (Analog Gain)
82KΩ	+12dB fix (Analog Gain)
47KΩ	+6dB fix (Analog Gain)
22KΩ	AGC OFF (0dB fixed)
Short (0Ω)	AGC ON Max Gain 24dB (Analog Gain)



Electronic Shutter

JP2	Standard
Open	E. IRIS ON: 1/60 to 1/30,000 Sec.
470KΩ	1/40,000 Sec. fix
220KΩ	1/2,000 Sec. fix
120KΩ	1/1,000 Sec. fix
82KΩ	1/500 Sec. fix
47KΩ	1/250 Sec. fix
22KΩ	FL 1/100 Sec.
Short (0Ω)	E. IRIS OFF: 1/60 Sec.



Note: Use a Chip Resistor with Size 1.6 x 0.8mm

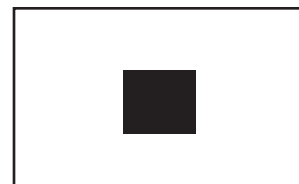
White Balance and BLC

JP3	White Balance Selection	BLC Measure Area Selection
Open	ATW (2600 to 9000°K)	OFF (whole area)
470KΩ	ATW LOCK	OFF (whole area)
220KΩ	5600°K fix	OFF (whole area)
120KΩ	3200°K fix	OFF (whole area)
82KΩ	3200°K fix	ON (center measuring)
47KΩ	5600°K fix	ON (center measuring)
22KΩ	ATW LOCK	ON (center measuring)
Short (0Ω)	ATW (2600 to 9000°K)	ON (center measuring)

Note:

1. ATW LOCK: Fix color temperature at ATW ON by jumper connection with 22K/470KΩ
2. BLC selection sets measuring area of E. Iris and AGC only. While area of ATW is always Whole Area.
3. Use a Chip Resistor with size 1.6 x 0.8mm.

Area if Center Measuring



H: 1/5 Center
V: 1/5 Center

Electronic Zoom

JP4	Electronic Zoom
Open	Stop
22K Ω	Moving Towards Tele side (Max. 4 times)
Short	Moving Towards Wide side

White Balance and BLC

EXT HD/SYNC Terminal (CN1-7)	EXT VD (CN1-5)	Sync Mode
No Signal	No Signal	Internal Sync
EXT SYNC Signal Input	No Signal	External Sync: SYNC Mode
EXT HD Signal Input	EXT VD Signal Input	External Sync: HD/VD Mode

Note:

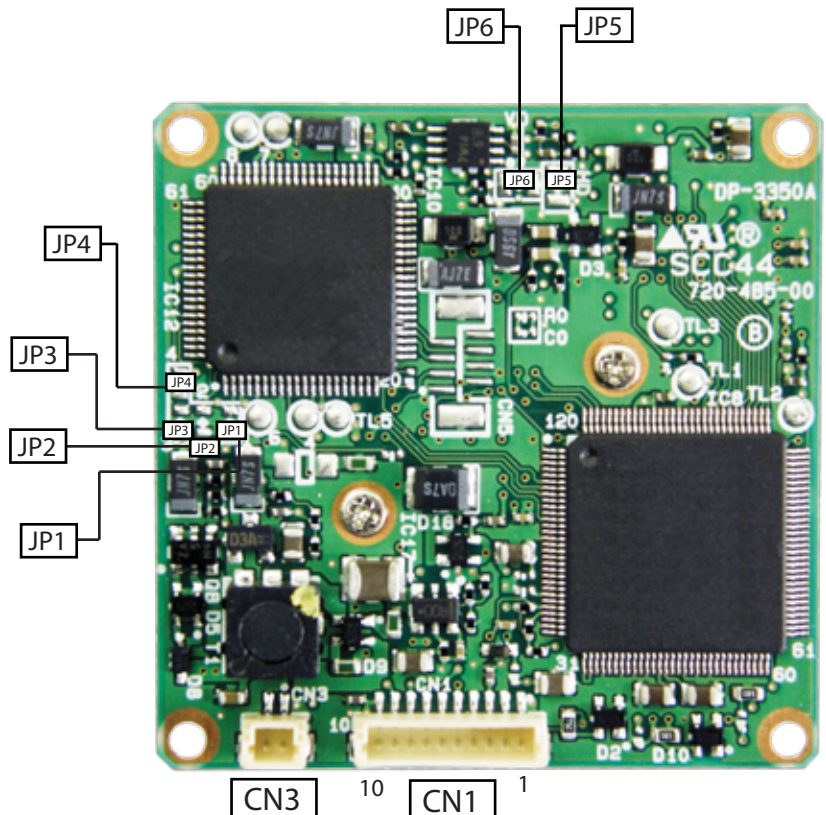
1. External sync mode is selected automatically by the type of sync signal which has input to EXT HD/SYNC terminal and EXT VD terminal
2. Do not input signals except the above mentioned combination
3. Noise may appear when EXT SYNC function is used and AGC is ON.
4. Input impedance of EXT HD/SYNC terminal and EXT VD terminal are selectable by JP 5 and 6 as follows:

JP5	EXT HD/SYNC Terminal
Open	4.7K Ω
Short	75 Ω

Use a chip resistor with size 2.0x12.5mm

JP6	EXT VD/LL Terminal
Open	4.7K Ω
Short	75 Ω

Use a chip resistor with size 2.0x12.5mm



I/O Connector Type (by Naked Board Form)

	Connector on the Board	Connector for Harness	Maker
CN1 (for Power, Video and Ext. Sync)	BM10B-SRSS-TB (LF)(SN)	Housing: SHR-10V-S-B/SHR-10V-S Contact: SSH-003T-P0.2	JST
CN3 (for remote control)	BM02B-SRSS-TB (LF)(SN)	Housing: SHR-02V-S-B/SHR-02V-S Contact: SSH-003T-P0.2	JST
CN2 (for DC Iris)	BM04B-SRSS-TB (LF)(SN)	Housing: SHR-04V-S-B/SHR-04V-S Contact: SSH-003T-P0.2	JST

Pin Assignment of Connectors (by Naked Board Form)

CN1	Signal	Description
10	Y OUT	Luminance Signal Output
9	C OUT	Choma Signal Output
8	IRIS OUT	Signal Output for Auto Iris Lens (Video Iris)
7	EXT HD/SYNC	External Sync HD/SYNC Input
6	GND	GND
5	EXT VD	External Sync VD Input
4	GND	GND
3	VIDEO OUT	Video Signal Output
2	GND	GND for Power
1	Power	Power Input

CN3	Signal	Description
2	GND	GND for Remote Control
1	REMOTE	Remote Control Signal I/O

This is used for DC (galvano) Iris Lens

CN2	Signal	Description
4	DRIVE +	DRIVE + Output for DC Iris
3	DRIVE -	DRIVE - Output for DC Iris
2	DUMP -	DUMP - Output for DC Iris
1	DUMP +	DUMP + Output for DC Iris

Simultaneous Operation of E.IRIS and Auto Iris

- It is possible to use E.IRIS and Auto Iris (DC Iris) function at a same time.

Factory Setting

Remote Control Address: 000 Data: 000 Jumper Land: Valid

JP1	JP2	JP3	JP4	JP5	JP6
OPEN	OPEN	OPEN	OPEN	OPEN	OPEN
AGC ON Max 39dB (A: +24dB, D: +15dB)	E. IRIS ON	ATW BLC OFF	E. ZOOM STOP	EXT_HD/SYNC Input Impedance = 4.7KΩ	EXT_VD Input Impedance = 4.7KΩ