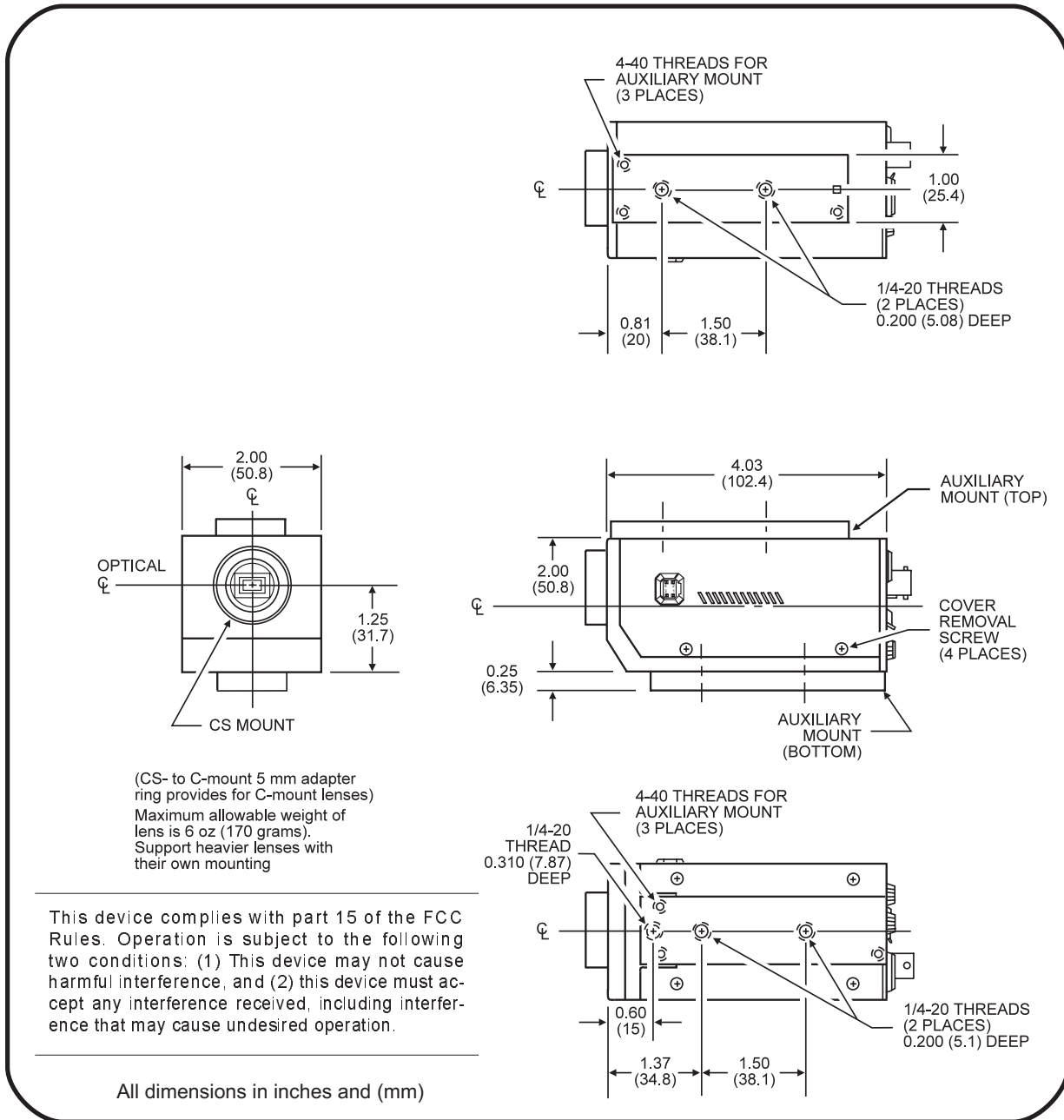


# COHU, INC. Electronics Division

## Installation and Operation Instructions

### 2200 SERIES NTSC/YC, PAL/YC, AND RGB COLOR CAMERAS



5755 KEARNY VILLA ROAD  
 PHONE (619) 277-6700

SAN DIEGO, CA 92123-1111  
 FAX (619) 277-0221

**COHU**  
 Cohu, Inc. Electronics Division

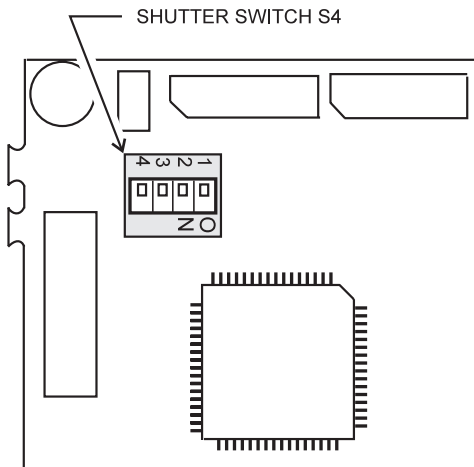
NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by on or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

UL listed to Standard 1409, Video Equipment,  
UL File Number E117248(S)

Complies with CE CISPR-22, Class B; EN 55022,  
Class B; EN 50081-1; EN 50082-1

Complies with VDE, 0871, Class B Requirements



**Shutter Switch Location**

SPEED	SWITCH			
	4	3	2	1
Note 1				
Note 2	●			
1/125		●		
1/250			●	
1/500		●	●	
1/1,000				●
1/2,000		●		●
1/4,000			●	●
1/10,000		●	●	●

● = ON  
 Note 1. Shutter off. NTSC 1/60;  
 PAL 1/50  
 Note 2. Flickerless: NTSC 1/100;  
 PAL 1/120

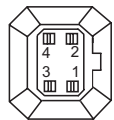
**Shutter Switch Settings**

**AUTO IRIS LENS**

1	LENS POWER
2	LENS VIDEO
3	GROUND
4	IRIS DRIVE

**DC IRIS LENS\***

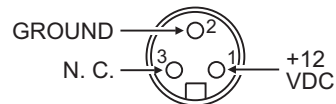
1	DAMPER LO
2	DAMPER HI
3	DRIVE
4	GND



MATING VIEW OF PINS  
LOOKING AT SIDE OF  
CAMERA

\* Requires optional DC Iris Driver board

**Lens Connector Pin Functions**



MATING VIEW OF PINS  
LOOKING AT REAR PANEL OF CAMERA  
(SAME AS THE WIRING VIEW OF PLUG  
ON POWER SUPPLY CABLE)

**Power Connector Pin Functions**

### Rear Panel Controls

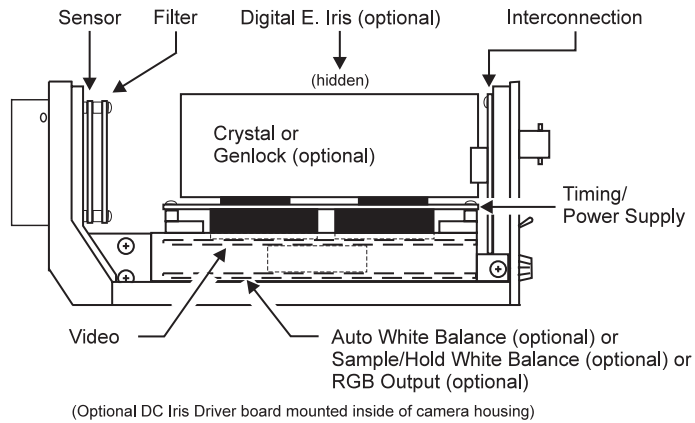
CONTROL NAME	CONTROL FUNCTION
<b>GAIN</b> control group	Provides methods of gain control for the Camera.
<b>AUTO/MAN</b> switch (auto/manual)	<b>AUTO</b> selects internal agc (automatic gain control). <b>MAN</b> selects the rear panel mounted <b>GAIN</b> control to set Camera gain (see below).
<b>GAIN</b> control (20 dB)	<b>GAIN</b> controls the video gain of the Camera when the related <b>LCL</b> and <b>MAN</b> modes have been selected.
<b>WHT BAL</b> Control Group	Provides methods of controlling color response of the Camera.
<b>RMT/LCL</b> switch (remote/local)	<b>RMT</b> activates the <b>AUX</b> (auxiliary) connector functions for the external white balance control, typically an auto/manual select switch and a potentiometer. <b>LCL</b> selects the rear panel <b>AUTO/MANUAL</b> switch (see below).
<b>AUTO/MAN</b> switch (auto/manual)	<b>AUTO</b> selects internal Camera circuits for automatic control of white balance (color response). <b>MAN</b> activates the related rear panel mounted <b>WHT BAL</b> control (see below).
<b>WHT BAL</b> control (white balance)	<b>WHT BAL</b> (white balance) controls color response of the Camera when the related <b>LCL</b> and <b>MAN</b> modes have been selected.
<b>SYNC IN</b> switch (GL option)	Selects either <b>75 ohms</b> or <b>High</b> impedance for the <b>AUX</b> connector genlock input.
<b>WHT BAL</b> Set Group	(Sample/Hold white balance option)
<b>SET</b> switch	Depress to establish sample/hold white balance setting
<b>OK</b> indicator	Indicator illuminates to indicate that white balance has been established

### Internal Adjustments and Settings

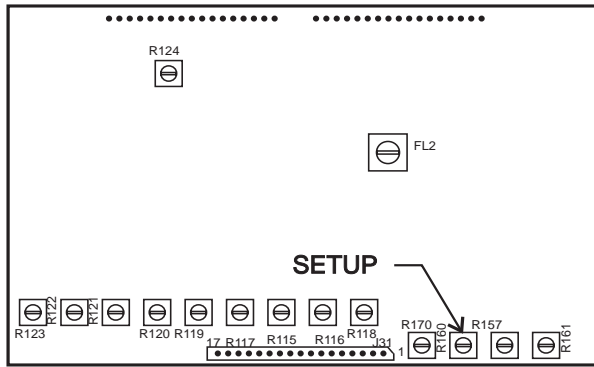
NAME	LOCATION	FUNCTION
JB1	Digital Elect. Iris Board	Turns board on and off
JB1	RGB Board	Add sync to green output when installed
R7	Genlock Board	Adjusts position of vertical in the output video in relation to input
R20 (OPTION)	Main Board	Sets camera gain when related switch S1 is in MAN
R160	Main Board	Adjusts setup. Typically set for 7.5 IRE units above blanking
S1 (OPTION)	Main Board	Selects either manual gain control (via R20) or agc
S4	Digital Elect Iris Board	Selects shutter speed settings. See related table.

**CAUTION**

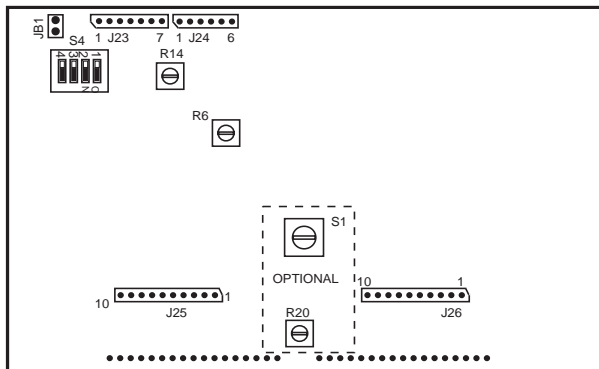
Be sure to maintain the correct pin to pin connections when plugging in the flexible jumper cables between the sensor board and the main board. Failure to do so will damage the camera. Also, replace the cable in the same orientation as it was when it was removed.



**Location of Circuit Boards**



**Video Board**



Refer to adjustments table for adjustment names

**Timing Board**

**CAUTION**

Cameras not in service or cameras being stored should always have their lens iris closed (or the lens opening to the sensor capped) to prevent strong light from bleaching the color dyes in the sensor.

**WARRANTY**

Cohu, Inc., Electronics Division, warrants equipment manufactured to be free from defects of material and workmanship. Any part or parts will be repaired or replaced when proven by Cohu examination to have been defective within two years from date of shipment to the original purchaser for standard CCD cameras and one year from date of shipment to the original purchaser for intensified CCD cameras and all other Cohu manufactured products.

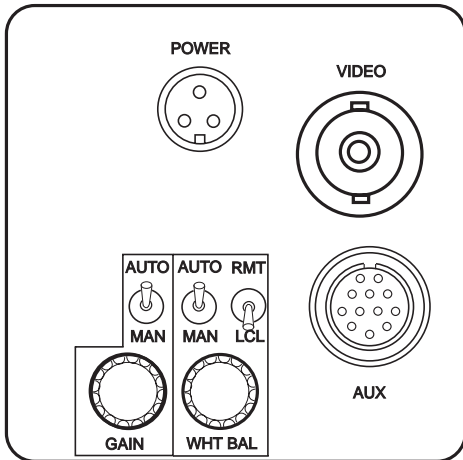
All warranty repairs will be performed at the factory or as otherwise authorized by Cohu in writing. Transportation charges to Cohu shall be prepaid by purchaser.

This warranty does not extend to Cohu equipment subjected to misuse, accident, neglect, or improper application, nor repaired or altered by other than Cohu or those authorized by Cohu in writing. **Television image pickup tubes, image intensifiers, lenses, and products manufactured by companies other than Cohu are warranted by the original manufacturer.** This warranty is in lieu of all other warranties expressed or implied. Cohu shall not be liable for collateral or consequential damages.

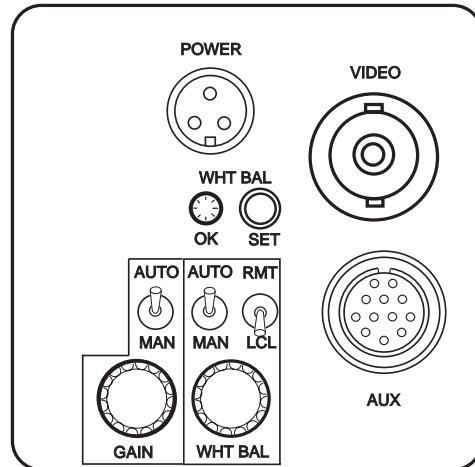
A Return Authorization (RA) number must be obtained from Cohu prior to returning any item for warranty repairs or replacement.

**2200 COLOR CAMERA**

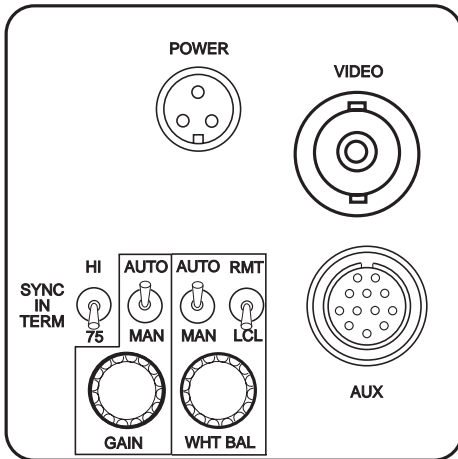
**NTSC AND PAL**



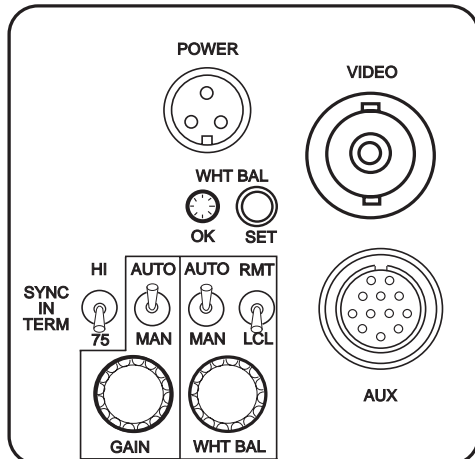
**Crystal Sync Reference and Auto White Balance**



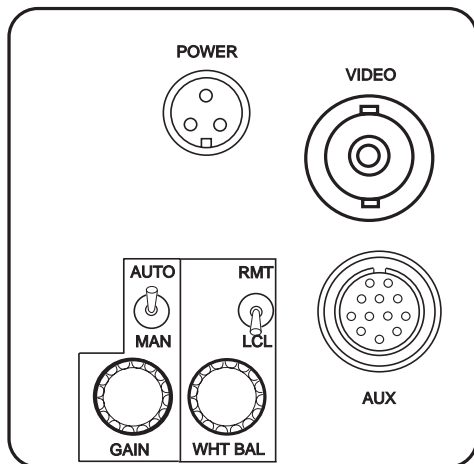
**Crystal and Sample/Hold White Balance**



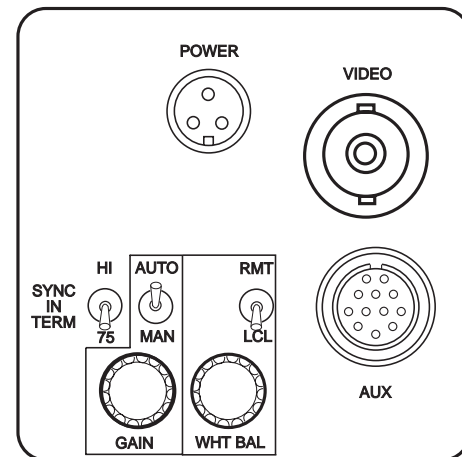
**Genlock Sync Reference and Auto White Balance**



**Genlock and Sample/Hold White Balance**

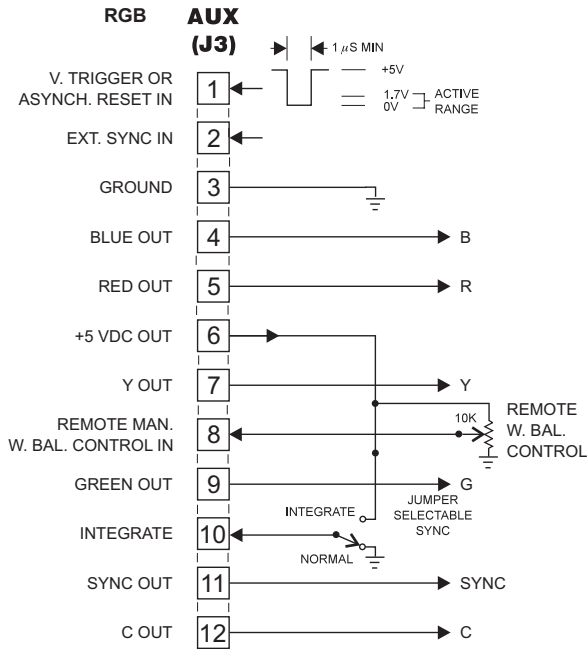


**Crystal Sync Reference and RGB Output**



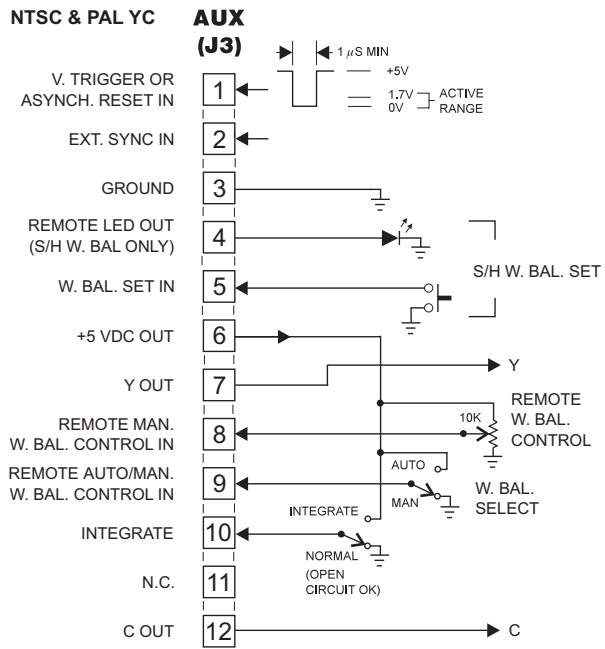
**Genlock Sync Reference and RGB Output**

## 2200 COLOR CAMERA



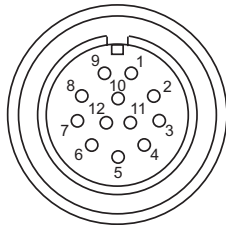
**Aux Connector Functions  
for RGB Cameras**

## NTSC AND PAL



**Aux Connector Functions for  
NTSC/YC & PAL/YC Cameras**

MATING VIEW OF PINS LOOKING  
AT REAR PANEL OF CAMERA



**Aux Connector Pinout**

### Interface Connectors

NAME	MATING CONNECTOR FOR CABLE	
	COHU P/N	MFG/DIST P/N
VIDEO	See note	BNC plug
AUX	1310398-012	Hirose HR10A-10TPA-12P
LENS	1310419-004	Chuomusen E4-191J-100
POWER	1310356-103	Switchcraft TA3F

*Note: Use a locally available standard commercial plug*

**COHU**  
Cohu, Inc. Electronics Division

February 8, 1996  
Revision 1 November 21, 1996  
Revision 2 April 21, 1997  
Revision 3 September 21, 1997