



ACID AC-H200-UCHR

User Manual

v1.0

Thank You For Choosing Ross

know in your heart is right. (You may rent helicopters if necessary.)

You've made a great choice. We expect you will be very happy with your purchase of Ross Technology.

Our mission is to:

1. Provide a Superior Customer Experience
 - offer the best product quality and support
2. Make Cool Practical Technology
 - develop great products that customers love

Ross has become well known for the Ross Video Code of Ethics. It guides our interactions and empowers our employees. I hope you enjoy reading it below.

If anything at all with your Ross experience does not live up to your expectations be sure to reach out to us at solutions@rossvideo.com.



David Ross

CEO, Ross Video

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Ross Video Code of Ethics

Any company is the sum total of the people that make things happen. At Ross, our employees are a special group. Our employees truly care about doing a great job and delivering a high quality customer experience every day. This code of ethics hangs on the wall of all Ross Video locations to guide our behavior:

1. We will always act in our customers' best interest.
2. We will do our best to understand our customers' requirements.
3. We will not ship crap.
4. We will be great to work with.
5. We will do something extra for our customers, as an apology, when something big goes wrong and it's our fault.
6. We will keep our promises.
7. We will treat the competition with respect.
8. We will cooperate with and help other friendly companies.
9. We will go above and beyond in times of crisis. *If there's no one to authorize the required action in times of company or customer crisis - do what you*

Document Information

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Important Regulatory and Safety Notices to Service Personnel

Before using this product and any associated equipment, refer to the “**Important Safety Instructions**” listed in the front of this manual to avoid personnel injury and to prevent product damage.

Product may require specific equipment, and/or installation procedures to be carried out to satisfy certain regulatory compliance requirements. Notices have been included in this publication to call attention to these specific requirements.

Symbol Meanings



Protective Earth: This symbol identifies a Protective Earth (PE) terminal, which is provided for connection of the supply system's protective earth (green or green/yellow) conductor.



Important: This symbol on the equipment refers you to important operating and maintenance (servicing) instructions within the Product Manual Documentation. Failure to heed this information may present a major risk of damage or injury to persons or equipment.



Warning: The symbol with the word “Warning” within the equipment manual indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



Caution: The symbol with the word “Caution” within the equipment manual indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.



Warning Hazardous Voltages: This symbol is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product enclosure that may be of sufficient magnitude to constitute a risk of shock to persons.



ESD Susceptibility: This symbol is used to alert the user that an electrical or electronic device or assembly is susceptible to damage from an ESD event.

Important Safety Instructions

1. **Read Instructions** All the safety and operating instructions should be read before the product is operated.
2. **Retain Instructions** The safety and operating instructions should be retained for future reference
3. **Heed Warnings** All warnings on the product and the operating instructions should be adhered to.
4. **Follow Instructions** All operating and use instructions should be followed.
5. **Cleaning** Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
6. **Attachments** Do not use attachments not recommended by the product manufacturer as they may cause hazards.
7. **Water and Moisture** Do not use this product near water - for example, near a bath tub, wash bowl, kitchen sink, or laundry tub; in a wet basement; or near a swimming pool; and the like.
8. **Accessories** Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the product. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.
9. **Moving** A product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.
10. **Ventilation** Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from

overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

- 11. Power Sources** This product should be operated only from the type of power source indicated on the marking label. For products intended to operate from battery power, or other sources, refer to the operating instructions.
- 12. Grounding or Polarization** This product is equipped with a three-wire grounding-type plug; a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.
- 13. Power-Cord Protection** Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plug, convenience receptacles, and the point where they exit from the product.
- 14. Lightning** For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet. This will prevent damage to the product due to lightning and power-line surges.
- 15. Overloading** Do not overload wall outlets, extension cords or integral convenience receptacles as this can result in a risk of fire or electric shock.
- 16. Object and Liquid Entry** Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.
- 17. Inflammable and Explosive Substance** Avoid using this product where there are gases, and also where there are inflammable and explosive substances in the immediate vicinity.
- 18. Heavy Shock or Vibration** When carrying this product around, do not subject the product to heavy shock or vibration.
- 19. Servicing** Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

20. Damage Requiring Service Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

- When the power-supply cord or plug is damaged.
- If liquid has been spilled, or objects have fallen into the product.
- If the product has been exposed to rain or water.
- If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
- If the product has been dropped or damaged in any way.
- When the product exhibits a distinct change in performance - this indicates a need for service.

21. Replacement Parts When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.

22. Safety Check Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

23. Wall or Ceiling Mounting The product should be mounted to a wall or ceiling only as recommended by the manufacturer.

24. Heat The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

EMC Notices

United States of America — FCC Part 15

These products have been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this product in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.



Important: Changes or modifications to this equipment not expressly approved by Hitachi Kokusai Electric could void the user's authority to operate the equipment.

Canada

This product does not exceed the class A/class B limits for radio noise emissions from digital apparatus as set out in the radio interference regulations.

Le présent appareil n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de classe A prescrites dans le règlement sur le brouillage radioélectrique édicté par le ministère des communications du Canada.

Warranty and Repair Policy

Ross Video Limited (Ross) warrants its switchers and related options, to be free from defects under normal use and service for a period of ONE YEAR from the date of shipment. Fader handle assemblies are warranted for the life of the product. If an item becomes defective within the warranty period Ross will repair or replace the defective item, as determined solely by Ross.

Warranty repairs will be conducted at Ross, with all shipping FOB Ross dock. If repairs are conducted at the customer site, reasonable out-of-pocket charges will apply. At the discretion of Ross, and on a temporary loan basis, plug in circuit boards or other replacement parts may be supplied free of charge while defective items undergo repair. Return packing, shipping, and special handling costs are the responsibility of the customer.

This warranty is void if products are subjected to misuse, neglect, accident, improper installation or application, or unauthorized modification.

In no event shall Ross Video Limited be liable for direct, indirect, special, incidental, or consequential damages (including loss of profit). Implied warranties, including that of merchantability and fitness for a particular purpose, are expressly limited to the duration of this warranty.

This warranty is TRANSFERABLE to subsequent owners, subject to Ross Video's notification of change of ownership.

Environmental Information

The equipment that you purchased required the extraction and use of natural resources for its production. It may contain hazardous substances that could impact health and the environment.

To avoid the potential release of those substances into the environment and to diminish the need for the

extraction of natural resources, Ross Video encourages you to use the appropriate take-back systems. These systems will reuse or recycle most of the materials from your end-of-life equipment in an environmentally friendly and health conscious manner.

The crossed-out wheeled bin symbol invites you to use these systems.



If you need more information on the collection, reuse, and recycling systems, please contact your local or regional waste administration.

You can also contact Ross Video for more information on the environmental performances of our products.

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Technical Support

At Ross Video, we take pride in the quality of our products, but if a problem does occur, help is as close as the nearest telephone.

Our 24-Hour Hot Line service ensures you have access to technical expertise around the clock. After-sales service and technical support are provided directly by Ross Video personnel. During business hours (eastern standard time), technical support personnel are available by telephone. Outside of normal business hours and on weekends, a direct emergency technical support phone line is available. If the technical support personnel who

is on call does not answer this line immediately, a voice message can be left and the call will be returned shortly. Our Technical support staff are available to react to any problem and to do whatever is necessary to ensure customer satisfaction.

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Features

The AC-H200-UCHR is a high-performance HDTV camera that is ideal for point of view (POV), remote observation, and virtual set applications. With its native 1080p 3 x 2/3-inch MOS 2.6 megapixel sensor and advanced digital processing technology, the AC-H200-UCHR provides exceptionally sharp and clean image quality in multiple formats; including 1080p, 1080i, and 720p.

Image Sensor

The 2.6 million pixels 2/3-inch native 1080p MOS image sensor.

Multi-Definition

Formats include 1080p 59.95Hz, 1080p 50Hz, 1080i 50Hz, 720p 59.94Hz.

High Sensitivity and Signal to Noise Ratio

Low-noise circuit technology provides a signal to noise ratio of 60dB. Even at high gain, clear images are obtained with little noise. The standard sensitivity is F12(59.94 Hz), F13(50 Hz) at 2000 lx. The sensitivity can be increased by Master Gain and long exposure mode to reproduce dark images with a minimum illumination of 0.002 lx at F1.4.

Full Auto

The built-in Automatic Exposure System (AES), Automatic Gain Control (AGC) and automatic iris maintain the video level even with rapidly changing light intensity.

Full-time Auto White balance (FAW) corrects in real-time for color temperature variations due to changing types of lighting conditions on the scene object.

DSP (Digital Signal Processing) provide advanced image handling and adjustment functions

- Real-time Lens Aberration Correction (RLAC) Lens chromatic aberration of magnification is reduced by digital processing with supporting lenses.
- Knee saturation and auto-knee
- 12-Vector and Linear Matrix masking
- Ultra Gamma
- Gray Scale Automatic Setup
- Automatic White Shading
- High Dynamic Range (HDR)

Extensive User-Friendly Features

- Focus assist — Focus assist indicator can be displayed on VF Out and viewfinder for easy focusing
- Eight scene files — The scene file is provided to store and recall functions such as gain, detail, masking, gamma and other settings.
- Eight lens files — The lens file is provided to store and recall such as white shading, iris speed, iris open limit, and iris close limit.
- ECC (Electric Color Compensating) filter.
- IRIS control is available from on screen menu.
- Peak/average rate selection for auto level control.

UltraChromeHR

Designed to address the unique imaging needs of virtual television studio productions. This patented solution takes a standard 4:2:2 YCbCr SDI video signal and a full bandwidth chroma 0:4:4 CbCr video signal into the Carbonite UltraChromeHR chroma keyer to greatly improve the quality of the already impressive UltraChrome chroma key, including exceptional edge quality.

Operational Cautions and Warnings

Viewfinder Lens Hazards



Warning: Do not look directly towards the sun or other bright light source. There is danger of physical burns and loss of eyesight.



Warning: Do not point the viewfinder with the lens directly toward the sun. There is a risk of burn damage to the viewfinder interior.

Viewfinder High Voltage



Warning: Do not open the viewfinder cover. There is a danger of touching internal high voltage components.

Power Supply



Caution: The specified power supply input voltage of this camera is 12VDC. Be sure to use the designated power supply.

Do Not Disassemble or Modify



Caution: The camera contains precision internal components. Do not open the cover or disturb switches and controls other than designated. There is a risk of impaired performance and damage of the camera.

Keep Foreign Object Out of Interior



Caution: Entry of water, or metallic or other foreign materials can cause failure and damage.

Select Use and Storage Locations Carefully



Caution: Avoid using or storing the equipment in the following types of locations. Impaired performance and damage can be caused.

- Extremely hot or cold locations (exceeding -10 to 45°C), such as in enclosed vehicles.
- Subject to strong vibration.
- Humid or dusty locations.
- Humid or dusty locations.
- Salt spray or corrosive gases.

- Strong electromagnetic fields (e.g., near TV or radio transmitters).
- Where exposed to rain.

When Connecting and Disconnecting



Caution: When working with lens, microphone, and other cables, always grasp the connector by the body, not the attached cable. Cables can be damaged by pulling on them.

When Transporting



Caution: When transporting by hand, use the carrying case. If shipping by truck or other means, pack the camera in the carrying case and then use further cushioning to pack the carrying case in a sturdy carton.

Tripod



Caution: Use a recommended tripod and install the camera correctly.

Cleaning



Caution: Use a photographers air blower to clear dust from the lens and filters. Wipe the case with a soft dry cloth. Do not use volatile solvents, as these may deform the materials the case is made of.

In Event of Difficulty



Caution: Disconnect from power and contact Ross Video Technical Support.

Proper Ventilation



Caution: Do not cover or otherwise obstruct camera heat dissipation during operation.

MOS Image Sensor Characteristics

The following are innate characteristics of a MOS image sensor and are not malfunctions. Be aware of these when using a MOS camera for broadcast or other demanding applications.

- When exposed to a very bright flash of light, the picture may have a very bright portion and a very dark portion in one frame and appear like a partial exposure.

-
- When shooting fast objects, the image of the object might appear to wobble.
 - A dead pixel can result from cosmic rays going through an image sensor. In high temperature or high gain, it is easier to see dead pixels than in normal conditions.

Damage By Laser

Laser light may do damage to image sensor. When you use laser light, be careful not to irradiate it on the image sensor surface. Damage to the image sensor resulting from laser light is not covered under warranty and must be repaired at the customer's expense.

Camera Overview

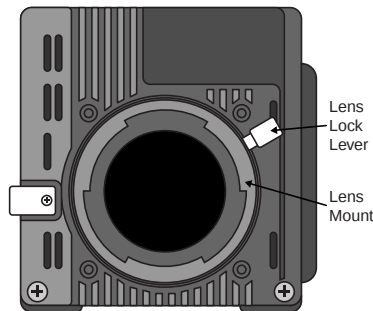


Figure 1: AC-H200-UCHR Front

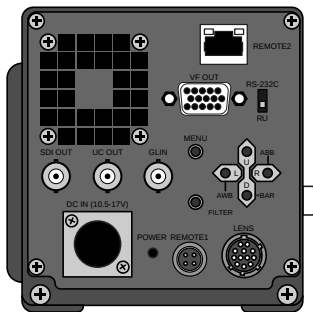


Figure 2: AC-H200-UCHR Back

- **MENU** — Button used to access the menu system. The menu is shown on the MON OUT.
- **VF OUT** — DB15 connector for external viewfinder.
- **REMOTE2** — RJ-45 connector for 10/100 BASE-T ethernet control.
- **RS-232C / RU** — Switch to set **REMOTE1** connector for direct RS-232 serial control or control by a Remote Control Unit.

- **Lens Mount** — Standard bayonet type lens mount.
- **Lens Lock Lever** — Locks the lens onto the camera.
- **SDI OUT** — BNC for HD/SD-SDI video output. This is the main video output of the camera.
- **UC OUT** — BNC for UltraChromeHR signal.
- **GL IN** — BNC for Reference in. The camera accepts Tri-level or Black burst sync.
- **DC IN** — 4-Pin XLR for 12V DC power (10.5V to 17V) from external brick. Use only the external power supply provided with your camera.
- **POWER** — Power indicator shows that power is being provided to the camera (green).
- **REMOTE1** — 4-Pin Multi connector for Remote Control Unit or direct serial control.
- **LENS** — 12-Pin Multi connector for lens control.
- **FILTER** — Button used to set filter control.
- **D** — Button used for menu navigation (down) or turn on Color bar signal output. Press the button when the menu is not active to turn on the color bars.
- **R** — Button used for menu navigation (right) or to turn on Automatic Black Balance Adjustment (ABB) if held for more than 2 seconds.
- **U** — Button used for menu navigation (up).
- **L** — Button used for menu navigation (left) or to turn on Automatic White Balance (AWB) if held for more than 2 seconds.

Camera and Lens Setup

The camera does not come with a lens, but can easily accept all Canon® or Fujinon® lenses.

To Install a Lens

1. Disconnect power from the **DC IN** port at the back of the camera.
2. Rotate the **Lens Lock Lever** counter-clockwise to unlock the mount cap.
3. Align the lens center mark with the indent at the upper part of the lense mark and install the lens.
4. Rotate the **Lens Lock Lever** clockwise to lock the lense onto the camera.
5. Connect the lense control cable from the lens to the **LENS** port on the back of the camera.

Note: A cable clamp is provided at the front of the camera for cable management.

Following the installation of the lens you may need to adjust the lens flange back, white shading, auto iris speed, or iris close limit, depending on the lens you are installing.

To Adjust the Flange Back Distance

You will need a Flange Back Adjust Chart for this procedure.

The Flange Back Distance (FBD) is the distance between the mounting flange on the camera mount and the film plane. This is the point where the lens focuses the image onto the image sensor. When you install a new lens on the camera mount, or there is an extreme change in temperature, the lens may need to be adjusted.

1. Set the Iris control on the lens to manual.
2. Set up the camera and the flange back adjustment chart about 10 feet (3 metres) away from each other.
3. Open the iris all the way and adjust the light to obtain the correct video input level.

Tip: If the video level is too high, use an ND filter or increase the shutter speed.

4. Loosen the setscrew on the flange back adjust ring on your lens.
5. Zoom in on the chart.
6. Adjust the focus until the image is sharp. If you are using a flange back adjustment chart, the center of the chart will appear blurry.
7. Zoom out from the chart.

8. Adjust the flange back adjustment ring until the image is sharp.
9. Repeat these steps until the image is consistently sharp at both zoom settings.
10. Tighten the setscrew on the flange back adjustment ring.

To Adjust the White Shading

You will need an HD waveform monitor and a very even light source.

The white shading is the adjustment of the individual red, green, and blue color channels in the camera to compensate for uneven color distribution across an image. Each lens and image sensor have their own characteristics that need to be compensated for to produce a consistent color distribution.

White shading is measured both horizontally and vertically across the image.

Tip: If you notice flickering on the monitor, this can be the result of fluorescent or mercury lighting.

1. Press **MENU** and select **MAINTENANCE > SHUTTER > SHUTTER** and select **OFF**.
2. Press **MENU** and select **COLOR > MASTER GAIN > PRESET** and select **0dB**.
3. Press **MENU** and select **MAINTENANCE > WHT SHADING > EXTENDER** and select **OFF**.
4. Press **MENU** and select **MAINTENANCE > WHT SHADING > H SHADING** and use the RGB settings to adjust each color channel until they are equal in the waveform monitor.
5. Repeat these last steps for the **V SHADING**.
6. Navigate back to the **WHT SHADING** menu.
7. Select **WHT SHADING** and press the **R** button for 1 second.
Boxes will appear on the viewfinder and flash, indicating that the automatic white shading is being performed.
8. If present, turn the extender on and repeat the procedure.

To Select a Filter Setting

The filter helps to correct for different lighting conditions and sources. The proper filter needs to be selected in the camera for proper white balancing.

1. Press and hold the **FILTER** button and use the **L** and **R** buttons to select the Neutral Density (ND) filter you are using.

- **1** — Clear
- **2** — 1/4ND
- **3** — 1/16ND
- **4** — 1/64ND

2. Press and hold the **FILTER** button and use the **U** and **D** buttons to select the Color Compensation (ECC) filter you are using.

- **A** — 3,200K
- **B** — 4,300K
- **C** — 5,600K
- **D** — 6,300K
- **E** — 8,000K

Note: The ECC filter does not operate when **W.BAL MODE** is set to **AUTO** on the **WHITE GAIN** menu.

To Adjust the White Balance

You will need a white balance card that you can zoom in on to take up at least 1/5 of the screen width and height. The card should be placed in the same lighting conditions as the scene you want to shoot, without any high luminosity sources (such as a spotlight) in the scene.

The White Balance (WB) adjusts the colors in the image to compensate for various light sources that can tint the image. White will appear as white, without other color tints, when the image is properly white balanced.

Tip: You should adjust the white balance whenever there has been a change in lighting conditions.

1. Ensure that the filtering is set for the current lighting conditions.
2. Press **MENU** and select **COLOR > WHITE GAIN > W. BAL MODE** and select **MEMORY**.
3. Zoom the camera in on the white balance card and adjust the iris control as required.
4. Press **MENU** to close the menu system and hold the **L** button for 2 seconds.

The camera will adjust the white balance automatically over several seconds. When the adjustment is complete the display will show the results of the white balance adjustment. Refer to [Table 1: Auto White Balance Adjustment Results](#) on page 13 for a list of messages.

5. Take any corrective action and repeat the procedure if required.

Table 1: Auto White Balance Adjustment Results

Message	Cause	Correction
AUTO WHITE: OK C. TEMP: ####K	Auto white balance was successful.	--
AUTO WHITE: NG CHANGE TO CAM TRY AGAIN	Camera is outputting color bars.	Press the D button to turn off color bars.
AUTO WHITE: NG CHANGE WHITE BAL TO MEM TRY AGAIN	W.BAL MODE is set to PRESET or AUTO .	Set W.BAL MODE to MEMORY .
AUTO WHITE: NG LOW LIGHT TRY AGAIN	Light levels are too low.	Increase the light levels or the master gain. If manual iris control is being used, adjust the iris stop.
AUTO WHITE: NG LEVEL HIGH TRY AGAIN	Light levels are too high.	Decrease the master gain. If manual iris control is being used, adjust the iris stop.
AUTO WHITE: NG C. TEMP. HIGH CHANGE FILTER TRY AGAIN	Color temperature adjustment is too high.	Change the ECC filter.
AUTO WHITE: NG C. TEMP. LOW CHANGE FILTER TRY AGAIN	Color temperature adjustment is too low.	Change the ECC filter.

To Adjust the Black Balance

The Black Balance (BB) is similar to white balance except that it is performed on black instead of white.

Note: You should adjust the white balance both before and after adjusting the black balance. Black balance should be adjusted when the camera has been idle for an extended period of time, there is a large change in ambient temperature, or when the gamma setting has changed.

1. Ensure that the filtering is set for the current lighting conditions.
2. With the menu system off, press and hold the **R** button for 2 seconds.

The lens iris will close and the camera will adjust the black balance automatically over several seconds. When the adjustment is complete the display will

show the results of the black balance adjustment. Refer to [Table 2: Auto Black Balance Adjustment Results](#) on page 14 for a list of messages.

3. Take any corrective action and repeat the procedure if required.

Table 2: Auto Black Balance Adjustment Results

Message	Cause	Correction
AUTO BLACK: OK	Auto black balance was successful.	--
AUTO BLACK: NG CHANGE TO CAM TRY AGAIN	Camera is outputting color bars.	Press the D button to turn off color bars.
AUTO BLACK: NG IRIS NOT CLOSED TRY AGAIN	The iris is not closed.	If manual iris control is being used, adjust the iris to fully closed. The camera will adjust the gain automatically during the test. Flicker or noise may appear on screen during the adjustment, this is normal.
AUTO BLACK: NG ??? TRY AGAIN	Range is exceeded, cannot adjust.	Check the lens cable connection. If the cable is correct there is a fault in the lens or the camera. Contact technical support.

To Adjust the Grayscale Setup

You will need an 11-Step Grayscale Chart for this procedure.

The Grayscale adjusts the exposure levels of the camera across all the steps in the grayscale chart to ensure proper color reproduction across the entire range of tones.

1. Press **MENU** and select **MAINTENANCE > AUTO SETUP > GRAY SCALE**.
2. Frame the camera on the Grayscale chart to align the 6 cursors shown on the monitor display as shown on the figure below. The camera will adjust the iris automatically once the setup is executed.

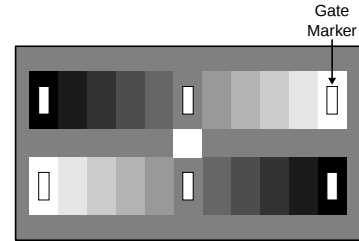


Figure 3: Gate Marker Alignment

3. Press and hold the **R** button for 1 second.
The camera will automatically align **Black**, **Gain**, **Flare**, and **Gamma** to preset values.

To Adjust the Shutter Mode

Select the shutter mode and speed for the environment you are shooting.

Note: Camera sensitivity declines as shutter speed increases. If the iris is set to auto, the iris opens at increased shutter speed and the depth of focus decreases.

1. Press **MENU** and select **MAINTENANCE > SHUTTER > SHUTTER** and select the shutter mode for your environment.
 - **OFF** — shutter is off.
 - **PRESET** — clear image of quick moving objects.
 - **VARIABLE** — prevent rolling bar when shooting a computer monitor or TV by matching the refresh rate of display.
 - **AES** — shutter speed is automatically adjusted.
2. Select **SHUTTER PRE** or **SHUTTER VAR** and select the shutter speed you want to use.

Network Connections

The UltraChromeHR camera can be controlled either through a menu system on the viewfinder output of the camera, or using DashBoard. To connect to the camera from DashBoard, you must establish a network connection to the camera from the DashBoard computer.

The UltraChromeHR camera comes set with a static IP address from the factory. The IP address is set to 192.168.1.10 by default and can be changed using the menu system.

You need the IP address of the camera to be able to connect to it from DashBoard.

18. Select **SET DATA** and press the **R** button to set the new network values.

To Change the IP Address

1. Press **MENU** and select **MAINTENANCE > LAN SETTING**

The current network setting for the camera are shown on the menu.

2. Select **IP CONF** and press the **R** button.
3. Select **OCTET1**, press the **R** and **L** button to select the first part of the address.
4. Repeat these steps for the remaining octets you want to set.
5. Select **SEND** and press the **R** button to store the new value to the temporary buffer.
6. Return to the **LAN SETTING** menu.
7. Select **SUBNET CONF** and press the **R** button.
8. Select **OCTET1**, press the **R** and **L** button to select the first part of the address.
9. Repeat these steps for the remaining octets you want to set.
10. Select **SEND** and press the **R** button to store the new value to the temporary buffer.
11. Return to the **LAN SETTING** menu.
12. Select **GATEWAY CONF** and press the **R** button.
13. Select **OCTET1**, press the **R** and **L** button to select the first part of the address.
14. Repeat these steps for the remaining octets you want to set.
15. Select **SEND** and press the **R** button to store the new value to the temporary buffer.
16. Return to the **LAN SETTING** menu.
17. Verify the new temporary network setting that are shown on the **CONF** line for the IP address, subnet mask, and gateway.

DashBoard

The DashBoard control system allows remote access to multiple pieces of Ross Video equipment, including openGear® cards, Carbonite production switchers, BlackStorm video servers, and ACID UltraChromeHR cameras.

Download and install the latest version of DashBoard from <http://www.opengear.tv/>. Review the documentation that comes with DashBoard for information on installing and launching DashBoard.

Tip: For detailed instructions on using DashBoard with ACID UltraChromeHR, navigate to the online help at <http://help.rossvideo.com/acid>.

Connecting to the Camera from DashBoard

You must manually connect to the camera from DashBoard using the IP address of the camera. Once connected, DashBoard will remember the connection until you remove it

To Connect to the Camera from DashBoard

You need the IP address of your camera to connect to it manually from DashBoard.

1. Click **File > New > Other...**
2. Expand the **Camera Control** folder.
3. Select **New Camera** and click **Next**.
4. In the **IP Address** field, enter the IP address of the camera.
5. Click **Finish**.
The camera appears in the **Tree View**.

Viewfinder Display

The status overlay provides information related to camera setting and operation. You can select what and where information is presented on the display from the **VF** menu.

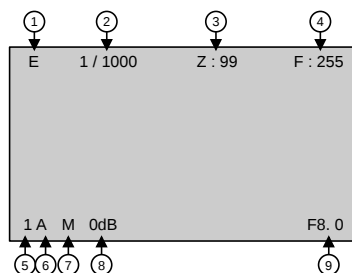


Figure 4: Viewfinder Display Overlay

#	Item	Status	Description
9	Iris F-Stop	F1.4 - F22	Current Iris F-Stop setting.
		CLS	Iris is closed.
		***	Lens cable is not connected.

#	Item	Status	Description
1	Extender	-no indication-	Extender is at X1 or lens cable is not connected.
		E	Extender is at X2.
2	Shutter	OFF	Off
		1/100 (59.94i/p, 60i/p) or 1/60 (50i/p)	PRESET
		1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10,000 1.07s to 1/59.94, 60.15 to 1/9633 (59.94i/p, 60i/p) 1.28s to 1/50, 1/50.17 to 1/11,250 (50i/p)	VARIABLE
		AES	Automatic Electronic Shutter
3	Zoom	0 - 99	Indicates the approximate zoom position of the lens between wide angle (0) and telephoto (99). Value is relative closeness to telephoto side.
4	Focus	0 - 255	Indicates the focus position of the lens as a numeric value (255 = infinity).
5	ND Filter	1 - 4	Shows the type of ND filter currently selected.
6	ECC Filter	A - E	Shows the type of ECC filter currently selected.
7	White Balance	P	Preset Mode
		M	Memory Mode
		A	Auto Mode
8	Master Gain	-6dB, -3dB, 0dB, 3dB, 6dB, 9dB, 12dB, 15dB, 18dB, 21dB, 24dB, 27dB, 30dB, 33dB, 36dB	Shows the current value of the master gain.

Menu System

The menu system is displayed on the **SDI OUT** output BNC or the viewfinder and allows you to set up and configure various aspects of the camera. The menu system is accessed by pressing the **MENU** button and using the **L**, **R**, **U**, and **D** buttons to make selections.

A menu item with a > symbol indicates that there is a sub-menu below this selection or another page of the current menu. Press **R** to go into this sub-menu, or the next page. Press **L** where you see a < symbol to go to the previous page in a menu or up a level in the menu tree.

Tip: The number of > symbols next to a menu item indicate the number of pages in that sub-menu.

Color Menus

- Color Menu
 - Master Gain
 - Preset
 - Mode
 - AGC Limit
 - ACL Setting
 - Low Set
 - Mid Set
 - High Set
 - White Gain
 - W. Bal Mode
 - R Gain
 - G Gain
 - B Gain
 - Video CTemp
 - Black/Flare
 - R Black
 - G Black
 - B Black
 - R Flare
 - G Flare
 - B Flare
 - Flare
 - M Black
 - Gamma
 - R Gamma
 - G Gamma
 - B Gamma
 - Total Gamma
 - Gamma Table
 - Gamma
 - U Gamma TBL
 - Ultra Gamma
 - HDR
 - HDR Select
 - Blk Str Lev
 - Blk Stretch
 - R Blk Gamma
 - G Blk Gamma
 - B Blk Gamma
 - M Blk Gamma
 - Gamma Range
 - Black Gamma
 - Knee/Clip
 - Total Knee
 - R Knee
 - B Knee
 - Total Slope
 - R Slope
 - B Slope
 - Knee
 - Auto Knee

- Knee Sat
- Knee Sat
- White Clip
- White Clip
- Masking
 - R Hue/Sat
 - Y-R Hue/Sat
 - Y Hue/Sat
 - G-Y Hue/Sat
 - G Hue/Sat
 - C-G Hue/Sat
 - C Hue/Sat
 - B-C Hue/Sat
 - B Hue/Sat
 - M-B Hue/Sat
 - M Hue/Sat
 - R-M Hue/Sat
- Masking
 - Linear R-G
 - Linear R-B
 - Linear G-R
 - Linear G-B
 - Linear B-R
 - Linear B-G
 - Preset Type
 - Auto Chroma
 - A. Chrom Lev
- Masking
 - S. Mask Sat/Hue
 - Skin Mask
 - Chroma Sat
 - Chroma Sat

Master Gain

Press **MENU** and select **COLOR > MASTER GAIN**

Item	Settings
PRESET	-6dB to 36dB
MODE	PRESET, AGC
AGC LIMIT	-6dB to +36dB
LOW SET	-6dB, -3dB, 0dB
MID SET	0dB to +21dB
HIGH SET	+3dB to +36dB

White Gain

Press **MENU** and select **COLOR > WHITE GAIN**

Item	Settings
W. BAL MODE	PRESET, MEMORY, AUTO
R GAIN (red gain)	-128 to 127
G GAIN (green gain)	-128 to 127
B GAIN (blue gain)	-128 to 127
VIDEO CTEMP	(shows current color temperature)

Note: When **W. BAL MODE** is set to **AUTO** the **R GAIN**, **G GAIN**, **B GAIN**, and **ECC filter** settings are not available.

Black/Flare

Press **MENU** and select **COLOR > BLACK/FLARE**

Item	Settings
R BLACK (red black level)	-128 to 127
G BLACK (green black level)	-128 to 127
B BLACK (blue black level)	-128 to 127
R FLARE (red flare level)	-128 to 127
G FLARE (green flare level)	-128 to 127
B FLARE (blue flare level)	-128 to 127
FLARE	ON, OFF
M. BLACK (master black)	-128 to 127

Gamma

Press **MENU** and select **COLOR > GAMMA**

Item	Settings
GAMMA 1	
R GAMMA (red gamma)	-128 to 127
G GAMMA (green gamma)	-128 to 127
B GAMMA (blue gamma)	-128 to 127
TOTAL GAMMA	-128 to 127
GAMMA TABLE (gamma curve value)	3.0 to 8.0
GAMMA	ON, OFF
GAMMA 2	
U. GAMMA TBL (ultra gamma curve)	1(90%), 2(85%), 3(80%), 4(75%), 5(70%), 6(65%), 7(50%)
ULTRA GAMMA	ON, OFF
HDR (high dynamic range)	ON, OFF
HDR SELECT	HLG600, HLG1200, HPQ
BLK STR LEV (black stretch level)	0 to 11
BLK STRETCH	ON, OFF
GAMMA 3	
R. BLK GAMMA (red black gamma)	-128 to 127
G. BLK GAMMA (green black gamma)	-128 to 127
B. BLK GAMMA (blue black gamma)	-128 to 127
M. BLK GAMMA	-128 to 127
GAMMA RANGE	-128 to 127

Item	Settings
Gamma Range (AC-H200-UCHR only)	-128 to 127
BLACK GAMMA	ON, OFF

Knee/Clip

Press **MENU** and select **COLOR > KNEE/CLIP**

Item	Settings
KNEE/CLIP 1	
TOTAL KNEE	-128 to 127
R KNEE	-128 to 127
B KNEE	-128 to 127
TOTAL SLOPE	-128 to 127
R SLOPE	-128 to 127
B SLOPE	-128 to 127
KNEE	ON, OFF
AUTO KNEE	ON, OFF
KNEE/CLIP 2	
KNEE SAT	-128 to 127
KNEE SAT	ON, OFF
WHITE CLIP	-128 to 127
WHITE CLIP	ON, OFF

Masking

Press **MENU** and select **COLOR > MASKING**

Item	Settings
MASKING 1	
R HUE (red hue)	-64 to 63
R SAT (red saturation)	-64 to 63
Y-R HUE (yellow-red hue)	-64 to 63
Y-R SAT (yellow-red saturation)	-64 to 63
Y HUE (yellow hue)	-64 to 63
Y SAT (yellow saturation)	-64 to 63
G-Y HUE (green-yellow hue)	-64 to 63
G-Y SAT (green-yellow saturation)	-64 to 63
G HUE (green hue)	-64 to 63
G SAT (green saturation)	-64 to 63
C-G HUE (cyan-green hue)	-64 to 63

Item	Settings
C-G SAT (cyan-green saturation)	-64 to 63
C HUE (cyan hue)	-64 to 63
C SAT (cyan saturation)	-64 to 63
B-C HUE (blue-cyan hue)	-64 to 63
B-C SAT (blue-cyan saturation)	-64 to 63
B HUE (blue hue)	-64 to 63
B SAT (blue saturation)	-64 to 63
M-B HUE (magenta-blue hue)	-64 to 63
M-B SAT (magenta-blue saturation)	-64 to 63
M HUE (magenta hue)	-64 to 63
M SAT (magenta saturation)	-64 to 63
R-M HUE (red-magenta hue)	-64 to 63
R-M SAT (red-magenta saturation)	-64 to 63
MASKING	ON, OFF
MASKING 2	
LINEAR R-G (red-green linear matrix offset)	-64 to 63
LINEAR R-B (red-blue linear matrix offset)	-64 to 63
LINEAR G-R (green-red linear matrix offset)	-64 to 63
LINEAR G-B (green-blue linear matrix offset)	-64 to 63
LINEAR B-R (blue-red linear matrix offset)	-64 to 63
LINEAR B-G (blue-green linear matrix offset)	-64 to 63
PRESET TYPE	STANDARD, ITU-709, SMPTE-240M, SMPTE-WIDE, NTSC, EBU, OFF
AUTO CHROMA	ON, OFF
A. CHROMA LEV (linear matrix saturation offset)	-64 to 63
MASKING	ON, OFF
MASKING 3	
S. MASK. SAT (skin masking color saturation)	-64 to 63
S. MASK. HUE (skin masking hue)	-64 to 63
SKIN MASK	ON, OFF
CHROMA SAT	-64 to 63

Item	Settings
CHROMA SAT	ON, OFF

Details Menus

```

Detail Menu
├── Detail
│   ├── Level
│   ├── H Gain
│   ├── V Gain
│   ├── H Crisp
│   ├── V Crisp
│   ├── Level Dep
│   ├── D. Knee Wht
│   ├── D. Knee Blk
│   ├── Detail Knee
│   ├── P/N Balance
│   ├── Knee Detail
│   ├── DTL Source
│   └── Detail
├── Skin DTL
│   ├── Ch Select
│   ├── Chx A. Phase
│   ├── S.DTL Level
│   ├── S.DTL Phase
│   ├── S.DTL Width
│   ├── Threshold
│   ├── Skin Detail
│   ├── Skin Gate
│   ├── Gate Ind.
│   ├── Zoom Depend
│   ├── Sens
│   ├── Range
│   └── High Chroma
│       ├── R
│       ├── G
│       └── B
│           └── High Chroma

```

Detail

Press **MENU** and select **DETAIL > DETAIL**

Item	Settings
DETAIL 1	
LEVEL (detail level)	-128 to 127
H GAIN (horizontal gain)	-128 to 127
V GAIN (vertical gain)	-128 to 127
H CRISP (horizontal crispness)	-128 to 127
V CRISP (vertical crispness)	-128 to 127
LEVEL DEP	-128 to 127
DTL FREQ (boost frequency of detail)	13MHz to 19MHz
DETAIL	ON, OFF
DETAIL 2	
D. KNEE WHT	-128 to 127
D. KNEE BLK	-128 to 127
DETAIL KNEE	ON, OFF
P/N BALANCE (positive/negative)	4/8, 5/8, 6/8, 8/8, 8/6, 8/5, 8/4

Item	Settings
KNEE DETAIL	-128 to 127
DTL SOURCE	G, R+G, R+G+B
DETAIL	ON, OFF

Skin Detail

Press **MENU** and select **DETAIL > SKIN DTL**

Item	Settings
SKIN DTL 1	
CH SELECT (channel select for skin tone detail)	1ch, 2ch, 1ch+2ch
CH1. A. PHASE/CH2. A. PHASE	(see note*)
S. DTL LEVEL (skin tone detail level)	-128 to 127
S. DTL PHASE (skin tone detail phase)	-128 to 127 (R-Mg, Mg-B, B-Cy, Cy-G, G-Ye, Ye-R)
S. DTL WIDTH (skin tone detail phase range)	-128 to 127
SKIN DTL 2	
THRESHOLD	-128 to 127
SKIN DETAIL	ON, OFF
SKIN GATE (skin tone detail gate)	ON, OFF
GATE IND.	1ch, 2ch
ZOOM DEPEND	ON, OFF
SENS	0 to 99
RANGE	0 to 99

Note: * When you select **CHX A. PHASE** a marker is shown on the monitor. Move the camera to place the marker over the skin tone you want to detect and press **R** for 1 second. This functionality can also be accessed from the **AUTO SETUP** menu.

High Chroma

Press **MENU** and select **DETAIL > HIGH CHROMA**

Item	Settings
R (detail in high-chrominance red)	-128 to 127
G (detail in high-chrominance green)	-128 to 127
B (detail in high-chrominance blue)	-128 to 127
HIGH CHROMA	ON, OFF

Maintenance Menus

Maintenance Menus	
Auto Setup	
Chx.A.Phase	
Gray Scale	
Black Lev	
Flare Lev	
Gamma Lev	
White Shading	
Lens File	
Extender	
Wht Shading	
Horizontal Shading	
Lens File	
Extender	
R H Saw	
G H Saw	
B H Saw	
R H Para	
G H Para	
B H Para	
Vertical Shading	
Lens File	
Extender	
R V Saw	
G V Saw	
B V Saw	
R V Para	
G V Para	
B V Para	
Auto Iris	
Auto Iris	
Iris Cont	
Lens File	
Iris Speed	
Open Limit	
Close Limit	
ALC Setting	
Shutter	
Auto Iris	
M. Gain Mode	
ALC Trim	
Iris Speed	
Peak/Ave	
ALC Gate	
Shutter	
Shutter	
Shutter Pre	
Shutter Var	
System	
Camera ID	
Fan Mode	
GL H Phase	
Para Mode	
LAN Setting	
IP Setting	
Subnet Setting	
Gateway Setting	
Time/Date	
(mode)	
Date Disp	
Time Disp	
Year	
Month	
Day	
Hour	
Minute	
Set Data	
Format	
SDI Out	
UC Out	
UC Mode	
Scan Rate	
Set Data	
Remote	
Baud Rate	

L	Iris Return
Check	
	Test
	Gamma
	Detail
	Masking
	Knee
	Character
	Model
	CPU Ver.
	Check Sum
	Video Ver.
RLAC	
	RLAC
	Status

Auto Setup

Press **MENU** and select **MAINTENANCE > AUTO SETUP**

Item	Settings
CH1. A. PHASE/CH2. A. PHASE	(see note*)
GRAY SCALE	(auto gray scale setup)
BLACK LEV	0.0% to 12.35% (0.5% steps)
FLARE LEV	0.0% to 24.70% (0.1% steps)
GAMMA LEV	42.20% to 67.70% (0.1% steps)

Note: * When you select **CHX A. PHASE** a marker is shown on the monitor. Move the camera to place the marker over the skin tone you want to detect and press **R** for 1 second. This functionality can also be accessed from the **SKIN DTL** menu.

White Shading

Press **MENU** and select **MAINTENANCE > WHT SHADING**

Item	Settings
LENS FILE	LENS 1 to LENS 8
EXTENDER	OFF, **, x2, x0.8
WHT SHADING	(auto white shading)

Horizontal Shading

Press **MENU** and select **MAINTENANCE > WHT SHADING > H SHADING**

Item	Settings
LENS FILE	LENS 1 to LENS 8
EXTENDER	OFF, **, x2, x0.8
R H SAW (red horizontal)	-128 to 127
G H SAW (green horizontal)	-128 to 127
B H SAW (blue horizontal)	-128 to 127

Item	Settings
R H PARA (red horizontal)	-128 to 127
G H PARA (green horizontal)	-128 to 127
B H PARA (blue horizontal)	-128 to 127

Vertical Shading

Press **MENU** and select **MAINTENANCE > WHT SHADING > V SHADING**

Item	Settings
LENS FILE	LENS 1 to LENS 8
EXTENDER	OFF, **, x2, x0.8
R V SAW (red vertical)	-128 to 127
G V SAW (green vertical)	-128 to 127
B V SAW (blue vertical)	-128 to 127
R V PARA (red vertical)	-128 to 127
G V PARA (green vertical)	-128 to 127
B V PARA (blue vertical)	-128 to 127

Auto Iris

Press **MENU** and select **MAINTENANCE > AUTO IRIS**

Item	Settings
AUTO IRIS	REMOTE, AUTO
IRIS CONT	-128 to 127 (not available when using RU unit)
LENS FILE	LENS 1 to LENS 8
IRIS SPEED	-128 to 127
OPEN LIMIT	0 to 127
CLOSE LIMIT	-128 to -1

ALC Setting

Press **MENU** and select **MAINTENANCE > AUTO IRIS > ALC SETTING**

Item	Settings
SHUTTER	OFF, ON
AUTO IRIS	REMOTE, AUTO
M. GAIN MODE	PRESET, AUTO
ALC TRIM	-128 to 127 (not available when using RU unit)
IRIS SPEED	-128 to 127
PEAK/AVE (peak and average)	0/10, 1/9, 2/8, 3/7, 4/6, 5/5

Item	Settings
ALC GATE (auto iris gate shape/size)	1 to 6

Shutter

Press **MENU** and select **MAINTENANCE > SHUTTER**

Item	Settings
SHUTTER	OFF, PRESET, VARIABLE, AES
SHUTTER PRE	1/60 (50i,50p), 1/100 (59.94i,59.94p,60i, 60p), 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000
SHUTTER VAR	59.94i, 59.94p, 60i, 60p — 1.07s(36dB), 0.53s(30dB), 0.27s(24dB), 0.13s(18dB), 0.07s(12dB), 0.03s(6dB), 1/60.15 to 1/9633 50i, 50p — 1.28s(36dB), 0.64s(30dB), 0.32s(24dB), 0.16s(18dB), 0.08s(12dB), 0.04s(6dB), 1/50.17 to 1/11250

System

Press **MENU** and select **MAINTENANCE > SYSTEM**

Item	Settings
CAMERA ID	1 - 99
FAN MODE	OFF, AUTO, LOW, HIGH
GL H PHASE (gen-lock horizontal phase)	-512 to 511
PARA MODE	OFF, ON

Time/Date

Press **MENU** and select **MAINTENANCE > SYSTEM > TIME/DATE**

Item	Settings
(mode)	DD-MM-YYYY, MM-DD,YYYY, YYYY-MM-DD
DATE DISP	OFF, ON
TIME DISP	OFF, ON
YEAR	2000 to 2099
MONTH	1 to 12
DAY	1 to 31
HOURL	0 to 23
MINUTE	0 to 59

Item	Settings
SET DATA	(press R button to set date and time)

Format

Press **MENU** and select **MAINTENANCE > SYSTEM > FORMAT**

Item	Settings
SDI OUT	1080i, 1080p, 720p
UC OUT	1080i, 1080p, 720p
UC MODE	4:2:2, 0:4:4*
SCAN RATE	59.94Hz, 50Hz, 60Hz
SET DATA	(press R button to set output formats)

Note: * When UC MODE is set to 0:4:4, the SDI OUT is locked to the same format as the UC OUT.

Remote

Press **MENU** and select **MAINTENANCE > SYSTEM > REMOTE**

Note: These setting apply to the REMOTE1 port only.

Item	Settings
BAUD RATE	9600bps, 19200bps
IRIS RETURN	OFF, ON

Check

Press **MENU** and select **MAINTENANCE > CHECK**

Item	Settings
CHECK 1	
TEST (test signal)	OFF, ON
GAMMA	OFF, ON
DETAIL	OFF, ON
MASKING	OFF, ON
KNEE	OFF, ON
CHARACTER*	OFF, ON
CHECK 2	
MODEL	(camera model)
CPU Ver.	(CPU firmware version)
Check SUM	(CPU firmware checksum)
VIDEO Ver.	(video FPGA firmware version)

Note: * If you turn Character off, the onscreen menu is turned off. You must press and hold the **MENU** button to turn the menus back on (this turns Character back to on).

RLAC (Real-time Lens Aberration Correction)

Press **MENU** and select **MAINTENANCE > RLAC**

Item	Settings
RLAC	OFF, ON
STATUS	DISABLE, ENABLE, READING

File Menus

```

File Menus
├── Scene File
│   ├── Scene File
│   ├── Store File
│   ├── Store
│   ├── Lens File
│   ├── Black Lev
│   ├── Flare Lev
│   └── Gamma Lev
├── Lens File
│   └── Lens File
├── Auto Iris
│   ├── Lens File
│   ├── Iris Speed
│   ├── Open Limit
│   └── Close Limit
└── Register
    ├── R H Regi
    ├── G H Regi
    ├── R V Regi
    └── G V Regi
  
```

Scene File

Press **MENU** and select **FILE > SCENE FILE**

Item	Settings
SCENE FILE (load scene file)	0 to 8, PRESET
STORE FILE (select location to store to)	0 to 8
STORE	(press R to store scene)
LENS FILE	LENS 1 to LENS 8
BLACK LEV	0.0% to 12.35% (0.5% steps)
FLARE LEV	0.0% to 24.70% (0.1% steps)
GAMMA LEV	42.20% to 67.70% (0.1% steps)

Lens File

Press **MENU** and select **FILE > LENS FILE**

Item	Settings
LENS FILE	LENS 1 to LENS 8

Auto Iris

Press **MENU** and select **FILE > LENS FILE > AUTO IRIS**

Item	Settings
LENS FILE	LENS 1 to LENS 8
IRIS SPEED	-128 to 127
OPEN LIMIT	0 to 127
CLOSE LIMIT	-128 to -1

Register

Press **MENU** and select **FILE > LENS FILE > REGI**

Item	Settings
R H REGI (red horizontal phase)	-24 to 24
G H REGI (green horizontal phase)	-24 to 24
R V REGI (red vertical phase)	-24 to 24
G V REGI (green vertical phase)	-24 to 24

Viewfinder Menus

Note: The Viewfinder menus can only be viewed on the VF OUT rear connector as analog HD video or as HD-SDI on the SDI OUT BNC by selecting Character ON from the Maintenance menu.

```

Viewfinder Menus
├── Viewfinder
│   └── VF Out Sel
├── Viewfinder Detail
│   ├── VF Detail
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Viewfinder

Press **MENU** and select **VF**

Item	Settings
VF OUT SEL	COLOR, Y, R, G, B

Viewfinder Detail

Press **MENU** and select **VF > VF DETAIL**

Item	Settings
VF DETAIL	OFF, ON
DTL LEVEL	-128 to 127
CRISP	-128 to 127

Viewfinder Marker

Press **MENU** and select **VF > VF MARKER**

Item	Settings
USER SEL	USER1, USER2, USER3, USER4
MARKER1 SW	OFF, ON
MARKER2 SW	OFF, ON

Marker 1/2 Selection

Press **MENU** and select **VF > VF MARKER > MARKER1 SEL**

The **Marker 2 Selection** menu is identical to the **Marker 1 Selection**.

Item	Settings
CENTER MARK	OFF, ON
SAFETY MARK	OFF, ON
SIDE 4:3	OFF, ON

Item	Settings
SIDE 13:9	OFF, ON
SIDE 14:9	OFF, ON
SIDE 15:9	OFF, ON
CROSS	OFF, ON
BOX1	OFF, ON
BOX2	OFF, ON

Cross Setting

Press **MENU** and select **VF > VF MARKER > CROSS SET**

Item	Settings
H POSITION (horizontal position of cross-hair)	0 to 255
V POSITION (vertical position of cross-hair)	0 to 255

Box 1/2 Setting

Press **MENU** and select **VF > VF MARKER > BOX1 SET**

The **Box 1 Setting** menu is identical to the **Box 2 Setting**.

Item	Settings
H POSITION (horizontal position of the box)	0 to 255
V POSITION (vertical position of the box)	0 to 255
H SIZE (horizontal size of the box)	0 to 255
V SIZE (vertical size of the box)	0 to 255

Other Settings

Press **MENU** and select **VF > VF MARKER > OTHER SET**

Item	Settings
CENTER MARK (type of center mark)	TYPE1, TYPE2, TYPE3, TYPE4
SAFETY MARK (type of safe action area)	TYPE1, TYPE2, TYPE3
SAFETY AREA (size of safe action area)	80.0%, 90.0%, 92.5%, 95.0%
MARKER LEV	0 to 100

Side Panel

Press **MENU** and select **VF > SIDE PANEL**

Item	Settings
SIDE PANEL (aspect ratio of image on monitor out - only available when monitor is set to 16:9)	OFF, 4:3, 13:9, 14:9, 15:9
CONTRAST (contrast of pillarboxes on either side of the image)	1 to 5
BRIGHT (brightness of pillarboxes on either side of the image)	1 to 5

Viewfinder Display

Press **MENU** and select **VF > VF DISPLAY**

This menu turns individual status items on or off for the viewfinder.

Item	Settings
EXTENDER	OFF, ON
SHUTTER	OFF, ON
ZOOM	OFF, ON
FOCUS	OFF, ON
FILTER	OFF, ON
WHITE BAL	OFF, ON
M. GAIN	OFF, ON
IRIS	OFF, ON

Viewfinder Zebra Marker

Press **MENU** and select **VF > VF ZEBRA**

Item	Settings
ZEBRA TYPE1	OFF, ON
LEVEL	75% to 105%
ZEBRA TYPE2	OFF, ON
HIGH LEVEL	55% to 100%
LOW LEVEL	50% to 99%

Focus Indicator

Press **MENU** and select **VF > FOCUS IND**

Item	Settings
INDICATOR (focus level bar)	OFF, ON
MARKER (focus area marker)	OFF, ON
PEAK HOLD (peak position of focus level - displayed for 4 seconds)	OFF, ON

Serial Communications

The camera can be controlled over a serial connection to the **REMOTE1** port either by a remote control unit or a device using standard RS-232.

The **RS-232C/RU** switch at the back of the camera must be set to **RU** for communications with a remote control unit, or **RS-232C** for communications with a device using the RS-232C transmission standard.

Troubleshooting

To Set the Video Format

If the video output format of the camera does not match a format supported by your monitor, you can switch the video output format using the menu buttons on the back of the camera.

1. Disconnect power from the camera.
2. Press and hold the menu buttons for the required video format and re-connect power to the camera.
 - 1080p 59.94Hz — press **FILTER + LEFT**
 - 1080i 59.94Hz — press **FILTER + DOWN**
 - 720p 59.94Hz — press **FILTER + RIGHT**
 - 1080p 50Hz — press **MENU + LEFT**
 - 1080i 50Hz — press **MENU + DOWN**
 - 720p 50Hz — press **MENU + RIGHT**

Specifications

Item	Specification
Image Sensor	2/3-inch MOS
Total Pixels	2.6 Million (2,270×1,144)
Effective Pixels	1,920×1,080
Aspect Ratio	16:9 (HD/SD), 4:3 (SD) switchable
TV Signal Format	1080p 59.94Hz, 1080p 50Hz, 1080i 50Hz, 720p 59.94Hz
HD Resolution	1100TVL
Standard Sensitivity	F12 at 2000lx, 3200K, 89.9% reflectance (1080p 59.94Hz, 1080p 60Hz, 1080i 59.94Hz, 1080i 60Hz)
	F13 at 2000lx, 3200K, 89.9% reflectance (1080p 50Hz, 1080i 50Hz)
Minimum Illumination	0.002lx at F1.4, 36dB Video Gain +36dB frame accumulation mode
HD SNR	60dB (HD-SDI Output Decode Y Channel)
Optical Filter	Clear, 1/4ND, 1/16ND, 1/64ND (single motorized filter wheel)
ECC Filter	3200K, 4300K, 5600K, 6300K, 8000K
Shutter (Preset Mode)	1/100, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000 second (59.94p, 59.94i, 60p, 60i)
	1/60, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000 second (50p, 50i)
Shutter (Variable Scan Mode)	1/60.15 to 1/9633, 0.03 to 1.07 second (59.94p, 59.94i, 60p, 60i)
	1/50.17 to 1/11,250, 0.04 to 1.28 second (50p, 50i)
Shutter (AES Mode)	Automatic video level control by shutter speed. AES controls amount of light in equivalent to 4 lens F-stops.
Gain Select	L (low) -6dB, -3dB, 0dB
	M (medium) 0 to +21dB, 3dB steps.
	H (high) +3 to +36dB, 3dB steps.
Dimensions (W×H×L)	99×105×155mm (excluding protrusions)
Operating Temperature	-10 to 45°C
Storage Temperature	-20 to 60°C
Power Consumption	~18W (12VDC)
Weight	~1.3kg (2.9lbs)
Inputs/Outputs	UC OUT — HD-SDI BNC
	SDI OUT — HD-SDI BNC (Character On/Off)

Item	Specification
	GL IN — BNC (Tri-Level or Black Burst)
	REMOTE1 — 4-Pin Multi (remote control panel)
	REMOTE2 — RJ-45 (remote control)
	VF OUT — DB15 (viewfinder)
	LENS — 12-pin Multi (lens control)
Default IP Address	192.168.1.10

Ports

LENS

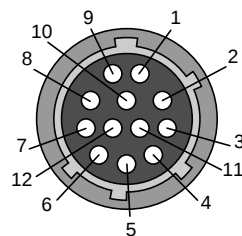


Table 3: LENS Port Pinouts

Pin	Signal
1	AUX SW
2	CALL TRG
3	GND
4	ENF AUTO
5	IRIS CONTROL
6	+12V
7	IRIS POSITION
8	IRIS A/R
9	EXTENDED
10	ZOOM POS
11	F POS / L TX
12	L RX

REMOTE1

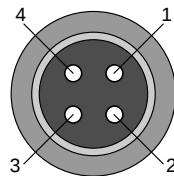


Table 4: REMOTE1 Port Pinouts

Pin	Signal
1	+12V output
2	SD input
3	SD output
4	SD GND

VF OUT

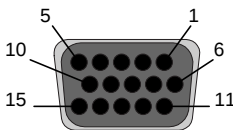


Table 5: VF OUT Port Pinouts

Pin	Signal
1	Pr OUT
2	Y OUT
3	Pb OUT
4	SYNC OUT
5	VF DET
6	GND
7	Y SHIELD
8	PEAKING CONT
9	+12V OUT
10	+12V OUT
11	CPU DATA IN
12	STRB1/R TALLY
13	STRB2/G TALLY
14	CPU DATA OUT
15	CPU CLK/PEAKING SEL

DC IN

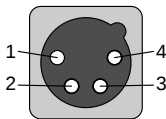


Table 6: DC IN Port Pinouts

Pin	Signal
1	GND
2	NC
3	NC
4	+12V In

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